



McKee & Associates
ARCHITECTS, INC.

Project Manual

VOLUME 1 OF 2



Additions to Robertsdale High School

for the
Baldwin County Board of Education
Bay Minette, Alabama

Project No: 23.195
October 11 2023

Alabama Division of Construction Management No. 2023533

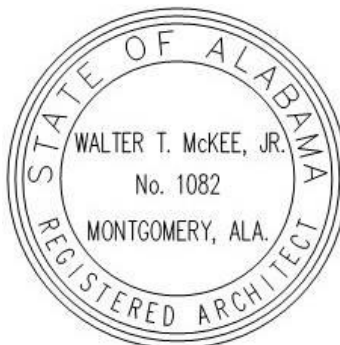


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ADVERTISEMENT FOR BIDS

ADDITIONS TO ROBERTSDALE HIGH SCHOOL FOR THE BALDWIN COUNTY BOARD OF EDUCATION BAY MINETTE, ALABAMA

MCKEE PROJECT NO. 23-195

Sealed proposals for this project shall be received by Mr. Tom Waters, Business Operations/Purchasing Manager, 2600-A North Hand Ave., Bay Minette, Alabama, 36507, until 2:00 PM Central Time, TBA, 2023, then opened and read aloud.

All General Contractors bidding on this project shall be required to visit the site and examine all existing conditions prior to submitting their proposal. All Bidders shall have general liability and workman's compensation insurance.

The project shall be bid excluding taxes. Bids must be submitted on proposal forms furnished by the Architect or copies thereof. No bid may be withdrawn after scheduled closing for receipt of bids for a period of ninety (90) days. The Owner reserves the right to reject any or all proposals and to waive technical errors if, in the Owners judgment, the best interests of the Owner will thereby be promoted.

A certified check or Bid Bond payable to **Baldwin County Board of Education** in an amount not less than five percent (5%) of the amount of the bid, but in no event more than \$10,000.00 must accompany the bidder's sealed proposal. Performance and statutory labor and material payment bonds will be required at the signing of the Contract.

All bidders bidding in amounts exceeding that established by the State Licensing Board for General Contractors must be licensed under the provisions of Title 34, Chapter 8, Code of Alabama, 1975, and must show evidence of license before bidding or bid will not be received or considered by the Architect. All bidders shall show such evidence by clearly displaying their current license number on the outside of their sealed envelope in which the proposal is delivered.

PDFs of the project can be reviewed by going to the McKee website @ www.mckeeassoc.com and selecting "Project Bid List". Also, if you are not receiving NOTIFICATIONS from us, please register on our website, "Project Bid List" by selecting manage your bid list profile. The documents may be viewed on-line and printed by General Contractors, Sub-Contractors and Suppliers. Documents published through this procedure are the only documents endorsed by the Architect. The Architect is unable to monitor, confirm and maintain other websites that provide documents. Addendums will be provided to entities that have **CONFIRMED** bidding for this particular project. The Architect retains ownership and copyrights of the documents. If bidders require printed sets, please submit request to the Architect at mckeeplans@gmail.com. Include your first & last name, company name, address, phone number and the McKee project name and number. *Print sets are to be returned in re-usable condition within ten days after bid opening.*

All RFIs and RFAs regarding the bid documents shall be sent and addressed through emails found on the RFI and RFA forms in the project manual. **NOTE: ONLY THE RFI AND RFA FORMS IN THE PROJECT MANUAL WILL BE ACCEPTED.** The Architect will not accept inquiries via telephone or fax.

Completion Time: See scope of work in Project Manual.

Supervision: Contractor to ensure proper supervision of all work.

Owner: Mr. Carl E. Tyler, Superintendent, Baldwin County Board of Education; 2600-A North Hand Avenue, Bay Minette, Alabama 36507, Phone: (251) 937-0306

Architect: McKee and Associates Architects, Inc., 631 South Hull Street, Montgomery, Alabama 36104, Phone: 334.834.9933

REQUEST FOR INFORMATION

(RFI)

Email this form in its entirety to Project Manager listed below.

The Architect reserves the right not to answer any Request For Information received after **2:00 p.m., Two (2) days prior to the bid date.**

To: McKee & Associates, Architects
Victor Hunt, Project Manager
huntv@mckeeassoc.com
Email

From: _____
Name

Company

Email

Project: _____

Project Number: _____

Request For Information Number: _____

Issue Date: _____

☐ BID PHASE

☐ CONSTRUCTION PHASE

Procedures for “Explanations and Interpretations”:

- a. Should any bidder observe any ambiguity, discrepancy, omission, or error in the drawings and specifications, or in any other bid document, or be in doubt as to the intention and meaning of these documents, the bidder should immediately report such to the Architect and request clarification.
- b. **Clarification will be made only by written Addenda sent to all prospective bidders or can be accessed by going to the McKee web site - mckeeassoc.com and clicking on the tab “Files” to retrieve the Addendums.** Neither the Architect nor the Owner will be responsible in any manner for verbal answers or instructions regarding intent or meaning of the Bid Documents.
- c. **In the case of inconsistency between drawings and specifications or within either document, a bidder will be deemed to have included in its bid the better quality or greater quantity of the work involved unless the bidder asked for and obtained the Architect’s written clarification of the requirements before submission of a bid.**

REQUEST FOR INFORMATION DESCRIPTION: *(Fully describe the question or type of information requested.)*

REFERENCES/ATTACHEMENTS: *(List specific documents researched when seeking the information requested.)*

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Drawing Sheet Number: _____ Title: _____
Plan: _____ Elevation: _____ Section: _____ Detail: _____

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REQUEST FOR INFORMATION (RFI)
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Other:

RECEIVERS REPLY:

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REQUEST FOR INFORMATION (RFI)
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Signed by: _____ Date: _____ Copies to: _____

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REQUEST FOR INFORMATION (RFI)
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MCKEE PROJECT NO. 23.195

REQUEST FOR APPROVAL (RFA)

PRIOR APPROVAL/SUBSTITUTION REQUEST

Email this form in its entirety to Project Manager listed below.

All products, materials, systems, equipment and services requested for prior approval must be submitted to the architect for approval **no later than 2:00 p.m., Ten (10) days prior to the bid date.**

To: McKee & Associates, Architects Substitution Request Number: _____
Victor Hunt From: _____
huntv@mckeeassoc.com Date: _____
Email

Project: _____ A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Procedures for "Substitutions" and "Pre-Bid Approval":

- a. The identification of any product, material, system, item of equipment, or service in the Bid Documents by reference to a trade name, manufacturer's name, model number, etc. (hereinafter referred to as "source"), is intended to establish a required standard of performance, design, and quality and is not intended to limit competition unless the provisions of paragraph "D" below apply.
- b. When the Bid Documents identify only one or two sources, or three or more sources followed by "or approved equal" or similar wording, the bidder's proposal may be based on a source not identified but considered by the bidder to be equal to the standard of performance, design and quality as specified; however, such substitutions must ultimately be approved by the Architect. If the bidder elects to bid on a substitution without "Pre-bid Approval" as described below, then it will be understood that proof of compliance with specified requirements is the exclusive responsibility of the bidder.
- c. When the Bid Documents identify three or more sources and the list of sources is not followed by "or approved equal" or similar wording, the bidder's proposal shall be based upon one of the identified sources, unless the bidder obtains "Pre-bid Approval" of another source as described below. Under these conditions it will be expressly understood that no product, material, system, item of equipment, or service that is not identified in the Bid Documents or granted "Pre-Bid Approval" will be incorporated into the Work unless such substitution is authorized and agreed upon through a Contract Change Order.
- d. If the Bid Documents identify only one source and expressly provide that it is an approved sole source for the product, material, system, item of equipment, or service, the bidder's proposal must be based upon the identified sole source.
- e. **Procedures for "Pre-Bid Approval".** If it is desired that a product, material, system, piece of equipment, or service from a source different from those sources identified in the Bid Documents be approved as an acceptable source, application for the approval of such source must reach the hands of the Architect **at least ten days prior to the date set for the opening of bids.** At the Architect's discretion, this ten day provision may be waived. **The application for approval of a proposed source must be accompanied by technical data which the applicant desires to submit in support of the application.** The Architect will give consideration to reports from reputable independent testing laboratories, verified experience records showing the reputation of the proposed source with previous users, evidence of reputation of the source for prompt delivery, evidence of reputation of the source for efficiency in servicing its products, or any other pertinent written information. **The application to the Architect for approval of a proposed source must be accompanied by a schedule setting forth in which respects the materials or equipment submitted**

PRIOR APPROVAL / SUBSTITUTION REQUEST FORM
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for consideration differ from the materials or equipment designated in the Bid Documents.

The burden of proof of the merit of the proposed substitution is upon the proposer. To be approved, a proposed source must also meet or exceed all express requirements of the Bid Documents. Approval, if granted, shall not be effective until published by the Architect in an addendum to the Bid Documents.

The undersigned requests consideration of the following product substitution:

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Supporting Data Attached: ☐ Product Description ☐ Drawings ☐ Photographs ☐ Performance & Test Data ☐ Specifications

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned states and certifies the following: (Mark Boxes as Applicable)

☐ Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.

or

☐ Proposed substitution differs from what is specified in the Bid Documents. Submitted Data clearly identifies all differences from what is specified in the Bid Documents.

☐ No changes will be required to the Contract Documents for the proper installation of the proposed product substitution.

or

☐ Changes will be required to the Contract Documents for the proper installation of the proposed product substitution. Submitted Data clearly identifies description of changes.

and

☐ Warranty will be furnished for proposed substitution ☐ Equal to or ☐ Superior to specified product.

☐ Proposed substitution does not affect dimensions shown on the drawings and functional clearances.

☐ No changes will be required to the building design, engineering design or detailing by the proposed substitution.

☐ Proposed substitution will have no adverse effect on other trades and will not affect or delay construction progress schedule.

☐ No maintenance is required by the proposed substitution other than that required for originally specified product.

☐ Other Information:

The undersigned further states that they have read the corresponding specification sections in the project manual and confirms that the function, appearance and quality of the proposed substitution are equivalent to or superior to the originally specified product.

Submitted by: (Print)

Signature:

Date:

Firm:

Address:

Email:

Telephone:

A/E REVIEW AND ACTION

☐ Substitution Approved

☐ Substitution Approved as noted

☐ Substitution Rejected

☐ Substitution Request Received to Late

Comments:

PRIOR APPROVAL / SUBSTITUTION REQUEST FORM
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Signed by:

Date:

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PRIOR APPROVAL / SUBSTITUTION REQUEST FORM
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PROPOSAL FORM

To: _____ Date: _____
(Awarding Authority)

In compliance with the Advertisement for Bids and subject to all the conditions thereof, the undersigned

(Legal Name of Bidder)

hereby proposes to furnish all labor and materials and perform all work required for the construction of
WORK _____

in accordance with Drawings and Specifications, dated _____, prepared by
_____, Architect/Engineer.

The Bidder, which is organized and existing under the laws of the State of _____,
having its principal offices in the City of _____,
is: ☐ a Corporation ☐ a Partnership ☐ an Individual (other) _____.

LISTING OF PARTNERS OR OFFICERS: If Bidder is a Partnership, list all partners and their
addresses; if Bidder is a Corporation, list the names, titles, and business addresses of its officers:

BIDDER'S REPRESENTATION: The Bidder declares that it has examined the site of the Work,
having become fully informed regarding all pertinent conditions, and that it has examined the Drawings
and Specifications (including all Addenda received) for the Work and the other Bid and Contract
Documents relative thereto, and that it has satisfied itself relative to the Work to be performed.

ADDENDA: The Bidder acknowledges receipt of Addenda Nos. _____ through _____ inclusively.

BASE BID: For construction complete as shown and specified, the sum of _____
_____ Dollars (\$ _____)
(Including Any Unit Prices Attached)

ALTERNATES: If alternates as set forth in the Bid Documents are accepted, the following adjustments
are to be made to the Base Bid:

For Alternate No. 1 (.....) (add) (deduct) \$ _____
(Insert key word for Alternate)

For Alternate No. 2 (.....) (add) (deduct) \$ _____

For Alternate No. 3 (.....) (add) (deduct) \$ _____

For Alternate No. 4 (.....) (add) (deduct) \$ _____

For Alternate No. 5 (.....) (add) (deduct) \$ _____

For Alternate No. 6 (.....) (add) (deduct) \$ _____

UNIT PRICES - (Attach to this Proposal Form the unit prices, if any, on a separate sheet.)

BID SECURITY: The undersigned agrees to enter into a Construction Contract and furnish the prescribed Performance and Payment Bonds and evidence of insurance within fifteen calendar days, or such other period stated in the Bid Documents, after the contract forms have been presented for signature, provided such presentation is made within 30 calendar days after the opening of bids, or such other period stated in the Bid Documents. As security for this condition, the undersigned further agrees that the funds represented by the Bid Bond (or cashier's check) attached hereto may be called and paid into the account of the Awarding Authority as liquidated damages for failure to so comply.

Attached hereto is a: *(Mark the appropriate box and provide the applicable information.)*

☐ Bid Bond, executed by _____ as Surety,
☐ a cashier's check on the _____ Bank of _____,
for the sum of _____
Dollars (\$ _____) made payable to the Awarding Authority.

BIDDER'S ALABAMA LICENSE:

State License for General Contracting: _____
License Number Bid Limit Type(s) of Work

CERTIFICATIONS: The undersigned certifies that he or she is authorized to execute contracts on behalf of the Bidder as legally named, that this proposal is submitted in good faith without fraud or collusion with any other bidder, that the information indicated in this document is true and complete, and that the bid is made in full accord with State law. Notice of acceptance may be sent to the undersigned at the address set forth below.

The Bidder also declares that a list of all proposed major subcontractors and suppliers will be submitted at a time subsequent to the receipt of bids as established by the Architect in the Bid Documents but in no event shall this time exceed twenty-four (24) hours after receipt of bids.

Legal Name of Bidder _____

Mailing Address _____

*** By (Legal Signature)** _____

*** Name & Title (print)** _____ (Seal)

Telephone Number _____

Email Address _____

* If other than the individual proprietor, or an above named member of the Partnership, or the above named president, vice-president, or secretary of the Corporation, attach written authority to bind the Bidder. Any modification to a bid shall be over the initials of the person signing the bid, or of an authorized representative.

Note: A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with DCM Form C-3: Proposal Form. Submission of DCM Form C-3A is required, it is not optional. A proposal shall be rendered non-responsive if an Accounting of Sales Tax is not provided.

CONTRACTOR COMPLETION TIME FORM

This Form MUST be submitted with the sealed Proposal.

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Legal Name of Bidder

Mailing Address

Per Section 01010, Scope of Work, the General Contractor MUST state his/her completion time on their Bid Proposal Form. The Contractor's Completion Time will be taken into consideration for award of the construction contract.

The General Contractor MUST use this Completion Time Form to state his/her completion time. This Form MUST be submitted with the sealed Proposal.

COMPLETION TIME:

All work shall be completed in **Calendar days** from Notice to Proceed issued by the Architect.

Legal Signature of Bidder

UNIT PRICE ITEM LEGEND

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Legal Name of Bidder _____

Mailing Address _____

The General Contractor shall include the Unit Prices below in their Base Bid Proposal. The quantities assigned below are above and beyond the amounts required to complete the work required by the bid documents. This Unit Price Item Legend shall be submitted with the sealed Proposal.

SCHEDULE OF UNIT PRICES:

UNIT PRICES: The Unit Prices below establishes Unit Prices so that the Owner can delete/add quantities from the Contract(s) required.

UNIT PRICE #1: The Contractor shall include in his Base Bid proposal the cost for an **Additional** 100 Cubic Yards Measured In Place (CYMIP) of removal and off-site disposal of unsuitable soil and furnishing, placing and compacting of acceptable fill material from below the finished subgrade and tested to meet requirements specified for the affected area, in accordance with the Geotechnical Report and Section 02200 "Earthwork."

100 CYMIP @ _____/CYMIP = \$_____ Included in Base Bid

UNIT PRICE #2: The Contractor shall include in his Base Bid proposal **50** Cubic Yards Measured In Place (CYMIP) for excavation of unsuitable soils, disposal off site of excavated material and furnishing and installation of lean concrete mud footing "mud sill" in accordance with [the Geotechnical Report and] Section 02200 "Earthwork."

50 CYMIP @ _____ per CYMIP = \$_____ Included in Base Bid

Note: This unit price is not applicable to cost of mud footings that are required due to over-excavation, or due to not pouring footings the same date they are excavated, or other reasons indicated in Section 02200 - "Earthwork," or Section 03310 - "Concrete."

ACCOUNTING OF SALES TAX

Attachment to DCM Form C-3: Proposal Form

To: _____ Date: _____
(Awarding Authority)

NAME OF PROJECT _____

SALES TAX ACCOUNTING

Pursuant to Act 2013-205, Section 1(g) the Contractor accounts for the sales tax NOT included in the bid proposal form as follows:

ESTIMATED SALES TAX AMOUNT

BASE BID: \$ _____

Alternate No. 1 (.....) (add) (deduct) \$ _____
(Insert key word for Alternate)

Alternate No. 2 (.....) (add) (deduct) \$ _____

Alternate No. 3 (.....) (add) (deduct) \$ _____

Alternate No. 4 (.....) (add) (deduct) \$ _____

Alternate No. 5 (.....) (add) (deduct) \$ _____

Alternate No. 6 (.....) (add) (deduct) \$ _____

Failure to provide an accounting of sales tax shall render the bid non-responsive. Other than determining responsiveness, sales tax accounting shall not affect the bid pricing nor be considered in the determination of the lowest responsible and responsive bidder.

Legal Name of Bidder _____

Mailing Address _____

*By (Legal Signature) _____

*Name (type or print) _____ (Seal)

*Title _____

Telephone Number _____

Email Address _____

Note: A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with DCM Form C-3: Proposal Form. Submission of DCM Form C-3A with DCM Form C-3 is required, it is not optional. A proposal shall be rendered non-responsive if an Accounting of Sales Tax is not provided.

BID BOND

The **PRINCIPAL** (*Bidder's company name and address*)

Name:

Address:

The **SURETY** (*Company name and primary place of business*)

Name:

Address:

The **OWNER** (*Entity name and address*)

Name:

Address:

The **PROJECT** for which the Principal's Bid is submitted: (*Project name as it appears in the Bid Documents*)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned Principal and Surety, jointly and severally, hereby bind ourselves, our heirs, executors, administrators, successors, and assigns to the Owner in the **PENAL SUM of five percent (5%) of the amount of the Principal's bid, but in no event more than Ten-thousand Dollars (\$10,000.00).**

THE CONDITION OF THIS OBLIGATION is that the Principal has submitted to the Owner the attached bid, which is incorporated herein by reference, for the Project identified above.

NOW, THEREFORE, if, within the terms of the Bid Documents, the Owner accepts the Principal's bid and the Principal thereafter either:

- (a) executes and delivers a Construction Contract with the required Performance and Payment Bonds (each in the form contained in the Bid Documents and properly completed in accordance with the bid) and delivers evidence of insurance as prescribed in the Bid Documents, or
 - (b) fails to execute and deliver such Construction Contract with such Bonds and evidence of insurance, but pays the Owner the difference, not to exceed the Penal Sum of this Bond, between the amount of the Principal's Bid and the larger amount for which the Owner may award a Construction Contract for the same Work to another bidder,
- then**, this obligation shall be null and void, otherwise it shall remain in full force and effect.

The Surety, for value received, hereby stipulates and agrees that the obligation of the Surety under this Bond shall not in any manner be impaired or affected by any extension of the time within which the Owner may accept the Principal's bid, and the Surety does hereby waive notice of any such extension.

SIGNED AND SEALED this _____ day of _____, _____.

ATTEST:

PRINCIPAL:

By _____

Name and Title

SURETY:

ATTEST:

By _____

Name and Title

Note: Do not staple this form; use clips. Purpose: quickly and efficiently scan thousands of documents into DCM's database.

INSTRUCTIONS TO BIDDERS

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<u>Use of Alternates</u> |
| 8. <u>Preparation and Delivery of Bids</u> | 16. <u>Unit Prices</u> |
| | 17. <u>Award of Contract</u> |

1. BID DOCUMENTS:

The Bid Documents consist of the Advertisement for Bids, these Instructions to Bidders, any supplements to these Instructions to Bidders, the Proposal Form and the Accounting of Sales Tax, and the proposed Contract Documents. The proposed Contract Documents consist of the Construction Contract, the Performance Bond and Payment Bond, the Conditions of the Contract (General, Supplemental, and other Conditions), Drawings, Specifications and all addenda issued prior to execution of the Construction Contract. Bid Documents may be obtained or examined as set forth in the Advertisement for Bids.

2. GENERAL CONTRACTOR'S STATE LICENSING REQUIREMENTS:

When the amount bid for a contract exceeds \$50,000, the bidder must be licensed by the State Licensing Board for General Contractors and must show the Architect evidence of license before bidding or the bid will not be received by the Architect or considered by the Awarding Authority. A bid exceeding the bid limit stipulated in the bidder's license, or which is for work outside of the type or types of work stipulated in the bidder's license, will not be considered. In case of a joint venture of two or more contractors, the amount of the bid shall be within the maximum bid limitation as set by the State Licensing Board for General Contractors of the combined limitations of the partners to the joint venture.

3. QUALIFICATIONS of BIDDERS and PREQUALIFICATION PROCEDURES:

a. Any special qualifications required of general contractors, subcontractors, material suppliers, or fabricators are set forth in the Bid Documents.

b. The Awarding Authority may have elected to prequalify bidders. Parties interested in bidding for this contract are directed to the Advertisement for Bids and Supplemental Instructions to Bidders to determine whether bidders must be prequalified and how they may obtain copies of the Awarding Authority's published prequalification procedures and criteria.

c. Release of Bid Documents by the Architect to a prospective bidder will not constitute any determination by the Awarding Authority or Architect that the bidder has been found to be qualified, prequalified, or responsible.

4. PREFERENCE to RESIDENT CONTRACTORS:

(If this project is federally funded in whole or in part, this Article shall not apply.)

a. In awarding the Contract, preference will be given to Alabama resident contractors and a nonresident bidder domiciled in a state having laws granting preference to local contractors shall be awarded the Contract only on the same basis as the nonresident bidder's state awards contracts to Alabama contractors bidding under similar circumstances.

b. A nonresident bidder is a contractor which is neither organized and existing under the laws of the State of Alabama, nor maintains its principal place of business in the State of Alabama. A nonresident contractor which has maintained a permanent office within the State of Alabama for at least five continuous years shall not thereafter be deemed to be a non-resident contractor so long as the contractor continues to maintain a branch office within Alabama.

5. EXAMINATION of BID DOCUMENTS and the SITE of the WORK:

Before submitting a bid for the Work, the bidders shall carefully examine the Bid Documents, visit the site, and satisfy themselves as to the nature and location of the Work, and the general and local conditions, including weather, the general character of the site or building, the character and extent of existing work within or adjacent to the site and any other work being performed thereon at the time of submission of their bids. They shall obtain full knowledge as to transportation, disposal, handling, and storage of materials, availability of water, electric power, and all other facilities in the area which will have a bearing on the performance of the Work for which they submit their bids. The submission of a bid shall constitute a representation by the bidder that the bidder has made such examination and visit and has judged for and satisfied himself or herself as to conditions to be encountered regarding the character, difficulties, quality, and quantities of work to be performed and the material and equipment to be furnished, and as to the contract requirements involved.

6. EXPLANATIONS and INTERPRETATIONS:

a. Should any bidder observe any ambiguity, discrepancy, omission, or error in the drawings and specifications, or in any other bid document, or be in doubt as to the intention and meaning of these documents, the bidder should immediately report such to the Architect and request clarification.

b. Clarification will be made only by written Addenda sent to all prospective bidders. Neither the Architect nor the Awarding Authority will be responsible in any manner for verbal answers or instructions regarding intent or meaning of the Bid Documents.

c. In the case of inconsistency between drawings and specifications or within either document, a bidder will be deemed to have included in its bid the better quality or greater quantity of the work involved unless the bidder asked for and obtained the Architect's written clarification of the requirements before submission of a bid.

7. SUBSTITUTIONS:

- a. The identification of any product, material, system, item of equipment, or service in the Bid Documents by reference to a trade name, manufacturer's name, model number, etc. (hereinafter referred to as "source"), is intended to establish a required standard of performance, design, and quality and is not intended to limit competition unless the provisions of paragraph "d" below apply.
- b. When the Bid Documents identify only one or two sources, or three or more sources followed by "or approved equal" or similar wording, the bidder's proposal may be based on a source not identified but considered by the bidder to be equal to the standard of performance, design and quality as specified; however, such substitutions must ultimately be approved by the Architect. If the bidder elects to bid on a substitution without "Pre-bid Approval" as described below, then it will be understood that proof of compliance with specified requirements is the exclusive responsibility of the bidder.
- c. When the Bid Documents identify three or more sources and the list of sources is not followed by "or approved equal" or similar wording, the bidder's proposal shall be based upon one of the identified sources, unless the bidder obtains "Pre-bid Approval" of another source as described below. Under these conditions it will be expressly understood that no product, material, system, item of equipment, or service that is not identified in the Bid Documents or granted "Pre-Bid Approval" will be incorporated into the Work unless such substitution is authorized and agreed upon through a Contract Change Order.
- d. If the Bid Documents identify only one source and expressly provide that it is an approved sole source for the product, material, system, item of equipment, or service, the bidder's proposal must be based upon the identified sole source.
- e. **Procedures for "Pre-bid Approval".** If it is desired that a product, material, system, piece of equipment, or service from a source different from those sources identified in the Bid Documents be approved as an acceptable source, application for the approval of such source must reach the hands of the Architect at least ten days prior to the date set for the opening of bids. At the Architect's discretion, this ten day provision may be waived. The application for approval of a proposed source must be accompanied by technical data which the applicant desires to submit in support of the application. The Architect will give consideration to reports from reputable independent testing laboratories, verified experience records showing the reputation of the proposed source with previous users, evidence of reputation of the source for prompt delivery, evidence of reputation of the source for efficiency in servicing its products, or any other pertinent written information. The application to the Architect for approval of a proposed source must be accompanied by a schedule setting forth in which respects the materials or equipment submitted for consideration differ from the materials or equipment designated in the Bid Documents. The burden of proof of the merit of the proposed substitution is upon the proposer. To be approved, a proposed source must also meet or exceed all express requirements of the Bid Documents. Approval, if granted, shall not be effective until published by the Architect in an addendum to the Bid Documents.

8. PREPARATION and DELIVERY of BIDS:

a. DCM Form C-3: Proposal Form:

- (1) Bids must be submitted on the Proposal Form as contained in the Bid Documents; only one copy is required to be submitted. A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with the Proposal Form.
- (2) All information requested of the bidder on the Proposal Form must be filled in. The form must be completed by typewriter or hand-printed in ink.
- (3) Identification of Bidder: On the first page of the Proposal Form the bidder must be fully identified by completing the spaces provided for:
 - (a) the legal name of the bidder,
 - (b) the state under which laws the bidder's business is organized and existing,
 - (c) the city (and state) in which the bidder has its principal offices,
 - (d) the bidder's business organization, i.e., corporation, partnership, or individual (to be indicated by marking the applicable box and writing in the type of organization if it is not one of those listed), and
 - (e) the partners or officers of the bidder's organization, if the bidder is other than an individual. If the space provided on the Proposal Form is not adequate for this listing, the bidder may insert "See Attachment" in this space and provide the listing on an attachment to the Proposal Form.
- (4) Where indicated by the format of the Proposal Form, the bidder must specify lump sum prices in both words and figures. In case of discrepancy between the prices shown in words and in figures, the words will govern.
- (5) All bid items requested in the Proposal Form, including alternate bid prices and unit prices for separate items of the Work, must be bid. If a gross sum of bid items is requested in the Proposal Form, the gross sum shall be provided by the bidder.
- (6) In the space provided in the Proposal Form under "Bidder's Alabama License", the bidder must insert his or her current general contractor's state license number, current bid limit, and type(s) of work for which bidder is licensed.
- (7) The Proposal Form shall be properly signed by the bidder. If the bidder is:
 - (a) **an individual**, that individual or his or her "authorized representative" must sign the Proposal Form;
 - (b) **a partnership**, the Proposal Form must be signed by one of the partners or an "authorized representative" of the Partnership;
 - (c) **a corporation**, the president, vice-president, secretary, or "authorized representative" of the corporation shall sign and affix the corporate seal to the Proposal Form.

As used in these Instructions to Bidders, "authorized representative" is defined as a person to whom the bidder has granted written authority to conduct business in the bidder's behalf by signing and/or modifying the bid. Such written authority shall be signed by the bidder (the individual proprietor, or a member of the Partnership, or an officer of the Corporation) and shall be attached to the Proposal Form.

(8) Interlineation, alterations or erasures on the Proposal Form must be initialed by the bidder or its “authorized representative”.

b. DCM Form C-3A: Accounting of Sales Tax

A completed DCM Form C-3A: Accounting of Sales Tax must be submitted with DCM Form C-3: Proposal Form. Submission of DCM Form C-3A is required, it is not optional. A proposal shall be rendered non-responsive if an Accounting of Sales Tax is not provided.

c. Bid Guaranty

(1) The Proposal Form must be accompanied by a cashier’s check, drawn on an Alabama bank, or a Bid Bond, executed by a surety company duly authorized and qualified to make such bonds in the State of Alabama, payable to the Awarding Authority.

(2) If a Bid Bond is provided in lieu of a cashier’s check, the bond shall be on the Bid Bond form as stipulated in the Bid Documents.

(3) The amount of the cashier’s check or Bid Bond shall not be less than five percent of the contractor’s bid, but is not required to be in an amount more than ten thousand dollars.

d. Delivery of Bids:

(1) Bids will be received until the time set, and at the location designated, in the Advertisement for Bids unless notice is given of postponement. Any bid not received prior to the time set for opening bids will be rejected absent extenuating circumstances and such bids shall be rejected in all cases where received after other bids are opened.

(2) Each bid shall be placed, together with the bid guaranty, in a sealed envelope. On the outside of the envelope the bidder shall write in large letters “Proposal”, below which the bidder shall identify the Project and the Work bid on, the name of the bidder, and the bidder’s current general contractor’s state license number.

(3) Bids may be delivered in person, or by mail if ample time is allowed for delivery. When sent by mail, the sealed envelope containing the bid, marked as indicated above, shall be enclosed in another envelope for mailing.

9. WITHDRAWAL or REVISION of BIDS:

a. A bid may be withdrawn prior to the time set for opening of bids, provided a written request, executed by the bidder or the bidder’s “authorized representative”, is filed with the Architect prior to that time. The bid will then be returned to the bidder unopened.

b. A bid which has been sealed in its delivery envelope may be revised by writing the change in price on the outside of the delivery envelope over the signature of the bidder or the bidder’s “authorized representative”. In revising the bid in this manner, the bidder must only write the amount of the change in price on the envelope **and must not reveal the bid price.**

c. Written communications, signed by the bidder or its “authorized representative”, to revise bids will be accepted if received by the Architect prior to the time set for opening bids. The Architect will record the instructed revision upon opening the bid. Such written communication may be by facsimile if so stipulated in Supplemental Instructions to Bidders. In revising the bid in this manner, the bidder must only write the amount of the change in price **and must not reveal the bid price.**

d. Except as provided in Article 12 of these Instructions to Bidders, no bid shall be withdrawn, modified, or corrected after the time set for opening bids.

10. OPENING of BIDS:

a. Bids will be opened and read publicly at the time and place indicated in the Advertisement for Bids. Bidders or their authorized representatives are invited to be present.

b. A list of all proposed major subcontractors and suppliers will be submitted by Bidders to the Architect at a time subsequent to the receipt of bids as established by the Architect in the Bid Documents but in no event shall this time exceed twenty-four (24) hours after receipt of bids. If the list includes a fire alarm contractor and/or fire sprinkler contractor, Bidders will also submit a copy of the fire alarm contractor’s and/or fire sprinkler contractor’s permits from the State of Alabama Fire Marshal’s Office.

11. INCOMPLETE and IRREGULAR BIDS:

A bid that is not accompanied by data required by the Bid Documents, or a bid which is in any way incomplete, may be rejected. Any bid which contains any uninitialed alterations or erasures, or any bid which contains any additions, alternate bids, or conditions not called for, or any other irregularities of any kind, will be subject to rejection.

12. BID ERRORS:

a. **Errors and Discrepancies in the Proposal Form.** In case of error in the extension of prices in bids, the unit price will govern. In case of discrepancy between the prices shown in the figures and in words, the words will govern.

b. **Mistakes within the Bid.** If the low bidder discovers a mistake in its bid, the low bidder may seek withdrawal of its bid without forfeiture of its bid guaranty under the following conditions:

(1) **Timely Notice:** The low bidder must notify the Awarding Authority and Architect in writing, within three working days after the opening of bids, that a mistake was made. This notice must be given within this time frame whether or not award has been made.

(2) **Substantial Mistake:** The mistake must be of such significance as to render the bid price substantially out of proportion to the other bid prices.

(3) **Type of Mistake:** The mistake must be due to calculation or clerical error, an inadvertent omission, or a typographical error which results in an erroneous sum. A mistake of law, judgment, or opinion shall not constitute a valid ground for withdrawal without forfeiture.

(4) Documentary Evidence: Clear and convincing documentary evidence of the mistake must be presented to the Awarding Authority and the Architect as soon as possible, but no later than three working days after the opening of bids.

The Awarding Authority's decision regarding a low bidder's request to withdraw its bid without penalty shall be made within 10 days after receipt of the bidder's evidence or by the next regular meeting of the Awarding Authority. Upon withdrawal of bid without penalty, the low bidder shall be prohibited from (1) doing work on the project as a subcontractor or in any other capacity and (2) bidding on the same project if it is re-bid.

13. DISQUALIFICATION of BIDDERS:

Any bidder(s) may be disqualified from consideration for contract award for the following reasons:

a. Collusion. Any agreement or collusion among bidders or prospective bidders in restraint of freedom of competition to bid at a fixed price or to refrain from bidding or otherwise shall render the bids void and shall cause the bidders or prospective bidders participating in such agreement or collusion to be disqualified from submitting further bids to the Awarding Authority on future lettings. (See § 39-2-6, Code of Alabama 1975, for possible criminal sanctions.)

b. Advance Disclosure. Any disclosure in advance of the terms of a bid submitted in response to an Advertisement for Bids shall render the proceedings void and require re-advertisement and rebid.

c. Failure to Settle Other Contracts. The Awarding Authority may reject a bid from a bidder who has not paid, or satisfactorily settled, all bills due for labor and material on other contracts in force at the time of letting.

14. CONSIDERATION of BIDS:

a. After the bids are opened and read publicly, the bid prices will be compared and the results of this comparison will be available to the public. Until the final award of the contract, however, the Awarding Authority shall have the right to reject any or all bids, and it shall have the right to waive technical errors and irregularities if, in its judgment, the bidder will not have obtained a competitive advantage and the best interests of the Awarding Authority will be promoted.

b. If the Bid Documents request bids for projects or parts of projects in combination or separately, the Bid Documents must include supplements to, these Instructions to Bidders setting forth applicable bid procedures. Award or awards will be made to the lowest responsible and responsive bidder or bidders in accordance with such bid procedures.

15. DETERMINATION of LOW BIDDER by USE of ALTERNATES:

a. The Awarding Authority may request alternate bid prices (alternates) to facilitate either reducing the base bid to an amount within the funds available for the project or adding items to the base bid within the funds available for the project. Alternates, if any, are listed in the

Proposal Form in the order in which they shall cumulatively deduct from or add to the base bid for determining the lowest bidder.

b. If alternates are included in the Proposal Form, the Awarding Authority shall determine the dollar amount of funds available and immediately prior to the opening of bids shall announce publicly the funds available for the project. The dollar amount of such funds shall be used to determine the lowest bidder as provided herein below, notwithstanding that the actual funds available for the project may subsequently be determined to be more or less than the expected funds available as determined immediately prior to the time of the opening of bids.

c. If the base bid of the lowest bidder exceeds the funds available and alternate bid prices will reduce the base bids to an amount that is within the funds available, the lowest bidder will be determined by considering, in order, the fewest number of the alternates that produces a price within the funds available. If the base bid of the lowest bidder is within the funds available and alternate bid prices will permit adding items to the base bid, the lowest bidder will be determined by considering, in order, the greatest number of the alternates that produces a price within the funds available.

d. After the lowest bidder has been determined as set forth above, the Awarding Authority may award that bidder any combination of alternates, provided said bidder is also the low bidder when only the Base Bid and such combination of alternates are considered.

16. UNIT PRICES:

a. Work Bid on a Unit Price Basis. Where all, or part(s), of the planned Work is bid on a unit price basis, both the unit prices and the extensions of the unit prices constitute a basis of determining the lowest responsible and responsive bidder. In cases of error in the extension of prices of bids, the unit price will govern. A bid may be rejected if any of the unit prices are obviously unbalanced or non-competitive.

b. Unit Prices for Application to Change Orders. As a means of predetermining unit costs for changes in certain elements of the Work, the Bid Documents may require that the bidders furnish unit prices for those items in the Proposal Form. Unit prices for application to changes in the work are not a basis for determining the lowest bidder. Non-competitive unit prices proposed by the successful bidder may be rejected and competitive prices negotiated by the Awarding Authority prior to contract award. Unit prices for application to changes in the work are not effective unless specifically included and agreed upon in the Construction Contract.

17. AWARD of CONTRACT:

a. The contract shall be awarded to the lowest responsible and responsive bidder unless the Awarding Authority finds that all the bids are unreasonable or that it is not in the best interest of the Awarding Authority to accept any of the bids. A responsible bidder is one who, among other qualities determined necessary for performance, is competent, experienced, and financially able to perform the contract. A responsive bidder is one who submits a bid that complies with the terms and conditions of the Advertisement for Bids and the Bid Documents. Minor irregularities in the bid shall not defeat responsiveness.

b. A bidder to whom award is made will be notified by telegram, confirmed facsimile, or letter to the address shown on the Proposal Form at the earliest possible date. Unless other

time frames are stipulated in Supplemental Instructions to Bidders, the maximum time frames allowed for each step of the process between the opening of bids and the issuance of an order to proceed with the work shall be as follows:

(1) Award of contract by Awarding Authority	30 calendar days after the opening of bids
(2) Contractor's return of the fully executed contract, with bonds and evidence of insurance, to the Awarding Authority	15 calendar days after the contract has been presented to the contractor for signature (from the Lead Design Professional)
(3) Awarding Authority's approval of the contractor's bonds and evidence of insurance and completion of contract execution	20 calendar days after the contractor presents complete and acceptable documents to the Architect
(4) Notice To Proceed issued to the contractor along with distribution of the fully executed construction contract to all parties.	15 calendar days after final execution of contract by the Awarding Authority, by various State Agencies if required and by the Governor if his or her signature on the contract is required by law

The time frames stated above, or as otherwise specified in the Bid Documents, may be extended by written agreement between the parties. Failure by the Awarding Authority to comply with the time frames stated above or stipulated in Supplemental Instructions to Bidders, or agreed extensions thereof, shall be just cause for the withdrawal of the contractor's bid and contract without forfeiture of bid security.

c. Should the successful bidder or bidders to whom the contract is awarded fail to execute the Construction Contract and furnish acceptable Performance and Payment Bonds and satisfactory evidence of insurance within the specified period, the Awarding Authority shall retain from the bid guaranty, if it is a cashier's check, or recover from the principal or the sureties, if the guaranty is a bid bond, the difference between the amount of the contract as awarded and the amount of the bid of the next lowest responsible and responsive bidder, but not more than \$10,000. If no other bids are received, the full amount of the bid guaranty shall be so retained or recovered as liquidated damages for such default. Any sums so retained or recovered shall be the property of the Awarding Authority.

d. All bid guaranties, except those of the three lowest bona fide bidders, will be returned immediately after bids have been checked, tabulated, and the relation of the bids established. The bid guaranties of the three lowest bidders will be returned as soon as the contract bonds and the contract of the successful bidder have been properly executed and approved. When the award is deferred for a period of time longer than 15 days after the opening of the bids, all bid guaranties, except those of the potentially successful bidders, shall be returned. If no award is made within the specified period, as it may by agreement be extended, all bids will be rejected, and all guaranties returned. If any potentially successful bidder agrees in writing to a stipulated extension in time for consideration of its bid and its bid was guaranteed with a cashier's check, the Awarding Authority may permit the potentially successful bidder to substitute a satisfactory bid bond for the cashier's check.

SPECIAL INSTRUCTIONS TO BIDDERS

1.1 INTENT OF INSTRUCTIONS

- A. The Special Instructions to Bidders are intended to amplify the abbreviated Advertisement and to give other details which shall allow interested parties to prepare bids which accurately reflect the scope of the Work. The Special Instructions to Bidders are meant to be viewed as a complement to the general Instructions to Bidders found in the Project Manual. Should any discrepancy or ambiguity be noted, the Special Instructions to Bidders shall defer to the general Instructions to Bidders.

1.2 EXPLANATION AND INTERPRETATION

- A. Should any Bidder or subcontractor find any ambiguity, discrepancy, omission, or error in the Drawings and Project Manual, or insufficient information to provide a complete job, or be in doubt as to the intent and meaning thereof, he should at once report such in writing to Architect and request clarification prior to bidding
- B. Clarification shall be made only by written Addenda during the bid period and sent to all perspective Bidders. The Architect and Consultants shall not be responsible for verbal answers regarding intent or meaning of the Contract Documents, or for any verbal instructions, by whomsoever made, prior to the award of the Contract.
- C. Additionally, all designed systems and/or assemblies are to be proposed and bid as complete assemblies or operational systems. Drawings are indicating intent and not attempting to fully obtain or detail required work.

1.3 BIDDER REQUIREMENTS

- A. **All Bidders must honor their bid proposals for a period of 90 calendar days from date of bid opening.**
- B. **The Contractor MUST Field Verify all existing conditions prior to submitting bid proposal.**
- C. **The Apparent Low Bidder AND Apparent Second Lowest Bidder** must submit to the **Architect** a list of the principal Subcontractors, suppliers, and fabricators he plans to use for each category of work. The list of Subcontractors must be received by the Architect within 24 hours following the Bid Opening (email to: rawlinsonk@mckeeassoc.com). Once the successful bidder has obtained approval from the Owner, no changes in Subcontractors shall be made without the express, written consent of the Owner. Contractor shall request consent in writing from the Owner and Architect and provide specific and reasonable explanation as to the necessity of said change. Should said change be approved by the Owner, the Contractor must submit the desired replacement Subcontractor to the Architect and obtain written approval of the Subcontractor.

1.4 OPENING OF PROPOSALS

- A. The Owner shall, according to applicable laws and regulations pertaining to bid openings, receive and review all Proposals submitted, according to the method selected below:
 - 1. Proposals shall be opened and read publicly at the time and place indicated in the Advertisement.
 - 2. Proposals may be rejected if they contain any omissions, alterations of forms, additions not called for, conditional bids, alternate bids unless called for, incomplete bids, erasures, or irregularities of any kind. Proposals in which the unit or lump sum prices bid are obviously unbalanced may be rejected. Additions to or deductions from the Bid amount may be written on the outside of the sealed bid, or by letter enclosed in the sealed bid envelope.

1.5 DETERMINATION of LOW BIDDER by USE of ALTERNATES

- A. The Awarding Authority may request alternate bid prices (alternates) to facilitate either reducing the base bid to an amount within the funds available for the project or adding items to the base bid within the funds available for the project. Alternates, if any, are listed in the Proposal Form in the order in which they shall cumulatively deduct from or add to the base bid for determining the

SPECIAL INSTRUCTIONS TO BIDDERS

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lowest bidder.

- B. If alternates are included in the Proposal Form, the Awarding Authority shall determine the dollar amount of funds available and immediately prior to the opening of bids shall announce publicly the funds available for the project. The dollar amount of such funds shall be **used to determine the lowest bidder** as provided herein below, notwithstanding that the actual funds available for the project may subsequently be determined to be more or less than the expected funds available as determined immediately prior to the time of the opening of bids.
- C. **If additional funds become available after the bid opening, the Owner may at his option elect to award to the lowest base bid bidder a contract based on the Contractors base bid amount and additional Alternates.**
- D. If the base bid of the lowest bidder **exceeds** the funds available and alternate bid prices will reduce the base bids to an amount that is **within** the funds available, the lowest bidder will be determined by considering, in order, the fewest number of the alternates that produces a price within the funds available.
- E. If the base bid of the lowest bidder is within the funds available and alternate bid prices will permit adding items to the base bid, the lowest bidder will be determined by considering, in order, the greatest number of the alternates that produces a price within the funds available.
- F. After the lowest bidder has been determined as set forth above, the Awarding Authority may award that bidder any combination of alternates, provided said bidder is also the low bidder when only the Base Bid and such combination of alternates are considered.

1.6 AWARD OF CONTRACT

- A. The Bidder to whom the award is made shall be notified by letter to the address shown on his Proposal at the earliest possible date. At such time, at the option of the Owner, additional information such as a complete financial statement may be required from the successful Bidder.

1.7 EXECUTION OF CONTRACT

- A. The Contract shall be signed by the successful Bidder, in the number of counterparts provided in the Contract Agreement and returned to the Owner with satisfactory Contract Bonds within ten (10) days after the date of Notice of Award.

1.8 PERFORMANCE BOND AND PAYMENT BOND

- A. The intent of the Performance Bond is to ensure the faithful performance of each and every condition, stipulation, and requirements of the Contract and to indemnify and save harmless the Owner, Architect, and Consultants from any and all damages, either directly or indirectly (arising out of any failure to perform same). The successful Bidder to whom the Contract is awarded shall furnish at his expense an acceptable Performance Bond in an amount equal to one hundred percent (100%) of the Contract Price of the Contract as awarded. Said Bond shall be made on the approved Bond form, shall be furnished by a surety company duly authorized and qualified to make such bonds in the State of Alabama, shall be countersigned by an authorized agent resident in the State who is qualified for the execution of such instruments, and shall have attached thereto power of attorney of the signing official. In case of default on the part of the Contractor, all expenses incident to ascertaining and collecting losses suffered by the Owner under the Bond, the direct costs of administration, architectural, engineering, and legal services, shall lie against the Contract Bond for Performance of the Work.
- B. In addition thereto, the successful Bidder to whom the Contract is awarded shall furnish at his expense a Payment Bond with good and sufficient surety payable to the Owner in an amount not less than one hundred percent (100%) of the Contract Price, with the obligation that the Contractor shall promptly make payment to all persons furnishing him or them with labor, material, feedstuffs, or supplies for or in prosecution of the Work provided for in the Contract and for the payment or reasonable attorneys' fees, incurred by successful claimants or plaintiffs in suits on said Bond.

1.9 APPROVAL OF CONTRACT

- A. No Contract is binding upon the Owner until it has been executed by the Owner and the successful Bidder and copies delivered.

1.10 CAD FILES

- A. Digital Unlocked Project CAD Files may be requested by emailing cadoperator@mckeeassoc.com and follow instructions as required.

1.11 LIST OF SUBCONTRACTORS

- A. **The Apparent Low Bidder AND Apparent Second Lowest Bidder** must submit to the Architect a list of the principal Subcontractors, suppliers, and fabricators he plans to use for each category of work. The list of Subcontractors must be received by the Architect within twenty-four hours following the Bid Opening. Email to rawlinsonk@mckeeassoc.com. Once the successful bidder has obtained approval from the Owner, no changes in Subcontractors shall be made without the express, written consent of the Owner.

1.12 LIST OF SUBCONTRACTORS SUBMITTAL FORM

Email this form in its entirety to contact listed below.

The **Apparent Low Bidder AND Apparent Second Lowest Bidder** must submit to the Architect a list of the principal Subcontractors, suppliers, and fabricators he plans to use for each category of work. The list of Subcontractors must be received by the Architect within twenty-four hours following the Bid Opening.

To: McKee & Associates, Architects

Kayla Rawlinson

rawlinsonk@mckeeassoc.com

Email

From: _____

Company

Name

Email

Project Name: _____

Phone Number

Project Number: _____

Issue Date: _____

Bid Date: _____

Category of Work	Name of Sub to Perform Work	Name of Supplier

END OF SECTION

SPECIAL INSTRUCTIONS TO BIDDERS
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Additions to Robertsdale
High School for the
Baldwin County Board of Education
Bay Minette, Alabama

MCKEE PROJECT NO. 23.195

January 2021

- (1) *Do not staple this form and/or attachments; use clips. Print single-sided; do not submit double-side printed documents.*

DCM (BC) Project No.

CONSTRUCTION CONTRACT

- (2) This Construction Contract is entered into this day of in the year of
- (3) between the **OWNER**,
Entity Name:
Address:
Email & Phone #:
- (4) and the **CONTRACTOR**,
Company Name:
Address:
Email & Phone #:
- (5) for the **WORK** of the Project, identified as:
- (6) The **CONTRACT DOCUMENTS** are dated and have been amended by
- (7) **ADDENDA**
- (8) The **ARCHITECT** is
Firm Name:
Address:
Email & Phone #:
- (9) The **CONTRACT SUM** is
Dollars (\$)) and is the sum of the Contractor's Base Bid for the Work and the following
- (10) **BID ALTERNATE PRICES:**
- (11) The **CONTRACT TIME** is () calendar days.

THE OWNER AND THE CONTRACTOR AGREE AS FOLLOWS: The Contract Documents, as defined in the General Conditions of the Contract (DCM Form C-8), are incorporated herein by reference. The Contractor shall perform the Work in accordance with the Contract Documents. The Owner will pay and the Contractor will accept as full compensation for such performance of the Work, the Contract Sum subject to additions and deductions (including liquidated damages) as provided in the Contract Documents. The Work shall commence on a date to be specified in a Notice to Proceed issued by the Owner or the Director, Alabama Division of Construction Management, and shall then be substantially completed within the Contract Time.

- (12) **LIQUIDATED DAMAGES** for which the Contractor and its Surety (if any) shall be liable and may be required to pay the Owner in accordance with the Contract Documents shall be equal to six percent interest per annum on the total Contract Sum unless a dollar amount is stipulated in the following space, in which case liquidated damages shall be determined at _____ dollars (\$ _____) per calendar day.

Numbers in margin correspond to "Checklist", DCM Form B-7

- (13) **SPECIAL PROVISIONS** *(Special Provisions may be inserted here, such as acceptance or rejection of unit prices. If Special Provisions are continued in an attachment, identify the attachment below):*

- (14) **STATE GENERAL CONTRACTOR'S LICENSE:** The Contractor does hereby certify that Contractor is currently licensed by the Alabama State Licensing Board for General Contractors and that the certificate for such license bears the following:

License No.:

Classification(s):

Bid Limit:

The Owner and Contractor have entered into this Construction Contract as of the date first written above and have executed this Construction Contract in sufficient counterparts to enable each contracting party to have an originally executed Construction Contract each of which shall, without proof or accounting for the other counterparts, be deemed an original thereof.

The Owner does hereby certify that this Construction Contract was let in accordance with the provisions of Title 39, Code of Alabama 1975, as amended, and all other applicable provisions of law, and that the terms and commitments of this Construction Contract do not constitute a debt of the State of Alabama in violation of Article 11, Section 213 of the Constitution of Alabama, 1901, as amended by Amendment Number 26.

(15)

APPROVAL

**ALABAMA STATE DEPARTMENT OF EDUCATION
(SDE)**
(Required for locally-funded, SDE projects.)

By _____ Date: _____
State Superintendent of Education

CONTRACTING PARTIES

Contractor Company

By _____
Signature

Name & Title _____

Owner Entity

By _____
Signature

Name(s) & Title(s) _____

Review/Signature flow: Architect/Engineer (prepare documents) > Contractor (review and sign) > Architect/Engineer (review) > Owner (review and sign) > SDE (review, sign and distribute the fully executed Contract to all parties, and forward a copy to the Alabama Division of Construction Management [DCM]). Note: DCM does not sign fully locally-funded SDE project contract documents.

ALABAMA DEPARTMENT OF FINANCE
CONSTRUCTION MANAGEMENT DIVISION
ADMINISTRATIVE CODE

CHAPTER 355-16-1
COLLECTION OF USER FEES

TABLE OF CONTENTS

ED NOTE: THE RULES OF THE BUILDING COMMISSION, CHAPTER 170-X-8,
WERE TRANSFERRED TO THE DEPARTMENT OF FINANCE PURSUANT TO
ACT 2015-435.

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355-16-1-.02	Calculation Of Basic Plan Review And Permit Fees
355-16-1-.03	Fees Required
355-16-1-.04	Payment Of Fees
355-16-1-.05	Final Reconciliation Of Fees
355-16-1-.06	Penalties
355-16-1-.07	Contract Document Administration Fees (Repealed 1/13/20)

355-16-1-.01 Applicability. The following procedures and user fees are applicable to new construction, additions, or alteration projects for buildings under the jurisdiction of the Alabama Division of Construction Management as defined by the Code of Ala. 1975, Title 41, Section 41-9-162 and authorized by Section 41-4-400(a)(7).

Author: Frank Barnes

Statutory Authority: Code of Ala. 1975, §41-4-400(a)(7).

History: New Rule: Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.02 Calculation Of Basic Plan Review And Permit Fees.

Construction Cost	Basic Plan Review Fee	Basic Permit Fee
Less than \$1000	No fee.	No fee, unless inspection required, in which case a \$15.00 fee for each inspection shall be charged.
\$1,001 to \$50,000	One-half of the permit fee which is \$15.00 for the first \$1,000.00 plus \$5.00 for each additional thousand or fraction thereof, to and including \$50,000.00.	\$15.00 for the first \$1,000.00 plus \$5.00 for each additional thousand or fraction thereof, to and including \$50,000.00.
\$50,001 to \$100,000	One-half of the permit fee which is \$260.00 for the first \$50,000.00 plus \$4.00 for each additional thousand or fraction thereof, to and including \$100,000.00.	\$260.00 for the first \$50,000.00 plus \$4.00 for each additional thousand or fraction thereof, to and including \$100,000.00.
\$100,001 to \$500,000	One-half of the permit fee which is \$460.00 for the first \$100,000.00 plus \$3.00 for each additional thousand or fraction thereof, to and including \$500,000.00.	\$460.00 for the first \$100,000.00 plus \$3.00 for each additional thousand or fraction thereof, to and including \$500,000.00.
\$500,001 and up	One-half of the permit fee which is \$1,660.00 for the first \$500,000.00 plus \$2.00 for each additional thousand or fraction thereof.	\$1,660.00 for the first \$500,000.00 plus \$2.00 for each additional thousand or fraction thereof.

Construction Cost: Construction Cost shall include the cost of the actual building construction, addition, or alteration work, including sitework.

Authors: Katherine Lynn, Frank Barnes

Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).

History: New Rule: Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.03 Fees Required.

(1) The Basic Plan Review Fee, the Basic Permit Fee, and the Basic Contract Document Administration Fee are subject to the Final Reconciliation at the close of construction as described in Rule 355-16-1-.05.

(2) Basic Plan Review Fee: This fee includes review of Schematic, Preliminary, Final, and one revised Final Plan Submittal.

(a) If the first submittal of a new project is for a schematic or preliminary review, it shall be accompanied by ½ of the Basic Plan Review Fee not to exceed \$500. Submittals sent in without this fee will not be reviewed until payment is received.

(b) The final submittal of each project shall be accompanied by a payment for the balance of the Basic Plan Review Fee. Submittals sent in without this final submittal fee will not be reviewed until payment is received.

(c) Written final plan review comments must be sent by the Division of Construction Management to the architect within 30 calendar days of receipt of the submittal. If the submittal is not reviewed within this time limitation, the balance of the Basic Plan Review Fee is waived.

(3) Basic Permit Fee: This fee shall include the following required major building inspections: Pre-Construction Conference, Pre-Roofing Conference, Above-Ceiling Inspection, Final Inspection, and Year-End Inspection. Additional required inspections such as fire alarm inspections, kitchen hood inspections, elevator inspections, and other such inspections shall be included as part of the Basic Permit Fee.

(a) The Basic Permit Fee is due upon approval or receipt of the Construction Contract. The Pre-Construction Conference will not be performed prior to receipt of the Basic Permit Fee.

(4) Basic Contract Document Administration Fee: The Basic Contract Document Administration Fee applies to contracts that are administered by the Division of Construction Management. The fee covers review of the Owner/Architect Agreement and Construction Contract along with related amendments, change orders, service invoices, and pay requests.

(a) Payment must be received before the associated contract is fully executed. The total fee is ½% of the Construction Cost and it is paid in the following 2 parts:

(i) ¼% of the Project Budget for the Owner/Architect Agreement

(ii) ¼% of the Construction Cost for the Construction Contract.

(5) Additional Fees:

(a) If more than one revised Final Plan Submittal is required, an additional fee shall be required for each additional revised submittal. This additional fee shall be equal to the lesser of the following: 15% of the Basic Plan Review Fee or \$2000. The time restrictions and conditions which apply to routine submittals shall apply to additional submittals.

(b) If the contractor schedules an inspection and it is determined by the Division of Construction Management Inspector on site that the contractor has not met required benchmarks or the inspection is cancelled without 48-hours' notice, the Division of Construction Management shall require an additional fee of \$1500. This additional inspection fee shall be applied to each additional inspection that is required to be rescheduled.

(c) Changes to plans for rebid or a significant revision in the scope of work may incur an additional fee, up to the amount of the Basic Plan Review Fee, based on the reviewers' evaluation of the extent of the changes reviewed.

(d) Projects owned and locally funded by municipality and county governments must be submitted for a review for compliance with the current ADA Standards for Accessible Design. The additional fee for this service is 50% of the Basic Plan Review Fee, with a maximum of \$500.00. If more than one revised Final Plan Submittal is required, the fee for each additional review will be 15% of the Basic Plan Review Fee.

(e) In addition to the Schematic, Preliminary, and Final Review Submittals, the Owner may request an optional 65% Intermediate Review to include all systems of the project at a point that is less than 100% complete. The additional fee for this review will be 65% of the Basic Plan Review Fee.

(f) The Basic Contract Document Administration Fee includes review of the original submitted document and one revision. When more than one revision is required, an additional fee of \$200 will be charged to the design professional for each additional document submittal until the document is executed.

Author: Frank Barnes

Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).

History: New Rule: Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.04 Payment Of Fees.

(1) The balance of the Basic Plan Review Fee payment shall be accompanied by the "Plan Review Fee Worksheet" and a copy of the architect's latest estimated Construction Cost. The cost estimate shall be the basis for calculating the estimated Basic Plan Review Fee on the fee worksheet.

(2) The Basic Permit Fee payment shall be accompanied by the completed "Permit Fee Worksheet" and a copy of the executed Construction Contract. The Construction Contract shall be the basis for calculating the total fee on the fee worksheet.

(3) Fee payments are nonrefundable to the extent that work has been performed by the Division of Construction Management.

(4) Fee payments shall be paid by either (i) check or money order made payable to "Alabama Department of Finance-Division of Construction Management," (ii) by an electronic means accepted by the Division of Construction Management, or (iii) an inter-agency transfer. Fees are deemed paid when the funds represented by the payment method are received by or made available to the Division of Construction Management.

(5) Check or money order payments shall be received only at the Division of Construction Management's office in Montgomery.

Authors: Katherine Lynn, Frank Barnes

Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).

History: **New Rule:** Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.05 Final Reconciliation Of Fees.

(1) Final Reconciliation: The Basic Plan Review Fee, the Basic Permit Fee, and the Basic Contract Document Administration Fee are paid based on the best estimate of the Construction Cost at the time each fee is due. When construction is complete, a Final Reconciliation will recalculate each of these fees using the actual Construction Cost. The Final Reconciliation will determine the amount due from or refunded to the Owner. The Owner has the final responsibility for payment of all fees.

(2) The actual Construction Cost for the final Basic Plan Review Fee shall be adjusted to include the lowest bid on any additive unawarded alternates from the bid tab. The actual Construction Cost for the final Basic Permit Fee and the final Basic Contract Document Administration Fee shall be adjusted for any change orders and for any sales-tax credit received by the Owner.

Author: Katherine Lynn

Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).

History: **New Rule:** Filed October 27, 1994; effective December 1, 1994. **Repealed:** Filed October 12, 1995; effective November 16, 1995. **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Repealed and New Rule:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.06 Penalties. Where work, for which Division of Construction Management approval is required, is started or proceeds prior to obtaining said approval, the fees herein specified shall be doubled. The payment of such double fee shall not relieve any persons from fully complying with the requirements of the Division of Construction Management in the execution of the work nor from any other penalties prescribed herein.

Author: Frank Barnes

Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8).

History: **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Amended:** Published November 29, 2019; effective January 13, 2020.

355-16-1-.07 Contract Document Administration Fees.
(REPEALED)

Author: Katherine Lynn

Statutory Authority: Code of Ala. 1975, §41-9-141(a)(8.

History: **New Rule:** Filed August 7, 2014; effective September 11, 2014. **Repealed:** Published November 29, 2019; effective January 13, 2020.



ALABAMA DEPARTMENT OF FINANCE REAL PROPERTY MANAGEMENT Division of Construction Management

www.dcm.alabama.gov, 334-242-4082, inspections@realproperty.alabama.gov

Revised August 2021

Department Use Only
Invoice # _____
Date Paid _____
Confirmation # _____

PERMIT FEE & PERMIT RE-INSPECTION FEE CALCULATION WORKSHEET

DCM (BC) # _____ Date _____

Project Name; Owner/Architect/Engineer Project # & Phase/Package # _____

Owner Entity Name _____

Architect/Engineer Firm Name _____

Contractor Company Name _____

Select only ONE of the following:

Basic Permit Fee.

Fee is based on
awarded contract sum.

ACCS Storm Shelter Permit Fee.

AL Community College System (ACCS) storm shelter-related projects started after 07/31/21: Fee is based on total cost estimate of storm shelter (not just fortification upcharge), utilities connecting to storm shelter, and means of egress (including exit passageways/corridors, exit, exit discharges).

Permit

Re-Inspection
Flat Fee.

Awarded Contract Sum, or ACCS Storm Shelter Area Estimate: _____

Email address(es) for Payment Receipt: _____

BASIC PERMIT FEE CALCULATION:

Awarded Contract Sum or ACCS Storm Shelter Area Estimate is less than \$1,000: N/A

Awarded Contract Sum or ACCS Storm Shelter Area Estimate is \$1,001 - \$50,000:

Contract Sum or Shelter Estimate less \$1,000= _____ /1,000 x \$5.00= _____ +\$15.00= _____

Awarded Contract Sum or ACCS Storm Shelter Area Estimate is \$50,001 - \$100,000:

Contract Sum or Shelter Estimate less \$50,000= _____ /1,000 x \$4.00= _____ +\$260.00= _____

Awarded Contract Sum or ACCS Storm Shelter Area Estimate is \$100,001 - \$500,000:

Contract Sum or Shelter Estimate less \$100,000= _____ /1,000 x \$3.00= _____ +\$460.00= _____

Awarded Contract Sum or ACCS Storm Shelter Area Estimate is \$500,001 and up:

Contract Sum or Shelter Estimate less \$500,000= _____ /1,000 x \$2.00= _____ +\$1,660.00= _____

PERMIT RE-INSPECTION FEE:

Flat fee of \$1,500.00 per occurrence

TOTAL DUE: _____

Basic Permit Fee: Covers all required pre-construction conferences, construction inspections and certificate of substantial completion issuance by the DCM Inspector. This fee is due when a construction contract or self-performance letter is received by DCM and must be paid before the required Pre-Construction Conference is scheduled with the DCM Inspector.

ACCS Storm Shelter Permit Fee: Covers all required storm shelter pre-construction meetings and construction inspections by the DCM Inspector. This fee is due when a copy of the construction contract and Notice-to-Proceed is received by DCM and must be paid before the required Storm Shelter Pre-Construction Meeting is scheduled with the DCM Inspector.

Permit Re-Inspection Fee: May be charged if (A) the contractor has not completed the work required for the particular inspection as detailed in DCM Form B-8: Pre-Construction Conference Checklist, or (B) the inspection is canceled or rescheduled without the required minimum 48 hours notice to all parties.

Make check payable to: "Finance - Construction Management," include the DCM (BC) Project # on the check and attach the fee worksheet. Mail payment to: Finance - Construction Management, P.O. Box 301150, Montgomery, AL 36130-1150.

State agency inter-fund transfer and payments using Public School and College Authority (PSCA) funds: contact Jennie Jones at 334-242-4808 or jennie.jones@realproperty.alabama.gov.

Fees may be paid online at www.dcm.alabama.gov (in which case a completed fee worksheet is not required).

The Basic Permit Fee and ACCS Storm Shelter Permit Fee is subject to Final Reconciliation of Fees at the end of construction.



JULIE P. MAGEE
Commissioner

State of Alabama Department of Revenue

(www.revenue.alabama.gov)
50 North Ripley Street
Montgomery, Alabama 36132

MICHAEL E. MASON
Assistant Commissioner

JOE W. GARRETT, JR.
Deputy Commissioner

CURTIS E. STEWART
Deputy Commissioner

Alabama Department of Revenue NOTICE

Tax Guidance for Contractors, Subcontractors and Alabama Governmental Entities Regarding Construction-related Contracts

Legislative Act 2013-205 requires the Department of Revenue to issue Form STC-1, *Sales and Use Tax Certificate of Exemption for Government Entity Projects*, to all contractors and subcontractors working on qualifying governmental entity projects once the Form ST: EXC-01 is approved.

Each exempt entity, contractor and subcontractor must make application for qualification of the exemption using Form ST: EXC-01 for each tax-exempt project. The application is available on the department's website at <http://revenue.alabama.gov/salestax/ST-EXC-01.pdf>. Applications should be submitted directly to the Sales and Use Tax Division Central Office, P.O. Box 327710, Montgomery, AL 36132-7710.

The sales and use tax exemption provided for in Act 2013-205 applies to the purchase of building materials, construction materials and supplies, and other tangible personal property that become part of the structure pursuant to a qualifying contract entered into on or after January 1, 2014. Qualifying projects and contracts are those generally entered into with the following governmental entities, unless otherwise noted: the State of Alabama, a county or incorporated municipality of Alabama, an Alabama public school, or an Alabama industrial or economic development board or authority already exempt from sales and use taxes. **Please note that contracts entered into with the federal government and contracts pertaining to highway, road, or bridge construction or repair do not qualify for the exemption provided for in Act 2013-205.** [Reference: Sales and Use Tax Division Administrative Rule 810-6-3-.77 *Exemption for Certain Purchases by Contractors and Subcontractors in Conjunction with Construction Contracts with Certain Governmental Entities*.]

The Alabama Department of Revenue will assign each contractor and sub-contractor a consumers use tax account, if one is currently not in place, at the time the Form STC-1, *Sales and Use Tax Certificate of Exemption for Government Entity Projects*, is issued.

Contractors and sub-contractors for qualifying projects will be required to file monthly consumers use tax returns and report all exempt purchases for ongoing projects, as well as all taxable purchases on one return. These returns are required to be filed through the department's online tax return filing and payment portal, My Alabama Taxes (<https://myalabamataxes.alabama.gov>).

As another option for these types of contracts, as well as with other contracts entered into with other types of exempt entities, the Form ST:PAA1, *Purchasing Agent Appointment*, may be used. However, please be advised that the use of the Form ST:PAA1 option will require the exempt entity to be invoiced directly and pay for directly from their funds any construction and building material and supply purchases.

For additional information concerning this guidance, taxpayers should contact Sales and Use Tax Division representative Thomas Sims at 334-242-1574 or by email at Thomas.Sims@revenue.alabama.gov.



ALABAMA DEPARTMENT OF REVENUE
SALES AND USE TAX DIVISION
P.O. Box 327710 • Montgomery, AL 36132-7710

ST: EXC-01
6/21

Application For Sales and Use Tax Certificate of Exemption

FOR GOVERNMENT ENTITY PROJECT

This Certificate of Exemption will be limited to purchases which qualify for an exemption of sales and use taxes pursuant to Rule No. 810-6-3-.77

PROJECT INFORMATION:

PROJECT NAME		PROJECT OWNER'S FEIN (EXEMPT ENTITY)	
STREET ADDRESS OF PROJECT (CITY AND COUNTY INCLUDED)	CITY	ZIP	COUNTY

APPLICANT'S INFORMATION:

RELATION: (CHOOSE ONE)

☐ Government Entity ☐ General Contractor ☐ Subcontractor

APPLICANT'S LEGAL NAME		FEIN	
DBA		CONSUMER'S USE TAX ACCOUNT NUMBER	
MAILING ADDRESS: STREET	CITY	STATE	ZIP
		COUNTY	

CONTACT PERSON	BUSINESS TELEPHONE NUMBER ()
EMAIL ADDRESS	

CONTRACT SIGN DATE (PROVIDED BY GENERAL CONTRACTOR)	CONTRACT COMPLETION DATE (PROVIDED BY GENERAL CONTRACTOR)
ESTIMATED START DATE (FOR APPLICANT)	ESTIMATED COMPLETION DATE (FOR APPLICANT)
WILL THE APPLICANT HAVE ANY SUBCONTRACTORS ON THIS JOB? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please attach list.	NAME OF PARTY TO THE CONTRACT
JOB DESCRIPTION	

WILL ANY POLLUTION CONTROL EXEMPTION BE APPLICABLE? <input type="checkbox"/> Yes <input type="checkbox"/> No	ESTIMATED POLLUTION CONTROL COST \$	
TOTAL PROJECT BID AMOUNT (APPLICANT'S PORTION OF PROJECT) \$	LABOR COST (APPLICANT'S PORTION OF PROJECT) \$	MATERIAL COST (APPLICANT'S PORTION OF PROJECT) \$

REVENUE DEPARTMENT USE ONLY

PENDING DOCUMENTATION / INFORMATION:

☐ GCL ☐ SBL ☐ Contract / NTP / LOI ☐ LOS ☐ Contract Dates / Breakdown of Costs

Contact Dates: _____ Received Date: _____
Forwarded for Denial: _____

PROJECT NAME

PROJECT OWNER'S FEIN (EXEMPT ENTITY)

FORM OF OWNERSHIP:

☐ Individual ☐ Partnership ☐ Corporation ☐ Multi member LLC ☐ Single member LLC ☐ Government Entity

If applicant is a corporation, a copy of the certified certificate of incorporation, amended certificate of incorporation, certificate of authority, or articles of incorporation should be attached. If the applicant is a limited liability company or a limited liability partnership, a copy of the certified articles of organization should be attached.

OWNERSHIP INFORMATION:

Corporations – give name, title, home address, and Social Security Number of each officer.

Partnerships – give name, home address, Social Security Number or FEIN of each partner.

Sole Proprietorships – give name, home address, Social Security Number of owner.

LLC – give name, home address, and Social Security Number or FEIN of each member.

LLP – give name, home address, and Social Security Number or FEIN of each partner.

NAME (PLEASE PRINT)

SIGNATURE

TITLE

DATE

REVENUE DEPARTMENT USE ONLY

PENDING OTHER:

☐ Government Entity ☐ General Contractor ☐ Not on LOS

Contact Dates: _____ Received Date: _____

Forwarded for Denial: _____

Examiner's Remarks _____

Examiner _____ Date _____

Instructions For Preparation of Form ST: EXC-01 Sales and Use Tax Certificate of Exemption for Government Entity Project

NOTE: Exemption Certificates will be issued as of the contract sign date or the received date of the application. If, upon receipt of the application, the project has already commenced, the certificate will be issued as of the received date of the application. Any purchases made prior to the issuance of a certificate will not be exempt.

***** Please allow 10 to 14 business days for your application to be processed. *****

In order to expedite the processing of your application, please include the following documentation when submitting your application:

Exempt Entity:

1. Signed Application
2. Copy of Executed/Signed Contract, Letter of Intent, Notice of Award, and/or Notice to Proceed

General Contractor:

1. Signed Application
2. Copy of Executed/Signed Contract, Letter of Intent, Notice of Award, and/or Notice to Proceed
3. List of Subcontractors
4. Alabama Board of General Contractor's License
5. State/County Business License (usually obtained through county probate office)
6. Any other municipal business licenses associated with the project

Subcontractor:

1. Signed Application
2. Alabama Board of General Contractor's License
3. State/County Business License (usually obtained through county probate office)
4. Any other municipal business licenses associated with the project
5. List of Subcontractors (if any)

General contractors and subcontractors:

- Any additions and/or deletions to the list of subcontractors working on a project must be submitted to the Department within 30 days of occurrence.
- If an extension is needed for a project, please contact the Department of Revenue at the address, number, or email listed below. Extension requests should be submitted no more than 30 days after expiration date.
- Subcontractor's Estimated Start Date should be the date they will begin working on the project and ordering materials instead of the General Contractor's Estimated Start Date for the project.

THERE IS A FILING REQUIREMENT IF YOUR APPLICATION IS APPROVED. The return will be filed through the Consumer's Use Tax account. Please see the following page for detailed instructions and general information regarding the reporting requirements.

The application and required documentation may be mailed, faxed, or emailed to the following:

Fax: (334) 353-7867

Email: STExemptionUnit@revenue.alabama.gov

Mailing Address: ATTN: Contractor's Exemption
Alabama Department of Revenue
Sales & Use Tax Division
Room 4303
PO Box 327710
Montgomery, AL 36132-7710

General Information and Instructions Regarding the Reporting Requirements for Contractors Awarded an Exemption Certificate

A contractor's exemption certificate for a Government Entity project is needed in order to purchase materials tax exempt for the qualified project. Once the exemption certificate has been applied for and awarded, there is a monthly filing requirement to report the purchases that have been made for each exempt project. The Consumer's Use (CNU) tax account is used to report the tax-exempt purchases made with each certificate for each exempt project for each month.

The consumer's use tax return must be filed for each of the months covered by the exemption certificate. (For example, if the certificate's effective date is June 29, 2014 and the expected completion date is October 1, 2014, a consumer's use tax return must be filed for each of the following months: June, July, August, September, and October.) A return **MUST** be filed each month to report the monthly purchases. Therefore, all active exemption certificates must be included on the monthly report even if the monthly purchases for a specific project was \$0.

If a CNU tax account is not already open under the taxpayer/business name, one will automatically be assigned at the time the exemption certificate is generated. Electronic filing is required through the Department's online filing system, My Alabama Taxes (MAT). A letter containing the online filing information will be mailed to the address on file within a few days after the new CNU tax account has been assigned. This letter will contain all the information needed to create your online filing account in MAT. For questions relating to setting up the account on www.myalabamataxes.alabama.gov, please contact Business Registration at 334-242-1584 or the Sales Tax Division at 1-866-576-6531.

Once the MAT account is set up, please log in and file the monthly CNU tax return. There is a table located at the bottom left hand corner labeled "Contractor's Exemption for Government Construction Projects." All three fields in the table are required to be completed: exemption number, project number, and total amount of purchases for that specific project for the month. Additional projects may be added on the additional rows that appear as data is added; the table will allow the addition of more projects.

***Please do not use lines 1 through 9 of the return for reporting exempt project information. Leave these lines blank unless taxable purchases were made outside of the state of Alabama that need to be reported and tax remitted. (Lines 1 through 9 do not have anything to do with the exemption reporting requirements).

When the certificate expires (upon the project's completion) and the CNU tax account is no longer needed, please contact the Business Registration Unit at 334-242-1584 and close the CNU tax account. Please be advised that if there are multiple government entity projects open, the consumer's use tax account should remain open until the last project completion date. For example, if Project EXC00ABCD ends in June of 2014 but Project EXC00EFGH ends January of 2015, the CNU tax account must remain open until the end of January 2015. A return for Project EXC00EFGH must be filed all the way through January 2015.

If the applicant already has a CNU tax account and it is currently set up online, please use this account to report exempt project purchases through www.myalabamataxes.alabama.gov using the instructions provided above. The return may then be filed as usual.

***All Consumer's Use Tax returns are due on the 20th of the month following the month in which purchases were made (i.e., the return for the month of June is due July 20th, etc. There are 20 days to file the return before it is deemed late.)

***Any penalty waiver requests may be directed to the Sales and Use Tax Division at 1-866-576-6531. Only one waiver per 18 month period is allowed.



State of Alabama Disclosure Statement

Required by Article 3B of Title 41, Code of Alabama 1975

ENTITY COMPLETING FORM

ADDRESS

CITY, STATE, ZIP

TELEPHONE NUMBER

()

STATE AGENCY/DEPARTMENT THAT WILL RECEIVE GOODS, SERVICES, OR IS RESPONSIBLE FOR GRANT AWARD

ADDRESS

CITY, STATE, ZIP

TELEPHONE NUMBER

()

This form is provided with:

☐

Contract

☐

Proposal

☐

Request for Proposal

☐

Invitation to Bid

☐

Grant Proposal

Have you or any of your partners, divisions, or any related business units previously performed work or provided goods to any State Agency/Department in the current or last fiscal year?

☐

Yes

☐

No

If yes, identify below the State Agency/Department that received the goods or services, the type(s) of goods or services previously provided, and the amount received for the provision of such goods or services.

STATE AGENCY/DEPARTMENT	TYPE OF GOODS/SERVICES	AMOUNT RECEIVED
-------------------------	------------------------	-----------------

Have you or any of your partners, divisions, or any related business units previously applied and received any grants from any State Agency/Department in the current or last fiscal year?

☐

Yes

☐

No

If yes, identify the State Agency/Department that awarded the grant, the date such grant was awarded, and the amount of the grant.

STATE AGENCY/DEPARTMENT	DATE GRANT AWARDED	AMOUNT OF GRANT
-------------------------	--------------------	-----------------

1. List below the name(s) and address(es) of all public officials/public employees with whom you, members of your immediate family, or any of your employees have a family relationship and who may directly personally benefit financially from the proposed transaction. Identify the State Department/Agency for which the public officials/public employees work. (Attach additional sheets if necessary.)

NAME OF PUBLIC OFFICIAL/EMPLOYEE	ADDRESS	STATE DEPARTMENT/AGENCY
----------------------------------	---------	-------------------------

2. List below the name(s) and address(es) of all family members of public officials/public employees with whom you, members of your immediate family, or any of your employees have a family relationship and who may directly personally benefit financially from the proposed transaction. Identify the public officials/public employees and State Department/Agency for which the public officials/public employees work. (Attach additional sheets if necessary.)

NAME OF FAMILY MEMBER	ADDRESS	NAME OF PUBLIC OFFICIAL/ PUBLIC EMPLOYEE	STATE DEPARTMENT/ AGENCY WHERE EMPLOYED
--------------------------	---------	---	--

If you identified individuals in items one and/or two above, describe in detail below the direct financial benefit to be gained by the public officials, public employees, and/or their family members as the result of the contract, proposal, request for proposal, invitation to bid, or grant proposal. (Attach additional sheets if necessary.)

Describe in detail below any indirect financial benefits to be gained by any public official, public employee, and/or family members of the public official or public employee as the result of the contract, proposal, request for proposal, invitation to bid, or grant proposal. (Attach additional sheets if necessary.)

List below the name(s) and address(es) of all paid consultants and/or lobbyists utilized to obtain the contract, proposal, request for proposal, invitation to bid, or grant proposal:

NAME OF PAID CONSULTANT/LOBBYIST	ADDRESS
----------------------------------	---------

By signing below, I certify under oath and penalty of perjury that all statements on or attached to this form are true and correct to the best of my knowledge. I further understand that a civil penalty of ten percent (10%) of the amount of the transaction, not to exceed \$10,000.00, is applied for knowingly providing incorrect or misleading information.

Signature _____ Date _____

Notary's Signature _____ Date _____ Date Notary Expires _____

Article 3B of Title 41, Code of Alabama 1975 requires the disclosure statement to be completed and filed with all proposals, bids, contracts, or grant proposals to the State of Alabama in excess of \$5,000.

Disclosure Statement Information and Instructions

Section 41-16-82, *Code of Alabama* 1975 requires the disclosure statement to be completed and filed with all proposals, bids, contracts, or grant proposals to the State of Alabama in excess of \$5,000. The disclosure statement is not required for contracts for gas, water, and electric services where no competition exists, or where rates are fixed by law or ordinance. In circumstances where a contract is awarded by competitive bid, the disclosure statement shall be required only from the person receiving the contract and shall be submitted within ten (10) days of the award.

Section 41-16-85, *Code of Alabama* 1975 requires that a copy of the disclosure statement shall be filed with the awarding entity and the Department of Examiners of Public Accounts, and if it pertains to a state contract, a copy shall be submitted to the Contract Review Permanent Legislative Oversight Committee. The address for the Department of Examiners of Public Accounts is as follows: 401 Adams Avenue, Suite 280, Montgomery, Alabama 36104. If the disclosure statement is filed with a contract, the awarding entity should include a copy with the contract when it is presented to the Contract Review Permanent Legislative Oversight Committee.

Pursuant to Section 41-16-84 (b), *Code of Alabama* 1975 the State of Alabama shall not enter into any contract or appropriate any public funds with any person who refuses to provide information as required.

Pursuant to Section 41-16-86, *Code of Alabama* 1975, any person who knowingly provides misleading or incorrect information on the disclosure statement shall be subject to a civil penalty of ten percent (10%) of the amount of the transaction, not to exceed \$10,000.00. Also, the contract or grant shall be voidable by the awarding entity.

Definitions as Provided in Section 41-16-81, Code of Alabama 1975

- (1) **Family Member of a Public Employee** – The spouse or a dependent of the public employee.
- (2) **Family Member of a Public Official** – The spouse, a dependent, an adult child and his or her spouse, a parent, a spouse's parents, or a sibling and his or her spouse, of the public official.
- (3) **Family Relationship** – A person has a family relationship with a public official or public employee if the person is a family member of the public official or public employee.
- (4) **Person** – An individual, firm, partnership, association, joint venture, cooperative, or corporation, or any other group or combination acting in concert.
- (5) **Public Official and Public Employee** - These terms shall have the same meanings ascribed to them in Sections 36-25-1(26) and 36-25-1(27), *Code of Alabama* 1975, (see below) except for the purposes of the disclosure requirements of this article, the terms shall only include persons in a position to influence the awarding of a grant or contract who are affiliated with the awarding entity. Notwithstanding the foregoing, these terms shall also include the Governor, Lieutenant Governor, members of the cabinet of the Governor, and members of the Legislature. (Note: The definitions for public official and public employee are now denoted as Sections 36-25-1 (26) and 36-25-1 (27), *Code of Alabama* 1975. However, Section 41-16-81 (5), *Code of Alabama* 1975 has not been codified to reflect such updates.)

Section 36-25-1(26), *Code of Alabama* 1975, defines a **public employee** as any person employed at the state, county or municipal level of government or their instrumentalities, including governmental corporations and authorities, but excluding employees of hospitals or other health care corporations including contract employees of those hospitals or other health care corporations, who is paid in whole or in part from state, county, or municipal funds. For purposes of this chapter, a public employee does not include a person employed on a part-time basis whose employment is limited to providing professional services other than lobbying, the compensation for which constitutes less than 50 percent of the part-time employee's income.

Section 36-25-1(27), *Code of Alabama* 1975, defines a **public official** as any person elected to public office, whether or not that person has taken office, by the vote of the people at state, county, or municipal level of government or their instrumentalities, including governmental corporations, and any person appointed to a position at the state, county, or municipal level of government or their instrumentalities, including governmental corporations. For purposes of this chapter, a public official includes the chairs and vice-chairs or the equivalent offices of each state political party as defined in Section 17-13-40, *Code of Alabama* 1975.

Instructions

Complete all lines as indicated. If an item does not apply, denote N/A (not applicable). If you cannot include required information in the space provided, attach additional sheets as necessary.

THE DISCLOSURE STATEMENT MUST BE SIGNED, DATED, AND NOTARIZED PRIOR TO SUBMISSION.



Kay Ivey
Governor

Bill Poole
Director of Finance

STATE OF ALABAMA
DEPARTMENT OF FINANCE
REAL PROPERTY MANAGEMENT
Division of Construction Management

P.O. Box 301150, Montgomery, AL 36130-1150
770 Washington Avenue, Suite 444, Montgomery, AL 36104
Telephone: (334) 242-4082 Fax: (334) 242-4182



Mickey Allen
Assistant Finance Director
Real Property Management

Frank Barnes, Director
Construction Management

E-Verify Memorandum of Understanding

Instructions for inclusion in project manuals.

Per DCM's May 29, 2012 bulletin *Guidance on Act 2012-491 Amending the Alabama Immigration Law*: "Contractors (including architects and engineers) will ... be required to enroll in the E-Verify program and to provide documentation of enrollment in the E-Verify program with their contracts or agreements."

Upon completing enrollment in the E-Verify program available at <https://www.e-verify.gov/employers/enrolling-in-e-verify>, an E-Verify Memorandum of Understanding (MOU) is issued to the enrolled business. The same E-Verify MOU can be repeatedly used until any information in the business's E-Verify user profile is updated, at which time E-Verify updates the printable Company Information section of the MOU, while the original signatory information remains the same. Typically, an E-Verify MOU is 13-18 pages long depending on business type and number of employees.

DCM requires a copy of the entire current E-Verify MOU document including the completed Department of Homeland Security – Verification Division section (with name, signature and date included) to be submitted as an attachment to each Construction Contract original and to each Agreement Between Owner and Architect original.



STATE OF ALABAMA
BUILDING COMMISSION

770 WASHINGTON AVE
SUITE 444
Montgomery, Alabama 36130-1150
Telephone: (334) 242-4082
Fax: (334) 242-4182

Robert Bentley
Governor

Katherine Lynn
Director

May 29, 2012

TO: ARCHITECTS AND ENGINEERS

FROM: KATHERINE LYNN, DIRECTOR
ALABAMA BUILDING COMMISSION
Katherine Lynn

SUBJECT: GUIDANCE ON ACT 2012-491 AMENDING THE ALABAMA IMMIGRATION LAW

The Alabama Immigration Law (also referred to as "Act 2011-535" and codified in state law as Title 31, Chapter 13 of the Code of Alabama 1975) was amended by Act No. 2012-491 which was signed by Governor Bentley on May 18, 2012. Upon signature, the following requirements went into effect:

1. Contractors (including architects and engineers) will no longer be required to provide an affidavit nor will they be required to obtain affidavits from their subcontractors or consultants.
2. Contractors (including architects and engineers) will still be required to enroll in the E-Verify program and to provide documentation of enrollment in the E-Verify program with their contracts or agreements.
3. All contracts and agreements must now include the following statement:

By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the state of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

The departments that have previously issued guidance on compliance may revise their guidance based on Act No. 2012-491. Architects, engineers and contractors are urged to continue checking the websites for the State Department of Education, the Alabama Community College System and State Comptroller's Office for the latest information.

To aid in compliance, any contract received at the Building Commission after May 18, 2012 that does not include the required contract clause and E-Verify Memorandum of Understanding will be returned.

The websites for each department include their points of contact for questions or you may contact me at (334) 242-4082.

Cc: Mr. Perry Taylor, State School Architect
Ms. Lynne Thrower, General Counsel/Vice Chancellor, Legal and Human Resources
Mr. Thomas White, Jr., State Comptroller

REVISED

Alabama Immigration Law Guidance for School Boards

The Beason-Hammon Alabama Taxpayer and Citizen Protection Act (Act No. 2011-535) includes several sections that affect the financial operations of Alabama school boards. Legislation amending certain sections of Act No. 2011-535 has been signed by Governor Bentley and is available on the Secretary of State's web page as **Act No. 2012-491**. [Act 2011-535 is codified in state laws as **Title 31, Chapter 13** of the Code of Alabama 1975.]

- A.** Effective April 1, 2012, every business entity or employer in Alabama is required to enroll in E-Verify and follow the related federal law and regulations for verifying the employment eligibility of newly hired employees using the E-Verify program. [See Section 31-13-15(b)].
- B.** Two other sections of the law require business entities and employers with one or more employees working in Alabama to utilize the E-Verify program for newly hired employees as a condition of a contract, grant, or incentive awarded by a public entity on or after January 1, 2012. [See Section 31-13-9(a) & (b) and Section 31-13-25(b)].

A. Employees. After enrolling in the federal E-Verify program, the school board is required to verify the immigration status of a newly hired employee (including a substitute employee) as part of the employment process by utilizing the E-Verify program. School boards are prohibited by federal laws from using E-Verify to pre-screen potential employees. However, school boards may inform applicants and potential employees that the school board now uses the federal E-Verify program for newly hired employees by providing the following notification:

Alabama school boards are required by state law to verify the employment eligibility of newly hired employees by using the federal E-Verify program. New employees are required to provide a Social Security number, an unexpired identity document that contains a photograph, and other acceptable documents that establish employment eligibility. In addition to determining whether a new hire is authorized to work in the United States, E-Verify will confirm that the employee's name and Social Security number match. The U. S. Department of Homeland Security (DHS) has a service for employees to check their own employment authorization status before going through the E-Verify process at a new job. The E-Verify Self Check gives new employees some additional time to correct any problems they find with their DHS or Social Security Administration records before employment begins. Self Check is located on the right side of the E-Verify web site www.uscis.gov/everify.

B. Contracts. Effective January 1, 2012, when the school board awards a contract or grant to a business entity or employer (that has one or more employees working in Alabama), Section 31-13-9(a) requires that the school board obtain a notarized affidavit and documentation of enrollment in the E-Verify program. **Act No. 2012-491 removed the affidavit requirement and now defines the term "contract" as "...a contract awarded by the state, any political subdivision thereof, or any state-funded entity that was competitively bid..."**

B. Contracts (continued). Business entities or employers with one or more employees working in Alabama should be notified of the requirements to enroll in the E-Verify program before the contract is signed or bids are awarded. The E-Verify documentation may not be necessary for some contracts awarded by the school board because the contracting entity does not have any employees working in Alabama. The law does not address the documentation required in these situations. A letter, fax, e-mail, or some type of documentation should be obtained from the business entity or employer stating that the contracting entity does not have any employees working in Alabama.

State law does not require that bid specifications include specific language addressing the requirements of the Beason-Hammon Alabama Taxpayer and Citizen Protection Act. However, including the immigration requirements in the bid specifications would be beneficial in approving the contract after the bid is awarded. Including the following language in bid specifications could avoid questions from potential bidders:

Alabama laws require that, as a condition for the award of a contract by a school board to a business entity or employer with one or more employees working in Alabama, the business entity or employer must provide documentation of enrollment in the E-Verify program. During the performance of the contract, the business entity or employer shall participate in the E-Verify program and shall verify every employee that is required to be verified according to the applicable federal rules and regulations. The contractor's E-Verify Memorandum of Understanding must be included with the bid. If you do not believe these requirements are applicable to your entity, include an explanation justifying such exemption. An entity can obtain the E-Verify Memorandum of Understanding upon completion in the E-Verify enrollment process located at the federal web site www.uscis.gov/everify. The Alabama Department of Homeland Security (<http://immigration.alabama.gov>) has also established an E-Verify employer agent account for any business entity or employer with 25 or fewer employees that will provide a participating business entity or employer with the required documentation of enrollment in the E-Verify program. An Employer Identification Number (EIN), also known as a Federal Tax Identification Number, is required to enroll in E-Verify or to establish an E-Verify employer agent account.

Act No. 2012-491 now requires school boards to include the following clause in all contracts or agreements: ***"By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the state of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom."***

The amended law also changed the definition of SUBCONTRACTOR to "A person, business entity, or employer who is awarded a portion of an existing contract by a contractor, regardless of its tier." Another provision states, "Furthermore, during the performance of the contract, the subcontractor shall participate in the E-Verify program and shall verify every employee that is required to be verified according to the applicable federal rules and regulations. This subsection shall only apply to subcontractors performing work on a project subject to the provisions of this section and not to collateral persons or business entities hired by the subcontractor."



STATE OF ALABAMA
DEPARTMENT OF FINANCE
REAL PROPERTY MANAGEMENT
Division of Construction Management



Kay Ivey
Governor

Kelly Butler
Director of Finance

P.O. Box 301150, Montgomery, AL 36130-1150
770 Washington Avenue, Suite 444, Montgomery, AL 36104
Telephone: (334) 242-4082 Fax: (334) 242-4182

Mickey Allen
Assistant Finance Director
Real Property Management

Frank Barnes, Director
Construction Management

January 19, 2021

TO: ARCHITECTS, ENGINEERS, AND CONTRACTORS

FROM: MICKEY ALLEN, ASSISTANT FINANCE DIRECTOR *m Allen*
ALABAMA REAL PROPERTY MANAGEMENT (RPM)

FRANK BARNES, DIRECTOR
ALABAMA DIVISION OF CONSTRUCTION MANAGEMENT (DCM) *Frank Barnes*

SUBJECT: UPDATED GUIDANCE ON FIRE ALARM CONTRACTOR PERMITS

DCM's July 17, 2012 *Memorandum On Act 2009-657 Requiring Certification Of Fire Alarm Contractors* is superseded by this January 19, 2021 bulletin which includes updated references, terms, and details for projects under DCM's jurisdiction.

Act 2009-657, effective August 1, 2012, requires fire alarm contractors to be permitted through the State of Alabama Fire Marshal's Office. In accordance with §34-33A-9, if a fire alarm contractor is going to do work in Alabama, the contractor must deliver to the local building official a copy of their State Fire Marshal's Fire Alarm Permit. DCM requires the following:

Plan Review

For work involving fire alarm systems in Optional 65% Intermediate Plan Review submittals and in Final Plan Review submittals, the requirement for a fire alarm contractor to be permitted through the State of Alabama Fire Marshal's Office shall be included on plan notes and/or in the project manual.

Bidding

Pursuant to §34-33A-11(b), for work involving fire alarm systems, General Contractors must submit a copy of the fire alarm contractor's State Fire Marshal's Fire Alarm Permit at the same time as submission of the subcontractor and supplier list to the lead design professional, which is required within 24 hours after receipt of bids. The architect or engineer shall reject fire alarm contractors who cannot provide a copy of the required permit.

Pre-Construction Conference

For work involving fire alarm systems, General Contractors must provide a copy of the fire alarm contractor's State Fire Marshal's Fire Alarm Permit to the DCM Inspector at the pre-construction conference.

If you have any questions, please contact DCM's Plan Review Division at 334-242-4082 or planreview@realproperty.alabama.gov.

cc: Scott Pilgreen, Alabama State Fire Marshal, State of Alabama Fire Marshal's Office.



ROBERT BENTLEY
GOVERNOR

STATE OF ALABAMA DEPARTMENT OF INSURANCE

State Fire Marshal's Office
201 Monroe Street, Suite 1790
Post Office Box 303352
Montgomery, Alabama 36130-3352
Telephone: (334) 241-4166
Facsimile: (334) 241-4158
Internet: www.firemarshal.alabama.gov

JIM L. RIDLING
COMMISSIONER

EDWARD S. PAULK
STATE FIRE MARSHAL

MAILING ADDRESS:

P.O. BOX 303352
MONTGOMERY, AL 36130-3352

OVERNIGHT ADDRESS:

201 MONROE STREET, SUITE 1790
MONTGOMERY, AL 36104
PLEASE USE FEDEX, UPS OR DHL

APPLICATION FOR STATE FIRE MARSHAL'S CERTIFIED FIRE ALARM CONTRACTOR PERMIT

PLEASE PRINT OR TYPE

In compliance with Sections 34-33A-1 to 34-33A-13, Code of Alabama, 1975, I hereby apply for a State Fire Marshal's Permit to engage in the installation, repair, alteration, maintenance, or inspection of fire alarm systems in Alabama.

CERTIFICATE HOLDER'S NAME: _____

CERTIFICATE HOLDERS SSN: _____ DOB: _____

NAME OF BUSINESS: _____

BUSINESS OWNER NAME: _____

BUSINESS OWNER SSN: _____ DOB: _____ ARE YOU A U.S. CITIZEN? ☐ YES ☐ NO

BUSINESS ADDRESS: _____

MAILING ADDRESS: _____

BUSINESS TELEPHONE: _____ PERMIT TYPE: INITIAL ☐ RENEWAL ☐
Current Permit # _____

This is to certify that _____ (certificate holder) is presently employed by _____ (business) in the capacity of _____ (title) and is authorized to act for the business in all matters pertaining to the installation, repair, alteration, addition, maintenance, or inspection of fire alarm systems in the state of Alabama.

If for any reason the certificate holder terminates employment with the above business, we the undersigned, do understand that the State Fire Marshal's Office is to be notified within thirty (30) days, and that the business will have nine (9) months or until expiration of the current permit, whichever comes first, to submit an application on a new certificate holder and be issued a new permit.

I the undersigned do certify that the information provided above is true and correct. I the undersigned do understand that submission of false information is grounds for license revocation and may subject me to criminal penalties.

Owner/President Signature _____ Date _____ Certificate Holder Signature _____ Date _____

INITIAL/RENEWAL FEE \$100.00

INCLUDE FEE WHEN SUBMITTING APPLICATION. (CHECK OR MONEY ORDER MADE PAYABLE TO THE STATE FIRE MARSHAL'S FUND.)

INCLUDE COPY OF NICET CERTIFICATION CARD (CURRENT) FOR FIRE ALARM SYSTEM TECHNICIAN - LEVEL III.

CERTIFIED FIRE ALARM CONTRACTOR ATTACHMENT

1. Home address of the NICET Certificate holder:

Street Address

City State Zip Code

Phone Number (this is the number you can be reached at)

2. Are you a United States Citizen? ____ YES ____ NO
3. I understand as the NICET Certificate holder for this company that I am licensed only by this company and no other company within the Fire Alarm Industry.
4. I understand as the NICET Certificate holder for this company that I am responsible for the layout, installation, maintenance, repair or alterations performed by this company.

Signature of NICET Certificate holder

Date

Numbers in margin correspond to second page of "Checklist", DCM Form B-7

(1) **PERFORMANCE BOND**

Do not staple this form; use clips.

SURETY'S BOND NUMBER

(2) The **PRINCIPAL** (*Company name and address of Contractor as appears in the Construction Contract*)

Name:

Address:

(3) The **SURETY** (*Company name and primary place of business*)

Name:

Address:

(4) The **OWNER** (*Entity name and address, same as appears in the Construction Contract*)

Name:

Address:

(5) The **PENAL SUM** of this Bond (the Contract Sum)

Dollars (\$)).

(6) **DATE** of the Construction Contract :

(7) The **PROJECT**: (*Same as appears in the Construction Contract*)

1. **WE, THE PRINCIPAL (hereinafter "Contractor") AND THE SURETY**, jointly and severally, hereby bind ourselves, our heirs, executors, administrators, successors, and assigns to the Owner in the Penal Sum stated above for the performance of the Contract, and Contract Change Orders, in accord with the requirements of the Contract Documents, which are incorporated herein by reference. If the Contractor performs the Contract, and Contract Change Orders, in accordance with the Contract Documents, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

2. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only extension of the Contract Time.

3. Whenever the Architect gives the Contractor and the Surety, at their addresses stated above, a written Notice to Cure a condition for which the Contract may be terminated in accordance with the Contract Documents, the Surety may, within the time stated in the notice, cure or provide the Architect with written verification that satisfactory positive action is in process to cure the condition.
4. The Surety's obligation under this Bond becomes effective after the Contractor fails to satisfy a Notice to Cure and the Owner:
 - (a) gives the Contractor and the Surety, at their addresses stated above, a written Notice of Termination declaring the Contractor to be in default under the Contract and stating that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the notice; and
 - (b) gives the Surety a written demand that, upon the effective date of the Notice of Termination, the Surety promptly fulfill its obligation under this Bond.
5. In the presence of the conditions described in Paragraph 4, the Surety shall, at its expense:
 - (a) On the effective date of the Notice of Termination, take charge of the Work and be responsible for the safety, security, and protection of the Work, including materials and equipment stored on and off the Project site, and
 - (b) Within twenty-one days after the effective date of the Notice of Termination, proceed, or provide the Owner with written verification that satisfactory positive action is in process to facilitate proceeding promptly, to complete the Work in accordance with the Contract Documents, either with the Surety's resources or through a contract between the Surety and a qualified contractor to whom the Owner has no reasonable objection.
6. As conditions precedent to taking charge of and completing the Work pursuant to Paragraph 5, the Surety shall neither require, nor be entitled to, any agreements or conditions other than those of this Bond and the Contract Documents. In taking charge of and completing the Work, the Surety shall assume all rights and obligations of the Contractor under the Contract Documents; however, the Surety shall also have the right to assert "Surety Claims" to the Owner in accordance with the Contract Documents. The presence or possibility of a Surety Claim shall not be just cause for the Surety to fail or refuse to promptly take charge of and complete the Work or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.
7. By accepting this Bond as a condition of executing the Construction Contract, and by taking the actions described in Paragraph 4, the Owner agrees that:
 - (a) the Owner shall promptly advise the Surety of the unpaid balance of the Contract Sum and, upon request, shall make available or furnish to the Surety, at the cost of reproduction, any portions of the Project Record, and
 - (b) as the Surety completes the Work, or has it completed by a qualified contractor, the Owner shall pay the Surety, in accordance with terms of payment of the Contract Documents, the unpaid balance of the Contract Sum, less any amounts that may be or become due the Owner from the Contractor under the Construction Contract or from the Contractor or the Surety under this Bond.
8. In the presence of the conditions described in Paragraph 4, the Surety's obligation includes responsibility for the correction of Defective Work, liquidated damages, and reimbursement of any reasonable expenses incurred by the Owner as a result of the Contractor's default under the Contract, including architectural, engineering, administrative, and legal services.

Numbers in margin correspond to second page of "Checklist", DCM Form B-7

9. Nothing contained in this Bond shall be construed to mean that the Surety shall be liable to the Owner for an amount exceeding the Penal Sum of this Bond, except in the event that the Surety should be in default under the Bond by failing or refusing to take charge of and complete the Work pursuant to Paragraph 5. If the Surety should fail or refuse to take charge of and complete the Work, the Owner shall have the authority to take charge of and complete the Work, or have it completed, and the following costs to the Owner, less the unpaid balance of the Contract Sum, shall be recoverable under this Bond:
- (a) the cost of completing the Contractor's responsibilities under the Contract, including correction of Defective Work;
 - (b) additional architectural, engineering, managerial, and administrative services, and reasonable attorneys' fees incident to completing the Work;
 - (c) interest on, and the cost of obtaining, funds to supplement the unpaid balance of the Contract Sum as may be necessary to cover the foregoing costs;
 - (d) the fair market value of any reductions in the scope of the Work necessitated by insufficiency of the unpaid balance of the Contract Sum and available supplemental funds to cover the foregoing costs; and
 - (f) additional architectural, engineering, managerial, and administrative services, and reasonable attorneys' fees incident to ascertaining and collecting the Owner's losses under the Bond.
10. All claims and disputes arising out of or related to this bond, or its breach, shall be resolved in accordance with Article 24, General Conditions of the Contract.

(8) **SIGNED AND SEALED** this _____ day of _____, _____.

(9 & 10)

SURETY:

CONTRACTOR as PRINCIPAL:

Company Name

By _____
Signature

Name and Title

Company Name

By _____
Signature

Name and Title

- (11) **NOTE:** Original power of attorney for the Surety's signatory shall be furnished with each of the original six bond forms to be attached to each of the six contract forms per project.

Do not staple this form; use clips. Purpose: quickly and efficiently scan thousands of documents into DCM's database.

Numbers in margin correspond to second page of "Checklist", DCM Form B-7

(1) **PAYMENT BOND**

SURETY'S BOND NUMBER

Do not staple this form; use clips.

- (2) The **PRINCIPAL** (Company name and address of Contractor, same as appears in the Construction Contract)

Name:

Address:

- (3) The **SURETY** (Company name and primary place of business)

Name:

Address:

- (4) The **OWNER(s)** (Entity name and address, same as appears in the Construction Contract)

Name:

Address:

- (5) The **PENAL SUM** of this Bond (the Contract Sum)

Dollars (\$)).

- (6) **DATE** of the Construction Contract:

- (7) The **PROJECT**: (Same as appears in the Construction Contract)

1. **WE, THE PRINCIPAL** (hereinafter "Contractor") **AND THE SURETY**, jointly and severally, hereby bind ourselves, our heirs, executors, administrators, successors, and assigns to the Owner in the Penal Sum stated above to promptly pay all persons supplying labor, materials, or supplies for or in the prosecution of the Contract, which is incorporated herein by reference, and any modifications thereof by Contract Change Orders. If the Contractor and its Subcontractors promptly pay all persons supplying labor, materials, or supplies for or in the prosecution of the Contract and Contract Change Orders, then this obligation shall be null and void; otherwise to remain and be in full force and effect.
2. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only extension of the Contract Time.

Numbers in margin correspond to second page of "Checklist", DCM Form B-7

3. Any person that has furnished labor, materials, or supplies for or in the prosecution of the Contract and Contract Change Orders for which payment has not been timely made may institute a civil action upon this Bond and have their rights and claims adjudicated in a civil action and judgment entered thereon. Notwithstanding the foregoing, a civil action may not be instituted on this bond until 45 days after written notice to the Surety of the amount claimed to be due and the nature of the claim. The civil action must commence not later than one year from the date of final settlement of the Contract. The giving of notice by registered or certified mail, postage prepaid, addressed to the Surety at any of its places of business or offices shall be deemed sufficient. In the event the Surety or Contractor fails to pay the claim in full within 45 days from the mailing of the notice, then the person or persons may recover from the Contractor and Surety, in addition to the amount of the claim, a reasonable attorney's fee based on the result, together with interest on the claim from the date of the notice.
4. Every person having a right of action on this bond shall, upon written application to the Owner indicating that labor, material, or supplies for the Work have been supplied and that payment has not been made, be promptly furnished a certified copy of this bond and the Construction Contract. The claimant may bring a civil action in the claimant's name on this Bond against the Contractor and the Surety, or either of them, in the county in which the Work is to be or has been performed or in any other county where venue is otherwise allowed by law.
5. This bond is furnished to comply with Code of Alabama, §39-1-1, and all provisions thereof shall be applicable to civil actions upon this bond.
6. All claims and disputes between Owner and either the Contractor or Surety arising out of or related to this bond, or its breach, shall be resolved in accordance with Article 24, General Conditions of the Contract.

(8) **SIGNED AND SEALED** this _____ day of _____, _____.

(9 & 10) **SURETY:**

CONTRACTOR as PRINCIPAL:

Company Name

Company Name

By _____
Signature

By _____
Signature

Name and Title

Name and Title

- (11) **NOTE:** Original power of attorney for the Surety's signatory shall be furnished with each of the original six bond forms to be attached to each of the six contract forms per project.

Do not staple this form; use clips. Purpose: quickly and efficiently scan thousands of documents into DCM's database.

GENERAL CONDITIONS of the CONTRACT

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ARTICLE 1 DEFINITIONS

Whenever the following terms, or pronouns in place of them, are used in the Contract Documents, the intent and meaning shall be interpreted as follows:

- A. ALABAMA DIVISION OF CONSTRUCTION MANAGEMENT:** The Technical Staff of the Alabama Division of Construction Management.
- B. ARCHITECT:** The Architect is the person or entity lawfully licensed to practice architecture in the State of Alabama, who is under contract with the Owner as the primary design professional for the Project and identified as the Architect in the Construction Contract. The term "Architect" means the Architect or the Architect's authorized representative. If the employment of the Architect is terminated, the Owner shall employ a new Architect whose status under the Contract Documents shall be that of the former Architect. If the primary design professional for the Project is a Professional Engineer, the term "Engineer" shall be substituted for the term "Architect" wherever it appears in this document.

- C. COMMISSION:** The former Alabama Building Commission, for which the Alabama Division of Construction Management has been designated by the Legislature as its successor.
- D. CONTRACT:** The Contract is the embodiment of the Contract Documents. The Contract represents the entire and integrated agreement between the Owner and Contractor and supersedes any prior written or oral negotiations, representations or agreements that are not incorporated into the Contract Documents. The Contract may be amended only by a Contract Change Order or a Modification to the Construction Contract. The contractual relationship which the Contract creates between the Owner and the Contractor extends to no other persons or entities. The Contract consists of the following Contract Documents, including all additions, deletions, and modifications incorporated therein before the execution of the Construction Contract:
- (1) Construction Contract
 - (2) Performance and Payment Bonds
 - (3) Conditions of the Contract (General, Supplemental, and other Conditions)
 - (4) Specifications
 - (5) Drawings
 - (6) Contract Change Orders
 - (7) Modifications to the Construction Contract (applicable to PSCA Projects)
- E. CONTRACT SUM:** The Contract Sum is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents. The term “Contract Sum” means the Contract Sum stated in the Construction Contract as may have been increased or decreased by Change Order(s) in accordance with the Contract Documents.
- F. CONTRACT TIME:** The Contract Time is the period of time in which the Contractor must achieve Substantial Completion of the Work. The date on which the Contract Time begins is specified in the written Notice To Proceed issued to the Contractor by the Owner or Director. The Date of Substantial Completion is the date established in accordance with Article 32. The term “Contract Time” means the Contract Time stated in the Construction Contract as may have been extended by Change Order(s) in accordance with the Contract Documents. The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.
- G. CONTRACTOR:** The Contractor is the person or persons, firm, partnership, joint venture, association, corporation, cooperative, limited liability company, or other legal entity, identified as such in the Construction Contract. The term “Contractor” means the Contractor or the Contractor’s authorized representative.
- H. DCM:** The Alabama Division of Construction Management.
- I. DCM PROJECT INSPECTOR:** The member of the Technical Staff of the Alabama Division of Construction Management to whom the Project is assigned relative to executing the respective inspections and authorities described in Article 16, Inspection of the Work.
- J. DEFECTIVE WORK:** The term “Defective Work” shall apply to: (1) any product, material, system, equipment, or service, or its installation or performance, which does not conform to the requirements of the Contract Documents, (2) in-progress or completed Work the workmanship of which does not conform to the quality specified or, if not specified, to the quality produced by skilled workers performing work of a similar nature on similar projects in the state, (3) substitutions and deviations not properly submitted and approved or otherwise authorized, (4) temporary

supports, structures, or construction which will not produce the results required by the Contract Documents, and (5) materials or equipment rendered unsuitable for incorporation into the Work due to improper storage or protection.

- K. DIRECTOR:** The Director of the Alabama Division of Construction Management.
- L. DRAWINGS:** The Drawings are the portions of the Contract Documents showing graphically the design, location, layout, and dimensions of the Work, in the form of plans, elevations, sections, details, schedules, and diagrams.
- M. NOTICE TO PROCEED:** A proceed order issued by the Owner or Director, as applicable, fixing the date on which the Contractor shall begin the prosecution of the Work, which is also the date on which the Contract Time shall begin.
- N. OWNER:** The Owner is the entity or entities identified as such in the Construction Contract and is referred to throughout the Contract Documents as if singular in number. The term “Owner” means the Owner or the Owner’s authorized representative. The term “Owner” as used herein shall be synonymous with the term “Awarding Authority” as defined and used in Title 39 - Public Works, Code of Alabama, 1975, as amended.
- O. THE PROJECT:** The Project is the total construction of which the Work required by these Contract Documents may be the entirety or only a part with other portions to be constructed by the Owner or separate contractors.
- P. PROJECT MANUAL:** The Project Manual is the volume usually assembled for the Work which may include the Advertisement for Bids, Instructions to Bidders, sample forms, General Conditions of the Contract, Supplementary Conditions, and Specifications of the Work.
- Q. SPECIFICATIONS:** The Specifications are that portion of the Contract Documents which set forth in writing the standards of quality and performance of products, equipment, materials, systems, and services and workmanship required for acceptable performance of the Work.
- R. SUBCONTRACTOR:** A Subcontractor is a person or entity who is undertaking the performance of any part of the Work by virtue of a contract with the Contractor. The term “Subcontractor” means a Subcontractor or its authorized representatives.
- S. THE WORK:** The Work is the construction and services required by the Contract Documents and includes all labor, materials, supplies, equipment, and other items and services as are necessary to produce the required construction and to fulfill the Contractor’s obligations under the Contract. The Work may constitute the entire Project or only a portion of it.

ARTICLE 2

INTENT and INTERPRETATION of the CONTRACT DOCUMENTS

A. INTENT

It is the intent of the Contract Documents that the Contractor shall properly execute and complete the Work described by the Contract Documents, and unless otherwise provided in the Contract, the

Contractor shall provide all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work, in full accordance with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

B. COMPLEMENTARY DOCUMENTS

The Contract Documents are complementary. If Work is required by one Contract Document, the Contractor shall perform the Work as if it were required by all of the Contract Documents. However, the Contractor shall be required to perform Work only to the extent that is consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

C. ORDER of PRECEDENCE

Should any discrepancy arise between the various elements of the Contract Documents, precedence shall be given to them in the following order unless to do so would contravene the apparent Intent of the Contract Documents stated in preceding Paragraph A:

- (1) The Construction Contract.
- (2) Addenda, with those of later date having precedence over those of earlier date.
- (3) Supplementary Conditions (or other Conditions which modify the General Conditions of the Contract).
- (4) General Conditions of the Contract.
- (5) The Specifications.
- (6) Details appearing on the Drawings; large scale details shall take precedence over smaller scale details.
- (7) The Drawings; large scale drawings shall take precedence over smaller scale drawings.

D. ORGANIZATION

Except as may be specifically stated within the technical specifications, neither the organization of the Specifications into divisions, sections, or otherwise, nor any arrangement of the Drawings shall control how the Contractor subcontracts portions of the Work or assigns Work to any trade.

E. INTERPRETATION

(1) The Contract Documents shall be interpreted collectively, each part complementing the others and consistent with the Intent of the Contract Documents stated in preceding Paragraph A. Unless an item shown or described in the Contract Documents is specifically identified to be furnished or installed by the Owner or others or is identified as "Not In Contract" ("N.I.C."), the Contractor's obligation relative to that item shall be interpreted to include furnishing, assembling, installing, finishing, and/or connecting the item at the Contractor's expense to produce a product or system that is complete, appropriately tested, and in operative condition ready for use or subsequent construction or operation of the Owner or separate contractors. The omission of words or phrases for brevity of the Contract Documents, the inadvertent omission of words or phrases, or obvious typographical or written errors shall not defeat such interpretation as long as it is reasonably inferable from the Contract Documents as a whole.

(2) Words or phrases used in the Contract Documents which have well-known technical or

construction industry meanings are to be interpreted consistent with such recognized meanings unless otherwise indicated.

(3) Except as noted otherwise, references to standard specifications or publications of associations, bureaus, or organizations shall mean the latest edition of the referenced standard specification or publication as of the date of the Advertisement for Bids.

(4) In the case of inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

(5) Any portions of the Contract Documents written in longhand must be initialed by all parties..

(6) Any doubt as to the meaning of the Contract Documents or any obscurity as to the wording of them, shall be promptly submitted in writing to the Architect for written interpretation, explanation, or clarification.

F. SEVERABILITY.

The partial or complete invalidity of any one or more provision of this Contract shall not affect the validity or continuing force and effect of any other provision.

ARTICLE 3
CONTRACTOR'S REPRESENTATIONS

By executing the Construction Contract the Contractor represents to the Owner:

- A. The Contractor has visited the site of the Work to become familiar with local conditions under which the Work is to be performed and to evaluate reasonably observable conditions as compared with requirements of the Contract Documents.
- B. The Contractor shall use its best skill and attention to perform the Work in an expeditious manner consistent with the Contract Documents.
- C. The Contractor is an independent contractor and in performance of the Contract remains and shall act as an independent contractor having no authority to represent or obligate the Owner in any manner unless authorized by the Owner in writing.

ARTICLE 4
DOCUMENTS FURNISHED to CONTRACTOR

Unless otherwise provided in the Contract Documents, twenty sets of Drawings and Project Manuals will be furnished to the Contractor by the Architect without charge. Other copies requested will be furnished at reproduction cost.

ARTICLE 5
OWNERSHIP of DRAWINGS

All original or duplicated Drawings, Specifications, and other documents prepared by the Architect, and furnished to the Contractor are the property of the Architect and are to be used solely for this Project and not to be used in any manner for other work. Upon completion of the Work, all copies of Drawings and Specifications, with the exception of the Contractor's record set, shall be returned or accounted for by the Contractor to the Architect, on request.

ARTICLE 6
SUPERVISION, SUPERINTENDENT, and EMPLOYEES

A. SUPERVISION and CONSTRUCTION METHODS

(1) The term "Construction Methods" means the construction means, methods, techniques, sequences, and procedures utilized by the Contractor in performing the Work. The Contractor is solely responsible for supervising and coordinating the performance of the Work, including the selection of Construction Methods, unless the Contract Documents give other specific instructions concerning these matters.

(2) The Contractor is solely and completely responsible for job site safety, including the protection of persons and property in accordance with Article 14.

(3) The Contractor shall be responsible to the Owner for acts and omissions of not only the Contractor and its agents and employees, but all persons and entities, and their agents and employees, who are performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

(4) The Contractor shall be responsible to inspect the in-progress and completed Work to verify its compliance with the Contract Documents and to insure that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work.

B. SUPERINTENDENT

(1) The Contractor shall employ and maintain a competent level of supervision for the performance of the Work at the Project site, including a superintendent who shall:

(a) have full authority to receive instructions from the Architect or Owner and to act on those instructions and (b) be present at the Project site at all times during which Work is being performed.

(2) Before beginning performance of the Work, the Contractor shall notify the Architect in writing of the name and qualifications of its proposed superintendent so that the Owner may review the individual's qualifications. If, for reasonable cause, the Owner refuses to approve the individual, or withdraws its approval after once giving it, the Contractor shall name a different superintendent for the Owner's review and approval. Any disapproved superintendent will not perform in that capacity thereafter at the Project site.

C. EMPLOYEES

The Contractor shall permit only fit and skilled persons to perform the Work. The Contractor shall enforce safety procedures, strict discipline, and good order among persons performing the Work. The Contractor will remove from its employment on the Project any person who deliberately or persistently produces non-conforming Work or who fails or refuses to conform to reasonable rules of personal conduct contained in the Contract Documents or implemented by the Owner and delivered to the Contractor in writing during the course of the Work.

ARTICLE 7

REVIEW of CONTRACT DOCUMENTS and FIELD CONDITIONS by CONTRACTOR

- A. In order to facilitate assembly and installation of the Work in accordance with the Contract Documents, before starting each portion of the Work, the Contractor shall examine and compare the relevant Contract Documents, and compare them to relevant field measurements made by the Contractor and any conditions at the site affecting that portion of the Work.
- B. If the Contractor discovers any errors, omissions, or inconsistencies in the Contract Documents, the Contractor shall promptly report them to the Architect as a written request for information that includes a detailed statement identifying the specific Drawings or Specifications that are in need of clarification and the error, omission, or inconsistency discovered in them.
- (1) The Contractor shall not be expected to act as a licensed design professional and ascertain whether the Contract Documents comply with applicable laws, statutes, ordinances, building codes, and rules and regulations, but the Contractor shall be obligated to promptly notify the Architect of any such noncompliance discovered by or made known to the Contractor. If the Contractor performs Work without fulfilling this notification obligation, the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.
- (2) The Contractor shall not be liable to the Owner for errors, omissions, or inconsistencies that may exist in the Contract Documents, or between the Contract Documents and conditions at the site, unless the Contractor knowingly fails to report a discovered error, omission, or inconsistency to the Architect, in which case the Contractor shall pay the resulting costs and damages that would have been avoided by such notification.
- C. If the Contractor considers the Architect's response to a request for information to constitute a change to the Contract Documents involving additional costs and/or time, the Contractor shall follow the procedures of Article 20, Claims for Extra Cost or Extra Work.
- D. If, with undue frequency, the Contractor requests information that is obtainable through reasonable examination and comparison of the Contract Documents, site conditions, and previous correspondence, interpretations, or clarifications, the Contractor shall be liable to the Owner for reasonable charges from the Architect for the additional services required to review, research, and respond to such requests for information.

ARTICLE 8
SURVEYS by CONTRACTOR

- A. The Contractor shall provide competent engineering services to assure accurate execution of the Work in accordance with the Contract Documents. The Contractor shall verify the figures given for the contours, approaches and locations shown on the Drawings before starting any Work and be responsible for the accuracy of the finished Work. Without extra cost to the Owner, the Contractor shall engage a licensed surveyor if necessary to verify boundary lines, keep within property lines, and shall be responsible for encroachments on rights or property of public or surrounding property owners.
- B. The Contractor shall establish all base lines for the location of the principal components of the Work and make all detail surveys necessary for construction, including grade stakes, batter boards and other working points, lines and elevations. If the Work involves alteration of or addition to existing structures or improvements, the Contractor shall locate and measure elements of the existing conditions as is necessary to facilitate accurate fabrication, assembly, and installation of new Work in the relationship, alignment, and/or connection to the existing structure or improvement as is shown in the Contract Documents.

ARTICLE 9
SUBMITTALS

- A. Where required by the Contract Documents, the Contractor shall submit shop drawings, product data, samples and other information (hereinafter referred to as Submittals) to the Architect for the purpose of demonstrating the way by which the Contractor proposes to conform to the requirements of the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect without action.
- B. The Contractor shall be responsible to the Owner for the accuracy of its Submittals and the conformity of its submitted information to the requirements of the Contract Documents. Each Submittal shall bear the Contractor's approval, evidencing that the Contractor has reviewed and found the information to be in compliance with the requirements of the Contract Documents. Submittals which are not marked as reviewed and approved by the Contractor may be returned by the Architect without action.
- C. The Contractor shall prepare and deliver its submittals to the Architect sufficiently in advance of construction requirements and in a sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. In coordinating the Submittal process with its construction schedule, the Contractor shall allow sufficient time to permit adequate review by the Architect.
- D. By approving a Submittal the Contractor represents not only that the element of Work presented in the Submittal complies with the requirements of the Contract Documents, but also that the Contractor has:
 - (1) found the layout and/or dimensions in the Submittal to be comparable with those in the Contract Documents and other relevant Submittals and has made field measurements as necessary to verify their accuracy, and
 - (2) determined that products, materials, systems, equipment and/or procedures presented in the Submittal are compatible with those presented, or being presented, in other relevant Submittals and

with the Contractor's intended Construction Methods.

- E. The Contractor shall not fabricate or perform any portion of the Work for which the Contract Documents require Submittals until the respective Submittals have been approved by the Architect.
- F. In the case of a resubmission, the Contractor shall direct specific attention to all revisions in a Submittal. The Architect's approval of a resubmission shall not apply to any revisions that were not brought to the Architect's attention.
- G. If the Contract Documents specify that a Submittal is to be prepared and sealed by a registered architect or licensed engineer retained by the Contractor, all drawings, calculations, specifications, and certifications of the Submittal shall bear the Alabama seal of registration and signature of the registered/licensed design professional who prepared them or under whose supervision they were prepared. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of such a Submittal, provided that all performance and design criteria that such Submittal must satisfy are sufficiently specified in the Contract Documents. The Architect will review, approve or take other appropriate action on such a Submittal only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria specified in the Contract Documents.

H. DEVIATIONS

(1) The Architect is authorized by the Owner to approve "minor" deviations from the requirements of the Contract Documents. "Minor" deviations are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Deviations which are not "minor" may be authorized only by the Owner through the Change Order procedures of Article 19.

(2) Any deviation from the requirements of the Contract Documents contained in a Submittal shall be clearly identified as a "Deviation from Contract Requirements" (or by similar language) within the Submittal and, in a letter transmitting the Submittal to the Architect, the Contractor shall direct the Architect's attention to, and request specific approval of, the deviation. Otherwise, the Architect's approval of a Submittal does not constitute approval of deviations from the requirements of the Contract Documents contained in the Submittal.

(3) The Contractor shall bear all costs and expenses of any changes to the Work, changes to work performed by the Owner or separate contractors, or additional services by the Architect required to accommodate an approved deviation unless the Contractor has specifically informed the Architect in writing of the required changes and a Change Order has been issued authorizing the deviation and accounting for such resulting changes and costs.

I. ARCHITECT'S REVIEW and APPROVAL

(1) The Architect will review the Contractor's Submittals for conformance with requirements of, and the design concept expressed in, the Contract Documents and will approve or take other appropriate action upon them. This review is not intended to verify the accuracy and completeness of details such as dimensions and quantities nor to substantiate installation instructions or performance of equipment or systems, all of which remain the responsibility of the Contractor. However, the Architect shall advise the Contractor of any errors or omissions which the Architect

may detect during this review. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

(2) The Architect will review and respond to all Submittals with reasonable promptness to avoid delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time to permit adequate review.

(3) No corrections or changes to Submittals indicated by the Architect will be considered as authorizations to perform Extra Work. If the Contractor considers such correction or change of a Submittal to require Work which differs from the requirements of the Contract Documents, the Contractor shall promptly notify the Architect in writing in accordance with Article 20, Claims for Extra Cost or Extra Work.

J. CONFORMANCE with SUBMITTALS

The Work shall be constructed in accordance with approved Submittals.

ARTICLE 10
DOCUMENTS and SAMPLES at the SITE

A. "AS ISSUED" SET

The Contractor shall maintain at the Project site, in good order, at least one copy of all Addenda, Change Orders, supplemental drawings, written directives and clarifications, and approved Submittals intact as issued, and an updated construction schedule.

B. "POSTED" SET

The Contractor shall maintain at the Project site, in good order, at least one set of the Drawings and Project Manual into which the Contractor has "posted"(incorporated) all Addenda, Change Orders, supplemental drawings, clarifications, and other information pertinent to the proper performance of the Work. The Contractor shall assure that all sets of the Drawings and Project Manuals being used by the Contractor, Subcontractors, and suppliers are "posted" with the current information to insure that updated Contract Documents are used for performance of the Work.

C. RECORD SET

One set of the Drawings and Project Manual described in Paragraph B shall be the Contractor's record set in which the Contractor shall record all field changes, corrections, selections, final locations, and other information as will be duplicated on the "As-built" documents required under Article 11. The Contractor shall record such "as-built" information in its record set as it becomes available through progress of the Work. The Contractor's performance of this requirement shall be subject to confirmation by the Architect at any time as a prerequisite to approval of Progress Payments.

D. The documents and samples required by this Article to be maintained at the Project site shall be readily available to the Architect, Owner, DCM Project Inspector, and their representatives.

ARTICLE 11
“AS-BUILT” DOCUMENTS

- A. Unless otherwise provided in the Contract Documents, the Contractor shall deliver two (2) sets of “As-built” documents, as described herein, to the Architect for submission to the Owner upon completion of the Work. Each set of “As-built” documents shall consist of a copy of the Drawings and Project Manual, in like-new condition, into which the Contractor has neatly incorporated all Addenda, Change Orders, supplemental drawings, clarifications, field changes, corrections, selections, actual locations of underground utilities, and other information as required herein or specified elsewhere in the Contract Documents.
- B. The Contractor shall use the following methods for incorporating information into the “As-built” documents:
- (1) Drawings**
- (a)** To the greatest extent practicable, information shall be carefully drawn and lettered, in ink, on the Drawings in the form of sketches, details, plans, notes, and dimensions as required to provide a fully dimensioned record of the Work. When required for clarity, sketches, details, or partial plans shall be drawn on supplemental sheets and bound into the Drawings and referenced on the drawing being revised.
- (b)** Where a revised drawing has been furnished by the Architect, the drawing of latest date shall be bound into the Drawings in the place of the superseded drawing.
- (c)** Where a supplemental drawing has been furnished by the Architect, the supplemental drawing shall be bound into the Drawings in an appropriate location and referred to by notes added to the drawing being supplemented.
- (d)** Where the Architect has furnished details, partial plans, or lengthy notes of which it would be impractical for the Contractor to redraw or letter on a drawing, such information may be affixed to the appropriate drawing with transparent tape if space is available on the drawing.
- (e)** Any entry of information made in the Drawings that is the result of an Addendum or Change Order, shall identify the Addendum or Change Order from which it originated.
- (2) Project Manual**
- (a)** A copy of all Addenda and Change Orders, excluding drawings thereof, shall be bound in the front of the Project Manual.
- (b)** Where a document, form, or entire specification section is revised, the latest issue shall be bound into the Project Manual in the place of the superseded issue.
- (c)** Where information within a specification section is revised, the deleted or revised information shall be drawn through in ink and an adjacent note added identifying the Addendum or Change Order containing the revised information.
- C. Within ten days after the Date of Substantial Completion of the Work, or the last completed portion of the Work, the Contractor shall submit the “As-built” documents to the Architect for approval. If the Architect requires that any corrections be made, the documents will be returned in a reasonable time for correction and resubmission.

ARTICLE 12
PROGRESS SCHEDULE

(Not applicable if the Contract Time is 60 days or less.)

- A. The Contractor shall within fifteen days after the date of commencement stated in the Notice to Proceed, or such other time as may be provided in the Contract Documents, prepare and submit to the Architect for review and approval a practicable construction schedule informing the Architect and Owner of the order in which the Contractor plans to carry on the Work within the Contract Time. The Architect's review and approval of the Contractor's construction schedule shall be only for compliance with the specified format, Contract Time, and suitability for monitoring progress of the Work and shall not be construed as a representation that the Architect has analyzed the schedule to form opinions of sequences or durations of time represented in the schedule.
- B. If a schedule format is not specified elsewhere in the Contract Documents, the construction schedule shall be prepared using DCM Form C-11, "Sample Progress Schedule and Report", (contained in the Project Manual) or similar format of suitable scale and detail to indicate the percentage of Work scheduled to be completed at the end of each month. At the end of each month the Contractor shall enter the actual percentage of completion on the construction schedule submit two copies to the Architect, and attach one copy to each copy of the monthly Application for Payment. The construction schedule shall be revised to reflect any agreed extensions of the Contract Time or as required by conditions of the Work.
- C. If a more comprehensive schedule format is specified elsewhere in the Contract Documents or voluntarily employed by the Contractor, it may be used in lieu of DCM Form C-11.
- D. The Contractor's construction schedule shall be used by the Contractor, Architect, and Owner to determine the adequacy of the Contractor's progress. The Contractor shall be responsible for maintaining progress in accordance with the currently approved construction schedule and shall increase the number of shifts, and/or overtime operations, days of work, and/or the amount of construction plant and equipment as may be necessary to do so. If the Contractor's progress falls materially behind the currently approved construction schedule and, in the opinion of the Architect or Owner, the Contractor is not taking sufficient steps to regain schedule, the Architect may, with the Owner's concurrence, issue the Contractor a Notice to Cure pursuant to Article 27. In such a Notice to Cure the Architect may require the Contractor to submit such supplementary or revised construction schedules as may be deemed necessary to demonstrate the manner in which schedule will be regained.

ARTICLE 13
EQUIPMENT, MATERIALS, and SUBSTITUTIONS

- A. Every part of the Work shall be executed in a workmanlike manner in accordance with the Contract Documents and approved Submittals. All materials used in the Work shall be furnished in sufficient quantities to facilitate the proper and expeditious execution of the Work and shall be new except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise.
- B. Whenever a product, material, system, item of equipment, or service is identified in the Contract Documents by reference to a trade name, manufacturer's name, model number, etc.(hereinafter

referred to as “source”), and only one or two sources are listed, or three or more sources are listed and followed by “or approved equal” or similar wording, it is intended to establish a required standard of performance, design, and quality, and the Contractor may submit, for the Architect’s approval, products, materials, systems, equipment, or services of other sources which the Contractor can prove to the Architect’s satisfaction are equal to, or exceed, the standard of performance, design and quality specified, unless the provisions of Paragraph D below apply. Such proposed substitutions are not to be purchased or installed without the Architect’s written approval of the substitution.

- C. If the Contract Documents identify three or more sources for a product, material, system, item of equipment or service to be used and the list of sources is not followed by “or approved equal” or similar wording, the Contractor may make substitution only after evaluation by the Architect and execution of an appropriate Contract Change Order.
- D. If the Contract Documents identify only one source and expressly provide that it is an approved sole source for the product, material, system, item of equipment, or service, the Contractor must furnish the identified sole source.

ARTICLE 14

SAFETY and PROTECTION of PERSONS and PROPERTY

- A. The Contractor shall be solely and completely responsible for conditions at the Project site, including safety of all persons (including employees) and property. The Contractor shall create, maintain, and supervise conditions and programs to facilitate and promote safe execution of the Work, and shall supervise the Work with the attention and skill required to assure its safe performance. Safety provisions shall conform to OSHA requirements and all other federal, state, county, and local laws, ordinances, codes, and regulations. Where any of these are in conflict, the more stringent requirement shall be followed. Nothing contained in this Contract shall be construed to mean that the Owner has employed the Architect nor has the Architect employed its consultants to administer, supervise, inspect, or take action regarding safety programs or conditions at the Project site.
- B. The Contractor shall employ Construction Methods, safety precautions, and protective measures that will reasonably prevent damage, injury or loss to:
 - (1) workers and other persons on the Project site and in adjacent and other areas that may be affected by the Contractor’s operations;
 - (2) the Work and materials and equipment to be incorporated into the Work and stored by the Contractor on or off the Project site; and
 - (3) other property on, or adjacent to, the Project site, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and other improvements not designated in the Contract Documents to be removed, relocated, or replaced.
- C. The Contractor shall be responsible for the prompt remedy of damage and loss to property, including the filing of appropriate insurance claims, caused in whole or in part by the fault or negligence of the Contractor, a Subcontractor, or anyone for whose acts they may be liable.

- D. The Contractor shall comply with and give notices required by applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety and protection of persons or property, including without limitation notices to adjoining property owners of excavation or other construction activities that potentially could cause damage or injury to adjoining property or persons thereon.
- E. The Contractor shall erect and maintain barriers, danger signs, and any other reasonable safeguards and warnings against hazards as may be required for safety and protection during performance of the Contract and shall notify owners and users of adjacent sites and utilities of conditions that may exist or arise which may jeopardize their safety.
- F. If use or storage of explosives or other hazardous materials or equipment or unusual Construction Methods are necessary for execution of the Work, the Contractor shall exercise commensurate care and employ supervisors and workers properly qualified to perform such activity.
- G. The Contractor shall furnish a qualified safety representative at the Project site whose duties shall include the prevention of accidents. The safety representative shall be the Contractor's superintendent, unless the Contractor assigns this duty to another responsible member of its on-site staff and notifies the Owner and Architect in writing of such assignment.
- H. The Contractor shall not permit a load to be applied, or forces introduced, to any part of the construction or site that may cause damage to the construction or site or endanger safety of the construction, site, or persons on or near the site.
- I. The Contractor shall have the right to act as it deems appropriate in emergency situations jeopardizing life or property. The Contractor shall be entitled to equitable adjustment of the Contract Sum or Contract Time for its efforts expended for the sole benefit of the Owner in an emergency. Such adjustment shall be determined as provided in Articles 19 and 20.
- J. The duty of the Architect and the Architect's consultants to visit the Project site to conduct periodic inspections of the Work or for other purposes shall not give rise to a duty to review or approve the adequacy of the Contractor's safety program, safety supervisor, or any safety measure which Contractor takes or fails to take in, on, or near the Project site.

ARTICLE 15

HAZARDOUS MATERIALS

- A. A Hazardous Material is any substance or material identified as hazardous under any federal, state, or local law or regulation, or any other substance or material which may be considered hazardous or otherwise subject to statutory or regulatory requirements governing its handling, disposal, and/or clean-up. Existing Hazardous Materials are Hazardous Materials discovered at the Project site and not introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable.
- B. If, during the performance of the Work, the Contractor encounters a suspected Existing Hazardous Material, the Contractor shall immediately stop work in the affected area, take measures appropriate to the condition to keep people away from the suspected Existing Hazardous Material, and

immediately notify the Architect and Owner of the condition in writing.

- C. The Owner shall obtain the services of an independent laboratory or professional consultant, appropriately licensed and qualified, to determine whether the suspected material is a Hazardous Material requiring abatement and, if so, to certify after its abatement that it has been rendered harmless. Any abatement of Existing Hazardous Materials will be the responsibility of the Owner. The Owner will advise the Contractor in writing of the persons or entities who will determine the nature of the suspected material and those who will, if necessary, perform the abatement. The Owner will not employ persons or entities to perform these services to whom the Contractor or Architect has reasonable objection.
- D. After certification by the Owner's independent laboratory or professional consultant that the material is harmless or has been rendered harmless, work in the affected area shall resume upon written agreement between the Owner and Contractor. If the material is found to be an Existing Hazardous Material and the Contractor incurs additional cost or delay due to the presence and abatement of the material, the Contract Sum and/or Contract Time shall be appropriately adjusted by a Contract Change Order pursuant to Article 19.
- E. The Owner shall not be responsible for Hazardous Materials introduced to the Project site by the Contractor, a Subcontractor, or anyone for whose acts they may be liable unless such Hazardous Materials were required by the Contract Documents.

ARTICLE 16

INSPECTION of the WORK

A. GENERAL

- (1) The Contractor is solely responsible for the Work's compliance with the Contract Documents; therefore, the Contractor shall be responsible to inspect in-progress and completed Work, and shall verify its compliance with the Contract Documents and that any element or portion of the Work upon which subsequent Work is to be applied or performed is in proper condition to receive the subsequent Work. Neither the presence nor absence of inspections by the Architect, Owner, Director, DCM Project Inspector, any public authority having jurisdiction, or their representatives shall relieve the Contractor of responsibility to inspect the Work, for responsibility for Construction Methods and safety precautions and programs in connection with the Work, or from any other requirement of the Contract Documents.
- (2) The Architect, Owner, Director, DCM Project Inspector, any public authority having jurisdiction, and their representatives shall have access at all times to the Work for inspection whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and inspection. All materials, workmanship, processes of manufacture, and methods of construction, if not otherwise stipulated in the Contract Documents, shall be subject to inspection, examination, and test at any and all places where such manufacture and/or construction are being carried on. Such inspections will not unreasonably interfere with the Contractor's operations.
- (3) The Architect will inspect the Work as a representative of the Owner. The Architect's inspections may be supplemented by inspections by the DCM Project Inspector as a representative of the Alabama Division of Construction Management.

(4) The Contractor may be charged by the Owner for any extra cost of inspection incurred by the Owner or Architect on account of material and workmanship not being ready at the time of inspection set by the Contractor.

B. TYPES of INSPECTIONS

(1) **SCHEDULED INSPECTIONS and CONFERENCES.** Scheduled Inspections and Conferences are conducted by the Architect, scheduled by the Architect in coordination with the Contractor and DCM Project Inspector, and are attended by the Contractor and applicable Subcontractors, suppliers and manufacturers, and the DCM Project Inspector. Scheduled Inspections and Conferences of this Contract include:

(a) **Pre-construction Conference.**

(b) **Pre-roofing Conference** (not applicable if the Contract involves no roofing work)

(c) **Above Ceiling Inspection(s):** An above ceiling inspection of all spaces in the building is required before the ceiling material is installed. Above ceiling inspections are to be conducted at a time when all above ceiling systems are complete and tested to the greatest extent reasonable pending installation of the ceiling material. System identifications and markings are to be complete. All fire-rated construction including fire-stopping of penetrations and specified identification above the ceiling shall be complete. Ceiling framing and suspension systems shall be complete with lights, grilles and diffusers, access panels, fire protection drops for sprinkler heads, etc., installed in their final locations to the greatest extent reasonable. Above ceiling framing to support ceiling mounted equipment shall be complete. The above ceiling construction shall be complete to the extent that after the inspection the ceiling material can be installed without disturbance.

(d) **Final Inspection(s):** A Final Inspection shall establish that the Work, or a designated portion of the Work, is Substantially Complete in accordance with Article 32 and is accepted by the Architect, Owner, and DCM Project Inspector as being ready for the Owner's occupancy or use. At the conclusion of this inspection, items requiring correction or completion ("punch list" items) shall be minimal and require only a short period of time for accomplishment to establish Final Acceptance of the Work. If the Work, or designated portion of the Work, includes the installation, or modification, of a fire alarm system or other life safety systems essential to occupancy, such systems shall have been tested and appropriately certified before the Final Inspection.

(e) **Year-end Inspection(s):** An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one year warranty period(s). The subsequent delivery of the Architect's report of this inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period in accordance with Article 35.

(2) **PERIODIC INSPECTIONS.** Periodic Inspections are conducted throughout the course of the Work by the Architect, the Architect's consultants, their representatives, and the DCM Project Inspector, jointly or independently, with or without advance notice to the Contractor.

(3) **SPECIFIED INSPECTIONS and TESTS.** Specified Inspections and Tests include inspections, tests, demonstrations, and approvals that are either specified in the Contract Documents or required by laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction, to be performed by the Contractor, one of its Subcontractors, or an independent testing laboratory or firm (whether paid for by the Contractor or Owner).

C. INSPECTIONS by the ARCHITECT

- (1) The Architect is not authorized to revoke, alter, relax, or waive any requirements of the Contract Documents (other than “minor” deviations as defined in Article 9 and “minor” changes as defined in Article 19), to finally approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents without concurrence of the Owner.
- (2) The Architect will visit the site at intervals appropriate to the stage of the Contractor’s operations and as otherwise necessary to:
 - (a) become generally familiar with the in-progress and completed Work and the quality of the Work,
 - (b) determine whether the Work is progressing in general accordance with the Contractor’s schedule and is likely to be completed within the Contract Time,
 - (c) visually compare readily accessible elements of the Work to the requirements of the Contract Documents to determine, in general, if the Contractor’s performance of the Work indicates that the Work will conform to the requirements of the Contract Documents when completed,
 - (d) endeavor to guard the Owner against Defective Work,
 - (e) review and address with the Contractor any problems in implementing the requirements of the Contract Documents that the Contractor may have encountered, and
 - (f) keep the Owner fully informed about the Project.
- (3) The Architect shall have the authority to reject Defective Work or require its correction, but shall not be required to make exhaustive investigations or examinations of the in-progress or completed portions of the Work to expose the presence of Defective Work. However, it shall be an obligation of the Architect to report in writing, to the Owner, Contractor, and DCM Project Inspector, any Defective Work recognized by the Architect.
- (4) The Architect shall have the authority to require the Contractor to stop work only when, in the Architect’s reasonable opinion, such stoppage is necessary to avoid Defective Work. The Architect shall not be liable to the Contractor or Owner for the consequences of any decisions made by the Architect in good faith either to exercise or not to exercise this authority.
- (5) “Inspections by the Architect” includes appropriate inspections by the Architect’s consultants as dictated by their respective disciplines of design and the stage of the Contractor’s operations.

D. INSPECTIONS by the DCM PROJECT INSPECTOR

- (1) The DCM Project Inspector will:
 - (a) participate in scheduled inspections and conferences as practicable,
 - (b) perform periodic inspections of in-progress and completed Work to ensure code compliance of the Project and general conformance of the Work with the Contract Documents, and
 - (c) monitor the Contractor's progress and performance of the Work.
- (2) The DCM Project Inspector shall have the authority to:
 - (a) reject Work that is not in compliance with the State Building Code adopted by the DCM, unless the Work is in accordance with the Contract Documents in which case the DCM Project Inspector will advise the Architect to initiate appropriate corrective action, and
 - (b) notify the Architect, Owner, and Contractor of Defective Work recognized by the DCM Project Inspector.

(3) The DCM Project Inspector's periodic inspections will usually be scheduled around key stages of construction based upon information reported by the Architect. As the Architect or Owner deems appropriate, the DCM Project Inspector, as well as other members of the Technical Staff, can be requested to schedule special inspections or meetings to address specific matters. The written findings of DCM Project Inspector will be transmitted to the Owner, Contractor, and Architect.

(4) The DCM Project Inspector is not authorized to revoke, alter, relax, or waive any requirements of the Contract Documents, to finally approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents without concurrence of the Owner. The Contractor shall not proceed with Work as a result of instructions or findings of the DCM Project Inspector which the Contractor considers to be a change to the requirements of the Contract Documents without written authorization of the Owner through the Architect.

E. UNCOVERING WORK

(1) If the Contractor covers a portion of the Work before it is examined by the Architect and this is contrary to the Architect's request or specific requirements in the Contract Documents, then, upon written request of the Architect, the Work must be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

(2) Without a prior request or specific requirement that Work be examined by the Architect before it is covered, the Architect may request that Work be uncovered for examination and the Contractor shall uncover it. If the Work is in accordance with the Contract Documents, the Contract Sum shall be equitably adjusted under Article 19 to compensate the Contractor for the costs of uncovering and replacement. If the Work is not in accordance with the Contract Documents, uncovering, correction, and replacement shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

F. SPECIFIED INSPECTIONS and TESTS

(1) The Contractor shall schedule and coordinate Specified Inspections and Tests to be made at appropriate times so as not to delay the progress of the Work or the work of the Owner or separate contractors. If the Contract Documents require that a Specified Inspection or Test be witnessed or attended by the Architect or Architect's consultant, the Contractor shall give the Architect timely notice of the time and place of the Specified Inspection or Test. If a Specified Inspection or Test reveals that Work is not in compliance with requirements of the Contract Documents, the Contractor shall bear the costs of correction, repeating the Specified Inspection or Test, and any related costs incurred by the Owner, including reasonable charges, if any, by the Architect for additional services. Through appropriate Contract Change Order the Owner shall bear costs of tests, inspections or approvals which become Contract requirements subsequent to the receipt of bids.

(2) If the Architect, Owner, or public authority having jurisdiction determines that inspections, tests, demonstrations, or approvals in addition to Specified Inspections and Tests are required, the Contractor shall, upon written instruction from the Architect, arrange for their performance by an entity acceptable to the Owner, giving timely notice to the architect of the time and place of their performance. Related costs shall be borne by the Owner unless the procedures reveal that Work is

not in compliance with requirements of the Contract Documents, in which case the Contractor shall bear the costs of correction, repeating the procedures, and any related costs incurred by the Owner, including reasonable charges, if any, by the Architect for additional services.

(3) Unless otherwise required by the Contract Documents, required certificates of Specified Inspections and Tests shall be secured by the Contractor and promptly delivered to the Architect.

(4) Failure of any materials to pass Specified Inspections and Tests will be sufficient cause for refusal to consider any further samples of the same brand or make of that material for use in the Work.

ARTICLE 17

CORRECTION of DEFECTIVE WORK

- A. The Contractor shall, at the Contractor's expense, promptly correct Defective Work rejected by the Architect or which otherwise becomes known to the Contractor, removing the rejected or nonconforming materials and construction from the project site.
- B. Correction of Defective Work shall be performed in such a timely manner as will avoid delay of completion, use, or occupancy of the Work and the work of the Owner and separate contractors.
- C. The Contractor shall bear all expenses related to the correction of Defective Work, including but not limited to: (1) additional testing and inspections, including repeating Specified Inspections and Tests, (2) reasonable services and expenses of the Architect, and (3) the expense of making good all work of the Contractor, Owner, or separate contractors destroyed or damaged by the correction of Defective Work.

ARTICLE 18

DEDUCTIONS for UNCORRECTED WORK

If the Owner deems it advisable and in the Owner's interest to accept Defective Work, the Owner may allow part or all of such Work to remain in place, provided an equitable deduction from the Contract Sum, acceptable to the Owner, is offered by the Contractor.

ARTICLE 19

CHANGES in the WORK

A. GENERAL

(1) The Owner may at any time direct the Contractor to make changes in the Work which are within the general scope of the Contract, including changes in the Drawings, Specifications, or other portions of the Contract Documents to add, delete, or otherwise revise portions of the Work. The Architect is authorized by the Owner to direct "minor" changes in the Work by written order to the Contractor. "Minor" changes in the Work are defined as those which are in the interest of the Owner, do not materially alter the quality or performance of the finished Work, and do not affect the cost or time of performance of the Work. Changes in the Work which are not "minor" may be

authorized only by the Owner.

(2) If the Owner directs a change in the Work, the change shall be incorporated into the Contract by a Contract Change Order prepared by the Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract, stating their agreement upon the change or changes in the Work and the adjustments, if any, in the Contract Sum and the Contract Time.

(3) Subject to compliance with Alabama's Public Works Law, the Owner may, upon agreement by the Contractor, incorporate previously unawarded bid alternates into the Contract.

(4) In the event of a claim or dispute as to the appropriate adjustment to the Contract Sum or Contract Time due to a directive to make changes in the Work, the Work shall proceed as provided in this article subject to subsequent agreement of the parties or final resolution of the dispute pursuant to Article 24.

(5) Consent of surety will be obtained for all Contract Change Orders involving an increase in the Contract Sum.

(6) Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly to perform changes in the Work, unless otherwise directed by the Owner through the Architect.

(7) All change orders require DCM Form C-12: Contract Change Order and DCM Form B-11: Change Order Justification. Only Change Orders 10% or greater of the current contract amount require the Owner's legal advisor's signature on DCM Form B-11: Change Order Justification.

B. DETERMINATION of ADJUSTMENT of the CONTRACT SUM

The adjustment of the Contract Sum resulting from a change in the Work shall be determined by one of the following methods, or a combination thereof, as selected by the Owner:

(1) **Lump Sum.** By mutual agreement to a lump sum based on or negotiated from an itemized cost proposal from the Contractor. Additions to the Contract Sum shall include the Contractor's direct costs plus a maximum 15% markup for overhead and profit. Where subcontract work is involved the total mark-up for the Contractor and a Subcontractor shall not exceed 25%. **Changes which involve a net credit to the Owner shall include fair and reasonable credits for overhead and profit on the deducted work, in no case less than 5%.** For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of bonds, superintendent and other job office personnel, watchman, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

(2) **Unit Price.** By application of Unit Prices included in the Contract or subsequently agreed to by the parties. However, if the character or quantity originally contemplated is materially changed so that application of such unit price to quantities of Work proposed will cause substantial inequity to either party, the applicable unit price shall be equitably adjusted.

(3) **Force Account.** By directing the Contractor to proceed with the change in the Work on a "force account" basis under which the Contractor shall be reimbursed for reasonable expenditures incurred by the Contractor and its Subcontractors in performing added Work and the Owner shall

receive reasonable credit for any deleted Work. The Contractor shall keep and present, in such form as the Owner may prescribe, an itemized accounting of the cost of the change together with sufficient supporting data. Unless otherwise stated in the directive, the adjustment of the Contract Sum shall be limited to the following:

- (a) costs of labor and supervision, including employee benefits, social security, retirement, unemployment and workers' compensation insurance required by law, agreement, or under Contractor's or Subcontractor's standard personnel policy;
- (b) cost of materials, supplies and equipment, including cost of delivery, whether incorporated or consumed;
- (c) rental cost of machinery and equipment, not to exceed prevailing local rates if contractor-owned;
- (d) costs of premiums for insurance required by the Contract Documents, permit fees, and sales, use or similar taxes related to the change in the Work;
- (e) reasonable credits to the Owner for the value of deleted Work, without Contractor or Subcontractor mark-ups; and
- (f) for additions to the Contract Sum, mark-up of the Contractor's direct costs for overhead and profit not exceeding 15% on Contractor's work nor exceeding 25% for Contractor and Subcontractor on a Subcontractor's work. **Changes which involve a net credit to the Owner shall include fair and reasonable credits for overhead and profit on the deducted work, in no case less than 5%.** For the purposes of this method of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change, such as the cost of insurance other than mentioned above, bonds, superintendent and other job office personnel, watchman, use and rental of small tools, job office, job office supplies and expenses, temporary facilities and utilities, and home office expenses.

C. ADJUSTMENT of the CONTRACT TIME due to CHANGES

(1) Unless otherwise provided in the Contract Documents, the Contract Time shall be equitably adjusted for the performance of a change provided that the Contractor notifies the Architect in writing that the change will increase the time required to complete the Work. Such notice shall be provided no later than:

- (a) with the Contractor's cost proposal stating the number of days of extension requested, or
- (b) within ten days after the Contractor receives a directive to proceed with a change in advance of submitting a cost proposal, in which case the notice should provide an estimated number of days of extension to be requested, which may be subject to adjustment in the cost proposal.

(2) The Contract Time shall be extended only to the extent that the change affects the time required to complete the entire Work of the Contract, taking into account the concurrent performance of the changed and unchanged Work.

D. CHANGE ORDER PROCEDURES

(1) If the Owner proposes to make a change in the Work, the Architect will request that the Contractor provide a cost proposal for making the change to the Work. The request shall be in writing and shall adequately describe the proposed change using drawings, specifications, narrative, or a combination thereof. Within 21 days after receiving such a request, or such other time as may be stated in the request, the Contractor shall prepare and submit to the Architect a written proposal, properly itemized and supported by sufficient substantiating data to facilitate evaluation. The stated

time within which the Contractor must submit a proposal may be extended if, within that time, the Contractor makes a written request with reasonable justification thereof.

(2) The Contractor may voluntarily offer a change proposal which, in the Contractor's opinion, will reduce the cost of construction, maintenance, or operation or will improve the cost-effective performance of an element of the Project, in which case the Owner, through the Architect, will accept, reject, or respond otherwise within 21 days after receipt of the proposal, or such other reasonable time as the Contractor may state in the proposal.

(3) If the Contractor's proposal is acceptable to the Owner, or is negotiated to the mutual agreement of the Contractor and Owner, the Architect will prepare an appropriate Contract Change Order for execution. Upon receipt of the fully executed Contract Change Order, the Contractor shall proceed with the change.

(4) In advance of delivery of a fully executed Contract Change Order, the Architect may furnish to the Contractor a written authorization to proceed with an agreed change. However, such an authorization shall be effective only if it:

- (a) identifies the Contractor's accepted or negotiated proposal for the change,
- (b) states the agreed adjustments, if any, in Contract Sum and Contract Time,
- (c) states that funds are available to pay for the change, and
- (d) is signed by the Owner.

(5) If the Contractor and Owner cannot agree on the amount of the adjustment in the Contract Sum for a change, the Owner, through the Architect, may order the Contractor to proceed with the change on a Force Account basis, but the net cost to the Owner shall not exceed the amount quoted in the Contractor's proposal. Such order shall state that funds are available to pay for the change.

(6) If the Contractor does not promptly respond to a request for a proposal, or the Owner determines that the change is essential to the final product of the Work and that the change must be effected immediately to avoid delay of the Project, the Owner may:

- (a) determine with the Contractor a sufficient maximum amount to be authorized for the change and
- (b) direct the Contractor to proceed with the change on a Force Account basis pending delivery of the Contractor's proposal, stating the maximum increase in the Contract Sum that is authorized for the change.

(7) Pending agreement of the parties or final resolution of any dispute of the total amount due the Contractor for a change in the Work, amounts not in dispute for such changes in the Work may be included in Applications for Payment accompanied by an interim Change Order indicating the parties' agreement with part of all of such costs or time extension. Once a dispute is resolved, it shall be implemented by preparation and execution of an appropriate Change Order.

ARTICLE 20

CLAIMS for EXTRA COST or EXTRA WORK

- A. If the Contractor considers any instructions by the Architect, Owner, DCM Project Inspector, or public authority having jurisdiction to be contrary to the requirements of the Contract Documents and will involve extra work and/or cost under the Contract, the Contractor shall give the Architect

written notice thereof within ten days after receipt of such instructions, and in any event before proceeding to execute such work. As used in this Article, “instructions” shall include written or oral clarifications, directions, instructions, interpretations, or determinations.

- B. The Contractor’s notification pursuant to Paragraph 20.A shall state: (1) the date, circumstances, and source of the instructions, (2) that the Contractor considers the instructions to constitute a change to the Contract Documents and why, and (3) an estimate of extra cost and time that may be involved to the extent an estimate may be reasonably made at that time.
- C. Except for claims relating to an emergency endangering life or property, no claim for extra cost or extra work shall be considered in the absence of prior notice required under Paragraph 20.A.
- D. Within ten days of receipt of a notice pursuant to Paragraph 20.A, the Architect will respond in writing to the Contractor, stating one of the following:
 - (1) The cited instruction is rescinded.
 - (2) The cited instruction is a change in the Work and in which manner the Contractor is to proceed with procedures of Article 19, Changes in the Work.
 - (3) The cited instruction is reconfirmed, is not considered by the Architect to be a change in the Contract Documents, and the Contractor is to proceed with Work as instructed.
- E. If the Architect’s response to the Contractor is as in Paragraph 20.D(3), the Contractor shall proceed with the Work as instructed. If the Contractor continues to consider the instructions to constitute a change in the Contract Documents, the Contractor shall, within ten days after receiving the Architect’s response, notify the Architect in writing that the Contractor intends to submit a claim pursuant to Article 24, Resolution of Claims and Disputes

ARTICLE 21

DIFFERING SITE CONDITIONS

A. DEFINITION

“Differing Site Conditions” are:

- (1) subsurface or otherwise concealed physical conditions at the Project site which differ materially from those indicated in the Contract Documents, or
- (2) unknown physical conditions at the Project site which are of an unusual nature, differing materially from conditions ordinarily encountered and generally recognized as inherent in construction activities of the character required by the Contract Documents.

B. PROCEDURES

If Differing Site Conditions are encountered, then the party discovering the condition shall promptly notify the other party before the condition is disturbed and in no event later than ten days after discovering the condition. Upon such notice and verification that a Differing Site Condition exists, the Architect will, with reasonable promptness and with the Owner’s concurrence, make changes in the Drawings and/or Specifications as are deemed necessary to conform to the Differing

Site Condition. Any increase or decrease in the Contract Sum or Contract Time that is warranted by the changes will be made as provided under Article 19, Changes in the Work. If the Architect determines a Differing Site Condition has not been encountered, the Architect shall notify the Owner and Contractor in writing, stating the reason for that determination.

ARTICLE 22 **CLAIMS for DAMAGES**

If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time after the discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

ARTICLE 23 **DELAYS**

- A. A delay beyond the Contractor's control at any time in the commencement or progress of Work by an act or omission of the Owner, Architect, or any separate contractor or by labor disputes, unusual delay in deliveries, unavoidable casualties, fires, abnormal floods, tornadoes, or other cataclysmic events of nature, may entitle the Contractor to an extension of the Contract Time provided, however, that the Contractor shall, within ten days after the delay first occurs, give written notice to the Architect of the cause of the delay and its probable effect on progress of the entire Work.
- B. Adverse weather conditions that are more severe than anticipated for the locality of the Work during any given month may entitle the Contractor to an extension of Contract Time provided, however;
 - (1) the weather conditions had an adverse effect on construction scheduled to be performed during the period in which the adverse weather occurred, which in reasonable sequence would have an effect on completion of the entire Work,
 - (2) the Contractor shall, within twenty-one days after the end of the month in which the delay occurs, give the Architect written notice of the delay that occurred during that month and its probable effect on progress of the Work, and
 - (3) within a reasonable time after giving notice of the delay, the Contractor provides the Architect with sufficient data to document that the weather conditions experienced were unusually severe for the locality of the Work during the month in question. Unless otherwise provided in the Contract Documents, data documenting unusually severe weather conditions shall compare actual weather conditions to the average weather conditions for the month in question during the previous five years as recorded by the National Oceanic and Atmospheric Administration (NOAA) or similar record-keeping entities.
- C. Adjustments, if any, of the Contract Time pursuant to this Article shall be incorporated into the Contract by a Contract Change Order prepared by the Architect and signed by the Contractor, Owner, and other signatories to the Construction Contract or, at closeout of the Contract, by mutual

written agreement between the Contractor and Owner. The adjustment of the Contract Time shall not exceed the extent to which the delay extends the time required to complete the entire Work of the Contract.

- D. The Contractor shall not be entitled to any adjustment of the Contract Sum for damage due to delays claimed pursuant to this Article unless the delay was caused by the Owner or Architect and was either:
- (1) the result of bad faith or active interference or
 - (2) beyond the contemplation of the parties and not remedied within a reasonable time after notification by the Contractor of its presence.

ARTICLE 24

RESOLUTION of CLAIMS and DISPUTES

A. APPLICABILITY of ARTICLE

(1) As used in this Article, “Claims and Disputes” include claims or disputes asserted by the Contractor, its Surety, or Owner arising out of or related to the Contract, or its breach, including without limitation claims seeking, under the provisions of the Contract, equitable adjustment of the Contract Sum or Contract Time and claims and disputes arising between the Contractor (or its Surety) and Owner regarding interpretation of the Contract Documents, performance of the Work, or breach of or compliance with the terms of the Contract.

(2) “Resolution” addressed in this Article applies only to Claims and Disputes arising between the Contractor (or its Surety) and Owner and asserted after execution of the Construction Contract and prior to the date upon which final payment is made. Upon making application for final payment the Contractor may reserve the right to subsequent Resolution of existing Claims by including a list of all Claims, in stated amounts, which remain to be resolved and specifically excluding them from any release of claims executed by the Contractor, and in that event Resolution may occur after final payment is made.

B. CONTINUANCE of PERFORMANCE

An unresolved Claim or Dispute shall not be just cause for the Contractor to fail or refuse to proceed diligently with performance of the Contract or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.

C. GOOD FAITH EFFORT to SETTLE

The Contractor and Owner agree that, upon the assertion of a Claim by the other, they will make a good faith effort, with the Architect’s assistance and advice, to achieve mutual resolution of the Claim. If mutually agreed, the Contractor and Owner may endeavor to resolve a Claim through mediation. If efforts to settle are not successful, the Claim shall be resolved in accordance with paragraph D or E below, whichever applies.

D. FINAL RESOLUTION for STATE-FUNDED CONTRACTS

(1) If the Contract is funded in whole or in part with state funds, the final Resolution of Claims

and Disputes which cannot be resolved by the Contractor (or its Surety) and Owner shall be by the Director, whose decision shall be final, binding, and conclusive upon the Contractor, its Surety, and the Owner.

(2) When it becomes apparent to the party asserting a Claim (the Claimant) that an impasse to mutual resolution has been reached, the Claimant may request in writing to the Director that the Claim be resolved by decision of the Director. Such request by the Contractor (or its Surety) shall be submitted through the Owner. Should the Owner fail or refuse to submit the Contractor's request within ten days of receipt of same, the Contractor may forward such request directly to the Director. Upon receipt of a request to resolve a Claim, the Director will instruct the parties as to procedures to be initiated and followed.

(3) If the respondent to a Claim fails or refuses to participate or cooperate in the Resolution procedures to the extent that the Claimant is compelled to initiate legal proceedings to induce the Respondent to participate or cooperate, the Claimant will be entitled to recover, and may amend its Claim to include, the expense of reasonable attorney's fees so incurred.

E. FINAL RESOLUTION for LOCALLY-FUNDED CONTRACTS

If the Contract is funded in whole with funds provided by a city or county board of education or other local governmental authority and the Contract Documents do not stipulate a binding alternative dispute resolution method, the final resolution of Claims and Disputes which cannot be resolved by the Contractor (or its Surety) and Owner may be by any legal remedy available to the parties. Alternatively, upon the written agreement of the Contractor (or its Surety) and the Owner, final Resolution of Claims and Disputes may be by submission to binding arbitration before a neutral arbitrator or panel or by submission to the Director in accordance with preceding Paragraph D.

ARTICLE 25 **OWNER'S RIGHT to CORRECT DEFECTIVE WORK**

If the Contractor fails or refuses to correct Defective Work in a timely manner that will avoid delay of completion, use, or occupancy of the Work or work by the Owner or separate contractors, the Architect may give the Contractor written Notice to Cure the Defective Work within a reasonable, stated time. If within ten days after receipt of the Notice to Cure the Contractor has not proceeded and satisfactorily continued to cure the Defective Work or provided the Architect with written verification that satisfactory positive action is in process to cure the Defective Work, the Owner may, without prejudice to any other remedy available to the Owner, correct the Defective Work and deduct the actual cost of the correction from payment then or thereafter due to the Contractor.

ARTICLE 26 **OWNER'S RIGHT to STOP or SUSPEND the WORK**

A. STOPPING the WORK for CAUSE

If the Contractor fails to correct Defective Work or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work, or any part of the Work, until the cause for the Owner's directive has been eliminated;

however, the Owner's right to stop the Work shall not be construed as a duty of the Owner to be exercised for the benefit of the Contractor or any other person or entity.

B. SUSPENSION by the OWNER for CONVENIENCE

- (1) The Owner may, at any time and without cause, direct the Contractor in writing to suspend, delay or interrupt the Work, or any part of the Work, for a period of time as the Owner may determine.
- (2) The Contract Sum and Contract Time shall be adjusted, pursuant to Article 19, for reasonable increases in the cost and time caused by an Owner-directed suspension, delay or interruption of Work for the Owner's convenience. However, no adjustment to the Contract Sum shall be made to the extent that the same or concurrent Work is, was or would have been likewise suspended, delayed or interrupted for other reasons not caused by the Owner.

ARTICLE 27
OWNER'S RIGHT to TERMINATE CONTRACT

A. TERMINATION by the OWNER for CAUSE

- (1) **Causes:** The Owner may terminate the Contractor's right to complete the Work, or any designated portion of the Work, if the Contractor:
 - (a) should be adjudged bankrupt, or should make a general assignment for the benefit of the Contractor's creditors, or if a receiver should be appointed on account of the Contractor's insolvency to the extent termination for these reasons is permissible under applicable law;
 - (b) refuses or fails to prosecute the Work, or any part of the Work, with the diligence that will insure its completion within the Contract Time, including any extensions, or fails to complete the Work within the Contract Time;
 - (c) refuses or fails to perform the Work, including prompt correction of Defective Work, in a manner that will insure that the Work, when fully completed, will be in accordance with the Contract Documents;
 - (d) fails to pay for labor or materials supplied for the Work or to pay Subcontractors in accordance with the respective Subcontract;
 - (e) persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction, or the instructions of the Architect or Owner; or
 - (f) is otherwise guilty of a substantial breach of the Contract.
- (2) **Procedure for Unbonded Construction Contracts (Generally, contracts less than \$50,000):**
 - (a) **Notice to Cure:** In the presence of any of the above conditions the Architect may give the Contractor written notice to cure the condition within a reasonable, stated time, but not less than ten days after the Contractor receives the notice.
 - (b) **Notice of Termination:** If, at the expiration of the time stated in the Notice to Cure, the Contractor has not proceeded and satisfactorily continued to cure the condition or provided the Architect with written verification that satisfactory positive action is in process to cure the condition, the Owner may, without prejudice to any other rights or remedies of the Owner, give the Contractor written notice that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the

written Notice of Termination.

(c) If the Contractor satisfies a Notice to Cure, but the condition for which the notice was first given reoccurs, the Owner may give the Contractor a seven day Notice of Termination without giving the Contractor another Notice to Cure.

(d) At the expiration of the seven days of the termination notice, the Owner may:

.1 take possession of the site, of all materials and equipment stored on and off site, and of all Contractor-owned tools, construction equipment and machinery, and facilities located at the site, and

.2 finish the Work by whatever reasonable method the Owner may deem expedient.

(e) The Contractor shall not be entitled to receive further payment under the Contract until the Work is completed.

(f) If the Owner's cost of completing the Work, including correction of Defective Work, compensation for additional architectural, engineering, managerial, and administrative services, and reasonable attorneys' fees due to the default and termination, is less than the unpaid balance of the Contract Sum, the excess balance less liquidated damages for delay shall be paid to the Contractor. If such cost to the Owner including attorney's fees, plus liquidated damages, exceeds the unpaid balance of the Contract Sum, the Contractor shall pay the difference to the Owner. Final Resolution of any claim or Dispute involving the termination or any amount due any party as a result of the termination shall be pursuant to Article 24.

(g) Upon the Contractor's request, the Owner shall furnish to the Contractor a detailed accounting of the Owner's cost of completing the Work.

(3) Procedure for Bonded Construction Contracts (Generally, contracts over \$50,000):

(a) **Notice to Cure:** In the presence of any of the above conditions the Architect may give the Contractor and its Surety written Notice to Cure the condition within a reasonable, stated time, but not less than ten days after the Contractor receives the notice.

(b) **Notice of Termination:** If, at the expiration of the time stated in the Notice to Cure, the Contractor has not proceeded and satisfactorily continued to cure the condition or provided the Architect with written verification that satisfactory positive action is in process to cure the condition, the Owner may, without prejudice to any other rights or remedies of the Owner, give the Contractor and its Surety written notice declaring the Contractor to be in default under the Contract and stating that the Contractor's right to complete the Work, or a designated portion of the Work, shall terminate seven days after the Contractor's receipt of the written Notice of Termination.

(c) If the Contractor satisfies a Notice to Cure, but the condition for which the notice was first given reoccurs, the Owner may give the Contractor a Notice of Termination without giving the Contractor another Notice to Cure.

(d) **Demand on the Performance Bond:** With the Notice of Termination the Owner shall give the Surety a written demand that, upon the effective date of the Notice of Termination, the Surety promptly fulfill its obligation to take charge of and complete the Work in accordance with the terms of the Performance Bond.

(e) **Surety Claims:** Upon receiving the Owner's demand on the Performance Bond, the Surety shall assume all rights and obligations of the Contractor under the Contract. However, the Surety shall also have the right to assert "Surety Claims" to the Owner, which are defined as claims relating to acts or omissions of the Owner or Architect prior to termination of the Contractor which may have prejudiced its rights as Surety or its interest in the unpaid balance of the Contract Sum. If the Surety wishes to assert a Surety Claim, it shall give the Owner, through the Architect, written notice within twenty-one days after first recognizing the

condition giving rise to the Surety Claim. The Surety Claim shall then be submitted to the Owner, through the Architect, no later than sixty days after giving notice thereof, but no such Surety Claims shall be considered if submitted after the date upon which final payment becomes due. Final resolution of Surety Claims shall be pursuant to Article 24, Resolution of Claims and Disputes. The presence or possibility of a Surety Claim shall not be just cause for the Surety to fail or refuse to take charge of and complete the Work or for the Owner to fail or refuse to continue to make payments in accordance with the Contract Documents.

(f) Payments to Surety: The Surety shall be paid for completing the Work in accordance with the Contract Documents as if the Surety were the Contractor. The Owner shall have the right to deduct from payments to the Surety any reasonable costs incurred by the Owner, including compensation for additional architectural, engineering, managerial, and administrative services, and attorneys' fees as necessitated by termination of the Contractor and completion of the Work by the Surety. No further payments shall be made to the Contractor by the Owner. The Surety shall be solely responsible for any accounting to the Contractor for the portion of the Contract Sum paid to Surety by Owner or for the costs and expenses of completing the Work.

(4) Wrongful Termination: If any notice of termination by the Owner for cause, made in good faith, is determined to have been wrongly given, such termination shall be effective and compensation therefore determined as if it had been a termination for convenience pursuant to Paragraph B below.

B. TERMINATION by the OWNER for CONVENIENCE

(1) The Owner may, without cause and at any time, terminate the performance of Work under the Contract in whole, or in part, upon determination by the Owner that such termination is in the Owner's best interest. Such termination is referred to herein as Termination for Convenience.

(2) Upon receipt of a written notice of Termination for Convenience from the Owner, the Contractor shall:

- (a)** stop Work as specified in the notice;
- (b)** enter into no further subcontracts or purchase orders for materials, services, or facilities, except as may be necessary for Work directed to be performed prior to the effective date of the termination or to complete Work that is not terminated;
- (c)** terminate all existing subcontracts and purchase orders to the extent they relate to the terminated Work;
- (d)** take such actions as are necessary, or directed by the Architect or Owner, to protect, preserve, and make safe the terminated Work; and
- (e)** complete performance of the Work that is not terminated.

(3) In the event of Termination for Convenience, the Contractor shall be entitled to receive payment for the Work performed prior to its termination, including materials and equipment purchased and delivered for incorporation into the terminated Work, and any reasonable costs incurred because of the termination. Such payment shall include reasonable mark-up of costs for overhead and profit, not to exceed the limits stated in Article 19, Changes in the Work. The Contractor shall be entitled to receive payment for reasonable anticipated overhead ("home office") and shall not be entitled to receive payment for any profits anticipated to have been gained from the terminated Work. A proposal for decreasing the Contract Sum shall be submitted to the Architect by the Contractor in such time and detail, and with such supporting documentation, as is reasonably

directed by the Owner. Final modification of the Contract shall be by Contract Change Order pursuant to Article 19. Any Claim or Dispute involving the termination or any amount due a party as a result shall be resolved pursuant to Article 24.

ARTICLE 28

CONTRACTOR'S RIGHT to SUSPEND or TERMINATE the CONTRACT

A. SUSPENSION by the OWNER

If all of the Work is suspended or delayed for the Owner's convenience or under an order of any court, or other public authority, for a period of sixty days, through no act or fault of the Contractor or a Subcontractor, or anyone for whose acts they may be liable, then the Contractor may give the Owner a written Notice of Termination which allows the Owner fourteen days after receiving the Notice in which to give the Contractor appropriate written authorization to resume the Work. Absent the Contractor's receipt of such authorization to resume the Work, the Contract shall terminate upon expiration of this fourteen day period and the Contractor will be compensated by the Owner as if the termination had been for the Owner's convenience pursuant to Article 27.B.

B. NONPAYMENT

The Owner's failure to pay the undisputed amount of an Application for Payment within sixty days after receiving it from the Architect (Certified pursuant to Article 30) shall be just cause for the Contractor to give the Owner fourteen days' written notice that the Work will be suspended pending receipt of payment but that the Contract shall terminate if payment is not received within fourteen days (or a longer period stated by the Contractor) of the expiration of the fourteen day notice period.

(1) If the Work is then suspended for nonpayment, but resumed upon receipt of payment, the Contractor will be entitled to compensation as if the suspension had been by the Owner pursuant to Article 26, Paragraph B.

(2) If the Contract is then terminated for nonpayment, the Contractor will be entitled to compensation as if the termination had been by the Owner pursuant to Article 27, Paragraph B.

ARTICLE 29

PROGRESS PAYMENTS

A. FREQUENCY of PROGRESS PAYMENTS

Unless otherwise provided in the Contract Documents, the Owner will make payments to the Contractor as the Work progresses based on monthly estimates prepared and certified by the Contractor, approved and certified by the Architect, and approved by the Owner and other authorities whose approval is required.

B. SCHEDULE of VALUES

Within ten days after receiving the Notice to Proceed the Contractor shall submit to the Architect a

DCM Form C-10SOV, Schedule of Values, which is a breakdown of the Contract Sum showing the value of the various parts of the Work for billing purposes. The Schedule of Values shall be printable on 8.5" × 11" for DCM's scanning purposes and shall divide the Contract Sum into as many parts ("line items") as the Architect and Owner determine necessary to permit evaluation and to show amounts attributable to Subcontractors. The Contractor's overhead and profit are to be proportionately distributed throughout the line items of the Schedule of Values. Upon approval, the Schedule of Values shall be used as a basis for monthly Applications for Payment, unless it is later found to be in error. Approved change order amounts shall be added to or incorporated into the Schedule of Values as mutually agreed by the Contractor and Architect.

C. APPLICATIONS for PAYMENTS

(1) Based on the approved Schedule of Values, each DCM Form C-10, Application and Certificate for Payment shall show the Contractor's estimate of the value of Work performed in each line item as of the end of the billing period. The Contractor's cost of materials and equipment not yet incorporated into the Work, but delivered and suitably stored on the site, may be considered in monthly Applications for Payment. One payment application per month may be submitted. Each DCM Form C-10, Application and Certificate for Payment shall match to the penny and be accompanied by an attached DCM Form C-10SOV, Schedule of Values.

(2) The Contractor's estimate of the value of Work performed and stored materials must represent such reasonableness as to warrant certification by the Architect to the Owner in accordance with Article 30. Each monthly Application for Payment shall be supported by such data as will substantiate the Contractor's right to payment, including without limitation copies of requisitions from subcontractors and material suppliers.

(3) If no other date is stated in the Contract Documents or agreed upon by the parties, each Application for Payment shall be submitted to the Architect on or about the first day of each month and payment shall be issued to the Contractor within thirty days after an Application for Payment is Certified pursuant to Article 30 and delivered to the Owner.

(4) Two copies of DCM Form C-10, Application and Certificate for Payment containing original signatures, with each copy of DCM Form C-10 to include all attachments, shall be submitted to DCM for review following the Contractor's, Notary's (for paper submittals), Architect's and Owner's signatures.

D. MATERIALS STORED OFF SITE

Unless otherwise provided in the Contract Documents, the Contractor's cost of materials and equipment to be incorporated into the Work, which are stored off the site, may also be considered in monthly Applications for Payment under the following conditions:

- (1) the contractor has received written approval from the Architect and Owner to store the materials or equipment off site in advance of delivering the materials to the off site location;
- (2) a Certificate of Insurance is furnished to the Architect evidencing that a special insurance policy, or rider to an existing policy, has been obtained by the Contractor providing all-risk property insurance coverage, specifically naming the materials or equipment stored, and naming the Owner as an additionally insured party;
- (3) the Architect is provided with a detailed inventory of the stored materials or equipment and the materials or equipment are clearly marked in correlation to the inventory to facilitate

inspection and verification of the presence of the materials or equipment by the Architect or Owner;

- (4) the materials or equipment are properly and safely stored in a bonded warehouse, or a facility otherwise approved in advance by the Architect and Owner; and
- (5) compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest.

E. RETAINAGE

(1) "Retainage" is defined as the money earned and, therefore, belonging to the Contractor (subject to final settlement of the Contract) which has been retained by the Owner conditioned on final completion and acceptance of all Work required by the Contract Documents. Retainage shall not be relied upon by Contractor (or Surety) to cover or off-set unearned monies attributable to uncompleted or uncorrected Work.

(2) In making progress payments the Owner shall retain five percent of the estimated value of Work performed and the value of the materials stored for the Work; but after retainage has been held upon fifty percent of the Contract Sum, no additional retainage will be withheld.

F. CONTRACTOR'S CERTIFICATION

(1) Each Application for Payment shall bear the Contractor's notarized certification that, to the best of the Contractor's knowledge, information, and belief, the Work covered by the Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payments were issued and payments received from the Owner and that the current payment shown in the Application for Payment has not yet been received.

(2) By making this certification the Contractor represents to the Architect and Owner that, upon receipt of previous progress payments from the Owner, the Contractor has promptly paid each Subcontractor, in accordance with the terms of its agreement with the Subcontractor, the amount due the Subcontractor from the amount included in the progress payment on account of the Subcontractor's Work and stored materials. The Architect and Owner may advise Subcontractors and suppliers regarding percentages of completion or amounts requested and/or approved in an Application for Payment on account of the Subcontractor's Work and stored materials.

G. PAYMENT ESTABLISHES OWNERSHIP

All material and Work covered by progress payments shall become the sole property of the Owner, but the Contractor shall not be relieved from the sole responsibility for the care and protection of material and Work upon which payments have been made and for the restoration of any damaged material and Work.

ARTICLE 30
CERTIFICATION and APPROVALS for PAYMENT

- A. The Architect's review, approval, and certification of Applications for Payment shall be based on the Architect's general knowledge of the Work obtained through site visits and the information

provided by the Contractor with the Application. The Architect shall not be required to perform exhaustive examinations, evaluations, or estimates of the cost of completed or uncompleted Work or stored materials to verify the accuracy of amounts requested by the Contractor, but the Architect shall have the authority to adjust the Contractor's estimate when, in the Architect's reasonable opinion, such estimates are overstated or understated.

- B.** Within seven days after receiving the Contractor's monthly Application for Payment, or such other time as may be stated in the Contract Documents, the Architect will take one of the following actions:
- (1)** The Architect will approve and certify the Application as submitted and forward it to the Owner as a Certification for Payment for approval by the Owner (and other approving authorities, if any) and payment.
 - (2)** If the Architect takes exception to any amounts claimed by the Contractor and the Contractor and Architect cannot agree on revised amounts, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to certify to the Owner, transmitting a copy of same to the Contractor.
 - (3)** To the extent the Architect determines may be necessary to protect the Owner from loss on account of any of the causes stated in Article 31, the Architect may subtract from the Contractor's estimates and will issue a Certificate for Payment to the Owner, with a copy to the Contractor, for such amount as the Architect determines is properly due and notify the Contractor and Owner in writing of the Architect's reasons for withholding payment in whole or in part.
- C.** Neither the Architect's issuance of a Certificate for Payment nor the Owner's resulting progress payment shall be a representation to the Contractor that the Work in progress or completed at that time is accepted or deemed to be in conformance with the Contract Documents.
- D.** The Architect shall not be required to determine that the Contractor has promptly or fully paid Subcontractors and suppliers or how or for what purpose the Contractor has used monies paid under the Construction Contract. However, the Architect may, upon request and if practical, inform any Subcontractor or supplier of the amount, or percentage of completion, approved or paid to the Contractor on account of the materials supplied or the Work performed by the Subcontractor.

ARTICLE 31 **PAYMENTS WITHHELD**

- A.** The Architect may nullify or revise a previously issued Certificate for Payment prior to Owner's payment thereunder to the extent as may be necessary in the Architect's opinion to protect the Owner from loss on account of any of the following causes not discovered or fully accounted for at the time of the certification or approval of the Application for Payment:
- (1)** Defective Work;
 - (2)** filed, or reasonable evidence indicating probable filing of, claims arising out of the Contract by other parties against the Contractor;
 - (3)** the Contractor's failure to pay for labor, materials or equipment or to pay Subcontractors;
 - (4)** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

- (5) damage suffered by the Owner or another contractor caused by the Contractor, a Subcontractor, or anyone for whose acts they may be liable;
 - (6) reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance is insufficient to cover applicable liquidated damages; or
 - (7) the Contractor's persistent failure to conform to the requirements of the Contract Documents.
- B.** If the Owner deems it necessary to withhold payment pursuant to preceding Paragraph A, the Owner will notify the Contractor and Architect in writing of the amount to be withheld and the reason for same.
- C.** The Architect shall not be required to withhold payment for completed or partially completed Work for which compliance with the Contract Documents remains to be determined by Specified Inspections or Final Inspections to be performed in their proper sequence. However, if Work for which payment has been approved, certified, or made under an Application for Payment is subsequently determined to be Defective Work, the Architect shall determine an appropriate amount that will protect the Owner's interest against the Defective Work.
- (1) If payment has not been made against the Application for Payment first including the Defective Work, the Architect will notify the Owner and Contractor of the amount to be withheld from the payment until the Defective Work is brought into compliance with the Contract Documents.
 - (2) If payment has been made against the Application for Payment first including the Defective Work, the Architect will withhold the appropriate amount from the next Application for Payment submitted after the determination of noncompliance, such amount to then be withheld until the Defective Work is brought into compliance with the Contract Documents.
- D.** The amount withheld will be paid with the next Application for Payment certified and approved after the condition for which the Owner has withheld payment is removed or otherwise resolved to the Owner's satisfaction.
- E.** The Owner shall have the right to withhold from payments due the Contractor under this Contract an amount equal to any amount which the Contractor owes the Owner under another contract.

ARTICLE 32

SUBSTANTIAL COMPLETION

- A.** Substantial Completion is the stage in the progress of the Work when the Work or designated portion of the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use without disruption or interference by the Contractor in completing or correcting any remaining unfinished Work ("punch list" items). Substantial Completion of the Work, or a designated portion of the Work, is not achieved until so agreed in a Certificate of Substantial Completion signed by the Contractor, Architect, Owner, and Technical Staff of the Alabama Division of Construction Management.
- B.** The Contractor shall notify the Architect in writing when it considers the Work, or a portion of the Work which the Owner has agreed to accept separately, to be substantially complete and ready for a Final Inspection pursuant to Article 16. In this notification the Contractor shall identify any items

remaining to be completed or corrected for Final Acceptance prior to final payment.

- C. Substantial Completion is achieved and a Final Inspection is appropriate only when a minimal number of punch list items exists and only a short period of time will be required to correct or complete them. Upon receipt of the Contractor's notice for a Final Inspection, the Architect will advise the Contractor in writing of any conditions of the Work which the Architect or Owner is aware do not constitute Substantial Completion, otherwise, a Final Inspection will proceed within a reasonable time after the Contractor's notice is given. However, the Architect will not be required to prepare lengthy listings of punch list items; therefore, if the Final Inspection discloses that Substantial Completion has not been achieved, the Architect may discontinue or suspend the inspection until the Contractor does achieve Substantial Completion.

D. CERTIFICATE of SUBSTANTIAL COMPLETION

(1) When the Work or a designated portion of the Work is substantially complete, the Architect will prepare and sign a Certificate of Substantial Completion to be signed in order by the Contractor, Owner, and Alabama Division of Construction Management.

(2) When signed by all parties, the Certificate of Substantial Completion shall establish the Date of Substantial Completion which is the date upon which:

- (a) the Work, or designated portion of the Work, is accepted by the Architect, Owner, and Alabama Division of Construction Management as being ready for occupancy,
- (b) the Contractor's one-year and special warranties for the Work covered by the Certificate commence, unless stated otherwise in the Certificate (the one-year warranty for punch list items completed or corrected after the period allowed in the Certificate shall commence on the date of their Final Acceptance), and
- (c) Owner becomes responsible for building security, maintenance, utility services, and insurance, unless stated otherwise in the Certificate.

(3) The Certificate of Substantial Completion shall set the time within which the Contractor shall finish all items on the "punch list" accompanying the Certificate. The completion of punch list items shall be a condition precedent to Final Payment.

(4) If the Work or designated portion covered by a Certificate of Substantial Completion includes roofing work, the General Contractor's (5-year) Roofing Guarantee, DCM Form C-9, must be executed by the Contractor and attached to the Certificate of Substantial Completion. If the Contract Documents specify any other roofing warranties to be provided by the roofing manufacturer, Subcontractor, or Contractor, they must also be attached to the Certificate of Substantial Completion. The Alabama Division of Construction Management will not sign the Certificate of Substantial Completion in the absence of the roofing guarantees.

- E. The Date of Substantial Completion of the Work, as set in the Certificate of Substantial Completion of the Work or of the last completed portion of the Work, establishes the extent to which the Contractor is liable for Liquidated Damages, if any; however, should the Contractor fail to complete all punch list items within thirty days, or such other time as may be stated in the respective Certificate of Substantial Completion, the Contractor shall bear any expenses, including additional Architectural services and expenses, incurred by the Owner as a result of such failure to complete punch list items in a timely manner.

ARTICLE 33
OCCUPANCY or USE PRIOR to COMPLETION

A. UPON SUBSTANTIAL COMPLETION

Prior to completion of the entire Work, the Owner may occupy or begin utilizing any designated portion of the Work on the agreed Date of Substantial Completion of that portion of the Work.

B. BEFORE SUBSTANTIAL COMPLETION

(1) The Owner shall not occupy or utilize any portion of the Work before Substantial Completion of that portion has been achieved.

(2) The Owner may deliver furniture and equipment and store, or install it in place ready for occupancy and use, in any designated portion of the Work before it is substantially completed under the following conditions:

(a) The Owner's storage or installation of furniture and equipment will not unreasonably disrupt or interfere with the Contractor's completion of the designated portion of the Work.

(b) The Contractor consents to the Owner's planned action (such consent shall not be unreasonably withheld).

(c) The Owner shall be responsible for insurance coverage of the Owner's furniture and equipment, and the Contractor's liability shall not be increased.

(d) The Contractor, Architect, and Owner will jointly inspect and record the condition of the Work in the area before the Owner delivers and stores or installs furniture and equipment; the Owner will equitably compensate the Contractor for making any repairs to the Work that may subsequently be required due to the Owner's delivery and storage or installation of furniture and equipment.

(e) The Owner's delivery and storage or installation of furniture and equipment shall not be deemed an acceptance of any Work not completed in accordance with the requirements of the Contract Documents.

ARTICLE 34
FINAL PAYMENT

A. PREREQUISITES to FINAL PAYMENT

The following conditions are prerequisites to Final Payment becoming due the Contractor:

(1) Full execution of a Certificate of Substantial Completion for the Work, or each designated portion of the Work.

(2) Final Acceptance of the Work.

(3) The Contractor's completion, to the satisfaction of the Architect and Owner, of all documentary requirements of the Contract Documents; such as delivery of "as-built" documents, operating and maintenance manuals, warranties, etc.

(4) Delivery to the Owner of a final Application for Payment, prepared by the Contractor and approved and certified by the Architect. Architect prepares DCM Form B-13: Final Payment Checklist and forwards it to the Owner along with the final Application for Payment.

(5) Completion of an Advertisement for Completion pursuant to Paragraph C below.

(6) Delivery by the Contractor to the Owner through the Architect of DCM Form C-18:

Contractor's Affidavit of Payment of Debts and Claims, and a Release of Claims, if any, and such other documents as may be required by Owner, satisfactory in form to the Owner pursuant to Paragraph D below.

- (7) Consent of Surety to Final Payment, if any, to Contractor. This Consent of Surety is required for projects which have Payment and Performance Bonds.
- (8) Delivery by the Contractor to the Architect and Owner of other documents, if any, required by the Contract Documents as prerequisites to Final Payment.
- (9) See Manual of Procedures Chapter 7, Section L.7 concerning reconciliation of contract time, if any.

B. FINAL ACCEPTANCE of the WORK

"Final Acceptance of the Work" shall be achieved when all "punch list" items recorded with the Certificate(s) of Substantial Completion are accounted for by either: **(1)** their completion or correction by the Contractor and acceptance by the Architect, Owner, and DCM Project Inspector, or **(2)** their resolution under Article 18, Deductions for Uncorrected Work.

C. ADVERTISEMENT for COMPLETION

(1) If the Contract Sum is \$50,000 or less: The Owner, immediately after being notified by the Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion published one time in a newspaper of general circulation, published in the county in which the Owner is located for one week, and shall require the Contractor to certify under oath that all bills have been paid in full. Final payment may be made at any time after the notice has been posted for one entire week.

(2) If the Contract Sum is more than \$50,000: The Contractor, immediately after being notified by the Architect that all other requirements of the Contract have been completed, shall give public notice of completion of the Contract by having an Advertisement for Completion, similar to the sample contained in the Project Manual, published for a period of four successive weeks in some newspaper of general circulation published within the city or county where the Work was performed. Proof of publication of the Advertisement for Completion shall be made by the Contractor to the Architect by affidavit of the publisher, in duplicate, and a printed copy of the Advertisement for Completion published, in duplicate. If no newspaper is published in the county where the work was done, the notice may be given by posting at the Court House for thirty days and proof of same made by Probate Judge or Sheriff and the Contractor. Final payment shall not be due until thirty days after this public notice is completed.

D. RELEASE of CLAIMS

The Release of Claims and other documents referenced in Paragraph A(6) above are as follows:

(1) A release executed by Contractor of all claims and claims of lien against the Owner arising under and by virtue of the Contract, other than such claims of the Contractor, if any, as may have been previously made in writing and as may be specifically excepted by the Contractor from the operation of the release in stated amounts to be set forth therein.

(2) An affidavit under oath, if required, stating that so far as the Contractor has knowledge or information, there are no claims or claims of lien which have been or will be filed by any Subcontractor, Supplier or other party for labor or material for which a claim or claim of lien could

be filed.

(3) A release, if required, of all claims and claims of lien made by any Subcontractor, Supplier or other party against the Owner or unpaid Contract funds held by the Owner arising under or related to the Work on the Project; provided, however, that if any Subcontractor, Supplier or others refuse to furnish a release of such claims or claims of lien, the Contractor may furnish a bond executed by Contractor and its Surety to the Owner to provide an unconditional obligation to defend, indemnify and hold harmless the Owner against any loss, cost or expense, including attorney's fees, arising out of or as a result of such claims, or claims of lien, in which event Owner may make Final Payment notwithstanding such claims or claims of lien. If Contractor and Surety fail to fulfill their obligations to Owner under the bond, the Owner shall be entitled to recover damages as a result of such failure, including all costs and reasonable attorney's fees incurred to recover such damages.

E. EFFECT of FINAL PAYMENT

(1) The making of Final Payment shall constitute a waiver of Claims by the Owner except those arising from:

- (a) liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- (b) failure of the Work to comply with the requirements of the Contract Documents;
- (c) terms of warranties or indemnities required by the Contract Documents, or
- (d) latent defects.

(2) Acceptance of Final Payment by the Contractor shall constitute a waiver of claims by Contractor except those previously made in writing, identified by Contractor as unsettled at the time of final Application for Payment, and specifically excepted from the release provided for in Paragraph D(1), above.

ARTICLE 35 **CONTRACTOR'S WARRANTY**

A. GENERAL WARRANTY

The Contractor warrants to the Owner and Architect that all materials and equipment furnished under the Contract will be of good quality and new, except such materials as may be expressly provided or allowed in the Contract Documents to be otherwise, and that none of the Work will be Defective Work as defined in Article 1.

B. ONE-YEAR WARRANTY

(1) If, within one year after the date of Substantial Completion of the Work or each designated portion of the Work (or otherwise as agreed upon in a mutually-executed Certificate of Substantial Completion), any of the Work is found to be Defective Work, the Contractor shall promptly upon receipt of written notice from the Owner or Architect, and without expense to either, replace or correct the Defective Work to conform to the requirements of the Contract Documents, and repair all damage to the site, the building and its contents which is the result of Defective Work or its replacement or correction.

(2) The one-year warranty for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial

Completion in which they are recorded. The one-year warranty for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion, and other Work performed after Substantial Completion, shall begin on the date of Final Acceptance of the Work. The Contractor's correction of Work pursuant to this warranty does not extend the period of the warranty. The Contractor's one-year warranty does not apply to defects or damages due to improper or insufficient maintenance, improper operation, or wear and tear during normal usage.

(3) Upon recognizing a condition of Defective Work, the Owner shall promptly notify the Contractor of the condition. If the condition is causing damage to the building, its contents, equipment, or site, the Owner shall take reasonable actions to mitigate the damage or its continuation, if practical. If the Contractor fails to proceed promptly to comply with the terms of the warranty, or to provide the Owner with satisfactory written verification that positive action is in process, the Owner may have the Defective Work replaced or corrected and the Contractor and the Contractor's Surety shall be liable for all expense incurred.

(4) **Year-end Inspection(s):** An inspection of the Work, or each separately completed portion thereof, is required near the end of the Contractor's one-year warranty period(s). The inspection must be scheduled with the Owner, Architect and DCM Inspector. The subsequent delivery of the Architect's report of a Year-end Inspection will serve as confirmation that the Contractor was notified of Defective Work found within the warranty period.

(5) The Contractor's warranty of one year is in addition to, and not a limitation of, any other remedy stated herein or available to the Owner under applicable law.

C. GENERAL CONTRACTOR'S ROOFING GUARANTEE

(1) In addition to any other roof related warranties or guarantees that may be specified in the Contract Documents, the roof and associated work shall be guaranteed by the General Contractor against leaks and defects of materials and workmanship for a period of five (5) years, starting on the Date of Substantial Completion of the Project as stated in the Certificate of Substantial Completion. This guarantee for punch list items shall begin on the Date of Substantial Completion if they are completed or corrected within the time period allowed in the Certificate of Substantial Completion in which they are recorded. The guarantee for punch list items that are not completed or corrected within the time period allowed in the Certificate of Substantial Completion shall begin on the date of Final Acceptance of the Work.

(2) The "General Contractor's Roofing Guarantee" (DCM Form C-9), included in the Project Manual, shall be executed in triplicate, signed by the appropriate party and submitted to the Architect for submission with the Certificate of Substantial Completion to the Owner and the Division of Construction Management.

(3) This guarantee does not include costs which might be incurred by the General Contractor in making visits to the site requested by the Owner regarding roof problems that are due to lack of proper maintenance (keeping roof drains and/or gutters clear of debris that cause a stoppage of drainage which results in water ponding, overflowing of flashing, etc.), or damages caused by vandalism or misuse of roof areas. Should the contractor be required to return to the job to correct problems of this nature that are determined not to be related to faulty workmanship and materials in the installation of the roof, payment for actions taken by the Contractor in response to such request will be the responsibility of the Owner. A detailed written report shall be made by the General

Contractor on each of these 'Service Calls' with copies to the Architect, Owner and Division of Construction Management.

D. SPECIAL WARRANTIES

(1) The Contractor shall deliver to the Owner through the Architect all special or extended warranties required by the Contract Documents from the Contractor, Subcontractors, and suppliers.

(2) The Contractor and the Contractor's Surety shall be liable to the Owner for such special warranties during the Contractor's one-year warranty; thereafter, the Contractor's obligations relative to such special warranties shall be to provide reasonable assistance to the Owner in their enforcement.

E. ASSUMPTION of GUARANTEES of OTHERS

If the Contractor disturbs, alters, or damages any work guaranteed under a separate contract, thereby voiding the guarantee of that work, the Contractor shall restore the work to a condition satisfactory to the Owner and shall also guarantee it to the same extent that it was guaranteed under the separate contract.

**ARTICLE 36
INDEMNIFICATION AGREEMENT**

To the fullest extent permitted by law, the Contractor shall defend, indemnify, and hold harmless the Owner, Architect, Architect's consultants, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, employees, and consultants (hereinafter collectively referred to as the "Indemnitees") from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of, related to, or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including loss of use resulting therefrom, and is caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether such claim, damage, loss or expense is caused in part, or is alleged but not legally established to have been caused in whole or in part by the negligence or other fault of a party indemnified hereunder.

- A. This indemnification shall extend to all claims, damages, losses and expenses for injury or damage to adjacent or neighboring property, or persons injured thereon, that arise out of, relate to, or result from performance of the Work.
- B. This indemnification does not extend to the liability of the Architect, or the Architect's Consultants, agents, or employees, arising out of (1) the preparation or approval of maps, shop drawings, opinions, reports, surveys, field orders, Change Orders, drawings or specifications, or (2) the giving of or the failure to give directions or instructions, provided such giving or failure to give instructions is the primary cause of the injury or damage.
- C. This indemnification does not apply to the extent of the sole negligence of the Indemnitees.

ARTICLE 37
CONTRACTOR'S and SUBCONTRACTORS' INSURANCE

(Provide entire Article 37 to Contractor's insurance representative.)

A. GENERAL

(1) RESPONSIBILITY. The Contractor shall be responsible to the Owner from the time of the signing of the Construction Contract or from the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from any negligent act or omission or breach, failure or other default regarding the work by the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of who may be the owner of the property.

(2) INSURANCE PROVIDERS. Each of the insurance coverages required below shall be issued by an insurer licensed by the Insurance Commissioner to transact the business of insurance in the State of Alabama for the applicable line of insurance, and such insurer (or, for qualified self-insureds or group self-insureds, a specific excess insurer providing statutory limits) must have a Best Policyholders Rating of "A-" or better and a financial size rating of Class V or larger.

(3) NOTIFICATION ENDORSEMENT. Each policy shall be endorsed to provide that the insurance company agrees that the policy shall not be canceled, changed, allowed to lapse or allowed to expire for any reason until thirty days after the Owner has received written notice by certified mail as evidenced by return receipt or until such time as other insurance coverage providing protection equal to protection called for in the Contract Documents shall have been received, accepted and acknowledged by the Owner. Such notice shall be valid only as to the Project as shall have been designated by Project Name and Number in said notice.

(4) INSURANCE CERTIFICATES. The Contractor shall procure the insurance coverages identified below, or as otherwise required in the Contract Documents, at the Contractor's own expense, and to evidence that such insurance coverages are in effect, the Contractor shall furnish the Owner an insurance certificate(s) acceptable to the Owner and listing the Owner as the certificate holder. The insurance certificate(s) must be delivered to the Owner with the Construction Contract and Bonds for final approval and execution of the Construction Contract. The insurance certificate must provide the following:

- (a) Name and address of authorized agent of the insurance company
- (b) Name and address of insured
- (c) Name of insurance company or companies
- (d) Description of policies
- (e) Policy Number(s)
- (f) Policy Period(s)
- (g) Limits of liability
- (h) Name and address of Owner as certificate holder
- (i) Project Name and Number, if any
- (j) Signature of authorized agent of the insurance company
- (k) Telephone number of authorized agent of the insurance company
- (l) Mandatory thirty day notice of cancellation / non-renewal / change

(5) MAXIMUM DEDUCTIBLE. Self-insured retention, except for qualified self-insurers or

group self-insurers, in any policy shall not exceed \$25,000.00.

B. INSURANCE COVERAGES

Unless otherwise provided in the Contract Documents, the Contractor shall purchase the types of insurance coverages with liability limits not less than as follows:

(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE

(a) Workers' Compensation coverage shall be provided in accordance with the statutory coverage required in Alabama. A group insurer must submit a certificate of authority from the Alabama Department of Industrial Relations approving the group insurance plan. A self-insurer must submit a certificate from the Alabama Department of Industrial Relations stating the Contractor qualifies to pay its own workers' compensation claims.

(b) Employer's Liability Insurance limits shall be at least:

- .1 Bodily Injury by Accident - \$1,000,000 each accident
- .2 Bodily Injury by Disease - \$1,000,000 each employee

(2) COMMERCIAL GENERAL LIABILITY INSURANCE

(a) Commercial General Liability Insurance, written on an ISO Occurrence Form (current edition as of the date of Advertisement for Bids) or equivalent, shall include, but need not be limited to, coverage for bodily injury and property damage arising from premises and operations liability, products and completed operations liability, blasting and explosion, collapse of structures, underground damage, personal injury liability and contractual liability. The Commercial General Liability Insurance shall provide at minimum the following limits:

<u>Coverage</u>	<u>Limit</u>
.1 General Aggregate	\$ 2,000,000.00 per Project
.2 Products, Completed Operations Aggregate	\$ 2,000,000.00 per Project
.3 Personal and Advertising Injury	\$ 1,000,000.00 per Occurrence
.4 Each Occurrence	\$ 1,000,000.00

(b) Additional Requirements for Commercial General Liability Insurance:

- .1 The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants and employees as additional insureds, state that this coverage shall be primary insurance for the additional insureds; and contain no exclusions of the additional insureds relative to job accidents.
- .2 The policy must include separate per project aggregate limits.

(3) COMMERCIAL BUSINESS AUTOMOBILE LIABILITY INSURANCE

(a) Commercial Business Automobile Liability Insurance which shall include coverage for bodily injury and property damage arising from the operation of any owned, non-owned or hired automobile. The Commercial Business Automobile Liability Insurance Policy shall provide not less than \$1,000,000 Combined Single Limits for each occurrence.

(b) The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants, and employees as additional insureds.

(4) COMMERCIAL UMBRELLA OR COMMERCIAL EXCESS LIABILITY INSURANCE

(a) Commercial Umbrella or Commercial Excess Liability Insurance to provide excess

coverage above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employer's Liability to satisfy the minimum limits set forth herein.

(b) Minimum Combined Primary Commercial General Liability and Commercial Umbrella or Commercial Excess Limits of:

.1 \$ 5,000,000 per Occurrence

.2 \$ 5,000,000 Aggregate

(c) Additional Requirements for Commercial Umbrella or Commercial Excess Liability Insurance:

.1 The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants, and employees as additional insureds.

.2 The policy must be on an "occurrence" basis.

(5) BUILDER'S RISK INSURANCE

(a) The Builder's Risk Policy shall be made payable to the Owner and Contractor, as their interests may appear. The policy amount shall be equal to 100% of the Contract Sum, written on a Causes of Loss - Special Form (current edition as of the date of Advertisement for Bids), or its equivalent. All deductibles shall be the sole responsibility of the Contractor.

(b) The policy shall be endorsed as follows:

"The following may occur without diminishing, changing, altering or otherwise affecting the coverage and protection afforded the insured under this policy:

(i) Furniture and equipment may be delivered to the insured premises and installed in place ready for use; or

(ii) Partial or complete occupancy by Owner; or

(iii) Performance of work in connection with construction operations insured by the Owner, by agents or lessees or other contractors of the Owner, or by contractors of the lessee of the Owner."

C. SUBCONTRACTORS' INSURANCE

(1) **WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE.** The Contractor shall require each Subcontractor to obtain and maintain Workers' Compensation and Employer's Liability Insurance coverages as described in preceding Paragraph B, or to be covered by the Contractor's Workers' Compensation and Employer's Liability Insurance while performing Work under the Contract.

(2) **LIABILITY INSURANCE.** The Contractor shall require each Subcontractor to obtain and maintain adequate General Liability, Automobile Liability, and Umbrella or Excess Liability Insurance coverages similar to those described in preceding Paragraph B. Such coverage shall be in effect at all times that a Subcontractor is performing Work under the Contract.

(3) **ENFORCEMENT RESPONSIBILITY.** The Contractor shall have responsibility to enforce its Subcontractors' compliance with these or similar insurance requirements; however, the Contractor shall, upon request, provide the Architect or Owner acceptable evidence of insurance for any Subcontractor.

D. TERMINATION of OBLIGATION to INSURE

Unless otherwise expressly provided in the Contract Documents, the obligation to insure as

provided herein shall continue as follows:

(1) BUILDER'S RISK INSURANCE. The obligation to insure under Subparagraph B(5) shall remain in effect until the Date of Substantial Completion as shall be established in the Certificate of Substantial Completion. In the event that multiple Certificates of Substantial Completion covering designated portions of the Work are issued, Builder's Risk coverage shall remain in effect until the Date of Substantial Completion as shall be established in the last issued Certificate of Substantial Completion. However, in the case that the Work involves separate buildings, Builder's Risk coverage of each separate building may terminate on the Date of Substantial Completion as established in the Certificate of Substantial Completion issued for each building.

(2) PRODUCTS and COMPLETED OPERATIONS. The obligation to carry Products and Completed Operations coverage specified under Subparagraph B(2) shall remain in effect for two years after the Date(s) of Substantial Completion.

(3) ALL OTHER INSURANCE. The obligation to carry other insurance coverages specified under Subparagraphs B(1) through B(4) and Paragraph C shall remain in effect after the Date(s) of Substantial Completion until such time as all Work required by the Contract Documents is completed. Equal or similar insurance coverages shall remain in effect if, after completion of the Work, the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, returns to the Project to perform warranty or maintenance work pursuant to the terms of the Contract Documents.

E. WAIVERS of SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors performing construction or operations related to the Project, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss. But said waiver shall apply only to the extent the loss or damage is covered by builder's risk insurance applicable to the Work or to other property located within or adjacent to the Project, except such rights as they may have to proceeds of such insurance held by the Owner or Contractor as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors, if any, and the subcontractor, sub-subcontractors, suppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to the person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The waivers provided for in this paragraph shall not be applicable to loss or damage that occurs after final acceptance of the Work.

ARTICLE 38
PERFORMANCE and PAYMENT BONDS

A. GENERAL

Upon signing and returning the Construction Contract to the Owner for final approval and execution, the Contractor shall, at the Contractor's expense, furnish to the Owner a Performance

Bond and a Payment Bond (P&P Bonds), DCM Forms C-6 and C-7 as contained in the Project Manual, each in a penal sum equal to 100% of the Contract Sum. Each bond shall be on the form contained in the Project Manual, shall be executed by a surety company (Surety) acceptable to the Owner and duly authorized and qualified to make such bonds in the State of Alabama in the required amount. There shall be three original P&P Bonds submitted with original signatures for each of the three contracts required. The P&P bonds must be signed either on the same day or after the construction contract date. Each P&P Bond shall have attached thereto an original power of attorney (POA) of the signing official. The POA signature date must be the same day as the P&P Bond's signature date. All signatures must be present.

The provisions of this Article are not applicable to this Contract if the Contract Sum is less than \$50,000, unless bonds are required for this Contract in the Supplemental General Conditions.

B. PERFORMANCE BOND

Through the Performance Bond, the Surety's obligation to the Owner shall be to assure the prompt and faithful performance of the Contract and Contract Change Orders. The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. In case of default on the part of the Contractor, the Surety shall take charge of and complete the Work in accordance with the terms of the Performance Bond. Any reasonable expenses incurred by the Owner as a result of default on the part of the Contractor, including architectural, engineering, administrative, and legal services, shall be recoverable under the Performance Bond.

C. PAYMENT BOND

Through the Payment Bond the Surety's obligation to the Owner shall be to guarantee that the Contractor and its Subcontractors shall promptly make payment to all persons supplying labor, materials, or supplies for, or in, the prosecution of the Work, including the payment of reasonable attorneys fees incurred by successful claimants or plaintiffs in civil actions on the Bond. Any person or entity indicating that they have a claim of nonpayment under the Bond shall, upon written request, be promptly furnished a certified copy of the Bond and Construction Contract by the Contractor, Architect, Owner, or Alabama Division of Construction Management, whomever is recipient of the request.

D. CHANGE ORDERS

The Penal Sum shall remain equal to the Contract Sum as the Contract Sum is adjusted by Contract Change Orders. All Contract Change Orders involving an increase in the Contract Sum will require consent of Surety by endorsement of the Contract Change Order form. The Surety waives notification of any Contract Change Orders involving only extension of the Contract Time.

E. EXPIRATION

The obligations of the Contractor's performance bond surety shall be coextensive with the contractor's performance obligations under the Contract Documents; provided, however, that the surety's obligation shall expire at the end of the one-year warranty period(s) of Article 35.

ARTICLE 39
ASSIGNMENT

The Contractor shall not assign the Contract or sublet it as a whole nor assign any moneys due or to become due to the Contractor thereunder without the previous written consent of the Owner (and of the Surety, in the case of a bonded Construction Contract). As prescribed by the Public Works Law, the Contract shall in no event be assigned to an unsuccessful bidder for the Contract whose bid was rejected because the bidder was not a responsible or responsive bidder.

ARTICLE 40
CONSTRUCTION by OWNER or SEPARATE CONTRACTORS

A. OWNER'S RESERVATION of RIGHT

(1) The Owner reserves the right to self-perform, or to award separate contracts for, other portions of the Project and other Project related construction and operations on the site. The contractual conditions of such separate contracts shall be substantially similar to those of this Contract, including insurance requirements and the provisions of this Article. If the Contractor considers such actions to involve delay or additional cost under this Contract, notifications and assertion of claims shall be as provided in Article 20 and Article 23.

(2) When separate contracts are awarded, the term "Contractor" in the separate Contract Documents shall mean the Contractor who executes the respective Construction Contract.

B. COORDINATION

Unless otherwise provided in the Contract Documents, the Owner shall be responsible for coordinating the activities of the Owner's forces and separate contractors with the Work of the Contractor. The Contractor shall cooperate with the Owner and separate contractors, shall participate in reviewing and comparing their construction schedules relative to that of the Contractor when directed to do so, and shall make and adhere to any revisions to the construction schedule resulting from a joint review and mutual agreement.

C. CONDITIONS APPLICABLE to WORK PERFORMED by OWNER

Unless otherwise provided in the Contract Documents, when the Owner self-performs construction or operations related to the Project, the Owner shall be subject to the same obligations to Contractor as Contractor would have to a separate contractor under the provision of this Article 40.

D. MUTUAL RESPONSIBILITY

(1) The Contractor shall reasonably accommodate the required introduction and storage of materials and equipment and performance of activities by the Owner and separate contractors and shall connect and coordinate the Contractor's Work with theirs as required by the Contract Documents.

(2) By proceeding with an element or portion of the Work that is applied to or performed on construction by the Owner or a separate contractor, or which relies upon their operations, the Contractor accepts the condition of such construction or operations as being suitable for the Contractor's Work, except for conditions that are not reasonably discoverable by the Contractor. If the Contractor discovers any condition in such construction or operations that is not suitable for the

proper performance of the Work, the Contractor shall not proceed, but shall instead promptly notify the Architect in writing of the condition discovered.

(3) The Contractor shall reimburse the Owner for any costs incurred by a separate contractor and payable by the Owner because of acts or omissions of the Contractor. Likewise, the Owner shall be responsible to the Contractor for any costs incurred by the Contractor because of the acts or omissions of a separate contractor.

(4) The Contractor shall not cut or otherwise alter construction by the Owner or a separate contractor without the written consent of the Owner and separate contractor; such consent shall not be unreasonably withheld. Likewise, the Contractor shall not unreasonably withhold its consent allowing the Owner or a separate contractor to cut or otherwise alter the Work.

(5) The Contractor shall promptly remedy any damage caused by the Contractor to the construction or property of the Owner or separate contractors.

ARTICLE 41 **SUBCONTRACTS**

A. AWARD of SUBCONTRACTS and OTHER CONTRACTS for PORTIONS of the WORK

(1) Unless otherwise provided in the Contract Documents, when delivering the executed Construction Contract, bonds, and evidence of insurance to the Architect, the Contractor shall also submit a listing of Subcontractors proposed for each principal portion of the Work and fabricators or suppliers proposed for furnishing materials or equipment fabricated to the design of the Contract Documents. This listing shall be in addition to any naming of Subcontractors, fabricators, or suppliers that may have been required in the bid process. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner, after due investigation, has reasonable objection to any Subcontractor, fabricator, or supplier proposed by the Contractor. The issuance of the Notice to Proceed in the absence of such objection by the Owner shall constitute notice that no reasonable objection to them is made.

(2) The Contractor shall not contract with a proposed Subcontractor, fabricator, or supplier to whom the Owner has made reasonable and timely objection. Except in accordance with prequalification procedures as may be contained in the Contract Documents, through specified qualifications, or on the grounds of reasonable objection, the Owner may not restrict the Contractor's selection of Subcontractors, fabricators, or suppliers.

(3) Upon the Owner's reasonable objection to a proposed Subcontractor, fabricator, or supplier, the Contractor shall promptly propose another to whom the Owner has no reasonable objection. If the proposed Subcontractor, fabricator, or supplier to whom the Owner made reasonable objection was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be equitably adjusted by Contract Change Order for any resulting difference if the Contractor has acted promptly and responsively in this procedure.

(4) The Contractor shall not change previously selected Subcontractors, fabricators, or suppliers without notifying the Architect and Owner in writing of proposed substitute Subcontractors, fabricators, or suppliers. If the Owner does not make a reasonable objection to a proposed substitute within three working days, the substitute shall be deemed approved.

B. SUBCONTRACTUAL RELATIONS

(1) The Contractor agrees to bind every Subcontractor and material supplier (and require every Subcontractor to so bind its subcontractors and material suppliers) to all the provisions of the Contract Documents as they apply to the Subcontractor's and material supplier's portion of the Work.

(2) Nothing contained in the Contract Documents shall be construed as creating any contractual relationship between any Subcontractor and the Owner, nor to create a duty of the Architect, Owner, or Director to resolve disputes between or among the Contractor or its Subcontractors and suppliers or any other duty to such Subcontractors or suppliers.

ARTICLE 42
ARCHITECT'S STATUS

- A. The Architect is an independent contractor performing, with respect to this Contract, pursuant to an agreement executed between the Owner and the Architect. The Architect has prepared the Drawings and Specifications and assembled the Contract Document and is, therefore, charged with their interpretation and clarification as described in the Contract Documents. As a representative of the Owner, the Architect will endeavor to guard the Owner against variances from the requirements of the Contract Documents by the Contractor. On behalf of the Owner, the Architect will administer the Contract as described in the Contract Documents during construction and the Contractor's one-year warranty.
- B. So as to maintain continuity in administration of the Contract and performance of the Work, and to facilitate complete documentation of the project record, all communications between the Contractor and Owner regarding matters of or related to the Contract shall be directed through the Architect, unless direct communication is otherwise required to provide a legal notification. Unless otherwise authorized by the Architect, communications by and with the Architect's consultants shall be through the Architect. Unless otherwise authorized by the Contractor, communications by and with Subcontractors and material suppliers shall be through the Contractor.

C. ARCHITECT'S AUTHORITY

Subject to other provisions of the Contract Documents, the following summarizes some of the authority vested in the Architect by the Owner with respect to the Construction Contract and as further described or conditioned in other Articles of these General Conditions of the Contract.

(1) The Architect is authorized to:

- (a) approve "minor" deviations as defined in Article 9, Submittals,
- (b) make "minor" changes in the Work as defined in Article 19, Changes in the Work,
- (c) reject or require the correction of Defective Work,
- (d) require the Contractor to stop the performance of Defective Work,
- (e) adjust an Application for Payment by the Contractor pursuant to Article 30, Certification and Approval of payments, and
- (f) issue Notices to Cure pursuant to Article 27.

(2) The Architect is not authorized to:

- (a) revoke, alter, relax, or waive any requirements of the Contract Documents (other than

- “minor” deviations and changes) without concurrence of the Owner,
- (b) finally approve or accept any portion of the Work without concurrence of the Owner,
 - (c) issue instructions contrary to the Contract Documents,
 - (d) issue Notice of Termination or otherwise terminate the Contract, or
 - (e) require the Contractor to stop the Work except only to avoid the performance of Defective Work.

D. LIMITATIONS of RESPONSIBILITIES

- (1) The Architect shall not be responsible to Contractors or to others for supervising or coordinating the performance of the Work or for the Construction Methods or safety of the Work, unless the Contract Documents give other specific instructions concerning these matters.
- (2) The Architect will not be responsible to the Contractor (nor the Owner) for the Contractor’s failure to perform the Work in accordance with the requirements of the Contract Documents or for acts or omissions of the Contractor, a Subcontractor, or anyone for whose acts they may be liable. However, the Architect will report to the Owner and Contractor any Defective Work recognized by the Architect.
- (3) The Architect will endeavor to secure faithful performance by Owner and Contractor, and the Architect will not show partiality to either or be liable to either for results of interpretations or decisions rendered in good faith.
- (4) The Contractor’s remedies for additional time or expense arising out of or related to this Contract, or the breach thereof, shall be solely as provided for in the Contract Documents. The Contractor shall have no claim or cause of action against the Owner, Architect, or its consultants for any actions or failures to act, whether such claim may be in contract, tort, strict liability, or otherwise, it being the agreement of the parties that the Contractor shall make no claim against the Owner or any agents of the Owner, including the Architect or its consultants, except as may be provided for claims or disputes submitted in accordance with Article 24. The Architect and Architect’s consultants shall be considered third party beneficiaries of this provision of the Contract and entitled to enforce same.

E. ARCHITECT’S DECISIONS

Decisions by the Architect shall be in writing. The Architect’s decisions on matters relating to aesthetic effect will be final and binding if consistent with the intent expressed in the Contract Documents. The Architect’s decisions regarding disputes arising between the Contractor and Owner shall be advisory.

ARTICLE 43
CASH ALLOWANCES

- A. All allowances stated in the Contract Documents shall be included in the Contract Sum. Items covered by allowances shall be supplied by the Contractor as directed by the Architect or Owner and the Contractor shall afford the Owner the economy of obtaining competitive pricing from responsible bidders for allowance items unless other purchasing procedures are specified in the Contract Documents.
- B. Unless otherwise provided in the Contract Documents:

- (1) allowances shall cover the cost to the Contractor of materials and equipment delivered to the Project site and all applicable taxes, less applicable trade discounts;
 - (2) the Contractor's costs for unloading, storing, protecting, and handling at the site, labor, installation, overhead, profit and other expenses related to materials or equipment covered by an allowance shall be included in the Contract Sum but not in the allowances;
 - (3) if required, the Contract Sum shall be adjusted by Change Order to reflect the actual costs of an allowance.
- C. Any selections of materials or equipment required of the Architect or Owner under an allowance shall be made in sufficient time to avoid delay of the Work.

ARTICLE 44

PERMITS, LAWS, and REGULATIONS

A. PERMITS, FEES AND NOTICES

- (1) Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after award of the Construction Contract and which are in effect on the date of receipt of bids.
- (2) The Contractor shall comply with and give notices required by all laws, ordinances, rules, regulations, and lawful orders of public authorities applicable to performance of the Work.

B. TAXES

Unless stated otherwise in the Contract Documents, materials incorporated into the Work are exempt from sales and use tax pursuant to Section 40-9-33, Code of Alabama, 1975 as amended. The Owner, Contractor and its subcontractors shall be responsible for complying with rules and regulations of the Sales, Use, & Business Tax Division of the Alabama Department of Revenue regarding certificates and other qualifications necessary to claim such exemption when making qualifying purchases from vendors. The Contractor shall pay all applicable taxes that are not covered by the exemption of Section 40-9-33 and which are imposed as of the date of receipt of bids, including those imposed as of the date of receipt of bids but scheduled to go into effect after that date.

C. COMPENSATION for INCREASES

The Contractor shall be compensated for additional costs incurred because of increases in tax rates imposed after the date of receipt of bids.

D. ALABAMA IMMIGRATION LAW

Per ACT 2011-535 as codified in Title 31, Chapter 13 of the Code of Alabama, 1975, as amended:

The contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in

violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

E. ALABAMA BOYCOTT LAW

Per Act 2016-312as codified in Title 41, Chapter 16, Article 1, of the Code of Alabama, 1975, as amended:

The contracting parties affirm, for the duration of the agreement, that they are not currently engaged in, and will not engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which this state can enjoy open trade.

F. ACCOUNTING OF SALES TAX EXEMPT PROJECTS

Per Act 2013-205 as codified in Title 40, Chapter 9, Article 1, of the Code of Alabama, 1975, as amended:

In bidding the work on a tax exempt project, the bid form shall provide an accounting for the tax savings.

ARTICLE 45
ROYALTIES, PATENTS, and COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend, indemnify and hold harmless the Owner, Architect, Architect's consultants, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, employees, and consultants from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of, related to, or resulting from all suits or claims for infringement of any patent rights or copyrights arising out of the inclusion of any patented or copyrighted materials, methods, or systems selected by the Contractor and used during the execution of or incorporated into the Work. This indemnification does not apply to any suits or claims of infringement of any patent rights or copyrights arising out of any patented or copyrighted materials, methods, or systems specified in the Contract Documents. However, if the Contractor has information that a specified material, method, or system is or may constitute an infringement of a patent or copyright, the Contractor shall be responsible for any resulting loss unless such information is promptly furnished to the Architect.

ARTICLE 46
USE of the SITE

- A. The Contractor shall confine its operations at the Project site to areas permitted by the Owner and by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials, equipment, employees' vehicles, or debris. The Contractor's operations at the site shall be restricted to the sole purpose of constructing the Work, use of the site as a staging, assembly, or storage area for other business which the Contractor may undertake shall not be permitted.
- B. Unless otherwise provided in the Contract Documents, temporary facilities, such as storage sheds,

shops, and offices may be erected on the Project site with the approval of the Architect and Owner. Such temporary buildings and/or utilities shall remain the property of the Contractor, and be removed at the Contractor's expense upon completion of the Work, unless the Owner authorizes their abandonment without removal.

ARTICLE 47 **CUTTING and PATCHING**

- A. The Contractor shall be responsible for all cutting, fitting, or patching that may be required to execute the Work to the results indicated in the Contract Documents or to make its parts fit together properly.
- B. Any cutting, patching, or excavation by the Contractor shall be supervised and performed in a manner that will not endanger persons nor damage or endanger the Work or any fully or partially completed construction of the Owner or separate contractors.

ARTICLE 48 **IN-PROGRESS and FINAL CLEANUP**

A. IN-PROGRESS CLEAN-UP

(1) The Contractor shall at all times during the progress of the Work keep the premises and surrounding area free from rubbish, scrap materials and debris resulting from the Work. Trash and combustible materials shall not be allowed to accumulate inside buildings or elsewhere on the premises. At no time shall any rubbish be thrown from window openings. Burning of trash and debris on site is not permitted.

(2) The Contractor shall make provisions to minimize and confine dust and debris resulting from construction activities.

B. FINAL CLEAN-UP

(1) Before Substantial Completion or Final Acceptance is achieved, the Contractor shall have removed from the Owner's property all construction equipment, tools, and machinery; temporary structures and/or utilities including the foundations thereof (except such as the Owner permits in writing to remain); rubbish, debris, and waste materials; and all surplus materials, leaving the site clean and true to line and grade, and the Work in a safe and clean condition, ready for use and operation.

(2) In addition to the above, and unless otherwise provided in the Contract Documents, the Contractor shall be responsible for the following special cleaning for all trades as the Work is completed:

- (a) **Cleaning of all painted, enameled, stained, or baked enamel work:** Removal of all marks, stains, finger prints and splatters from such surfaces.
- (b) **Cleaning of all glass:** Cleaning and removing of all stickers, labels, stains, and paint from all glass, and the washing and polishing of same on interior and exterior.
- (c) **Cleaning or polishing of all hardware:** Cleaning and polishing of all hardware.

(d) Cleaning all tile, floor finish of all kinds: Removal of all splatters, stains, paint, dirt, and dust, the washing and polishing of all floors as recommended by the manufacturer or required by the Architect.

(e) Cleaning of all manufactured articles, materials, fixtures, appliances, and equipment: Removal of all stickers, rust stains, labels, and temporary covers, and cleaning and conditioning of all manufactured articles, material, fixtures, appliances, and electrical, heating, and air conditioning equipment as recommended or directed by the manufacturers, unless otherwise required by the Architect; blowing out or flushing out of all foreign matter from all equipment, piping, tanks, pumps, fans, motors, devices, switches, panels, fixtures, boilers, sanitizing potable water systems; and freeing identification plates on all equipment of excess paint and the polishing thereof.

C. OWNER'S RIGHT to CLEAN-UP

If the Contractor fails to comply with these clean-up requirements and then fails to comply with a written directive by the Architect to clean-up the premises within a specified time, the Architect or Owner may implement appropriate clean-up measures and the cost thereof shall be deducted from any amounts due or to become due the Contractor.

ARTICLE 49
LIQUIDATED DAMAGES

- A. Time is the essence of the Contract. Any delay in the completion of the Work required by the Contract Documents may cause inconvenience to the public and loss and damage to the Owner including but not limited to interest and additional administrative, architectural, inspection and supervision charges. By executing the Construction Contract, the Contractor agrees that the Contract Time is sufficient for the achievement of Substantial Completion.
- B. The Contract Documents may provide in the Construction Contract or elsewhere for a certain dollar amount for which the Contractor and its Surety (if any) will be liable to the Owner as liquidated damages for each calendar day after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work. If such daily liquidated damages are provided for, Owner and Contractor, and its Surety, agree that such amount is reasonable and agree to be bound thereby.
- C. If a daily liquidated damage amount is not otherwise provided for in the Contract Documents, a time charge equal to six percent interest per annum on the total Contract Sum may be made against the Contractor for the entire period after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work.
- D. The amount of liquidated damages due under either paragraph B or C, above, may be deducted by the Owner from the moneys otherwise due the Contractor in the Final Payment, not as a penalty, but as liquidated damages sustained, or the amount may be recovered from Contractor or its Surety. If part of the Work is substantially completed within the Contract Time and part is not, the stated charge for liquidated damages shall be equitably prorated to that portion of the Work that the Contractor fails to substantially complete within the Contract Time. It is mutually understood and agreed between the parties hereto that such amount is reasonable as liquidated damages.

ARTICLE 50
USE of FOREIGN MATERIALS

- A. In the performance of the Work the Contractor agrees to use materials, supplies, and products manufactured, mined, processed or otherwise produced in the United States or its territories, if same are available at reasonable and competitive prices and are not contrary to any sole source specification implemented under the Public Works Law.
- B. In the performance of the Work the Contractor agrees to use steel produced in the United States if the Contract Documents require the use of steel and do not limit its supply to a sole source pursuant to the Public Works Law. If the Owner decides that the procurement of domestic steel products becomes impractical as a result of national emergency, national strike, or other cause, the Owner shall waive this restriction.
- C. If domestic steel or other domestic materials, supplies, and products are not used in accordance with preceding Paragraphs A and B, the Contract Sum shall be reduced by an amount equal to any savings or benefits realized by the Contractor.
- D. This Article applies only to Public Works projects financed entirely by the State of Alabama or any political subdivision of the state.

ARTICLE 51
PROJECT SIGN

- A. Fully locally-funded State Agency and Public Higher Education projects: DCM Form C-15: Detail of Project Sign must be included in the project manual regardless of expected bid amount. If the awarded contract sum is \$100,000.00 or more, Contractor shall furnish and erect a project sign. Other conditions besides the contract sum may warrant waiver of this requirement, but only with approval of the Technical Staff.
- B. Fully locally-funded K-12 school projects: Project sign is not required unless requested by Owner; if project sign is requested by Owner, include DCM Form C-15: Detail of Project Sign in the project manual.
- C. Partially or fully PSCA-funded projects: DCM Form C-15: Detail of Project Sign must be included in the project manual. Contractor shall furnish and erect a project sign for all PSCA-funded projects, regardless of the contract sum. "Alabama Public School and College Authority" as well as the local owner entity must be included as awarding authorities on the project sign of all PSCA-funded projects.

When required per the above conditions, the project sign shall be erected in a prominent location selected by the Architect and Owner and shall be maintained in good condition until completion of Work. If the Contract involves Work on multiple sites, only one project sign is required, which shall be erected on one of the sites in a location selected by the Architect and Owner. Slogan: The title of the current PSCA Act should be placed on the project sign of all PSCA-funded projects, otherwise the Awarding Authority/Owner's slogan, if any, should be used. If the Awarding Authority/Owner of a fully locally-funded project does not have a slogan, the project sign does not require a slogan.

ARTICLE 37
CONTRACTOR'S and SUBCONTRACTORS' INSURANCE

(Provide entire Article 37 to Contractor's insurance representative.)

A. GENERAL

(1) RESPONSIBILITY. The Contractor shall be responsible to the Owner from the time of the signing of the Construction Contract or from the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from any negligent act or omission or breach, failure or other default regarding the work by the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of who may be the owner of the property.

(2) INSURANCE PROVIDERS. Each of the insurance coverages required below shall be issued by an insurer licensed by the Insurance Commissioner to transact the business of insurance in the State of Alabama for the applicable line of insurance, and such insurer (or, for qualified self-insureds or group self-insureds, a specific excess insurer providing statutory limits) must have a Best Policyholders Rating of "A-" or better and a financial size rating of Class V or larger.

(3) NOTIFICATION ENDORSEMENT. Each policy shall be endorsed to provide that the insurance company agrees that the policy shall not be canceled, changed, allowed to lapse or allowed to expire for any reason until thirty days after the Owner has received written notice by certified mail as evidenced by return receipt or until such time as other insurance coverage providing protection equal to protection called for in the Contract Documents shall have been received, accepted and acknowledged by the Owner. Such notice shall be valid only as to the Project as shall have been designated by Project Name and Number in said notice.

(4) INSURANCE CERTIFICATES. The Contractor shall procure the insurance coverages identified below, or as otherwise required in the Contract Documents, at the Contractor's own expense, and to evidence that such insurance coverages are in effect, the Contractor shall furnish the Owner an insurance certificate(s) acceptable to the Owner and listing the Owner as the certificate holder. The insurance certificate(s) must be delivered to the Owner with the Construction Contract and Bonds for final approval and execution of the Construction Contract. The insurance certificate must provide the following:

- (a) Name and address of authorized agent of the insurance company
- (b) Name and address of insured
- (c) Name of insurance company or companies
- (d) Description of policies
- (e) Policy Number(s)
- (f) Policy Period(s)
- (g) Limits of liability
- (h) Name and address of Owner as certificate holder
- (i) Project Name and Number, if any
- (j) Signature of authorized agent of the insurance company
- (k) Telephone number of authorized agent of the insurance company
- (l) Mandatory thirty day notice of cancellation / non-renewal / change

(5) MAXIMUM DEDUCTIBLE. Self-insured retention, except for qualified self-insurers or

group self-insurers, in any policy shall not exceed \$25,000.00.

B. INSURANCE COVERAGES

Unless otherwise provided in the Contract Documents, the Contractor shall purchase the types of insurance coverages with liability limits not less than as follows:

(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE

(a) Workers' Compensation coverage shall be provided in accordance with the statutory coverage required in Alabama. A group insurer must submit a certificate of authority from the Alabama Department of Industrial Relations approving the group insurance plan. A self-insurer must submit a certificate from the Alabama Department of Industrial Relations stating the Contractor qualifies to pay its own workers' compensation claims.

(b) Employer's Liability Insurance limits shall be at least:

- .1 Bodily Injury by Accident - \$1,000,000 each accident
- .2 Bodily Injury by Disease - \$1,000,000 each employee

(2) COMMERCIAL GENERAL LIABILITY INSURANCE

(a) Commercial General Liability Insurance, written on an ISO Occurrence Form (current edition as of the date of Advertisement for Bids) or equivalent, shall include, but need not be limited to, coverage for bodily injury and property damage arising from premises and operations liability, products and completed operations liability, blasting and explosion, collapse of structures, underground damage, personal injury liability and contractual liability. The Commercial General Liability Insurance shall provide at minimum the following limits:

<u>Coverage</u>	<u>Limit</u>
.1 General Aggregate	\$ 2,000,000.00 per Project
.2 Products, Completed Operations Aggregate	\$ 2,000,000.00 per Project
.3 Personal and Advertising Injury	\$ 1,000,000.00 per Occurrence
.4 Each Occurrence	\$ 1,000,000.00

(b) Additional Requirements for Commercial General Liability Insurance:

- .1 The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants and employees as additional insureds, state that this coverage shall be primary insurance for the additional insureds; and contain no exclusions of the additional insureds relative to job accidents.
- .2 The policy must include separate per project aggregate limits.

(3) COMMERCIAL BUSINESS AUTOMOBILE LIABILITY INSURANCE

(a) Commercial Business Automobile Liability Insurance which shall include coverage for bodily injury and property damage arising from the operation of any owned, non-owned or hired automobile. The Commercial Business Automobile Liability Insurance Policy shall provide not less than \$1,000,000 Combined Single Limits for each occurrence.

(b) The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants, and employees as additional insureds.

(4) COMMERCIAL UMBRELLA OR COMMERCIAL EXCESS LIABILITY INSURANCE

(a) Commercial Umbrella or Commercial Excess Liability Insurance to provide excess

coverage above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employer's Liability to satisfy the minimum limits set forth herein.

(b) Minimum Combined Primary Commercial General Liability and Commercial Umbrella or Commercial Excess Limits of:

.1 \$ 5,000,000 per Occurrence

.2 \$ 5,000,000 Aggregate

(c) Additional Requirements for Commercial Umbrella or Commercial Excess Liability Insurance:

.1 The policy shall name the Owner, Architect, Alabama Division of Construction Management, State Department of Education (if applicable), and their agents, consultants, and employees as additional insureds.

.2 The policy must be on an "occurrence" basis.

(5) BUILDER'S RISK INSURANCE

(a) The Builder's Risk Policy shall be made payable to the Owner and Contractor, as their interests may appear. The policy amount shall be equal to 100% of the Contract Sum, written on a Causes of Loss - Special Form (current edition as of the date of Advertisement for Bids), or its equivalent. All deductibles shall be the sole responsibility of the Contractor.

(b) The policy shall be endorsed as follows:

"The following may occur without diminishing, changing, altering or otherwise affecting the coverage and protection afforded the insured under this policy:

(i) Furniture and equipment may be delivered to the insured premises and installed in place ready for use; or

(ii) Partial or complete occupancy by Owner; or

(iii) Performance of work in connection with construction operations insured by the Owner, by agents or lessees or other contractors of the Owner, or by contractors of the lessee of the Owner."

C. SUBCONTRACTORS' INSURANCE

(1) WORKERS' COMPENSATION and EMPLOYER'S LIABILITY INSURANCE. The Contractor shall require each Subcontractor to obtain and maintain Workers' Compensation and Employer's Liability Insurance coverages as described in preceding Paragraph B, or to be covered by the Contractor's Workers' Compensation and Employer's Liability Insurance while performing Work under the Contract.

(2) LIABILITY INSURANCE. The Contractor shall require each Subcontractor to obtain and maintain adequate General Liability, Automobile Liability, and Umbrella or Excess Liability Insurance coverages similar to those described in preceding Paragraph B. Such coverage shall be in effect at all times that a Subcontractor is performing Work under the Contract.

(3) ENFORCEMENT RESPONSIBILITY. The Contractor shall have responsibility to enforce its Subcontractors' compliance with these or similar insurance requirements; however, the Contractor shall, upon request, provide the Architect or Owner acceptable evidence of insurance for any Subcontractor.

D. TERMINATION of OBLIGATION to INSURE

Unless otherwise expressly provided in the Contract Documents, the obligation to insure as

provided herein shall continue as follows:

(1) BUILDER'S RISK INSURANCE. The obligation to insure under Subparagraph B(5) shall remain in effect until the Date of Substantial Completion as shall be established in the Certificate of Substantial Completion. In the event that multiple Certificates of Substantial Completion covering designated portions of the Work are issued, Builder's Risk coverage shall remain in effect until the Date of Substantial Completion as shall be established in the last issued Certificate of Substantial Completion. However, in the case that the Work involves separate buildings, Builder's Risk coverage of each separate building may terminate on the Date of Substantial Completion as established in the Certificate of Substantial Completion issued for each building.

(2) PRODUCTS and COMPLETED OPERATIONS. The obligation to carry Products and Completed Operations coverage specified under Subparagraph B(2) shall remain in effect for two years after the Date(s) of Substantial Completion.

(3) ALL OTHER INSURANCE. The obligation to carry other insurance coverages specified under Subparagraphs B(1) through B(4) and Paragraph C shall remain in effect after the Date(s) of Substantial Completion until such time as all Work required by the Contract Documents is completed. Equal or similar insurance coverages shall remain in effect if, after completion of the Work, the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, returns to the Project to perform warranty or maintenance work pursuant to the terms of the Contract Documents.

E. WAIVERS of SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors performing construction or operations related to the Project, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss. But said waiver shall apply only to the extent the loss or damage is covered by builder's risk insurance applicable to the Work or to other property located within or adjacent to the Project, except such rights as they may have to proceeds of such insurance held by the Owner or Contractor as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors, if any, and the subcontractor, sub-subcontractors, suppliers, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The Policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to the person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The waivers provided for in this paragraph shall not be applicable to loss or damage that occurs after final acceptance of the Work.

ARTICLE 38
PERFORMANCE and PAYMENT BONDS

A. GENERAL

Upon signing and returning the Construction Contract to the Owner for final approval and execution, the Contractor shall, at the Contractor's expense, furnish to the Owner a Performance

SUPPLEMENT TO THE GENERAL CONDITIONS OF THE CONTRACT

- 1.1 The following supplements shall modify, delete and/or add to the General Conditions of the Contract. Where any article, paragraph or subparagraph in the General Conditions is supplemented by one of the following paragraphs, the provisions of such article, paragraph, or subparagraph shall remain in effect and the supplemental provisions shall be considered as added thereto. Where any article, paragraph or subparagraph in the General Conditions is amended, voided or superseded by any of the following paragraphs, the provisions of such article, paragraph or subparagraph not so amended, voided or superseded shall remain in effect.

A. **Refer to Article 2.A; Definition:**

1. Architect: Construction documents for this project have been developed by **McKee and Associates, Architects**, 631 South Hull Street, Montgomery, Alabama, 36104, (334) 834-9933 `commissioned by the Owner.
2. Owner: **Baldwin County Board of Education** Unless otherwise stated, all papers required to be delivered to the Owner shall be forwarded through the Architect.

B. **Refer to Article 6;**

1. Add the following to Paragraph B:
 - a. The lowest bidding Contractor shall submit to the Architect within five (5) calendar days after the bid date the name(s) of the Superintendent(s) who will be in charge at the work site, along with the qualifications and experience.
 - b. NOTE: By submission of a Proposal the Bidder agrees that the Owner or Architect may reject a proposed Superintendent with or without a stated reason with no recourse to the Contractor.

C. **Refer to Article 6;**

1. Add the following to Paragraph C:
 - a. All labor shall be performed in the best and most workmanlike manner by persons skilled in their respective assignments or trades. Workmen whose work is unsatisfactory to the Architect or the Owner, or who are considered unfit or unskilled, or otherwise objectionable, shall be dismissed upon notice from the Architect or Owner.

D. **Refer to Article 9, Paragraph D;**

1. Add the following:
 - a. All submittals for color selections, to be made by the Architect for the entire project shall be submitted at the same time within 45 days from the "Notice to Proceed". Piece-meal submittals for color selection will not be permitted.
 - b. Provide as follows unless otherwise specified:
 - 1) All submittals shall be sent to the Architect no later than 45 calendar days from "Notice To Proceed" to: andersong@mckeeassoc.com
 - 2) Submittals regarding mechanical, plumbing, electrical and structural items shall be sent directly to the Engineer of record (see cover sheet of the specification for address). A digital copy of the transmittal shall be sent to the Architect at the following email address: andersong@mckeeassoc.com

E. **Refer to Article 13;**

1. Add the following:
 - a. "If the bidder desires to substitute an "equal", he must secure written approval by the Architect of qualification to bid ten (10) days prior to date.

- b. On all items specified as or equal substitutions must be submitted to the Architect ten (10) days prior to bid opening and Architect will act on substitution five (5) days prior to bids and notify all Contractors.
- c. The request for substitutions are to be filled out completely and must be received prior to bid. Any subcontractor and/or material supplier that was not "approved" and their price is used at bid time will be the Contractors problem to absorb any cost associated with the use of a "non-approved material or equipment. If the "approval" is not listed in the addendum, then the "approval" is not accepted.

F. Refer to Article 15:

- 1. The General Contractor shall be solely responsible for all requirements under this Article.

G. Refer to Article 29, PROGRESS PAYMENTS, paragraph "B", Schedule of Values:

- 1. Amend Paragraph as follows:
 - a. "Within ten days after receiving the Notice to Proceed the contractor shall submit to the Architect a DCM Form C-10SOV, Schedule of Values, which is a breakdown of the Contract Sum showing the value 'and category of Work with Subcontractor name(s)' of the various parts of the Work for billing purposes."
- 2. Add the following:
 - a. The Contractor shall list the Category of Work with the Subcontractor name(s) attributable to each line item value in the column "B", "Description of Work" line(s) of the DCM Form C-10SOV, Schedule of Values.
- 3. Add the following:
 - a. **Values shall be broken down within principal contracts in amounts not greater than \$30,000, but in no case greater than 5 percent of the Contract Sum.**

H. Refer to Article 32, SUBSTANTIAL COMPLETION

- 1. Add the following:
 - a. All manufactures warranties shall commence on the date as set forth on the Substantial Completion Form, no exceptions.
 - b. Contractor shall furnish to the Architect a written letter of "notification" that all "Punch List" items have been completed prior to re-inspection.

I. Refer to Article 35, paragraph "D", Special Warranties:

- 1. Change as follows:
 - a. The Contractor shall deliver to the Owner through the Architect all special or extended warranties required by the Contract Documents from the Contractor, Subcontractors, and suppliers.

J. Refer to Article 37:

- 1. The Architect shall not be liable for any damage or injury to property or any person or persons arising from the presence of/or effects of any hazardous materials or hazardous elements in any state of form in connection with the work under this Contract. All such liability shall lie with the Contractor.
- 2. **ADD the following to Subparagraph B(5) "Builders Risk Insurance":**
As part of the General Contractors Builder's Risk, the General Contractor shall include in his Base Bid a 5% deductible allowance against wind damage during the construction of the building. This amount shall be refunded to the Owner if unused at the end of the construction project.
- 3.

K. **Refer to Article 44:**

1. Add the following: All work on this project shall be performed in accordance with the following codes:
 - a. 2010 ADA Standards For Accessible Design
 - b. 2021 International Building Code
 - c. 2021 International Plumbing Code
 - d. 2021 International Mechanical Code
 - e. 2021 International Fuel Gas Code
 - f. 2021 International Fire Code
 - g. 2020 National Electrical Code
 - h. 2019 National Fire Alarm and Signaling Code
 - i. ANSI/ASHRAE/IESNA Standard 90.1-2013 Energy Standard for Buildings Except Low-Rise Residential

L. **Refer to Article 49:**

1. Liquidated damages will be assessed at a rate of 6% per annum.
2. If this contract extends thirty (30) days past Schedule Completion Date, Owner shall deduct from the Contractor's final payment, a sum equal to the additional expense incurred by the Owner for the Architect for contract administration past scheduled completion date.

END OF SECTION

Supplemental Accounting Requirement – Additions to Robertsdale High School – Baldwin County

Prior to starting construction, the contractor shall provide the following breakdown of the various areas and value of the construction in each of the total project cost. Pay application number 1 can not be paid until this information is received.

Field House	_____
Gym	_____
Multi- Purpose Area	_____
Band Room	_____
Weight Equipment (See Allowance)	_____

DCM (BC) No. _____

PSCA Projects: PSCA No. _____

Application No. _____

Date: _____

APPLICATION and CERTIFICATE for PAYMENT

Attach DCM Form C-10SOV: Schedule of Values

TO OWNER: Entity Name: _____ Address: _____	PROJECT: _____ _____ _____
FROM CONTRACTOR: Company Name & Address, which must exactly match co. name & payment address spelling as registered in State of AL Accounting & Resource System (STAARS) or AL Buys to avoid rejection: STAARS or AL Buys Vendor #: _____	ARCHITECT / ENGINEER: Firm Name: _____ Address: _____

A. Total Original Contract	\$ _____	
B. Fully Executed (fully signed) Change Order(s) Numbers ____ through ____	+\$ _____	
C. Total Contract To Date	\$ _____	
<hr/>		
1. Work Completed to Date per attached Schedule of Values <i>(Form C-10SOV's Column F Total)</i>	\$ _____	
2. Materials Presently Stored <i>(When this amount is greater than \$0.00, attach Form C-10SM: Inventory of Stored Materials, or similar list)</i>	+\$ _____	
3. Total Work Completed to Date & Materials Presently Stored <i>(_____% of Contract To Date)</i>	\$ _____	
4. Less Retainage <i>(If Total Work Completed to Date & Materials Presently Stored (#3) is less than or equal to 50% of Total Contract to Date (C), Retainage = #3 x 0.05. Once #3 exceeds 50% of C and up until project is complete, Retainage = C x 0.025. \$0 is retained on final payment application, see last bullet point below Instructions.)</i>	-\$ _____	Final pay app? Yes.
5. Total Due	\$ _____	
6. Less Total Previous Payments Billed <i>(Must exactly match #5 Total Due from previous payment application. # 6 is \$0.00 if there is no previous payment application)</i>	-\$ _____	
7. Balance Due This Estimate	\$ _____	

CONTRACTOR'S CERTIFICATION The undersigned Contractor certifies that to the best of his knowledge, information, and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by him for Work for which previous Certificates for Payments were issued and payments received from the Owner and that current payment shown herein has not yet been received. By: _____ Date: _____ Contractor's Signature Name & Title _____ Sworn and subscribed before me this _____ day of _____ Month, Year Seal: _____ Notary Public's Signature _____	ARCHITECT'S / ENGINEER'S CERTIFICATION In accordance with the Contract Documents, the Architect/ Engineer certifies to the Owner that, to the best of the Architect's/ Engineer's knowledge and belief, the Work has progressed to the point indicated herein, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the amount approved. By _____ Architect's / Engineer's Signature Name & Title _____ Date _____
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INSTRUCTIONS <ul style="list-style-type: none"> • PSCA-funded projects, and State Agency-owned projects: Two copies of pay. app., each with original signatures and all attachments required. • Date of first payment application cannot precede the Notice to Proceed's Begin Date. • Pay. app. must exactly match an attached DCM Form C-10SOV: Schedule of Values. • A change order must be fully executed before inclusion on a payment application. • Contractor's signature date cannot precede the payment application date. • Contractor and Notary signee dates must match. • Progress schedules must be included with non-final payment applications. • One payment application per month may be submitted. • On a final payment application, the following is required for release of retainage: all change orders must be fully executed (signed by all parties and approval authorities) and included in B., the Certificate of Substantial Completion for entire work is fully executed, and all other close-out requirements per General Conditions Article 34 are completed. 	APPROVAL _____ Owner Entity By _____ Signature Name & Title _____ Date _____
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SCHEDULE OF VALUES (SOV)

DCM Form C-10SOV
Revised October 2021

Project:						DCM (BC) Project Number:			
						PSCA Project Number, if any:			
Contractor Company:						Application Number:			
						Application Date:			
						Period From:		Period To:	
A	B	C	D	E	F	G	H	I	J
Item No.	Description of Work	Scheduled Value (including fully executed [signed by all parties] change order amounts)	Work Completed		Total Work Completed to Date (This application SOV's D + E)	Materials Presently Stored (G total greater than \$0 must match C-10SM's column E total. This SOV's G amounts are not in this SOV's D nor E amounts.)	Total Work Completed to Date & Materials Presently Stored (This SOV's F + G)	Percent of Contract Completed to Date (This SOV's H / C)	Retainage (This column's Total's cell formula calculates the applicable variable rate)
			Work Previously Completed (Previous pay app SOV's column F. D is \$0 if this SOV is for first pay app.)	Work Completed This Period (Period as noted above)					
1.					\$ -		\$ -		Retainage Variable Rate: If Total Work Completed to Date & Materials Presently Stored (H) is less than or equal to 50% of Total Scheduled Value (C), Retainage = $H \times 0.05$. Once H exceeds 50% of C and up until project is complete, Retainage = $C \times 0.025$. There will be no retainage on final
2.					\$ -		\$ -		
3.					\$ -		\$ -		
4.					\$ -		\$ -		
5.					\$ -		\$ -		
6.					\$ -		\$ -		
7.					\$ -		\$ -		
8.					\$ -		\$ -		
9.					\$ -		\$ -		
10.					\$ -		\$ -		
11.					\$ -		\$ -		
12.					\$ -		\$ -		
13.					\$ -		\$ -		
14.					\$ -		\$ -		
15.					\$ -		\$ -		
16.					\$ -		\$ -		
17.					\$ -		\$ -		
18.					\$ -		\$ -		
19.					\$ -		\$ -		
20.					\$ -		\$ -		
21.					\$ -		\$ -		
22.					\$ -		\$ -		

									payment application.
					\$ -		\$ -		
23.									
24.					\$ -		\$ -		
25.					\$ -		\$ -		

[illegible]

		TOTALS:	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -

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app Form C-10 per the following indicated Form C-10 line #s:	C.	None	None	1.	2.	3.	3.	4.
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Note: If this SOV's column G: Materials Presently Stored includes any amounts other than \$0, then DCM Form C-10SM: Inventory of Stored Materials with back-up receipts must be submitted as part of the payment application documentation.

DCM Form C-10SM
Revised October 2021[illegible]

PRE-CONSTRUCTION CONFERENCE CHECKLIST

The following are recommended topics to be covered during the required Pre-Construction Conference. Contact the DCM Project Inspector at least fourteen (14) days prior to scheduling the conference.

**Item shall be discussed while Owner is present.*

	*1. Name and relationship to job of local Owner personnel
	2. Public officials involved
	3. Names of architect/engineer personnel involved
	4. Provide e-mail addresses on Pre-Construction Sign-in sheet
	5. Construction sets of plans available to contractor
	6. Verify alternates accepted, etc.
	7. Approved list of sub-contractors
	8. Approved cost breakdown & Progress Schedule
	9. Method of approving monthly payment requests
	10. Change Orders - Documentation - no prior work, unless authorized in writing
	11. Shop drawings, time to process
	<p>12. Advance notice for required inspections</p> <p>The contractor will notify the architect by email of the date the project will be ready for an inspection by the Division of Construction Management. Inspections must be requested 14 days in advance. When the DCM Inspector confirms the inspection date and time, the architect will send an email confirming the inspection date and time to all parties as well as a copy to inspections@realproperty.alabama.gov. Cancellations of any scheduled inspection must be received in writing no later than 48 hours prior to the scheduled inspection. If the inspection is canceled, it will be rescheduled subject to the DCM Inspector's availability. Cancellations received less than 48 hours in advance shall incur a \$1,500.00 re-inspection fee. If the contractor is not ready for the scheduled inspection he shall incur a \$1,500.00 re-inspection fee.</p>
	<p>13. Inspection Minimum Requirements</p> <p>The following minimum requirements listed below are provided to aid the contractors and architect in determining if a project is ready for a required inspection.</p> <p><u>Pre-Construction Conference:</u> Required Attendees: Contractor, Owner, Architect, Major Subs</p> <ul style="list-style-type: none"> Fully-executed construction contract and Notice to Proceed Verification of permit fee payment (Exception: fully locally-funded K-12 & public four-year University capital improvement, HVAC, or roof projects with both an estimated cost of \$750,000.00 or Less, and a contract awarded on or after 10/01/22, are exempt from DCM Fees.) Contractor's statement of responsibility and quality assurance plan (storm shelter) Fire alarm contractor and fire sprinkler contractor certification (from State Fire Marshal) ADEM permit, if more than one acre of land is disturbed <p><u>Pre-Construction Conference for Storm Shelter:</u> Required Attendees: Contractor, Owner, Architect, Structural Engineer, Major Subs, Special Inspections Representative</p> <ul style="list-style-type: none"> The completed and signed DCM Form C-17: Contractor's Statement of Responsibility for Construction of Tornado Storm Shelter (Hurricane Shelter Where Applicable) along with the required Quality Assurance Plan (QAP) must be submitted to the DCM Inspector at the pre-construction conference.

	<p>13. <u>Pre-Roofing Conference</u>: Required Attendees: Contractor, Owner, Architect, Roofing Sub, Roofing Manufacturer's Representative</p> <ul style="list-style-type: none"> • Roofing submittals must be approved by the architect prior to pre-roofing conference • Roofing manufacturer must provide documentation that roof design and roofing materials meet code requirements for wind uplift and impact resistance • Copy of sample roof warranty – Note: Standard manufacturer's roofing guarantees which contain language regarding the governing of the guarantee by any state other than the State of Alabama, must be amended to exclude such language, and substituting the requirement that the Laws of the State of Alabama shall govern all such guarantees. <p><u>Above Ceiling Inspections</u>: Required Attendees: Contractor, Owner, Architect, MEP Engineers, Major Subs</p> <ul style="list-style-type: none"> • All work must be completed except for installation of ceiling tiles, and/or hard ceilings • Space must be conditioned • Permanent power must be connected unless otherwise arranged with the DCM Inspector • Grease duct must be inspected and approved by the DCM Inspector prior to fire wrapping and above-ceiling inspection <p><u>Life Safety Inspections and Final Inspection</u>: Required Attendees: Contractor, Owner, Architect, Engineers, Major Subs, Local Fire Marshal</p> <ul style="list-style-type: none"> • Fire alarm certification • Kitchen hood fire suppression system certification • General contractor's 5-year roofing guarantee (DCM Form C-9) • Roofing manufacturer's warranty • Above ground and below ground sprinkler certifications • Completed certificate of structural engineer's observations (for storm shelter) • Emergency and exit lighting tests • Fire alarm must be monitored • Elevator inspection completed and certificate of operation provided by the State of Alabama Department of Labor • Boiler/vessels inspection completed and certificate of operation provided by the State of Alabama Department of Labor • Pressure test/Flush test for underground sprinkler lines (witnessed by local fire marshal, fire chief and/or DCM Inspector) • Flush/pressure test for new and/or existing fire hydrants • Must have clear egress/access and emergency (for first responders) access to building • Must have ADA access completed <p><u>Year-End Inspection</u>: Required Attendees: Contractor, Owner, Architect, Engineers and/or Major Subs may be required</p> <ul style="list-style-type: none"> • Owner's list of documented warranty items • Reconciliation of user fees with DCM shall be completed prior to inspection
	14. Other inspections required before work is covered
	15. Inspection report distribution – weekly per Owner-Architect Agreement
	16. Record Drawings, definition of, procedures, addenda posted, etc.
	*17. Project sign and other job signs
	18. Point of contact for project. Job Superintendent and phone number.
	*19. Overall phasing of job
	20. Contractor's duty to coordinate work of separate contractors
	*21. Use of site and existing building, access drive, signs
	*22. Use of existing toilets
	*23. Coordinate any utilities supplied by Owner
	*24. Coordinate outages and work in existing building with Owner
	25. Keeping existing exit paths open

	26. Routine job cleanup
	27. O.S.H.A. - Report all accidents - safety General Contractor's responsibility
	28. Contractor is reminded of obligation to comply with the Alabama Child Labor Law and E-verify
	29. Project limits
	30. Building location relative to critical property line, easement, setback, etc.
	31. Locating property line, corners, etc.
	32. Verify sanitary outfall before committing floor level
	33. ADEM land disturbance permits shall be required if site is over 1-acre.
	34. Procedure if bad soil or rock is encountered: Geotech and special inspections
	35. Stockpiling topsoil
	36. Protecting trees
	37. Soil compaction, type soil, lab tests, etc.
	38. Soil Treatment, mix on site in presence of Job Superintendent
	39. Surveyor to check foundation wall if location critical
	40. Ready mix plant, file delivery tickets, slump tests, cylinders
	41. Quality of concrete work; concrete testing
	42. Inspections before pouring concrete
	43. What is expected of masonry work, mortar additive
	44. Problems with hollow metal - install proper fire labels
	45. Pre-roofing Conference - no roofing materials installed prior to conference, all roofing submittals and warranties must have been reviewed and approved by the Architect prior to the Pre-roofing Conference. Manufacturer's Representative must be present at Pre-roofing conference. The Roofing Manufacturer must show compliance with the IBC wind and impact-resistance requirements. Contractor shall video existing building interior and exterior prior to roofing operations and provide copy to Owner.
	46. General Contractor's Roofing Guarantee and Manufacturer's Roofing Warranties must be presented to DCM Inspector at Final Inspection and submitted with Certificate of Substantial Completion
	47. Potential conflict of mechanical and electrical equipment; shop drawings
	48. Return air plenums (no combustibles)
	49. Fire damper installation issues
	50. Certificate of Substantial Completion/Final Inspection
	51. Conduct of contractor's personnel. No interaction with staff and/or students. No foul language, no smoking or use of tobacco products, no drugs and no firearms on school property.
	52. Elevators/Pressure Vessels must be inspected and approved by the State of AL Dept. of Labor prior to final inspection.
	53. Life safety, fire alarm, sprinkler and kitchen hood fire suppression systems must be complete and certified prior to final Inspection. Also, exit and emergency lighting must be complete.
	54. Comply with ADA requirements: plumbing fixture heights, toilet partition widths, turnaround, signage, parking lot striping, etc.

	55. Coordinate with local fire authority to assure access to the building for firefighting equipment during construction and before final acceptance. Provide fire extinguishers as required.
	56. Light gauge metal roof framing and/or wood truss framing to be inspected by the structural engineer.
	57. Comply with fire hydrant requirement; coordinate with local Fire Authority or State Fire Marshal.
	58. Craft-faced insulation is not to be installed exposed.
	59. Fire alarm contractor and fire sprinkler contractor must be permitted through the State of Alabama Fire Marshal's Office. Provide permits.
	60. All sprinkler system valves must be electrically supervised
	*61. Fire alarm monitoring requirements
	62. Storm Shelter requirements <ul style="list-style-type: none"> a. Contractor's Statement of Responsibility and Quality Assurance Plan – Provide paperwork at Pre-Construction Conference b. Certification of Structural Observations from the Structural Engineer of Record must be attached to the Certificate of Substantial Completion form.
	63. Third-party inspections/special inspections
	64. Release of retainage – 30 days to complete punch list and closeout
	*65. Sales tax savings (Alabama Department of Revenue)
	66. Project Closeout - precedes Final Payment <ul style="list-style-type: none"> a. Warranties b. Operating and Maintenance Manuals c. As-built Drawings d. Other requirements
	67. Advertisement of Completion - start ad after substantial completion <ul style="list-style-type: none"> a. for projects less than \$50,000.00, Owner advertises 1 week b. for projects \$50,000.00 or more, Contractor advertises for 4 consecutive weeks
	68. Time Extensions
	69. Final Payment Application checklist

SAMPLE PROGRESS SCHEDULE & REPORT				CONTRACTOR (Contractor may use own form in lieu of Form C-11):								DATE OF REPORT:							
DCM (BC) No.:												ARCHITECT/ENGINEER:				PROCEED DATE:			
PSCA projects: PSCA No.:																PROJECTED COMPLETION DATE:			
PROJECT:																			
WORK DIVISION	%	AMOUNT																	
1. GENERAL REQUIREMENTS																			
2. SITEWORK																			
3. CONCRETE																			
4. MASONRY																			
5. METALS																			
6. WOOD AND PLASTIC															100%				
7. THERMAL AND MOISTURE PROTECTION															90%				
8. DOORS AND WINDOWS															80%				
9. FINISHES															70%				
10. SPECIALTIES															60%				
11. EQUIPMENT															50%				
12. FURNISHINGS															40%				
13. SPECIAL CONSTRUCTION															30%				
14. CONVEYING SYSTEMS															20%				
15. MECHANICAL															10%				
16. ELECTRICAL															0%				
TOTAL ORIG. CONTRACT	100%																		
ANTICIPATED DRAW IN \$1,000																			
ACTUAL DRAW IN \$1,000																			
															DCM Form C-11 August 2021				
LEGEND: <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>																			
USE ADDITIONAL SHEETS IF JOB IS SCHEDULED OVER 12 MONTHS.																			

TO: Alabama Department of Finance
Real Property Management
Division of Construction Management
770 Washington Avenue, Suite 444
Montgomery, AL 36104
(334) 242-4082, inspections@realproperty.alabama.gov

DCM Form B-9
August 2021

PROJECT DATA FORM

Date: _____

DCM (BC) No. _____

This form does not need to be submitted to DCM. It is for your office use and the Contractor's office use, if needed.

PROJECT (NAME AND LOCATION)	OWNER (FULL ENTITY NAME, ADDRESS, & PHONE No.)
CONTRACTOR (FULL CO. NAME, ADDRESS, & PHONE No.)	ARCHITECT/ENGINEER (FIRM NAME, ADDRESS, & PHONE No.)

FUNDING SOURCE:				
PSCA	LOCAL	STATE	OTHER	_____

CONTRACT AMOUNT: \$
Alternates Included in Contract:

CONTRACT TIME	Date Bids Rec'd:	Date of Contract:
Work Start Date:	Time Limit:	Scheduled Completion Date:

BONDS and INSURANCE
Performance Bond By:
Payment Bond By:
Builder's Risk By:
Workman's Compensation By:
Liability By:

****PRECONSTRUCTION CONFERENCE NOTE****

Please contact the appropriate DCM Inspector for this project by telephone or email at least fourteen (14) days prior to scheduling the Pre-Construction Conference. Inspector territories and email addresses are on the Staff webpage of www.dcm.alabama.gov.

	Len Kirk - (334) 850-2067		Chandler Gann - (334) 320-1844
	Paul Gray - (256) 248-5202		David Roberson - (256) 299-0517
	Corey Odom - (334) 320-1721		Steve Pendley - (251) 331-2319
	Don Williams - (256) 248-5147		

Date: _____

DCM (BC) #	PSCA #
PROJECT NAME AND LOCATION:	OWNER ENTITY NAME & ADDRESS:
	Phone No.
CONTRACTOR COMPANY NAME & ADDRESS:	ARCHITECTURAL/ENGINEERING FIRM NAME & ADDRESS:
Phone No.	Phone No.
PROJECT DATA ON THE DATE OF OBSERVATION: <div style="float: right;">No. of Workers _____</div> <div style="clear: both;"></div> <div style="display: flex; justify-content: space-between;"> <div>Site Conditions _____</div> <div>Weather _____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Starting Date _____</div> <div>Contract Completion Date _____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Scheduled State of Completion _____%</div> <div>Estimated Actual Completion _____%</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Contractor's Superintendent _____</div> <div>Job Phone # _____</div> </div>	
COMMENTS / DEFICIENCIES:	
<div style="display: flex; justify-content: space-between;"> <div>Signature _____</div> <div>Report No. _____</div> </div>	
cc: Owner, Architect/Engineer, Contractor, DCM Office (inspections@realproperty.alabama.gov), DCM Inspector	

**Alabama Department of Finance
Real Property Management
Division of Construction Management**

770 Washington Avenue, Suite 444
Montgomery, Alabama 36104
(334) 242-4082 FAX (334) 242-4182

DCM Form B-12
August 2021

CHANGE ORDER CHECKLIST

For use with DCM Form C-12 and DCM Form 9-J

WHICH FORM DO YOU USE?

Use **DCM Form C-12** for contracts of state agencies and departments, SDE, and ACCS projects.
Use **DCM Form 9-J** for contracts of projects partially or fully Public School and College Authority (PSCA)-funded.
Include a completed **DCM Form B-11: Change Order Justification** with either DCM Forms C-12 or 9-J.

Verify that the following information is inserted in the spaces provided on the CONTRACT CHANGE ORDER form, or attached to the form where attachments are noted to be acceptable or obviously necessary. Do not staple forms; use clips.

1.	CHANGE ORDER NUMBER: Insert current change order number.
2.	DATE: Insert date.
3.	DCM (BC) PROJECT NUMBER: Insert DCM Project Number in the block provided at top of document.
4.	CONTRACTOR Insert name and address of the Contractor, exactly as they appear on the Construction Contract.
5.	NAME OF PROJECT: Under "Project", insert the complete name of the project as identified in the bid documents. If using DCM Form 9-J, insert the PSCA Project Number in the space provided.
6.	CONTRACTOR'S PROPOSALS: Under "TERMS", identify the change order proposals submitted by the contractor that are being addressed by the Contract Change Order. Identify these proposals by inserting their dates.
7.	DESCRIPTION OF THE CHANGE(S) IN WORK: Fully describe the change or changes to the original contract work for which the Construction Contract is being modified. This description should be written so that a reader of the document who is not directly involved in the project can understand what is being changed. If the space provided on the form is inadequate for such a description, use attachments and cite them.
8.	CONTRACT AND CHANGE ORDER AMOUNTS: Insert the applicable dollar amounts to record the original contract sum, change orders, and the currently revised contract sum.
9.	EXTENSION OF TIME: If the Contract Time is being extended by the Contract Change Order, insert appropriate number of calendar days in the space provided. If the Contract Time is not being extended, insert "NONE".
10.	RESPONSIBILITY FOR CHANGE ORDER FUNDING - DCM Form 9-J ONLY: The authority responsible for funding the change order is to be identified in the following sentence in the form, : "The amount of this Change Order will be the responsibility of _____." Insert whichever is appropriate: (1) "PSCA", (2) name of LEA, or (3) "PSCA" and name of LEA.
11.	SIGNATURES: The signature spaces for State Agency, PSCA and fully locally-funded Alabama Community College System projects are different from each other. Download the appropriate document per Owner/project type from www.dcm.alabama.gov/forms.aspx . Before submitting a Contract Change Order to DCM, the document must be signed by the contractor, surety (for additive change orders only), design professional and owner (local owner or using agency). Signature by the surety is not necessary on deductive change orders or change orders involving only extensions of time. If the cumulative change order amount exceeds 10% of the original contract amount then the Owner's legal consultant must sign DCM Form B-11: Change Order Justification.
12.	ATTACHMENTS: To each copy of the Contract Change Order form, attach with clips (do not staple): a. Contractor's change order proposals and/or invoices providing a detailed breakdown of change order costs. General Contractors (GC) must include subcontractors' (sub) quotes as backup. All GC and sub quotes must be broken down by labor (hours and rates), materials including quantities and unit prices (with receipts or quotes attached), equipment whether rented or owned (with receipts or quotes attached), and Overhead & Profit (OH&P). 1. Total OH&P can be a maximum of 25% divided between GC and subs; GC can have a maximum of 15% OH&P (in which case a sub could have up to 10% OH&P). See General Conditions- Article #19. 2. Sales tax cannot be included in change orders. 3. Deductive change orders also require backup including breakdown of labor and material, and must also deduct OH&P if included in original bid. Include specification section regarding allowances. b. POWER OF ATTORNEY for the individual signing the Contract Change Order for the surety. c. DCM Form B-11, CHANGE ORDER JUSTIFICATION: completed and signed by the design professional and owner.

CONTRACT CHANGE ORDER

Change Order No. _____ Date _____ DCM (BC) No. _____

TO: (Contractor) Co. Name: Address:	PROJECT:
--	-----------------

TERMS: You are hereby authorized, subject to the provisions of your Contract for this project, to make the following changes thereto in accordance with your proposal(s) dated _____.

FURNISH the necessary labor, materials, and equipment to *(Description of work to be done or changes to be made. If the description is continued in an attachment, identify the attachment below.):*

Description continued from Page 1:

ORIGINAL CONTRACT SUM		\$ _____
NET TOTAL OF PREVIOUS CHANGE ORDERS		\$ _____
PREVIOUS REVISED CONTRACT SUM		\$ _____
THIS CHANGE ORDER WILL	INCREASE DECREASE	
	THE CONTRACT SUM BY	\$ _____
REVISED CONTRACT SUM, INCLUDING THIS CHANGE ORDER		\$ _____

EXTENSION OF TIME resulting from this Change Order None or _____ Calendar days.

The Owner does hereby certify that this Change Order was executed in accordance with the provisions of Title 39, Code of Alabama, 1975, as amended.

<p>_____</p> <p>Architectural/Engineering Firm</p> <p>Recommended By _____</p> <p>Name & Title _____</p>
--

APPROVAL

<p>ALABAMA STATE DEPARTMENT OF EDUCATION</p> <p>(SDE)</p> <p><i>(Required for locally-funded, SDE projects.)</i></p> <p>By _____ Date: _____</p> <p>State Superintendent of Education</p>

CONTRACTING PARTIES

<p>_____</p> <p>Contractor Company</p> <p>By _____</p> <p>Name & Title _____</p>
--

<p>_____</p> <p>Awarding Authority/Owner Entity</p> <p>By _____</p> <p>Name & Title _____</p>

<p>CONSENT OF SURETY (for additive \$ change orders only)</p> <p>_____</p> <p>Surety Company</p> <p>By _____</p> <p>(Attach current Power of Attorney)</p> <p>Name & Title _____</p>

Review/Signature flow: Architect/Engineer (prepare documents) > Contractor (review and sign) (> Surety for additive \$ change orders only [sign]) > Architect/Engineer (review and sign) > Owner (review and sign) > SDE (review, sign, distribute the fully executed Change Order to all parties and forward a copy to the Alabama Division of Construction Management [DCM]). Note: DCM does not sign fully locally-funded SDE project contract documents.

TO: **Alabama Department of Finance**
Real Property Management
Division of Construction Management
 770 Washington Avenue, Suite 444
 Montgomery, Alabama 36104
 (334) 242-4082 FAX (334) 242-4182

CHANGE ORDER JUSTIFICATION

Change Order No. _____

Date: _____

DCM (BC) No. _____

Purpose and instructions on next page.

Do not staple this form and/or attachments; use clips.

(A)	PROJECT NAME & LOCATION:	OWNER ENTITY NAME & ADDRESS:						
	CONTRACTOR COMPANY NAME & ADDRESS:	ARCHITECTURAL / ENGINEERING FIRM NAME & ADDRESS:						
(B)	DESCRIPTION OF PROPOSED CHANGE(S): ATTACH CONTRACTOR'S DETAILED COST PROPOSAL(s)							
	AMOUNT: <input type="checkbox"/> ADD <input type="checkbox"/> DEDUCT \$ _____ TIME EXTENSION: _____ CALENDAR DAYS							
(C)	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">ORIGINAL CONTRACT AMOUNT</td> <td style="width: 33%;">PREVIOUS C.O.'s _____ THRU _____</td> <td style="width: 34%; text-align: right;">CONTRACT AMOUNT PRIOR TO PROPOSED CHANGE ORDER</td> </tr> <tr> <td>\$ _____</td> <td>+ \$ _____</td> <td>= \$ _____</td> </tr> </table>		ORIGINAL CONTRACT AMOUNT	PREVIOUS C.O.'s _____ THRU _____	CONTRACT AMOUNT PRIOR TO PROPOSED CHANGE ORDER	\$ _____	+ \$ _____	= \$ _____
ORIGINAL CONTRACT AMOUNT	PREVIOUS C.O.'s _____ THRU _____	CONTRACT AMOUNT PRIOR TO PROPOSED CHANGE ORDER						
\$ _____	+ \$ _____	= \$ _____						
(D)	JUSTIFICATION FOR NEED OF CHANGE(S):							
(E)	JUSTIFICATION OF CHANGE ORDER vs. COMPETITIVE BID:							
(F)	ARCHITECT / ENGINEER'S EVALUATION OF PROPOSED COST:							
(G)	CHANGE ORDER RECOMMENDED _____ ARCHITECTURAL / ENGINEERING FIRM NAME By: _____ ARCHITECT / ENGINEER'S SIGNATURE By: _____ OWNER'S PROJECT REPRESENTATIVE'S SIGNATURE	CHANGE ORDER JUSTIFIED AND APPROVED _____ LOCAL OWNER ENTITY NAME By: _____ OWNER'S SIGNATURE By: _____ OWNER'S LEGAL COUNSEL'S SIGNATURE						

CHANGE ORDER JUSTIFICATION: PURPOSE and INSTRUCTIONS

PURPOSE

The awarding of work through an existing contract may potentially conflict with, or violate, the "Competitive Bid Laws" of the State of Alabama. **The determination of legality of Change Orders rests with the Awarding Authority and its legal advisor.** In a June 15, 1979, Opinion, the Office of the Attorney General offered guidelines for making such determinations in conjunction with considering the facts and merits of each situation. The purpose of the CHANGE ORDER JUSTIFICATION is to provide a means through which the Awarding Authority considers these guidelines and the intent of the "Competitive Bid Laws" when authorizing Change Orders. Pursuant to these guidelines, the following types of changes meet the criteria for awarding work through Change Orders in lieu of through the Competitive Bid process:

- I. Minor Changes for a monetary value less than required for competitive bidding.
- II. Changes for matters relatively minor and incidental to the original contract necessitated by unforeseeable circumstances arising during the course of the work.
- III. Emergencies arising during the course of the work of the contract.
- IV. Bid alternates provided for in the original bidding where there is no difference in price of the change order from the original best bid on the alternate.
- V. Changes of relatively minor items not contemplated when the plans and specifications were prepared and the project was bid which are in the public interest and which do not exceed 10% of the contract price.

Under these guidelines the cumulative total of Change Orders, including any negotiations to bring the original contract price within the funds available, would become questionable if the total of such changes and negotiations exceed 10% of the original contract price. These guidelines are not intended to interfere with the Awarding Authority's good faith discretion to respond to specific situations in the public's best interest. If the cumulative change order amount exceeds 10% of the original contract amount then the Owner's legal consultant must sign the Change Order Justification prior to submission to the Division of Construction Management (DCM).

INSTRUCTIONS

The CHANGE ORDER JUSTIFICATION is to be prepared by the design professional, who has evaluated the fairness and reasonableness of the proposed cost of the change(s) and recommends that the proposed Change Order be executed. The fully executed Form B-11: CHANGE ORDER JUSTIFICATION must accompany the proposed DCM Form C-12: Change Order. Instructions for completing the B-11 form are:

1. Insert the proposed Change Order Number, date of the Justification, and DCM (BC) Project Number in the spaces provided in the upper right-hand corner.
2. **Section (A):** Insert the complete name and address of the PROJECT, OWNER, CONTRACTOR, AND ARCHITECT/ENGINEER.
3. **Section (B):** Provide a complete description of the proposed changes in work, referring to and attaching revised specifications and/or drawings as appropriate. An attachment may be used if additional space is needed, but insert the proposed amount and time extension of the change(s) in the spaces provided. **Attached a copy of the contractor's detailed cost proposal.**
4. **Section (C):** Insert the Original Contract amount, the net increase or decrease of previous Change Orders, and the Current Contract amount (preceding the currently proposed Change Order).
5. **Section (D):** Explain why it is necessary, or in the public's interest, to make the proposed change(s) to the Work.
6. **Section (E):** Explain why award of the changed work to the existing contractor instead of awarding the work under the competitive bid process is justified.
7. **Section (F):** The design professional must state his evaluation of the reasonableness and fairness of the proposed costs based upon his review of the contractor's proposal.
8. **Section (G):** The design professional must recommend the Change Order to the Owner by signing the document; the Owner may require such recommendation from other individuals. The Owner must sign the document indicating that they believe change order action in lieu of the competitive bid process is justified for the proposed change(s). **Review of the matter and signing of the document by the Owner's legal counsel is highly recommended. If the cumulative change order amount exceeds 10% of the original contract amount then the Owner's legal consultant must sign the Change Order Justification prior to submission to DCM.**

FINAL PAYMENT CHECKLIST (FPC)

To be completed by the Architect/Engineer and submitted to DCM for review; applicable only to state agencies, partially or fully PSCA-funded and other bond-funded projects (exception: Alabama Community College System (ACCS) PSCA-funded projects with Notice-To-Proceeds issued after July 31, 2021). Two copies of the FPC are required. Each copy of the FPC shall include all attachments including the Contractor's Application for Final Payment. **If all PSCA funds are expended prior to Final Payment, it is not a requirement to submit the Application & Certificate for Final Payment along with the supporting documentation to DCM.**

(For further guidance refer to Article 34/Final Payment of DCM Form C-8: General Conditions of the Contract.)

PROJECT:		DCM (BC) No. _____ PSCA No. _____ <div style="text-align: right; font-size: small;">(If applicable)</div>
YES	N/A	Select "YES" or "N/A" as applicable.
		Application and Certificate for Final Payment, DCM Form C-10: Attach one copy to FPC. The application must include original signatures of all parties and include all application attachments.
		Certificate of Substantial Completion, DCM Form C-13: Attach one fully-executed copy to FPC.
		Advertisement for Completion, DCM Form C-14: Attach one copy of the affidavit of publication (including the advertisement) to the FPC.
		Contractor's Affidavit of Payment of Debts & Claims, DCM Form C-18: Attach one copy to FPC.
		Contractor's Affidavit of Release of Liens, if required by Owner, DCM Form C-19: Attach one copy to the FPC.
		Consent of Surety to Final Payment, if any, To Contractor, DCM Form C-20: Consent is required for projects with P&P Bonds. Original has been delivered to Owner. Attach one copy to FPC.
		General Contractor's Roofing Guarantee, DCM Form C-9, and Other Specified Roofing Guarantees, if any: Attached to Certificate of Substantial Completion.
		Contractor's One-Year Warranty: Original has been delivered to the Owner. Attach one copy to the FPC.
		Other Warranties: All other specified original warranties has been delivered to the Owner. Attach one copy to the FPC.
		Record Documents: Specified "As-built" plans and specifications have been delivered to the Owner.
		O & M Manuals: Specified instructions and O&M Manuals have been delivered to the Owner.
		Time Extension: Over-run of Contract Time has been reconciled by: <div style="display: flex; justify-content: space-around; margin-top: 5px;"> Change Order Liquidated Damages Attached explanation </div>
		Additional Documents or Explanations which are attached:
Submitted By: _____ <div style="text-align: center; margin-top: 5px;">Architectural / Engineering Firm</div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%; text-align: center;"> _____ Signature </div> <div style="width: 40%; text-align: center;"> _____ Printed Name and Title </div> <div style="width: 20%; text-align: center;"> _____ Date </div> </div>		

Final Reconciliation of Fees: Between the final change order execution and the year-end inspection, report the final project cost to <https://appengine.egov.com/apps/al/dcm-fees> (back-up is not needed unless requested by DCM). DCM will then email a Final Reconciliation of Fees Statement to the Owner. If the Final Statement shows a net payment is owed to DCM, that amount must be paid prior to scheduling the year-end inspection. If the Final Statement shows a net refund is owed then a check will be mailed to the Owner.

TO: **Alabama Department of Finance**
Real Property Management
Division of Construction Management
770 Washington Avenue, Suite 444
Montgomery, AL 36130-1150
(334) 242-4082

DCM Form C-13
Revised November 2022;
(Note: Use DCM Form C-13A for fully locally-funded K-12 & Public
4-Year University Capital Improvement, HVAC, & Roof Projects with **both**
a total cost of \$750,000 or Less **and a contract awarded on or after 10/01/22**)

CERTIFICATE OF SUBSTANTIAL COMPLETION

*Do not staple this form and/or attachments; use clips.
Print single-sided; do not submit double-side printed documents.*

ROUTING PROCEDURES ON NEXT PAGE

DCM (BC) No. _____

OWNER ENTITY NAME AND ADDRESS: Email to receive executed copy: _____	ARCHITECTURAL / ENGINEERING FIRM NAME AND ADDRESS: Email to receive executed copy: _____
CONTRACTOR COMPANY NAME AND ADDRESS: Email to receive executed copy: _____	BONDING COMPANY NAME AND ADDRESS: Email to receive executed copy: _____
PROJECT: 	

Substantial Completion has been achieved for _____ the entire Work _____ the following portion of the Work:

The **Date of Substantial Completion** of the Work covered by this certificate is established to be _____.

"Substantial Completion" means the designated Work is sufficiently complete, in accordance with the Contract Documents, such that the Owner may occupy or utilize the Work for its intended use without disruption or interference by the Contractor in completing or correcting any remaining unfinished Work. The Date of Substantial Completion is the date upon which all warranties for the designated Work commence, unless otherwise agreed and recorded herein.

Punch List: A _____ page list of items to be completed or corrected prior to the Owner's approval of Final Payment is attached hereto, but does not alter the Contractor's responsibility to complete or correct all Work in full compliance with the Contract Documents. The Contractor shall complete or correct all items on the attached list, ready for re-inspection for Final Acceptance, within 30 days after the above Date of Substantial Completion, unless another date is stated here: _____. If completed or corrected within this period, warranties of these items commence on the Date of Substantial Completion, otherwise such warranties commence on the date of Final Acceptance of each item.

Only one (1) originally executed substantial completion form shall be routed for signature. DCM office will mail the fully-executed original to the Owner and email copies to all parties.

RECOMMENDED BY (<i>signature and email address required</i>): ARCHITECT/ENGINEER: _____ CONTRACTING PARTIES: CONTRACTOR: _____ OWNER: _____ APPROVALS: DCM INSPECTOR: _____ DCM CHIEF INSPECTOR: _____ DCM DIRECTOR: _____	DATE: _____ DATE: _____ DATE: _____ DATE: _____ DATE: _____ DATE: _____ DATE: _____
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CERTIFICATE OF SUBSTANTIAL COMPLETION ROUTING PROCEDURE

Only one (1) originally executed substantial completion form shall be routed for signature. DCM office will mail the fully-executed original to the owner and email copies to all parties.

ARCHITECT/ENGINEER: Sign and date document, then mail it to Contractor. Provide Owner with DCM Inspector's name & field office address; territories and addresses are available at www.dcm.alabama.gov/staff.aspx.

CONTRACTOR: Sign and date document, then mail it to Owner.

OWNER: Sign and date document, then mail it to DCM Inspector's field office address; DCM Inspector territories and addresses are available at www.dcm.alabama.gov/staff.aspx.

DCM INSPECTOR: Sign and date document, then mail it to DCM Montgomery office.

DCM OFFICE: After review and signature/date by DCM Chief Inspector and DCM Director, DCM office will mail the fully-executed original document to Owner and will email copies to all parties.

NOTICE

THE EXECUTED "GENERAL CONTRACTOR'S ROOFING GUARANTEE" (DCM Form C-9) AND ANY OTHER ROOFING WARRANTY REQUIRED BY THE CONTRACT MUST ACCOMPANY THIS CERTIFICATE TO OBTAIN DCM APPROVAL.

Also, any standard manufacturer's roofing guarantees which contain language regarding the governing of the guarantee by any state other than the State of Alabama, must be amended to exclude such language, and substituting the requirement that the Laws of the State of Alabama shall govern all such guarantees.

SAMPLE FORM OF ADVERTISEMENT FOR COMPLETION

LEGAL NOTICE

In accordance with Chapter 1, Title 39, Code of Alabama, 1975, as amended, notice is hereby given

that _____,
(Contractor Company Name)
Contractor, has completed the Contract for (Construction) (Renovation) (Alteration)
(Equipment) (Improvement) of (Name of Project):

at _____,
(Insert location data in County or City)
for the State of Alabama and the (County) (City) of _____,
Owner(s), and have made request for final settlement of said Contract. All persons having
any claim for labor, materials, or otherwise in connection with this project should immediately
notify

(Architect / Engineer)

(Contractor)

(Business Address)

NOTE: This notice must be run once a week for four successive weeks for projects exceeding \$50,000.00. For projects of \$50,000.00 or less, run one time only. A copy of the publisher's affidavit of publication (including a copy of the advertisement) shall be submitted by the Contractor to the Design Professional for inclusion with DCM Form B-13: Final Payment Checklist for state agencies, PSCA-funded and other bond-funded projects.

DCM (BC) Number: _____

PSCA Projects: PSCA Number: _____

Date of the Construction Contract: _____

Contractor's Affidavit of Payment of Debts and Claims

To Owner (<i>Entity name and address</i>):	Project (<i>Same as appears in the Construction Contract</i>):

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Construction Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

Supporting Documents Attached Hereto:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. DCM Form C-20, Consent of Surety to Final Payment, may be used for this purpose.

Indicate attachment: Yes No

The following supporting document should be attached hereto if required by the Owner:

1. Contractor's Release of Waiver of Liens.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment supplies, to the extent required by the Owner, accompanied by the list thereof.
3. Contractor's Affidavit of Release of Liens, DCM Form C-19.

Contractor (*Insert company name and address*):

By: _____
Signature of authorized representative

Name and Title

Sworn to and subscribed before me this _____ day
of _____, _____.

Notary Public's Signature

My commission expires: _____

Seal:

DCM (BC) Number: _____

PSCA Projects: PSCA Number: _____

Date of the Construction Contract: _____

Contractor's Affidavit of Release of Liens

To Owner (<i>Entity name and address</i>):	Project (<i>Same as appears in the Construction Contract</i>):

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Construction Contract referenced above.

EXCEPTIONS:

Supporting Documents Attached Hereto:

1. Contractor's Release of Waiver of Liens.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment supplies, to the extent required by the Owner, accompanied by the list thereof.

Contractor (*Insert company name and address*):

By: _____
Signature of authorized representative

Name and Title

Sworn to and subscribed before me this _____ day
of _____, _____.

Notary Public's Signature

My commission expires: _____

Seal:

DCM (BC) Number: _____

PSCA Projects: PSCA Number: _____

Date of the Construction Contract: _____

Surety's Bond Number: _____

CONSENT OF SURETY TO FINAL PAYMENT

To Owner (<i>Entity name and address</i>): 	Project (<i>Same as appears in the Construction Contract</i>):
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In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the

Surety (*Insert name and address of Surety*)

on bond of

Contractor (*Insert name and address of Contractor*)

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to

Owner (*Insert name and address of Entity*):

as set forth in said Surety's bond.

SIGNED AND SEALED this _____ day of _____, _____.

SURETY:

Seal:

Company Name

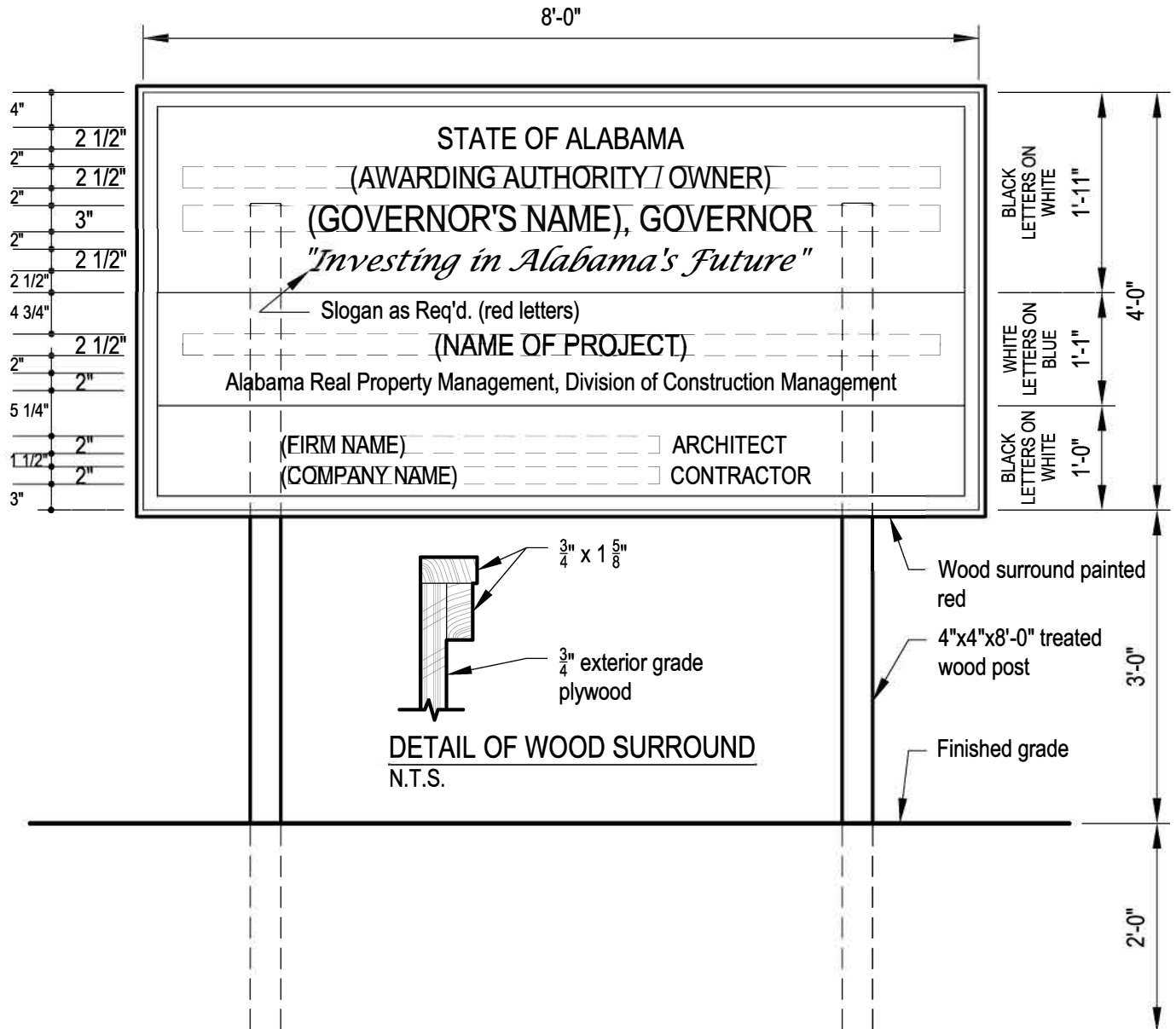
By _____
Signature of Authorized Representative

Printed Name and Title

Note: Original Power of Attorney for the Surety's signatory shall be furnished with each of the original forms to be attached to each of the four (4) final payment forms.

DETAIL OF PROJECT SIGN

N.T.S.



Notes:

1. Fully locally-funded State Agency and Public University projects: DCM Form C-15 must be included in the project manual regardless of expected bid amount. If the awarded contract sum is \$100,000.00 or more, Contractor shall furnish and erect a project sign.
Fully locally-funded K-12 school projects: Project sign is not required unless requested by Owner, if project sign is requested by Owner, include DCM Form C-15 in the project manual.
Partially or fully PSCA-funded projects: DCM Form C-15 must be included in the project manual. Contractor shall furnish and erect a project sign for all PSCA-funded projects, regardless of contract sum. "Alabama Public School and College Authority" as well as the local owner entity must be included as awarding authorities on the project sign of all PSCA-funded projects. Exception: Alabama Community College System (ACCS) PSCA-funded projects with Notice-To-Proceeds issued after July 31, 2021 are not submitted to DCM.
Fully locally-funded ACCS projects with Notice-To-Proceeds issued prior to August 1, 2021: DCM Form C-15 must be included in the project manual regardless of expected bid amount. If the awarded contract sum is \$100,000.00 or more, Contractor shall furnish and erect a project sign.
2. Sign to be constructed of 3/4" exterior grade plywood.
3. Paint with two coats best grade exterior paint before letters are painted. Option: In lieu of painted lettering on plywood, a corrugated plastic sign (displaying the same lettering, layout and colors as above) may be secured directly to the unpainted exterior grade plywood.
4. Sign shall be placed in a prominent location and easily readable from existing street or roadway.
5. Sign shall be maintained in good condition until project completion.
6. Slogan: Act 2020-167's title *"Investing In Alabama's Future"* should be placed on the project signs of all PSCA-funded projects, otherwise the Awarding Authority/Owner's slogan, if any, should be used. If the Awarding Authority/Owner of a fully locally-funded project does not have a slogan, the project sign does not require a slogan.

Do not staple this form and/or attachments; use clips.

GENERAL CONTRACTOR'S ROOFING GUARANTEE

DCM (BC) Project No. _____

Project Name & Address	Project Owner Entity(ies) Name(s) & Address(es)
------------------------	---

General Contractor's Company Name, Address, & Telephone Number	EFFECTIVE DATES OF GUARANTEE
	Date of Acceptance:
	Date of Expiration:

1. The General Contractor does hereby certify that the roofing work included in this contract was installed in strict accordance with all requirements of the plans and specifications and in accordance with approved roofing manufacturers recommendations.
2. The General Contractor does hereby guarantee the roofing and associated work including but not limited to all flashing and counter flashing both composition and metal, roof decking and/or sheathing; all materials used as a roof substrate or insulation over which roof is applied; promenade decks or any other work on the surface of the roof; metal work; gravel stops and roof expansion joints to be absolutely watertight and free from all leaks, due to faulty or defective materials and workmanship for a period of five (5) years, starting on the date of substantial completion of the project. This guarantee does not include liability for damage to interior contents of building due to roof leaks, nor does it extend to any deficiency which was caused by the failure of work which the general contractor did not damage or did not accomplish or was not charged to accomplish.
3. Subject to the terms and conditions listed below, the General Contractor also guarantees that during the Guarantee Period he will, at his own cost and expense, make or cause to be made such repairs to, or replacements of said work, in accordance with the roofing manufacturers standards as are necessary to correct faulty and defective work and/or materials which may develop in the work including, but not limited to: blisters, delamination, exposed felts, ridges, wrinkles, splits, warped insulation and/or loose flashings, etc. in a manner pursuant to the total anticipated life of the roofing system and the best standards applicable to the particular roof type in value and in accordance with construction documents as are necessary to maintain said work in satisfactory condition, and further, to respond on or within three (3) calendar days upon proper notification or leaks or defects by the Owner or Architect.

- A. Specifically excluded from this Guarantee are damages to the work, other parts of the building and building contents caused by: (1) lightning, windstorm, hailstorm and other unusual phenomena of the elements; and (2) fire. When the work has been damaged by any of the foregoing causes, the Guarantee shall be null and void until such damage has been repaired by the General Contractor, and until the cost and expense thereof has been paid by the Owner or by the responsible party so designated.
- B. During the Guarantee Period, if the Owner allows alteration of the work by anyone other than the General Contractor, including cutting, patching and maintenance in connection with penetrations, and positioning of anything on the roof, this Guarantee shall become null and void upon the date of said alterations. If the owner engages the General Contractor to perform said alterations, the Guarantee shall not become null and void, unless the General Contractor, prior to proceeding with the said work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work, thereby reasonably justifying a termination of this Guarantee.
- C. Future building additions will not void this guarantee, except for that portion of the future addition that might affect the work under this contract at the point of connection of the roof areas, and any damage caused by such addition. If this contract is for roofing of an addition to an existing building, then this guarantee covers the work involved at the point of connection with the existing roof.
- D. During the Guarantee period, if the original use of the roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray cooled surface, flooded basin, or other use of service more severe than originally specified, this Guarantee shall become null and void upon the date of said change.
- E. The Owner shall promptly notify the General Contractor of observed, known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the General Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration.

IN WITNESS THEREOF, this instrument has been duly executed this _____ day
of _____, _____.

General Contractor's Authorized Signature

Typed Name and Title

SECTION 01010 - SCOPE OF THE WORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS AND GENERAL INFORMATION

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 specification sections apply to the work of this section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Type of the Contract.
 - 2. Work Under This Contract.
 - 3. Completion Times.
 - 4. Division of Construction Management User Fees.
 - 5. Project Work Identification.
 - 6. Owner-furnished products.
 - 7. Supervision.
 - 8. Contractor Use of premises.
 - 9. Definitions.
 - 10. Work Under Other Contracts.
 - 11. Building and Site Construction.
 - 12. General Issues.
 - 13. Temporary Electrical Power and Jobsite Utilities.
 - 14. Site Security and Insurance Requirements.
 - 15. Protection of Work in Place.
 - 16. Work restrictions.
 - 17. Owner's occupancy requirements.
 - 18. Specification formats and conventions.
- B. Related Sections include the following:
 - 1. Division 1 Section 01500 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 TYPE OF CONTRACT

- A. Construction Contract (DCM Form C-5, April 2020).

1.4 WORK UNDER THIS CONTRACT

- A. Sealed Proposal shall be received as follows:
 - 1. One (1) Sealed Envelope MUST include the following:
 - a. General Contractor's Name and State General Contractor's License number MUST be legible on the front of the envelope.
 - b. One (1) Bid Proposal for all work as indicated on drawings and specifications.
 - c. Unit Price Attachment Sheet MUST be included if document is included in the project manual.

- d. One (1) Contractor Completion Time Form for all work as indicated on drawings and specifications if document is included in the project manual.
- e. One (1) Bid Bond or certified check.
- f. One (1) Sales Tax Form.

1.5 COMPLETION TIMES

- A. The Contractor MUST state his/her completion time on their Bid Proposal Form. The Contractor's Completion Time will be taken into consideration for award of the construction contract.

1.6 DIVISION OF CONSTRUCTION MANAGEMENT USER FEES

- A. Refer to the Alabama Department of Finance, Construction Management Division Administrative Code, Chapter 355-16-1, "Collection Of User Fees" dated March 31, 2020.
 - 1. The Contractor shall include in his Base Bid Proposal all "Basic Permit Fee".
 - 2. **Do not** include the "Plan Review Fee" or the "Contract Administration Fee" in your Proposal.
 - 3. The Contractor shall be responsible for all "Re-Inspection Fees" per 355-16-1-.03 "Fees Required", (5) "Additional Fees", (b).

1.7 PROJECT / WORK IDENTIFICATION

- A. General: Project name is as indicated in the Advertisement For Bids and as shown on the Contract Documents prepared by McKee & Associates, 631 S. Hull Street Montgomery, Alabama 36104.
- B. Contract Documents: Indicate the work of the Contract and related requirements and conditions that have an impact on the project. Related requirements and conditions that are indicated on the Contract Documents include, but are not limited to the following:
 - 1. Existing site conditions and restrictions on use of the site including ingress and egress to the site.
 - 2. Grading operations at the site.
 - 3. The Contractor shall be responsible to secure the site during the execution of the work and provide proof of insurance including but not limited to General Liability, W/C, Auto, Equipment, etc.
- C. Summary by References: Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, the Project Manual, Technical Specification Sections, Drawings, Addenda and modifications to the Contract Documents issued subsequent to the initial printing of this Project Manual and the Drawings, and including but not necessarily limited to, printed material referenced by any of the above. It is recognized that the Work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon including weather conditions, and other forces outside the contract documents.

1.8 OWNER FURNISHED PRODUCTS

- A. None

1.9 SUPERVISION

- A. Supervision: The Contractor shall provide adequate supervision of the project to ensure proper supervision for all work.

1.10 CONTRACTOR USE OF PREMISES

- A. General: During the entire cleanup period the Contractor shall have the exclusive use of the premises for cleanup operations, including full use of the site as shown on the Drawings.
- B. Limitations of exclusive use of the site:
 - 1. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to applicable rules and regulations affecting the work while engaged in project performance. See site plan for

ingress and egress to the site, or if not indicated, same shall be as designated by the Architect.

2. Keep existing public roads, driveways and entrances serving the premises clear and available at all times. Do not use these areas for parking or storage of materials. Remove dirt, mud, debris, etc., from site, sidewalks, streets, and public right-of-way as it occurs.
3. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds and or designated storage areas as indicated.
4. Lock automotive type vehicles, such as passenger cars and trucks and other mechanized or motorized construction equipment, when parked and unattended, so as to prevent unauthorized use. Do not leave such vehicles or equipment unattended with the motor running or the ignition key in place.
5. The Owner, and their representatives, the Architect and their Consultants, as well as authorities having jurisdiction will require site accessibility for inspections, observations, and perhaps other purposes, related to the planned new construction. All Contractors shall assist in such accessibility, to at least the point of providing and maintaining accessible dry paths to work in progress.
6. Furnish and install by contractor temporary barricades, fencing, etc., as indicated or otherwise required, to restrict pedestrian and vehicular traffic from construction operations, including in part, Owner's staff, the public, students, children, and residents of the adjacent residential neighborhoods.
7. Construction operations shall not affect in any manner, the on-going operations of the Owner, immediately adjacent facilities, adjacent property owners or businesses, or others. Refer to Division 1 Section "Special Conditions" for additional information and requirements regarding coordination with Owner's activities, etc.
8. Construction equipment shall not come in contact with or swing over existing facilities to remain, public areas, occupied buildings, right-of-ways, etc., which are to remain.
9. All contractors and their employees shall limit any discussion of the Work of this project to the Owner's representatives named in the front of this Project Manual, Consultants employed, inspecting authorities with jurisdiction, and the Architect. In no instance shall this project be discussed with others, except as may otherwise be indicated herein.
10. Parking on-site, if any, shall be limited to the "staging areas" indicated on the Drawings, or if not indicated, as mutually agreed between the Architect and Contractor at the Pre-Construction Conference.
11. Smoking or other use of tobacco products shall not be permitted within the structure of the Building, Owner's facilities or on roofs.
12. The use or presence of alcohol and/or other debilitating substances shall not be permitted in the construction of the building and or on the project site.
13. Firearms and/or other weapons shall not be permitted on the project site.
14. The Contractor shall furnish necessary temporary toilets for all work forces on the job site.

PART 2 - SCOPE OF THE WORK

2.1 DEFINITIONS

- A. The Scope of the Work of the Contract is meant to be viewed as a successor to the General Special Conditions of the Contract. Should any discrepancy or ambiguity be noted, the Scope of the Work of the Contract shall apply and the General Special Conditions of the Contract shall defer to Scope of the Work of the Contract Documents. The scope of the work shall be taken in its entirety by all contractors. In signing the contract all contractors have read and understand that the Scope of the Work and the General Special Conditions are taken in their entirety.
 1. The term "Design Consultant" shall be construed to mean "Architect".

SCOPE OF THE WORK
01010-3

2. The terms "Owner" shall mean " Baldwin County Board of Education ".

2.2 WORK UNDER OTHER CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.
- B. Concurrent Work: Owner will award separate contract(s) for the following construction operations at the Project site. Those operations will be conducted simultaneously with work under this Contract.
 - 1. Work done by others or by Owner.
 - a. Any items noted N.I.C.
 - b. Construction Testing as defined in applicable sections of the project manual.

2.3 BUILDING AND SITE CONSTRUCTION

- A. The Contractor shall maintain the entire site, provide dust control and keep the streets clean at all times and or as directed by the Architect. The Contractor shall call for and be responsible for the locating of all utilities prior to start of work. Use extreme care when working in close proximity to the existing water lines to prevent movement and damage to the water lines.
- B. The Contractor shall install and or replace all fencing including furnish and install all temporary fencing as required for all work including safety barriers, signs, traffic directional signals, temporary stripping, flagman, temporary road plates and any temporary roads around any obstruction and or work being constructed. The Contractor shall make all provisions to keep the public and or temporary access roads open during the duration of the work.
- C. The Contractor shall maintain & level, all temporary roads and temporary lay down and storage areas using same stone base material. Roads must have no potholes, dips, or rises and provide access to and from the site and other locations on site. The Contractor shall maintain the temporary roads used to move material on the site. Temporary roads are existing and the Contractor shall maintain these temporary roads throughout the duration of construction activity while Contractor is onsite.

2.4 GENERAL ISSUES

- A. The Contractor shall be responsible for their own on-site safety requirements within the site per OSHA regulations.
- B. Only an approved company owned and insured vehicle shall be allowed on to the construction site. Vehicles shall be clearly marked and identified with the company logo and or name.

2.5 TEMPORARY ELECTRICAL POWER AND JOBSITE UTILITIES

- A. The Contractor is responsible for the all costs associated with temporary electrical requirements for performance of the work. The Contractor shall be responsible for the all costs associated with temporary water required for the performance of the work. The Contractor is responsible for all other utility costs as required for the performance of the work.

2.6 SITE SECURITY / INSURANCE REQUIREMENTS

- A. The Contractor shall have care custody and control of the site. Contractor shall be responsible for the replacement of their material, equipment and any loss of such. Contractor shall be responsible for securing all material and equipment. If there is a loss and or damage of material and equipment, that loss shall go against the Contractor's insurance coverage.

2.7 PROTECTION OF WORK IN PLACE

- A. The Contractor shall protect all completed work and any rework shall be the responsibility of the contractor **at** no additional cost to the owner.

2.8 WORK RESTRICTIONS

- A. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect and Owner not less than two days in advance of the proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's and Owner's written permission.
- B. Nonsmoking Building: Smoking and smokeless tobacco will not be permitted within the new construction after floor slabs are poured.

2.9 OWNER'S OCCUPANCY REQUIREMENTS

- A. Owner Occupancy: Owner will occupy adjacent parking lots during entire construction period. Cooperate with Owner during construction operations adjacent to or near the existing building and parking to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicated.
- B. Maintain access to existing walkways and other adjacent occupied or used facilities. Do not close or obstruct walkways or other occupied or used facilities without written permission from Owner and authorities having jurisdiction. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- C. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to place and install equipment in completed areas of building, before Substantial Completion, provided such does not interfere with completion of the Work. Such placement of equipment shall not constitute acceptance of the total Work.

2.10 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format numbering system.
 - 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications another Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 3 - NOT APPLICABLE

END OF SECTION

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SCOPE OF THE WORK
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SECTION 01011 - CONTINGENCY ALLOWANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND GENERAL INFORMATION

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 specification sections apply to the work of this section.

PART 2 - CONTINGENCY ALLOWANCES

2.1 BASE BID PROPOSAL

- A. The General Contractor shall include the following sums:
1. **One Hundred Fifty Thousand Dollars (\$150,000.00)** as a contingency to cover unforeseen conditions or minor changes that are necessary to correct or supplement the work as detailed in the Contract Documents.
 2. **Twenty-Five Thousand Dollars (\$25,000.00)** as a contingency to cover **Custom Logo and/or Signage** as directed by the Owner.
 3. **Three Hundred Thousand Dollars (\$300,000)** as a contingency to cover Furnishings (other than those specified in Division 12), Appliances, Weight Room Equipment, Weight Room Flooring, and Indoor Turf.
 4. **Thirty Thousand Dollars (\$30,000.00)** as a contingency to cover **Electrical Aid-to-Construction.**
 5. **Four Thousand Five Hundred Dollars (\$4,500.00)** as a contingency to cover **ERCC testing** as stated on the Electrical Drawings.
 6. **One-Hundred Fifty Thousand Dollars (\$150,000.00)** as a contingency to cover the design and Installation of a complete **Emergency Communication Enhancement** System as stated on the Electrical Drawings.
 7. **One Hundred Thousand Dollars (\$100,000)** as a contingency for the furnishing and installation of the Synthetic Sports Flooring in the Gymnasium.

PART 3 – AUTHORIZATION OF CONTINGENCY ALLOWANCES

- 3.1 After unknown conditions are identified and examined and the scope of work and method of repair determined, or request for a proposal to cover additional work has been issued by the Owner, the Contractor shall submit a proposal for such work to the Architect for the Owner's approval. If the Owner approves of such proposal, he will issue written authorization to the Contractor to perform the work and charge the related costs to the Contingency Allowance. At the Owner's option, work performed under this provision may be ordered done on a time and material basis, in which case; the Contractor shall keep accurate records of all time and materials used and submit such records to the Architect for his approval at the end of each day's work.
- 3.2 An accounting of the costs charged against this Contingency Allowance shall be mutually maintained by the Contractor, Architect, and Owner throughout the course of the project. Any of this Contingency Allowance not spent shall be credited to the Owner by Change Order at close out of the project. Refer to Contingency Allowance Form attached to this Section.
- 3.3 Provide for payment.
- A. The Contractor shall include a line item in the *Schedule of Values* entitled "Contingency Allowance". The estimated value of work completed pursuant to fully executed Contingency Allowance Authorizations may be included in the Contractor's monthly Applications for Payment. Payments under this Contingency Allowance shall not exceed the net, total of fully executed Contingency Allowance Authorizations:

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3.4 CONTINGENCY ALLOWANCE AUTHORIZATION FORM

Form to be filled in its entirety.

To: McKee & Associates, Architects From: _____
Project: _____ Company _____
_____ Address _____
_____ Contact and Email _____
Project Number _____ Date: _____
Building Commission Number: _____ Authorization Number: _____

In accordance with Specification Section 01011 – CONTINGENCY ALLOWANCE, the Contractor [] is hereby authorized to proceed with the changes in Work as are described below and is to be paid for the performance of these changes as provided in Specification Section 01011. This Authorization shall become effective when it is signed by the Contractor and the Owner's representative and it is understood and agreed that the amount(s) stipulated below constitute full compensation for these changes in Work.

TOTAL AMOUNT OF THIS AUTHORIZATION \$

ORIGINAL AMOUNT OF THE CONTINGENCY ALLOWANCE \$

NET TOTAL OF PREVIOUS AUTHORIZATIONS \$

PREVIOUS REMAINING CONTINGENCY ALLOWANCE \$

TOTAL AMOUNT OF THIS AUTHORIZATION \$

CONTINGENCY ALLOWANCE REMAINING
AFTER THIS CONTINGENCY \$

Recommended By: _____ Authorized By: _____ Accepted By: _____

Architect _____ Owner _____ Contractor _____

END OF SECTION

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CONTINGENCY ALLOWANCE
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SECTION 01250 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections include the following:
 - 1. Section 01600 "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, that may or may not involve an adjustment to the Contract Sum or the Contract Time, as an Architect's Supplemental Instructions, "ASI".

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time in the form of an ASI. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. ASIs issued by Architect, if adjustments to contract sum or contract time are involved, are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in ASI after receipt of ASI, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Include data as needed to validate material costs
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

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4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 1 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Change Order, Architect will issue a Change Order for signatures as required.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive, "CCD": Architect may issue a Construction Change Directive. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Construction Change Directive contains a complete description of change in the Work.

PART 2 – NOT APPLICABLE

PART 3 – NOT APPLICABLE

END OF SECTION

SECTION 01290 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. **At the discretion of the Architect, the contractor shall provide separate Schedule of Values for work on projects involving multiple locations, campuses, sites, buildings etc. and/or multiple scopes of work. Additional line items may be required within each separate Schedule of Values (i.e. separate line items for multiple buildings located on same site).**
- B. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Submit draft of DCM Form C-11.
 - 3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.

- f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 6. Provide a separate listing on Application and Certificate for Payment (Standard ABC Form C-10) for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or evidence of bonded warehousing.
 7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 8. Unit Costs: Provide a separate line item in the Schedule of Values for each unit cost. Line-item to show value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
 9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
 10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: Progress payments shall be submitted to Architect by the 25th of the month. The period covered by each Application for Payment is one month, ending on the 23rd of the month.
- C. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders issued before last day of construction period covered by application only after all agency approvals.
- D. Transmittal: Submit 6 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

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- E. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Schedule of unit prices.
 6. Submittals Schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
- F. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- G. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. Certificate of Substantial Completion (DCM Form C-13)
 5. Form of Advertisement for Completion (DCM Form C-14)
 6. Evidence that claims have been settled.
 7. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 8. Final, liquidated damages settlement statement.

PART 2 – NOT APPLICABLE

PART 3 – NOT APPLICABLE

END OF SECTION

SECTION 01320 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Daily construction reports.
 - 4. Material location reports.
 - 5. Field condition reports.
 - 6. Special reports.
- B. Related Sections include the following:
 - 1. Division 1 Section 01290 "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 1 Section 01310 "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 - 3. Division 1 Section 01330 "Submittal Procedures" for submitting schedules and reports.
 - 4. Division 1 Section 01322 "Photographic Documentation" for submitting construction photographs.
 - 5. Division 1 Section 01400 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 SUBMITTALS

- A. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- B. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.
- C. Daily Construction Reports: Submit two copies at weekly intervals.
- D. Material Location Reports: Submit two copies at monthly intervals.
- E. Field Condition Reports: Submit two copies at time of discovery of differing conditions.
- F. Special Reports: Submit two copies at time of unusual event.
- G. Pre-scheduling Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Review methods and procedures

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related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:

1. Verify availability of qualified personnel needed to develop and update schedule.
2. Discuss any constraints.
3. Review time required for review of submittals and re-submittals.
4. Review requirements for tests and inspections by independent testing and inspecting agencies.
5. Review time required for completion and startup procedures.
6. Review and finalize list of construction activities to be included in schedule.
7. Review submittal requirements and procedures.
8. Review procedures for updating schedule.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from parties involved.
 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 2. Initial Submittal: Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Substantial Completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 1. Activity Duration: Define activities so no activity is longer than 30 days, unless specifically allowed by Architect.

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2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and re-submittal times indicated in Division 1 Section 01330 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 4. Startup and Testing Time: Include not less than 14 days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions, if any, and show how the sequence of the Work is affected.
- E. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
1. Refer to Division 1 Section 01290 "Payment Procedures" for cost reporting and payment procedures.
 2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Architect's approval, be assigned to fabrication and delivery activities. Costs shall be broken down within principal contracts in amounts typically not greater than \$30,000, but in no case greater than 5 percent of the Contract Sum.
 3. Each activity cost shall reflect an accurate value subject to approval by Architect.
 4. Total cost assigned to activities shall equal the total Contract Sum.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis to demonstrate the time effect, if any, of the proposed change on the overall project schedule.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.
- B. Preliminary Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.
- C. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized, cost-and resource-loaded, time-scaled CPM network analysis diagram for the Work.
1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.

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4. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing and commissioning.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, timescaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Sub-networks on separate sheets are permissible for activities clearly off the critical path.
- E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
1. Contractor or subcontractor and the Work or activity.
 2. Description of activity.
 3. Principal events of activity.
 4. Immediate preceding and succeeding activities.
 5. Early and late start dates.
 6. Early and late finish dates.
 7. Activity duration in workdays.
 8. Total float or slack time.
 9. Average size of workforce.
 10. Dollar value of activity (coordinated with the Schedule of Values).
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
1. Identification of activities that have changed.
 2. Changes in early and late start dates.
 3. Changes in early and late finish dates.

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4. Changes in activity durations in workdays.
 5. Changes in the critical path.
 6. Changes in total float or slack time.
 7. Changes in the Contract Time.
- G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
 2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
 3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
 4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.4 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
 2. Approximate count of personnel at Project site by trade.
 3. Equipment at Project site.
 4. Material deliveries.
 5. High and low temperatures and general weather conditions.
 6. Accidents.
 7. Meetings and significant decisions.
 8. Unusual events (refer to special reports).
 9. Stoppages, delays, shortages, and losses.
 10. Meter readings and similar recordings.
 11. Emergency procedures.
 12. Orders and requests of authorities having jurisdiction.
 13. Change Orders received and implemented.
 14. Construction Change Directives and Architect Supplemental Interpretations (Instructions) received and implemented.
 15. Services connected and disconnected.
 16. Equipment or system tests and startups.
- B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

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Additions to Robertsdale
High School for the
Baldwin County Board of Education
Bay Minette, Alabama

- C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request For Interpretation (RFI). Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor must employ skilled personnel with experience in scheduling and reporting techniques or must employ a scheduling consultant. Submit qualifications and examples of previous scheduling for evaluation (and approval) by the Architect.
- B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule three (3) work days before each regularly scheduled progress meeting or Contractor may update schedule at the monthly progress meeting.
 - 1. The revised schedule should be updated immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting, no later than three days after the progress meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SECTION 01322 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction digital video.
 - 2. Periodic construction photographs.

1.3 SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each digital photograph. Indicate elevation or story of construction. Include same label information as corresponding set of photographs.
- B. Digital Construction Photographs: Submit one print of each digital photographic view within seven days of taking photographs.
 - 1. Format: Digital.
 - 2. Identification: The following information is required on each CD submitted:
 - a. Name of Project.
 - b. Name of Architect.
 - c. Name of Contractor.
 - d. Date photograph was taken if not date stamped by camera.
 - e. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - f. Unique sequential identifier.
 - 3. Digital Images: Submit a complete set of digital image electronic files as a Project Record document on USB Drives. Identify electronic media with date photographs were taken. Submit images that have same aspect ratio as the sensor, uncropped.
- C. Digital Video: Submit one copy of each digital video with protective sleeve or case within seven days of recording.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project
 - b. Name of Architect.
 - c. Name of Contractor.
 - d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - e. Date digital video was recorded.
 - f. Weather conditions at time of recording.
 - 2. Transcript: To include an audio narrative with the following information as a minimum.
 - a. Name of Project.
 - b. Date digital video was recorded.
 - c. Weather conditions at time of recording.

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- d. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

PART 2 - EXECUTION

2.1 CONSTRUCTION PHOTOGRAPHS

- A. Film Images:
 1. Date Stamp: Unless otherwise indicated, date and time stamp each photograph as it is being taken so stamp is integral to photograph.
 2. Field Office Prints: Retain one set of prints of progress photographs in the field office at Project site, available at all times for reference. Identify photographs same as for those submitted to Architect.
- B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
 1. Date and Time: Include date and time in filename for each image.
 2. Field Office Images: Maintain one set of images on USB Drives in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Architect.
- C. Preconstruction Photographs: Before starting construction, take color, digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Architect.
 1. Flag construction limits before taking construction photographs.
 2. Take eight photographs to show existing conditions adjacent to property before starting the Work.
 3. Take eight photographs of existing buildings either on or adjoining property in order to accurately record physical conditions at start of construction.
 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take 12 color, digital photographs monthly, coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken.

2.2 CONSTRUCTION DIGITAL VIDEO

- A. Narration: Describe scenes on digital video by audio narration by microphone while video is recorded. Include description of items being viewed, recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.
 1. Confirm date and time at beginning and end of recording.
 2. Begin each digital video with name of Project, Contractor's name, and Project location.
- B. Preconstruction Digital Video: Before starting construction, provide digital video of the Project site and surrounding properties from different vantage points, as needed to properly record all preexisting site conditions and adjacent conditions of all roadways, drives, structures that will incur construction traffic.
 1. Flag construction limits before recording construction video.
 2. Show existing conditions adjacent to Project site before starting the Work.
 3. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of construction.
 4. Show protection efforts by Contractor.

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PART 3 – NOT APPLICABLE
END OF SECTION

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. The General Contractor shall use website software “**Submittal Exchange**” to conduct all submittal reviews in electronic format. **Paper format submittals will NOT be accepted.** All recordkeeping, date stamping, access controls, shall be **paid for by the Contractor** with access given to the entire Project Team. The software shall be capable of the following:
 - 1. The General Contractor shall include the full cost of Submittal Exchange project subscription in their proposal. **The Contractor shall cover the full cost of Submittal Exchange project subscription for the project. The Contractor contractually, shall be fully responsible for all costs required to maintain full functionality through the acceptance of ALL project closeout requirements and documents.**
 - 2. **Contact Submittal Exchange at subex-sales_ww@oracle.com or call 1-800-633-0738 to verify costs prior to bid.**
 - 3. At the Contractor’s option, training is available from **Submittal Exchange** regarding use of website and PDF submittals. Contact Submittal Exchange at 1-800-714-0024 ext. 2
 - 4. Internet Service and Equipment Requirements:
 - a. Email address and Internet access at the Contractor’s main office.
 - b. Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.
 - 5. The General Contractor is responsible for maintaining and keeping Submittal Exchange active throughout the entire project, including closeout documents.
- B. Costs:
 - 1. The General Contractor shall include the full cost of Submittal Exchange project subscription in their proposal. **The Contractor shall cover the full cost of Submittal Exchange project subscription for the project. The Contractor contractually, shall be fully responsible for all costs required to maintain full functionality through the acceptance of ALL project closeout requirements and documents.**
 - 2. **Contact Submittal Exchange at subex-sales_ww@oracle.com or call 1-800-633-0738 to verify costs prior to bid.**
 - 3. At the Contractor’s option, training is available from **Submittal Exchange** regarding use of website and PDF submittals. Contact Submittal Exchange at 1-800-714-0024 ext. 2
 - 4. Internet Service and Equipment Requirements:
 - a. Email address and Internet access at the Contractor’s main office.
 - b. Adobe Acrobat (www.adobe.com), Bluebeam PDF Revu (www.bluebeam.com), or other similar PDF review software for applying electronic stamps and comments.
 - 5. The General Contractor is responsible for maintaining and keeping Submittal Exchange active throughout the entire project, including closeout documents.
- C. Procedures:
 - 1. Shop drawing and product data submittals shall be transmitted to Architect in electronic (PDF) format using **Submittal Exchange**, a website service designed specifically for transmitting submittals between construction team members.
 - 2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
 - 3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
 - 4. Submittal Preparation – the Contractor may use any or all of the following options:
 - a. Subcontractors and Suppliers provide electronic (PDF) submittals to the Contractor via the **Submittal Exchange** website.
 - b. Subcontractors and Suppliers provide paper submittals to the General Contractor who electronically scans and converts to PDF format.
 - c. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
 - 5. The Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.

6. The Contractor shall transmit each submittal to Architect using the Submittal Exchange website, www.submittalexchange.com.
7. The Architect / Engineer review comments will be made available on the Submittal Exchange website for downloading. Contractor will receive email notice of completed review.
8. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
9. Submit paper copies of reviewed submittals at project closeout for record purposes in accordance with Section 01770 – Closeout Procedures.

D. Related Sections include the following:

1. Division 1 Section 01290 "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
2. Division 1 Section 01320 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals Schedule.
3. Division 1 Section 01322 "Photographic Documentation" for submitting construction photographs and construction videotapes.
4. Division 1 Section 01770 "Closeout Procedures" for submitting warranties.
5. Division 1 Section 01781 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
6. Division 1 Section 01782 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
7. Division 1 Section 01820 "Demonstration and Training" for submitting videotapes of demonstration of equipment and training of Owner's personnel.
8. Divisions 2 through 16 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. General: Electronic copies of CAD Drawings of the Contract Drawings will, under certain circumstances described hereinafter, be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Submittals Schedule: Comply with requirements in Division 1 Section 01320 "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities.
- D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the

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Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

1. Initial Review: Allow **14** business days for initial review of each digital submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Re-submittal Review: Allow **10** business days for review of each re-submittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow **10** business days for initial review of each submittal.
 - a. Structural, mechanical, plumbing, electrical, civil, audio/visual, sound system, and kitchen equipment components are examples of the Work that require sequential review. Architect will advise if there are others.
- E. Identification: Place a permanent label or title block on each submittal for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings. Provide another area of this same size for the Architect to affix his stamp. Stamp includes the following four categories: Reviewed, Furnish as Noted, Rejected, Revise and Resubmit; the Architect will mark one or more of these categories and return submittal to Contractor.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - i. Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06100.D.2.01). Re-submittals shall include an alphabetic suffix after another decimal point (e.g., 06100.D.2.R1 (R2, R3 etc. if necessary).
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- F. Deviations: Encircle or otherwise specifically identify deviations and list the deviations from the Contract Documents on submittals and list the deviations on the transmittal form accompanying submittal.
- G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.

1. Transmittal Form: Use AIA Document G810 or equivalent with at least the following information.
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Transmittal number, numbered consecutively.
 - k. Submittal and transmittal distribution record.
 - l. Remarks.
 - m. Signature of transmitter.
 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- H. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked "Reviewed" or "Furnished as Noted".
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Use only final submittals with mark indicating "Reviewed" or "Furnished as Noted".

1.5 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

- A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
1. Contractor must sign a detailed agreement with the Architect that outlines responsibilities, liabilities, etc. of each party and must pay to the Architect a fee of \$75.00 for each sheet of drawings that are put on a disk for the Contractor's use.

PART 2 - PRODUCTS

2.1 DIGITAL ACTION SUBMITTALS

- A. General: Prepare and submit Digital Action Submittals required by individual Specification Sections.
- B. All submittals shall be sent to the Architect no later than 45 calendar days from "Notice To Proceed".
1. Submittals shall be sent to Greg Anderson at the following email address:
andersong@mckeeassoc.com.

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- C. Submittals regarding mechanical, plumbing, electrical and structural items shall be sent directly to the Engineer of record.
1. A digital copy of the transmittal shall be sent to the Architect at the following email address: andersong@mckeeassoc.com.
- D. Product Data: Collect information into a single digital submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each the digital submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operation and maintenance manuals.
 - k. Compliance with specified referenced standards.
 - l. Testing by recognized testing agency.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
 4. Submit Product Data before or concurrent with Samples.
 5. Number of Copies: Submit digital copy of the Product Data, unless otherwise indicated. Mark up and retain returned digital copy as a Project Record Document.
- E. Digital Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal of Architect's CAD Drawings are otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.

- i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
 - m. Relationship to adjoining construction clearly indicated.
 - n. Seal and signature of professional engineer if specified.
 - o. Wiring Diagrams: Differentiate between manufacturer-installed and field installed wiring.
2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Digital Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.
 3. Number of Copies:
 - a. Submit each original digital drawing submittal (specifically prepared for the project). Do not include MSDS documentation in any submittal. Architect will retain marked-up copy for his records and will return 1 (one) digital marked-up copy to the Contractor.
 - b. Submit digital copy (bound in sets) of hardware submittals, fixture schedules, manufacturers' data and all other submittals that have been prepared in an 11 inch by 17 inch or smaller format. The Architect will return 1 (one) digital copy set to the Contractor.
 - i. Upon receipt of his digital marked up shop drawings/submittals, the Contractor shall make as many copies for distribution as he deems necessary, however he shall retain one copy to mark-up further to show any and all construction changes that modify the submittal in any form. This document(s) shall be turned over to the Owner at the end of the Project along with the Record Documents.
- F. Color code: On all digital shop drawings submittals, schedules, etc., the Contractor's marks shall be in red, the Architect's in green and the Engineer's (if any involved) in blue. All comments shall be initialed by a responsible party within each organization.
- G. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available. **Colors will not be approved until all color submittals are received by the architect.**
 - a. Number of Samples: Submit two full sets of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return one submittal with options selected.

- b. All color submittals are due within 45 days of the Notice to Proceed.
 - c. The architect will be allowed 15 days from the date of the receipt of the last color submittal to approve colors.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
- a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample set and one will be returned. Mark up returned Sample set as a Project Record Sample.
 - i. Construct a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - ii. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- H. Interior Color Selections: Any submittals that are associated with the aesthetics of the interior design shall not be approved until all submittals associated with the interior design are in the Architect's possession.
- I. Submittals Schedule: Comply with requirements specified in Division 1 Section 01320 "Construction Progress Documentation."
- J. Application for Payment: Comply with requirements specified in Division 1 Section 01290 "Payment Procedures."
- K. Schedule of Values: Comply with requirements specified in Division 1 Section 01290 "Payment Procedures."

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 - 1. Number of Copies: Submit digital copy of each submittal, unless otherwise indicated.
 - 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 3. Test and Inspection Reports: Comply with requirements specified in Division 1 Section 01400 "Quality Requirements."
- B. Coordination Drawings: Comply with requirements specified in Division 1 Section, 01310 "Project Management and Coordination."
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- E. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

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- F. **Manufacturer Certificates:** Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- G. **Product Certificates:** Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- H. **Material Certificates:** Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- I. **Material Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- J. **Product Test Reports:** Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- K. **Research/Evaluation Reports:** Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- L. **Preconstruction Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- M. **Compatibility Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- N. **Field Test Reports:** Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- O. **Maintenance Data:** Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 1 Section 01782 "Operation and Maintenance Data."
- P. **Design Data:** Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- Q. **Manufacturer's Instructions:** Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.

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2. Required substrate tolerances.
 3. Sequence of installation or erection.
 4. Required installation tolerances.
 5. Required adjustments.
 6. Recommendations for cleaning and protection.
- R. Manufacturer's Field Reports: Prepare written information documenting factory authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- S. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
- T. Construction Photographs and Videotapes: Comply with requirements specified in Division 1 Section 01322 "Photographic Documentation."
- U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.
1. Architect will not review submittals that include MSDSs and will return the entire submittal for re-submittal.

2.3 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit one copy of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each digital submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

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- B. Approval Stamp: Stamp each digital submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review digital submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each digital submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each digital submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
 - 1. REVIEWED—Indicates that reviewed submittal is satisfactory.
 - 2. REJECTED—Indicates submittal is not satisfactory and another properly prepared submittal of same or another product must be prepared and resubmitted.
 - 3. FURNISH AS NOTED—Indicates submittal is satisfactory if the changes, modifications, notes, etc. marked by the Architect are made a part of the submittal.
 - 4. REVISE AND RESUBMIT—Indicates although parts of the submittal are satisfactory, there are enough significant modifications that must be made to require the Contractor, subcontractor, supplier, and/or manufacturer to provide additional essential information to his submittal and then resubmit it to the Architect.
- C. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
 - 1. Division 1 Section 01100 "Summary" for limitations on utility interruptions and other work restrictions.
 - 2. Division 1 Section 01330 "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
 - 3. Division 1 Section 01700 "Execution Requirements" for progress cleaning requirements.
 - 4. Divisions 2 through 16 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.
 - 5. Division 2 Section 02282 "Termite Control" for pest control.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: Sewer connections will not be in place for most if not all of the duration of the project. When and if the off-site sewer is installed by others and sewer piping under this contract is installed, should the contractor decide to connect to the sewer he must pay all sewer use charges until the project is turned over to the Owner.
- C. Water Service: Pay water service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric power service use charges for electricity used by all entities for construction operations.

1.5 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.6 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

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- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
 - 1. Minimum Requirement: One (1) 10 foot wide x 44 foot long unit required.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack board.
 - 3. Drinking water and private toilet.
 - 4. Coffee machine and supplies.
 - 5. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 - 6. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction and marked for intended use.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.

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1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Sanitary Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 2. Connect temporary sanitary sewer from construction office to a submerged temporary holding tank, as directed by authorities having jurisdiction.
 3. Provide erosion control structures to drain storm water from site.
- B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction from existing water lines in the street. Contractor shall pay for any metering costs and associated fees required by the City Water Department.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
1. Toilets: Use of Owner's existing toilet facilities will not be permitted.
- D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- F. Electric Power Service: Provide temporary electric meter power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations. Contractor shall be responsible for any charges associated with said service.
1. Install electric power service overhead, unless otherwise indicated.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.
1. Provide additional telephone lines for the following:
 - a. Provide a dedicated telephone line for each facsimile machine and computer in each field office.
 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
 3. Provide superintendent with cellular telephone or portable two-way radio for use when away from field office.

- I. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail, in common-use facilities, or other suitable high speed internet connection.
 - 1. Provide DSL in primary field office.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide incombustible construction for offices, shops, and sheds located within construction area with good visibility of construction. Comply with NFPA 241.
 - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
- D. Project Identification and Temporary Signs: Erect Project identification, General Contractor's sign, Architect's sign and other signs as approved. Install signs where directed to inform public and individuals seeking entrance to Project. Subcontractor signs are not permitted.
- E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
- F. Temporary Stairs: Until permanent stairs are available, provide one temporary stair between floors, located near the center of the building.
- G. Temporary Use of Permanent Stairs: Cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 1 Section "Summary."
- B. Temporary Erosion and Sedimentation Control: Comply with requirements specified in Division 2 02100 Section "Site Preparation."
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- E. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

TEMPORARY FACILITIES AND CONTROLS
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- F. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Prohibit smoking in construction areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Carefully remove and turn over Architect's sign to the Architect.
 - 2. Where area is intended for landscape development, in an area that has been used as a compacted temporary road bed, remove soil and aggregate fill that do not comply with requirements for landscaping fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 1 Section 01770 "Closeout Procedures."

END OF SECTION

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and equal products.
- B. Related Sections include the following:
 - 1. Divisions 2 through 16 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Equal Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating equal products of other named manufacturers.

1.4 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
 - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 - 2. Form: Tabulate information for each product under the following column headings:
 - a. Specification Section number and title.
 - b. Generic name used in the Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.

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- g. Projected delivery date or time span of delivery period.
 - h. Identification of items that require early submittal approval for scheduled delivery date.
 - 3. Completed List: Within 60 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - 4. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- B. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use CSI Form 13.1A.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified materials or products cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 - 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.

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- b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
 - c. If Contractor's Substitution Requests are repeatedly (i.e. 3 times) submitted incomplete, i.e., no definitive response to items "a" through "l", the Architect will not consider any further Substitution Requests.
- C. Equal Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of an equal product request. Architect will notify Contractor of approval or rejection of proposed equal product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Use product specified if Architect cannot make a decision on use of an equal product request within time allocated.
- D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 1 Section 01330 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
- B. The Contractor MUST provide the Owner with a Certificate of Asbestos Free Building Materials at the end of the project certifying that all building materials incorporated, installed, and used during the construction process of the project by the Contractor or its Subcontractors of any tier are 100% asbestos free. Asbestos Free means containing 0% asbestos in any form. The Certificate of Asbestos Free Building Materials form is included in the project manual.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Store cementitious products and materials on elevated platforms.
 - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

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6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.
9. Materials Stored Off Site: Unless otherwise provided in the Contract Documents, the Contractor's cost of materials and equipment to be incorporated into the Work, which are stored off the site, may also be considered in monthly Applications for Payment under the following conditions:
 - a. The contractor has received written approval from the Architect and Owner to store the materials or equipment off site in advance of delivering the materials to the off site location.
 - b. A Certificate of Insurance is furnished to the Architect evidencing that a special insurance policy, or rider to an existing policy, has been obtained by the Contractor providing all-risk property insurance coverage, specifically naming the materials or equipment stored, and naming the Owner as an additionally insured party.
 - c. The Architect is provided with a detailed inventory of the stored materials or equipment and the materials or equipment are clearly marked in correlation to the inventory to facilitate inspection and verification of the presence of the materials or equipment by the Architect or Owner.
 - d. The materials or equipment are properly and safely stored in a bonded warehouse, or a facility otherwise approved in advance by the Architect and Owner.
 - e. Compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Warranty start for mechanical and electrical equipment being date of substantial completion.
- D. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

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2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Equal Products" Article to obtain approval for use of an unnamed product.

E. Product Selection Procedures:

1. Products and Manufacturers: In particular instances there may only be a single product or manufacturer appropriate for use on the project, in which case where Specifications name a single product and manufacturer and say "no equal", provide the named product.
2. Products and Manufacturers: When one or two products or manufacturers are specified and have the words "or approved equal", the Contractor may propose to provide alternatives in the form of a Substitution Request which once reviewed by the Architect will be either accepted or rejected. If Substitution Request is submitted for approval 7 days prior to the receipt of bids and approved by the Architect, said approvals will be included in Addenda. Only those Substitution Requests listed as approved in Addenda may bid the project.
3. Products and Manufacturers: Where Specifications include a list of three (3) or more names of both products and manufacturers, provide one of the products listed that complies with requirements. No substitutions will be accepted.
4. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or an equal product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.
5. Visual Matching Specification: Where Specifications require matching an established Sample, product must comply with all requirements and must match Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product
6. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

1.8 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution under the conditions set forth in this section under Product Selection Procedures, if received within 60 days after the Notice to

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Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

- B. Conditions: Architect will consider Contractor's request for substitution under the conditions set forth in this section under Product Selection Procedures and when the following conditions are satisfied. If the following conditions are not satisfied,
- C. Architect will return requests without action, except to record noncompliance with these requirements:
 - 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - 2. Requested substitution requires no or only very minor revisions (as determined by the Architect), to the Contract Documents.
 - 3. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - 4. Substitution request is fully documented and properly submitted.
 - 5. Requested substitution will not adversely affect Contractor's Construction Schedule.
 - 6. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - 7. Requested substitution is compatible with other portions of the Work.
 - 8. Requested substitution has been coordinated with other portions of the Work.
 - 9. Requested substitution provides specified warranty.
 - 10. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - NOT APPLICABLE

PART 3 - NOT APPLICABLE

END OF SECTION

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.
- B. Related Sections include the following:
 - 1. Division 1 Section 01310 "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
 - 2. Division 1 Section 01330 "Submittal Procedures" for submitting surveys.
 - 3. Division 1 Section 01770 "Closeout Procedures" for submitting Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- D. Certified Surveys: Submit two copies signed by professional engineer.

1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction

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indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

2.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents. Submit requests on RFI, "Request for Interpretation."

2.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a professional engineer to lay out the Work using accepted surveying practices.
 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.

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2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 3. Inform installers of lines and levels to which they must comply.
 4. Check the location, level and plumb, of every major element as the Work progresses.
 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
 - D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
 - E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

2.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 1. Record benchmark locations, with horizontal and vertical data on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- C. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- D. Final Property Survey: Submit a final property survey certifying exact locations of site improvements including building(s), parking lots, roadways and utilities including structure elevations, top and invert, distances from property lines, and with any variation from the original civil staking and layout and utility drawings identified.

2.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.

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2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling unless shown otherwise on drawings.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
 - C. Install products at the time and under conditions that will ensure the best possible results.
 - D. Maintain conditions required for product performance until Substantial Completion.
 - E. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
 - F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
 - G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
 - H. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
 - I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
 - J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

2.6 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Pre-installation Conferences: Include Owner's construction forces at pre-installation conferences covering portions of the Work that are to receive Owner's work. Attend pre-installation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

2.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

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2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.

3. Containerize hazardous and unsanitary waste materials separately from other waste.

Mark containers appropriately and dispose of legally, according to regulations.

- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

2.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section 01400 "Quality Requirements."

2.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

2.10 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

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1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

PART 3 – NOT APPLICABLE
END OF SECTION

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- B. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Warranties.
 - 3. Final cleaning.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.
 - 6. Deliver spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete startup testing of systems.
 - 9. Submit test/adjust/balance records.
 - 10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 11. Advise Owner of changeover in heat and other utilities.
 - 12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
 - 13. Complete final cleaning requirements, including touchup painting.
 - 14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

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1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
 1. Submit a final Application for Payment according to Division 1 Section 01290 "Payment Procedures."
 2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report and warranty.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 1. Mark the Architect's punch-list so-as-to identify those items that are still outstanding and uncorrected at the time of submission.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for Project.
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Remove labels that are not permanent.
 - g. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - i. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - h. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - i. Replace parts subject to unusual operating conditions.
 - j. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - k. Clean ducts, blowers, and coils if units were operated without filters during construction.
 - l. Leave Project clean and ready for occupancy.

END OF SECTION

SECTION 01781 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- B. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Digital Record Drawings.
 - 2. Digital Record Specifications.
 - 3. Digital Record Product Data.

1.3 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set of digitally scanned marked-up Record Prints.
- B. Record Specifications: Submit one copy of digitally scanned Project Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one digitally scanned copy of each Product Data submittal.
- D. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one clean set of blue- or black-line white prints of the Contract Drawings and Shop Drawings and one copy of the project manual (specification) at the job site for the sole purpose of recording changes to the drawings and specifications.
- B. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - 1. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - 2. Accurately record information in an understandable drawing technique.
 - 3. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
- C. Content: Types of items requiring marking include, but are not limited to, the following:
 - 1. Dimensional changes to Drawings.
 - 2. Revisions to details shown on Drawings.
 - 3. Locations and depths of underground utilities.
 - 4. Revisions to routing of piping and conduits.
 - 5. Revisions to electrical circuitry.
 - 6. Actual equipment locations.
 - 7. Duct size and routing.

8. Locations of concealed internal utilities.
 9. Changes made by Change Order or Construction Change Directive. (Posted on Documents.)
 10. Changes made following Architect's written orders, i.e. ASIs. (Posted on Documents.)
 11. Details not on the original Contract Drawings. (Posted on Documents.)
 12. Field records for variable and concealed conditions.
 13. Record information on the Work that is shown only schematically.
 14. Changes made in response to Contractor's questions, i.e. RFIs. (Posted on Documents.)
- D. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 - E. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 - F. Mark important additional information that was either shown schematically or omitted from original Drawings.
 - G. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable. Where posting is required, post on Drawing Set and in Specifications on sheets or pages adjacent to or on top of where modification applies.
 - H. Attachment method shall be taped at top only, so as to access original underneath.
 - I. Digitally scan all documents and provide on CD Rom to Architect.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications. Maintain one clean copy of the project manual (specification) at the job site for the sole purpose of recording changes to the drawings and specifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Digitally scan all documents and provide on CD Rom to Architect.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
- B. Maintain one clean set at the job site for the sole purpose of recording changes to the drawings and specifications.
 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, Record Specifications and Record Drawings where applicable.

- C. Digitally scan all documents and provide on CD Rom to Architect.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours. Architect's representative will review Record Documents with the project superintendent each month to determine to his satisfaction whether or not Record Documents are being kept up to date. Failure to do so will result in the delay of processing pay request until Record Documents are brought up to date.

END OF SECTION

SECTION 01782 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Maintenance manuals for the care and maintenance of products, materials, finishes, systems and equipment.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

- A. Submittal: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit three copies of each corrected manual within 15 days of receipt of Architect's comments.

1.5 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE

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2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Contractor.
 - 6. Name and address of Architect.
 - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 - 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
 - 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 - 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

- b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 - 1. Type of emergency.
 - 2. Emergency instructions.
 - 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions.
 - 2. Performance and design criteria if Contractor is delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.

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- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 - 1. Startup procedures.
 - 2. Equipment or system break-in procedures.
 - 3. Routine and normal operating instructions.
 - 4. Regulation and control procedures.
 - 5. Instructions on stopping.
 - 6. Normal shutdown instructions.
 - 7. Seasonal and weekend operating instructions.
 - 8. Required sequences for electric or electronic systems.
 - 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.

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3. List of cleaning agents and methods of cleaning detrimental to product.
 4. Schedule for routine cleaning and maintenance.
 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
1. Standard printed maintenance instructions and bulletins.
 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 3. Identification and nomenclature of parts and components.
 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service: Some equipment and products require maintenance by the manufacturer, supplier or subcontractor, i.e., an authorized service representative, as part of the warranty. The General Contractor shall ensure that said maintenance work is done and provide copies of service reports to the Owner.

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- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
1. Do not use original Project Record Documents as part of operation and maintenance manuals.
2. Comply with requirements of Record Drawings in Division 1 Section 01781 "Project Record Documents."
- G. Comply with Division 1 Section 01770 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

SECTION 01820 - DEMONSTRATION AND TRAINING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Demonstration of operation of systems, subsystems, and equipment.
 - 2. Training in operation and maintenance of systems, subsystems, and equipment.
 - 3. Demonstration and training digital media.

1.3 SUBMITTALS

- A. Instruction Program: Submit two copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. At completion of training, submit one complete training manual for Owner's use.

1.4 QUALITY ASSURANCE

- A. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 1 Section 01400 "Quality Requirements," experienced in operation and maintenance procedures and training.

1.5 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.
- B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

- A. Instructor: Engage a qualified instructor to prepare instruction program and training modules, and

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to coordinate between Contractor and Owner for number of participants, instruction times, and location.

- B. Instructor shall demonstrate to Owner's personnel how to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
- C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Architect, with at least seven days' advance notice.

END OF SECTION

SECTION 02070 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of demolition work is shown on drawings, as well as all items necessary to complete new work indicated on plans.
- B. Schedule of Demolition Work: Demolition includes but is not limited to the following:
 - 1. Any damage to existing facilities at the site after the Contractor takes possession shall be repaired by this Contractor at his expense.
 - 2. Contractor shall replace grass/sod damaged during the construction. Fill in ruts caused by equipment with topsoil and grass over to match existing conditions.
 - 3. As indicated on the Drawings.
 - 4. All other items indicated required to be demolished to complete new work.

1.3 SUBMITTALS

- A. Schedule: Submit proposed methods and operations of demolition work to Architect for review prior to start of work. Include in schedule coordination for shut-off, capping and continuation of utility services as required.
 - 1. Provide a detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.

1.4 JOB CONDITIONS

- A. Condition of Structures: Conditions existing at time of inspection for bidding purposes will be maintained by Owner in so far as practicable.
- B. Explosives: Use of explosives will not be permitted.
- C. Traffic: Conduct demolition operations and removal of debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
- D. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
- E. Protections: Ensure safe passage of persons (night or day) around area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities and persons.
 - 1. Erect temporary covered passageways as required by authorities having jurisdiction.
 - 2. Provide temporary fencing as necessary to secure the limits of construction. Fencing shall be substantial to deter passage, fencing material shall be at Contractors discretion.
- F. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to Owner.
- G. Utility Services: Maintain existing utilities indicated to remain, keep in service, and protect against damage during demolition operations.
 - 1. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

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2. All electrical work to be removed, relocated or reconnected shall be performed by a licensed Electrical Contractor in accordance with the NEC and any applicable local codes and ordinances.

PART 2 – PRODUCTS [NOT APPLICABLE]

PART 3 - EXECUTION

3.1 DEMOLITION - DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Remove from site debris, rubbish and other materials resulting from demolition operations.
- B. Burning of removed materials from demolished structures will not be permitted on site.
- C. Removal: Transport materials removed from demolished structures and legally dispose of off-site, in area approved by all local authorities and ADEM.

END OF SECTION

SECTION 02100 - SITE PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- B. Perform site preparation work as shown and specified. Site preparation includes, but is not limited to the following:
 - 1. Protection of existing trees to remain
 - 2. Removal of trees and other vegetation.
 - 3. Stripping and stockpiling of topsoil.
 - 4. Clearing and grubbing.
 - 5. Removing above grade improvements.
 - 6. Removing below grade improvements.
 - 7. Installation of erosion control devices.

1.3 JOB CONDITIONS

- A. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing. Leave all protection in place and maintain until construction work has been completed and all danger of damage has passed. Protection shall be removed only after approval is given by Architect.

1.4 QUALITY ASSURANCE

- A. **The General Contractor shall obtain (*In accordance with ADEM Admin. Code Chapter 335-6-12*) an ADEM storm water permit from the State of Alabama. An NPDES construction site also includes construction sites, irrespective of size, whose stormwater discharges have a reasonable potential to be a significant contributor of pollutants to a water of the State, or whose stormwater discharges have a reasonable potential to cause or contribute to a violation of an applicable Alabama water quality standard as determined by the Department. The General Contractor shall include in Base Bid all permit fees associated to obtain this permit. The Contractor shall submit a Notice of Registration, the fee and develop a Construction Best Management Practices Plan (CBMPP) prior to construction and shall maintain all erosion control measures until the permit is relinquished.**
- A. The Contractor shall use care when working near existing and future installed Best Management Practice (BMP) structures to prevent damage to the structures resulting in erosion and storm water runoff containing silt and soil from the site. The Contractor shall walk the site and verify the condition of the BMP structures during the execution of the work. Any repair work that is deemed necessary as a result of damage caused by the Contractor shall be the responsibility of the Contractor and shall be performed prior to payment of the next scheduled payment application.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Temporary Soil Erosion and Sediment Control Items: Items including silt fence, wattles, inlet protection, sand bags and other erosion control items are to meet the requirements of Section

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PART 3 - EXECUTION

3.1 EROSION CONTROL

- A. Prior to the starting of any work, install erosion control measures as required in the Erosion Control or Best Management Practice Plan. Maintain all erosion control measures in place during full construction period and until such time as the site is substantially vegetated. Install erosion control measures in accordance with Section 665 of the Alabama Department of Transportation Standard Specifications for Highway Construction (ALDOTSSHC), latest edition, and the manufacturer's recommendations. Inspection of the silt fence shall be daily, and repair or replacement must be made promptly as required. Any sediment collected by the erosion control measures must be removed when it reaches 6" in height. Erosion control measures shall be removed only after approval is given by the Architect. Removal of erosion control measures is to be carried out by the Contractor who installed the measures.

3.2 SITE CLEARING

- A. General: Remove vegetation, improvements or obstructions interfering with installation of new construction and within limits indicated on the Drawings. Remove all demolished items from the site. Removal includes digging out stumps and roots. Carefully and cleanly cut roots and branches of trees indicated to be left standing where such roots and branches obstruct new construction.
- B. Clearing and Grubbing: Clear site of trees, shrubs and other vegetation, except for those indicated to be left standing. Completely remove stumps, roots and other debris protruding through ground surface. Do not grub inside the drip line of trees to remain. On site burning is not permitted.
- C. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 8" loose depth and thoroughly compact to a density equal to adjacent original ground.
- D. Positive drainage must be maintained or installed by the Contractor to insure that storm water runoff flows to the proper drainage structure or swale.
- E. Restore all areas disturbed by construction activities and which are outside the limits of clearing as indicated on the drawing to their original condition. The expense for this work will be borne by the contractor. The work must be in accordance with the directions of the Architect.

3.3 STRIPPING TOPSOIL

- A. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones and other objects over 2" in diameter, and without weeds, roots and other objectionable material. Strip topsoil to its full depth at all areas to be regraded, resurfaced or paved in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove heavy growths of grass from areas before stripping. Where trees are indicated to be left standing, stop topsoil stripping at drip line, unless directed otherwise, to prevent damage to main root system. Stockpile topsoil in storage piles in a location acceptable to the Architect. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust. Maintain topsoil storage piles separate from other stockpiled soil materials.

3.4 SITE IMPROVEMENTS

- A. Remove above grade and below grade improvements necessary to permit construction, and other work as indicated. Abandonment or removal of certain underground pipe or conduits are shown on the civil drawings and is included under work of those sections. Removal of abandoned underground piping or conduit interfering with construction is included under this section.

3.5 DISPOSAL OF WASTE MATERIAL

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- A. Removal from Owner's Property: Remove waste materials, including unacceptable excavated materials, trash and debris, and legally dispose of it off Owner's property site, in area approved by all local authorities and ADEM.

END OF SECTION

SECTION 02200 – EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.
- B. Geotechnical Report is included at the end of this section and is an integral part of this specification.**

1.2 DESCRIPTION OF WORK

- A. Extent of earthwork is indicated on drawings.
 - 1. Rough grading
 - 2. Preparation of subgrade for building slabs and walks is included as part of this work.
 - 3. Drainage fill course for support of building slabs is included as part of this work.
- B. Excavation for Mechanical/Electrical Work: Refer to Division 15 and 16 sections for excavation and backfill required in conjunction with underground mechanical and electrical utilities and buried mechanical and electrical appurtenances; not work of this section.
- C. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- D. Testing and Inspection Service:
- E. The **Owner** will select a firm for soil testing and inspection service for quality control testing during earthwork, and Owner to pay costs.
- F. Retesting of rejected materials and installed work shall be done at the Contractor's expense.
- G. Referenced Standards: Where the term "Referenced Standard" is used in these Project Specifications, it shall be interpreted as **referring to the current edition of "Standard Specifications for Highway Construction, 2018 or latest edition" of Alabama Department of Transportation** ". Referenced Divisions of the "Standard" are hereby made a part of this Project Specification insofar as they may be termed applicable. In no case will requirements for "Method of Measurement" and "Basis of Payment" be considered as applicable to this Project Specification.

1.3 JOB CONDITIONS

- A. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.
- B. Should uncharted or incorrectly charted, piping or other utilities be encountered during excavation, consult utility Owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
- C. Use of Explosives: The use of explosives is not permitted.
- D. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
 - 1. Perform excavation within drip-line of large trees to remain by hand and protect the root system from damage or dryout to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with burlap. Paint root cuts of 1" diameter and larger with emulsified asphalt tree paint.

PART 2 – PRODUCTS [NOT APPLICABLE]

PART 3 - EXECUTION

3.1 GENERAL

- A. Prior to the start of excavation and fill placement, the site should be cleared of existing improvements. Additionally, remnant elements associated with previously demolished structures, should be removed. Demolition should include removal of pavements, slabs, and all below grade structures including basement slabs, foundations, and walls. Utility lines will require routing or removal, as appropriate.
- B. Any existing fill materials that are encountered in the planned building area should be completely removed, plus 10 feet beyond.
- C. Areas that are at final grade, or that will require new fill placement, should be evaluated through proofrolling, prior to new fill placement or construction.
- D. Vegetation, topsoil, rootmat, and all organic materials should be completely removed from the site. Excavations resulting from demolition and vegetation removal should be backfilled in a controlled manner with engineered fill.

3.2 FILL PLACEMENT

- A. All material used as structural fill should be relatively free of organics and other deleterious materials. Soil fill should exhibit a Liquid Limit less than 50, a Plasticity Index less than 30, and a maximum dry density of at least 100 pcf. Soil fill should contain no more than 30% rock, and individual rock fragments in the fill should be less than 4 inches in largest dimension.
- B. Soil fill must be placed in an environment free of excess water. Therefore, free-draining granular material (such as ALDOT # 57 crushed aggregate) should be used as the initial lift(s) of fill in areas containing water seepage.
- C. Soil fill should be placed in lifts not exceeding eight inches in loose measure. Individual lifts of fill should be moisture conditioned to within $\pm 2\%$ of the optimum moisture content and compacted to a minimum of 98% of the Standard Proctor (ASTM D -698) maximum dry density.
- D. Soil may require wetting or drying to achieve proper compaction. Thinner lifts and manually operated equipment will be required to achieve proper compaction in limited access areas such as utility trenches and around manholes and inlets.
- E. Soil compaction testing should be performed during fill placement. Testing will give an indication of the contractor's performance with regard to soil density and moisture content requirements established in the project specifications. Compaction testing should be performed at random locations on each lift of fill placed to provide statistically relevant testing data. The frequency of density testing should be at least one test per lift for every 2,500 square feet of fill placed in building areas and 10,000 square feet in pavement and sidewalk areas (minimum of 3 tests per lift). Each lift of fill placed in utility trenches should be tested on 50-foot centers. A minimum of 3 tests should be performed on all fill lifts.
- F. Following construction, the foundations and underlying soils should be isolated from sources of excess water. Grades adjacent to the structure should be adjusted so that surface water flows away from the foundations. In no case should water be allowed to pond over newly-constructed footings. Roof drains and downspouts from the new buildings should be directed away from the foundations. Additionally, soils adjacent to foundations should consist of properly compacted, engineered fill to minimize water infiltration. The on-site soils contained fine-grained particles and will be adversely affected by excess water.
- G. To reduce the potential for water migration through the floor slab, ground-supported slabs should be underlain by a capillary break consisting of a minimum of 4 inches of compacted, free-draining, coarse, granular material (such as ALDOT #57 crushed stone). Depending on the type of floor coverings to be used, the owner may also elect install a vapor barrier typically consisting

of 10 mil polyethylene sheeting. The sheeting will reduce the infiltration of water vapor through the slab and the potential for damage to floor coverings. Note, that the use of a vapor barrier will increase the potential for plastic shrinkage cracking during curing of the concrete slab.

3.3 EXCAVATION

- A. Excavation is Unclassified, and includes excavation to subgrade elevations indicated, regardless of character of materials and obstructions encountered.
- B. Earth Excavation includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.
- C. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Architect/Engineer. Unauthorized excavation, as well as remedial work directed by Architect/Engineer, shall be at Contractor's expense.
- D. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Architect/Engineer.
- E. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Architect/Engineer.
- F. Additional Excavation: When excavation has reached required sub-grade elevations, notify Architect/Engineer who will make an inspection of conditions.
- G. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Architect/Engineer.
- H. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.
- I. Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.
- J. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- K. Dewatering: See civil drawings for drainage plan recommendation for controlling ground water during initial construction phase. Prevent surface water from flowing into excavations and from flooding project site and surrounding area.
- L. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.
- M. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rainwater and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.
- N. Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
- O. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.
- P. Dispose of excess soil material and waste materials as herein specified.
- Q. Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

- R. In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.
- S. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown.
- T. Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 6" to 9" clearance on both sides of pipe or conduit. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations.
- U. Where rock is encountered, carry excavation 6" below required elevation and backfill with a 6" layer of crushed stone or gravel prior to installation of pipe.
- V. Except as otherwise indicated, excavate for exterior waterbearing piping (water, steam, condensate, drainage) so top of piping is not less than 2'-6" below finished grade.
- W. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.
- X. Backfill trenches with concrete where trench excavations pass within 18" of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.
 - 1. Concrete is specified in Division 3.
- Y. Do not backfill trenches until tests and inspections have been made and backfilling authorized by Architect/Engineer. Use care in backfilling to avoid damage or displacement of pipe systems.
- Z. Excavation for utilities shall conform to manufacturer's recommendations for the type material used.
- AA. Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

3.4 COMPACTION

- A. General: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.
- B. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density for soils which exhibit a well-defined moisture density relationship (cohesive soils) determined in accordance with ASTM D 698; and not less than the following percentages of relative density determined in accordance with ASTM D 2049, for soils which will not exhibit a well-defined moisture-density relationship (cohesionless soils).
 - 1. Structures, Building Slabs and Steps and Pavements: Compact top 6" of subgrade and each layer of backfill (not exceeding 8" maximum) or fill material to not less than 98% of maximum density.
 - 2. Lawn or Unpaved Areas: Compact top 6" of subgrade and each layer of backfill or fill material to not less than 90% of maximum density for cohesive soils and 90% of relative density for cohesionless soils.
 - 3. Walkways: Compact top 6" of subgrade and each layer of backfill or fill material to not less than 95% of maximum density.
- C. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
- D. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

1. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

3.5 BACKFILL AND FILL

- A. General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.
 1. Utility Trenches backfill according to manufacturer's recommendation for the type material used.
 2. In excavations, use satisfactory excavated or borrow material.
 3. Under grassed areas, use satisfactory excavated or borrow material.
 4. Under structures, building slabs, steps and pavements and after grading operations, thoroughly mix top 6" of subgrade and compact to a density not less than 98% of maximum density.
 5. Under walks and pavements, use satisfactory excavated or borrow material, or combination of both.
 6. Under building slabs, use drainage fill material.
- B. Backfill excavations as promptly as work permits, but not until completion of the following:
 1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
 2. Inspection, testing, approval, and recording locations of underground utilities.
 3. Removal of concrete formwork.
 4. Removal of trash and debris.
- C. Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.
- D. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.
- E. Placement and Compaction: Place backfill and fill materials in layers not more than 8" in loose depth for material compacted by heavy compaction equipment, and not more than 4" in loose depth for material compacted by hand-operated tampers.
- F. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- G. Place backfill and fill materials evenly adjacent to structures, piping or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping or conduit to approximately same elevation in each lift.

3.6 GRADING

- A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.
- B. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding.

- C. Finish surfaces free from irregular surface changes, and as follows:
 - 1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.2' above or below required subgrade elevations.
 - 2. Walks: Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 0.10' above or below required subgrade elevation.
 - 3. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than 0.10' above or below required subgrade elevation.
- D. Grading Surface or Fill under Building Slabs: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2" when tested with a 10' straightedge.
- E. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

3.7 BUILDING SLAB DRAINAGE COURSE

- A. General: Drainage course consists of placement of drainage fill material, in layers of indicated thickness, over subgrade surface to support concrete building slabs.
- B. Placing: Place drainage fill material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting material during placement operations.
- C. When a compacted drainage course is shown to be 6" thick or less, place material in a single layer. When shown to be more than 6" thick, place material in equal layers, except no single layer more than 6" or less than 3" in thickness when compacted.

3.8 FIELD QUALITY CONTROL

- A. Quality Control Testing During Construction: Allow approved testing laboratory to inspect and approve subgrades and fill layers before further construction work is performed.
 - 1. Perform field density tests in accordance with ASTM D 1556 (sand cone method) or ASTM D 2167 (rubber balloon method), or ASTM D 2922 (nuclear method) as applicable.
 - 2. Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Architect/Engineer.
 - 3. Paved Areas Subgrade: Make at least one field density test of subgrade for every 10,000 sq. ft. of paved area, but in no case less than 2 tests. In each compacted fill layer, make one field density test for every 10,000 sq. ft. of overlaying paved area, but in no case less than 2 tests
 - 4. Building Slab Subgrade: Make at least one field density test of subgrade for every 2500 sq. ft. of paved area or building slab, but in no case less than 2 tests. In each compacted fill layer, make one field density test for every 2500 sq. ft. of overlaying building slab or paved area, but in no case less than 2 tests.
 - 5. Foundation Wall Backfill: Take at least 2 field density tests, at locations and elevations as directed.
- B. If in opinion of Architect/Engineer, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction and testing at no additional expense.

3.9 MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

- C. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.
- D. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work and eliminate evidence of restoration to greatest extent possible.

3.10 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Removal from Owner's Property: Remove waste materials, including unacceptable excavated materials, trash and debris, and legally dispose of it off Owner's property site, in area approved by all local authorities and ADEM.

END OF SECTION

SECTION 02282 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 SUMMARY

- A. Provide soil treatment for termite control, as herein specified.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data and application instructions.

1.4 QUALITY ASSURANCE

- A. In addition to requirements of these specifications, comply with manufacturer's instructions and recommendations for work, including preparation of substrate and application.
- B. Engage a professional pest control operator, licensed in accordance with regulations of governing authorities for application of soil treatment solution.
- C. Use only termiticides which bear a Federal registration number of the US Environmental Protection Agency.

1.5 JOB CONDITIONS

- A. Restrictions: Do not apply soil treatment solution until excavating, filling and grading operations are completed, except as otherwise required in construction operations.
- B. To insure penetration, do not apply soil treatment to frozen or excessively wet soils or during inclement weather. Comply with handling and application instructions of the soil toxicant manufacturer.

1.6 SPECIFIC PRODUCT WARRANTY

- A. Furnish written warranty certifying that applied soil termiticide treatment will prevent infestation of subterranean termites and that if subterranean termite activity is discovered during warranty period. Contractor will re-treat soil and repair or replace damage caused by termite infestation.
 - 1. Provide warranty for a period of 5 years from date of treatment, signed by Applicator and Contractor.

PART 2 - PRODUCTS

2.1 SOIL TREATMENT SOLUTION

- A. Use an emulsible concentrate termiticide for dilution with water, specially formulated to prevent infestation by termites. Fuel oil will not be permitted as a diluent. Provide a solution consisting of one of the following chemical elements and concentrations:
 - 1. Water based emulsion, uniform composition, synthetic dye to permit visual identification of treated soil, of a generic chemical type in compliance with state and federal law and regulations.
- B. Solutions as recommended by Applicator and approved for intended application by jurisdictional authorities. Use only soil treatment solutions which are not injurious to planting or persons.

PART 3 – EXECUTION

3.1 APPLICATION

- A. Surface Preparation: Remove foreign matter which could decrease effectiveness of treatment on areas to be treated. Loosen, rake and level soil to be treated, except previously compacted areas under slabs and foundations. Toxicants may be applied before placement of compacted fill under slabs, if recommended by toxicant manufacturer.
- B. Application Rates: Water to be added to solution at job site in the presence of field Superintendent. Apply soil treatment solution at a rate as recommended by the manufacture at the following locations:
- C. Under slab-on-grade structures, treat soil before concrete slabs are placed, including entire inside perimeter inside of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab and around interior column footers.
- D. Apply chemical solution to soil in critical areas under slab, including entire inside perimeter inside of foundation walls, along both sides of interior partition walls, around plumbing pipes and electric conduit penetrating slab and around interior column footers.
 - 1. Apply chemical solution as an overall treatment under slab and attached slab areas where fill is soil or unwashed gravel. Apply chemical solution to areas where fill is washed gravel or other coarse absorbent material.
 - 2. Apply chemical solution for each foot of depth from grade to footing, along outside edge of building. Dig a trench 6" to 8" wide along outside of foundation to a depth of not less than 12". Punch holes to top of footing at not more than 12" o.c. and apply chemical solution. Mix chemical solution with the soil as it is being replaced in trench.
- E. Under crawl-space and basement structures, treat soil along exterior and interior walls of foundations with shallow footings as specified above for exterior of slab-on-grade structures.
- F. Treat soil under or around crawl-space structures as follows:
 - 1. Apply chemical solution along inside of foundation walls, along both sides of interior partitions, and around piers and plumbing. Do not apply an overall treatment in crawl spaces.
 - 2. Apply chemical solution for each foot of depth from grade to footing, along outside of foundation walls, including part beneath entrance platform porches, etc.
 - 3. Apply chemical solution along the side and outside of foundation walls of porches.
 - 4. Apply as an overall treatment, only where attached concrete platform and porches are on fill or ground.
- G. At hollow masonry foundations or grade beams, treat voids.
- H. At expansion joints, control joints, and areas where slabs will be penetrated, apply chemical solution.
- I. Post signs in areas of application to warn workers that soil termiticide treatment has been applied. Remove signs when areas are covered by other construction.
- J. Reapply soil treatment solution to areas disturbed by subsequent excavation, landscape grading, or other construction activities following application.

END OF SECTION

SECTION 02513 - ASPHALTIC CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of asphaltic concrete paving work is shown on drawings.

1.3 QUALITY ASSURANCE

- A. Referenced Standards: Where the term "Referenced Standard" is used in these Project Specifications, it shall be interpreted as **referring to the current edition of "Standard Specifications for Highway Construction, 2018" or latest edition for Alabama Department of Transportation "**. Referenced Divisions of the "Standard" are hereby made a part of this Project Specification insofar as they may be termed applicable. In no case will requirements for "Method of Measurement" and "Basis of Payment" be considered as applicable to this Project Specification.

1.4 TESTING AND INSPECTION

- A. Testing and Inspection Service: The **Owner** will select a firm to provide testing and inspection service, to include testing soil materials proposed for use in work and provide field facilities for quality control testing during paving operations and shall pay cost for testing. Spot checking of the depths of the compacted base prior to paving shall be done to verify that materials meet the minimum required thickness. Temperature and thickness of paving will be periodically monitored during the paving operation.

1.5 SUBMITTALS

- A. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

1.6 JOB CONDITIONS

- A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 degrees Fahrenheit and when temperature has not been below 35 degrees Fahrenheit for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.
- B. Construct asphalt concrete surface course when atmospheric temperature is above 40 degrees Fahrenheit and when base is dry. Base course may be placed when air temperature is above 30 degrees Fahrenheit and rising.
- C. Grade Control: Establish and maintain required lines and elevations.

PART 2 - PRODUCTS

2.1 MATERIALS: See Civil Drawings and Geotechnical Report for paving sections.

- A. Herbicide Treatment: Commercial chemical for weed control, registered by Environmental Protection Agency. Provide granular, liquid, or wettable powder form.
- B. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
 - 1. Allied Chemical Corporation
 - 2. Achem Products, Inc.
 - 3. Ciba-Geigy Corporation
 - 4. Dow Chemical U.S.A.
 - 5. E.I. DuPont De Nemours and Company, Inc.

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6. FMC Corporation
7. Thompson-Hayward Chemical Company
8. U. S. Borax and Chemical Company

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. General: The top six inches of finish subgrade soil beneath pavement and base, shall be mixed, moisture adjusted and remolded in accordance with Section 230, Modified Roadbed, of the before mentioned referenced standard.
- B. Proof roll prepared subgrade surface to check for unstable areas and areas requiring additional compaction.
- C. Notify Architect of unsatisfactory conditions. Do not begin paving work until deficient subgrade areas have been corrected and are ready to receive paving.
- D. Herbicide Treatment: Apply chemical weed control agent in strict compliance with manufacturer's recommended dosages and application instructions. Apply to compacted, dry sub grade.
 1. Allow to dry until at proper condition to receive paving.

3.2 PLACING MIX

- A. General: Place asphalt concrete mixture on prepared surface, spread and strike-off. Spread mixture at minimum temperature of 225 degrees Fahrenheit. Place inaccessible and small areas by hand. Place each course to required grade, cross-section and compact thickness.
- B. Paver Placing: Place in strips not less than 10' wide, unless otherwise acceptable to Architect. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips.
- C. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.

3.3 ROLLING

- A. General: Begin rolling when mixture will bear roller weight without excessive displacement.
- B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.
- D. Second Rolling: Follow breakdown rolling as soon as possible warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.
- E. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.
- F. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- G. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.4 TRAFFIC AND LANE MARKINGS

- A. Cleaning: Sweep and clean surface to eliminate loose material and dust.
- B. Lane / Parking Marking Paint: Paint Stripes shall be equal to KRYLON INDUSTRIAL LINE-UP PAINT SB Pavement Striping Paint for Parking Lots - Solvent-Based Pavement Striping alkyd paint or equal. Color: White at typical spaces, Blue at handicapped spaces and symbol.
- C. Apply paint with mechanical equipment to produce uniform straight edges. Apply in 2 coats at manufacturer's recommended rates.

3.5 FIELD QUALITY CONTROL

- A. General: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by Architect.
- B. Thickness: In-place compacted thickness will not be acceptable if exceeding 1/4" from required thickness.
- C. Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10' straight-edge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.
 - 1. Base Course Surface: 1/4".
 - 2. Wearing Course Surface: 3/16"
- D. Check surface areas at intervals as directed by Architect.

3.6 TESTING

- 1. To be performed by independent lab paid by Owner, approved by Architect.
- 2. Before delivery Bituminous Binder and Wearing Course Materials shall be tested by Lab at Suppliers production plant.
- 3. Testing shall verify that all samples meet ALDOT specifications.
- 4. Test reports sent to Architect, Owner, Contractor.

END OF SECTION

SECTION 02514 - PORTLAND CEMENT CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of Portland cement concrete paving work is indicated on drawings.
- B. Paving work includes, but is not limited to the following:
 - 1. Walks.
 - 2. Ramps.
 - 3. Steps.
 - 4. Mechanical Pads.
 - 5. Curb and Gutter.
- C. Prepared subgrade is specified in Specification Section: "EARTHWORK".
- D. Concrete and related materials are specified in Division 3 Specifications.

1.3 QUALITY ASSURANCE

- A. Referenced Standards: Where the term "Referenced Standard" is used in these Project Specifications, it shall be interpreted as **referring to the current edition of "Standard Specifications for Highway Construction" 2018 or latest edition of Alabama Department of Transportation**. Referenced Divisions of the "Standard" are hereby made a part of this Project Specification insofar as they may be termed applicable. In no case will requirements for "Method of Measurement" and "Basis of Payment" be considered as applicable to this Project Specification.
- B. Testing and Inspection:
 - 1. Testing and Inspection Services: The **Owner** will engage and pay for testing and inspection services, to include testing soil materials proposed for use during paving operations.
 - 2. Field tests will be performed in conjunction with a proof rolling inspection of the prepared subgrade to verify that existing subgrade conditions are similar to those assumed in the design and therefore adequate for support of the pavement system.
- C. Do not change source or brands of material during the course of the work.

1.4 INSPECTION AND APPROVAL OF WORK

- A. Before commencement of work, Contractor shall coordinate with the Architect to arrange for inspection and approval of initial installation of slabs-on-grade. The approved initial installations shall serve as the standard to which all subsequent work shall adhere.

PART 2 - PRODUCTS

2.1 PORTLAND CEMENT CONCRETE

- A. Dumpster Pad: After subgrade is approved, place 6" of 4000 psi concrete (550 psi flexural strength) at the dumpster pad and place 6" of 4000 psi concrete at a 20' approach apron in front of the dumpster pad.
- B. Curbs: shall be constructed to details shown on the drawings with uniform slopes for drainage as indicated, providing for expansion joints at 10' intervals. Form all radii as shown and tool exposed edges of all curbs.

C. Concrete walks:

1. Concrete walks shall be poured 4" thick with expansion joints every 30 feet **MAXIMUM**.
2. Provide sawn joints 1/4" wide x 3/4" deep where indicated on drawings.
3. Score walks with tool every 6' or as indicated on drawings.
 - a. Contractor may also use sawn joints at locations indicated to be scored.
4. Light broom finish all walks.

Pitch 2% Maximum, 1% Minimum to side for surface drainage.

Concrete walks shall be reinforced with 6 x 6 #10/10 mesh unless noted otherwise.

- a. Contractor may use fiber mesh reinforcement in lieu of wire mesh at walks.

- D. Pad for Condenser or Transformer: 4" thick concrete slab installed over compacted bed. Edges neatly tooled. Verify exact elevation, size and location with HVAC and/or electrical contractor and architect.

2.2 MATERIALS - CONCRETE

- A. Concrete shall be plant or transit mixed having a minimum of 28 day strength of 4000 psi (550 psi flexural strength), maximum 4" slump. Proportioning and control of the mix shall be as required under the concrete section of these specifications.

2.3 MATERIALS - REINFORCING

A. Fiber Reinforcement:

1. Fiber Force 500 (Fibril Pro) Micro synthetic Fiber Reinforcement by ABC Polymer Industries or Equal.
2. Add to concrete mix at 1.5 pounds per cubic yard of concrete.
3. Finishing: Broom finish; pull broom in one direction such that fibers lay down.
4. Locations for Use: All concrete sidewalks, paving and handicap ramps.

- B. Steel reinforcement if required shall be 6 x 6 #10/10 W.W.M. unless noted otherwise.

- C. Expansion joint material shall be premoulded treated fibre 1/2" thick.

PART 3 – EXECUTION

3.1 CONCRETE FORMWORK

- A. Execute construction of concrete formwork in accordance with the "Referenced Standard".

3.2 CLEANING UP

- A. Remove all surplus materials, rubble, cartons and other debris resultant from work of this Section and haul off site. Repair damage resulting from paving operations. Leave entire work in broom-clean condition.

END OF SECTION

SECTION 02660 - WATER DISTRIBUTION SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 SCOPE OF WORK

- A. The work includes construction of the water distribution system including fire lines as shown on the Drawings.
- B. Testing and disinfection of the installed system shall be incidental to the work.

1.3 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Comply with applicable codes, ordinances, rules, regulations, and laws of local, municipal, state or federal authorities having jurisdiction.
- B. Meet all requirements of the Local Water Authority and be subject to review by System inspectors.

1.4 SITE CONDITIONS

- A. Coordinate water distribution system with pavement construction.
- B. Install water mains when grade is within 6 in. of final grade.
- C. Coordinate the Work with the Local Water Authority and pay all tap fees assessed (to include valves, backflow preventers, vaults, etc.) for portions of the Work completed by the Utility Provider.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Water Main Piping:
 - 1. Water Service Piping: Ductile iron pipe or PVC pipe.
 - 2. Ductile Iron Pipe:
 - a. Manufactured in accordance with AWWA C-151, latest revision, Class 50, min.
 - b. Standard cement-lined and seal-coated with an approved bituminous seal coat in accordance with AWWA C-104, latest revision.
 - c. Approved push-on, conforming to AWWA C-111, latest revision.
- B. PVC Pipe:
 - 1. Constructed to meet the requirements of U. S. Department of Commerce Product Standard PS 22-70, and bear the National Sanitation Foundation Testing Laboratories, Inc., seal for potable water.
 - 2. For PVC piping less than 4" - Schedule 40, PVC, minimum; 150 psi minimum working pressure
 - 3. 4" or greater shall be C900 PVC piping.
- C. Fire Line:
 - 1. Fire line shall be C900 PVC piping. Encasement shall be used under drive areas.
 - 2. Connection to Main: Each hydrant shall be connected to the main pipe with a 6-inch ductile iron branch. Each hydrant shall be controlled by an independent 6-inch gate valve.

D. Fire Hydrants:

1. All hydrants shall be Mueller Company, M & H, or an approved equal. Fire hydrants shall be equipped with traffic break away feature. Hydrants shall be painted in accordance with the requirements of AWWA C502.

E. Water Main Fittings:

1. Ductile iron fittings shall be provided in locations as shown on the plans or in locations deemed necessary by the Engineer. Ductile iron fittings 12" and smaller shall be rated for 350 psi working pressure. Fittings shall be manufactured in accordance with AWWA C153 and provided with mechanical joints. All fittings shall be provided with a thin cement lining in accordance with AWWA C104.
2. PVC Fittings: Fittings For PVC Water Mains Smaller Than 6 In. In. Dia.: As recommended by the manufacturer of the pipe furnished, suitable for use under the conditions specified for the pipe, with ring-tite or fluid-tite bells or spigots at all ends for jointing.

F. Valves and Boxes:

1. Cast Iron Valve Boxes shall be provided for all valves installed vertically and shall consist of a base covering the operating nut and head of the valve, a vertical shaft of at least 5 1/4" in diameter and a top section extending to a point even with the finish ground surface, provided with a cast iron cover marked "WATER." The valve box shall be placed concentrically over the operating nut. Precast concrete collars shall be provided around each valve box.
2. Valves 2" and Larger: Cast iron gate valves, AWWA type, the standard product of a recognized valve manufacturer such as Mueller, Iowa or M & H, constructed with an interchangeable parts system, with parts readily available, to meet the following requirements:
 - a. Iron body, bronze-mounted.
 - b. Double disc, parallel seat "O" ring seal.
 - c. 150 psi, min., working pressure.
 - d. Counterclockwise (left) opening.
 - e. 2 in. operating nut.
 - f. Non-rising stem.
 - g. Joints to be as required for pipe to be connected to.
3. Valves 2" and Smaller: Brass or bronze gate valves, conforming to Federal Specification WW-V-76.
4. Underground Valves: Two-piece, screw type, adjustable to suit the depth of bury and type of valve, with a min. shaft dia. of 5-1/4 in.
5. All mechanical joint valves and fittings shall be restrained by MEGALUG series 1100 restraint devices.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Line and Grade: Lay and maintain to the required lines and grades; with fittings, valves and hydrants at the required locations; and with joints centered and spigots plumb; and with all valve and hydrant stems plumb.
- B. Encasement: Piping under paved drive shall be encased with welded steel pipe casing.
- C. Laying Pipe:
 1. General: Before lowering pipe into trenches, grade the bottom of the ditch so that when pipe is in the ditch it will have a bearing for its entire length. Examine the pipe for defects and

clean the inside. After placing pipe in ditch, wipe the bell, gasket, and spigot free from all dirt, sand and foreign material. Apply a film of lubricant to the gasket and spigot. Enter the plain end into the socket after which force the pipe into the socket until it makes contact with the bottom of the socket.

2. A minimum of five (5) feet horizontal separation shall be used when installing water main or piping within areas of sanitary sewer lines. When the proposed water main or piping is required to cross sewer mains, the contractor shall encase the water main carrier pipe with a continuous pipe (sleeve or casing) of sufficient length, located such that a minimum five (5) foot horizontal separation exists between each end of the casing pipe and the sewer main. Where possible, water main shall be a minimum of 18 inches above the top elevation of the sewer main.
3. No. 12 THW copper locator wire shall be placed in the trench, 12 inches above the water mains and all service piping.
4. Trench Water: At times when pipe laying is not in progress, close the open ends of pipe by approved means, and permit no trench water to enter the pipe.
- D. Cutting Pipe: Cut pipe for inserting valves, fittings or closure pieces in a neat and workmanlike manner without damage to the pipe.
- E. Direction of Laying: Unless otherwise directed, lay pipe with bell ends facing in the direction of laying. For lines on an appreciable slope, face bells upgrade.
- F. Permissible Deflections: Wherever necessary to deflect pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructing, to plumb stems, or where long radius curves are permitted, deflect as recommended by the manufacturer of the pipe.
- G. Unsuitable Conditions: Lay no pipe in water or when the trench conditions or weather is unsuitable for such work.
- H. Provide ground cover of 3 ft. min.
- I. Setting Appurtenances:
 1. Valves and Fittings: Set gate valves and pipe fittings to new pipe in the manner previously specified for cleaning, laying and jointing pipe.
 2. Valve Boxes: Firmly support cast iron valve boxes and maintain centered and plumb over the wrench nut of the gate valve, with box cover flush with the surface of the finished pavement or at such other level as may be directed.

3.2 FIELD QUALITY CONTROL

- A. Hydrostatic Tests: Pressure During Test: After the pipe has been laid and partially backfilled as specified, pressure test all newly laid pipe, or any valved section of it, in accordance with Local required procedures.

3.3 CLEANING AND DISINFECTION

- A. Clean out and thoroughly flush the water distribution system piping and leave free from foreign materials of any sort prior to sterilization.
- B. Disinfect in accordance with Local required procedures and AWWA Standard C-651, latest edition.

END OF SECTION

SECTION 02720 - STORM SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Comply with applicable codes, ordinances, rules, regulations, and laws of local, municipal, state or federal authorities having jurisdiction.
- B. All locations including total jobsite: All storm drainage shall be in accordance with Local Requirements.

1.3 SUBMITTALS

- A. Submit manufacturer's data, test reports, material certifications as required.

1.4 SITE CONDITIONS

- A. Protection of Existing Utilities: Protect existing power lines, water mains, gas lines, telephone lines and other utilities. Should any functioning underground utilities be uncovered during the Work, advise for determination as to whether or not they are to be removed. Repair any damage to utility lines and restore service to original condition.
- B. Coordination and Scheduling of Work:
 - 1. Coordinate work with earthwork operations to avoid interference. Protect established construction stakes.
 - 2. Establish and maintain center-lines, grades and elevations.
 - 3. Construction of new sewers and drainage systems shall proceed as early in construction program as possible. Maintain adequate drainage of the project area at all times. Prevent flooding of adjacent roads and private properties.
- C. Temporary Drainage: Wherever possible, construct new sewers and inlets to serve the various drainage areas, and place in service. Where this is not possible, provide temporary drainage facilities as required. These may include temporary connections into completed sewers, or such other means as the circumstances may require.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Storm Drain Pipe Materials:
 - 1. The Contractor shall have the following options for pipe material:
 - a. Class III reinforced concrete, meeting the requirements of ASTM C76 with tongue and groove joints unless indicated otherwise in the drawings.
 - b. Contech A-2000 PVC Pipe.
 - c. ADS N-12 HDPE
 - 2. Use ductile iron where indicated on the drawings.
- B. Factory Fabricated Downspout Boots:
 - 1. Cast Iron Downspout Boots: contoured interior flow design with no boxed corners, weld seams or choke points; include integral lug slots and stainless steel fasteners.
 - a. Downspoutboots.com, a division of J. R. Hoe & Sons; 101 Ironwood Rd., Middlesboro, KY 40965: www.downspoutboots.com.

- b. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
 - 2. Configuration: Offset/O-Series; Angular/A-Series or Ninety/N-Series as required. Inside top bell shall be sized as required to connect to specified metal downspouts. Length shall be sized as required to connect to drain line run to storm sewer as indicated on the drawings.
 - 3. Material: Cast iron; ASTM A48/A48.
 - 4. Finish: Manufacturer's standard powder coat finish.
 - 5. Color: To be selected by Architect from manufacturer's standard range.
 - 6. Accessories:
 - a. Manufacturer's standard stainless steel fasteners for mounting onto building wall
 - b. Flexible rubber adapter for connection to drainage pipe
- C. PVC Downspout Boots:
 - 1. Configuration: Inside top bell shall be sized as required to connect to specified metal downspouts. Length shall be sized as required to connect to drain line run to storm sewer as indicated on the drawings.
 - 2. Material: Polyvinyl Chloride (PVC).
 - 3. Finish: Exposed to be painted.
 - 4. Color: To be selected by Architect.
 - 5. Accessories:
 - a. Stainless steel fasteners for mounting onto building wall.
- D. Appurtenance Material:
 - 1. Brick:
 - a. Clay or Shale Brick: Comply with ASTM C 32 for Sewer Brick and Manhole Brick, grade as selected.
 - b. Concrete Masonry Units: Comply with ASTM C 139.
 - 2. Mortar: Comply with ASTM C 270, Type M, for pipe joints and man- hole and inlet brickwork.
 - 3. Concrete:
 - a. Concrete for use in precast concrete catch basins, curb inlets, drop inlets and manholes shall be 3000 psi at age 28 days.
 - 4. Reinforcement: Comply with ASTM A 615.
 - 5. Castings: Comply with ASTM A 48, grey cast-iron.
 - 6. Riprap: Riprap shall be Class I conforming to Section 814 of the State of Alabama Highway Department Standard Specifications.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Storm Drainage System: Construct drainage structures and appurtenances in accordance with applicable standard drawings and construction details shown on the Drawings.
- B. Lay all pipe in an open trench of dimensions as given below:
 - 1. Lengths of storm drain pipe shown on the Drawings are approximate distances center-to-center of structures. Install pipe based on actual field measurements.

C. Excavation:

1. Excavation is open cut. The top portion of trenches may be excavated as required by the Contractor to any width which will not cause damage to adjacent structures. The lower portion of the trench, to a height of 1 ft. above the top of the pipe shall not exceed 18 in. greater than the pipe dia.
2. All excavation shall be prosecuted in accordance with requirements of OSHA "Safety and Health Regulations for Construction".
3. When sheeting or shoring is used, widths may be increased by the thickness of the timbers. All protective measures required are the responsibility of the Contractor and shall be provided at the Contractor's expense.
4. Carefully shape the bottom of trenches to conform to and support the lower 1/4 of the periphery of the pipe barrel. At the Contractor's option, trenches may be excavated slightly over depth, and then the pipe bed may be constructed of approved granular material, thoroughly tamped and carefully shaped to conform to and support the lower 1/4 of the periphery of the pipe barrel. Where rock is encountered, remove to a depth of 6 in. below the pipe and replace with an approved granular material.
5. Where suitable material, such as muck, is encountered at or below invert elevation during excavation, remove and replace with suitable material, or stabilize by the addition of a granular material.

D. Pipe Laying:

1. Proceed upgrade where practicable. Lay pipe shall true to grade and line with a straight and uniform invert. Do not lay pipe in a wet or muddy trench. Dewater trenches as required with firm, smooth and properly shaped bed as specified.
2. Lay corrugated metal pipe so that if invert paving has been damaged, repair with an asphaltic compound to the satisfaction of the Engineer.
3. Joints for reinforced concrete pipe shall be with sand-cement grout.

E. Backfilling:

1. Backfill with selected material, free from rock larger than 2 in. in size, or debris.
2. Carefully place backfill and tamp around and over the pipe to avoid displacement of the pipe or damage to the joints.
3. Place all backfill in 6 in. lifts and compact as required in EARTHWORK Section. Compaction methods shall be at the Contractor's option as long as the desired results are obtained; otherwise, the Architect may order changes in methods or equipment.

F. Appurtenances and Drainage Structures:

1. Furnish and install drainage structures as shown in detail on the Drawings. Install shaped inverts.
2. Fill all mortar joints full. Tool all joints.
3. Cut and grind all pipe, where cut at face of structure wall, smooth with the face of the wall. Pack full all joints around pipe and structure wall at the face of the wall with mortar.
4. Clean bottom of drainage structures of all debris, and wipe walls clean of mortar as work progresses.
5. Construct catch basin tops true to line and grade, and slope continuous with gutter.
6. Install cast iron steps in all structures over 4 ft. deep, installed 15 in. o.c. in a vertical direction. Cast iron steps and manhole rings and covers shall meet ASTM A 48.
7. Construct junction boxes with bottom as shown in details for drop inlets, catch basins or other structures. Construct tops to accommodate a standard manhole ring, and adjust over to grade.

8. Where indicated in the Storm Structure Schedule, drainage basins by Contech or Nyloplast may be used.

3.2 ADJUSTING AND CLEANING

- A. At completion, remove all excess materials, debris, etc. resultant from operations of this Section of Work.
- B. Leave drainage systems clean and free from mud or debris of any kind. When looked through, each line between structures shall show a full circle of light; otherwise the Contractor shall be required to remove and replace the defective portion of the work, at the Contractor's expense.

END OF SECTION

SECTION 02730 - SANITARY SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Comply with applicable codes, ordinances, rules, regulations and laws of local, municipal, state or federal authorities having jurisdiction.
- B. Sanitary sewer construction is subject to review and acceptance by the Local Sewer Department and shall meet their requirements.

1.3 SITE CONDITIONS

- A. Coordinate sanitary sewer construction with grading operations to avoid deep trench conditions insofar as possible.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Pipe: Type as shown Drawings.
 - 1. PVC Pipe:
 - a. Gravity Pipe – Plastic pipe for gravity sewers, stacks and laterals, and fittings shall be unplasticized polyvinyl chloride (PVC), meeting or exceeding ASTM Specification D3034, latest edition, Classification SDR 35.
 - b. Force Main Pipe – PVC pipe for force mains shall conform to the requirements of ASTM D2241 for pressure pipe or AWWA C900. Pipe shall be Class 150 with a Standard Dimension Ratio of 18 or heavier.
 - c. All sanitary sewer PVC pipe shall be either green or brown in color.
- B. Appurtenances:
 - 1. Manholes: Precast concrete units conforming to ASTM 478.
 - 2. Castings: Grey cast iron conforming to ASTM A 48.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Trenching and Excavation:
 - 1. Excavate in open trench to the width, depth and in the direction necessary for the proper construction of the pipe sewer according to the Drawing.
 - 2. Shape the bottom of the trench so as to conform as nearly as possible to the outside of the pipe, particular care being taken to recess the bottom of the trench in such a manner as to relieve the bell of the pipe of all load.
 - 3. Build pipe sewers in a trench, the width of which at the top of the pipe shall not exceed the external dia. of the bell of the pipe, plus 12 in. each side, unless otherwise directed by the Engineer, but in no case less than 24 in. in width.
 - 4. All excavation shall be performed in accordance with requirements of OSHA "Safety and Health Regulations for Construction".

B. Backfilling:

1. The sanitary sewer pipe shall be bedded in a crushed stone bench bottom installed to a minimum depth below the pipe of six (6) inches. After the pipe is installed, the trench shall be backfilled with crushed stone to a depth of one-half the pipe diameter for depths of cut of 12 feet or less. For depths of cut greater than 12 feet the pipe shall be backfilled with crushed stone to a height of 6" above the top of the pipe.
2. No. 12 THW copper locator wire shall be placed in the trench, 12 inches above the sewer mains and all sewer service piping.
3. Backfill all trenches and excavation immediately after the pipes are laid therein unless other protection for the pipe line is directed. The backfilling material shall be selected and deposited with special reference to the future safety of the pipes. Solidly tamp clean earth, sand or rock dust about the pipe up to the level of 6 in. above the top of the pipe, and carefully deposit in uniform layers, each layer solidly tamped or rammed with proper tools so as not to disturb or injure the pipe line. Mechanical means may be permitted for backfilling, provided the equipment meets the approval of the Architect. Faithfully ram or tamp the remainder of the backfilling of the trenches in layers of not more than 6 in. in depth with either approved mechanical or hand tamps. Compaction shall conform to the requirements of the EARTHWORK Section.
4. All backfilling material shall be free from rock, trash and debris.

C. Laying Pipe

1. Lay pipe with joints close and even, butting all around, special care being taken that there is no sagging at the hub, and that a true surface is given to the invert throughout the entire length of the sewer.
2. Water in Trenches: Do not use sewers for draining water from ditch. Provide and operate pumps, if necessary, to remove water from trench while pipe is being laid and joints made.

D. Jointing Pipe:

1. In jointing gasket pipe, clean both the bell and the spigot before the gasket is applied. Use the proper size gasket for each size of pipe, and lubricate only with a lubricant recommended by the manufacturer of the pipe. Insert the spigot end in the bell the proper distance, and take care to see that the pipe remains in this position.
2. Clean all joint material that may be left on the inside, and leave the pipe clean and smooth throughout. At every third pipe, fill around immediately after being properly placed and jointed to prevent the moving of joints.
3. Free the interior of the pipe of all dirt and superfluous material of every description, as the work proceeds.

E. Manholes:

1. Manholes shall be precast concrete conforming to ASTM 478. Shape inverts and build of concrete.

3.2 FIELD QUALITY CONTROL

- A. Testing: Perform Required Test as required by Local Authority.

3.3 ADJUSTING AND CLEANING

- A. Clean and clear sanitary sewers of materials of all kind.

END OF SECTION

SECTION 02810 - SODDING AND TOPSOIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Sod:
 - 1. Provide strongly rooted **419 Bermuda Sod**
 - 2. Sod shall be not less than 2 years old and free of weeds and undesirable native grasses.
 - 3. Only provide sod capable of growth and development when planted (viable, not dormant).
 - 4. Provide machine cut sod of a uniform minimum soil thickness of 5/8 inch, plus thickness of top growth and thatch. Sod pieces to be consistent in size and shape.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Sodding shall be restricted to those as instructed or recommended by the local Cooperative Extension Agent except when special instructions to the contrary are issued in writing by the Architect.
 - 1. The Contractor shall furnish, in writing to the Architect, those recommendations of the Extension Agent before proceeding with any operations.
 - 2. Grassing also shall comply with State of Alabama Highway Department specifications, latest Edition.
 - 3. Contractor shall water and maintain newly grassed areas until acceptable stand of grass is established and approved by the Architect.
- B. Preparation of Subgrade Soil:
 - 1. The subgrade soil in those areas to be sodded whether shown or not shown on the plans shall be loosened to a minimum depth of 3 inches and graded to remove all ridges and depressions so that it will be, after settlement everywhere parallel to and at the proper level to provide finished grades specified.
 - 2. All stones over 1" in dimension, sticks, rubbish and other extraneous matter shall be removed during this operation.
- C. Topsoil:
 - 1. Contractor shall furnish and spread layer of topsoil over all areas.

Topsoil shall be spread in loose layers to provide finished grades specified and shall have an equal depth of not less than 4" over the site after natural settlement and light rolling.
- D. All areas shall be carefully graded and raked to accurate specified grades and uniform slopes following topsoil spreading. The surface, when finished and settled shall conform to required grades and shall be free from hollows and other inequalities, from stones over 1" in diameter, sticks and other debris, and shall be satisfactory to the Architect.
- E. Initial fertilization of sodded area prior to sodding and following preparation, commercial fertilizer 4-10-10 or 4-12-12 shall be applied on all grass areas at the uniform rate of 20 pounds per 1,000 square feet each.

3.2 SODDING

- A. Prepare all areas to receive sod.
- B. **The Contractor shall fully sod all graded and disturbed areas, including the Contractors staging area and all areas disturbed by vehicular construction traffic, whether shown on plans or not.**

3.3 TOPSOIL

- A. General:
 - 1. Provide topsoil of natural, friable, fertile, fine loamy, soil possessing the characteristics of representative top soils in the vicinity which produces a heavy growth; free from subsoil, weeds, litter, clods, stiff clay, stones, stumps, roots, trash, toxic substances or any other material which may be harmful to plant growth or hinder planting operations.
 - 2. The topsoil shall not be in a muddy or frozen condition. Topsoil shall be that material stripped and stockpiled, or as required to provide 4" of coverage.
 - 3. The topsoil shall have a pH range of 5.9 to 7.0.
 - 4. Limestone or aluminum sulfate (or acceptable substitute) may be used to adjust the pH of the topsoil to an acceptable level.

END OF SECTION

SECTION 02811 - SEEDING AND TOPSOIL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Seed:
 - 1. Seeds shall be **Tifton Bermuda** in accordance with State of Alabama Highway Department Specification Section 652.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

- A. Seeding season(s) shall be restricted to those as instructed or recommended by the local Cooperative Extension Agent except when special instructions to the contrary are issued in writing by the Architect.
 - 1. The Contractor shall furnish, in writing to the Architect, those recommendations of the Extension Agent before proceeding with any operations.
 - 2. Seeding also shall comply with State of Alabama Highway Department specifications, latest Edition.
 - 3. Contractor shall water and maintain newly seeded areas until acceptable stand of grass is established and approved by the Architect.
- B. Preparation of Subgrade Soil:
 - 1. The subgrade soil in those areas to be seeded whether shown or not shown on the plans shall be loosened to a minimum depth of 3 inches and graded to remove all ridges and depressions so that it will be, after settlement everywhere parallel to and at the proper level to provide finished grades specified.
 - 2. All stones over 1" in dimension, sticks, rubbish and other extraneous matter shall be removed during this operation.
- C. Topsoil:
 - 1. Contractor shall furnish and spread layer of topsoil over all areas.
 - 2. Topsoil shall be spread in loose layers to provide finished grades specified and shall have an equal depth of not less than 4" over the site after natural settlement and light rolling.
- D. All areas shall be carefully graded and raked to accurate specified grades and uniform slopes following topsoil spreading. The surface, when finished and settled shall conform to required grades and shall be free from hollows and other inequalities, from stones over 1" in diameter, sticks and other debris, and shall be satisfactory to the Architect.
- E. Initial fertilization of sodded area prior to sodding and following preparation, commercial fertilizer 4-10-10 or 4-12-12 shall be applied on all grass areas at the uniform rate of 20 pounds per 1,000 square feet each.

3.2 SEEDING

- A. Prepare all areas to receive seeding.
- B. **The Contractor shall fully seed all areas indicated on the drawings.**
- C. **If not indicated, the Contractor shall fully Sod the areas per Section 02810, Sodding and**

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Topsoil.

- D. Seedbeds shall be firmed by rolling before seedings are made.
- E. The seed or seed mixture for lawn areas as recommended shall be sown at the rate of six pounds per one thousand square feet exercising great care that a uniform distribution of seed is obtained.
- F. Seeding shall be done on a still day, using a hopper type seeder, one-half of the seed or seed mixture for each area being sown in a direction at right angles to the other half.
- G. After seeding, the surface shall be lightly raked, rolled once with a roller weighing not less than one hundred pounds per lineal foot, and thoroughly watered with a fine spray.

3.3 TOPSOIL

- A. General:
 - 1. Provide topsoil of natural, friable, fertile, fine loamy, soil possessing the characteristics of representative top soils in the vicinity which produces a heavy growth; free from subsoil, weeds, litter, clods, stiff clay, stones, stumps, roots, trash, toxic substances or any other material which may be harmful to plant growth or hinder planting operations.
 - 2. The topsoil shall not be in a muddy or frozen condition. Topsoil shall be that material stripped and stockpiled, or as required to provide 4" of coverage.
 - 3. The topsoil shall have a pH range of 5.9 to 7.0.
 - 4. Limestone or aluminum sulfate (or acceptable substitute) may be used to adjust the pH of the topsoil to an acceptable level.

3.4 MULCHING

- A. Mulching of seeded areas is required and shall consist of hand or machine application of mulch.
- B. The mulch shall be loose enough to permit air to circulate but compact enough to reduce erosion.
- C. If baled mulch material is used, care shall be taken that the material is in a loosened condition and contains no lumps or knots of compacted material.
- D. The rate of application shall be sufficient to provide a layer of mulch ½ inch thick in depth over the entire seeded area.
- E. Mulching shall begin immediately following completion of seed sowing operations.

END OF SECTION

SECTION 02830 - TEMPORARY CHAIN LINK FENCING & GATES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes: Erection and maintenance of temporary chain link fencing and gates.
- B. Refer to Drawings for temporary fence type, layout, and location of gates.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

1.3 SUBMITTALS

- A. Action Submittals:
 - 1. Shop Drawings:
 - a. Product Data: Include construction details, material descriptions, dimensions of individual components, and finishes for chain link fences and gates.
 - i. Fence, gate posts, rails, and fittings.
 - ii. Chain link fabric.
 - iii. Gates and hardware.
 - 2. Test Reports: Field test result for compliance of installation of chain link fence and gates.
- B. Informational Submittals:
 - 1. Manufacturer's recommended installation instructions.
 - 2. Evidence of Supplier and installer qualifications.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Site in undamaged condition. Store materials off the ground to provide protection against oxidation caused by ground contact.

1.5 SCHEDULING AND SEQUENCING

- A. Install temporary fence and gates as indicated on drawings prior to beginning demolition work and/or new construction work
- B. Complete necessary Site preparation and grading before installing chain link fence and gates.

PART 2 - PRODUCTS

2.1 MANUFACTURERE - Galvanized Steel Fencing: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- A. Master Halco
- B. Merchants Metal
- C. Stephens Pipe and Steel, LLC.
- D. Eagle Fences
- E. Equal products of other manufacturers may be used in the work provided, such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 TEMPORARY CHAIN LINK FENCING

- A. Unless otherwise indicated, type of temporary chain link fencing shall be as follows:
 - 1. New materials or previously used salvaged chain link fencing in good condition.

2. Height: 8'-0" (minimum) unless otherwise indicated on drawings.
3. Posts: 2" min. galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for setting in concrete footings.
4. Fencing Fabric: 2" diamond woven galvanized steel wire mesh. Provide in continuous lengths to be wire tied to fence posts or prefabricated into modular pipe-framed fence panels.
5. Privacy Fabric: Temporary fencing shall be outfitted with privacy fabric.
 - a. Color: Green
 - b. Material Requirement: Polyethylene, 4.9 oz/sq. yd., Burst Strength: 210 psi
- B. Gates: Provide personnel and vehicle gates of the quantity and size indicated on the Drawings or required for functional access to site.
 1. Fabricate of same material as used for fencing.
 2. Vehicle gates:
 - a. Minimum width: 20 feet to allow access for emergency vehicles.
 - b. Capable of manual operation by one person.

PART 3 - EXECUTION

3.1 GENERAL- TEMPORARY CHAIN LINK FENCING

- A. Installation of temporary fencing shall not deter or hinder access to existing and new hose connections and fire hydrants.
 1. Maintain 3 feet diameter clear space around fire hydrants.
 2. Where fire hydrant or hose connection is blocked by fencing, provide access gate.
- B. Access: Provide gates for personnel, delivery of materials, and access by emergency vehicles.
- C. Field verify gate locations with Architect.

3.2 INSTALLATION - FENCE

- A. Chain link posts:
 1. Post spacing shall be 12' maximum if using prefabricated panels and 10' maximum if wire tying mesh to posts.
 2. End, Corner and Line posts shall be **set in concrete OR post driven.**
 3. Gate posts: Use concrete footings and brace to provide rigidity for accommodating size of gate. **Gate posts MUST be set in concrete.**
- B. Fabric: Leave approximately 2" between finish grade and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.
- C. Gates: Install with required hardware.
- D. Wire Ties: 11 gage galvanized steel.
- E. Tension Wire: 7 gage, galvanized coated coil spring wire, metal and finish to match fabric.
- F. Concrete: Provide concrete consisting of portland cement, ASTM C 150, aggregates ASTM C 33, and clean water. Mix materials to obtain concrete with a minimum 28 day compressive strength of 3,000 psi using at least 4 sacks of cement per cu. yd., 1" maximum size aggregate, maximum 3" slump.

3.3 INSTALLATION - GATES

- A. Chain link gates:

1. Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding or with special fittings and rivets for rigid connections, providing security against removal or breakage connections. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware and accessories. Space frame members maximum of 8' apart unless otherwise indicated.
 2. Provide same fabric as for fence, unless otherwise indicated. Install fabric with stretcher bars at vertical edges and at top and bottom edges. Attach stretcher bars to gate frame at not more than 15" o.c.
 3. Install diagonal cross-bracing consisting of 3/8" diameter adjustable length truss rods on gates to ensure frame rigidity without sag or twist.
- B. Gate Hardware: Provide hardware and accessories for each gate, galvanized per ASMT A 153, and in accordance with the following.
1. Hinges: Size and material to suit gate size, non-lift off type, offset to permit 180 degree gate opening. Provide 1½ pair hinges for each leaf over 6' nominal height.
 2. Latch: Forked type or plunger-bar type to permit operation from either side of gate, with padlock eye as integral part of latch.
 3. Keeper: Provide keeper for vehicle gates, which automatically engages gate leaf and holds it in open position until manually released.
 4. Double Gates: Provide gate stops for double gates, consisting of mushroom type flush plate with anchors, set in concrete, and designed to engage center drop rod or plunger bar. Include locking device and padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock.

3.4 MAINTENANCE

- A. Maintain fencing in good condition. If damaged, Contractor shall immediately repair at no additional cost to owner.

3.5 FIELD QUALITY CONTROL

- A. Post and Fabric Testing: Test fabric tension and line post rigidity according to ASTM F1916.
- B. Gate Tests:
1. Prior to acceptance of installed gates, demonstrate proper operation of gates under each possible open and close condition specified.
 2. Adjust gate to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range.
 3. Confirm that latches and locks engage accurately and securely without forcing and binding.

3.6 CLEANUP

- A. Remove excess fencing materials, soil, concrete and any other debris from Site which resulted from installation of fences and/or gates.

END OF SECTION

SECTION 02831 - VINYL COATED CHAIN LINK FENCES AND GATES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of chain link fences and gates is indicated on drawings.

1.3 SECTION INCLUDES

- A. Fence framework, fabric, and accessories.
- B. Excavation for post bases; concrete foundation for posts gate assemblies.
- C. Manual swing gates and related hardware.

1.4 REFERENCES

- A. ANSI/ASTM A123 - Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products.
- B. ASTM A116 - Zinc-Coated (Galvanized) Steel Woven Wire Fence Fabric.
- C. ASTM A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
- D. ASTM A569 - Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality.
- E. ASTM C94 - Ready-mixed Concrete.

1.5 SYTEM DESCRIPTION

- A. **Fence Height:** As indicated on drawings, otherwise 4 feet.
- B. **Fence Length:** As indicated on drawings.
- C. **Location:** As indicated on drawings.
- D. Intervals not exceeding 10 feet on center in straight runs and 8 feet on center curves.

1.6 SUBMITTALS

- A. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.
- B. Qualifications:
- C. Manufacturer: Company specializing in manufacturing the products specified in this Section to have minimum three years documented experience.

1.7 FIELD MEASUREMENTS

- A. Verify that field measurements are as shown on Drawings prior to installation.

PART 2 - PRODUCTS

2.1 MANUFACTURER: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

- A. Fence System:
 - 1. Master-Halco, Inc
 - 2. Merchants Metals
 - 3. Stephens Pipe and Steel, LLC.

4. Equal products of other manufacturers may be used in the work provided, such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- B. Fence Framework:
1. Allied Tube: Product SS 40.
 2. Century Tube: Product CMT 40.
- C. Chain Link Fabric:
1. Merchants Metals.
 2. Cargill.
- D. Padlocks:
1. Yale.
 2. Master.
 3. Sargent.

2.2 MATERIALS & COMPONENTS

- A. Framing Materials: Round SS 40, steel pipe, vinyl coated per ASTM F1234 outside. Post to have tops to exclude moisture.
- B. Fabric: 9 gage fused bonded fabric shall have PVC coating of 7 to 12 mils per ASTM F668 Class 2B.
- C. Swing Gates: Size as shown on Drawings covered with chain link fabric. Gates shall be complete with industrial type, fixed pin, 180 degree hinges and drop latches with padlock left in proper operating condition.
- D. Padlocks: Industrial grade and shall be keyed alike, and as Owner's existing locks, when more than one is required.
- E. Components:
1. Line Posts: 2.0 inch outside diameter.
 2. Corner and Terminal Posts: 3.0 inch outside diameter.
 3. Swing Gate Posts: 3.0 inch minimum outside diameter for less than 6 foot gate leaf. 4.0 inch minimum outside diameter for 6 foot gate leaf or greater or outside diameter as required by design. Posts shall be of sufficient diameter and weight to prevent deflection or gate sagging.
 4. Top and Bottom Rail: 1-5/8 inch diameter, plain end, sleeve coupled with 0.111 inch wall thickness. Provide Mid-Rails at fences and gates in excess of 5 feet in height.
 5. Swing Gate Frame: 1-5/8 inch minimum diameter welded or fitting type fabrication. Welded fabrication shall be vinyl coated after weld connections are made. The frame components shall be of sufficient diameter, weight and design to avoid sagging and allow easy operation.
 6. Fabric: 2 inch vinyl coated diamond mesh interwoven wire, 9 gage thick, top selvage twisted tight, bottom selvage knuckle end closed.
 7. Tension Wire: 7 gage thick steel, single strand, vinyl coated.
 8. Tie Wire: Aluminum alloy steel wire, vinyl coated.
- F. Accessories:
1. Caps: Cast steel vinyl coated; sized to post diameter, set screw retainer.
 2. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel, vinyl coated.
 3. Swing Gate Hardware: Fork latch with gravity drop, center gate stop and drop rod; three 180 degree gate hinges per leaf and hardware for padlock.

G. Finishes:

1. Components: Vinyl coated to ASTM F123, 10-14 mil coating.
2. Hardware: Vinyl coated.
3. Accessories: Same finish as fabric.
4. Color: Shall be selected by Architect and Owner.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install framework, fabric, accessories and gates in accordance with ANSI/ASTM F567 and manufacturer's instructions.
- B. Set all posts plumb, in concrete footings with top of footing 1 inch above finish grade. Slope top of concrete for water runoff.
- C. Line Post Footing Depth Below Finish Grade: Minimum three feet (18 inches in solid rock) and not less than 12 inches in diameter.
- D. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: Minimum three feet (18 inches in solid rock) and not less than 12 inches in diameter.
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, one bay from end and gate posts.
- F. Provide top rail through line post tops and splice with 6 inch long rail sleeves.
- G. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.
- H. Position bottom of fabric 2 inches above finished grade.
- I. Fasten fabric to top, bottom and mid- rails, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.
- J. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips. Install bottom tension wire stretched taut between terminal posts.
- K. Do not swing gate from building wall; provide gate posts.
- L. Install gates with fabric to match fence. Install three hinges per leaf, latch, catches, drop bolt, foot bolts and sockets, torsion spring, retainer and locking clamp.
- M. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.
- N. Clean all excess grout, concrete, grease, paint, etc., from fence.
- O. Erection Tolerances:
 1. Maximum Variation From Plumb: 1/4 inch.
 2. Maximum Offset From True Position: 1 inch.
 3. Components shall not infringe adjacent property lines.

3.2 SCHEDULE

- A. Fence and gate location(s) as indicated on Drawings.
- B. Fence and gate size(s) as indicated in this section, otherwise as indicated on drawings.

END OF SECTION

SECTION 02900 - IRRIGATION SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Work included: General Contractor shall provide irrigation system **as designed by Irrigation supplier** for sodded and landscaped areas, and as specified herein. The work includes, but is not limited to:
 - 1. For sodded and landscaped areas as indicated on the drawings, complete in place, tested and approved, including but not necessarily limited to, the lawn and shrub sprinkler system, automatic controller and remote control valves and separate irrigation water meter.
 - 2. Trench, backfill and compaction for irrigation lines.
 - 3. Automatically controlled landscape irrigation system; backflow preventer; pressure reducing valve; isolation gate valves; piping and sleeves under paving; repair of paving, main and lateral lines; electrical valves and wiring; valve boxes and controllers; sprinklers; couplings; connectors; fittings; and if needed, tape and meter.
 - 4. Test all systems and make operative.
 - 5. Submit Record Drawings and Maintenance Manual.
 - 6. One-year Guarantee Period.
 - 7. Maintain and operate for 1-year beyond Date of completion of Substantial Completion punch list.

1.3 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Installer Qualifications:
 - 1. Firm shall hold Alabama General Contractors License for Specialty Construction, Sub-classification - Landscaping or Other Specialty Construction (specified as Irrigation). Firm experienced in the successful installation of a minimum of five (5) projects within the past five (5) years similar in scope, quality, and contract value to that indicated for this project. Firm shall have sufficient manpower, equipment and financial resources to complete the Work of this Section.
 - 2. The Owner and the Architect reserve the right to reject any and all materials and workmanship, which they deem to be not in accordance with Drawings and Specifications. Rejected materials and work shall be removed from site immediately and replaced with that of the specified quality.
- C. Applicable Standards:
 - 1. ASTM:
 - a. D1785: Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedule 40.
 - b. D2464: Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Threaded, Schedule 40.
 - c. D2466: Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Socket Type, Schedule 40.
 - d. D2564: Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.
 - 2. Applicable Codes:
 - a. Most current edition of Uniform Plumbing Code.

- b. Applicable Building Code.
 - c. All applicable local codes and ordinances.
 - d. National Electrical Code.
 - e. Should Specification's requirements differ from local requirements, consider Contract Document requirements to be the minimum acceptable and comply with any more stringent local requirements.
- D. Permits and Fees:
- 1. Obtain all permits and pay required fees to any agency having jurisdiction over the work.
 - 2. Arrange inspections required by local ordinances during the course of construction.
 - 3. Upon completion of the work, furnish satisfactory evidence to show that all work has been installed in accordance with the ordinances and code requirements.

1.4 SUBMITTALS

- A. Product Data: Within thirty (30) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
- 1. Materials list of items proposed to be provided under this Section.
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used for the Work.
- B. As-built Drawings: Any changes in the layout and/or arrangements of the proposed irrigation system, or any other differences between the proposed system and actual installed conditions are to be recorded by the Irrigation Contractor in the form of an "As-Built" drawing. Provide the Owner and the Architect with a copy of the drawings before work under this Contract will be considered for acceptance. All isolation valve locations shall be shown with actual measurements to reference points so they may be located easily in the field.

1.5 WARRANTY

- A. Warranty for all work for a period of one (1) year after date of final acceptance of the work in total, against defects in materials, equipment, workmanship and any repairs required resulting from leaks or other defects of workmanship, material or equipment.
- 1. Repair unsatisfactory conditions promptly at no cost to the Owner.
 - 2. Emergency repairs may be made by the Owner without relieving the Irrigation Contractor of his warranty obligations.
 - 3. Repair settling of backfilled trenches occurring during the warranty period, including restoration of damaged plantings, paving or improvements resulting from settling of trenches or repair operations.
 - 4. Respond to Owner's request for repair work within five (5) calendar days. If not, Owner may proceed with such necessary repairs at the Contractor's expense.

PART 2 – PRODUCTS

2.1 PIPE

- A. Plastic Pipe:
- 1. Use three quarter inch ($\frac{3}{4}$ ") and one inch (1") sizes, Class 200 polyvinyl chloride; and one and one quarter inch ($1\frac{1}{4}$ ") and up, Class 160 polyvinyl chloride, bearing the seal of the National Sanitation Foundations, unless otherwise specified by local codes.

2. Fittings: Use Schedule 40 polyvinyl chloride, type I-II, bearing the seal of the National Sanitation Foundation, and complying with ASTM D2466.
3. For joining, use a solvent complying with ASTM D2466 and recommended by the manufacturer of the approved pipe.
4. Plastic Pipe Identification: Continuously and permanently mark with manufacturer's name, pipe size, schedule number, type of material and code number.

2.1 RISERS

- A. Lawn Heads: Polyethylene cut-off type or swing joints.
- B. Shrub Head: Use Schedule 80 threaded PVC.
- C. Quick Coupling Valves: Use Schedule 80 PVC. Pipe nipples and Schedule 40 Street Ells as a three elbow swing joint to permit readjustment of valve angle.

2.2 VALVES

- A. Gate Valve:
 1. Provide one hundred and twenty-five (125) pound rated screwed valve of size required for the line as shown on the Drawings.
 2. Acceptable manufacturers:
 - a. Harvard
 - b. Crane
 - c. Equal products of other manufacturers may be used in the work provided, such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- B. Quick Coupling Valves
 1. Provide specified size, one piece construction, all brass to fit single or double lug couplers.
 2. Deliver to the Owner the following items, all matching the approved quick coupling valves:
 - a. coupler keys - quantities as specified
 - b. hose swivels - quantities as specified
 3. Acceptable Manufacturers:
 - a. Toro
 - b. Rainbird
 - c. Equal products of other manufacturers may be used in the work provided, such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.3 MANUAL AND AUTOMATIC VALVE SLEEVES

- A. For Manual Control Valve:
 1. Provide flexible plastic sleeve and four inch (4") cycloc marker.
- B. For Gate Valves:
 1. Provide round reinforced plastic boxes with lids, with the word "WATER" cast into the lids.
- C. Acceptable manufacturers:
 1. Ametek
 2. Equal products of other manufacturers may be used in the work provided, such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.4 SPRINKLER HEADS

- A. Provide the sprinkler heads as located by Irrigation Contractor.

2.5 BACKFLOW PREVENTER

- A. Provide as shown on the schedule on the Drawings. Double check type backflow preventer.
- B. Acceptable manufacturers:
 - 1. Watts #700
 - 2. Equal products of other manufacturers may be used in the work provided, such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.6 OTHER MATERIALS

- A. Provide other materials, not specifically described but required for a complete and proper installation as selected by the Contractor subject to the approval of the Architect.

PART 3 – EXECUTION

3.1 SURFACE CONDITIONS

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FIELD MEASUREMENTS

- A. Make necessary measurements in the field to ensure precise fit of items in accordance with the approved design.

3.3 TRENCHING AND BACKFILLING

- A. Trench, backfill and compact in accordance with the detail on the drawings.

3.4 INSTALLATION OF PIPING

- A. Lay out the piping system in accordance with arrangement shown on the Drawings.
- B. Where piping is shown on the Drawings to be under paved areas but running parallel and adjacent to planted areas, the intention is to install the piping in the planted areas.
- C. Unless otherwise indicated, comply with requirements of Uniform Plumbing Code.
- D. Piping Depth: Install piping with at least the following minimum depth:
 - 1. Main lines - 18"
 - 2. Laterals - 12"
- E. Plastic Pipe:
 - 1. Exercise care in handling, loading, unloading and storing plastic pipe and fittings:
 - a. Store under cover until ready to install.
 - b. Transport only in a vehicle with a bed long enough to allow the pipe to lay flat to avoid undue bending and concentrated external load.
 - c. Repair dented and damaged pipe by cutting out and discarding the dented or damaged section, and rejoining with a coupling.
 - d. In jointing, use only the specified solvent and make joints in accordance with the manufacturer's recommendations as approved by the Landscape Architect.
 - e. Center load plastic pipe with a small amount of backfill to prevent arching and whipping under pressure.

- f. For plastic-to-steel connections:
 - i. Work the steel connection first.
 - ii. Use Teflon tape on threaded plastic-to-steel connections.
 - iii. Use only light wrench pressure.

3.5 INSTALLATION OF EQUIPMENT

- A. Install manual and automatic control valves where indicated on the Drawings and in accordance with the manufacturer's recommendations as approved by the Architect.
- B. Quick Coupling Valves:
- C. Install in lawn areas with the top flush with the finish grade, and eight inches (8") from pavements and heads.
- D. Install in planting areas with tops two inches (2") above grade and eight inches (8") from pavement and heads.
- E. Lawn Sprinkler Heads:
 - 1. Install where indicated on the Drawings and in accordance with the manufacturer's recommendations as approved by the Architect. Set heads at finished grade.
- F. Shrub Spray Heads:
 - 1. Install where indicated on the Drawings and in accordance with the manufacturer's recommendations as approved by the Architect.

3.6 TESTING AND INSPECTING

- A. Testing:
 - 1. Notify Architect twenty-four (24) hours prior to pressure test. Unless otherwise instructed, Architect shall be present at pressure test.
 - 2. Make necessary provision for thoroughly bleeding the line of air and debris.
 - 3. After valves have been installed, test live water lines for leaks at a pressure of one hundred (100) psi for a period of two (2) hours, with a five (5) psi pressure loss.
 - 4. Observe lateral lines for leaks during operation.
 - 5. Provide required testing equipment and personnel.
 - 6. Repair leaks, and retest until acceptance by the Architect.
- B. Final Inspection:
 - 1. Clean, adjust, and balance all systems. Verify that:
 - a. Remote control valves are properly balanced.
 - b. Heads are properly adjusted for radius and arc of coverage;
 - c. The installed system is workable, clean and efficient.

3.7 INSTRUCTIONS

- A. Attach legible legend inside each controller door, stating the areas covered by each remote control valve.
- B. After the system has been completed, inspected and approved, instruct the Owner's maintenance personnel in the operation and maintenance of the system.

3.8 CLEAN UP AND PROTECTION

- A. During irrigation work, keep pavements clean and work area in an orderly condition.
- B. Upon completion of work, clear grounds of debris, superfluous materials and all equipment.

Remove from site to satisfaction of Architect and Owner.

- C. Protect landscape work and materials from damage due to irrigation operations, operations by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged work as directed, at no additional cost to the Owner.

END OF SECTION

SECTION 03300 – CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of concrete work is shown on drawings.

1.3 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:
 - 1. ACL 301 "Specifications for Structural Concrete for Buildings".
 - 2. ACI 318 "Building Code Requirements for Reinforced Concrete"
 - 3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice".
- B. Concrete Testing Service: The **Owner** will engage and pay a testing laboratory to perform material evaluation tests.
- C. Materials and installed work may require retesting, as directed by Architect, at anytime during progress of work. Provide free access to material stockpiles and facilities. Retesting of rejected materials and installed work, shall be done at Contractor's expense.

1.4 SUBMITTALS

- A. Product Data: Submit data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, joints systems, curing compounds, dry-shake finish materials and others as requested by Architect.
- B. Shop Drawings Reinforcements: Submit shop drawings for fabrication, bending and placement of concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement.
- C. Material Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Architect. Material certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

- A. Forms for Exposed Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood faced or other acceptable panel-type surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.
- B. Use plywood complying with U. S. Product Standard PS-1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
- C. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least two (2) edges and one (1) side for tight fit.
- D. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed, unless otherwise noted.
- B. Steel Wire: ASTM A 82, plain, cold-drawn, steel.
- C. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
- D. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI specifications, unless otherwise acceptable.
 - 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
 - 2. For exposed to view concrete surfaces, where legs of supports are in contact with forms, provide support with legs which are plastic protected (CRSI, Class I) or stainless steel protected (CRSI, Class 3).

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type 1, unless otherwise acceptable to Architect.
 - 1. Use one brand of cement throughout project, unless otherwise acceptable to Architect.
- B. Normal Weight Aggregate: ASTM C 33, and as herein specified. Provide aggregate from a single source for all concrete.
 - 1. Do not use fine or coarse aggregates containing spalling-causing deleterious substances.
- C. Water: Drinkable.
- D. Air-Entraining Admixture: ASTM C 260.
 - 1. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - a. Air-Mix, Euclid Chemical Co.
 - b. Sika-Ai", Sika Corp.
 - c. Darex AEA, W. R. Grace
 - d. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- E. Water-Reducing, Non-Chloride Accelerator Admixture: ASTM C 494, Type E, and containing not more than 0.1% chloride ions.
 - 1. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - a. Accelguard 80; Euclid Chemical Company
 - b. Pozzoloth High Gally; Master Builders
 - c. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- F. Water-Reducing, Retarding Admixture: ASTM C 494, Type D, and contain not more than 0.1% chloride ions.
 - 1. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - a. Edoco 20006; Edoco Technical Products
 - b. Pozzoloth 300-R; Master Builders

- c. Eucon Retarder 75; Euclid Chemical Company
 - d. Daratard; W. R. Grace
 - e. Plastiment; Sika Chemical Company
 - f. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- G. Certification: Provide admixture manufacturer's written certification that chloride ion content complies with specified requirements.
- H. Calcium chloride or admixtures containing more than 0.1% chloride ions are not permitted.

2.4 RELATED MATERIALS

- A. Moisture Barrier: Provide moisture barrier cover over prepared base material where indicated. Use only materials which are resistant to decay when tested in accordance with ASTM E 154, as follows:
- 1. Polyethylene sheet not less than 10 mils thick.
- B. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.
- C. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
- 1. Waterproof paper
 - 2. Polyethylene film.
 - 3. Polyethylene-coated burlap.
- D. Liquid Membrane Forming Curing Compound **(CONCRETE SEALER-SEE FINISH SCHEDULE):** Liquid type membrane forming curing compound complying with ASTM C 309, Type 1-D, Class A unless other type acceptable to Architect. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal. Equal to "Kure-N-Seal" - 30; Sonneborn-Contech
- 1. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - a. Master Builders
 - b. Euclid Chemical Company
 - c. A.C. Horn
 - d. The Burke Company
 - e. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- E. Bonding Compound: Polyvinyl acetate or acrylic base, re-wettable type.
- 1. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - a. Welcrete; Larsen Products
 - b. EucoWeld; Euclid Chemical Company
 - c. Hornweld; A. C. Horn
 - d. Sonocrete; Sonneborn-Contech
 - e. Acrylic Bondcrete; The Burke Company
 - f. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

- F. Epoxy Adhesive: ASTM C 881, two component material suitable for use on dry or damp surfaces. Provide material "Type", "Grade", and "Class" to suit project requirements.
1. MANUFACTURERS: The following manufacturers' products have been used establish minimum standards for materials, workmanship and function:
- Epoxite; A. C. Horn
 - Sikadur Hi-Mod; Sika Chemical Corporation
 - Euco Epoxy 463 or 615; Euclid Chemical Company
 - Patch and Bond Epoxy; The Burke Company
 - Sure-Poxy; Kaufman Products, Inc.
 - Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- G. Subfloor Patching and Leveling: The following manufacturers' products have been used establish minimum standards for materials, workmanship and function:
1. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
- Ardex K-15; Ardex Engineered Cements 400 Ardex Park Drive Aliquippa, PA 15001; (724) 203-5000
 - Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

PART 3 - EXECUTION

3.1 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Architect for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Architect.
- B. Submit written reports to Architect of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Architect.
- C. Design mixes to provide normal weight concrete as indicated on drawings and schedules.
- D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Architect. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Architect before using in work.
- E. Admixtures:
- Use water-reducing admixture in all concrete for ease of placement and workability.
 - Use non-chloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 degrees F.
 - Use air-entraining admixture in all concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content of 6% with a tolerance of plus-or-minus 1-1/2%.
- F. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
- Ramps, slabs and sloping surfaces: 3" to 5".

2. Reinforced foundation systems: 2" to 5".
3. Other concrete: 3" to 5".

3.2 CONCRETE MIXES

- A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as herein specified.
 1. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ASTM C 94 may be required.
 2. When air temperature is between 85 degrees F and 90 degrees, reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.

3.3 FORMS

- A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.
- B. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.
- C. Construct forms to sizes, shapes, lines and dimensions shown and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, off-sets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide back-up at joints to prevent leakage of cement paste.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses and the like, to prevent swelling and for easy removal.
- E. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set time to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.
- F. Chamfer exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- G. Form Ties: Factory-fabricated, adjustable-length, removable, or snap-off metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.
 1. Unless otherwise indicated, provide ties so portion remaining within concrete after removal is 1" inside concrete and will not leave holes larger than 1" diameter in concrete surface.
- H. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses and chases from trades providing such items. Accurately place and securely support items built into forms.
- I. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

3.4 PLACING REINFORCEMENT

- A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for details and methods of reinforcement placement and supports, and as herein specified.
- B. Clean reinforcement of loose rust and mill scale, earth, ice and other materials which reduce or destroy bond with concrete.

- C. Accurately position, support and secure reinforcement against displacement by formwork, construction or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers as required.
- D. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.5 JOINTS

- A. Construction Joints: Locate and install construction joints as indicated, or if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Architect.
 - 1. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints.
- B. Isolation Joints in Slabs-On-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, and elsewhere as indicated.
 - 1. Joint filler and sealant materials are specified in Division-7 sections of these specifications.
- C. Construction Joints in Slabs-On-Ground: Construct construction joints in slabs-on-ground to form panels of patterns no larger than 600 square feet and as shown and as detailed. An alternative control joint detail may be inserts 1/8" to 1/4" wide x 1/4 of slab depth.
 - 1. Form contraction joints by inserting premolded plastic, hardboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris, fill groove with joint sealant.
 - 2. Joint sealant material is specified in Division-7 sections of these specifications.

3.6 INSTALLATION OF EMBEDDED ITEMS

- A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.
- B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface.
 - 1. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

3.7 PREPARATION OF FORM SURFACES

- A. Clean re-used forms of concrete matrix residue, repair and patch as required to return forms to acceptable surface condition.
- B. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.
- C. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.8 CONCRETE PLACEMENT

- A. Replacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately

before placing concrete where form coatings are not used.

1. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.
- B. General: Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete", and as herein specified.
 1. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.
- C. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
 1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
 1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Bring slab surfaces to correct level with straightedge and strike-off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 3. Maintain reinforcing in proper position during concrete placement operations.
- E. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.
 1. When air temperature has fallen to or is expected to fall below 40 degrees F uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F. and not more than 80 degrees F at point of placement.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not place concrete when air temperature has fallen to or is expected to fall below 35 ° F. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.
- F. Hot Weather Placing:
 1. When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACE 305 and as herein specified.
 2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F. Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is Contractor's option.

3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
4. Fog spray forms, reinforcing steel and subgrade just before concrete is placed.
5. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

3.9 FINISH OF FORMED SURFACES

- A. Rough Form Finish: For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.
- B. Smooth Form Finish: For formed concrete surfaces or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete such as waterproofing, dampproofing. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.
- C. Smooth Rubbed Finish: For formed concrete surfaces exposed to view provide smooth rubbed finish, not later than one day after form removal.
 1. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

- A. Finish surfaces to the following tolerances, measured within 24 hours according to ASTM E 1155/E 1155M for randomly trafficked floor surfaces:
 1. Specified overall values of flatness, F(F) 38: and levelness, F(L) 25: with minimum local values of flatness, F(F) 19: levelness, F(L) 13: for slabs on grade.
- B. Scratch Finish: Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo and other bonded applied cementitious finish flooring material, and as otherwise indicated.
- C. Slope surface uniformly to drains where required. After leveling, roughen surfaces before final set, with stiff brushes, brooms or rakes.
- D. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing membrane or elastic roofing, or sand-bend terrazzo, and as otherwise indicated.
 1. After screeding consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.
- E. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed-to-view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint or other thin film finish coating system.

1. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance. Grind smooth surface defects which would telegraph through applied floor covering system.
- F. Non-Slip Broom Finish: Apply non-slip broom finish to exterior concrete platforms, steps and ramps and elsewhere as indicated.
 1. Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.11 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Keep continuously moist for not less than 7 days.
 2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least seven (7) days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- B. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.
 1. Provide moisture curing by one of the following methods or by a combination of the following methods:
 - a. Keep concrete surface continuously wet by covering with water.
 - b. Continuous water-fog spray.
 - c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.
- C. Provide moisture-cover curing as follows:
 1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
- D. Provide curing and sealing compound to interior slabs with resilient flooring, carpet over cushion, or left exposed; and to exterior slabs, walks, and curbs as follows:
 1. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within two hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within three (3) hours after initial application. Maintain continuity of coating and repair damage during curing period.
- E. Do not use membrane curing compounds on surface which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, damp-proofing, membrane roofing, flooring (such as ceramic or quarry tile, glue-down carpet), painting and other coatings and finish materials, unless otherwise acceptable to Architect.
- F. Curing Formed Surfaces: Cure formed concrete surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- G. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by application of appropriate curing method.

- H. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.
- I. Sealer and Dust-proofer: Apply a second coat of specified curing and sealing compound only to surfaces given a first coat.

3.12 REMOVAL OF FORMS

- A. Formwork not supporting weight of concrete, such as sides of walls, and similar parts of the work, may be removed after cumulatively curing at not less than 50 degrees F for twenty-four (24) hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided cutting and protection operations are maintained.
- B. Formwork supporting weight of concrete, may not be removed in less than fourteen (14) days and until concrete has attained design minimum compressive strength of in place concrete by testing field-cured specimens representative of concrete location in members.
- C. Form facing material may be removed four (4) days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.13 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

3.14 MISCELLANEOUS CONCRETE ITEMS

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
- D. Reinforced Masonry: Provide concrete grout for reinforced masonry, masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.15 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms when acceptable to Architect.
 - 1. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.
 - 2. For exposed to view surfaces, blend white portland cement and standard portland cement so that when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

- B. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.
1. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- C. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.
1. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets and other objectionable conditions.
 2. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.
 3. Correct low areas in unformed surfaces during, or immediately after, completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.
 4. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and exposed reinforcing steel with at least 3/4" clearance all around.
 5. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 6. Repair isolated random cracks and single holes not over 1" in diameter by dry-pack method. Groove top of cracks and cut-out holes to sound concrete and clean of dust, dirt and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack after bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than seventy-two (72) hours.
 7. Perform structural repairs with prior approval of Architect for method and procedure, using specified epoxy adhesive and mortar.
 8. Repair methods not specified above may be used, subject to acceptance of Architect.

3.16 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. The Owner will employ and pay for a testing laboratory to perform tests and to submit test reports. The Contractor shall notify testing agency 24 hours in advance of requirements.
- B. Sampling and testing for quality control during placement of concrete may include the following, as directed by Architect.
- C. The Owner shall maintain equipment on site to cast cylinders, perform slump and air tests, and field cure specimens. Should the project testing agency be absent from the site, the Contractor will be responsible for performing the field tests below.
- D. Sampling Fresh Concrete: ASTM C 172, except as modified for slump to comply with ASTM C 94.

1. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
 2. Concrete Temperature: Test hourly when air temperature is 40 degrees F. and below, and when 80 degrees F. and above; and each time a set of compression test specimens made.
 3. Compression Test Specimen: ASTM C 31; one set of four (4) standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.
- E. Compressive Strength Tests: ASTM C 39; one set for each day's pour plus additional sets for each 50 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at seven (7) days, two specimen tested at twenty-eight (28) days, and one specimen retained in reserve for later testing if required. Minimum compressive strength of concrete shall be 3,000 psi at 28 days unless otherwise indicated.
1. When frequency of testing will provide less than five (5) strength tests for a given class of concrete, conduct testing from at least five (5) randomly selected batches or from each batch if fewer than five (5) are used.
 2. When total quantity of a given class of concrete is less than 50 cu. yds., strength test may be waived by Architect if, in his judgment, adequate evidence of satisfactory strength is provided.
 3. When strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
 4. Test results shall be reported in writing to Architect and Contractor within twenty-four (24) hours that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at twenty-eight (28) days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.
- F. Nondestructive Testing: Impact hammer, sonoscope, or other non- destructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- G. Additional Tests: The testing service will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure, as directed by Architect. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.
1. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

END OF SECTION

SECTION 03368 - UV FLOOR SYSTEM (SEALED CONCRETE)

PART I – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes UV Floor Systems for interior concrete floors denoted on Finish Floor Schedule as SC (Sealed Concrete) or UVFS (UV Floor System). UV Floor System finished for pre- cast concrete, vertical cast-in-place concrete, and exterior concrete are specified in the sections for those types of concrete.
- B. Furnish all labor, material, equipment and services necessary for the dry diamond grinding and UV Floor Systems of concrete floors.
- C. Applying densifying impregnator/UV Floor Sealer and grinding to specified sheen level and aggregate exposure.
- D. Concrete must be cured a minimum of 28 days prior to installation of UV Floor System.

1.3 REFERENCES

- A. American Concrete Institute (ACI):
- B. American Society for Testing and Materials
 - 1. ASTM C779, Standard Test Method for Abrasion of Horizontal Concrete Surfaces.
 - 2. ASTM C805, Impact Strength
 - 3. ASTM G23-8, Ultraviolet Light and Water Spray
 - 4. ASTM 1028-07e1, Co-Efficient of Friction
 - 5. ASTM C 150, Type I, II Portland cement conformity, depending on soil conditions.
 - 6. ASTM C33, Aggregate conformity
 - 7. ASTM D4060-10, Abrasion Resistance of Organic Coatings by the Taber Abraser.
 - 8. ASTM C1583-13, Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull- off Method)

1.4 SUBMITTALS

- A. Submit the following in accordance with submittal Procedures in Division 1 Sections.
- B. Product data for concrete densifying impregnator, UV sealer, concrete dyes, joint filler and any other chemicals used in the process.
- C. Applicators qualification data.

D. UV concrete samples: size 3"x3" for each UV Concrete finish required.

1.5 QUALITY ASSURANCE

A. Basis of design. UV Floor System

B. Certified Contractors:

1. Pre-qualified contractors meeting ALL requirements set forth within specifications.
2. No substitutions will be allowed or approved.

C. Pre –Pour Installations Conference: conduct conference at project site to comply with requirements in Division 1 Sections “Special Conditions” and Administrative Requirements.

D. Manufacturer’s Certification: Provide letter of certification stating that the installer is a Bavara DOI certified applicator and is familiar with proper procedures and installation requirements recommended by the manufacturer.

E. Mock-Ups:

1. Mock ups to be approximately 100 square feet per color and UV finish in location indicated or if not indicated, as directed by the Architect or Owner Representative.
2. Install mock-ups to verify selections make under sample submittal and to demonstrate methods and “workmanship proposed for the project. If mock-up not possible, submitted samples will be accepted as demonstrated methods and workmanship.
3. Control joints should be included in mock-up. Sawing performed by General Contractor can begin as soon as the surface is firm enough not to displace any of the aggregate.
4. Edges should be included in mock-up.

F. Protection: General contractor shall protect areas to receive UV Floor System finish at all times during construction to prevent oils, dirt, metal, excessive water and other potentially damaging materials from affecting the finished concrete surface. Protection measures listed below shall begin immediately after the concrete slab is poured.

1. All hydraulic powered equipment shall be diapered to avoid staining of the concrete.
2. All vehicle parking shall be prohibited on the finish slab area. If necessary to complete their scope of work, drop clothes shall be placed under vehicles at all times.
3. No pipe cutting machine shall be used on the finish floor slab.
4. Steel shall not be placed on the finish slab to avoid rusting.
5. Acids and acidic detergents will not come in contact with slab.
6. All painters will use drop cloths on the concrete. If paint gets on the concrete, it must be removed immediately.
7. All trades will be informed that the slab must be protected at all times

G. Environmental Limitations

1. Comply with manufacturers written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation and other conditions affecting chemical performance.
2. Flatness and Levelness

- a. Finished concrete shall have a minimum Floor Flatness rating of at least 40
 - b. Finished concrete shall have a minimum floor Levelness rating of at least 30
 - c. Finished concrete shall be cured a minimum of 28 days or at which point equipment can be put on the slab and does not displace aggregate.
3. Finished concrete area shall be closed to traffic during UV Floor System application and after application, for the time as recommended by the manufacturer.

H. Concrete Mix Design

1. Concrete Mixture shall be 3000 PSI or higher, non-air entrained.
 - a. Any admixtures, plasticizers, slag, fly ash or anything taking the place of Portland based cement shall be kept to a minimum.
 - b. The cement shall be Portland Cement Type I, conforming to ASTM C150.
 - c. Maintain concrete temperature below 85 degrees. Keep concrete cool and moist for as long as possible. In essence, decrease rate of hydration and drying to minimizing crackling.
 - d. A dissipating cure and seal may be used if required.
 - e. All mix designs must be approved by the Architect. Send all approved mix designs to Installer/Applicator.
 - f. The Engineer/Architect shall determine the saw cut pattern, color and layout.
 - g. Color loads for integral color should never be smaller than three (3) cubic yards.
 - h. Use on (1) source for cement, aggregates, and pozzolans throughout the job. Monitor and control incoming material consistency. Do not use calcium chloride- based admixtures. Non-chloride admixtures may be used.
 - i. Wash out all drums before loading. Keep slumps consistent with a maximum of four (4). Minimize driver added water maintaining a .45 water content ratio.
 - j. Place concrete to achieve as true and smooth of a top surface as possible. Mounds or dips are not acceptable. General contractor shall control overall flatness and levelness, including on sloping areas to within tolerances permitted by specification ASTM E1155.
 - k. Slab shall be protected from indentation and footprints during pour and curing.

PART 2- PRODUCTS

2.1 GRINDING AND UV MATERIALS

- A. Three-phase 480 Volt Generator
- B. Three (3) head or four (4) head counter rotating, variable speed, electric floor grinding/polishing machines with at least 600 pounds down pressure.
- C. Ultraviolet Curing Equipment.
- D. HTC/Pullman Ermator Dust Extraction System, pre separator and squeegee attachments with minimum flow rating of 322 cubic feet per minute. NO

substitutes allowed.

- E. Grinding Tools
 - 1. Metal bond diamonds
- F. Grinding Pads for Edges
 - 1. Metal bond
- G. Hand Grinder with dust extraction attachment and pads.
- H. Densifier: A concrete hardener chemically reactive, waterborne solution of inorganic silicate or siliconize materials and proprietary components, odorless, colorless which hardens and densifies concrete surfaces to protect against abrasion, dusting, and absorption of liquids.
 - 1. Ultrasil LI, Lithium Silicate; The Euclid Chemical Company
 - 2. Scofield Formula One Lithium Densifier; L.M. Scofield Company
 - 3. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening
- I. Control Joint and Sawcut Filler, two part polyurea.
 - 1. Spal-Pro RS88 Semi-Rigid Polyurea Joint Filler; Metzger-McGuire
 - 2. Hi-Tech Polyurea PE-85, Hi-Tech systems
 - 3. Euco Quick-Joint 200, The Euclid Chemical Company
 - 4. NO substitutions allowed.
- J. Dye: A penetrating dye that chemically combines with cured concrete to produce permanent, variegated or translucent color effects. SOLVENT BASED FORMULAS ONLY.
 - 1. Ameripolish Surelock Dye; American Decorative Concrete
 - 2. Scofield formula One Liquid Dye concentrate; L.M. Scofield Company
 - 3. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening
- K. (If specified) Floor Striping material and layout to be specified by owner/architect.
- L. UV Coating: Bavara DOI – UV Clear; Desko International, Inc.
 - 1. Equal products of other manufacturers may be used in the work, provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

PART 3- EXECUTION

3.1 PREPARATION

- A. Installer shall examine and approve concrete substrate for conditions affecting

performance of UV Floor System Finish. General contractor shall correct conditions that area found to be out of compliance with the requirements of this section.

Repairs are acceptable unless specifically approved on a case-by-case basis by the Architect.

- B. Verify that base slab meets finish and surface profile requirements listed in Division 3, Section "Cast in Place Concrete"
- C. Provide floor clean of materials and debris
- D. Protect adjacent surfaces as required to prevent damage by the concrete polishing procedure.
- E. Set up grinding machine, dust extraction system, tooling and generator.
Ensure floor cured to accept UV Floor System Installation application

3.2 UV FLOOR SYSTEM APPLICATION

- A. Applicator shall examine the areas and conditions under which work of this section will be provided and the General contractor shall correct conditions detrimental to the timely and proper completion of the work and the Applicator shall not proceed until unsatisfactory conditions are resolved.
- B. Fill construction joints and cracks with filler products as specified in accordance with manufacturer's instructions colored to match (or contrast) with concrete color as specified by architect. All control joint and decorative saw cut filling must be performed prior to grinding application.
- C. Grind the concrete floor to within 2-3 inches of walls removing construction debris and achieve uniform scratch pattern.
- D. Grind the edges with grinding pads, prior to grinding the floor with each step on the larger diamond grinder, removing all the scratches from the previous grit. Vacuum the floor thoroughly after each grind using a squeegee vacuum attachment.
- E. (If specified) Apply dye color per manufacturer's recommendations. Apply two (2) coats of dye to achieve desired coloration.
- F. Apply densifying impregnator undiluted as per manufacturer's specifications and guidelines.
- G. Apply Bavara UV Floor Coating per manufacturer's instructions.
- H. Upon Completion, the work shall be ready for final inspection and acceptance by the client.

END OF SECTION

SECTION 04200 - UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of each type of masonry work is indicated on drawings and schedule.
- B. Types of masonry work required include.
 - 1. Concrete unit masonry.
 - 2. Brick masonry.

1.3 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Where indicated, provide materials and construction which are identical to those of assemblies whose fire endurance has been determined by testing in compliance with ASTM E 119 by a recognized testing and inspecting organization or by another means, as acceptable to authority having jurisdiction.
- B. Single Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.
- C. Single Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.
- D. Samples: Submit the following samples:
 - 1. Unit masonry samples for each type of exposed masonry unit required; include in each set the full range of exposed color and texture to be expected in completed work.
 - 2. Include size variation data verifying that actual range of sizes for brick falls within ASTM C652 dimension tolerances for brick where modular dimensioning is indicated. The grade shall be SW and the type HBS.
- E. Field Constructed Mock-Up Panel: Prepare mock-up panel for the following types of masonry. Purpose of mock-up is further verification of selections made for color and finish under sample submittals and establishing standard of quality for aesthetic effects expected in completed work. Build mock-up panel to comply with the following requirements:
 - 1. Locate mock-up panel on site where directed by the Architect.
 - 2. Build mock-up panel of typical exterior masonry wall, approximately 4'-0" long by 4'-0" high, showing all typical components, connections, attachments to building structure and methods of installation.
 - 3. Retain mock-up panel during construction as standard for judging completed masonry work. When directed, demolish mock-up panel and remove from site.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver masonry materials to project in undamaged condition.
- B. Store and handle masonry units to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion or other causes. Store masonry units off the ground.
- C. Store cementitious materials off the ground, under cover and in dry location.
- D. Store aggregates where grading and other required characteristics can be maintained.

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- E. Store masonry accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.5 PROJECT CONDITIONS

- A. Protection of Work: During erection, cover top of walls with waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress.
- B. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
- C. Do not apply uniform floor or roof loading for at least 24 hours after building masonry walls or columns.
- D. Staining: Prevent grout or mortar or soil from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry.
- E. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface.
- F. Protect sills, ledges and projections from droppings of mortar.
- G. Environmental Protection:
 - 1. Maintain air temperature and materials to a minimum of 40 degrees F and a maximum of 90 degrees F prior to and during masonry work
 - 2. Do not lay masonry units which are wet or frozen.
 - 3. Remove masonry damaged by freezing conditions.
- H. For clay masonry units with initial rates of absorption (suction) which require them to be wetted before laying, comply with the following requirements.
 - 1. For units with surface temperatures above 32°F wet with water heated to above 70°F.
 - 2. For units with surface temperatures below 32°F wet with water heated to above 130°F.

PART 2 - PRODUCTS

2.1 CONCRETE MASONRY UNITS

- A. General: Comply with referenced standards and other requirements indicated below applicable to each form of concrete masonry unit required.
 - 1. Provide special shapes where required for lintels, corners, jambs, sash, control joints, headers, bonding and other special conditions.
 - 2. Provide bullnose units for outside corners, except where indicated as square-edged.
- B. Concrete Block: Provide units complying with characteristics indicated below for Grade, Type, face size, exposed face and under each form of block included, for weight classification.
 - 1. Grade N
 - 2. Size: Manufacturer's standard units with nominal face dimensions of 16" long x 8" high x thickness indicated.
 - 3. Type I: moisture-controlled units.
 - 4. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
 - 5. Hollow Loadbearing Block: ASTM C 90 and as follows:
 - a. Weight Classification: Lightweight
 - 6. All CMU sills shall be bullnose concrete block, unless another material is indicated on the drawings. If the sills are indicated to receive another material (ie: Solid Surface fabrication, wood, etc.) placed on top of the CMU sill, the CMU sill shall be straight edged concrete block units.

2.2 BRICK MADE FROM CLAY OR SHALE

- A. MANUFACTURERES: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. ACME Brick Company, Montgomery, AL
 - 2. Boral Bricks, Phenix City, Al
 - 3. Henry Brick Company, Selma, AL
 - 4. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- B. General: Comply with referenced standards and other requirements indicated below applicable to each form of brick required.
- C. Provide special molded shapes where indicated and for application requiring brick of form, size and finish on exposed surfaces which cannot be produced from standard brick sizes by sawing.
- D. For sills, caps and similar applications resulting in exposure of brick surfaces which otherwise would be concealed from view, provide uncured or unfroged units with all exposed surfaces finished.
- E. Facing Brick: Submit samples for approval of equals prior to bids. Eased edge brick shall not be allowed.
- F. BRICK ALLOWANCES
 - 1. *Face Brick* shall have a valve of **\$550.00 dollars per thousand** (Allowances shall be for material only, based on actual number of bricks purchased for the project. Installation, profit, overhead, shipping and taxes shall be included in the Contractors Bid Proposal). If Architect chooses brick of lesser value after Bid Process, Contractor shall issue a deductive Change Order for the difference.
 - 2. *Accent Brick* shall have a valve of **\$550.00 dollars per thousand** (Allowances shall be for material only, based on actual number of bricks purchased for the project. Installation, profit, overhead, shipping and taxes shall be included in the Contractors Bid Proposal). If Architect chooses brick of lesser value after Bid Process, Contractor shall issue a deductive Change Order for the difference.

2.3 MORTAR AND GROUT MATERIALS

- A. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Atlas
 - 2. Citadel
 - 3. Lone Star
 - 4. Magnolia
 - 5. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- B. Masonry Cement: ASTM C 91.
 - 1. Type S for CMU walls
 - 2. Type N for Exterior Face and Accent brick – color pigment.
- C. ALLOWANCES:
 - 1. *Face and Accent Brick* to have a valve of **\$18.50 dollars per bag**. (Allowances shall be for material only, based on actual number of bags purchased for the project. Installation, profit, overhead, shipping and taxes shall be included in the Contractors Bid Proposal). If Architect chooses mortar of lesser value after Bid Process, Contractor shall issue a deductive Change Order for the difference.

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- D. Hydrated Lime: ASTM C 207, Type S.
- E. Aggregate for Mortar: ASTM C 144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve.
- F. Water: Clean and potable.

2.4 JOINT REINFORCEMENT, TIES AND ANCHORING DEVICES

- A. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Dur-O-Wall, Inc.
 - 2. Heckman Building Products, Inc.
 - 3. Masonry Reinforcing Corp. of America.
 - 4. National Wire Products Corp.
 - 5. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- B. Materials: Comply with requirements indicated below for basic materials and with requirements indicated under each form of joint reinforcement, tie and anchor for size and other characteristics.
- C. Use individual galvanized steel metal ties installed in horizontal joints to bond wythes together **only** where wood or metal stud backup occurs. Provide ties as shown, but not less than one metal tie for 4 sq. ft. of wall area spaced not to exceed 24" o.c. horizontally and vertically. Stagger ties in alternate courses. Provide additional ties within 1'-0" of all openings and space not more than 3'-0" apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24" o.c. vertically.
- D. Hot-Dip Galvanized Steel Wire: ASTM A 82 for uncoated wire and with ASTM A 123, Class B-2 (1.5 oz. per sq. ft. of wire surface) for zinc coating applied after prefabrication into units.
- E. Application: Use where indicated.
- F. Joint Reinforcement: Provide truss-type, welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10', with prefabricated corner and tee units, and complying with requirements indicated below:
 - 1. Width: Fabricate joint reinforcement in units with widths of approximately 2" less than nominal width of walls and partitions as required to provide mortar coverage of not less than 5/8" on joint faces exposed to exterior and 1/2" else- where.

2.5 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
 - 1. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet.
 - 2. Provide splice plates at joints of formed, smooth metal flashing.
 - 3. Fabricate through-wall metal flashing embedded in masonry from, with ribs at 3-inch intervals along length of flashing to provide an integral mortar bond.
 - 4. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
 - 5. Fabricate through-wall flashing with drip edge where indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees.
 - 6. Fabricate through-wall flashing with sealant stop unless otherwise indicated. Fabricate by bending metal back on itself 3/4 inch at exterior face of wall and down into joint 3/8 inch to form a stop for retaining sealant backer rod.

7. Fabricate metal drip edges and sealant stops for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending at least 3 inches into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam will shed water.
 8. Metal Drip Edges: Fabricate from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees.
 9. Metal Flashing Terminations: Fabricate from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 3/8 inch to form a stop for retaining sealant backer rod.
 10. Metal Expansion-Joint Strips: Fabricate from stainless steel to shapes indicated.
- B. Flexible Flashing: For flashing not exposed to the exterior, use one of the following, unless otherwise indicated:
1. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy as follows:
 - a. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040 inch thick.
 - b. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025 inch thick, with a 0.015-inch thick coating of rubberized-asphalt adhesive.
 - c. Self-Adhesive Sheet with Drip Edge: Elastomeric thermoplastic flashing, 0.025 inch thick, with a 0.015-inch thick coating of rubberized-asphalt adhesive. Where flashing extends to face of masonry, rubberized-asphalt coating is held back approximately 1-1/2 inches from edge.
 - d. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.
 2. EPDM Flashing: Sheet flashing product made from ethylene-propylene-dieneterpolymer, complying with ASTM D 4637, 0.040 inch thick.
- C. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- D. MANUFACTURERS: The following manufacturers' products have been used to establish minimum standards for materials, workmanship, and function:
1. Vinyl Sheet Flashing: (Thickness: 20 mils)
 - a. Vi-Seal Plastic Flashing; Afco Products, Inc.
 - b. BFG Vinyl Water Barrier; B.F. Goodrich Co.
 - c. Nuflex; Sandell Manufacturing Co., Inc.
 - d. Wascosea"; York Manufacturing, Inc.
 - e. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.6 MISCELLANEOUS MASONRY ACCESSORIES

- A. See drawings for locations of all required control joints.
- B. Non-Metallic Expansion Joint Strips: Pre-molded, flexible cellular neoprene rubber filler strips complying with ASTM D 1056, Grade RE41E1, capable of compression up to 35%, of width and thickness indicated.
- C. Premolded Control Joint Strips: Material as indicated below designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

1. Polyvinyl chloride complying with ASTM D 2287, General Purpose Grade, Designation PVC-63506.
- D. Bond Breaker Strips: Asphalt-saturated organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

2.7 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of trisodium phosphate (1/2 cup dry measure) and laundry detergent (1/2 cup dry measure) dissolved in one gallon of water.

2.8 MORTAR AND GROUT MIXES

- A. General: Do not add admixtures including air-entraining agents, accelerators, retarders, water repellent agents, anti-freeze compounds or other admixtures, unless otherwise indicated.
 1. Do not use calcium chloride in mortar or grout.
- B. Mixing: Combine and thoroughly mix cementitious, water and aggregates in a mechanical batch mixer; comply with referenced ASTM standards for mixing time and water content.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification, for types of mortar required, unless otherwise indicated.
 1. For Exterior Brick, use Type N mortar, equal to Flamingo, Blue Circle or Lehigh.
 2. For Other Masonry Units use Type S mortar without coloring pigment.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Wetting Clay Brick: Wet brick made from clay or shale which have ASTM C 67 initial rates of absorption (suction) of more than 30 grams per 30 sq. in. per minute. Use wetting methods which ensure each clay masonry unit being nearly saturated but surface dry when laid.
- B. Do not wet concrete masonry units.
- C. Cleaning Reinforcing: Before placing, remove loose rust, ice and other coatings from reinforcing.
- D. Thickness: Build cavity and composite walls, floors and other masonry construction to the full thickness shown. Build single wythe walls (if any) to the actual thickness of the masonry units, using units of nominal thickness indicated.
- E. Build chases and recesses as shown or required for the work of other trades. Provide not less than 8" of masonry between chase or recess and jamb of openings, and between adjacent chases and recesses.
- F. Leave openings for equipment to be installed before completion of masonry work. After installation of equipment, complete masonry work to match work immediately adjacent to the opening.
- G. Cut masonry units using motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.
 1. Use wet cutting saws to cut concrete masonry units.

3.2 LAYING MASONRY WALLS

- A. Layout walls in advance for accurate spacing of surface bond patterns with uniform joint widths and to accurately locate openings, movement-type joints, returns and offsets. Avoid the use of less-than-half-size units at corners, jambs and wherever possible at other locations.
- B. Coursing and Bonding:
 1. **All CMU shall be Running Bond.**

- C. Stopping and Resuming Work: Rack back 1/2-unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet units lightly (if required) and remove loose masonry units and mortar prior to laying fresh masonry.
- D. Built-in Work: As the work progresses, build-in items specified under this and other sections of these specifications. Fill in solidly with masonry around built-in items.
 - 1. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.

3.3 MORTAR BEDDING AND JOINTING

- A. Lay masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints.
- B. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Bed webs in mortar in starting course on footings and in all courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.
- C. Maintain joint width shown, except for minor variations required to maintain bond alignment. If not shown, lay walls with 3/8" joints.
- D. Cut joints flush for masonry walls which are to be concealed or to be covered by other materials, unless otherwise indicated.
- E. Tool all exposed joints, except where otherwise indicated, slightly concave using a jointer larger than joint thickness, unless otherwise indicated.
- F. Remove masonry units disturbed after laying; clean and reset in fresh mortar. Do not pound corners or jambs to shift adjacent stretcher units which have been set in position. If adjustments are required, remove units, clean off mortar and reset in fresh mortar.

3.4 STRUCTURAL BONDING OF MULTI-WYTHE MASONRY

- A. Use continuous horizontal joint reinforcement installed in horizontal mortar joints for bond tie between wythes. Install at not more than 16" o.c. vertically.
- B. Corners: Provide interlocking masonry unit bond in each course at corners, unless otherwise shown.
 - 1. For horizontally reinforced masonry, provide continuity at corners with prefabricated "L" units, in addition to masonry bonding.
- C. Intersecting and Abutting Walls: Unless vertical expansion or control joints are shown at juncture, provide same type of bonding specified for structural bonding between wythes and space as shown below:
 - 1. At juncture of interior partitions and exterior walls, rake and caulk vertical joint.
 - 2. Provide metal ties as shown below.
 - 3. Provide individual metal ties at not more than 16" o.c. vertically.
 - 4. Provide continuity with horizontal joint reinforcement using prefabricated "T" units.
- D. Intersecting Load-bearing Walls: If carried up separately, block or tooth vertical joint with 8" maximum offsets and provide rigid steel anchors spaced not more than 4'-0" o.c. vertically, or omit blocking and provide rigid steel anchors at not more than 2'-0" o.c. vertically. Form anchors of galvanized steel not less than 1-1/2" x 1/4" x 2'-0" long with ends turned up not less than 2" or with cross-pins. If used with hollow masonry units, embed ends in mortar-filled cores.
- E. Non-bearing Interior Partitions: Build full height of story to underside of roof structure above, unless otherwise shown.

3.5 CAVITY WALLS

- A. Keep cavity clean of mortar droppings and other materials during construction. Strike joints facing cavity flush.
- B. Tie exterior wythe to new back-up with continuous horizontal joint reinforcing, installed in mortar joints at not more than 16" o.c. vertically.
- C. Provide weep holes (Open Head Joints) in exterior wythe of cavity wall located as directed on the drawings, spaced 32" o.c., unless otherwise indicated.

3.6 CAVITY WALL INSULATION

- A. On units of plastic insulation, install small pads of adhesive spaced approximately 1'-0" o.c. both ways on inside face. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
 - 1. Fill all cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

3.7 HORIZONTAL JOINT REINFORCEMENT

- A. General: Provide continuous horizontal joint reinforcement as indicated. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8" on exterior side of walls, 1/2" elsewhere. Lap reinforcing a minimum of 6".
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Reinforce walls with continuous horizontal joint reinforcing unless specifically noted to be omitted.
- D. Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcement placed in 2 horizontal joints approximately 8" apart, immediately above the lintel and immediately below the sill. Extend reinforcement a minimum of 2'-0" beyond jambs of the opening except at control joints.
 - 1. In addition to wall reinforcement, provide additional reinforcement at openings as required to comply with the above.

3.8 CONTROL AND EXPANSION JOINTS

- A. General: Provide vertical and horizontal expansion, control and isolation joints in masonry where shown. Build-in related items as the masonry work progresses.

3.9 LINTELS

- A. Install steel lintels where indicated.
- B. Provide masonry lintels where shown and wherever openings of more than 1'-0" for brick size units and 2'-0" for block size units are shown without structural steel or other supporting lintels. Provide formed-in-place masonry lintels. Temporarily support formed-in-place lintels.
- C. Provide minimum bearing of 8" at each jamb, unless otherwise indicated.

3.10 FLASHING OF MASONRY WORK

- A. General: Provide concealed flashing in masonry work at, or above shelf angles, lintels, ledges and other obstructions to the down-ward flow of water in the wall so as to divert such water to the exterior. Prepare masonry surfaces smooth and free from projections which could puncture flashing. Place through-wall flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with mastic before covering with mortar. Extend flashings through exterior face of masonry and turn down to form drip.
- B. Extend flashing the full length of lintels and shelf angles and minimum of 4" into masonry each end. Extend flashing from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 4", and through the inner wythe to within 1/2" of the interior face of the wall in exposed work. Where interior surface of inner wythe is concealed by furring, carry flashing completely through the inner wythe and turn up approximately 2". At heads and sills turn up ends not less than 2" to form a pan.

- C. Interlock end joints of deformed metal flashings by over-lapping deformations not less than 1-1/2" and seal lap with elastic sealant.
- D. Install flashing to comply with manufacturer's instructions.
- E. Provide weep holes (open head joints) in the head joints of the first course of masonry immediately above concealed flashings. Space weep holes 32" o.c., unless otherwise indicated.

3.11 REPAIR, POINTING AND CLEANING

- A. Remove and replace masonry units which are loose, chipped, broken, stained or otherwise damaged, or if units do not match adjoining units as intended. Provide new units to match adjoining units and install in fresh mortar or grout, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point- up all joints including corners, openings and adjacent work to provide a neat, uniform appearance, prepared for application of sealants.
- C. Final Cleaning: After mortar is thoroughly set and cured, clean masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and non-metallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave 1/2 panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.
 - 4. Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clean water.
 - 5. Use bucket and brush hand cleaning method described in BIA "Technical Note No. 10 Revised" to clean brick masonry made from clay or shale, except use masonry cleaner indicated below.
 - a. Detergent
 - 6. Clean concrete unit masonry to comply with masonry manufacturer's directions and applicable NCMA "Tek" bulletins.

END OF SECTION

SECTION 04400 - CAST STONE

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Cast Stone
- B. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 RELATED SECTIONS

- A. Section 04200 – Unit Masonry
- B. Section 07900 – Joint Sealers.

1.3 QUALITY ASSURANCE

- A. Source Quality Control: Subcontract fabrication of stone to a firm which has successfully fabricated stone similar to the quality specified for a period of not less than 5 years and is equipped to provide the quantity shown.

1.4 SUBMITTALS

- A. Product Data: Submit specifications and other data for each type of cast stone work required, including certification that each type complies with specified requirements. Include instructions for handling, storage, installation and protection of each type.
- B. Samples: Submit sets of samples not less than 12" x 12" x 1" in size of each different color, grade and finish of cast stone work required. Include in each set full range of exposed color and texture to be expected in completed work.
- C. Shop Drawings: Submit cutting and setting drawings showing sizes, dimensions, sections and profiles of cast stone units, arrangement and provisions for jointing, anchoring and fastening, supports and other necessary details for lifting devices and reception of other work. Indicate location of each cast stone unit on setting drawings with number designation corresponding to number marked on each unit.
- D. Show location of inserts (for stone anchors and supports) which are to be built into concrete or masonry.
- E. Show large scale details of decorative surfaces and inscriptions.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect cast stone during storage and construction against moisture, soiling, staining and physical damage.
- B. Handle cast stone to prevent chipping, breakage, soiling or other damage. Do not use pinch or wrecking bars without protecting edges of stone with wood or other rigid materials. Lift with wide belt type slings wherever possible; do not use wire rope or ropes containing tar or other substances which might cause staining. If required, use wood rollers and provide cushion at end of wood slides.
- C. Store cast stone on wood skids or pallets, covered with non-staining, waterproof membrane. Place and stack skids of cast stone to distribute weight evenly and to prevent breakage or cracking of cast stone. Protect stored cast stone from weather with waterproof, non-staining covers or enclosures, but allow air to circulate around cast stone.
- D. Protect mortar materials and cast stone accessories from weather, moisture and contamination with earth and other foreign materials.

1.6 JOB CONDITIONS

- A. Installer must review installation procedures and coordination with other work, with Contractor, and other contractors and subcontractors whose work will be affected by cast stone work.

- B. During all seasons, protect partially completed cast stone work against weather when work is not in progress.

PART 2 – PRODUCTS

2.1 CAST STONE

- A. Furnish cast stone complying with ASTM C 39, and as follows:
1. Texture and Finishes: Texture of cast stone shall be sand type and color to be selected by the Architect. Submit sample for approval.
 2. Fabrication: Cast stone shall be sufficiently reinforced to withstand conditions in the building, including handling and setting stresses.
 3. Exposed faces shall be true and sharp.
 4. Mark each precast item to correspond to identification mark on shop drawings.
 5. Seal all cast stone at factory prior to shipment.
 6. Mixes: The standard 6" x 12" cylinder strength of all precast concrete shall not be less than 5000 psi at 28 days when tested in accordance with ASTM C 39.
 7. Absorption shall not be less than 3% and not more than 7% when tested in accordance with ASTM C 97.
 8. Minimum thickness of facing mix shall be 1½" thick. Backup concrete may be made with gray cement and aggregate conforming to requirements for cast in place concrete.
- B. Work Furnished but Installed by Others: Furnish inserts and reglets in time to be installed in concrete or masonry.

2.2 MORTAR AND GROUT

- A. Cement: Provide white cement as follows:
1. Portland Cement: ASTM C150, except complying with the staining requirements of ASTM C 91 for not more than 0.03% water soluble alkali. Furnish Type I, except Type III may be used for setting cast stone in cold weather.
 2. Masonry Cement: ASTM C 91, non-staining.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Sand: ASTM C 144, except graded with 100% passing the No. 16 sieve for ¼" and narrower joints.
- D. Additive for Moisture Resistance: Ammonium stearate, aluminum tristearate or calcium stearate.
- E. Water: Clean and potable.

2.3 CAST STONE ACCESSORIES

- A. Adjustable Inserts: Malleable iron of type and size indicated, or if not indicated, as required to support loading involved.
- B. Expansion Anchors: Type, size and load capacity shown, or if not shown, as required to support loading involved.
1. For anchoring into concrete, fabricate from cadmium plated or hot dipped galvanized steel.
 2. For anchoring into stone, fabricate from AISI type 302/304 stainless steel.
- C. Anchor Bolts, Nuts and Washers: Fabricate from AISI type 302/304 stainless steel if in contact with stone; otherwise provide regular low carbon steel bolts and nuts (ASTM A 307) hot dip galvanized, complying with ASTM A 153.
- D. Cast Stone Anchors: Type and size indicated or, if not indicated, as required to securely anchor and fasten cast stone in place. Fabricate anchors and dowels from AISI type 302/304 stainless

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steel.

2.4 MIXES

- A. Mortar: Non-staining, cement/lime mortar, complying with ASTM C 270, Proportion Specification, using specified materials.
 - 1. Use Type N unless otherwise indicated.
 - 2. Use specified mortar for grouting.
 - 3. Use specified mortar for parging.

2.5 FABRICATION

- A. General: Fabricate as shown and as detailed on final shop drawings and in compliance with recommendations of applicable cast stone association. Provide holes and sinkages cut or drilled for anchors, fasteners, supports and lifting devices, as shown and as necessary to secure cast stone in place. Cut and back-check as required for proper fit and clearance. Shape beds to fit supports.
- B. Contiguous Work: Provide chases, reveals, reglets, openings and similar spaces and features as required for contiguous work. Coordinate with drawings and final shop drawings showing contiguous work.
- C. Cast accurately to shape and dimensions shown on final shop drawings, maintaining fabrication tolerances of applicable cast stone associations.
 - 1. Joint Width: Cast to provide joint widths as indicated, or if not indicated, cut to allow for uniform 1/4" wide joints.
 - 2. Tape off all joints prior to application.
- D. Thickness: Provide cast stone of thickness indicated.
- E. Allow not less than 1" clearance between back face of units and structure framing (or fireproofing, if any).

PART 3 – EXECUTION

3.1 PREPARATION

- A. Advise Installers of other work about specific requirements relating to his placement of inserts and flashing reglets which are to be used by stone mason for anchoring and supporting and flashing of cast stone. Furnish Installers of other work with drawings or templates showing location of inserts for stone anchors and supports.
- B. Clean cast stone before setting by thoroughly scrubbing with fiber brushes followed by a thorough drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh fillers or abrasives. If not thoroughly wet at time of setting, drench or sponge cast stone. Do not wet expansion or control joint surfaces.

3.2 INSTALLATION

- A. Execute cast stone work by skilled mechanics.
- B. Ferrous Metal: Where cast stone will contact ferrous metal surfaces which will be concealed in back-up construction (anchors, supports, structural framing and similar surfaces), apply a heavy coat of bituminous paint on metal surfaces prior to setting of stone. Do not extend coating onto portions of ferrous metal which will be exposed in finished work. Do not apply coating to stainless or non-ferrous metals.
- C. Provide expansion joints where shown. Do not fill with mortar. Install continuous strips of preformed joint filler to allow for installation of backer rod and sealant, specified in Division 7.
- D. Set cast stone in accordance with drawings and final shop drawings for stonework. Set cast stone plumb and accurately aligned with joints uniform in width. Provide anchors, supports, fasteners

and other attachments shown or necessary to secure cast stone in place. Completely fill holes, slots and other sinkages for anchors, dowels, fasteners and supports with mortar during setting of cast stones.

- E. Joints: Butter vertical joints for full width before setting and set units in full bed of mortar, unless otherwise indicated.

- 1. Point joints after setting by tooling to profile shown, or if not shown, tool slightly concave.

3.3 ADJUST AND CLEAN

- A. Seal all cast stone after installation.
- B. Remove and replace cast stone units which are broken, chipped, stained or otherwise damaged. Where directed, remove and replace units which do not match adjoining cast stone. Provide new matching units, install as specified and point-up joints to eliminate evidence of replacement. Repoint defective and unsatisfactory joints as required to provide a neat, uniform appearance.
- C. Clean cast stone not less than six days after completion of work, using clean water and stiff-bristle brushes. Do not use wire brushes, acid type cleaning agents or other cleaning compounds with caustic or harsh fillers.
- D. Provide final protection and maintain conditions in a manner acceptable to Fabricator and Installer, which ensures cast stone being without damage, discolorations or deterioration during subsequent construction and until time of substantial completion.

END OF SECTION

SECTION 05120 - STRUCTURAL STEEL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of structural steel work is shown on drawings, including schedules, notes and details to show size and location of members, typical connections, and type of steel required.
- B. Structural steel is that work defined in AISC "Code of Standard Practice" and as otherwise shown on drawings.

1.3 QUALITY ASSURANCE

- A. Codes and Standards: Comply with provisions of following, except as otherwise indicated.
 - 1. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", including "Commentary" and Supplements thereto as issued.
 - 2. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.
 - 3. AWS D1.1 "Structural Welding Code".
 - 4. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use.
- B. Qualifications for Welding Work: Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".
- C. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
 - 1. If re-certification of welders is required, retesting will be Contractor's responsibility.

1.4 SUBMITTALS

- A. Product Data: Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).
 - 1. Structural steel including certified copies of mill reports covering chemical and physical properties.
 - 2. High-strength bolts including nuts and washers.
 - 3. Structural steel primer paint.
 - 4. Shrinkage-resistant grout.
- B. Shop Drawings: Submit shop drawings including complete details and schedules for fabrication and assembly of structural steel members procedures and diagrams. All shop and erection drawings shall be prepared under the direct supervision of a registered engineer and shall be sealed by said engineer.
 - 1. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld.
 - 2. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to site at such intervals to insure uninterrupted progress of work.

- B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not to delay work.
- C. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.
- D. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Metal Surfaces, General: For fabrication of work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating and application of surface finishes.
- B. Miscellaneous Steel Shapes, Plates, Channels, Bars and other shapes: ASTM A 36.
- C. Wide Flange and CWT Shapes: ASTM A992 Grade B, $F_y=50$ ksi
- D. Cold-Formed Steel Tubing: ASTM A 500, Grade B, $F_y=46.0$ ksi
- E. Steel Pipe: ASTM A 53, Type E or S, Grade B.
 - 1. Finish: Black, except where indicated to be galvanized.
- F. Anchor Bolts: ASTM A 307, nonheaded type unless otherwise indicated.
 - 1. Provide hexagonal heads and nuts for all connections.
- G. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:
 - 1. Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A 325.
- H. Electrodes for Welding: Comply with AWS Code.
 - 1. For high-strength low-alloy steel, provide electrodes, welding rods and filler metals equal in strength and compatible in appearance with parent metal joined.
- I. Structural Steel Primer Paint: Manufacturer's standard (no lead).
- J. Non-metallic Shrinkage-Resistant Grout: Pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD-C62I.
 - 1. The following manufacturers' products have been used to establish minimum standards for material, workmanship and function:
 - a. Dayton Superior 1107 Advantage
 - b. Euco N.S.; Euclid Chemical Co.
 - c. Crystex; L&M Construction Chemicals
 - d. Masterflow 713; Master Builders
 - e. Five Star Grout; U.S. Grout Corp.
 - f. Upcon; Upco Chem. Div., USM Corp.
 - g. Propak; Protex Industries, Inc.

- h. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- 2. Manufacturer Single Source: Provide cementitious grout products from a single qualified manufacturer.
- 3. Cementitious Grout: Cementitious grout for high performance applications.
- 4. Product shall conform to:
 - a. CRD C621, US Army Corps of Engineers Specification for Non-Shrink Grout
 - b. ASTM C1107, Standard Specification for Packaged, Dry, Hydraulic-Cement Grout (non-shrink)
- 5. Basis of Design Product:
 - “EUCO TREMIE GROUT” by The Euclid Chemical Company
 - a. Compressive Strength, ASTM C109 Modified to ASTM C1107 Section 11.5, 2 in. (5 cm) cubes:
 - i. At 72° F (22° C)
 - a) 1 day: 3200 psi (22MPa)
 - b) 3 days: 4800 psi (33 MPa)
 - c) 7 days: 5600 psi (38 MPa)
 - d) 28 days: 7200 psi (49 MPa)
 - ii. At 50° F (10° C)
 - a) 1 day: 1000 psi (7 MPa)
 - b) 3 days: 3000 psi (20 MPa)
 - c) 7 days: 3700 psi (25 MPa)
 - d) 28 days: 4500 psi (31 MPa)
 - b. Volume Change, ASTM C1090 and CRD C621:
 - i. At 72° F (22° C)
 - a) 3 days: 0.04%
 - b) 7 days: 0.06%
 - c) 14 days: 0.06%
 - d) 28 days: 0.08%
 - c. Setting time, ASTM C191:
 - i. At 72° F (22° C)
 - a) Initial set: 5 hours
 - b) Final set: 7 hours
 - ii. At 50° F (10° C)
 - a) Initial set: 12 hours
 - b) Final set: 18 hours

2.2 FABRICATION

- A. Shop Fabrication and Assembly: Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings.

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1. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
 2. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.
- B. Connections: Weld or bolt shop connections, as indicated.
- C. Bolt field connections, except where welded connections or other connections are indicated.
1. Provide high-strength threaded fasteners for principal bolted connections, except where unfinished bolts are indicated.
- D. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325.
- E. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
- F. Assemble and weld built-up sections by methods which will produce true alignment of axes without warp.
- G. Holes for Other Work: Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on final shop drawings.
- H. Provide threaded nuts welded to framing, and other specialty items as indicated to receive other work.
- I. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.3 SHOP PAINTING

- A. General: Shop paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on exposed portions and initial 2" of embedded areas only.
- B. Do not paint surfaces which are to be welded.
- C. Apply 2 coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.
- D. Surface Preparation: After inspection and before shipping, clean steel work to be painted. Remove loose rust, loose mill scale, and spatter, slag or flux deposits. Clean steel in accordance with Steel Structures painting Council (SSPC) as follows:
1. SP-3 "Power Tool Cleaning".
- E. Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less than 1.5 mils. Use painting methods which result in full coverage of joints, corners, edges and exposed surfaces.

PART 3 - EXECUTION

3.1 ERECTION

- A. Surveys:
1. Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Architect. Do not proceed with erection until corrections have been made, or until compensating adjustments to structural steel work have been agreed upon with Architect.
- B. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads. Remove temporary members and

connections when permanent members are in place and final connections are made. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

- C. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.
- D. Anchor Bolts: Furnish anchor bolts and other connectors required for securing structural steel to foundations and other in-place work.
 - 1. Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate locations.
- E. Setting Bases and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates.
 - 1. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.
- F. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
- G. Pack grout solidly with non-metallic shrinkage resistant grout between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
- H. Field Assembly: Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing surfaces and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure within specified AISC tolerances.
 - 2. Splice members only where indicated and accepted on shop drawings.
 - 3. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 - 4. Do not enlarge unfair holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.
- I. Gas Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Architect. Finish gas-cut sections equal to a sheared appearance when permitted.
- J. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas using same material as used for shop painting.
 - 1. Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

3.2 PREPARATION

- A. The Contractor shall employ and pay an independent laboratory acceptable to Architect to conduct shop and field inspections and tests.
- B. Correct deficiencies in structural steel work which inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to reconfirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.
- C. Shop Bolted Connections: Inspect in accordance with AISC specifications.
- D. Shop Welding: Inspect and test during fabrication of structural steel assemblies, as follows:

1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 2. Perform visual inspection of all welds.
 3. Perform Ultrasonic or radiographic test on all groove welds.
- E. Field Bolted Connections: Inspect in accordance with AISC specifications.
- F. Field Welding: Inspect and test during erection of structural steel as follows:
1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 2. Perform visual inspection of all welds. Perform Ultrasonic or radiographic test on all groove welds.

END OF SECTION

SECTION 05500 - MISCELLANEOUS STEEL AND METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Definition: Metal fabrications include items made from iron and steel shapes, plates bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere.
- B. Extent of metal fabrications is indicated on drawings and schedules.
- C. Types of work in this section include metal fabrications for:
 - 1. Rough hardware.
 - 2. Nosing.
 - 3. Loose bearing and leveling plates.
 - 4. Loose steel lintels.
 - 5. Miscellaneous framing and supports.
 - 6. Miscellaneous steel trim.
 - 7. Shelf angles.

1.3 QUALITY ASSURANCE

- A. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal fabrications, including paint products and grout.
- B. Shop Drawings: Submit shop drawings for fabrication and erection of metal fabrications. Include plans, elevations and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation by others.
 - 1. Where materials or fabrications are indicated to comply with certain requirements for design loadings, include structural computations, material properties and other information needed for structural analysis.
- C. Samples: Submit 2 sets of representative samples of materials and finished products as may be requested by Architect.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. FERROUS METALS

1. Metal Surfaces, General: For fabrication of miscellaneous metal work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
2. Steel Structural, Shapes and Bars: ASTM A 36, wide flange, ASTM A572, fy=50ks.
3. Steel Tubing: Hot-rolled, ASTM A 500. FY=46KSI
4. Structural Steel Sheet: Hot-rolled, ASTM A 570; or cold-rolled ASTM A 611, Class 1; of grade required for design loading.
5. Galvanized Structural Steel Sheet: ASTM A 446, of grade required for design loading. Coating designation as indicated, or if not indicated, G90.
6. Steel Pipe: ASTM A 53; Type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless galvanizing is indicated; standard weight (schedule 40), unless otherwise indicated.
7. Gray Iron Castings: ASTM A 48, Class 30.
8. Malleable Iron Castings: ASTM A 47, grade as selected by fabricator.
9. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
10. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A 47, or cast steel, ASTM A 27. Provide bolts, washers and shims as required, hot-dip galvanized, ASTM A 153.
11. Non-Shrink Non-Metallic Grout: Pre-mixed, factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with CE CRD-C621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

B. FASTENERS

1. General: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
2. Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.
3. Lag Bolts: Square head type, FS FF-B-561.
4. Machine Screws: Cadmium plated steel, FS FF-S-92.
5. Wood Screws: Flat head carbon steel, FS FF-S-111.
6. Plain Washers: Round, carbon steel, FS FF-W-92.
7. Masonry Anchorage Devices: Expansion shields, FS FF-S-325.
8. Toggle Bolts: Tumble-wing type, FS FF-B-588, type, class and style as required.
9. Lock Washers: Helical spring type carbon steel, FS FF-W-84.

C. PAINT:

1. Shop Primer for Ferrous Metal: Manufacturer's or Fabricator's standard, fast-curing, lead-free, "universal" primer; selected for good resistance to normal atmospheric corrosion, for compatibility with finish paint systems indicated and for capability to provide a sound

foundation for field-applied topcoats despite prolonged exposure; complying with performance requirements of FS TT-P-645.

2. Galvanizing Repair Paint: High zinc dust content paint for regalvanizing welds in galvanized steel, complying with the Military Specifications MIL-P-21035 (Ships) or SSPC-Paint-20.

D. CONCRETE FILL:

1. Concrete Materials and Properties: Comply with requirements of Division-3 section "Concrete Work" for normal weight, ready-mix concrete with minimum 28-day compressive strength of 3000 psi, and W/C ratio of 0.58 maximum, unless higher strengths indicated.
2. Non-Slip Aggregate Finish: Factory-graded, packaged material containing fused aluminum oxide grits or crushed emery as abrasive aggregate; rust-proof and non-glazing; unaffected by freezing, moisture or cleaning materials.

2.2 FABRICATION - GENERAL

- A. Workmanship: Use materials of size and thickness indicated, or if not indicated, as required to produce strength and durability in finished product for use intended. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of work.
- B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32" unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- C. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.
- D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts.
- E. Provide for anchorage of type indicated, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
- F. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware and similar items.
- G. Galvanizing: Provide a zinc coating for those items indicated or specified to be galvanized, as follows:
 1. ASTM A_ 153 for galvanizing iron and steel hardware.
 2. ASTM A 123 for galvanizing rolled, pressed and forged steel shapes, plates, bars and strip 1/8" thick and heavier.
 3. ASTM A_ 386 for galvanizing assembled steel products.
- H. Fabricate joints which will be exposed to weather in a manner to exclude water or provide weep holes where water may accumulate.
- I. Shop Painting:
 1. Apply shop primer to surfaces of metal fabrications except those which are galvanized or as indicated to be embedded in concrete or masonry, unless otherwise indicated, and in

compliance with requirements of SSPC-PA1 "Paint Application Specification No. 1" for shop painting.

- a. Stripe paint all edges, corners, crevices, bolts, welds and sharp edges.
- J. Surface Preparation: Prepare ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
 - 1. Exteriors (SSPC Zone 1B): SSPC-SP6 "Commercial Blast cleaning".
 - 2. Interior (SSPC Zone 1A): SSPC-SP3 "Power Tool Cleaning".

2.3 ROUGH HARDWARE

- A. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other miscellaneous steel and iron shapes as required for framing and supporting woodwork, and for anchoring or securing woodwork to concrete or other structures. Straight bolts and other stock rough hardware items are specified in Division-6 sections.
- B. Fabricate items to sizes, shapes and dimensions required. Furnish malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.

2.4 LOOSE STEEL LINTELS

- A. Provide loose structural steel lintels for openings and recesses in masonry walls and partitions as shown and scheduled. Weld adjoining members together to form a single unit where indicated. Provide not less than 8" bearing at each side of openings, unless otherwise indicated. All steel lintels shall be hot-dipped galvanized steel.

2.5 MISCELLANEOUS FRAMING AND SUPPORTS

- A. Provide miscellaneous steel framing and supports which are not a part of structural steel framework, as required to complete work.
- B. Fabricate miscellaneous units to sizes, shapes and profiles indicated or, if not indicated, of required dimensions to receive adjacent other work to be retained by framing. Except as otherwise indicated, fabricate from structural steel shapes, plates and steel bars of welded construction using mitered joints for field connection. Cut, drill and tap units to receive hardware and similar items.
- C. Equip units with integrally welded anchors for casting into concrete or building into masonry. Furnish inserts if units must be installed after concrete is placed.
 - 1. Except as otherwise indicated, space anchors 24" o.c. and provide minimum anchor units of 1-1/4" x 1/4" x 8" steel straps.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

- B. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.2 INSTALLATION - GENERAL

- A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
- B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plus, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete masonry or similar construction.
 - 1. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
- C. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.
- D. Setting Loose Plates: Clean concrete and masonry bearing surfaces of any bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of bearing plates.
 - 1. Set loose leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten the anchor bolts. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use non-metallic non-shrink grout in exposed locations, unless otherwise indicated.

3.3 ADJUST AND CLEAN

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting.
- B. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- C. For galvanized surfaces: Clean field welds, bolted connections and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 05540 - METAL STUDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Types of work include:
 - 1. Light-gage metal support system for installation of gypsum and other materials.

1.3 QUALITY ASSURANCE

- A. Fire-Resistance Ratings: Where gypsum drywall systems with fire- resistance ratings are indicated, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E 119 by fire testing laboratories acceptable to authorities having jurisdiction.
 - 1. Provide fire-resistance rated assemblies identical to those indicated by reference to GA File No.'s. in GA "Fire Resistance Design Manual" or to design designations in UL "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications and installation instructions, including other data as may be required to show compliance with these specifications.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store material inside under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Alabama Metal Industries Corp.
 - 2. Bostick Steel Framing Co.
 - 3. Ceco Corp.
 - 4. Dale Industries, Inc.
 - 5. Marinoware, Inc.
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect not less than Ten (10) days prior to scheduled bid opening.

2.2 METAL FRAMING

- A. Fabrication: Fabricate metal framing components of commercial quality steel sheet with a minimum yield paint of 33,000 psi; ASTM A446, A570 or A611.
- B. Finish: Provide galvanized finish to metal framing components complying with ASTM A525 for minimum G60 coating.

- C. "C"-Shape Studs and Resilient Channels. Provide as follows:
 - 1. Manufacturer's standard 20 gauge at all interior gypsum board locations, size to be as noted on the drawings.
 - 2. Gauge at all exterior locations to be 18 gauge at exterior walls or as noted on the Structural Drawings, size to be as noted on the drawings
- D. "C"H-Shape Studs: Provide manufacturer's standard 20 gauge unless otherwise noted on the Structural Drawings, size to be as noted on the drawings.
- E. Fastenings: Attach components by welding, bolting, or screw fastenings, as standard with manufacturers.

2.3 INSTALLATION

- A. Manufacturer's Instructions: Install metal framing systems in accordance with manufacturer's printed or written instructions and recommendations, unless otherwise indicated.
- B. Runner Tracks: Install continuous tracks sized to match studs. Align tracks accurately to layout at base and tops of studs. Secure tracks as recommended by stud manufacturer for type of construction involved, except do not exceed 24" o.c. spacing for nail or power-driven fasteners, or 16" o.c. for other types of attachment. Provide fasteners at corners and ends of tracks.
 - 1. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
 - 2. Where stud system abuts structural columns or walls, including masonry walls, anchor ends of stiffeners to supporting structure.
 - 3. Install supplementary framing, blocking and bracing in metal framing system wherever walls or partitions are indicated to support fixtures, equipment, services, casework, heavy trim and furnishings, and similar work requiring attachment to the wall or partition. Where type of supplementary support is not otherwise indicated, comply with stud manufacturer's recommendations and industry standards in each case, considering weight or loading resulting from item supported.
- C. Installation of Wall Stud System: Secure studs to top and bottom runner tracks by either welding or screw fastening at both inside and outside flanges.
 - 1. Frame wall openings larger than 2'-0" square with double stud at each jamb of frame except where more than 2 are either shown or indicated in manufacturer's instructions. Install runner tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with stud shoes or by welding, and space jack studs same as full-height studs of wall. Secure stud system wall opening frame in manner indicated.
 - 2. Frame both sides of expansion and control joints, with separate studs; do not bridge the joint with components of stud system.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Space framing member 24" o.c., unless noted otherwise on the drawings or by UL Classification.
- B. Install auxiliary framing at termination of drywall work, and at openings for light fixtures and similar work, as required for support of both the drywall construction and other work indicated for support thereon.
- C. Supplementary Supports:
 - 1. Install supplementary framing, blocking and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar work to comply with details indicated or if not otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer, or if not available, of "Gypsum Construction Handbook" published by United States Gypsum Co.

2. Isolate stud system from transfer of structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading.
3. Extend supplementary supports to the structural support system.
4. Frame openings to comply with details indicated or if not otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer, or if not available, of "Gypsum Construction Handbook" published by United States Gypsum Co. Attach vertical studs at jams directly to frames; install runner track section (for jack studs) at head and secure to jamb studs.
5. Erect thermal insulation vertically. Until gypsum board is installed hold insulation in place with 18-gage tie wire or by an equally acceptable method.

END OF SECTION

SECTION 06100 - ROUGH CARPENTRY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.
- B. Work Included: All wood, nails, bolts, screws, framing anchors and other rough hardware, and all other items needed for rough and finished carpentry in this work but not specifically described in other sections of these specifications.
- C. Quality Assurance: In addition to complying with all pertinent codes and regulations, all materials of this section shall comply with pertinent provisions of:
 - 1. Southern Pine Southern Pine Inspection Bureau Plywood 'Softwood Plywood - Construction and Industrial' (Amended June 1969), Product Standard PD 1-66 of U.S. Department of Commerce, Bureau of Standards, and A.P.A.
 - 2. Rough Hardware "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings of the American Institute of Steel Construction"
 - 3. Building Paper Federal Specification UU-B-790a, dated February 5, 1968
 - 4. Wood Preservative Standard P-5 of the American Wood Preservers Institute
 - 5. Other Similar and pertinent reference standards for the products needed.
- D. Conflicting Requirements: In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards or these specifications, the provisions of the more stringent shall govern.
- E. Qualifications of Workmen: Provide sufficient skilled workmen and supervisors who shall be present at all times during execution of this portion of the work and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.
- F. Rejection: In the acceptance or rejection of rough carpentry, no allowance will be made for lack of skill on the part of workmen.

1.2 PRODUCT HANDLING

- A. Protection: Store all materials in such a manner as to ensure proper ventilation and drainage and to protect against damage and the weather.
 - 1. Use all means necessary to protect lumber materials before, during and after delivery to the job site, and to protect the installed work and materials of all other trades.
 - 2. Deliver the materials to the job site and store all in a safe area, out of the way of traffic, and shored up off the ground surface.
 - 3. Protect all metal products with adequate weather-proof outer wrappings.
 - 4. Use extreme care in the off-loading of lumber to prevent damage, splitting and breaking of materials.
 - 5. Keep all material clearly identified with all grade marks legible; keep all damaged material clearly identified as damaged, and separately stored to prevent its inadvertent use.
 - 6. Do not allow installation of damaged or otherwise non-complying material.
 - 7. Use all means necessary to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

PART 2 – MATERIALS

2.1 MATERIALS - GENERAL

- A. Grade Stamps:
- B. Framing Lumber: Identify all framing lumber by proper grade stamp.
- C. Plywood: Identify all plywood as to species, grade and glue type by the stamp of the American Plywood Association.
- D. Other: Identify all other materials of this section by the appropriate stamp of the agency listed in the reference standards, or by such other means as are approved in advance by the Architect.
- E. Moisture Content: Moisture content of any material for framing not to exceed 19% for boards 8" in width or less. Boards exceeding 8" in width not to exceed 15% at time of installation. All material used for finish and trim work to be kiln dried material with moisture content not to exceed that allowed by FHA for intended use.

2.2 MATERIALS - WOOD

- A. All materials of this Section, unless specifically otherwise approved in advance by the Architect, shall meet or exceed the following:
 - 1. Plates, Grounds or furring
 - a. Pressure treated #2 KD Southern Yellow Pine in contact w/concrete, masonry or plaster
 - 2. Gypsum Sheathing:
 - a. 5/8" exterior grade fiberglass mat-faced gypsum sheathing
 - i. Georgia Pacific Dens-Glass Fireguard Sheathing: ASTM C1177, Type X.
 - ii. R-Value of 0.67.
 - 3.
 - 4. All Framing Members
 - a. Lodge Pole Spruce #2 KD
 - 5. Wood Preservative
 - a. Ammonical copper arsenite or 5% solution of pentachlorophenol

2.3 MATERIALS – MISCELLANEOUS

- A. All materials of this Section, unless specifically otherwise approved in advance by the Architect, shall meet or exceed the following:
 - 1. Steel Hardware
 - a. ASTM A-7 or A-36 (Use galvanized at exterior locations)
 - 2. Machine Bolts
 - a. ASTM A-307
 - 3. Lag Bolts
 - a. Federal Specifications FF-B-561
 - 4. Nails
 - a. Common (Except as noted) Federal Specifications FF-N-1-1 (Use galvanized at exterior locations)
 - 5. Flashing
 - a. Nervastral Seal Prof HD-20 except where metal is indicated. Nervastral Seal Prof HD shall be installed on all sills and heads ½" inward from outside face of wall and extended

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6" on each side of opening brick veneer construction. The sheeting shall not be allowed to hang free prior to completion of brick work but shall be secured to the siding with nails and discs or furring strips.

2.4 MATERIALS – FIRE RETARDANT WOOD

A. Product Identification:

1. All lumber and plywood specified to be interior fire retardant treated wood shall be pressure impregnated with Pyro-Guard or equal, which has a flame spread rating of 25 or less when tested in accordance with ASTM E 84, Standard Test Method for Surface Burning Characteristics of Building Materials". Fire retardant treated wood shall show no evidence of significant progressive combustion when the test is extended for an additional 20 minute period. In addition, the flame front shall not progress more than 10½ feet beyond the centerline of the burners at any time during the test.
2. Fire retardant treated lumber and plywood shall be manufactured under the independent third party inspection of Underwriters Laboratories Inc. (UL) Follow-Up Service and each piece shall bear the UL classified mark indicating the extended ASTM E 84 test.
3. Each piece shall be labeled kiln dried after treatment (KDAT). Timber Products Inspection, Inc. (TP) shall monitor the process and the TP mark shall appear on the label.

B. Fire Retardant Treatment:

1. Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - a. Treatment shall be Pyro-Guard manufactured by Hoover Treated Wood Products, Inc.
 - b. Equally acceptable products of other manufacturers may be used in the work, provided such products have been approved by the Architect not less than Ten (10) days prior to scheduled bid opening.
2. Structural performance of fire retardant treated wood shall be evaluated in accordance with ASTM D 5664 for lumber and ASTM D 5516 for plywood. Evaluation of plywood data shall be in accordance with ASTM D 6305. The resulting design value and span rating adjustments shall be published in ICC Evaluation Service Report (ESR)-1791 issued by the ICC Evaluation Service, Inc. which includes evaluation of high temperature strength testing for roof applications.
3. Interior fire retardant treated lumber and plywood shall have equilibrium moisture content of not over 28% when tested in accordance with ASTM D 3201 at 92% relative humidity.
4. Interior fire retardant treated wood shall be kiln dried after treatment to a maximum moisture content of 19% for lumber and 15% for plywood.
5. The fire retardant formulation shall be free of halogens, sulfates, chlorides, arsenic, ammonium phosphate, formaldehyde, and urea formaldehyde.
6. Provide lumber of the appropriate grade and species as specified by the design criteria of the intended application after consideration of design value adjustments.
7. Provide plywood of the appropriate size, grade and species as specified by the design criteria of the intended application after consideration of span rating adjustments.

C. Field Cuts:

1. Lumber: Do not rip or mill fire retardant treated lumber. Cross cuts, joining cuts, and drilling holes are permitted.
2. Plywood: Fire retardant treated plywood may be cut in any direction.
 - a. All fire retardant treated lumber and plywood used in structural applications shall be installed in accordance with the conditions and limitations listed in ESR-1791 as issued by the ICC Evaluation Service, Inc.

- b. Treated wood shall not be installed in areas where it is exposed to precipitation, direct wetting, or regular condensation.
 - c. Exposure to precipitation during shipping, storage and installation shall be maintained. If material becomes wet, it shall be replaced or permitted to dry to a maximum moisture content of 19% for lumber and 15% for plywood prior to covering or enclosure by wallboard, roofing or other construction materials.
3. Other Materials: All other materials not specifically described but required for a complete and proper installation as indicated on the drawings, shall be new, suitable for the intended use, and subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Stockpiling: Stockpile all materials sufficiently in advance of need to ensure their availability in a timely manner for this work.
- B. Delivery Schedules: Make as many trips to the job site as are necessary to deliver all materials of this section in a timely manner to ensure orderly progress of the total work.
- C. Compliance: Do not permit materials not complying with the provisions of this section of these specifications to be brought onto or to be stored at the job site; immediately remove from the job site all non-complying materials and replace them with materials meeting the requirements of this section.
- D. Inspection: Prior to all work of this section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
 - 1. Verify that rough carpentry may be performed in strict accordance with the original design and all pertinent codes and regulations.
- E. Discrepancies: In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.
- F. Workmanship: All rough carpentry shall produce joints true, tight, and well nailed with all members assembled in accordance with the drawings and with all pertinent codes and regulations.
- G. Selection of Lumber Pieces: Carefully select all members; select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making proper connections.
 - 1. Cut out and discard all defects which render a piece unable to serve its intended functions; lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.
- H. Shimming: Do not shim sills, joists, short studs, trimmers, headers, lintels, or other framing components.
- I. Treated Lumber: Use only treated lumber for all wood blocks and nailing grounds, etc. (other than foundation grade redwood) in, or in contact with, concrete.
- J. Treatment: Treat all wood less than two feet above finished grade by spraying with the preservative specified in this section of these specifications, to a minimum distance of six inches from the ends, or otherwise treat as approved in advance by the Architect. Perform all treatment in strict accordance with published recommendations of the manufacturer of the treatment preservative.
- K. General Framing: In addition to all framing operations normal to the fabrication and erection indicated on the drawings, install all backing required for the work of other trades. Set all horizontal or sloped members with crown up. Do not notch, bore, or cut members for pipes ducts

conduits, or other reasons except as shown on the drawings or as specifically approved in advance by the Architect.

- L. Bearing: Make all bearings full unless otherwise indicated on the drawings. Finish all bearing surfaces on which structural members are to rest so as to give sure and even support; where framing members slope, cut or notch the ends as required to give uniform bearing surface.
- M. Blocking: Install all blocking required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas.
 - 1. All other locations where openings could afford passage for rodents or flames.
 - 2. Fire-block in the following specific locations:
 - a. In all stud walls at ceiling and floor levels.
 - b. In all stud walls, including furred spaces, so that the maximum dimension of each concealed space is not more than eight feet.
 - c. All other locations where openings could afford passage for rodents or flames.
- N. Stud Walls and Partitions: Make all studs single length, unspliced, and platform framed.
- O. Corners and intersections: Unless otherwise indicated on the drawings, frame all corners and intersections with three or more studs and all required bearing for wall finish.
- P. Alignment: On all framing members to receive a finished wall or ceiling, align the finish subsurface to vary not more than 1/8 inch from the plane of surfaces of adjacent framing and furring members.
- Q. Nailing: Use only common wire nails or spikes except where otherwise specifically noted in the drawings.
 - 1. Provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike provided, however, that 16 d nails may be used to connect two pieces of the two inch (nominal) thickness.
 - 2. Do all nailing without splitting wood, preboring as required; replace all split members.
- R. Bolting: Drill holes 1/16 inch larger in diameter than the bolts being used; drill straight and true from one side only. Bolt threads must not bear on wood; use washers under head and nut where both bear on wood; use washers under all nuts.
- S. Screws: For lag screws and wood screws, prebore holes same diameter as root of thread; enlarge holes to shank diameter for length of shank.
 - 1. Screw all lag screws and wood screws. Do NOT Drive screws.
- T. Installation of Building Paper: Install the specified building paper over all exterior framing members where indicated to be installed, lapping all joints to prevent penetration of water into the stud spaces, and securely fastening the paper in place in accordance with the manufacturer's published recommendations.
- U. Cleaning Up: Keep the premises in a neat, safe and orderly condition at all times during execution of this portion of the work, free from accumulation of sawdust, cut-ends, and debris.

END OF SECTION

SECTION 06241 – SOLID SURFACING FABRICATIONS

PART 1 - GENERAL

SUMMARY

- A. Section Includes: Provide solid surfacing fabrications including but not limited to following:
 - 1. Window Sills.
- B. Related Sections: Following description of work is included for reference only and shall not be presumed complete:
 - 1. Provision of finish carpentry, Section 06000.
 - 2. Provision of joint sealants: Section 07900, Joint Sealants.

REFERENCES

- A. Definitions:
 - 1. Solid Surface: Non-porous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meetings: Arrange preinstallation meeting 1 week prior to commencing work with all parties associated with trade as designated in Contract Documents or as requested by Architect. Presided over by Contractor, include Architect who may attend, Subcontractor performing work of this trade, Owner's representative, testing company's representative and consultants of applicable discipline. Review Contract Documents for work included under this trade and determine complete understanding of requirements and responsibilities relative to work included, storage and handling of materials, materials to be used, installation of materials, sequence and quality control, Project staffing, restrictions on areas of work and other matters affecting construction, to permit compliance with intent of work of this Section.

SUBMITTALS

- A. Product Data: Indicate Product description including solid surface sheets, sinks, bowls and illustrating full range of standard colors, fabrication information and compliance with specified performance requirements. Submit Product data with resistance to list of chemicals.
- B. Shop Drawings: Submit Shop Drawings for work of this Section in accordance with section 01330. Indicate plans, sections, dimensions, component sizes, edge details, thermosetting requirements, fabrication details, attachment provisions, sizes of furring, blocking, including concealed blocking and coordination requirements with adjacent work. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacles and other items installed in solid surface.
- C. Coordination Drawings: Submit coordination drawings indicating plumbing and miscellaneous steel work indicating locations of wall rated or non-rated, blocking requirements, locations and recessed wall items and similar items.
- D. Samples: Submit samples in accordance with Section 01300. Submit minimum 6" x 6" samples. Cut sample and seam together for representation of inconspicuous seam. Indicate full range of

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color and pattern variation. Approved samples will be retained as standards for work.

- E. Test and Evaluation Reports: Submit flammability test reports and food preparation zone certifications/listing confirming compliance with NSF/ANSI 51. Refer to www.nsf.org for the latest compliance to NSF/ANSI 51 for Food Zone — all food types.

CLOSEOUT SUBMITTALS

- A. Operational and Maintenance Data:
 - 1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions. Include in Project closeout documents.
 - 2. Provide a commercial care and maintenance kit and video. Review maintenance procedures and warranty details with Owner upon completion.

QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installers: Provide work of this Section executed by competent installers with minimum 5 years experience in the application of Products, systems and assemblies specified and with approval and training of the Product manufacturers.
- B. Mock-Ups:
 - 1. Prior to final approval of Shop Drawings, erect 1 full size mock-up of each component at Project site demonstrating quality of materials and execution for Architect review.
 - 2. Should mock-up not be approved, rework or remake until approval is secured. Remove rejected units from Project site.
 - 3. Approved mock-up will be used as standard for acceptance of subsequent work.
 - 4. Approved mock-ups may remain as part of finished work.

DELIVERY, STORAGE AND HANDLING

- A. Delivery and Acceptance Requirements: Deliver no components to Project site until areas are ready for installation.
- B. Storage and Handling Requirements:
 - 1. Store components indoors prior to installation.
 - 2. Handle materials to prevent damage to finished surfaces.

WARRANTY

- A. Manufacturer Warranty: Provide manufacturer's standard warranty for material only for period of 10 years against defects and/or deficiencies in accordance with General Conditions of the Contract. Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Architect and at no expense to Owner.

PART 2 - PRODUCTS

MANUFACTURERS

- A. Manufacturer List: Products of following manufacturers are acceptable subject to conformance to requirements of Drawings, Schedules and Specifications:

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1. Corian® by DuPont; www.corian.com
2. Wilsonart Contract; www.wilsonartcontract.com
3. Formica; www.formica.com

- B. These manufacturers' products have been used to establish minimum standards for materials, workmanship and function. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

MATERIALS

- A. Description:
- B. Performance/Design Criteria:

	Property	Requirement (min or max)	Test Procedure
1.	Solid Surface Based Products:		
a.	Tensile Strength	6000 psi min	ASTM D638
b.	Tensile Modulus	1.5 x 10 ⁶ psi min	ASTM D638
c.	Tensile Elongation	0.4% min.	ASTM D638
d.	Flexural Strength	10000 psi min	ASTM D790
e.	Flexural Modulus	1.2 x 10 ⁶ psi min	ASTM D790
f.	Hardness	>85-Rockwell "M" scale min.	ASTM D785
g.	Thermal Expansion	2.2 x 10 ⁻⁵ in./in./°F	ASTM E228
h.	Fungi and Bacteria	Does not support microbial growth	ASTM G21 & G22
i.	Microbial Resistance	Highly resistant to mold growth	UL 2824
j.	Ball Impact	No fracture - 1/2 lb. Ball: 6 mm slab - 36" drop 12 mm slab - 144" drop	NEMA LD 3, Method 3.8
k.	Weatherability	ΔE*94<5 in 1,000 hrs	ASTM G155
l.	Flammability		ASTM E84, NFPA 255 & UL 723
	All Colors 6 mm 12 mm		
m.	Flame Spread	<25	<25
n.	Smoke Developed	<25	<25
o.	Class	A	A NFPA 101®, Life Safety Code

- C. Solid Surface Material: Single Source manufacturer for all solid surfacing fabrications on entire project.
- D. Non-porous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment; not coated, laminated or of composite construction; meeting following criteria:
- E. Flammability: Class 1 and A when tested to UL 723.

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- F. Food Equipment Material Compliance: Food Zone to NSF/ANSI 51.
 - 1. Ensure material has minimum physical and performance properties specified under "Performance/Design Criteria".
 - 2. Ensure superficial damage to a depth of 0.010" is repairable by sanding and polishing.
- G. Adhesive for Bonding to Other Products: One component silicone to ASTM C920.
- H. Sealant: A standard mildew-resistant, FDA/UL® [and NSF/ANSI 51 compliant in Food Zone area,] recognized silicone color matched sealant or clear silicone sealants.

Heat Reflecting Tape: Manufacturer's standard aluminum foil tape, with required thickness, for use with cutouts near heat sources.

- I. Insulating Nomex® Fabric: Manufacturer's standard for use with conductive tape in insulating solid surface material from adjacent heat source.

COMPONENTS

- A. Window Sills: 3/4" thick solid surfacing material, adhesively joined with inconspicuous seams, edge details as indicated on Drawings or from manufacturers standards. Colors to be selected by Architect from manufacturer's full color range.
- B. Fabrication:
 - 1. Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved Shop Drawings and solid polymer manufacturer requirements. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints. Provide factory cutouts for plumbing fittings and bath accessories as indicated on Drawings.
 - 2. Where indicated, thermoform corners and edges or other objects to shapes and sizes indicated on Drawings, prior to seaming and joining. Cut components larger than finished dimensions and sand edges to remove nicks and scratches. Heat entire component uniformly prior to forming.
 - 3. Ensure no blistering, whitening and cracking of components during forming.
 - 4. Fabricate joints between components using manufacturer's standard joint adhesive. Ensure joints are inconspicuous in appearance and without voids. Attach 50 mm (2") wide reinforcing strip of solid polymer material under each joint. Reinforcing strip of solid polymer material is not required when using DuPont™ Joint Adhesive 2.0.
 - 7. Rout and finish component edges to a smooth, uniform finish. Rout cutouts, then sand edges smooth. Repair or reject defective or inaccurate work.
 - 8. Finish: Ensure surfaces have uniform finish: As selected by Architect.
 - a. Matte, with a 60° gloss rating of 5 - 20.
 - b. Semi-gloss, with a 60° gloss rating of 25 - 50.
 - c. Polished, with a 60° gloss rating of 55 - 80.
 - 9. Fabrication Tolerances:
 - a. Variation in Component Size: +/-1/8".
 - b. Location of Openings: +/-1/8" from indicated location.

PART 3 - EXECUTION

EXAMINATION

- A. Verification of Conditions:

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1. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work. Proceed with installation only after unsatisfactory conditions have been corrected.
 2. Verify actual site dimensions and location of adjacent materials prior to commencing work.
 3. Examine cabinets upon which counter tops are to be installed. Verify cabinets are level to within 1/8" in 10' - 0".
 4. Notify Architect in writing of any conditions which would be detrimental to installation.
- B. Evaluation and Assessment: Commencement of work implies acceptance of previously completed work.

INSTALLATION

- A. Install components plumb, level, rigid, scribed to adjacent finishes in accordance with reviewed Shop Drawings and Product installation details.
- B. Fabricate field joints using manufacturer's recommended adhesive, with joints being inconspicuous in finished work. Exposed joints/seams are not permitted. Keep components and hands clean when making joints. Reinforce field joints as specified herein. Cut and finish component edges with clean, sharp returns.
- C. Route radii and contours to template. Anchor securely to base component or other supports. Align adjacent components and form seams to comply with manufacturer's written recommendations using adhesive in color to match work. Carefully dress joints smooth, remove surface scratches and clean entire surface.
- D. Seal between wall and components with joint sealant as specified herein and in Section 0790, as applicable.
- E. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Ensure components are clean on date of Substantial Completion of the Work.
- F. Provide holes and cutouts indicated on approved shop drawings. Rout cutouts and complete by sanding all edges smooth.

REPAIR

- A. Repair minor imperfections and cracked seams and replace areas of severely damaged surfaces in accordance with manufacturer's "Technical Bulletins".

SITE QUALITY CONTROL

- A. Non-Conforming Work: Replace damaged work which cannot be satisfactorily repaired, restored or cleaned, to satisfaction of Architect at no cost to Owner.

CLEANING

- A. Remove excess adhesive and sealant from visible surfaces.
- B. Clean surfaces in accordance with manufacturer's "Care and Maintenance Instructions".

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PROTECTION

- A. Provide protective coverings to prevent physical damage or staining following installation for duration of Project.
- B. Protect surfaces from damage until date of Substantial Completion of the Work.

END OF SECTION

SECTION 07115 - BITUMINOUS DAMPPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 SUMMARY

- A. This Section includes cold-applied, emulsified-asphalt dampproofing applied to the following surfaces:
 - 1. Exterior face of inner wythe of exterior masonry cavity walls and concrete walls above top of foundation.
 - 2. Exterior, below-grade surfaces of concrete and masonry foundation walls.
 - 3. Back side of concrete and masonry retaining walls, below grade.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for method of application, primer, number of coats, coverage or thickness, and protection course.
- B. Material Certificates: For each product, signed by manufacturers.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain primary dampproofing materials and primers through one source from a single manufacturer. Provide secondary materials recommended by manufacturer of primary materials.

1.5 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt dampproofing to be performed according to manufacturers' written instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Cold-Applied, Emulsified-Asphalt Dampproofing:
 - 2. Euclid Chemical Company (The)
 - 3. Gardner Asphalt Corporation
 - 4. Henry Corporation
 - 5. Koppers Industries, Inc.
 - 6. Malarkey Roofing Company
 - 7. Meadows, W. R., Inc.
 - 8. Sonneborn, Div. Of ChemRex, Inc.
 - 9. Tamms Industries

2.2 BITUMINOUS DAMPPROOFING

- A. Fibered Brush and Spray Coats: ASTM D 1227, Type II, Class I.

2.3 MISCELLANEOUS MATERIALS

- A. Emulsified-Asphalt Primer: ASTM D 1227, Type III, Class I, except diluted with water as recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Applicator present, for compliance with requirements for surface smoothness and other conditions affecting performance of work.
 - 1. Begin dampproofing application only after substrate construction and penetrating work have been completed and unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protection of Other Work: Mask or otherwise protect adjoining exposed surfaces from being stained, spotted, or coated with dampproofing. Prevent dampproofing materials from entering and clogging weep holes and drains.
- B. Clean substrates of projections and substances detrimental to work; fill voids, seal joints, and apply bond breakers if any, as recommended by prime material manufacturer.

3.3 APPLICATION, GENERAL

- A. Comply with manufacturers written recommendations unless more stringent requirements are indicated or required by Project conditions to ensure satisfactory performance of dampproofing.
- B. Apply additional coats if recommended by manufacturer or required to achieve coverage's indicated.
- C. Allow each coat of dampproofing to cure 24 hours before applying subsequent Coats.
- D. Apply dampproofing to top of footings and grade beams where applicable, whether indicated or not.
 - 1. Apply from finished-grade line to top of footing.
 - 2. Extend 12 inches (300 mm) onto intersecting walls and footings, but do not extend onto surfaces exposed to view when Project is completed.
 - 3. Install flashings and corner protection stripping at internal and external corners, changes in plan, construction joints, cracks, and where shown as "reinforced," by embedding an 8-inch (200 mm) wide strip of asphalt-coated glass fabric in a heavy coat of dampproofing. Dampproofing coat required for embedding fabric is in addition to other coats required.
- E. Apply dampproofing to provide continuous plane of protection on exterior face of inner wythe of exterior masonry cavity walls.
 - 1. Lap dampproofing at least ¼ inch (6 mm) onto flashing, masonry reinforcement, veneer ties, and other items that penetrate inner wythe.
 - 2. Extend dampproofing over outer face of structural members and concrete slabs that interrupt inner wythe, and lap dampproofing at least ¼ inch (6 mm) onto shelf angles supporting veneer.

3.4 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

- A. On Exterior Face of Inner Wythe of Cavity Walls: Apply primer and one brush or spray coat at not less than 1 gal./100 sq. ft. (0.4 L/sq.m).
- B. On Backs of Concrete Retaining Walls: Apply one brush or spray coat at not less than 1.5 gal. / 100 sq. ft.
- C. On Backs of Masonry Retaining Walls: Apply primer and one brush or spray coat at not less than
 - a. gal. /100 sq. ft.

3.5 CLEANING

- A. Remove dampproofing materials from surfaces not intended to receive dampproofing.

END OF SECTION

SECTION 07200 - INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections shall apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of insulation work is shown on drawings and indicated by provisions of this section.
- B. Applications of insulation specified in this section include the following:
 - 1. Cavity Wall Insulation.
 - 2. Metal Building Roof and Wall Insulation

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications and installation instructions for each type of insulation and vapor barrier material required.

1.4 PRODUCT HANDLING

- A. General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

PART 2 - PRODUCTS

2.1 BATT INSULATION

A. MANUFACTURERS:

- 1. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function.
 - a. Certain-Teed Products Corp.; Valley Forge, PA
 - b. Manville Bldg. Materials Corp.; Denver, CO.
 - c. Owens-Corning Fiberglass Corp.; Toledo, OH.
- 2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

B. MATERIALS:

- 1. Interior Stud Walls: Provide unfaced Sound Attenuation batts where shown on drawings.
 - a. Safe'n'Sound Fire & Soundproof Insulation . A Mineral wool insulation for Thermal and acoustical insulation. Manufacturer's standard lengths and widths as required to coordinate with spaces to be insulated.
 - b. **Thickness: 3" Thickness, unfaced batts.**
 - c. Performance: Mineral Fiber Blanket Thermal Insulation, Type 1 Compliant.
 - d. Test Standard ASTM C665.
 - e. UL Greenguard Certified; ULC Listed; Classified C UL US; Classified UL.
 - f. Density: Actual Density - 2.4 lb/ft³ (38 kg/m³) ASTM C167.
 - g. Reaction to Fire: Flame spread index = 0; Smoke developed index = 0 ASTM E84 (UL 723)

- h. Behavior of materials at 750°C - Non-combustible ASTM E136
- i. Sound Transmission Class (STC): 45-52

2.2 CAVITY WALL INSULATION - POLYSTYRENE

A. MANUFACTURERS:

1. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function.
 - a. Styrofoam SM/SB; Dow Chemical USA.
 - b. Foamular 250; UC Industries.
 - c. Certifoam, Minnesota Diversified Products, Inc.
2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

B. MATERIALS:

1. Extruded Polystyrene Board Insulation: Rigid cellular polystyrene thermal insulation with closed cells and integral high density skin, formed by the exposure of polystyrene base resin in an extrusion process to comply with ASTM C 578, Type IV; 5-year aged
2. All Cavity Walls: Provide rigid thermal insulation at the cavity space.
3. All Cavity Walls: Provide rigid thermal insulation at the cavity space.
 - a. R-value of 7.5 Btu/ (hr x sf x degree F) at 75 degree F in manufacturer's standard lengths and widths
 - b. 1 ½" thick, unless otherwise indicated.
4. Adhesive:
 - a. Type recommended by insulation board manufacturer for application indicated.

2.3 CAVITY WALL INSULATION - POLYISOCYANURATE

A. MANUFACTURERS:

1. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function.
 - a. Sika Corporation - Rmax; 13524 Welch Road, Dallax, TX 75244; Ph.: 800.527.0890: www.rmax.com.
 - b. Carlisle.
 - c. Johns Manville, Inc.
2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

B. MATERIALS:

1. Rigid Foam Insulation Board: Aluminum-Faced, Polyisocyanurate-Foam Insulating Sheathing: ASTM C1289, Type I, Class 1 or Class 2, rigid, cellular, polyisocyanurate thermal insulation, bonded to reinforced aluminum facers on both sides.
 - a. Basis of Design: Thermasheath from Rmax.
 - b. Flame Spread Index and Smoke Contribution per ASTM E84:
 - i. Flame: 25 or less at thickness of 1 inch (25 mm) or greater; and 75 or less at thickness of less than 1 inch (25 mm).
 - ii. Smoke: 450 or less.

- c. Water Vapor Permeability per ASTM E96 desiccant method: 0.03 perm or less.
 - d. Air Permeability per ASTM E2178: 0.004 cfm per sq ft (1.2192 L per min per sq m) or less.
 - e. Compressive Strength per ASTM D1621:
 - i. 20 psi (138 kPa).
 - ii. 25 psi (172 kPa).
 - f. R-Value per ASTM C518: R-6.0 minimum at thickness of 1 inch (25 mm) and R-13.1 minimum at thickness of 2 inches (51 mm).
 - g. Required Insulation Thickness and R-value: As indicated on the Drawings.
 - h. Insulation shall be suitable as continuous exterior wall insulation.
 - i. Exterior Usage in NFPA 285 Wall Assemblies:
 - j. Acceptable for inclusion in NFPA 285 exterior wall assemblies that include exterior gypsum sheathing.
2. All Cavity Walls: Provide rigid thermal insulation at the cavity space.
- a. 1.5" thick (R-value 7.5)
3. Adhesive:
- a. Type recommended by insulation board manufacturer for application indicated.

2.4 METAL BUILDING ROOF AND WALL INSULATION – SIMPLE SAVER SYSTEM

A. MANUFACTURERS:

- 1. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function.
 - a. Thermal Design, Inc., Simple Saver System, Madison, NE
- 2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

B. References:

- 1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- 2. ASTM E 96 - Standard Test Method for Water Vapor Transmission of Materials in Sheet Form (Procedure B).
- 3. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- 4. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
- 5. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
- 6. ASTM C 1136 - Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

C. Design Requirements:

- 1. Insulating system shall have a continuous vapor barrier inside of building purlins, girts, and insulation to provide complete isolation from inside conditioned air.

D. MATERIALS:

1. Simple Saver System consists of Batt Insulation, Roof Insulation, Wall Insulation, Vapor Barrier Liner Fabric, Thermal Breaks, Straps, and other devices and components in a insulation system.
2. Batt Insulation: ASTM C 991 Type 1; preformed formaldehyde-free glass fiber batt conforming to the following:
 - a. Equal to purlin/girt spacing by manufacturer's standard lengths.
 - b. Unfaced.
3. Roof Insulation: Formaldehyde-free fiberglass batt or fiberglass blanket complying with ASTM C 991 Type 1 and ASTM E 84 with a thermal resistance and thickness as follows:
 - a. Upper Layer: **R-11**; 3-1/2 inches (89 mm)
 - b. Bottom Layer: **R-19**; 6 inches (152 mm).
 - c. U Factor 0.035 (**R30**) installed.
4. Wall Insulation: Formaldehyde-free fiberglass blanket or batt complying with ASTM C 991 Type 1, ASTM E 136 and ASTM E 84 with a thermal resistance and thickness as follows:
 - a. **R-25**, U Factor U-0.040.
5. Vapor Barrier Liner Fabric: Syseal® type woven, reinforced, high-density polyethylene yarns coated on both sides with a continuous white or colored polyethylene coatings, as follows:
 - a. Product complies with ASTM C 1136, Types I through Type VI.
 - b. Perm rating: 0.02 for fabric and for seams in accordance with ASTM E 96.
 - c. Flame/Smoke Properties: 1) 25/50 in accordance with ASTM E 84. 2) Self-extinguishes with field test using matches or butane lighter.
 - d. Ultra violet radiation inhibitor to minimum UVMAX® rating of 8.
 - e. Size and seaming: Manufactured in large custom pieces by extrusion welding from roll goods and fabricated to substantially fit defined building area with minimum practicable job site sealing.
 - f. Provide with factory double, extrusion welded seams. Stapled seams or heat-melted seams are not acceptable due to degradation of fabric.
 - g. Factory-folded to allow for rapid installation.
 - h. Color: To be selected by Architect after bid date from manufactures standards.
6. Vapor Barrier Lap Sealant:
 - a. Solvent-based, Simple Saver polyethylene fabric adhesive.
7. Vapor Barrier Tape:
 - a. Double-sided sealant tape 3/4 inch (19 mm) wide by 1/32 inch (.79 mm) thick.
8. Vapor Barrier Patch Tape:
 - a. Single-sided, adhesive backed sealant tape 3 inches (76 mm) wide made from same material as Syseal® type liner fabric.
9. **Thermal Breaks:**
 - a. **Provide 1" thermal blocks/breaks at all roof to purlin connections points.**
10. Straps:
 - a. 100 KSI minimum yield tempered, high-tensile-strength steel.
 - b. Size: Not less than 0.020 inch (0.50 mm) thick by 1 inch (25 mm) by continuous length.
 - c. Galvanized, primed, and painted to match specified finish color on the exposed side.

- d. Color: As selected from manufactures standards
- 11. Primed and painted to match specified finish color on the exposed side.
- 12. High-tensile-strength stainless steel.
 - a. Woven polyester plastic. As selected from manufactures standards
- 13. Fasteners:
 - a. For light gage steel: #12 by 3/4 (19 mm) inch plated Tek 2 type screws with sealing washer, painted to match specified color.
 - b. For heavy gage steel: #12 by 1-1/2 inch (38 mm) plated Tek 4 type screws with sealing washer, painted to match specified color.
- 14. Wall Insulation Hangers:
 - a. Fast-R preformed rigid hangers, 32 inch (813 mm) long galvanized steel strips with barbed arrows every 8 inches (203 mm) along its length.

E. INSTALLATION:

- 1. General:
 - a. Install pre-engineered building insulation system in accordance with manufacturer's installation instructions and the approved shop drawings.
 - b. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
 - c. Install in exterior spaces without gaps or voids. Do not compress insulation.
 - d. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.
 - e. Fit insulation tight in spaces and tight to exterior side of the sealed liner fabric and around mechanical and electrical services within plane of insulation.
- 2. Roof Insulation Installation:
 - a. Straps:
 - i. Cut straps to length and install in the pattern and spacings indicated on shop drawings.
 - ii. Tension straps to required value.
 - b. Vapor Barrier Fabric:

Install vapor barrier fabric in large one-piece custom fabricated pieces to substantially fit defined building areas with minimum practicable job site sealing.

 - i. Position pre-folded fabric on the strap platform along one eave purlin.
 - ii. Clamp the two bottom corners at the eave and also centered on the bay.
 - iii. Pull the other end of the pleat-folded fabric across the building width on the strap platform, pausing only at the ridge to fasten the straps and fabric in position where plane of roof changes and to release temporary fasteners on the opposite ridge purlins.
 - iv. Once positioned, install fasteners from the bottom side at each strap/purlins intersection.
 - v. Trim edges and seal along the rafters.
 - vi. All seams must be completely sealed and stapled seams not acceptable.
 - c. Insulation:
 - i. Unpack, and shake to a thickness exceeding the specified thickness.

- ii. Ensure that cavities are filled completely with insulation.
 - iii. Place on the vapor barrier liner fabric without voids or gaps.
 - iv. Place top layer of insulation over and perpendicular to the purlins without voids or gaps, as roof sheathing is applied.
 - v. Place thermal block on top of purlins or bottom of purlins for retrofit work if no other thermal break exists.
 - vi. Place new insulation between purlins at the required thickness for the R-value specified.
- d. Seal vapor barrier fabric to the wall fabric and elsewhere as required to provide a continuous vapor barrier.
3. Wall Insulation Installation:
- a. Install thermal break to exterior surface of girts as wall sheathing is applied.
 - b. Install self-sticking foam thermal break to interior surface of girts prior to installation of insulation.
 - c. Position and secure Fast-R hangers to girts on the inside face of the wall sheathing.
 - d. Cut insulation to required lengths to fit vertically between girts.
 - e. Fluff the insulation to the full-specified thickness.
 - f. Neatly position in place and secure to Fast-R hangers.
 - g. Ensure that cavities are filled completely with insulation.
4. Vapor Barrier Fabric:
- a. Install vapor barrier fabric in large one-piece custom fabricated pieces to substantially fit defined building areas with minimum practicable job site sealing.
 - b. Apply the vapor barrier fabric by clamping it in position over eave strap and installing fasteners through the eave strap into each roof strap, permanently clamping the wall fabric between them.
 - c. Once in position, draw the vapor barrier fabric down over the column flanges to the base angle and install vertical straps along each column and 5 feet 0 inches on center, maximum, fastening to each girt to retain system permanently in place.
 - d. All seams must be completely sealed and stapled seams not acceptable.
5. Seal wall fabric to the roof fabric, to the base angle and up the columns to provide a continuous vapor barrier.

PART 3 - EXECUTION

3.1 INSPECTION AND PREPARATION

- A. Installer must examine substrates and conditions under which insulation work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with insulation work until unsatisfactory conditions have been corrected in manner acceptable to Installer.
- B. Clean substrates of substances harmful to insulations or vapor barriers, including removal of projections which might puncture vapor barriers.
- C. Close off openings in cavities to receive poured-in-place and insulation, sufficiently to prevent escape of insulation. Provide bronze or stainless steel screen (inside) where openings must be maintained for drainage or ventilation.

3.2 INSTALLATION

- A. General: Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult

manufacturer's technical representative for specific recommendations before proceeding with work.

- B. Extend insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

3.3 CAVITY WALL INSULATION

- A. On units of plastic insulation, install small pads of adhesive spaced approximately 1'-0" o.c. both ways on inside face. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
 - 1. Fill all cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

3.4 PROTECTION

- A. General: Protect installed insulation and vapor barriers from harmful weather exposures and from possible physical abuses, where possible by non-delayed installation of concealing work or, where that is not possible, by temporary covering or enclosure. Installer shall advise Contractor of exposure hazards, including possible sources of deterioration and fire hazards.

END OF SECTION

SECTION 07240 - EXTERIOR INSULATION AND FINISH SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of each type of exterior insulation and finish system work is indicated on drawings and by provisions of this section. Composite wall cladding of rigid insulation and reinforced finish coating ("Class PB").
- B. Types of work specified in this section include the following:
 - 1. Application of insulation to gypsum sheathing substrate.
 - 2. Application of plastic veneer base, reinforced with woven-glass fiber fabric, to insulation board.
 - 3. Drainage and water-resistive barriers behind insulation board.
 - 4. Application of plastic coating finish with integral color and texture.

1.3 REFERENCE STANDARDS

- A. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus; 2011.
- B. ASTM C297/C297M - Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions; 2004 (Reapproved 2010).
- C. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2012.
- D. ASTM C1397 - Standard Practice for Application of Class PB Exterior Insulation and Finish Systems (EIFS) and EIFS with Drainage; 2009.
- E. ASTM D968 - Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive; 2005 (Reapproved 2010).
- F. ASTM D2247 - Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity; 2011.
- G. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2012.
- H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2013a.
- I. ASTM E2273 - Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies; 2003 (Reapproved 2011).
- J. ICC-ES AC219 - Acceptance Criteria for Exterior Insulation and Finish Systems; 2009.
- K. ICC-ES AC235 - Acceptance Criteria for EIFS Clad Drainage Wall Assemblies; 2004 (Editorially revised 2009).
- L. NFPA 268 - Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source; 2012.

1.4 QUALITY ASSURANCE

- A. EIFS Manufacturer Qualifications: Provide all EIFS products other than insulation from the same manufacturer with qualifications as follows:
 - 1. Member in good standing of EIMA (EIFS Industry Members Association).
 - 2. Manufacturer of EIFS products for not less than 5 years.

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3. Manufacturing facilities ISO 9001 certified.
- B. Insulation Manufacturer Qualifications: Approved by manufacturer of EIFS and approved and labeled under third party quality program as required by applicable building code.
- C. Applicator:
 1. Application of the system shall be by an applicator approved by the manufacturer, with at least five (5) years experience in the installation of this system.
 2. Follow manufacturer's latest printed application instructions. Installer is to certify that work is installed in accordance with manufacturer's instruction.
- D. Samples:
 1. Submit 2'-0" x 4'-0" sample color and texture to be used.
 2. Samples to be made by applicator utilizing tools and techniques proposed for installation.
- E. Code Approvals:
 1. The system shall be approved by the building codes or agencies with jurisdiction on the project.
 2. Approval must be based on full scale diversified Fire Testing and its end use configuration by independent agencies whose classifications and requirements have general acceptance as regulatory.
 3. System must maintain the current model code approvals of ICBO #2728, BOCA #71-55, SBCC #7218-78.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, installation instructions and general recommendations for each specified material and product.

1.6 JOB CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.
- B. Application of this work shall be in ambient temperatures above 40 degree F. and rising, and on unfrozen surfaces. For installation in temperatures less than 40 degree F., supplementary heat shall be provided. A minimum ambient temperature of 40 degree F shall be maintained for at least 24 hours after installation.
- C. Protect surrounding areas and surfaces to preclude damage during application of this work. Protect finished work when stopping for the day or when completing an area in order that water will not penetrate behind the system.
- D. Coordinate the work of this section closely with other related sections. The cap flashing shall be installed as soon as possible after the installation of this work. All joints to be caulked shall be done immediately after the installation.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to project site in manufacturer's original, unopened containers with labels intact. Inspect materials and notify manufacturer of any discrepancies.
- B. Storage: Store materials as directed by manufacturer's written instructions.
 1. Protect adhesives and finish materials from freezing, temperatures below 40 degrees F and temperatures in excess of 90 degrees F.
 2. Protect insulation materials from exposure to sunlight.

1.8 SPECIAL PROJECT WARRANTY

- A. Provide a Five (5) year warranty against defective materials and workmanship, signed by manufacturer of exterior insulation and finish system and the manufacturer's certified applicator, agreeing to repair or replace defective materials and workmanship at no cost to the Owner.

1.9 MOCK-UP

- A. Construct mock-up of typical EIFS application on specified substrate, size as required to include examples of all key conditions, and including flashings, joints, and edge conditions.
- B. Locate mock-up at approved location convenient for comparison to finished work.
- C. Mock-up may not remain as part of the Work.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Senergy "Senerflex Channeled Adhesive Design" (Basis of Design)
 - 2. Dryvit System, Inc., West Warwick, RI
 - 3. STO Industries, Inc., Rutland, VT
 - 4. Parex, Inc., P.O. Box 189, Redan, GA
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid date.

2.2 EXTERIOR INSULATION AND FINISH SYSTEM

- A. Exterior Insulation and Finish System: DRAINAGE type; reinforced finish coating on flat-backed insulation board adhesive-applied directly to water-resistive coating using Vertical notched trowel application of adhesive over substrate; provide a complete system that has been tested to show compliance with the following characteristics; include all components of specified system and substrate(s) in tested samples.
- B. Substrate shall be 5/8" exterior grade fiberglass faced (treated core) gypsum sheathing, equal to Georgia Pacific Dens-Glass Gold or BPB Glasroc Premium exterior sheathing, complying with ASTM C-79. Substrate shall be installed according to recommendations of substrate material manufacturer for application intended.
- C. Allowable Wind Loading: At least 25 psf, positive and negative, determined in accordance with ICC-ES AC 219 or AC 235, using factor of safety of 3.0.
- D. Fire Characteristics:
 - 1. Flammability: Pass, when tested in accordance with NFPA 285.
 - 2. Ignitibility: No sustained flaming when tested in accordance with NFPA 268.
- E. Adhesion of Water-Resistive Coating to Substrate: For each combination of coating and substrate, minimum flatwise tensile bond strength of 15 psi, when tested in accordance with ASTM C297/C297M.
- F. Adhesion to Water-Resistive Coating: For each combination of insulation board and substrate, when tested in accordance with ASTM C297/C297M, maximum adhesive failure of 25 percent unless flatwise tensile bond strength exceeds 15 psi in all samples.
- G. Water Penetration Resistance: No water penetration beyond the plane of the base coat/insulation board interface after 15 minutes, when tested in accordance with ASTM E331 at 6.24 psf differential pressure with tracer dye in the water spray; include in tested sample at least two vertical joints and one horizontal joint of same type to be used in construction; disassemble sample if necessary to determine extent of water penetration.

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- H. Drainage Efficiency: Average minimum efficiency of 90 percent, when tested in accordance with ASTM E2273 for 75 minutes.
- I. Salt Spray Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 300 hours exposure in accordance with ASTM B117, using at least three samples matching intended assembly, at least 4 by 6 inches in size.
- J. Freeze-Thaw Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 10 cycles, when tested in accordance with ICC-ES AC 219 or 235.
- K. Weathering Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating when viewed under 5x magnification after 2000 hours of accelerated weathering conducted in accordance with ASTM G153 Cycle 1 or ASTM G155 Cycle 1, 5, or 9.
- L. Water Degradation Resistance: No cracking, checking, crazing, erosion, blistering, peeling, delamination, or corrosion of finish coating after 14 days exposure, when tested in accordance with ASTM D2247.
- M. Mildew Resistance: No growth supported on finish coating during 28 day exposure period, when tested in accordance with ASTM D3273.
- N. Abrasion Resistance Of Finish: No cracking, checking or loss of film integrity when tested in accordance with ASTM D968 with 500 liters of sand.

2.3 MATERIALS

- A. Finish Coating Top Coat: Water-based, air curing, acrylic or polymer-based finish with integral color and texture.
 - 1. Texture: Fine.
 - 2. Colors: As selected by Architect from manufacturer's full range.
- B. Base Coat: Fiber-reinforced, acrylic or polymer-based product compatible with insulation board and reinforcing mesh.
- C. Reinforcing Mesh: Balanced, open weave glass fiber fabric, treated for compatibility and improved bond with coating, weight, strength, and number of layers as required to meet required system impact rating.
- D. Insulation Board: Molded, expanded polystyrene board; ASTM C578, Type I; with the following characteristics:
 - 1. Board Size: 24 by 48 inches.
 - 2. Board Size Tolerance: plus/minus 1/16 inch from square and dimension.
 - 3. Board Thickness: As indicated on drawings, but not less than 1 inch at any location.
 - 4. Thickness Tolerance: plus/minus 1/16 inch maximum.
 - 5. Board Edges: Square.
 - 6. Thermal Resistance: Provide 2" for a total R value of 7.2. (R factor per 1 in (25.4 mm) at 75 degrees F: 3.60).
 - 7. Board Density: 0.9 lb/cu ft.
 - 8. Compressive Resistance: 10 psi.
 - 9. Surface Burning Characteristics: Flame spread/Smoke developed index of 25/450, when tested in accordance with ASTM E84.
- E. Water-Resistive Barrier Coating: Fluid-applied air and water barrier membrane; applied to sheathing; furnished or approved by EIFS manufacturer.

- F. Fluid-Applied Flashing: Flexible water based polymer material suitable for use with reinforcing mesh and, if used with water-resistive barrier sheet, certified compatible with sheet material.
- G. Flashing Tape: Self-adhering rubberized asphalt tape with polyethylene backing or other material and surface conditioner furnished or approved by EIFS manufacturer.

2.4 ACCESSORY MATERIALS

- A. Insulation Adhesive: Type required by EIFS manufacturer for project substrate.
- B. Trim: EIFS manufacturer's standard PVC, galvanized steel, or clear anodized aluminum trim accessories, as required for a complete project and including starter track and drainage accessories.
- C. Sealant: Refer to Division 7 Joint Treatment (Sealants) Section. Installation of EIFS Joint Sealant shall be by EIFS applicator or a separate installer under direct supervision and control of EIFS applicator. Joint Sealant installer shall be experienced and competent in the installation of elastomeric construction sealants.

PART 3 – EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. Install in accordance with EIFS manufacturer's instructions and ASTM C1397.
- B. Where different requirements appear in either document, comply with the most stringent.
- C. Neither of these documents supercedes the provisions of the Contract Documents that define the contractual relationships between the parties or the scope of work.

3.2 EXAMINATION

- A. Verify that substrate is sound and free of oil, dirt, other surface contaminants, efflorescence, loose materials, or protrusions that could interfere with EIFS installation and is of a type and construction that is acceptable to EIFS manufacturer. Do not begin work until substrate and adjacent materials are complete and thoroughly dry.
- B. Verify that substrate surface is flat, with no deviation greater than 1/4 in when tested with a 10 ft straightedge.

3.3 INSTALLATION - WATER-RESISTIVE BARRIER

- A. Apply barrier coating as recommended by coating manufacturer; prime substrate as required before application.
- B. Seal all substrate transitions and intersections with other materials to form continuous water-resistive barrier on exterior of sheathing, using method recommended by manufacturer.
- C. At door and window rough openings and other wall penetrations, seal water-resistive barrier and flexible flashings to rough opening before installation of metal flashings, sills, or frames, using method recommended by manufacturer.
- D. At moving expansion joints, apply flexible flashing or flashing tape across and recessed into joint with U-loop forming continuous barrier but allowing movement.
- E. Lap flexible flashing or flashing tape at least 2 inches on each side of joint or transition.
- F. Install drainage layer or spacers after flashing tape has been completed.

3.4 INSTALLATION – INSULATION

- A. Install in accordance with manufacturer's instructions.
- B. Prior to installation of boards, install starter track and other trim level and plumb and securely fastened.
- C. Install only in full lengths, to minimize moisture intrusion; cut horizontal trim tight to vertical trim.

- D. Install back wrap reinforcing mesh at all openings and terminations that are not to be protected with trim.
- E. On wall surfaces, install boards vertically.
- F. Place boards in a method to maximize tight joints. Stagger vertical joints and interlock at corners. Butt edges and ends tight to adjacent board and to protrusions. Achieve a continuous flush insulation surface, with no gaps in excess of 1/16 inch.
- G. Fill gaps greater than 1/16 inch with strips or shims cut from the same insulation material.
- H. Rasp irregularities off surface of installed insulation board.
- I. Adhesive Attachment: Use method required by manufacturer to achieve drainage efficiency specified; do not close up drainage channels when placing insulation board.

3.5 INSTALLATION – FINISH

- A. Base Coat: Apply in thickness as necessary to fully embed reinforcing mesh, wrinkle free, including back-wrap at all terminations of the EIFS. Install reinforcing fabric as recommended by EIFS manufacturer.
 - 1. Lap reinforcing mesh edges and ends a minimum of 2-1/2 inches.
 - 2. Allow base coat to dry a minimum of 24 hours before next coating application.
- B. Heavy Duty Reinforcing: At locations indicated, install second layer of reinforcing mesh embedded in second coat of base coating, tightly butting ends and edges of mesh.
 - 1. Provide heavy duty reinforcing at all EIFS surfaces less than 48 inches above grade, and elsewhere as indicated.
- C. Apply finish coat after base coat has dried not less than 24 hours and finish to a uniform texture and color.
- D. Provide V-groove scored control joints at locations indicated on drawings and in accordance with manufacturer's recommendations.
- E. Finish Coat Thickness: As recommended by manufacturer.

3.6 INSTALLATION – ACCESSORIES

- A. Reveal and Trim Accessories: Install in accordance with manufacturer's recommendations.

3.7 CLEANING

- A. Clean EIFS surfaces and work areas of foreign materials resulting from EIFS operations.

3.8 PROTECTION

- A. Protect completed work from damage and soiling by subsequent work.

END OF SECTION

SECTION 07410 - PREFORMED METAL ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The work under this section consists of all preformed metal roofing, underlayment, ridge vent system, sheet metal, roof drainage accessories and all related items necessary to complete the roofing system work indicated on the drawings and herein specified including but not limited to the following:
 - 1. Formed Roof Panels for Standing Seam Installation
 - 2. Underlayment.
 - 3. Workmanship
 - 4. Inspection of Surfaces
 - 5. Protection
 - 6. Delivery, Samples and Shop Drawings

1.3 QUALITY ASSURANCE

- A. The Contractor shall engage the services of a Professional Roof Consultant. The Consultant must hold a minimum title of Registered Roof Observer (RRO) through the International Institute of Building Enclosure Consultants (IIBEC) and provide evidence of adequate insurance as required below. The Consultant should perform three (3) inspections during the installation of each new roof system type (1 – Start up inspection; 2 – Interim inspection; 3 – Final inspection). The Consultant must document all site visits with photographs and written reports. All reports shall be forwarded to the Architect with documentation of the roofing progress and any deficiencies noted during the inspections. Upon completion of all punch list items, the Consultant should provide a letter of roof completion advising the new roof systems meet and/or exceed the project requirements. ***(Note: Although the contractor will be paying the roof consultant from their proceeds, the roof consultant will be considered an agent of the owner and architect throughout the project and will perform the required inspections on behalf of the owner and architect. The above specification shall be applied to individual facilities when multiple site locations are included in the project.)***
 - 1. Roof Consultant Insurance Requirements:
 - a. Gen. Liability - \$1,000,000 each occurrence - \$2,000,000 General Aggregate / Auto. Liability - \$1,000,000 / Umbrella Liability. - \$1,000,000 / Workers Compensation - \$1,000,000 per statute / Professional Liability - \$1,000,000
 - 2. Approved Roof Consulting Firm:
 - a. Roof Asset Management, Inc. | David Lee, RRO, CIT, FAA-107 | 4950 Woodfield Drive, Millbrook, Alabama 36054 | (334) 590-7999.
 - b. Substitutions: Roof consulting firms must be pre-approved by the Architect. Requests for a substituting firm must be submitted "In writing" 10 (Ten) days prior to the bid opening.
- B. Performance Test Standards: Provide preformed panel systems which have been pretested and certified by manufacturer to provide specified resistance to air and water infiltration and structural deflection and failure when installed as indicated and when tested in accordance with AAMA 501, "Methods of Test for Metal Curtain Walls".
- C. Field Measurements: Where possible, prior to fabrication of prefabricated panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units

where final dimensions cannot be established prior to fabrication.

- D. Impact Resistance: Roof coverings installed on low-slope roofs (roof slope <2:12) shall resist impact damage based on the results of tests conducted in accordance with ASTM D 3746, ASTM D 4272, CGSB 37-GP-52M or the "Resistance to Foot Traffic Test "FM 4470.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications, standard details, certified product test results, installation instructions and general recommendations, as applicable to materials and finishes for each component and for total system of preformed panels.
- B. Samples: Submit 2 samples 12" square, of each exposed finish material.
- C. Shop Drawings: Submit small-scale layouts of panels on roofs, and large-scale details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory and field assembly work.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver and store prefabricated components, sheets, panels and other manufactured items so they will not be damaged or deformed.
- B. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight ventilated covering. Store metal sheets or panels so that water accumulations will drain freely. Do not store sheets or panels in contact with other materials which might cause staining.

1.6 ROOFER'S QUALIFICATIONS

- A. Installation of the metal roofing and roof related accessories shall be performed by **Certified / Preferred Roofers** authorized by the manufacturer as trained and qualified to erect the manufacturer's product.
- B. The Contractor shall submit a letter from the manufacturer of the metal roofing system, certifying the date of certification from the Manufacturer and the dates and year the Roofing Contractor attended school, prior to full certification that this Roofing Contractor is a certified roofer.

1.7 ROOFING WARRANTIES & GUARANTEE

- A. Weather Tightness Warranty
 - 1. The entire installation (sub-framing, clips, panels, fasteners, rakes, eave, ridge, valley flashing conditions, roof to wall conditions as-well-as all materials specified as supplied by the manufacturer) shall be guaranteed weather tight for a minimum of **Twenty (20) years (NO Dollar Limit NDL)**. Provide written warranty, signed by metal roofing manufacturer and his authorized installer, agreeing to replace/repair defective materials and workmanship during the warranty period, certified by the third-party inspection firm as stated under QUALITY ASSURANCE. This warranty shall be identified as neither Non-Depreciating, Non-Pro-Rated, nor have exclusions that identify, valleys, curbs, and flashings. The warranty shall be signed by the Manufacture of the roofing materials and the authorized installer.
 - 2. Compatibility: Provide products which are recommended by manufacturers to be fully compatible with indicated substrates or provide separation materials as required to eliminate contact between incompatible materials.
- B. Manufacturer's Warranty
 - 1. **Manufacturer's roofing warranties which contain language regarding the governing of the warranty by any state other than the State of Alabama, must be amended to exclude such language, and substituting the requirement that the Laws of the State of Alabama shall govern all such warranties.**
 - 2. Roof Panels: Durability of the metallic coated and unpainted roof panels due to rupture, structural failure or perforation shall be warranted for a period of **Twenty (20) years** by the manufacturer.

3. Color Finish:
 - a. The exterior color finish for painted panels shall be warranted by the Manufacturer for **Twenty-five (25) years** against blistering, peeling, cracking, flaking, chalking and shipping.
 - b. Excessive color change and chalking shall be warranted for **Twenty-five (25) years**.
 - i. Color change shall not exceed 5 NBS units per ASTM D2244.68T, chalking shall not be less than a rating of 6 (white) or 8 (other colors) per ASTM D-659.
 4. The roofing manufacture shall be required to provide documentation certifying that the roof design provided complies with the performance requirements as set forth in IBC Chapter 15, Section 1504. The documentation shall be attached to the roof warranty at the close out of the project.
- C. Contractor's Roofing Guarantee
1. Contractor shall furnish Contractors 5 Year Alabama Division of Construction Management Roofing Guarantee. This roofing guarantee is included in the front end documentation of this project manual.
- D. All roof warranties/guarantees shall be provided to the Owner, by the Contractor at the Final Inspection to obtain the Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
1. American Buildings Company/A Nucor Company; (**Basis of Design and Quality**); www.americanbuildings.com; 1150 State Docks Road, Eufaula, Alabama 36027; Phone: 334.687.2032.
 2. Butler Manufacturing; www.buttermfg.com; 1540 Genessee St., Kansas City, MO. 64102; Phone: 816.968.3000
 3. MBCI Manufacturing; www.mbc.com; 2280 Monier Avenue, Lithia Springs, Georgia, 30122; Phone: 844.2506 or 770.729.4772.
 4. Varco Pruden; www.vp.com; 3200 Players Club Circle, Memphis, TN 38125; Phone: 1.901.748.8000
 5. Morin / A Kingspan Group Company; www.kingspan.com/us/en-us/product-groups/metal-roof-wall-systems; 1975 Eidson Drive, Florida, 32724; Phone: 860.584.0900 or 800.640.9501
 6. ACI Building Systems, LLC.; www.acibuildingsystems.com; 10125 Highway 6 West, Batesville, MS 38606; Phone: 662.563.4574.
 7. AllSouth Pre-Engineered Components, LLC.; 985 Technology Drive, Dothan, Alabama, 36303; Phone: 334.699.8394; www.buildwithape.com.
 8. Berridge Manufacturing Company; www.berridge.com; 319 Lee Industrial Boulevard, Austell, Georgia; Ph: 770.941.5141.

2.2 MATERIALS

- A. All materials shall be from a single source.
- B. Sanding Seam II with Kynar 500 Finish by American Buildings Company/A Nucor Company.
1. Standing seam roof panel shall have a configuration consisting of 2 inch high vertical rib spaced on 24 inch centers. The panel shall have flush horizontal and vertical surfaces to facilitate sealing at terminations. Panel configurations which create voids requiring supple metal closure devices shall not be considered acceptable. Panels shall be joined at the sidelap with an interlocking seam mechanically locked by a seaming machine after

installation. The female panel seam shall have a factory applied sealant, in compliance with UL90.

2. The panel shall be **24 gauge (minimum)** commercially pure aluminum coated steel meeting military specification MIL-C-4174A Type II, Galvalume or G90 galvanized. Minimum yield strength shall be 80,000 PSI.
3. Deviations in appearance from the quality standard manufacturer's panel must be approved by the owner before acceptance.
4. Changes in framing or variations in loading to the existing structure caused by alternate roof systems shall be subject to review and all costs for any modifications shall be the responsibility of the General Contractor.
5. System Description: The roof system is a concealed fastener interlocking standing seam system. ***Panel must not be roll formed on site, nor use a portable roll former whereby the contractor manufactures the panel versus a single sourced manufacture providing the finished materials with a single sourced warranty.***
6. Roof panels shall be standing seam interlocking design and secured to the supports with a concealed structural fastening system. UL certification must appear on the panel if so requested.
7. The concealed attachment system shall eliminate all through penetration of the exposed roofing surface into structural supports and allow the roof covering to move independently of any differential thermal movement by the framing system.
8. The panel to structural clip shall be designed to provide +/- one inch of thermal movement. It shall incorporate a self centered feature to assure one inch of movement in both directions.
9. The standing seam shall have integral male and female interlocking ribs with a factory applied, non-hardening sealant, and the seams shall be continuously locked or crimped together by mechanical means during installation.
10. Roof panels shall be fastened to the support framing members with a concealed clip or backing device of steel having a protective metallic coating. Through penetration of the roofing surface by exposed fasteners shall occur only for non-structural connection at panel termination and roof perimeter flashing location.
11. Panel termination and perimeter flashing (attached to roof panels) shall be sealed with sealants recommended by the manufacturer.
12. Required closures shall be metal. Non-metal closures shall not be acceptable.
13. Provide thermal blocks at all roof to purlin connection points/deck supports.

2.3 METAL FINISHES

- A. General: Apply coating either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Protect coating promptly after application and cure, by application of strippable film or removable adhesive cover and retain until installation has been completed.
- B. Color Finish on Roof Panels and Trim:
 1. Panels shall have a factory color finish on the exposed side. The exposed finish shall consist of a 70% KYNAR 500® resin base coating applied to a cleaned, pretreated and primed surface. The dry film thickness of the exterior coating shall not be less than .90 mil minimum, inclusive primer. The interior color finish shall consist of a backer coat with a dry film thickness of 0.5 mil. A low gloss finish is required to minimize the appearance of oil canning.
 2. Color of the exterior roof panels and trim shall be selected from manufactures standard color pallet.
 3. The exterior color finish shall meet or exceed the performance requirements specified below.
 - a. Paint Color Test:

- i. Test: Film Thickness; Test Method: ASTM D-1005; Performance: 0.2 mil primer 0.8-0.9 mil topcoat
- ii. Test: 60° @ under 10 low gloss; Test Method: ASTM D-523; Performance: 25-35
- iii. Test: IR Reflectivity; Test Method: ASTM D-4803-97; Performance: Must meet 25% Minimum (exceeds)
- iv. Test: Pencil Hardness; Test Method: ASTM D-3363; Performance: HB-H
- v. Test: Flexibility, T-Bend; Test Method: ASTM D-4145; Performance: 2-T Galvalume Steel
- vi. Test: Adhesion; Test Method: ASTM D-3359; Performance: No adhesion Loss
- vii. Test: Reverse Impact; Test Method: ASTM D-2794; Performance: No cracking or loss of adhesion
- viii. Test: Abrasion, Falling Sand; Test Method: ASTM D-968; Performance: 65-85 1/mil
- ix. Test: Mortar Resistance; Test Method: ASTM C-267; Performance: No effect
- x. Test: Detergent Resistance; Test Method: ASTM D-2248 3% 72 hrs. @ 100°F; Performance: No effect
- xi. Test: Acid Pollutants; Test Method: ASTM D-1308 10% Muriatic Acid (15 min) 20% Muriatic Acid (15 min); Performance: No effect, AAMA 605.2 <5 units color change
- xii. Test: Acid Rain Test; Test Method: Kesternich; Performance: 15 cycles minimum, no objectionable color change
- xiii. Test: Alkali Resistance; Test Method: 20% Sodium Hydroxide (1hr); Performance: No effect
- xiv. Test: Salt Spray Resistance 5% @ 95° F; Test Method: ASTM B-117; Performance: 1000 hrs Galvalume steel
- xv. Test: Humidity Resistance 100% @ 100° F; Test Method: ASTM D-2247; Performance: Passes 1000 hrs Galvalume Steel
- xvi. Test: South Florida exposure; Test Method: ASTM D-2244; Performance: <5 units color change
- xvii. Test: UVB (313 bulbs); Test Method: ASTM G-53; Performance: Passes 3000 hrs
- xviii. Test: Chalk Resistance; Test Method: ASTM D-4214; Performance: Rating of 8 min

4. Colors must meet the following: The solar reflectance for a steep-sloped roof must be a minimum of 25%, dropping no less than to 15% after three years. Low sloped roofs (below 2:12) must be a minimum of 65% dropping to no less than 50% after three years.

2.4 ROOF PANELS

- A. General: Provide roofing sheets formed to the general profile or configuration indicated. All roof panels shall be full length, no end laps allowed.
- B. Zinc-Coated Steel Sheets: Provide structural quality hot-dip galvanized steel sheets, complying with requirements of ASTM A446, Grade C, with G90 coating complying with ASTM A525.
- C. Aluminum Coated Steel Sheets: Provide drawing quality aluminum coated steel sheets, complying with requirements of ASTM A463, with T1-40 coating.
 - 1. Metal thickness not less than 24 ga. (0.0179").
- D. Accessories: Provide the following sheet metal accessories factory formed of the same material and finish as the roofing and siding.

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1. Flashings.
 2. Fillers.
 3. Metal expansion joints.
 4. Facias
 5. Ridge covers.
 6. Cover exposed structural and secondary members at exterior.
- E. Fasteners:
1. Provide self-tapping screws, bolts, nuts, self-locking rivets, self-locking bolts, end welded studs, and other suitable fasteners as standard with the manufacturer designed to withstand design loads.
 2. Provide metal-backed neoprene washers under heads of fasteners bearing on weather side of panels.
 3. Use stainless steel fasteners for exterior application and galvanized or cadmium plated fasteners for interior applications.
 4. Locate and space fastenings in true vertical and horizontal alignment. Use proper type fastening tools to obtain controlled uniform compression for positive seal without rupture of neoprene washer.
 5. Provide fasteners with heads matching color of roofing sheets by means of plastic caps or factory-applied coating.
- F. Flexible Closure Strips: Provide closed-cell, expanded cellular rubber, self-extinguishing flexible closure strips. Cut or premold closure strips to match corrugation configuration of roofing and siding sheets. Provide closure strips where indicated or necessary to ensure weathertight construction.
- G. Sealing Tape: Provide pressure sensitive 100 percent solids isobutylene tripolymer compound sealing tape with release paper backing. Provide permanently elastic, non-sag, non-toxic, non-staining tape not less than 1/2" wide and 1/8" thick.
- H. Joint Sealants: Provide one-part elastomeric polyurethane polysulfide or silicone rubber sealant as recommended by the building manufacturer.

2.6 MISCELLANEOUS MATERIALS

- A. Internal Panel Framing: Manufacturer's standard.
- B. Fasteners: Manufacturer's standard noncorrosive types, with exterior heads gasketed.
- C. Accessories: Except as indicated as work of another specification section, provide components required for a complete roofing/siding system, including:
1. Trim
 2. Copings
 3. Fascias
 4. Gravel stops
 5. Mullions
 6. Sills
 7. Corner Units
 8. Ridge Closures
 9. Clips
 10. Seam Covers

11. Battens
12. Flashings
13. Gutters
14. Downspouts
15. Louvers
16. Sealants
17. Gaskets
18. Fillers
19. Closure Strips
20. All similar items.
21. Match materials/finishes of preformed panels.

- D. Bituminous Coating: Cold-applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.

2.7 SHEET METAL ACCESSORIES

- A. General: Provide coated steel sheet metal accessories with coated steel roofing and siding panels.
- B. Gauges of Materials:
1. Roof Panels - 24 ga.
 2. Rake Flashing - 26 ga.
 3. Gutters-26 ga. (non-corrugated)
 4. Fascia/Eave Trim – 26 ga.
- C. Roof Jacks: Openings 8" in diameter or smaller may be flashed and sealed to the roof panel by jacks. Material shall be an EPDM material with an aluminum sealing ring base. Jacks are acceptable providing attachment in flat of panel and no standing seam rib has been altered. If rib must be cut, a curb must be used. Installation of roof jacks must comply with manufacturer's instructions.

PART 3 - EXECUTION

3.1 PRE-ROOFING CONFERENCE

- A. A pre-roofing conference is required before any roofing materials are installed. This conference shall be conducted by a representative of the Architect and attended by representatives of the Owner, Division of Construction Management Inspector, General Contractor, Roofing Contractor, Sheet Metal Contractor, Roof Deck Manufacturer (if applicable), and the Roofing Materials Manufacturer (if warranty is required of this manufacturer). If equipment of substantial size is to be placed on the roof, the Mechanical Contractor must also attend this meeting. Provide at least 72 hours advance notice to participants prior to convening pre-roofing conference.
- B. The pre-roofing conference is intended to clarify demolition and application requirements for work to be completed before roofing operations can begin. This would include a detailed review of the specifications, roof plans, roof deck information, flashing details, and approved shop drawings, submittal data, and samples. If conflict exists between the specifications and the Manufacturer's requirements, this shall be resolved. If this pre-roofing conference cannot be satisfactorily concluded without further inspection and investigation by any of the parties present, it shall be reconvened at the earliest possible time to avoid delay of the work. In no case should the work

proceed without inspection of all roof deck areas and substantial agreement on all points.

- C. The following are to be accomplished during the conference:
1. To review all Factory Mutual and Underwriters Laboratories requirements listed in the specifications and resolve any questions or conflicts that may arise.
 2. To establish trade-related job schedules, including the installation of roof-mounted mechanical equipment.
 3. To establish roofing schedule and work methods that will prevent roof damage.
 4. Require that all roof penetrations and walls be in place prior to installing the roof.
 5. To establish those areas on the job site that will be designated as work and storage areas for roofing operations.
 6. To establish weather and working temperature conditions to which all parties must agree.
 7. To establish acceptable methods of protecting the finished roof if any trades must travel across or work on or above any areas of the finished roof.
- D. The Architect shall prepare a written report indicating actions taken and decisions made at this pre-roofing conference. This report shall be made a part of the project record and copies furnished the General Contractor, the Owner, the Division of Construction Management, and the Division of Construction Management Inspector.

3.2 INSTALLATION

- A. General: Comply with panel fabricator's and material manufacturer's instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal/structural movement.
1. Install panels with concealed fasteners.
- B. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4" in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8" offset of adjoining faces and of alignment of matching profiles.
- C. Joint Sealers: Install gaskets, joint fillers and sealants where indicated and where required for weatherproof performance of panel systems. Provide types of gaskets and sealants/fillers indicated or, if not otherwise indicated, types recommended by panel manufacturer.
- D. Refer to other sections of these specifications for product and installation requirements applicable to indicated joint sealers.
- E. Water shall be prevented from entering the building during the work. This shall involve keeping penetrations sealed, planning the work to reroof sections and sealing new to old or other precautionary and effective safeguards.

3.3 ROOFING

- A. General: Arrange and nest sidelap joints so that prevailing winds blow over, not into, lapped joints. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line. Protect factory finishes from damage.
1. Provide weatherseal under ridge cap. Flash and seal roof panels at eave and rake with rubber, neoprene or other closures to exclude weather.
- B. Standing Seam Roof Panel System: Fasten roof panels to hat channels with concealed clip in accordance with the manufacturer's instructions.
1. Install clips at each support using self-drilling fasteners.
 2. At end laps of panels install two strips of tape caulk between panels.
 3. Install factory-caulked cleats at standing seam joints. Machine seam cleats to the panels to

provide a weather-tight joint.

- C. Sheet Metal Accessories: Install gutters, downspouts, ventilators, louvers, and other sheet metal accessories in accordance with manufacturer's recommendations for positive anchorage to building and weathertight mounting. Adjust operating mechanism for precise operation.

3.4 CLEANING AND PROTECTION

- A. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.
- B. Cleaning: Remove temporary protective coverings and strippable films (if any) as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer and maintain in a clean condition during construction.

END OF SECTION

SECTION 07411 - METAL WALL PANELS AND SOFFIT PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of each type of preformed wall panels/siding is indicated on the drawings and by provisions of this section. Preformed wall panels/siding is hereby defined to include panels which are structurally capable of spanning between supports spaced as indicated.
- B. Types of materials required include the following:
 - 1. Exterior and Interior Wall Panel
 - 2. Metal Soffit Panel
 - 3. Workmanship
 - 4. Inspection of Surfaces
 - 5. Protection
 - 6. Delivery, Samples and Shop Drawings

1.3 REFERENCES

- A. American Architectural Manufacturer's Association (AAMA): www.aamanet.org:
 - 1. AAMA 621 - Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.
 - 2. AAMA 809.2 Voluntary Specification Non-Drying Sealants.
- B. American Society of Civil Engineers (ASCE): www.asce.org/codes-standards:
 - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- C. ASTM International (ASTM): www.astm.org:
 - 1. ASTM A755 - Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - 2. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - 3. ASTM C920 - Specification for Elastomeric Joint Sealants.
 - 4. ASTM D2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
 - 5. ASTM D4214 - Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.
 - 6. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - 7. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 - 8. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.

1.4 QUALITY ASSURANCE

- A. Performance Test Standards: Provide preformed panel systems which have been pretested and certified by manufacturer to provide specified resistance to air and water infiltration and structural

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deflection and failure when installed as indicated and when tested in accordance with AAMA 501, "Methods of Test for Metal Curtain Walls".

- B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum of five years of experience in manufacture of similar products in successful use in similar applications.
- C. Field Measurements: Where possible, prior to fabrication of prefabricated panels, take field measurements of structure or substrates to receive panel system. Allow for trimming panel units where final dimensions cannot be established prior to fabrication.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications, standard details, certified product test results, installation instructions and general recommendations, as applicable to materials and finishes for each component and for total system of preformed panels.
- B. Samples: Submit 2 samples 12" square, of each exposed finish material.
- C. Shop Drawings: Submit small-scale layouts of panels, and large-scale details of edge conditions, joints, corners, custom profiles, supports, anchorages, trim, flashings, closures, and special details. Distinguish between factory and field assembly work.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Manufacturer: The following manufacturers' products have been used to establish minimum standard for materials, workmanship and function:
 - 1. American Buildings Company/A Nucor Company; (Basis of Design and Quality); www.americanbuildings.com; 1150 State Docks Road, Eufaula, Alabama 36027; Phone: 334.687.2032.
 - 2. MBCI Manufacturing; www.mbc.com; 2280 Monier Avenue, Lithia Springs, Georgia, 30122; Phone: 844.2506 or 770.729.4772.
 - 3. Morin / A Kingspan Group Company; www.kingspan.com/us/en-us/product-groups/metal-roof-wall-systems; 1975 Eidson Drive, Florida, 32724; Phone: 860.584.0900 or 800.640.9501
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

A. EXTERIOR PANELS AND INTERIOR PANELS:

- 1. "Archtectural" Panel by American Buildings Company/A Nucor Company. [Vertical installation only] [Semi-Concealed Head Fasteners].
 - a. The panel shall have major ribs 1 ¼" high. Spaces 12" on center for an even shadowed appearance. The panels are to be reinforced between the ribs for added strength. Each panel shall provide 36" net coverage in width.
 - b. Panels shall conform to one of the following:
 - I. Panel material as specified shall be 26 gage zinc-coated(galvanized) steel, coating designation G90, conforming to the requirements of ASTM A 653, Grade 80. Minimum yield strength shall be 80,000 psi.
 - c. Fasteners for Wall Panels:
 - I. Shall be manufacturer's fastener with hex washer head, cadmium or zinc plated.
 - II. Shall be assembled with an EPDM washer.
 - III. The fasteners shall be color coordinated with a premium coating system which protects against corrosion and weathering.

- d. Finish/Color:
 - I. Finish shall be Smartkote Kynar 500® finish.
 - II. Provide all trims, fasteners, sealants to match selected colors.
 - III. Color of the panels shall be selected by the Architect after bid date from manufactures Standard Color pallet.

2.3 SOFFIT PANELS

- 1. Liner Panel (SLP) by American Buildings Company/A Nucor Company.
 - a. The panel shall have a configuration consisting of 1" interlocking ribs. The interlocking ribs are designed to conceal the panel fasteners. The panel shall provide a net coverage of 12" in width. Panel shall be smooth finish.
 - b. Panel shall conform to the following:
 - I. Panel material as specified shall be 24 gage 50,000 psi
 - a) G90 Zinc-coated (galvanized)
 - c. Fasteners for Liner Wall Panels (SLP):
 - I. Shall be manufacturer's fastener with hex washer head, cadmium or zinc plated.
 - II. Shall be assembled with an EPDM washer.
 - III. The fasteners shall be color coordinated with a premium coating system which protects against corrosion and weathering.
 - d. Finish/Color:
 - I. Finish shall be Smartkote Kynar 500® finish.
 - II. Provide all trims, fasteners, sealants to match selected colors.
 - III. Color of the panels shall be selected by the Architect after bid date from manufactures Standard Color pallet.

2.4 METAL FINISHES

- A. General: Apply coating either before or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability.
- B. Protect coating promptly after application and cure, by application of strippable film or removable adhesive cover, and retain until installation has been completed.
- C. Durability: Provide coating which has been field tested under normal range of weathering conditions for minimum of 20 years without significant peel, blister, flake, chip, crack or check in finish, and without chalking in excess of 8 (ASTM D 659), and without fading in excess of 5 NBS units.
- D. Color Finish on All Trim and All Wall Panels: Panels shall have a factory color finish on the exposed side. The exposed finish shall consist of a 70% KYNAR 500 resin base coating applied to a cleaned, pretreated and primed surface. The dry film thickness of the exterior coating shall not be less than 0.8 mil. exclusive of the primer. The interior color finish shall consist of a backer coat with a dry film thickness of 0.5 mil. The color finish shall meet or exceed the performance requirements specified below. Color selected from manufactures standard colors.
- E. Paint Color Test:

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1. Test: Film Thickness; Test Method: ASTM D-1005; Performance: 0.2 mil primer 0.8-0.9 mil topcoat
2. Test: 60° @ under 10 low gloss; Test Method: ASTM D-523; Performance: 25-35
3. Test: IR Reflectivity; Test Method: ASTM D-4803-97; Performance: Must meet 25% Minimum (exceeds)
4. Test: Pencil Hardness; Test Method: ASTM D-3363; Performance: HB-H
5. Test: Flexibility, T-Bend; Test Method: ASTM D-4145; Performance: 2-T Galvalume Steel
6. Test: Adhesion; Test Method: ASTM D-3359; Performance: No adhesion Loss
7. Test: Reverse Impact; Test Method: ASTM D-2794; Performance: No cracking or loss of adhesion
8. Test: Abrasion, Falling Sand; Test Method: ASTM D-968; Performance: 65-85 1/mil
9. Test: Mortar Resistance; Test Method: ASTM C-267; Performance: No effect
10. Test: Detergent Resistance; Test Method: ASTM D-2248 3% 72 hrs. @ 100°F; Performance: No effect
11. Test: Acid Pollutants; Test Method: ASTM D-1308 10% Muriatic Acid (15 min) 20% Muriatic Acid (15 min); Performance: No effect, AAMA 605.2 <5units color change
12. Test: Acid Rain Test; Test Method: Kesternich; Performance: 15 cycles minimum, no objectionable color change
13. Test: Alkali Resistance; Test Method: 20% Sodium Hydroxide (1hr); Performance: No effect
14. Test: Salt Spray Resistance 5% @ 95° F; Test Method: ASTM B-117; Performance: 1000 hrs Galvalume steel
15. Test: Humidity Resistance 100% @ 100° F; Test Method: ASTM D-2247; Performance: Passes 1000 hrs Galvalume Steel
16. Test: South Florida exposure; Test Method: ASTM D-2244; Performance: <5 units color change
17. Test: UVB (313 bulbs); Test Method: ASTM G-53; Performance: Passes 3000 hrs
18. Test: Chalk Resistance; Test Method: ASTM D-4214; Performance: Rating of 8 min

F. Internal Panel Framing: Manufacturer's standard.

G. Fasteners: Manufacturer's standard noncorrosive types, with exterior heads gasketed.

H. Accessories: Except as indicated as work of another specification section, provide components required for a complete wall panel/siding system, including trim, closures, fascias, gravel stops, mullions, sills, corner units, ridge closures, clips, seam covers, battens, flashings, gutters, louvers, sealants, gaskets, fillers, closure strips and similar items. Match materials/finishes of preformed panels.

I. Bituminous Coating: Cold-applied asphalt mastic, SSPC paint 12, compounded for 15 mil dry film thickness per coat.

2.5 WALL PANEL FABRICATION

A. General: Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, and as required to fulfill indicated performance requirements which have been demonstrated by factory testing. Comply with indicated profiles and dimensional requirements, and with structural requirements.

B. Metal Gages: Thicknesses required for structural performances, but not less than manufacturer's recommended minimums for profiles and applications indicated, and not less than 22 gauge.

- C. Required Performances: Fabricate panels and other components of wall system for the following installed performances.
- D. Water Penetration: No significant, uncontrolled leakage at 4 lbs. per sq. ft. pressure with spray test.
- E. Air Infiltration: 0.02 cfm per sq. ft. for gross roof/wall areas, with 4 lbs. per sq. ft. differential pressure.
- F. Sound Transmission: STC rating of 28.
- G. Sound Absorption, Interior Surfaces: Coefficient of 0.75.
- H. Apply bituminous coating or other permanent separation materials on concealed panel surfaces where panels would otherwise be in direct contact with substrate materials which are noncompatible or could result in corrosion or deterioration of either material or finishes.
- I. Fabricate panel joints with captive gaskets or separator strips, which provide a tight seal and prevent metal-to-metal contact in a manner which will minimize noise from movements within panel system.
- J. Condensation: Fabricate panels for control of condensation, including vapor inclusion of seals and provisions for breathing, venting, weeping and draining.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General: Comply with panel fabricator's and material manufacturer's instructions and recommendations for installation, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal/structural movement.
- B. Install panels with concealed fasteners.
- C. Installation Tolerances: Shim and align panel units within installed tolerance of 1/4" in 20'-0" on level/plumb/slope and location/line as indicated, and within 1/8" offset of adjoining faces and of alignment of matching profiles.
- D. Joint Sealers: Install gaskets, joint fillers and sealants where indicated and where required for weatherproof performance of panel systems. Provide types of gaskets and sealants/fillers indicated or, if not otherwise indicated, types recommended by panel manufacturer.
- E. Refer to other sections of these specifications for product and installation requirements applicable to indicated joint sealers.
- F. Joint Sealers: Refer to other sections of these specifications for post-installation requirements on joint sealers; not work of this section.

3.2 CLEANING AND PROTECTION

- A. Damaged Units: Replace panels and other components of the work which have been damaged or have deteriorated beyond successful repair by means of finish touch-up or similar minor repair procedures.
- B. Cleaning: Remove temporary protective coverings and strippable films (if any) as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

END OF SECTION

SECTION 07600 - FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of each type of flashing and sheet metal work is indicated on drawings and by provisions of this section.
- B. Types of work specified in this section include the following:
 - 1. Metal Counter Flashing and Base Flashing.
 - 2. Metal Diverters. Verify location with Architect for all entry doors.
 - 3. Exposed Metal Trim Units
 - 4. Eave Strip/Drip Edge
 - 5. Fascia
 - 6. Soffit
 - 7. Coping
 - 8. Scuppers and Leader Heads
 - 9. Gutters
 - 10. Downspouts
 - 11. Elastic flashing.
 - 12. Elastic roof/wall expansion joint systems.
- C. Integral masonry flashings are specified as masonry work in sections of Division 4.

1.3 REFERENCE STANDARDS

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.
- B. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2014.
- C. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric); 2014.
- D. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.
- E. ASTM D4479/D4479M - Standard Specification for Asphalt Roof Coatings - Asbestos-Free; 2007, with Editorial Revision (2012).
- F. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007, with Editorial Revision (2012).
- G. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.4 SUBMITTALS

- A. Product Data; Flashing, Sheet Metal, Accessories: Submit manufacturer's product data, installation instructions and general recommendations for each specified sheet material and fabricated product.

1.5 JOB CONDITIONS

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each

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installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 SHEET METALS

- A. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage thick base metal, shop pre-coated with PVDF (Polyvinylidene Fluoride) coating.
- B. Finish: The exposed finish on all exposed metals and similar items shall consist of a 70% KYNAR 500® resin base coating applied to a cleaned, pretreated and primed surface. The dry film thickness of the exterior coating shall not be less than .90 mil minimum, inclusive primer. The interior color finish shall consist of a backer coat with a dry film thickness of 0.5 mil. A low gloss finish is required to minimize the appearance of oil canning,
 - a. Colors: As selected by Architect after Bid Date, from manufacturer's standard colors including white.

2.2 GUTTERS

- A. Gutters: Provide flat shapes, no rolled formed stiffeners or ribbed allowed. Form gutters in "continuous" sections not less than 8 feet in length, complete with end pieces, outlet tubes and other special pieces as may be required. Join sections with riveted and soldered or sealed joints. Provide expansion-type slip joint at center of runs.
 - 1. Furnish gutter supports spaced at 36" on center constructed of same metal as gutters.
- B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage thick base metal, shop pre-coated with PVDF (Polyvinylidene Fluoride) coating.
- C. Finish: The exposed finish on all exposed metals and similar items shall consist of a 70% KYNAR 500® resin base coating applied to a cleaned, pretreated and primed surface. The dry film thickness of the exterior coating shall not be less than .90 mil minimum, inclusive primer. The interior color finish shall consist of a backer coat with a dry film thickness of 0.5 mil. A low gloss finish is required to minimize the appearance of oil canning,
 - a. Colors: As selected by Architect after Bid Date, from manufacturer's standard colors including white.

2.3 DOWNSPOUTS

- A. Downspouts: Form downspouts in sections approximately 10 feet long (**no corrugated sections**), complete with elbows and offsets. Join sections with not less than 1-1/2" telescoping joints. Provide fasteners, designed to securely hold downspouts not less than 1" away from walls; locate fasteners at top and bottom and equally spaced at approximately 5 feet on center in between.
- B. Pre-Finished Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24 gage thick base metal, shop pre-coated with PVDF (Polyvinylidene Fluoride) coating.
- C. Finish: The exposed finish on all exposed metals and similar items shall consist of a 70% KYNAR 500® resin base coating applied to a cleaned, pretreated and primed surface. The dry film thickness of the exterior coating shall not be less than .90 mil minimum, inclusive primer. The interior color finish shall consist of a backer coat with a dry film thickness of 0.5 mil. A low gloss finish is required to minimize the appearance of oil canning,
 - a. Colors: As selected by Architect after Bid Date, from manufacturer's standard colors including white.

2.4 METAL SOFFIT SYSTEM – METAL BUILDINGS

- A. Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

1. Soffit Liner Panel (SLP) by American Buildings Company/A Nucor Company. (Basis of Design).
 2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- B. Materials: The panel shall have a configuration consisting of 1" interlocking ribs. The interlocking ribs are designed to conceal the panel fasteners. The panel shall provide a net coverage of 12" in width. Panel shall be smooth finish.
1. Panel material as specified shall be 24 gage 50,000 psi.
 - a. G90 Zinc-coated (galvanized)
- C. Fasteners for Soffit Liner Wall Panels (SLP):
- Shall be manufacturer's fastener with hex washer head, cadmium or zinc plated.
1. Shall be assembled with an EPDM washer.
 2. The fasteners shall be color coordinated with a premium coating system which protects against corrosion and weathering.
- D. Finish: The exposed finish on all exposed metals and similar items shall consist of a 70% KYNAR 500® resin base coating applied to a cleaned, pretreated and primed surface. The dry film thickness of the exterior coating shall not be less than .90 mil minimum, inclusive primer. The interior color finish shall consist of a backer coat with a dry film thickness of 0.5 mil. A low gloss finish is required to minimize the appearance of oil canning,
- a. Colors: As selected by Architect after Bid Date, from manufacturer's standard colors including white.

2.5 SOFFIT VENTS

- A. At wood soffits, provide and install aluminum screened under-eave vents.
- B. Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
1. Air Vent Inc.
 2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- C. Materials:
1. Size: 6" x 16" with screen
 2. Net Free Area: 42" per vent
 3. Finish: Aluminum mill finish to be painted same color of soffit
 4. Quantity: Vents to be spaced equally apart.

2.6 SHEET FLASHING

- A. Provide EPDM synthetic rubber sheet except where metal is indicated.
- B. Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
1. Nervastral Seal Pruf HD-20
 2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- C. Materials:

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1. Elastic Sheet Flashing/Membrane: Manufacturer's standard flexible, elastic, black, nonreinforced, flashing sheet of 50 - 65 mils thickness.

2.7 MISCELLANEOUS MATERIALS & ACCESSORIES

- A. Solder:
 1. For use with steel or copper, provide 50 - 50 tin/lead solder (ASTM B 32), with rosin flux.
 2. For use with stainless steel: Provide 60 - 40 tin/lead solder (ASTM B 32), with acid-chloride type flux, except use rosin flux over tinned surfaces.
- B. Fasteners: Same metal as flashing/sheet metal or, other noncorrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
- C. Bituminous Coating: FS TT-C-494 or SSPC - Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
- E. Epoxy Seam Sealer: 2-part noncrossive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.
- F. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/ weather-resistant seaming and adhesive application of flashing sheet.
- G. Paper Slip Sheet: 5-lb. rosin-sized building paper.
- H. Polyethylene Underlayment: 6-mil carbonated polyethylene film; FS L-P-512.
- I. Reglets: Metal or plastic units of type and profile indicated, compatible with flashing indicated, noncrossive.
- J. Metal Accessories: Provide sheet metal clips, straps, anchoring devices and similar accessory units as required for installation of work, matching or compatible with material being installed, noncrossive, size and gage required for performance.
- K. Roofing Cement: Must be compatible with materials with which it comes in contact.
- L. Provide precast concrete splashblock sloped away from building, approximately 12-inches wide x 24-inches long x 2-inches thick x 3-inches high, with 3-raised edges and one "open" end turned toward building – at locations where downspouts would otherwise drain on grade or paving.
 1. Provide 1-preformed metal pan with corrugated bottom and properly hemmed edges (minimum 12" x 24") at each downspout which drains onto a roof below.

2.9 FABRICATED UNITS

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
- B. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer; rivet joints for additional strength where required.
- C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water/weatherproof, form expansion joints of intermeshing hooked flanges, not less than 2" deep, filled with mastic sealant (concealed within joints).

- D. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant, in compliance with SMACNA standards.
- E. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

- A. General: Except as otherwise indicated, comply with manufacturer's installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual".
 - 1. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams which will be permanently watertight and weatherproof.
- B. Underlayment: Where aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- C. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- D. Install reglets to receive counter-flashing in manner and by methods indicated. Where shown in concrete, furnish reglets to trades of concrete work for installation as work of Division-3 sections. Where shown in masonry, furnish reglets to trades of masonry work, for installation as work of Division-4 sections.
 - 1. Install counter-flashing in reglets, either by snap-in seal arrangement, or by wedging in place for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure.

3.2 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.
- B. Protection: Installer shall advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION

SECTION 07900 - JOINT SEALERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The extent of each form and type of joint sealer is indicated on drawings and by provisions of this section.
- B. The applications for joint sealers as work of this section include the following:
 - 1. Joints (Interior).
 - 2. Interior wall/ceiling joints.
- C. General Performance: Except as otherwise indicated, joint sealers are required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and aging as indicated for each application. Failures of installed sealers to comply with this requirement will be recognized as failures of materials and workmanship.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications, handling/installation/curing instructions, and performance tested data sheets for each elastomeric product required.

1.4 JOB CONDITIONS

- A. Weather Conditions: Do not proceed with installation of liquid sealants under unfavorable weather conditions. Install elastomeric sealants when temperature by manufacturer for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. General: Manufacturers listed in this article include those known to produce the indicated category of prime joint sealant material, either as a nominally pure generic product or as an equivalent-performance modification thereof or proprietary product.
- B. Manufacturers: The following manufacturer's products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Acrylic Emulsion Latex Sealants:
 - a. Bostik.
 - b. Pecora Corp.
 - c. Sonneborn Building Products.
 - d. Tremco, Inc.
 - 2. Polyurethane Sealants:
 - a. Bostik.
 - b. Master Builders.
 - c. Pecora Corp.
 - d. Sonneborn Building Products.
 - e. Tremco, Inc.
 - 3. Butyl Sealants:

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- a. Bostik.
 - b. TEC Incorporated.
 - c. Tremco, Inc.
4. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

- A. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, single component, paintable.
 - 1. Color: Standard colors matching finished surfaces.
 - 2. Applications: Use for:
 - a. Interior wall and ceiling control joints.
 - b. Joints between door and window frames and wall surfaces.
 - c. Other interior joints for which no other type of sealant is indicated.
- B. Acoustical Sealant: Butyl or acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, nonskinning.
 - 1. Applications: Use for concealed locations only:
 - a. Sealant bead between top stud runner and structure and between bottom stud track and floor or wall.
- C. Miscellaneous Materials:
 - 1. Joint Primer/Sealer: Provide type of joint primer/sealer recommended by sealant manufacturer for joint surfaces to be primed or sealed.
 - 2. Bond Breaker Tape (BB-Tp): Provide polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant. Provide self-adhesive tape where applicable.
 - 3. Sealant Backer Rod (S-BR): provide compressible rod stock of polyethylene foam, polyurethane foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other recommended by sealant manufacturer for back-up of and compatibility with sealant. Where used with hot-applied sealant, provide heat-resistant type which will not be deteriorated by sealant application temperature as indicated.
 - a. Rod Size to Joint Width: Size of all backer rod width shall be 2 times the width of joint/gap to be sealed.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Installer must examine substrate, (joint surfaces) and conditions under which joint sealer work is to be performed and must notify Prime Contractor of unsatisfactory conditions.

3.2 JOINT PREPARATION

- A. Clean joint surfaces immediately before installation of gaskets, sealants or caulking compounds. Remove dirt, insecure coatings, moisture and other substrate which could interfere with seal of gasket or bond of sealant of caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces as recommended by sealant manufacturer.

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- B. Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer. Confine primer/sealer to areas of sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION

- A. Comply with manufacturer's printed instructions except where more stringent requirements are shown on specified, and except where manufacturer's technical representative directs otherwise.
- B. Set joint filler units at depth or position in joint as indicated to coordinate with other work, including installation of bond breakers, backer rods and sealant. Do not leave voids or gaps between ends of joint filler units.
- C. Install sealant backer rod for liquid-applied sealants, except where shown to be omitted or recommended to be omitted by sealant manufacturer for application indicated.
- D. Install bond breaker tape where indicated and where required by manufacturer's recommendations to ensure that liquid-applied sealants will perform as intended.
- E. Employ only proven installation techniques, which will ensure that sealants are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.
- F. Install sealant to depths as shown or, if not shown, as recommended by sealant manufacturer but within the following general limitations, measured at center (thin) section of beads;
- G. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.
- H. Spillage: Do not allow sealants or compounds to overflow from confines of joints, or to spill onto adjoining work, or to migrate into voids of exposed finishes. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.
- I. Recess exposed edges of gaskets and exposed joint fillers slightly behind adjoining surfaces, unless otherwise shown, so that compressed units will not protrude from joints.
- J. Bond ends of gaskets together with adhesive of "weld" by other means as recommended by manufacturer to ensure continuous watertight and airtight performance. Miter-cut and bond ends at corners unless molded corner units are provided.

3.4 CURE AND PROTECTION

- A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability. Advise Prime Contractor of procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of substantial completion. Cure and protect sealants in manner which will minimize increases in modulus of elasticity and other accelerated aging effects. Replace or restore sealants which are damaged or deteriorated during construction period.

END OF SECTION

SECTION 08100 - STEEL DOOR FRAMES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 SUMMARY

- A. This Section includes:
 - 1. Steel Frames.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 4 Section "Unit Masonry" for building anchors into and grouting frames in masonry construction.
 - 2. Division 8 Section "Wood Doors" for solid-core wood doors installed in steel frames.
 - 3. Division 8 Section "Finish Hardware" for door hardware and weatherstripping.
 - 4. Division 8 Section "Glazing" for glass in steel doors and sidelights.
 - 5. Division 9 Section "Gypsum Board Assemblies".
 - 6. Division 9 Section "Painting".

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data: Submit manufacturer's specifications for fabrication and installation, including data substantiating that products comply with requirements.
- C. Shop Drawings: Submit for fabrication and installation of steel door frames. Include details of each frame type, conditions at openings, details of construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.
- D. Frame Schedule: Submit schedule of frames using same reference numbers for details and openings as those on Contract Drawings.
 - 1. Indicate coordination of glazing frames and stops with glass and glazing requirements.
- E. Samples for initial selection in the form of manufacturer's color charts showing the full range of colors available for factory-finished frames.
- F. Samples for verification of each type of exposed finish required, prepared on Samples not less than 3 by 5 inches (75 by 125 mm) and of same thickness and material indicated for final unit of Work. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.

1.4 QUALITY ASSURANCE

- A. Provide frames complying with ANSI/SDI 100 "Recommended Specifications for Standard Steel Doors and Frames" and as specified.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished frames.
- B. Inspect frames on delivery for damage. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect; otherwise, remove and replace damaged items as directed.

- C. Store frames at building site under cover. Place units on minimum 4-inch- (100-mm-) high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If cardboard wrappers on frames become wet, remove cartons immediately. Provide minimum 1/4-inch (6-mm) spaces between stacked frames to promote air circulation.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Pioneer Industries
 - 2. Rocky Mountain Metals, Inc.
 - 3. Republic Frames/Allegion
 - 4. Steelcraft - Allegion
 - 5. Amweld Building Products Div.
 - 6. Ceco Corp.
 - 7. Curries Mfg. Inc.
 - 8. Fenestra.
 - 9. Bymoco
 - 10. Mesker

2.2 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial-quality carbon steel, pickled and oiled, complying with ASTM A 569 (ASTM A 569M) and ASTM A 568.
- B. Cold-Rolled Steel Sheets: Carbon steel complying with ASTM A 366 (ASTM A 366M), commercial quality, and ASTM A 568.
- C. Supports and Anchors: Fabricated from not less than 18 gauge galvanized steel sheet.
- D. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize complying with ASTM A 153, Class C or D as applicable.
- E. Shop Applied Paint:
 - 1. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

2.3 FRAMES

- A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, according to ANSI/SDI 100 and of types and styles as shown on Drawings and schedules.
- B. Conceal fastenings, unless otherwise indicated. Fabricate frames as follows:
 - 1. Fabricate frames with mitered or coped and face welded corners.
 - 2. Interior Frames: 16 gage cold rolled steel
 - 3. Exterior Frames: 14 gage A60 galvanized steel.
- C. Door Silencers: Except on weather stripped frames, drill stops to receive 3 silencers on strike jambs of single-door frames and 2 silencers on heads of double-door frames.
- D. Plaster Guards: Provide minimum 0.0179-inch- (0.45-mm-) thick steel plaster guards or mortar boxes at back of hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings.
- E. Grout: When required in masonry construction, as specified in Division 4 Section "Unit Masonry."

2.4 FABRICATION

- A. Fabricate steel door frame units to be rigid, neat in appearance, and free from defects, warp, or buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site. Comply with ANSI/SDI 100 requirements.
 - 1. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- B. Galvannealed Steel Frames: For the following locations, fabricate door frames from galvannealed steel sheet according to SDI 112.
 - 1. At exterior locations.
 - 2. Where indicated.
- C. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat or oval heads for exposed screws and bolts.
- D. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier.
- E. Comply with applicable requirements of ANSI A115 Series specifications for door and frame preparation for hardware.
 - 1. For concealed overhead door closers, provide space, cutouts, reinforcing, and provisions for fastening in top rail of doors or head of frames, as applicable.
- F. Reinforce doors frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site.
- G. Locate hardware as indicated on Shop Drawings or, if not indicated, according to the Door and Hardware Institute's (DHI) "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

2.5 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual" for recommendations relative to applying and designating finishes.
- B. Comply with SSPC-PA 1, "Paint Application Specification No. 1," for steel sheet finishes. Apply primers and organic finishes to doors and frames after fabrication.

2.6 GALVANIZED STEEL SHEET FINISHES

- A. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC- Paint 20.
- B. Factory Priming for Field-Painted Finish: Where field painting after installation is indicated, apply air-dried primer specified below immediately after cleaning and pretreatment.
 - 1. Shop Primer: Zinc-dust, zinc-oxide primer paint complying with performance requirements of FS TT-P-641, Type II.

2.7 STEEL SHEET FINISHES

- A. Surface Preparation: Solvent-clean surfaces to comply with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel to comply with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).
- B. Pretreatment: Immediately after surface preparation, apply a conversion coating of type suited to organic coating applied over it.
- C. Factory Priming for Field-Painted Finish: Apply shop primer that complies with ANSI A224.1 acceptance criteria, is compatible with finish paint systems indicated, and has capability to provide a sound foundation for field-applied topcoats. Apply primer immediately after surface preparation and pretreatment.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. General: Install steel door frames, and accessories according to Shop Drawings, manufacturer's data, and as specified.
- B. Placing Frames: Comply with provisions of SDI 105, unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. Install foot brace at bottom of all metal frames until installation of door. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
 - 1. Except for frames located in existing concrete, masonry, or gypsum board assembly construction, place frames before constructing enclosing walls and ceilings.
 - 2. Metal frames at all interior wall conditions shall be inset 1/4" from edge of wall to allow for caulk bead, see detail on drawings.
 - 3. In plaster or masonry walls constructed with antifreeze additives, protect inside (concealed) faces of door frames using fibered asphalt emulsion coating. Apply approximately 1/8" thick over shop primer and allow to thoroughly dry before handling.
 - 4. In masonry construction, install at least 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.
 - 5. At existing concrete or masonry construction, install at least 3 completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.
 - 6. Install fire-rated frames according to NFPA 80.

3.2 ADJUSTING AND CLEANING

- A. Prime Coat Touchup: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touchup of compatible air-drying primer.
- B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTION

SECTION 08211 - WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Solid core doors with wood veneer faces.
 - 2. Factory finishing of flush wood doors.
 - 3. Louvers for flush wood doors.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.
- C. Shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for veneer matching and factory finishing and other pertinent data.
 - 1. For factory-machined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.
- D. Samples for initial selection in the form of color charts consisting of actual materials in small sections for the following:
 - 1. Faces of factory-finished doors with transparent finish. Show the full range of colors available for stained finishes.
 - 2. Faces of factory-finished doors with opaque finish. Show the full range of colors available.
- E. Samples for verification in the form and size indicated below:
 - 1. Corner sections of doors approximately 12 inches (300 mm) square with door faces and edgings representing the typical range of color and grain for each species of veneer and solid lumber required. Finish sample with same materials proposed for factory-finished doors.

1.4 QUALITY ASSURANCE

- A. Quality Standard: Comply with the following standard:
 - 1. NWWDA Quality Standard: I.S.1-A, "Architectural Wood Flush Doors," of the National Wood Window and Door Association.
 - 2. AWI Quality Standard: "Architectural Woodwork Quality Standards" of the Architectural Woodwork Institute for grade of door, core, construction, finish, and other requirements.
- B. Fire-Rated Wood Doors: Provide wood doors that comply with NFPA 80; are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152; and are labeled and listed by UL, Warnock Hersey, or another testing and inspection agency acceptable to authorities having jurisdiction.
 - 1. Oversized Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturer's certificate stating that doors conform to all standard construction requirements of tested and labeled fire-door assemblies except for size.
 - 2. Temperature Rise Rating: At stairwell enclosures, provide doors that have a temperature rise rating of 450 deg F (250 deg C) maximum in 30 minutes of fire exposure.

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3. Temperature Rise Rating: At stairwell enclosures, provide doors that have a temperature rise rating of 250 deg F (139 deg C) maximum in 30 minutes of fire exposure.

- C. Single-Source Responsibility: Obtain doors from one source and by a single manufacturer.

1.5 DELIVERY, STORAGE & HANDLING

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's instructions.
 1. Comply with Technical Bulletin 420-R for delivery, storage, and handling of doors.
- B. Identify each door with individual opening numbers as designated on shop drawings, using temporary, removable, or concealed markings.

1.6 PROJECT CONDITIONS

- A. Conditioning: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

- A. General Warranty: Door manufacturer's warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch (6.35 mm) in a 42-by-84-inch (1067-by-2134-mm) section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span, or do not conform to tolerance limitations of referenced quality standards.
 1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
 2. Warranty shall be in effect during the following period of time after date of Substantial Completion.
 - a. Solid Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering doors that may be incorporated in the Work (No other Manufacturer to be used unless prior approved by addenda)
- B. Manufacturer: Subject to compliance with requirements, provide doors by one of the following:
 1. Oshkosh Door Company; 2501 Universal Street, P.O. Box 2468, Oshkosh, WI 54904; Ph.: 920.233.6161; www.oshkoshdoor.com.
 2. VT Industries; 1000 Industrial Park, P.O. Box 490, Holstein, IA 51025; Ph.: 712.368.4381; www.vtindustries.com.
 3. Haley Brothers, Inc.; 6291 Orangethorpe Ave., Buena Park, CA 90620; Ph.: 714.670.2112; www.haleybros.com.

2.2 INTERIOR FLUSH WOOD DOORS

- A. Solid Core Doors for Transparent Finish: Comply with the following requirements:
 1. Faces: Plain Sliced White Birch, Book/Run Matching

2. Grade: Premium "A"
 3. Construction: 5 ply, Hot Pressed
 4. Core: Particleboard Core to meet or exceed ANSI/A208.1 for 1-LD-1 or 1-LD-2 door core
 5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.
 6. Pair Matching: Required at all pairs of doors.
- B. Fire-Rated Solid Core Doors: Comply with the following requirements:
1. Faces and Grade: Provide faces and grade to match non-fire-rated doors in same area of building, unless otherwise indicated.
 2. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.
 3. Edge Construction: Provide manufacturer's standard laminated-edge construction for improved screw-holding capability and split resistance compatible hardwood
 4. Pairs: Furnish formed-steel edges and astragals for pairs of fire-rated doors, unless otherwise indicated.
 5. Pairs: Provide fire-rated pairs with fire-retardant stiles that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals.

2.3 FABRICATION

- A. Fabricate flush wood doors to comply with following requirements:
1. In sizes indicated for job-site fitting.
 2. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels:
 - a. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-resistance-rated doors.
 3. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, DHI A115-W series standards, and hardware templates.
 - a. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory machining.
 - b. Metal Astragals: Pre-machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- B. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Louvers: Factory install louvers in prepared openings.

2.4 SHOP PRIMING

- A. Transparent Finish: Shop-seal faces and edges of doors for transparent finish with stain (if required), other required pretreatments, and first coat of finish as specified.

2.5 FACTORY FINISHING

- A. General: Comply with referenced quality standard's requirements for factory finishing.
- B. Finish wood doors at factory.
- C. Transparent Finish: Comply with requirements indicated for grade, finish system, staining effect, and sheen.
1. Grade: Premium.

2. Finish: AWI System TR-6 or better in Factory standard color as directed by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine installed door frames prior to hanging door:
 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
 2. Reject doors with defects.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation see Division 8 Section "Door Hardware."
- B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and referenced quality standard and as indicated.
 1. Install fire-rated doors in corresponding fire-rated frames according to requirements of NFPA 80.
- C. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
 1. Fitting Clearances for Non-Fire-Rated Doors: Provide 1/8 inch (3.2 mm) at jambs and heads, 1/16 inch (1.6 mm) per leaf at meeting stiles for pairs of doors, and 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4-inch (6.4-mm) clearance from bottom of door to top of threshold.
 2. Fitting Clearances for Fire-Rated Doors: Comply with NFPA 80.
 3. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
 4. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) on lock edge; trim stiles and rails only to extent permitted by labeling agency.
- D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- E. Factory-Finished Doors: Restore finish after installation, if fitting or machining is required at the job site.

3.3 ADJUSTING AND PROTECTION

- A. Operation: Re-hang or replace doors that do not swing or operate freely.
- B. Finished Doors: Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 08220 - FRP DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. The extent of each type of door is shown on the drawings and schedules. The following types of doors are required:
 - 1. Fiberglass Reinforced Plastic (FRP) Doors.

1.3 QUALITY ASSURANCE

- A. Manufacturer's Certification: Manufacturer is to have a minimum of 25 years experience in the production of pre-hardwood and pre-assembled door systems, using the type of materials specified for this project.
- B. Installer's Qualifications: For the installation of the entrance systems, use only mechanics who are thoroughly trained and experienced in the skills required and who are completely familiar with the manufacturer's recommended methods of installation plus the requirements of this work.

1.4 WARRANTY

- A. Warranty all fiberglass doors for a period of 10 years against failure due to corrosion. Additionally, warranty all fiberglass doors on materials and workmanship for a period of 10 years, including warp, separation or delaminating and expansion of the core.

1.5 TEST REPORTS AND PERFORMANCE REQUIREMENTS FOR ALUMINUM HYBRID FRP NARROW STILE DOORS – HURRICANE RATED

- A. Entrance systems must comply with requirements for system performance characteristics as determined by the testing methods that follow:
 - 1. Two copies of current test reports covering the test procedures as listed are to be included with the submittals.
- B. Complete System Requirements Test: Complete system units that include door, frame and hardware are to meet the following criteria:
 - 1. FBC Protocol for TAS 201; TAS 202; TAS 203 – Pass, and the following additional minimum criteria in conjunction with the qualifications as outlined by previously referenced standards:
 - a. Thermal Transmittance Tests:
 - 1) U-factors expressed in Btu/ hr-ft (2)-F - AAMA 1503-98 - 0.58
 - 2) R-value expressed in hr-ft (2)-F/Btu - ASTM 1503-98 - 1.73
 - b. Structural Performance Tests:
 - 1) Air Infiltration –
ASTM E283 @ 1.56 psf (25 mph) - 0.41 cfm/ft (2)
ASTM E283 @ 6.24 psf (50 mph) – 1.06 cfm/ft (2)
 - 2) Water Penetration –
ASTM E331 - 15 Min Cycle - NO ENTRY
 - 3) Uniform Static Load for single door- ASTM E330 - (+) - 195.0
 - c. Structural Integrity Tests:

- 1) Exit Bar Pull Off Test - 1300 lbs. minimum load resistance before exit bar disengages from door.
- 2) Closer Pull Off - 1638 lbs. minimum load resistance before closer disengages from door.
- d. Windborne Debris Resistance Tests:
 - 1) Large Missile Impact Test - SFBC PA 201 - 94 – PASSED
 - 2) Cyclic Wind Pressure Test - SFBC PA 203 - 94 - 65PSF
 - 3) Forced Entry Test - SFBC 3603.2 - 300 lbs. – PASSED
- e. Indoor Air Quality Test: ASTM D 6670-01: GREENGUARD Environmental Institute Certified including GREENGUARD for Children and Schools Certification.
- C. Face Sheet Requirements Test: FRP material and FRP face sheets with core material are to meet the following criteria:
 1. Center Door Section (face sheet/core/face sheet) Gardner Impact Test – Nominal Value, ASTM D 3029 120 in-lb.
 2. FRP Material (MR85)
 - a. Flexural Strength Test – ASTM D790 - 22,600 psi (inward) 24,400 psi(outward)
 - b. Izod Impact Strength Test – ASTM D256 - 15.36 ft-lb./in thickness
 - c. Barcol Hardness – ASTM D2583 – 50

1.6 SUBMITTALS

- A. Product Technical Data Including:
 1. Acknowledgment that products submitted meet requirements of standards referenced.
 2. Manufacturer shall provide certificate of compliance with current local and federal regulations as it applies to the manufacturing process.
 3. Manufacturer's installation instructions.
 4. Schedule of doors indicating the specific reference numbers used on the owner's project documents, noting door type, frame type, size, handing and applicable hardware.
 5. Details of core and edge construction, including factory construction specifications.
 6. Certification of manufacturer's qualifications.
- B. Submittal Drawings for approval shall be submitted prior to manufacture and shall include the following Information and formatting:
 1. Summary door schedule indicating the specific reference numbers as used on owner's drawings, with columns noting door type, frame type, size, handing, accessories and hardware.
 2. A drawing depicting front and rear door elevations showing hardware with bill of material for each door.
 3. Drawing showing dimensional location of each hardware item and size of each door.
 4. Individual part drawing and specifications for each hardware item and FRP part or product.
 5. Construction and mounting detail for each frame type.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Each door shall be delivered individually crated for protection from damage in cardboard containers, clearly marked with project information, door location, specific reference number as shown on drawings, and shipping information. Each crate shall contain all fasteners necessary for installation as well as complete installation instructions.

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1. Doors shall be stored in the original container on edge, out of inclement weather for protection against the elements.
2. Handle doors pursuant to the manufacturer's recommendations as posted on outside of crate.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 1. Special-Lite - SL-17 HR Series, FRP/Aluminum Hybrid
- B. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- C. NOTE: Manufacturer must meet all technical requirements listed herein.
- D. Door Systems Classifications: Door systems for this project are based on criteria as cited for Systems meeting FBC Protocols TAS 201, 202, 203. Doors were tested as a unit and as such, to meet specified criteria all specifications regarding frame and door size must be met and testing documentation outlining the unit specifics as tested must be provided.

2.2 MATERIALS

- A. Aluminum Members:
 1. Doors, frames, miscellaneous components and entrance systems accessories are to be from the same manufacturer. Splitting the source for these items will not be permitted.
 2. Provide alloy and temper as recommended for resistance to corrosion and color control. Aluminum member references are ASTM B 221 for extrusions and ASTM B 209 for sheets.

2.3 ALUMINUM FRAMES

- A. Standard Closed Back Frames shall be of extruded aluminum 6063-T5 alloy and a wall thickness of .125".
 1. Vertical Members: All vertical frame jambs and mullions will be full height of opening.
 2. Sections: Tube sections will be 2" x 4 1/2" with joints connected by use of reinforcing clips and machine screws.
 3. Finish to be determined by architect.
 4. Closed Back Frames are: CDS Model 2400 or equal

2.4 FIBERGLASS NARROW STILE HURRICANE RATED ALUMINUM HYBRID (FRP) DOORS

- A. Structural Main Frame: Doors have an aluminum main frame constructed from extruded aluminum 6063 - T5 alloy. Doors are 1 3/4" thick. Main-frame tube is to be a single extruded unit measuring 1 1/2" x 2 1/2" (O.D.) on Sides; Bottom and top rail with a 6" (O.D.) tube.
- B. Main Frame Stile Wall Thickness:
 1. Side Stiles Minimum 1/8" thick hinge edge wall.
 2. Side Stiles Minimum 1/8" thick face walls.
 3. Bottom Rail Minimum 1/8" thick face walls.
 4. Top Rail Minimum 1/8" thick all walls.
- C. Main Frame Joinery: Assembly for the meeting joints of the Rails and Stiles on the main-frame are to include the following:

1. Tie rods inserted into top and bottom rails.
 2. Mortise & Tenon with four-point connect fasteners (per joint).
 3. ****WELDED JOINTS WILL NOT BE ACCEPTED****
- D. Face Sheets: Face sheets will be fiberglass reinforced polyester, .120" thick, and have a pebble-like embossed finish. Face sheet color will be selected from manufacturer's standard color chart.
- E. FRP face sheets are MR85 HIGH IMPACT FRP MATERIAL that has been tested by ASTM S5420 Gardner Impact Test with "Mean Failure Energy" rating no lower than 411.84 in-lb. (or equal).
- F. Core Material: Core material will be 5-lb. density polyurethane with a flame spread rating of no more than 25.
1. URETHANE CORE DOORS will require a letter from the manufacturer offering a special guarantee that the FRP face sheets will not delaminate (bubble) for a period of 25 years, AND that the manufacturer will cover ALL replacement costs if delamination does occur.
- G. Edge Trim: Stile Edge Trim is an INTEGRAL part of the main frame and interlocks with the panel. Top and bottom edge trim is removable.
1. Snap on edge trim will not be accepted.
- H. Weather Stripping: Weather stripping package as provided by door manufacturer as tested and passed with unit.
- I. Hardware Reinforcing: Closer reinforcing to be 1/8" minimum aluminum plate or channel. Surface Applied Exit Device reinforcing to be 1/8" aluminum channel.
- J. Narrow Stile Hurricane (FRP) Doors are by one of the following:
1. Basis of Design: Commercial Door Systems F200-HR
 2. Approved Manufacturer: SPECIAL LITE, Hurricane Rated Model SL-17 (must provide proof of test reports to confirm hardware configuration for each set of specified hardware passes TAS protocol 201, 202, 203)
- K. Vision Lites:
1. Vision lite trim moldings will be aluminum extrusion - 6063-T5 alloy and removable from the inside only.
 2. Door Vision Lites will be Factory glazed with hurricane tested glass size
 3. Hurricane Rated Vision Lite not to exceed 22" x 32" inches
 4. Door Vision Lite Kits are by THE DOOR MANUFACTURER ONLY.

2.5 HARDWARE

- A. Hardware locations to be templated as tested for Hurricane approval.
- B. Refer to specification section 08700 for hardware requirements.

PART 3 - EXECUTION

3.1 VERIFICATION

- A. Verification of Conditions:
 1. Verify openings are correctly prepared to receive doors and frames.
 2. Verify openings are correct size and depth in accordance with submittal drawings.
- B. Installer's Examination:

1. Door installer shall examine conditions under which construction activities of this section are to be performed and submit a written report to general contractor if conditions are unacceptable.
2. General Contractor shall submit two copies of the installer's report to the architect within 24 hours of receipt.
3. Installer shall not proceed with installation until all unacceptable conditions have been corrected.

3.2 INSTALLATION

- A. Doors shall be delivered at job site individually crated. Each crate to be clearly marked with the specific opening information for quick and easy identification.
- B. All single doors to be shipped completely assembled in the frame with hardware installed. Double doors to be prehung at the factory to ensure a proper fit and that hardware functions properly, then disassembled for shipping purposes.
- C. Install door opening assemblies in accordance with shop drawings and manufacturer's printed installation instructions, using installation methods and materials specified in installation instructions.
- D. Field alteration of doors or frames to accommodate field conditions is strictly prohibited. Site tolerances: Maintain plumb and level tolerance specified in manufacturer's printed installation instructions.
- E. Fire labeled doors, frames and any associated hardware must be installed by qualified professional installers in strict accordance with manufacturer's instructions and the latest revision of NFPA 80.

3.3 ADJUSTING

- A. Adjust doors in accordance with the door manufacturer's maintenance instructions to swing open and shut without binding and to remain in place at any angle without being moved by gravitational influence.
- B. Adjust door hardware to operate correctly in accordance with hardware manufacturer's maintenance instruction.

3.4 CLEANING

- A. Clean surfaces of door opening assemblies and exposed door hardware in accordance with respective manufacturer's maintenance instructions.

3.5 PROTECTION OF INSTALLED PRODUCTS

- A. Protect door opening assemblies and door hardware from damage by subsequent construction activities until final inspection.

END OF SECTION

SECTION 08310 COILING COUNTER DOOR

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. STAINLESS STEEL COILING METAL COUNTER DOOR WITH INTEGRAL FRAME

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.
- B. Section 05500 - Metal Fabrications: Support framing and framed opening.

1.3 REFERENCES

- A. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- B. ASTM A 666 - Standard Specification for Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar.
- C. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- D. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- E. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric).
- F. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- G. NEMA ICS 2 - Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC.
- H. NEMA MG 1 - Motors and Generators.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
- C. Preparation instructions and recommendations.
- D. Storage and handling requirements and recommendations.
- E. Details of construction and fabrication.
- F. Installation methods.
- G. Shop Drawings: Include detailed plans, elevations, details of framing members, required clearances, anchors, and accessories. Include relationship with adjacent construction.
- H. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.
- I. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

- A. Furnish each overhead coiling counter door as a complete unit produced by one manufacturer, including hardware, accessories, mounting and installation components.
- B. Furnish overhead coiling counter door units by one manufacturer for entire project.
- C. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years experience in the fabrication and installation of security closures.

- D. Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.
- E. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
- F. Install in areas designated by Architect.
- G. Do not proceed with remaining work until workmanship and installation is approved by Architect.
- H. Refinish mock-up area as required to produce acceptable work.
- I. Anchorages: Furnish all anchoring devices and provide setting drawings, templates, instructions and directions for installation of anchoring devices. Coordinate delivery with other work to avoid delay.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- C. Store materials in a dry, warm, ventilated weathertight location.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 COORDINATION

- A. Coordinate Work with other operations and installation of adjacent finish materials to avoid damage to installed materials.

1.9 WARRANTY

- A. Warranty: Manufacturer's limited door warranty for 2 years for all parts and components.
- B. Manufacturer's 2 year limited warranty for PowderGuard Premium Powder Coat Finish.
- C. Manufacturer's 4 year limited warranty for PowderGuard Zinc Powder Coat Finish.
- D. Manufacturer's 5 year limited warranty for PowderGuard Weathered Powder Coat Finish applied to complete door system.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Overhead Door Corporation, 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com; E-mail: info@overheaddoor.com.
- B. Raynor; 1101 East River Road, Dixon, IL 61021-0448; www.raynor.com; PH: 815.285.7144.
- C. Cookson; 1901 South Litchfield Road, Goodyear, AZ 85338; www.cooksondoor.com; PH: 800.294.4358

2.2 OVERHEAD COILING METAL COUNTER DOORS WITH INTEGRAL FRAME

- A. **Stainless Steel Counter Doors with Integral Frame: Overhead Door Corporation, 657 Series.**
 - 1. Curtain: Interlocking roll-formed stainless steel slats with a #4 finish and with endlock for curtain alignment. Slats, 22 gauge stainless steel with stainless steel tubular bottom bar with neoprene astragal.

2. Integral Frame and Sill: Integral stainless steel frame with a #4 finish and a stainless steel sill. Frame consists of 16 gauge jambs and header, with 14 gauge sill.
3. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch (0.8 mm) per foot of span. Counterbalance shall be adjustable by means of an adjusting tension wheel.
4. Hood: Stainless steel with a #4 finish and provided with intermediate support brackets as required.
5. Operation:
 - a. Manual push up.
6. Locking:
 - a. Cylinder lock.
7. Wall Mounting Condition:
 - a. Between jambs mounting installed in an existing opening.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify opening sizes, tolerances and conditions are acceptable.
- B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
- D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- E. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.
- F. Install perimeter trim and closures.

3.4 ADJUSTING

- A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

- A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.
- B. Remove labels and visible markings.

- C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION

SECTION 08330 - COILING DOORS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Insulated Coiling Overhead Doors.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Support framing and framed opening.
- B. Section 08700 - Door Hardware: Product Requirements for cylinder core and keys.

1.3 REFERENCES

- A. ANSI/DASMA 108 - American National Standards Institute Standard Method For Testing Sectional Garage Doors And Rolling Doors: Determination Of Structural Performance Under Uniform Static Air Pressure Difference.
- B. NFRC 102 - Test Procedure for Measuring the Steady-State Thermal Transmittance of Fenestration Systems.
- C. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.
- D. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- E. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- F. ASTM A 666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- G. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
- H. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Overhead coiling service doors:
 - 1. Wind Loads: Design door assembly to withstand wind/suction load of 20 psf (958 Pa) without damage to door or assembly components in conformance with ASTM E 330.
 - 2. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
- B. Overhead coiling insulated doors:
 - 1. Wind Loads: Design door assembly to withstand wind/suction load of 20 psf (958 Pa) without damage to door or assembly components in conformance with ASTM E 330.
 - 2. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.
- C. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01600.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Details of construction and fabrication.
 4. Installation instructions.
- C. Shop Drawings: Include detailed plans, elevations, details of framing members, anchoring methods, required clearances, hardware, and accessories. Include relationship with adjacent construction.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- G. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

- A. Furnish each coiling door as a complete unit produced by one manufacturer, including hardware, accessories, mounting and installation components.
- B. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years experience in the fabrication and installation of security closures.
- C. Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 3. Refinish mock-up area as required to produce acceptable work.
 4. Anchorages: Furnish all anchoring devices and provide setting drawings, templates, instructions and directions for installation of anchoring devices. Coordinate delivery with other work to avoid delay.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 COORDINATION

- A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.10 WARRANTY

- A. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 3 years or 20,000 cycles, whichever occurs first.
- B. Warranty: Manufacturer's limited door system warranty for 2 years for all parts and components.
- C. PowderGuard Finish
 - 1. PowderGuard Max: Applied to curtain, guides, bottom bar, headplates: Manufacturer's limited Max Finish warranty for 5 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Overhead Door Corp., 2501 S. State Hwy. 121, Suite 200, Lewisville, TX 75067. ASD. Tel. Toll Free: (800) 275-3290. Phone: (469) 549-7100. Fax: (972) 906-1499. Web Site: www.overheaddoor.com. E-mail: info@overheaddoor.com.
- B. Raynor; 1101 East River Road, Dixon, IL 61021-0448; www.raynor.com; PH: 815.285.7144.
- C. Cookson; 1901 South Litchfield Road, Goodyear, AZ 85338; www.cooksondoor.com; PH: 800.294.4358
- D. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 INSULATED COILING OVERHEAD DOORS

- A. Overhead Coiling Stormtite Insulated Service Doors: Overhead Door Corporation Model 625.
 - 1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
 - a. Flat profile type F-265i for doors up to 40 feet (12.19 m) wide.
 - b. Front slat fabricated of:
 - i. 24 gauge galvanized steel.
 - c. Back slat fabricated of:
 - i. 24 gauge galvanized steel.
 - d. Slat cavity filled with CFC-free foamed-in-place, polyurethane insulation.
 - i. R-Value: 7.7, U-Value: 0.13.
 - ii. Sound Rating: STC-21.
 - 2. Performance:
 - a. Through Curtain Sound Rating: Sound Rating: STC-28 (STC-30+ with HZ noise generator) as per ASTM E 90.
 - b. Installed System Sound Rating: STC-21 as per ASTM E 90.
 - c. U-factor: 0.91 NFRC test report, maximum U-factor of no higher than 1.00.
 - d. Air Infiltration: Meets ASHRAE 90.1 & IECC 2012/2015 C402.4.3 Air leakage <1.00 cfm/ft².
 - 3. Slats and Hood Finish:
 - a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester top coat.
 - i. Powder Coat:
 - 1) PowderGuard Max powder coat, color as selected by Architect.

- ii. Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.
- 4. Weatherseals:
 - a. Vinyl bottom seal, exterior guide and internal hood seals.
 - b. Interior guide weatherseal.
 - c. Lintel weatherseal.
 - d. Air Infiltration Package, IECC 2012/2015 listed; product to meet C402.4.3 2012 Air leakage <1.00 cfm/ft².
 - i. Air infiltration perimeter seal package includes: guide cover, guide cap, dual brush exterior guide seal, 4 inch finned lintel brush seal and vinyl bottom seal.
- 5. Bottom Bar:
 - a. Two galvanized steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
- 6. Guides: Three structural steel angles.
- 7. Brackets:
 - a. Galvanized steel to support counterbalance, curtain and hood.
- 8. Finish; Bottom Bar, Guides, Headplate and Brackets:
 - a. Finish: PowderGuard Max powder color as selected by the Architect.
- 9. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
- 10. Hood: Provide with internal hood baffle weatherseal.
 - a. 24 gauge galvanized steel with intermediate supports as required.
- 11. Manual Operation:
 - a. Chain hoist.
- 12. Windload Design:
 - a. Standard windload shall be 20 PSF.
- 13. Locking:
 - a. Chain keeper locks for chain hoist operation.
 - b. Interior slide bolt lock for electric operation with interlock switch.
 - c. Cylinder lock for electric operation with interlock switch.
- 14. Wall Mounting Condition:
 - a. As indicated on drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify opening sizes, tolerances and conditions are acceptable.
- B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.
- D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- E. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07900.
- F. Install perimeter trim and closures.
- G. Instruct Owner's personnel in proper operating procedures and maintenance schedule.

3.4 ADJUSTING

- A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

- A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.
- B. Remove labels and visible markings.
- C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

- A. Protect installed products until completion of project.

END OF SECTION

SECTION 08345 – SOUND CONTROL DOOR ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent and location of each type of steel acoustical pre-hung door assemblies is shown on drawings and in schedules.
- B. Types of doors required include the following:
 - 1. Integrated sound transmission class (STC)-rated sound control door, frame, and hardware assemblies, fire-rated where indicated.

1.3 RELATED SECTIONS

- A. Section 08700 - Door Hardware
- B. Section 08800 - Glazing
- C. Section 09900 - Painting

1.4 REFERENCES

- A. ASTM A 366 - Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality
- B. ASTM A 569 - Standard Specification for Steel, Carbon, (0.15 Maximum Percent), Hot-Rolled Sheet and Strip, Commercial Quality
- C. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process
- D. ASTM B 117 - Standard Method of Salt Spray (Fog) Testing
- E. ASTM D 1735 - Standard Practice for Testing Water Resistance of Coating Using Water Fog Apparatus
- F. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne-Sound Transmission Loss of Building Partitions
- G. ASTM E 336 - Standard Test Method for Measurement of Airborne Sound Insulation in Buildings
- H. ASTM E 413 - Classification for Determination of Sound Transmission Class
- I. HMMA 840 - Installation and Storage of Hollow Metal Doors and Frames; Hollow Metal Manufacturers Association

1.5 SYSTEM DESCRIPTION

- A. Design requirements: Pre-hung acoustical door assemblies to include doors, frames, and door hardware to include gasketing systems, retainers and retainer covers, automatic or fixed door bottoms, cam-lift hinges, thresholds, and sills, required to achieve specified performance requirements.
- B. **Performance requirements: Sound Transmission Coefficient rating shall be no less than STC-50, or as noted in the door schedule, for installed assembly, when tested as operable door assembly in accordance with ASTM E 90 and ASTM E 413.**

1.6 SUBMITTALS

- A. Submit under provisions of Section 01300
- B. Product data: Indicate door materials and construction
- C. Shop drawings: Indicate door opening criteria, elevations, sizes, types, swings; identify and detail cutouts

D. Quality assurance submittals:

1. Test Reports:

- a. Certified laboratory reports, performed in accordance with ASTM E90 and ASTM E 413, from independent testing laboratory qualified under the National Voluntary Laboratory Accreditation Program (NVLAP) supporting compliance of assemblies to specified requirements.
- b. Minimum five (5) field tests, performed in accordance with ASTM E 336 and ASTM E 413 by five separate independent testing agencies, substantiating acoustical performance when installed at no less than seven (7) FSTC ratings below the specified STC rating

2. Certificates:

a. Contractor's certification that:

- i. Products of this section, as provided, meet or exceed specified requirements
- ii. Manufacturer of products of this section meet specified qualifications

3. Manufacturer's instructions: Printed installation instructions for each component

4. Closeout submittals:

- a. Warranty documents, executed by manufacturer in Owner's name
- b. Operation and maintenance data for assembly components
- c. Certified statement of manufacturer's authorized representative, as specified in FIELD QUALITY CONTROL Article of PART 3 of this section
- d. Certified test reports of independent testing agency, as specified in FIELD QUALITY CONTROL Article of PART 3 of this section

1.7 QUALITY ASSURANCE

A. Qualifications:

1. Manufacturer: Minimum five (5) years documented experience producing systems specified in this section
2. Installer: Minimum five (5) years documented experience installing systems specified in this section, and approved by manufacturer

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store frames in accordance with requirements of HMMA 840
- B. Store steel doors in accordance with requirements of HMMA 840
- C. Remove wraps or covers from doors and frames upon delivery at the building site; clean and touch-up scratches or disfigurement caused by shipping or handling promptly with rust inhibitive primer
- D. Store units on planks or dunnage in a dry location; store doors in a vertical position spaced by blocking
- E. Store units covered to protect them from damage, but permitting air circulation

1.9 SCHEDULING

- A. Furnish manufacturer's mounting templates for door hardware specified in Section 08700 to manufacturer of products of this section in time for factory preparation for door hardware.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Krieger Specialty Products,
 - 2. Noise Barriers
 - 3. Wenger
 - 4. Industrial Acoustics
 - 5. Jamison
- B. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

- A. Steel Sheet: One of the following:
 - 1. Cold-rolled steel sheet conforming to ASTM A 366, commercial quality.
 - 2. Hot-rolled steel sheet conforming to ASTM A 569, pickled and oiled, commercial quality.
- B. Galvanized Steel Sheet: ASTM A 653/A 653M, commercial quality, minimum G60 zinc coating.
- C. Acoustical Material: Manufacturer's standard for required STC rating.
- D. Primer: Meeting ASTM B 117 salt spray for 150 hours, and ASTM D 1735 water fog test for organic coatings for 200 hours.
- E. Glazing: Specified in Section 08800

2.3 COMPONENTS

- A. Steel Doors: Fabricate in accordance with Architect-approved shop drawings, 1-3/4 inches minimum thickness, and as follows:
 - 1. Face Sheets:
 - a. Doors for interior use: Steel sheet, minimum 16 gage sheet thickness.
 - b. Doors for exterior use: Galvanized steel sheet, minimum 16 gage sheet thickness.
 - c. Visible seams on face sheets not permitted.
 - 2. Core:
 - a. Stiffen face sheets with continuous vertical steel sections.
 - b. Fill spaces between stiffeners with acoustical material.
 - 3. Vertical Edges:
 - a. Join face sheets at vertical edges by continuous welding:
 - i. Join door faces by continuous weld on each edge, extending full door height.
 - ii. Grind, fill, and dress welds to provide smooth flush surface.
 - b. Form edge profiles both vertical edges of doors with 1/8 inch in 2 inches bevel.
 - c. Visible seams on vertical edges not permitted.
 - 4. Horizontal Edges:
 - a. Close top and bottom edges of doors with continuous steel channels, 16 gage minimum, spot-weld channels to both door faces.
 - b. Provide openings in bottom closure of exterior doors to permit escape of entrapped moisture.

- c. Provide additional flush closing channel at top edge of doors; spot-weld channel to both door faces.
- 5. Hardware Preparation:
 - a. Mortise, reinforce, drill, and tap doors at factory for fully templated mortised hardware only, in accordance with approved hardware schedule and supplied templates.
 - b. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
- B. Frames: Fabricate in accordance with Architect-approved shop drawings, and as follows:
 - 1. Frames for interior use: Fabricate from steel sheet, minimum 14-gage thickness.
 - 2. Frames for exterior use: Fabricate from galvanized steel sheet, minimum 14-gage thickness.
 - 3. Form frame members straight, and of uniform profile through lengths, as welded units with integral trim, of sizes and profiles indicated.
 - a. Weld contact edges of joints closed tight.
 - b. Miter perimeter trim faces and weld continuously.
 - 4. When shipping limitations so dictate, fabricate frames for large openings in sections designed for assembly in the field; install alignment plates or angles, of same material and gage as frame, at each joint.
 - 5. Hardware Preparation:
 - a. Mortise, reinforce, drill, and tap frames at factory for fully templated mortised hardware only, in accordance with Architect-approved shop drawings and supplied templates.
 - b. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
 - 6. Floor Anchors:
 - a. Fabricate of same material as frame material; minimum 14 gage.
 - b. Weld anchors inside each jamb for floor anchorage.
 - 7. Jamb Anchors:
 - a. Fabricate of same material as frame material; weld anchors inside each jamb for wall anchorage.
 - b. Provide anchor types for indicated adjacent wall construction:
 - i. Frames for installation in masonry walls: Adjustable jamb anchors, 16 gage, T-shape type.
 - ii. Frames for installation in stud partitions: Continuous 16 gage steel channel to surround stud, welded inside each jamb.
 - 8. Plaster Guards: Fabricate from minimum 22 gage steel; weld in place at hardware mortises on frames to be set in plaster, masonry, or concrete openings.
 - 9. Provide welded frames with temporary steel spreader welded to jamb feet for bracing during shipping and handling.
- C. Vision Lites:
 - 1. Factory-assemble lites in doors indicated to have lites, using glazing materials and assembly methods indicated on approved shop drawings for required STC rating; field assembly not permitted.
 - 2. Fabricate dual-glazed lites permitting individual removal of each glazing pane.
- D. Loose Stops:
 - 1. Fabricate of minimum 12 gage steel, with factory-drilled and countersunk holes for fasteners.
 - 2. Form stops for mitered corner joints.

3. Supply cadmium-coated or zinc-coated fasteners, size and quantity required for fastener holes.

E. Door Hardware:

1. Supply gasketing systems, retainers, retainer covers, fixed door bottoms, cam-lift hinges, thresholds, and sills as indicated on Architect-approved shop drawings, or specified in manufacturer's product data for project conditions, to achieve specified performance requirements.
2. All other door hardware is specified in Section 08710

2.4 SILL CONDITION

- A. Where indicated on the drawings, furnish a smooth flush stainless steel or aluminum threshold for the door bottom to seal against when the door is in the closed position. The minimum width of the threshold shall be door thickness plus 4" to allow the threshold to extend a minimum of 1 ½" beyond the face of the door on both sides of the opening. For openings where carpet extends through the opening, the threshold height shall be 1/8" greater in height than the carpet thickness.

2.5 FINISH

- A. Finish: All tool marks and surface imperfections shall be removed and exposed faces of all welded joints shall be dressed smooth. Assemblies shall be treated and shall be coated on all accessible surfaces with a rust-inhibitive primer which meets ASTM B117 salt spray for 150 hours, and ASTM D1735 water fog test for organic coatings for 200 hours, and which is fully cured prior to shipment.

2.6 SOURCE QUALITY CONTROL

- A. Hardware location on doors and frames:
1. Hinges:
 - a. Top: 5 inches from head of frame to top of hinge.
 - b. Bottom: 10 inches from finished floor to bottom of hinge.
 2. Unit and integral type locks and latches: 38 inches from finished floor to centerline of knob.
 3. Deadlocks: 48 inches from finished floor to centerline of strike.
 4. Panic Hardware: 38 inches from finished floor to centerline of cross bar, or as indicated on hardware template.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verification of conditions:
1. Prior to installation, check and correct frames for size, swing, squareness, alignment, twist and plumb.
 2. Verify openings are in accordance with approved shop drawings.
- B. Installer's Examination:
1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
 2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
 3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
 4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 PREPARATION

- A. Remove steel spreaders from welded frames prior to installation; use of spreaders for installation purposes not permitted.

3.3 INSTALLATION

- A. Install units in accordance with approved shop drawings and manufacturer's printed installation instructions; in addition, install steel components in accordance with HMMA 840.
- B. Oversize Assemblies:
 - 1. Weld field joints in accordance with AWS D1.1 and approved shop drawings.
 - 2. Finish exposed field welds smooth. Touch-up with rust inhibitive primer.
 - 3. Ship Knock down to the jobsite prepared for field attachment by others.
 - 4. Fill voids between concealed side of frame and adjacent wall construction with lightweight gypsum plaster in accordance with approved shop drawings or manufacturer's printed installation instructions.
 - 5. Finish surfaces having abrasion damage smooth; touch-up with rust inhibitive primer.
- C. Install gasketing systems, retainers, retainer covers, automatic door bottoms, fixed door bottoms, cam-lift hinges, thresholds, and sills in accordance with manufacturer's printed instructions.
 - 1. All perimeter gaskets shall be properly installed and adjusted to be light-tight and essentially air-tight, with door operating normally.
- D. Installation of all other door hardware is specified in Section 08700
- E. Field painting is specified in Section 09900
- F. Site Tolerances: Do not exceed the following installation tolerances:
 - 1. Squareness: Plus or minus 1/16 inch measured on a line, 90 degrees from one jamb, at the upper corner of the frame at the other jamb.
 - 2. Alignment: Plus or minus 1/16 inch measured on jambs on a horizontal line parallel to the plane of the wall.
 - 3. Twist: Plus or minus 1/16 inch measured at face corners of jambs on parallel lines perpendicular to the plane of the wall.
 - 4. Plumb: Plus or minus 1/16 inch measured on the jamb at the floor.

3.4 FIELD QUALITY CONTROL

- A. The owner may pay an independent testing agency to perform tests on the acoustical door assemblies.
- B. Each door shall provide acoustical isolation equal to a Noise Isolation Class (NIC) which is no less than seven (7) points below the specified STC rating, when measured in accordance with ASTM E 336 and ASTM E 413.
- C. Any door assemblies that do not meet acoustical performance requirements will be fixed and retested at the Contractor's expense.

END OF SECTION

SECTION 08410 - ALUMINUM STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of aluminum entrances and storefronts is indicated on drawings and schedules.
- B. Types of aluminum entrances required include the following:
 - 1. Storefront type framing system for exterior applications.
 - 2. Impact Resistant Exterior Storefront Door Frames.
- C. Glazing: Refer to "Glass and Glazing" section of Division 8 for glazing requirements for aluminum entrances and storefronts specified herein to be factory pre-glazed.

1.3 SYSTEM PERFORMANCES

- A. General: Provide exterior entrance and storefront assemblies that have been designed and fabricated to comply with requirements for system performance characteristics listed below as demonstrated by testing manufacturer's corresponding stock systems according to test methods designated. System shall be of design styles indicated. System components and accessories shall be from the same manufacturer, to the maximum extent possible.
- B. Thermal Movement: Allow for expansion and contraction resulting from ambient temperature range of 120 degree F.
- C. Wind Loading: Provide capacity to withstand loading indicated below, tested per ASTM E 330.
 - 1. Uniform pressure of 20 psf inward and 20 psf outward.
- D. Transmission Characteristics of Fixed Framing: Comply with requirements indicated below for transmission characteristics and test methods.
 - 1. Air and Water Leakages: Air infiltration of not more than 0.06 CFM per sq. ft. of fixed area per ASTM E 283 and no uncontrolled water penetration per ASTM E 331 at pressure differential of 6.24 psf (excluding operable door edges).
 - 2. Condensation Resistance: Not less than 51 CRF per AAMA 1502.7.
 - 3. Thermal Transmittance: U-value of not more than 0.65 Btu/(hr x sf x degree F) per AAMA 1503.1.
- E. Transmission Characteristics of Entrances: Provide entrance doors with jamb and head frames which comply with requirements indicated below for transmission characteristics and test methods.
 - 1. Air Leakage: Air infiltration per linear foot of perimeter crack of not more than 0.50 CFM for single doors and 1.0 CFM for pairs of doors per ASTM E 283 at pressure differential of 1.567 psf.
 - 2. Condensation Resistance: Not less than 48 CRF per AAMA 1502.7.
 - 3. Thermal Transmittance: U-value of not more than 0.93 Btu/(hr x sf x degree F) per AAMA 1503.1.

1.4 QUALITY ASSURANCE

- A. Drawings: Plans, elevations and details show spacings of members as well as profile and similar dimensional requirements of aluminum entrances and storefront work. Minor deviations will be accepted in order to utilize manufacturer's standard products when, in Architect's sole judgment, such deviations do not materially detract from design concept or intended performances.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, standard details, and installation recommendations for components of aluminum entrances and storefronts required for project, including test reports certifying that products have been tested and comply with performance requirements.
- B. Samples: Submit samples of each type and color of aluminum finish on 12" long sections of extrusions or formed shapes and on 6" square sheets. Where normal color and texture variations are to be expected, include 2 or more units in each set of samples showing limits of such variations.

PART 2 - PRODUCTS

2.1 ALUMINUM DOORS, FRAMES & STOREFRONTS

- A. Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Kawneer North America
 - 2. Tubelite, Inc.
 - 3. Coral Industries, Inc./Coral Architectural Products
 - 4. YKK AP America, Inc.
 - 5. Oldcastle
 - 6. Record
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS AND ACCESSORIES

- A. Aluminum Members: Alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish; ASTM B 221 for extrusion, ASTM B 209 for sheet/plate.
- B. Fasteners: Aluminum, non-magnetic stainless steel, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum components.
 - 1. Do not use exposed fasteners except where unavoidable for application of hardware. Match finish of adjoining metal.
 - 2. Provide Phillips flat-head machine screws for exposed fasteners.
- C. Concealed Flashing: Dead-soft stainless steel, 26 gauge minimum, or extruded aluminum, 0.062" minimum, of an alloy and type selected by manufacturer for compatibility with other components.
- D. Brackets and Reinforcements: Manufacturer's high-strength aluminum units where feasible; otherwise, non-magnetic stainless steel or hot-dip galvanized steel complying with ASTM A 386.
- E. Concrete/Masonry Inserts: Cast-iron, malleable iron, or hot-dip galvanized steel complying with ASTM A 386.
- F. Bituminous Coatings: Cold-applied asphalt mastic complying with SSPC-PS 12, compounded for 30-mil thickness per coat.
- G. Compression Weatherstripping: Manufacturer's standard replaceable stripping of either molded neoprene gaskets complying with ASTM D 2000 or molded PVC gaskets complying with ASTM D 2287.
- H. Sliding Weatherstripping: Manufacturer's standard replaceable stripping of wool, polypropylene, or nylon woven pile, with nylon fabric or aluminum strip backing, complying with AAMA 701.2.

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- I. Glass and Glazing Materials: Provide glass and glazing materials which comply with requirements of "Glass and Glazing" section of these specifications.

2.3 HARDWARE

- A. General: Hardware shall comply with requirements of the "Americans with Disabilities Act". Refer to hardware section of Division 8 for requirements for hardware items other than those indicated herein to be provided by manufacturer of aluminum entrances.
 1. Push/Pull Handles: CO-9 design, by Kawneer. Finish as per the Door Schedule.
 2. All other hardware shall be as per Section 08700, Finish Hardware.

2.4 FRAMING

- A. Types:
 1. Storefront type framing system for insulated exterior applications:
 - a. Framing system shall be equal to TriFab Versaglaze 451, by Kawneer.
 2. Storefront type framing system for non-insulated interior applications:
 - a. Framing system shall be equal to TriFab Versaglaze 450, by Kawneer.
 3. Impact Resistant Exterior Storefront Door Frames:
 - a. Framing system shall be equal to IR 501, by Kawneer (or equal), Impact Resistant Storefront Framing Systems.
 - b. NOTE: Frames as indicated on drawings "AF2" shall be Special-Lite frames per specification section 08220-FRP Doors. Frames as indicated on drawings "AF1" and "AF3" shall be Aluminum Storefront per this section 08410- Aluminum Storefronts.
- B. General:
 1. Support Members: Extruded aluminum alloy 6063-T6 or 6061-T6 complying with ASTM B-221.
 2. Flashing/Closures: Formed aluminum 5005-H34 alloy, min. thickness .040", complying with ASTM B-209.
 3. Cap System: Manufacturer's standard cap glazing system consisting of rectangular (rafter) and beveled (horizontal) glazing gaps which will secure all sides of each light of glass against negative and positive loads.
 4. Fasteners: A300 stainless steel.
 5. Sealant: Silicone (FS TT-S-0015 43A and TT-S-0023 o.c.)

2.5 FABRICATION

- A. Sizes and Profiles: Required sizes for door and frame units, including profile requirements, are indicated on drawings. Any variable dimensions are indicated, together with maximum and minimum dimensions required to achieve design requirements and coordination with other work.
- B. Prefabrication: To greatest extent possible, complete fabrication, assembly, finishing, hardware application, and other work before shipment to project site. Disassemble components only as necessary for shipment and installation.
 1. Preglaze door and frame units to greatest extent possible, in coordination with installation and hardware requirements.
 2. Do not drill and tap for surface-mounted hardware items until time of installation at project site.
 3. Perform fabrication operations, including cutting, fitting, forming, drilling and grinding of metal work in manner which prevents damage to exposed finish surfaces. For hardware, perform these operations prior to application of finishes.

- C. Welding: Comply with AWS recommendations to avoid discoloration; grind exposed welds smooth and restore mechanical finish.
- D. Reinforcing: Install reinforcing as necessary for performance requirements; separate dissimilar metals with bituminous paint or other separator which will prevent corrosion.
- E. Continuity: Maintain accurate relation of planes and angles, with hairline fit of contacting members.
- F. Fasteners: Conceal fasteners wherever possible.
- G. Weatherstripping: For exterior doors, provide compression weatherstripping against fixed stops; at other edges, provide sliding weatherstripping retained in adjustable strip mortised into door edge.
 - 1. Provide EPDM/vinyl blade gasket weatherstripping in bottom door rail, adjustable for contact with threshold.

2.6 STOREFRONT FRAMING SYSTEM

- A. General: Provide inside-outside matched center glazed system with provisions for glass replacement. Shop-fabricate and preassemble frame components where possible.

2.7 FINISHES

- A. Baked Enamel Finish: Premium color selection equal to Kawnear #22 Stock Permafluor Architectural Coating (Hylar 5000 or Kynar 500), factory applied and oven baked for a topcoat thickness of 1.0 - 1.3 mils.
 - 1. Color to be selected by Architect after bid date from manufacturer standards
 - 2. Color selections MUST include "White".

PART 3 - EXECUTION

3.1 PREPARATION

- A. Field Measurement: Wherever possible, take field measurements prior to preparation of shop drawings and fabrication, to ensure proper fitting of work.

3.2 INSTALLATION

- A. Comply with manufacturer's instructions and recommendations for installation of aluminum entrances.
- B. Set units plumb, level, and true to line, without warp or rack of framing members, doors, or panels. Anchor securely in place, separating aluminum and other corrodible metal surfaces from sources of corrosion of electrolytic action at points of contact with other materials.
- C. Drill and tap frames and apply surface-mounted hardware items, complying with hardware manufacturer's instructions and template requirements. Use concealed fasteners wherever possible.
- D. Set sill members and other members in bed of sealant as indicated, or with joint fillers or gaskets as indicated to provide weathertight construction. Comply with requirements of Division 7 for sealants, fillers, and gaskets.
- E. Refer to "Glass and Glazing" section of Division 8 for installation of glass and spandrel panels indicated to be glazed into framing, and not preglazed by manufacturer.

3.3 ADJUST AND CLEAN:

- A. Adjust operating hardware to function properly, without binding, and to prevent tight fit at contact points and weatherstripping.
- B. Clean completed systems, inside and out, promptly after erection and installation of glass and sealants. Remove excess glazing and joint sealants, dirt, and other substances from aluminum surfaces.

- C. Institute protective measures and other precautions required to assure that aluminum entrances and storefronts will be without damage or deterioration, other than normal weathering, at time of acceptance.

END OF SECTION

SECTION 08520 - ALUMINUM IMPACT WINDOWS – FIXED

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of each type of aluminum window units including window column covers, panning trim, as shown on drawings.

1.3 QUALITY ASSURANCE

- A. Standards: Except as otherwise indicated requirements for aluminum windows, terminology and standards of performance, and fabrication workmanship are those specified and recommended in ANSI/AAMA 506 and applicable general recommendations published by AAMA and AA. Where more stringent requirements are shown, manufacturer shall provide proof of compliance as required by the architect.
- B. Performance and Testing:
- C. General: Except as otherwise indicated, comply with air infiltration tests, water resistance tests, and applicable load tests specified in ANSI/AAMA 506 for type and classification of window units required in each case.
- D. Prior Approval: Window manufacturers other than those specified requesting approval shall submit samples and test data ten days prior to bid opening for approval. Architect will list those approved manufacturers by addendum. No verbal approvals will be issued.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications, recommendations, and standard details for aluminum window units, including certified test laboratory reports as necessary to show compliance with requirements.
- B. Shop Drawings: Submit shop drawings, including wall elevations at 1/4" scale, typical unit elevations at 3/4" scale and full size detail sections of every typical composite member. Show anchors, hardware, operators and other components not included in manufacturer's standard data. Include glazing details.
 - 1. **Engineered Stamped Calculations are required by an engineer with a State of Alabama Stamp.**
 - 2. Architect reserves right to require additional samples which will show fabrication techniques, workmanship of component parts, and design of hardware and other exposed auxiliary items.

1.5 SPECIAL PROJECT WARRANTY

- A. Submit written warranty signed by manufacturer, installer and contractor, agreeing to replace aluminum window units which fail in materials or workmanship within 3 years of date of acceptance. Failure of materials or workmanship shall include (but not be limited to) excessive leakage or air infiltration, excessive deflections, faulty operation of sash, deterioration of finish or metal in excess of normal weathering, and defects in hardware, weather-stripping and other components of work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

1. Peerless Series G241 Impact Windows – Large Missile Impact Fixed
 2. Traco Series TR-3800I Impact Windows - Large Missile Impact Fixed
 3. WINCO 1150 Impact Windows – Large Missile Impact Fixed
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS - GENERAL

- A. GENERAL: All aluminum prime windows shall be single hung type and shall conform to the Architectural Aluminum Manufacturer's Association specification requirements for AW-40.
- B. All windows shall be of the type and size shown on the drawings.
- C. Aluminum Extrusions: Alloy and temper recommended by window manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000 psi ultimate tensile strength and not less than 0.062" thickness at any location for main frame and sash members. Comply with ASTM B 221.
- D. Fasteners: Aluminum, non-magnetic stainless steel, or other materials warranted by manufacturer to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors and other components of window units.
1. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125" thick, reinforce interior with aluminum or non-magnetic stainless steel to receive screw threads, or provide standard non-corrosive pressed in splined grommet nuts.
 2. Do not use exposed fasteners except where unavoidable for application of hardware. Match finish of adjoining metal.
 3. Provide Phillips flat-head machine screws for exposed fasteners.
- E. Anchors, Clips and Window Accessories: Depending on strength and corrosion-inhibiting requirements, fabricate units of aluminum, non-magnetic stainless steel, or hot-dip zinc coated steel or iron complying with ASTM A 386.
- F. Sealant: Unless otherwise indicated for sealants required within fabricated window units, provide type recommended by window manufacturer for joint size and movement, to remain permanently elastic, non-shrinking and non-migrating. Comply with Division 7 sections for installation of sealants.

2.3 MATERIALS

- A. All sections of frame and sash members shall be of commercial quality extruded 6063-T5 aluminum alloy. Frame shall have a minimum depth of 3-1/4" with a minimum wall thickness of not less than .062". Sill members and panning trim minimum thickness shall not be less than .078". All horizontal ventilator rails shall be of tubular construction and shall have a minimum glazing depth of 7/8". Panning trim, where required, shall be of extruded aluminum of not less than .078" thick. Window to have individual mulls exposed at exterior.
- B. CONSTRUCTION: Frame and sash member joints shall be neatly and securely fastened by means of 2 screws per corner which fasten into screw bosses extruded integrally in the section. Frame corners shall be sealed with an approved sealant in order to provide a permanently leakproof joint. Sash shall have nylon guides to prevent metal to metal contact between sash and frame members.
- C. HARDWARE: Each window shall have a set of heavy duty emergency sill latches. Bottom sash shall have a pair of 1/2" heavy duty block & tackle balances, easily replaceable and adjustable.
- D. WEATHERSTRIPPING: The sash shall have integral grooves containing a silicone treated wool pile with fin seal vinyl barrier. Each sash shall be weather-stripped around the perimeter and double weather-stripped at the jambs.

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- E. GLASS AND GLAZING: Windows shall be factory glazed with 1" thick insulating glass with exterior pane to be 1/4" Clear Lo-E tempered, 1/2" airspace, and interior pane to be 1/4" tinted Gray Cardinal 366 with .090 inner layer "Impact Resistance Glass for Large Missiles", as per ASTM E 2190-02 as pass/fail.
- F. MUNTINS: If detailed on the window schedule and building elevations shall be between the glass. Finish on muntins shall match window finish.
- G. FINISH: Windows shall receive a 2605 Kynar Paint Finish.
 - 1. Color to be selected from manufactures standard colors AFTER BID DATE.
- H. BREAK METAL SILL FLASHING: If detailed at the window sills shall have end dams and be provided by the window manufacturer. Finish to match windows.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators, and other components of work.
- B. Set units plumb, level and true to line, without warp or rack of frames or sash. Anchor securely in place. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action.
- C. Set sill members and other members in bed of compound as shown, or with joint fillers or gaskets as shown, to provide weathertight construction. Refer to Division 7 sealant sections for compounds, fillers and gaskets to be installed with window units. Coordinate installation with wall flashings and other components of work.

3.2 ADJUST AND CLEAN

- A. Adjust operating sash and hardware to provide tight fit at contact points and at weather-stripping, for smooth operation and weathertight closure.
- B. Clean aluminum surfaces promptly after installation of windows, exercising care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt and other substances. Lubricate hardware and moving parts.
- C. Initiate and maintain all protection and other precautions required to ensure that window units will be without damage or deterioration (other than normal weathering) at time of acceptance.

END OF SECTION

SECTION 08700 - FINISH HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification Sections apply to this Section.

1.2 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
 - B. This Section includes the following:
 - 1. Hinges.
 - 2. Key control system.
 - 3. Lock cylinders and keys.
 - 4. Lock and latch sets.
 - 5. Bolts.
 - 6. Exit devices.
 - 7. Push/pull units.
 - 8. Closers.
 - 9. Overhead holders.
 - 10. Miscellaneous door control devices.
 - 11. Door trim units.
 - 12. Protection plates.
 - 13. Weather-stripping for exterior doors.
 - 14. Sound stripping for interior doors.
 - 15. Astragals or meeting seals on pairs of doors.
 - 16. Thresholds.
 - C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 8 Section "Standard Steel Doors and Frames" for silencers integral with hollow metal frames.
 - 2. Division 8 Section "Flush Wood Doors" for factory pre-fitting and factory pre-machining of doors for door hardware.
 - 3. Division 8 Section "Aluminum Entrances and Storefronts" for aluminum entrance door hardware, except cylinders.
- #### 1.3 HARDWARE ALLOWANCE
- A. Allowance of \$2,000.00 for Certified AHC (Architectural Hardware Consultant) – (document of certification from DHI must be provided) to visit job site upon substantial completion as directed by Architect. A written report will be required for the Owner, Architect, and Contractor.

1.4 QUALITY ASSURANCE

The supplier must have demonstrated willingness to coordinate field problems, and (upon reasonable compensation) to assist the Owner in re-keying and service operations. He must have a reputation for supplying quality material. Pre-bid approval is required **by Addendum 10** working days in advance of the Bid Day. The following Suppliers are accorded such approval in advance:

- a. Brabner & Hollon; Mobile, AL
- b. Mullins Building Products; Montgomery, AL
- c. Rayford & Associates, Inc.; Mobile, AL

1.5 SUPPLIER

A. Door hardware supplier's responsibilities shall be as follows:

1. Submittals: Submit through Contractor required product data, final hardware schedule; separate keying schedule, and samples as specified in this Section, unless otherwise indicated.
2. **Hardware Review Meeting:** Hardware Supplier shall attend a scheduled "Hardware Review Meeting" with the Contractor, Owner and Architect representative. All Hardware products, hardware installation locations, finishes, color selections, ratings and keying is to be reviewed and discussed. The Hardware Supplier understands the Hardware Submittal is not deemed "Fully Approved" until the Owner has completed their review and given "Approval".
3. Construction Schedule: Inform Contractor promptly of estimated times and dates that will be required to process submittals, to furnish templates, to deliver hardware, and to perform other work associated with furnishing door hardware for purposes of including this data in construction schedule. Comply with this schedule.
4. Coordination and Templates: Assist Contractor as required to coordinate hardware with other work in respect to both fabrication and installation. Furnish Contractor with templates and deliver hardware to proper locations.
5. Product Handling: Package, identify, deliver, and inventory door hardware specified in this Section.
6. Discrepancies: Based on requirements indicated in Contract Documents in effect at time of door hardware selection, furnish types, finishes, and quantities of door hardware, including fasteners, and Owner's maintenance tools required to comply with specified requirements and as needed to install and maintain hardware. Furnish or replace any items of door hardware resulting from shortages and incorrect items at no cost to the Owner or Contractor. Obtain signed receipts from Contractor for all delivered materials.

B. Contractor's responsibilities shall be as follows:

1. Submittals: Coordinate and process submittals for door hardware in same manner as submittals for other work.
2. **Hardware Review Meeting:** Contractor is to schedule and attend a "Hardware Review Meeting" with the Owner, Hardware Supplier and Architect Representative. All Hardware products, hardware installation locations, finishes, color selections, ratings and keying is to be reviewed and discussed. The Contractor understands the Hardware Submittal is not deemed "Fully Approved" until the Owner has completed their review and given "Approval".
3. Construction Schedule: Cooperate with door hardware supplier in establishing scheduled dates for submittals and delivery of templates and door hardware. Incorporate in construction schedule the times and dates related to furnishing hardware by door hardware supplier.

4. Coordination: Coordinate door hardware with other Work. Furnish hardware supplier or manufacturer with shop drawings of other work where required or requested. Verify completeness and suitability of hardware with supplier. Coordinate all wiring, raceways, accesses and final connections to all electronic devices and components per manufacturer requirements for a fully functioning system.
5. Product Handling: Provide secure lock-up for hardware delivered to the site. Inventory hardware jointly with representative of hardware supplier and issue signed receipts for all delivered materials.
6. Installation Information: The general types and approximate quantities of hardware required for this Project are indicated at the end of this Section in order to establish Contractor's costs for installation and other work not included in allowance.
7. No adjustments in Contract sum will be made for costs other than those covered by the allowances for subsequent increases or decreases in quantity of one or more hardware types that do not exceed 5 percent.

1.6 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification sections.
- B. Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 1. Upon return of the reviewed finish hardware schedule, arrange for a meeting with the Owner and representatives of Architect. A keying schedule will be established and submitted to the Architect and Owner. After review, the keying schedule will be returned to representatives of Finish Hardware Supplier so that permanent cylinders and keys can be prepared on a timely basis.

1.7 QUALITY ASSURANCE

- A. Substitutions: All substitution requests must be submitted before bidding and within the procedures and time frame as outlined in Division 1, General Requirements. Approval of products is at the discretion of the architect and his hardware consultant.
- B. Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closers, etc.) from a single manufacturer.
- C. Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for a minimum of 10 years, for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced "Certified "architectural hardware consultant (AHC)" as recognized by the Door and hardware Institute (DHI). All submittals shall be signed by an AHC who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation.
- D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey, FM, or other testing and inspecting organization acceptable to authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

1.8 PRODUCT HANDLING

- A. Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.
- B. Packaging of door hardware is the responsibility of the supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in the same container.
- C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- D. Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).
- E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

1.9 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 HINGES

A. MANUFACTURERES

- 1. Hager
- 2. McKinney
- 3. Stanley

B. MATERIAL:

- 1. Provide only template produced units.
- 2. Provide Phillips flat-head or machine screws for installation of units, except furnish Phillips flat-head wood screws for installation of units into the wood. Finish screw heads to match surface of hinges or pivots.
- 3. Hinge pins, except as noted, are to be provided as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-ferrous Hinges: Stainless steel pins
 - c. Exterior Doors: Use Non-Removable Pins
 - d. Interior Doors: Non-rising pins
 - e. Electric Hinges: Non-removable pins
- 4. Tips shall be flat button and matching plug, finished to match leaves.
- 5. Provide number of hinges indicated but not less than three (3) hinges for door leaf of 90" or less in height and one additional hinge for each 30" of additional height.
- 6. Provide ball bearing hinges of the type and weight suggested by the hinge manufacturer for each type of door application.

2.2 CONTINUOUS GEARED HINGES

A. MANUFACTURERES

1. Hager Companies
2. ABH Manufacturing
3. SELECT Products Ltd
4. Stanley
5. National Guard Products

B. MATERIAL:

1. Fully Concealed Hinges, Heavy Duty
2. Conform to ANSI/BHMA A156.26-2006 Grade 1.
3. Typical hinge height shall be 1" less than nominal door height.

2.3 LOCK CYLINERS AND KEYING

A. MANUFACTURERES

1. All cylinders must be keyed to the existing system for **Baldwin County Board of Education.**

B. MATERIAL

1. Keys shall be furnished as follows:
 - a. 3 each Change Keys per core/or keyed alike group
 - b. 3 each Grand Master Key
 - c. 3 each Master Key per level
 - d. 3 each Control Key
2. Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall expansion capacity of 150% of the number of locks required for the project.
- 3.

2.4 ELECTRONIC HARDWARE

A. MANUFACTURERS

1. Basis of design is Stanley Wi-Q Technology
2. Stanley/Precision
3. Dormakaba
4. Alarm Lock
5. *Note: A Mandatory meeting will be required for Hardware Supplier concerning all special openings requiring electronic hardware (see Hardware Sets). No material is to be ordered until verified at this meeting. Meetings will be as directed by architect including design consultant, contractor, and owner representative.*

2.5 LOCKSETS AND LATCHSETS

A. MANUFACTURERES

1. Stanley/Best 9K3 Series, 14D Design
2. No Sub – Owners Standard

B. MATERIAL

1. Locksets and latch-sets of all manufacturers must conform to the requirements of Sub paragraphs 2 and be approved by the Architect.
2. Cylindrical Lock Type
 - a. Locksets and latch sets must conform to ANSI A156.2 Series 4000, Operational Grade 1, and be UL Listed.
- OR
3. Mortise Type
 - a. Locksets and latch sets must conform to ANSI A156.2 Series 1000, Grade 1, and be UL Listed
 - b. Locksets and latch-sets must be heavy duty mortise type with 2-3/4 in. backset, or greater as specified, with a 3/4-inch throw latch-bolt.
 - c. Locksets shall be furnished with a cylinder housing that accepts a small format interchangeable core. Cores must be furnished by Best Access Systems.
 - d. Trim to be 14D Design.

2.6 EXIT DEVICES

A. MANUFACTURERES

1. Sargent 8800 Series x ET Trim Design
2. Best/Precision Apex 2000 Series x 4900D Trim Design
3. Von Duprin 98/99 Series x 996L Trim Design

B. MATERIAL

1. All exit devices to be of one manufacturer and provided in same finish and lever design as locksets.
2. Provide sex nuts and bolts for attachment of surface applied items to doors.
3. Devices shall be UL listed. Devices for fire rated openings shall bear factory installed UL markings that indicate approval for fire rated openings.
4. All exit devices shall be touch-bar type design and Grooved aluminum extrusions are not allowed.
5. All exit devices shall comply with ANSI A156.3, Grade 1.
6. Exit devices must meet hurricane code where required.
7. Exit device lever trim shall be equal to 14D design.

2.7 CLOSERS

A. MANUFACTURERES

1. LCN – 4040XP Series
2. Stanley/Best – HD8000 Series
3. Hager Companies - 5100 Series

B. MATERIAL

1. Size of units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit, depending upon size of door, exposure to weather and anticipated frequency of use.
 - a. Where parallel arms are indicated for closers, provide closer unit one size larger than recommended for use with standard arms.
 - b. Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units, ANSI opening force and delayed action closing.
2. Provide manual closers that are certified to exceed ten million (10,000,000) full load operating cycles by a recognized independent testing laboratory. Closers are to be fully hydraulic, rack and pinion action with high strength cast aluminum or cast-iron cylinders and one piece forged steel pistons. Hydraulic fluid to be of a type requiring no seasonal adjustments for temperature. Hydraulic regulation to be controlled by tamper-proof, non-critical screw valves, adjustable with a hex by tamper-proof, non-critical screw valves, adjustable with a hex wrench. Separate adjustments for back check, general speed, and latch speed. Where detailed on double lever arm closers, provide a delayed action feature to delay closing for up to one minute for maximum opening to approximately 75 degrees. Back check shall be properly located for protection of the door, frame and applied hardware.
2. Use of closers with built-in spring or cushion stops will be allowed in lieu of overhead stops.
3. All door closers shall comply with ANSI A156.4 Grade 1 and meet the standards of ANSI A117.1 for barrier-free accessibility.

2.8 OVERHEAD STOPS AND HOLDERS

A. MANUFACTURERES

1. Dormakaba
2. ABH Manufacturing
3. Hager Companies

B. MATERIAL

1. Conform to ANSI A156.8 Grade 1.
2. Surface Mount, Heavy or Medium Duty (refer to hardware sets)

2.9 PUSH/PULLS & PROTECTION PLATES

A. MANUFACTURERES

1. Hager Companies

2. Burns Mfg.
3. Trimco Hardware

B. MATERIAL

1. Provide manufacturers standard exposed fasteners for installation, through bolted for matched pairs, but not of single units.
2. Provide 16 gauge minimum thickness for plates.
3. Where specified in the schedule, push/pulls shall have an antimicrobial coating.

2.10 THRESHOLDS, WEATHERSTRIPPING & GASKETING

A. MANUFACTURERS

1. Zero
2. Hager
3. National Guard

B. MATERIAL

1. Provide continuous weather-stripping at each edge of every exterior door leaf, except as otherwise indicated.
2. Provide type, size and profile shown as scheduled.
3. Provide non-corrosive fasteners as recommended by manufacturer for application indicated. Do not specify adhesive backed weather-strip or gasket material.
4. Where replaceable seal strips are scheduled, provide only those units where resilient or flexible seal strip is easily replaceable from stocks maintained by manufacturer.
5. Proved standard metal threshold unit of type, size and profile shown as scheduled.

2.11 FINISHES

- A. Hardware finishes shall conform to ANSI and shall be as listed below for aluminum, FRP, hollow metal and wood doors:

B. Finishes Table:

Butt Hinges	652 Satin Chrome Plated Steel
Continuous Geared Aluminum Hinges	628 Clear Anodized Aluminum, except at aluminum storefront doors. At Aluminum storefront doors, provide anodized or Kynar finish as required to match specified door finish.
Cont. Pin & Barrel Hinges	630 Satin Stainless Steel
Flush Bolts	626 Satin Chrome Plated
Locksets	626 Satin Chrome Plated
Exit Devices	630/626 Satin Chrome Plated
Door Closers	689 Powder Coat Aluminum
Push Plates	630 Satin Stainless Steel
Pull Plates	630 Satin Stainless Steel

Protective Plates	630 Satin Stainless Steel
Door Stops	626 Satin Chrome Plated
Overhead Holders	630 Satin Stainless Steel

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install each hardware item in compliance with manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, install each item completely and then remove and store in a secure place during the finish application. After completion of the finishes, reinstall each item.

1. Do not install surface mounted items until finishes have been completed on the substrate.

- B. Conform to ANSI A117.1 for positioning requirements for the handicapped.

3.2 PROTECTION AND CLEANING

- A. After installation, clean metal surfaces on both interior and exterior of all mortar, paint and other contaminants. After cleaning, protect work against damage.

3.3 FINAL ADJUSTMENT

- A. Whenever hardware is installed more than one month prior to occupancy or acceptance, return during the week prior to acceptance or occupancy and make a final inspection and adjustment of all hardware items in such space or area.

3.4 HARDWARE SCHEDULE

Manufacturer List

<u>Code</u>	<u>Name</u>
AB	ABH Manufacturing Inc.
BE	Best Access Systems
NA	National Guard
PR	Precision/Best
BE	Best Door Closers
SP	Special Lite
ST	Stanley
HA	Hager

Option List

<u>Code</u>	<u>Description</u>
C4	CAM-STANDARD CAM
CD	CYLINDER DOGGING
HC	Hurricane Code Device
SN	Sex Nuts (Pkg. of 4)
B4E	BEVELED 4 EDGES - KICK PLATES
CSK	COUNTER SINKING OF KICK and MOP PLATES
LBR	LESS BOTTOM ROD
MCS	Mullion Cap Spacer (600 Finish)
S301	OPT. ROLLER. STRK - RIM AND TOP OF SVR

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CA-03	Cylinder Attachment Kit (Rim/SVR Device)
SNB (2)	SEX BOLTS (2)
SNB (6)	SEX BOLTS (6)

Finish List

<u>Code</u>	<u>Description</u>
C	Clear Anodized Aluminum
AL	Aluminum
600	Primed for Painting
626	Satin Chromium Plated
630	Satin Stainless Steel
689	Aluminum Painted
BLACK	Black
US26D	Chromium Plated, Dull
US32D	Stainless Steel, Dull

Hardware Sets

SET #E01

Dbl. Exterior Entry FRP Doors: 800a, 800b, 808e, 821b, 840a, 848b.

2	Continuous Hinge	661HD UL x LAR	AL	ST
1	Removable Mullion	HCKR822 MCS	600	PR
1	Exit Device-Inactive Leaf	HC 2101 36" CD S301 SNB (2)	630	PR
1	Exit Device-Active Leaf	HC 2103 36" CA-03 CD S301 SNB (2)	630	PR
2	Rim Cylinder	12E-72 STD	626	BE
2	Mortise Cylinder	1E-74 STD C4	626	BE
4	Construction Core	1C-7 Green	GN	BE
2	Flush Pull	SL86	C	SP
2	Door Closer	HD8016 S-DST	689	BE
1	Mullion Seal	5100N x LAR		NA
2	Door Sweep	750SN x LAR		HA
1	Threshold	520S N x LAR		HA

NOTE: Flush Pulls supplied, and Factory installed by Special-Lite.

NOTE: Weather-seals are Factory installed in ALSF and Tube Frames by Special-Lite.

SET #E02

Dbl. Exterior Entry FRP Door: 823.

2	Continuous Hinge	661HD UL 96"	AL	ST
1	Removable Mullion	HCKR822 MCS	600	PR
1	Exit Device-Inactive Leaf	HC 2101 48" CD S301 SNB (2)	630	PR
1	Exit Device-Active Leaf	HC 2103 48" CA-03 CD S301 SNB (2)	630	PR
2	Rim Cylinder	12E-72 STD	626	BE
2	Mortise Cylinder	1E-74 STD C4	626	BE
4	Construction Core	1C-7 Green	GN	BE
2	Flush Pull	SL86	C	SP
2	Door Closer	HD8016 S-DST	689	BE

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1 Mullion Seal	5100N-96"	NA
2 Door Sweep	750SN x LAR	HA
1 Threshold	520S N x LAR	HA

NOTE: Flush Pulls supplied, and Factory installed by Special-Lite.

NOTE: Weather-seals are Factory installed in ALSF and Tube Frames by Special-Lite.

SET #E03

Sgl. Exterior Entry FRP Doors: 810a, 846.

1 Continuous Hinge	661HD UL 83"	AL	ST
1 Exit Device	HC 2103 36" CA-03 CD S301 SNB (2)	630	PR
1 Rim Cylinder	12E-72 STD	626	BE
1 Mortise Cylinder	1E-74 STD C4	626	BE
2 Construction Core	1C-7 Green	GN	BE
1 Flush Pull	SL86	C	SP
1 Door Closer	HD8016 S-DST	689	BE
1 Door Sweep	750SN x LAR		HA
1 Threshold	520S N x LAR		HA

NOTE: Flush Pull supplied, and Factory installed by Special-Lite.

NOTE: Weather-seals are Factory Installed in Tube Frames by Special-Lite.

SET #E04

Dbl. Exterior Mech. FRP Doors: 855, 856.

2 Continuous Hinge	661HD UL 87"	AL	ST
1 Removable Mullion	HCKR822 MCS	600	PR
1 Exit Device-Inactive Leaf	HC 2101 36" CD S301 SNB (2)	630	PR
1 Exit Device-Active Leaf	HC 2103 36" CA-03 CD S301 SNB (2)	630	PR
2 Rim Cylinder	12E-72 STD	626	BE
2 Mortise Cylinder	1E-74 STD C4	626	BE
4 Construction Core	1C-7 Green	GN	BE
2 Flush Pull	SL86	C	SP
2 Door Closer	HD8016 S-DST	689	BE
1 Mullion Seal	5100N-88"		NA
2 Door Sweep	750SN x LAR		HA
1 Threshold	412SA x LAR		HA

NOTE: Flush Pulls supplied, and Factory installed by Special-Lite.

NOTE: Weather-seals are Factory Installed in Tube Frames by Special-Lite.

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SET #E05

Dbl. Exterior Mech. FRP Doors: 852.

2	Continuous Hinge	661HD UL 83"	AL	ST
1	Removable Mullion	HCKR822 MCS	600	PR
1	Exit Device-Inactive Leaf	HC 2101 36" CD S301 SNB (2)	630	PR
1	Exit Device-Active Leaf	HC 2103 36" CA-03 CD S301 SNB (2)	630	PR
2	Rim Cylinder	12E-72 STD	626	BE
2	Mortise Cylinder	1E-74 STD C4	626	BE
4	Construction Core	1C-7 Green	GN	BE
2	Flush Pull	SL86	C	SP
2	Door Closer	HD8016 S-DST	689	BE
1	Mullion Seal	5100N-86"		NA
2	Door Sweep	750SN x LAR		HA
1	Threshold	412SA x LAR		HA

NOTE: Flush Pulls supplied, and Factory installed by Special-Lite.

NOTE: Weather-seals are Factory Installed in Tube Frames by Special-Lite.

SET #E06

Sgl. Exterior Mech. Entry FRP Door: 809.

1	Continuous Hinge	661HD UL 83"	AL	ST
1	Mortise Lockset	45H-7TD14H STD	630	BE
1	Construction Core	1C-7 Green	GN	BE
1	Door Closer	HD8016 S-DST	689	BE
1	Door Sweep	750SN x LAR		HA
1	Threshold	520S N x LAR		HA

NOTE: Weather-seals are Factory installed in Tube Frames by Special-Lite.

SET #E07

Sgl. Exterior Entry FRP Door: 854.

1	Continuous Hinge	661HD UL 87"	AL	ST
1	Mortise Lockset	45H-7TD14H STD	630	BE
1	Construction Core	1C-7 Green	GN	BE
1	Door Closer	HD8016 S-DST	689	BE
1	Door Sweep	750SN x LAR		HA

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1 Threshold	520S N x LAR		HA
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NOTE: Weather-seals are Factory installed in Tube Frames by Special-Lite.

SET #01

Interior Egress Pair Doors: 808a, 808d, 808f, 821a, 840b.

6 Hinges	FBB168 4 1/2 X 4 1/2	26D	ST
1 Exit Device -Active Leaf	2108 x 4908D 36" CD S301 SNB (2)	630	PR
1 Exit Device-Inactive Leaf	2101 36" CD S301 SNB (2)	630	PR
1 Removable Mullion	KR822 MCS	600	PR
2 Rim Cylinder	12E-72 STD	626	BE
2 Mortise Cylinder	1E-74 STD C4	626	BE
4 Construction Core	1C-7 Green	GN	BE
2 Door Closer	HD8016 SPAT	689	BE
2 Kick Plate	190S 10" x 35" B4E CSK	630	HA
2 Silencers	307D	Grey	HA

SET #02

Interior Sgl. Egress Doors: 808b, 808c.

3 Hinges	FBB179 4 1/2 X 4 1/2	26D	ST
1 Exit Device	2108 x 4908D 36" CD S301 SNB (2)	630	PR
1 Rim Cylinder	12E-72 STD	626	BE
1 Mortise Cylinder	1E-74 STD C4	626	BE
2 Construction Core	1C-7 Green	GN	BE
1 Door Closer	HD8016 SPAT	689	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
3 Silencers	307D	Grey	HA

SET #03

Interior Sgl. Electrical Room Doors: 806, 831.

3 Hinges	FBB179 4 1/2 X 4 1/2	26D	ST
1 Exit Device	2103 x 4903D 36" CD S301 SNB (2)	630	PR
1 Rim Cylinder	12E-72 STD	626	BE
1 Mortise Cylinder	1E-74 STD C4	626	BE
2 Construction Core	1C-7 Green	GN	BE

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1 Door Closer	HD8016 SPAT	689	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
3 Silencers	307D	Grey	HA

SET #04

Interior Pair Doors: 849, 851.

6 Hinges	FBF179 4 1/2 X 4 1/2 NRP	26D	ST
2 Flush Bolts	282D 12"	26D	HA
1 Storage Lockset	9K3-7AB14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
2 Overhead Stop/Holder	9012 A	630	AB
1 Dust Proof Strike	280X	626	HA
2 Silencers	307D	Grey	HA

SET #05

Interior Pair Doors: 853b.

6 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
2 Flush Bolts	282D 12"	26D	HA
1 Storage Lockset	9K3-7AB14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
2 Overhead Stop/Holder	9013 A	630	AB
1 Dust Proof Strike	280X	626	HA
2 Silencers	307D	Grey	HA

SET #06

Interior Sgl. Door: 802.

3 Hinges	FBF179 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Kick Plate	190S 10" x 30" B4E CSK	630	HA
1 Overhead Stop	9012 A	630	AB
3 Silencers	307D	Grey	HA

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SET #07

Interior Sgl. Doors: 805.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Kick Plate	190S 10" x 42" B4E CSK	630	HA
1 Overhead Stop	9014 A	630	AB
3 Silencers	307D	Grey	HA

SET #08

Interior Sgl. Door: 816, 826.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Kick Plate	190S 10" x 38" B4E CSK	630	HA
1 Overhead Stop	9013 A	630	AB
3 Silencers	307D	Grey	HA

SET #09

Interior Sgl. Door: 824.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Kick Plate	190S 10" x 42" B4E CSK	630	HA
1 Wall Stop	232W	630	HA
3 Silencers	307D	Grey	HA

SET #10

Interior Sgl. Doors: 804, 820, 854a.

3 Hinges	FBF179 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Door Closer	HD8016 FHP	689	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
3 Silencers	307D	Grey	HA

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SET #11

Interior Sgl. Doors: 843.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Door Closer	HD8016 FH	689	BE
1 Kick Plate	190S 10" x 38" B4E CSK	630	HA
1 Wall Stop	232W	630	HA
3 Silencers	307D	Grey	HA

SET #12

Interior Sgl. Office Doors: 811, 818, 828, 829, 841, 845, 847a, 847b.

3 Hinges	FBF179 4 1/2 X 4 1/2	26D	ST
1 Office Lockset	9K3-7AB14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
1 Wall Bumper	236W	630	HA
3 Silencers	307D	Grey	HA

SET #13

Interior Sgl. Door: 810.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Kick Plate	190S 10" x 38" B4E CSK	630	HA
1 Wall Stop	232W	630	HA
3 Silencers	307D	Grey	HA

SET #14

Interior Sgl. Training/Laundry Doors: 812, 817.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Office Lockset	9K3-7AB14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Door Closer	HD8016 FH	689	BE
1 Kick Plate	190S 10" x 38" B4E CSK	630	HA
1 Wall Bumper	236W	630	HA
3 Silencers	307D	Grey	HA

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SET #15

Interior Sgl. Concession Door: 807a.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Storage Lockset	9K3-7D14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Door Closer	HD8016 DS	689	BE
1 Kick Plate	190S 10" x 38" B4E CSK	630	HA
3 Silencers	307D	Grey	HA

SET #16

Interior Sgl. Restroom Doors: 801, 803.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Push Plate	30S 8" X 16"	630	HA
1 Pull Plate	33G 4" X 16"	630	HA
1 Door Closer	HD8016 FHP	689	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
1 Wall Bumper	232W	630	HA
3 Silencers	307D	Grey	HA

SET #17

Interior Sgl. Restroom Doors: 842, 844.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Push Plate	30S 8" X 16"	630	HA
1 Pull Plate	33G 4" X 16"	630	HA
1 Door Closer	HD8016 FH	689	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
1 Wall Bumper	232W	630	HA
3 Silencers	307D	Grey	HA

SET #18

Interior Sgl. Dressing/Shower/Toilet Doors: 814, 815, 827, 830.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Deadlock	48H-7K STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Push Plate	30S 8" X 16"	630	HA
1 Pull Plate	33G 4" X 16"	630	HA
1 Door Closer	HD8016 FHP	689	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
1 Wall Bumper	232W	630	HA
3 Silencers	307D	Grey	HA

SET #19

Interior Sgl. Passageway Doors: 850a, 850b.

3 Hinges	FBF168 4 1/2 X 4 1/2	26D	ST
1 Office Lockset	9K3-7AB14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Door Closer	HD8016 FH	689	BE
1 Kick Plate	190S 10" x 46" B4E CSK	630	HA
1 Wall Bumper	236W	630	HA
3 Silencers	307D	Grey	HA

SET #20

Interior Sgl. Toilet/Shower Doors: 845a, 845b.

3 Hinges	FBF179 4 1/2 X 4 1/2	26D	ST
1 Office Lockset	9K3-7AB14D S3 STD	626	BE
1 Construction Core	1C-7 Green	GN	BE
1 Door Closer	HD8016 DS	689	BE
1 Kick Plate	190S 10" x 34" B4E CSK	630	HA
1 Wall Bumper	236W	630	HA
3 Silencers	307D	Grey	HA

SET #21

Interior Sgl. Band Room Doors: 848a. (STC50 Assembly)

6 Cam Lift Hinges	by Frame and Door Manufacturer		
1 Removable Mullion	KR822 MCS	600	BE
1 Mullion Seal	5110N x LAR		NA
1 Exit Device	2108 x 4908D 36" CD S301 SNB (2)	630	PR
1 Exit Device	2108 x 4908D 36" CD S301 SNB (2)	630	PR

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3	Rim Cylinder	12E-72 STD	626	BE
2	Mortise Cylinder	1E-74 STD C4	626	BE
5	Construction Core	1C-7 Green	GN	BE
2	Door Closer	HD8016 DS	689	BE
2	Kick Plate	190S 10" x 35" B4E CSK	630	HA
1	Threshold	2009APK 72" by Frame and Door Manufacturer	AL	
2	L-Frame Adjustable Door Bottom	by Frame and Door Manufacturer	AL	
2	Meeting Stile Astragal	303SA by Frame and Door Manufacturer	AL	
1	Set Sound Seals	AS52C by Frame and Door Manufacturer	AL	

SET #22

Rolling Steel Door: 853a.

1	Pad Lock	21B722 STD	604	BE
1	Construction Core	1C-7 Green	GN	BE

NOTE: VERIFY SHANK LENGTH.

NOTE: ALL REMAINING HARDWARE BY DOOR SUPPLIER.

SET #23

Counter Shutter Door: 807b.

1	Mortise Cylinder	1E-74 STD C4	626	BE
1	Construction Core	1C-7 Green	GN	BE

NOTE: VERIFY CYLINDER TYPE AND CAM.

NOTE: ALL REMAINING HARDWARE BY DOOR SUPPLIER.

NOTES:

- A) INSTALL ALL DOOR CLOSERS AWAY FROM CORRIDORS AND PUBLIC VIEW.
- B) ALL EXTERIOR & INTERIOR CYLINDERS AND LOCKSETS TO HAVE KEYED CONSTRUCTION CORES THROUGH-OUT THE CONSTRUCTION PHASE.

END OF SECTION 08700

Additions to Robertsdales
High School for the
Baldwin County Board of Education
Bay Minette, Alabama

FINISH HARDWARE
08700-19

MCKEE PROJECT NO. 23.195

SECTION 08800 – GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Glass for windows
 - 2. Glass for doors
 - 3. Glass for interior borrowed lites
 - 4. Glass for storefront framing.
 - 5. Glazing sealants and accessories.

1.2 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass as defined in referenced glazing publications.
- B. Glass Fabricators: Firms that produce the fabricated glass products. Fabrication processes include cutting, heat processing, insulating, spandrel, laminating and other as fabrication activities defined in referenced glazing publications.

1.3 REFERENCE STANDARDS

- A. American Society of Test and Material (ASTM)
 - 1. ASTM C1036: Standard Specification for Flat Glass
 - 2. ASTM C1048: Standard Specification for Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass
 - 3. ASTM C1172: Standard Specification for Laminated Architectural Flat Glass
 - 4. ASTM C1376: Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Glass.
 - 5. ASTM E119: Standard Test Methods for Fire Tests of Building Construction and Materials
 - 6. ASTM E1886: Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
 - 7. ASTM E1996: Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes
 - 8. ASTM E 2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation
- B. American National Standards Institute (ANSI)
 - 1. ANSI z97.1: For Safety Glazing Materials Used In Buildings - Safety Performance Specifications And Methods Of Test
- C. Consumer Products Safety Commission
 - 1. CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials
- D. International Code Council
 - 1. ICC 500: ICC/NSSA Standard for the Design and Construction of Storm Shelters
- E. Underwriters Laboratory (UL)
 - 1. UL 263: Standard for Fire Tests of Building Construction and Material
 - 2. UL 9: Standard for Fire test of Window Assemblies
 - 3. UL 10B: Standard for Fire Tests of Door Assemblies

4. UL 10C: Standard for Positive Pressure Fire Tests of Door Assemblies
- F. National Fire Protection Association (NFPA)
 1. NFPA 80: Standard for Fire Doors and Other Opening Protectives
 2. NFPA 257: Standard on Fire Test for Window and Glass Block Assemblies
 3. NFPA 252: Standard Methods of Fire Test of Door Assemblies

1.4 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product provide performance characteristics, certificates of compliance, installation instructions, and cleaning and maintenance instructions.
- B. Glass Samples: For each type of glass product other than clear monolithic vision glass; 12" x 12" inches (300 mm) square. For each type of sealant/gasket exposed to view; 12" length sample. Install sealant/gasket sample between two strips of materials representative of adjoining framing system in color.
- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.
- D. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

- A. Preconstruction adhesion and compatibility test report.

1.7 QUALITY ASSURANCE

- A. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
- B. Single Source Responsibility: Provide materials obtained from one source for each type of glass and glazing product indicated

1.8 PRECONSTRUCTION TESTING

Preconstruction Adhesion and Compatibility Testing: Test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.

1. Testing is not required if data are submitted based on previous testing of current sealant products and glazing materials matching those submitted.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Protect glass and glazing materials during delivery, storage and handling to comply with manufacturer's directions and as required to prevent edge damage to glass, and damage to glass and glazing materials from effects of moisture including condensation, of temperature changes, of direct exposure to sun, and from other causes.

1.10 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing material manufacturer or when joint substrates are wet due to rain, frost, condensation or other causes. Install glazing sealants only when temperatures are in the middle third of manufacturer's recommended installation temperature range.

1.11 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 - 1. Warranty Period: Ten (10) years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
 - 1. Warranty Period: Five (5) years from date of Substantial Completion.
- C. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 - 1. Warranty Period: Ten (10) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Approved Manufacturers: Subject to compliance with requirements, provide AGC Glass North America, Inc or approved equal product by one of the following:
 - 1. AGC Glass North America (Basis of Design)
 - 2. Pilkington North America
 - 3. Viracon
- B. Approved Fabricators: Subject to compliance with requirements
 - 1. American Insulated Glass
 - 2. OldCastle Building Envelope
 - 3. Trulite Glass and Aluminum Solutions
 - 4. Tristar Glass

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer to design glazing. A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- B. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the International Building Code and ASTM E 1300.
 - 1. Design Wind Pressures: As indicated on Drawings.
 - 2. Design Snow Loads: As indicated on Drawings.
- C. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

- D. Windborne-Debris-Impact Resistance: Exterior glazing shall comply with protection testing requirements in ASTM E 1996 for Wind Zones when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on Project and shall be installed in same manner as glazing indicated for use on Project.
 - 1. Large-Missile Test: For glazing located within 30 feet (9.1 m) of grade.
 - 2. Small-Missile Test: For glazing located more than 30 feet (9.1 m) above grade.
- E. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
- F. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 - 1. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 7.3 computer program, expressed as Btu/sq. ft. x h x deg F.
 - 2. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBNL's WINDOW 7.3 computer program.
 - 3. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. GANA Publications: "Laminated Glazing Reference Manual", "Glazing Manual", and "Sealant Manual".
 - 2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
 - 3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Guidelines for Sloped Glazing."
 - 4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- D. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.
- E. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.
- F. Heat-Treated Float Glass: Where heat treated float glass is required or indicated provide glass in accordance to ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
 - 2. For uncoated glass, comply with requirements for Condition A.

3. For coated vision glass, comply with requirements for Condition C (other coated glass).

2.4 GLASS PRODUCTS

- A. Clear Annealed Float Glass: ASTM C 1036, Type I, Class 1 (clear), Quality-Q3.
- B. Tinted Annealed Float Glass: ASTM C 1036, Type I, Class 2 (tinted), Quality-Q3.
Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
- C. Heat-Strengthened Float Glass: ASTM C 1048, Kind HS (heat strengthened), Type I, Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
- D. Sputtered Coated Low-Emissivity Clear Vision Glass, ASTM C 1376, Kind CV (coated vision glass), coated by sputtered process, ASTM C 1036, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
- E. Pyrolytic Coated Low-Emissivity Clear Vision Glass, ASTM C 1376, Kind CO (coated overhead glass), coated by pyrolytic process, ASTM C 1036, Type I, Class 1 (clear) or Class 2 as indicated, Quality-Q3.
- F. Ceramic-Coated Vision Glass: ASTM C 1048, Condition C, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3; and complying with Specification No. 95-1-31 in GANA's "Engineering Standards Manual."
- G. Reflective-Coated Vision Glass: ASTM C 1376.

2.5 LAMINATED GLASS

- A. Laminated Glass: ASTM C 1172. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation
 1. Construction: Laminate glass with polyvinyl butyral interlayer or ionoplast interlayer to comply with interlayer manufacturer's written instructions.
 2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
 3. Interlayer Color: Clear unless otherwise indicated.
- B. Windborne-Debris-Impact-Resistant Laminated Glass: Comply with requirements specified above for laminated glass except laminate glass with one of the following to comply with interlayer manufacturer's written instructions:
 1. Polyvinyl butyral interlayer.
 2. Polyvinyl butyral interlayers reinforced with polyethylene terephthalate film.
 3. Ionoplast interlayer.

2.6 INSULATING GLASS

- A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.
 1. Sealing System: Dual seals.
 - a. Primary Seal: Polyisobutylene
 - b. Secondary Seal: Two-part Silicone
 2. Spacer: Manufacturer's standard spacer material and construction
 - a. Color: As select by architect from fabricators full range of colors

2.7 GLAZING SEALANTS

- A. General:

1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Dow Corning Corporation.
 - b. GE Construction Sealants; Momentive Performance Materials Inc.
 - c. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - d. Pecora Corporation.
 - e. Sika Corporation.
 - f. Tremco Incorporated.
- C. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 50, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation-Construction Systems.
 - b. Dow Corning Corporation.
 - c. GE Construction Sealants; Momentive Performance Materials Inc.
 - d. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - e. Pecora Corporation.
 - f. Polymeric Systems, Inc.
 - g. Sika Corporation.
 - h. Tremco Incorporated.
- D. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bostik, Inc.
 - b. Dow Corning Corporation.
 - c. GE Construction Sealants; Momentive Performance Materials Inc.
 - d. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - e. Polymeric Systems, Inc.
 - f. Schnee-Morehead, Inc., an ITW company.
 - g. Sika Corporation.
 - h. Tremco Incorporated.

- E. Glazing Sealant: Acid-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corporation-Construction Systems.
 - b. Bostik, Inc.
 - c. Dow Corning Corporation.
 - d. GE Construction Sealants; Momentive Performance Materials Inc.
 - e. May National Associates, Inc.; a subsidiary of Sika Corporation.
 - f. Pecora Corporation.
 - g. Polymeric Systems, Inc.
 - h. Schnee-Morehead, Inc., an ITW company.
 - i. Sika Corporation.
 - j. Tremco Incorporated.
- F. Glazing Compounds for Fire-rated Glazing Materials
 - 1. Glazing Compound: DAP 33 putty
 - 2. Silicone Sealant: One-part neutral curing silicone, medium modulus sealant, Type S;
 - 3. Grade NS; Class 25 with additional movement capability of 50 percent in both extension
 - 4. and compression (total 100 percent); Use (Exposure) NT; Uses (Substrates) G, A, and O as applicable. Available Products:
 - a. Dow Corning 795 - Dow Corning Corp.
 - b. Silglaze-II 2800 - General Electric Co.
 - c. Spectrem 2 - Tremco Inc

2.8 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 804.3 tape, where indicated.
 - 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 - 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
 - 1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 - 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.
- C. Fire-rated Glazing Tape: Closed cell polyvinyl chloride (PVC) foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent. Glass panels that exceed 1,393 sq. inches for 90-minute ratings must be glazed with fire-rated glazing tape supplied by manufacturer.

2.9 MISCELLANEOUS GLAZING MATERIALS

- A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

- B. Non-Fire Rated Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- C. Fire-rated Setting Blocks: Neoprene, EPDM, or silicone; tested for compatibility with glazing compound; of 70 to 90 Shore A hardness.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.
- C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- F. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
- G. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

3.2 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Apply heel bead of elastomeric sealant where indicated.
- F. Center glass lites in openings on setting block and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.
- G. Apply cap bead of elastomeric sealant over exposed edge of tape where indicated.

3.3 GASKET GLAZING (DRY)

- A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.
- B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.
- C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.
- E. Install gaskets so they protrude past face of glazing stops.

3.4 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.5 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.

Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

 - 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- B. Remove and replace glass that is damaged during construction period.
- C. Wash glass on both faces not more than 4 days prior to date scheduled for inspection intended to establish date of substantial completion in each area of the project. Wash glass with methods as recommended by glass manufacturer.

3.6 MONOLITHIC GLASS SCHEDULE

- A. Clear fully tempered float glass.
 - 1. Minimum Thickness: 6 mm.
 - 2. Visible Light Transmittance: 88 percent minimum.
 - 3. Solar Heat Gain Coefficient: .84 maximum.
 - 4. Safety glazing required.
- B. Glass Type [GL-2]: Tinted fully tempered float glass.
 - 1. Basis-of-Design Product: AGC Glass Company North America; Solarshield.

2. Tint Color: Solarshield Pure Grey
3. Minimum Thickness: 6 mm.
4. Visible Light Transmittance: 45 percent minimum.
5. Solar Heat Gain Coefficient: .60 maximum.
6. Safety glazing required.

3.7 INSULATING GLASS SCHEDULE

A. Low-E insulating glass.

1. Basis-of-Design Product: AGC Glass North America; Energy Select 25.
2. Overall Unit Thickness: 1 inch (25 mm).
3. Minimum Thickness of Each Glass Lite: 6 mm.
4. Outdoor Lite: Tinted fully tempered float glass.
5. Tint Color: Solarshield Pure Grey, Bronze or Forest Green.
 - a. Color to be selected by Architect after Bid Date.
6. Interspace Content: Air.
7. Indoor Lite: Clear fully tempered float glass.
8. Low-E Coating: Sputtered on second surface
9. Winter Nighttime U-Factor: .29 maximum.
10. Summer Daytime U-Factor: .27 maximum.
11. Visible Light Transmittance:
 - a. Pure Grey -36 percent minimum.
 - b. Bronze -39 percent minimum.
 - c. Forest Green -48 percent minimum.
12. Solar Heat Gain Coefficient:
 - a. Pure Grey -.25 maximum.
 - b. Bronze -.27 maximum.
 - c. Forest Green -.26 maximum.
13. Safety glazing required.

3.8 INSULATING-LAMINATED-GLASS SCHEDULE

A. Tinted Low-E Large Missile Laminated insulating glass.

1. Basis-of-Design Product: AGC Glass North America; Energy Select 25 Pure Grey.
2. Overall Unit Thickness: 1-5/16 inch (33 mm).
3. Minimum Thickness of Outdoor Lite: 1/4 inch (6 mm).
4. Outdoor Lite: Tinted Fully tempered float glass.
5. Tint Color: Solarshield Pure Grey, Bronze or Forest Green.
 - a. Color to be selected by Architect after Bid Date.
6. Interspace Content: Air.
7. Indoor Lite: Clear laminated glass with two plies of heat strengthened float glass.
 - a. Minimum Thickness of Each Glass Ply: 1/4 inch (6 mm).
 - b. Interlayer Thickness: 0.090 inch (2.26 mm) minimum.

8. Low-E Coating: Sputtered on second surface.
 9. Winter Nighttime U-Factor: .28 maximum.
 10. Summer Daytime U-Factor: .26 maximum.
 11. Visible Light Transmittance: 35 percent minimum.
 12. Solar Heat Gain Coefficient: .25 maximum.
 13. Safety glazing required.
 14. Certification: Third party certification required
- B. Tinted Low-E Small Missile Laminated insulating glass.
1. Basis-of-Design Product: AGC Glass North America; Energy Select 25 Pure Grey.
 2. Overall Unit Thickness: 1-5/16 inch (33 mm).
 3. Minimum Thickness of Outdoor Lite: 1/4 inch (6 mm).
 4. Outdoor Lite: Tinted Fully tempered float glass.
 5. Tint Color: Solarshield Pure Grey, Bronze or Forest Green.
 - a. Color to be selected by Architect after Bid Date.
 6. Interspace Content: Air.
 7. Indoor Lite: Clear laminated glass with two plies of heat strengthened float glass.
 - a. Minimum Thickness of Each Glass Ply: 1/4 inch (6 mm).
 - b. Interlayer Thickness: 0.060 inch (1.52 mm) minimum.
 8. Low-E Coating: Sputtered on second surface.
 9. Winter Nighttime U-Factor: .28 maximum.
 10. Summer Daytime U-Factor: .26 maximum.
 11. Visible Light Transmittance: 35 percent minimum.
 12. Solar Heat Gain Coefficient: .25 maximum.
 13. Safety glazing required.
 14. Certification: Third party certification required

END OF SECTION

SECTION 09250 - GYPSUM DRYWALL

PART 1 – GENERAL

RELATED DOCUMENTS:

Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

DESCRIPTION OF WORK:

Types of work include:

1. Gypsum drywall at walls and ceilings.
2. Drywall finishing (joint tape-and-compound treatment).

QUALITY ASSURANCE:

Fire-Resistance Ratings: Where gypsum drywall systems with fire- resistance ratings are indicated, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E 119 by fire testing laboratories acceptable to authorities having jurisdiction.

1. Provide fire-resistance rated assemblies identical to those indicated by reference to GA File No.'s. in GA "Fire Resistance Design Manual" or to design designations in UL "Fire Resistance Directory" or in listing of other testing and agencies acceptable to authorities having jurisdiction.

Gypsum Board Terminology Standard: GA-505 by Gypsum Association.

Single-Source Responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

SUBMITTALS:

Product Data: Submit manufacturer's product specifications and installation instructions for each gypsum drywall component, including other data as may be required to show compliance with these specifications.

DELIVERY, STORAGE AND HANDLING:

Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.

Store material inside under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

PROJECT CONDITIONS:

Environmental Requirements, General: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during and after application of gypsum board.

Cold Weather Protection: When ambient outdoor temperatures are below 55 degrees F maintain continuous, uniform, comfortable building working temperatures of not less than 55 degrees F for a

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minimum period of 48 hours prior to, during and following application of gypsum board and joint treatment materials or bonding of adhesives.

Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid drying.

PART 2 – PRODUCTS

Manufacturer: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:

Gypsum Board and Related Products:

1. Georgia-Pacific Corp.
2. Gold Bond Building Products Div., National Gypsum Co.
3. United States Gypsum Co.
4. CertainTeed Corporation
5. Lafarge North America
6. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

Gypsum Wallboard: ASTM C 36, of types, edge configuration and thickness indicated below; in maximum lengths available to minimize end-to-end butt joints.

Types as follows:

1. Provide Type "X" fire-resistant at all locations unless otherwise where identified by a UL Listing or Classification or as denoted on the drawings.
2. Provide Type "C", fire-resistant where identified by a UL Listing or Classification where denoted on the drawings.
3. Impact/Penetration Resistant Type "X" fire-resistant at locations as identified on the drawings. Equal to Hi-Impact Brand 2000 Fire Shield by National Gypsum. Tested in accordance with ASTM C36/C 1396 Type X, ASTM E 695, ASTM D 1037, ASTM D4977 and ASTM D 4060.
4. Provide Type "MR" moisture resistant, where gypsum board is shown at all wet areas (Restrooms, etc.) install 5/8" moisture resistant gypsum board at all wet walls where plumbing fixtures are shown.
5. Acoustically Enhanced, Sound Rated, Type "X" fire-resistant, at locations as identified on the drawings.
 - a. Equal to Gold Bond SoundBreak XP by National Gypsum.
 - b. Tested in accordance with ASTM E 90, ASTM G 21, ASTM D 3273, ASTM D4977 and ASTM D 4060.
 - c. Performance Criteria - Wall Assembly STC: Metal stud construction [55] [57] [59] [61]
6. Thickness: 5/8" unless otherwise indicated.
7. Edges: Manufacturer's standard.

TRIM ACCESSORIES:

General: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and perforated or expanded flanges for

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nailing or stapling, and beaded for concealment of flanges in joint compound. Provide corner beads, L-type edge trim-beads, U-type edge trim-beads, special L-kerf-type edge trim-beads, and one-piece control joint beads.

Non-Beaded Trim: Non-beaded trim shallnot be used, except with specific approval by the Architect.

JOINT TREATMENT MATERIALS:

General: ASTM C 475; type recommended by the manufacturer for the application indicated, except as otherwise indicated.

Joint Tape: Paper reinforcing tape.

Joint Compound: Ready-mixed vinyl-type for interior use.

1. Grade: A single multi-purpose grade, for entire application.

MISCELLANEOUS MATERIALS:

General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.

Gypsum Board Screws: Comply with ASTM C 646.

Gypsum Board Nails: Comply with ASTM C 514.

Concealed Acoustical Sealant: Nondrying, nonhardening, nonskinning, nonstaining, nonbleeding, gunnable sealant for concealed applications per ASTM C 919.

Exposed Acoustical Sealant: Nonoxidizing, skinnable, paintable, gunnable sealant for exposed applications per ASTM C 919.

Water-Resistant Adhesive: Type I organic adhesive for ceramic tile complying with ANSI A136.1.

PART 3 – EXECUTION

GENERAL GYPSUM BOARD INSTALLATION REQUIREMENTS:

Gypsum Board Application and Finishing Standards: ASTM C 840 and GA 216.

Locate exposed end-butt joints as far from center of walls possible, and stagger not less than 1'-0" in alternate courses of board.

Install wall/partition boards vertically to avoid end-butt joints wherever possible.

Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.

Locate all edge and end joints over supports. Stagger vertical joints over different studs on opposite sides of partitions.

Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.

Form control joints and expansion joints with space between edges of boards, prepared to receive trim accessories.

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Cover both faces of stud framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls which are braced internally.

1. Except where concealed application is required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. area, and may be limited to not less than 75% of full coverage.

Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide 1/4" to 1/2" space and trim edge with J-type semi-finishing edge trim. Seal joints with acoustical sealant.

Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations, except as otherwise indicated.

METHODS OF GYPSUM DRYWALL APPLICATION:

Single-Layer Application: Install gypsum wallboard.

On partitions/walls apply gypsum board vertically unless otherwise indicated, and provide sheet lengths which will minimize end joints.

INSTALLATION OF DRYWALL TRIM ACCESSORIES:

General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by nailing or stapling in accordance with manufacturer's instructions and recommendations.

Install metal corner beads at external corners of drywall work.

Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, and except where plastic trim is indicated. Provide type with face flange to receive joint compound except where semi-finishing type is indicated. Install L-type trim where work is tightly abutted to other work and install special kerf-type where other work is kerfed to receive long leg of L-type trim. Install U-type trim where edge is exposed, revealed, gasketed, or sealant-filled (including expansion joints).

Install semi-finishing trim where indicated, and where exterior gypsum board edges are not covered by applied moldings or indicated to receive trim with face flanges covered with joint compound.

Provide control joints horizontally and/or vertically at no less than 24'-0" o.c. max. Refer to plans for specific location or installed as directed by Architect.

Install H-molding in exterior gypsum drywall work where control joints are indicated.

FINISHING OF DRYWALL:

General: Apply treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects and elsewhere as required to prepare work for decoration. Prefill open joints and rounded or beveled edges, if any, using type of compound recommended by manufacturer.

1. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
2. Apply joint compound in 3 coats (not including prefill of openings in base), and sand between last 2 coats and after last coat.
3. Tape and finish gypsum board in accordance with ASTM C 840, GA 214 and GA 216.
4. Provide joint, fastener depression, and corner treatment. Do not use fiber glass mesh tape with conventional drying type joint compounds; use setting or hardening type compounds only.

Provide treatment for water-resistant gypsum board as recommended by the gypsum board manufacturer.

5. Where gypsum surfaces are to be finished to Level 5 in accordance with GA 214, apply a thin skim coat of joint compound to the entire gypsum board surface, after the two-coat joint and fastener treatment is complete and dry.
6. **All Exposed gypsum board surfaces** shall be finished to a minimum **Level 4** in accordance with GA 214.
7. Where gypsum board is to receive eggshell, semi-gloss or gloss paint finish, or where severe, up or down lighting conditions occur, shall be finished to **Level 5** in accordance to GA 214 Level 5, unless indicated otherwise.
8. All gypsum board surfaces at **all Corridors** shall be finished to **Level 5** in accordance to GA 214 Level 5.
9. All gypsum board surfaces at **all Classrooms** shall be finished to **Level 4** in accordance to GA 214.
10. Plenum areas above ceilings shall be finished to **Level 1** in accordance with GA 214.
11. Water resistant gypsum backing board, ASTM C 630/C 630M, to receive ceramic tile shall be finished to **Level 2** in accordance with GA 214.
12. Walls and ceilings to receive a heavy-grade wall covering or heave textured finish before painting shall be finished to **Level 3** in accordance with GA 214.

Partial Finishing: Omit third coat and sanding on concealed drywall work which is indicated for drywall finishing or which requires finishing to achieve fire-resistance rating, sound rating or to act as air or smoke barrier.

Refer to section on painting in Division 9 for decorative finishes to be applied to drywall work.

PROTECTION OF WORK:

Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall work being without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 09290 – GLASS FIBER REINFORCED CEMENT COLUMN COVERS (GFRC)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Types of work include:
 - 1. Glass fiber reinforced cement column covers (GFRC) for Exterior Columns.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications and installation instructions for each component, including other data as may be required to show compliance with these specifications.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store material inside under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes.
- C. Handle materials and products to prevent damage to edges, ends or surfaces.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced product application standards and recommendations of manufacturer, for environmental conditions before, during and after application of product.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. GFRC: Glass fiber reinforced cement column covers and related trim pieces:
 - a. Fiblast, LLC.; 1602 Mizell Road, Tuskegee, AL, 36083; Ph.: 334.513.1314; www.fiblast.com.
 - b. Melton Classics, Inc., 175 Langley Drive, Lawrenceville, GA, 30046; Ph.: 800.963.3060; www.meltonclassics.com.
 - c. Stromberg Architectural Products; 4400 Oneal St. #100, Greenville, TX 75401: Ph.: 903.454.0904; www.strombergarchitectural.com.
 - d. Georgia Precast Solutions, LLC, 1324 Southern Rd., Morrow, GA; Ph.: 470.557.1027; www.georgiaprecast.com.
 - e. Custom Castings Northeast, Inc.; 267 Pinetop Road, Bigler, PA 16825; Ph.: 814.857.1766; www.customcastings.net.
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

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- A. Glass fiber reinforced cement column covers, trim and accessories shall be made from asbestos free, high density concrete or gypsum reinforced with glass fibers.
- B. Manufacturer's standard accessories shall be included to provide a complete system for application shown on drawings.
- C. TOLERANCES (FABRICATION)
 - 1. Dimensional - all directions +/- 1/8"
 - 2. Thickness - skin +/- 1/16"
 - 3. Thickness - total unit 1/4" - 3/8"
 - 4. Warpage or Bowing +/- 1/16"/foot
 - 5. Out of Plane - unit to unit +/- 1/8"
- D. PHYSICAL PROPERTIES
 - 1. Shell Thickness (+ -)3/8"
 - 2. Weight (depending on reinforcement) 2-1/2 – 4 lbs/sq.ft
 - 3. Density 130 – 140 lbs/cu.ft.
 - 4. Compressive Strength (ASTM C-109-92 Mod.) 9,810 p.s.i.
 - 5. Flexural Strength (ASTM C-947-89 Mod.) 2,060 p.s.i.
 - 6. Modulus of Elasticity – In Flexure (ASTM D638-94b Mod.) 2.28 x 10⁶ p.s.i.
 - 7. Tensile Strength (ASTM D-638-94b Mod.) 940 p.s.i.
 - 8. Impact Strength (ASTM D-256-93a; Method A) 1.30 ft-lbs/in of notch
 - 9. Coefficient of Linear Thermal Expansion (ASTM D-696-91) 0.60 x 10⁻⁵/°F
 - 10. Humidified Deflection (ASTM C-473-95) No Measurable Value
 - 11. Thermal Conductivity (ASTM C-177-85 (1993) 4.35Btu-in/hr-sq.ft-°F
 - 12. Fuel Contribution (ASTM E-136-98a) 0
 - 13. Flame Spread (ASTM E-84-98) 0, Class A
 - 14. Smoke Index (ASTM E-84-98) 0, Class A
 - 15. Resistance to Weathering (ASTM G-23-93) Class 5
 - 16. Negligible Color Alteration
 - 17. Screw Withdrawal (standard lab procedure) 346 lbs
 - 18. Fiber Content 5%-6% by weight

PART 3 – EXECUTION

3.1 PRE-INSTALLATION RESPONSIBILITY

- A. Field Measurement: Prior to manufacturing, the installer will be responsible for obtaining all field dimensions for inclusion on the manufacturers shop drawings.
- B. Coordination: The installer will be responsible for the co-ordination of the installation with related sections, within the tolerances specified in the respective articles.
- C. Discrepancies: Prior to installation, the installer shall check job site dimensions and conditions. Any discrepancies between design and field dimensions shall be brought to the attention of the General Contractor and the Architect.

3.2 DELIVERY, STORAGE, HANDLING AND PROTECTION

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- A. Transport and handle units in a manner that avoids excessive stresses or damage.
- B. Components displaying obvious damage must be rejected at site at time of delivery.
- C. Store the components in a controlled environment, weather protected, on level surfaces, with temporary supports as required. Do not stack or lean.

3.3 INSTALLATION

- A. Components shall be lifted with suitable devices.
- B. Components shall be installed plumb and true. Shim where necessary.
- C. Fasten components using galvanized or stainless steel screws only through face or back as indicated on shop drawings.
- D. Where components are suspended, use as a minimum 12 gauge galvanized steel wire and the suspension points indicated on the shop drawings.
- E. Framing, hangers, etc, as specified for Gypsum Board Construction.
- F. Butt Joints are to be caulked, as specified for Section 07900, Joint Sealers.

3.4 PATCHING AND CONTROL JOINTS

- A. Introduce control joints as required and as specified under related sections of the Specifications.
- B. Patch countersunk fasteners and any damage to match component texture using suitable materials furnished by the Manufacturer or by installer.

3.5 FINISHING

- A. Finish: Provide smooth finished surface, prepared to receive paint. Painting shall be in accordance with Section 09900 - PAINTING.

END OF SECTION

SECTION 09301 - PORCELAIN TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Definition: Tile includes ceramic surfacing units made from clay or other ceramic materials.
- B. Extent of tile work is indicated on drawings and schedules.
- C. Types of tile work in this section include the following:
 - 1. Wall Tile.
 - 2. Floor Tile.
 - 3. Wainscot Accent Tile.
 - 4. Wainscot Tile Cap.
 - 5. Base.
 - 6. Stone Thresholds.
- D. Portland cement plaster scratch coat on wall surfaces indicated to receive tile is work of this section.
- E. Sealing expansion and other joints in tile work with elastomeric joint sealers is work of this section.

1.3 QUALITY ASSURANCE

- A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.
- B. Mock-Up: Contractor shall provide mock-up panels for evaluation of materials, surface preparation techniques and application workmanship.
 - 1. Mock-up panel shall be no less than 4'-0" x 4'-0" panel as follows:
 - a. One (1) panel per room, per surface. (i.e. 1 panel for wall surface and 1 panel for floor surface for each room of different selection).
 - b. Mock-up panels shall be marked identifying room location and product manufacturer, type, style, size and color information.
 - c. Do not proceed with work until materials, workmanship, color, and sheen are approved by Architect.
 - d. Provide additional mock-up panels as required to produce acceptable work.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials.
- B. Samples for Selection Purposes: Submit manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures and patterns available for each type of tile indicated. Include samples of grout and accessories involving color selection.

1.5 PRODUCT HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage or contamination to materials by water, freezing, foreign matter or other causes.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.
- C. Maintain temperatures at not less than 50 degrees F in tiled areas during installation and for 7 days after completion, unless higher temperatures required by referenced installation standard or manufacturer's instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Porcelain Tile:
 - a. StonePeak (Basis of Design)
 - b. American Olean Tile Co.
 - c. Marazzi
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 PRODUCTS, GENERAL

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types and grades of tile indicated.
 - 1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with installation products and materials indicated.
- C. Colors, Textures and Patterns: For tile and other products requiring selection of colors, surface textures or other appearance characteristics, provide products to match characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standards.
 - 1. Provide tile trim and accessories which match color and finish of adjoining flat tile.
- D. Mounting: Where factory-mounted tile is required provide back- or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.
 - 1. Where tile is indicated for installation on exteriors or in wet areas, do not use back or edge-mounted tile assemblies unless tile manufacturer specifies that this type of mounting is suitable for these kinds of use and has been successfully used on other projects.

2.3 TILE PRODUCTS

- A. Provide tile complying with the following requirements:
 - 1. Manufacturer/Series:
 - a. **StonePeak "Simply Modern" Collection.**
 - 2. Type:
 - a. Porcelain
 - 3. Wearing Surface for Floors:
 - a. "stable, firm and slip resistant", (exceeds 0.60 on the ASTM C-1028 test, wet and dry).
 - 4. Nominal Thickness:
 - a. 3/8"

5. Nominal Facial Dimensions as follows:
 - a. Floor Tile
 1. **12" x 24" Floor Tile** - "Simply Modern" Series, Unglazed, with 1/4" grout joints.
 2. **Shower Floors: 12" x 24" Floor Tile** "Simply Modern" Series, (Field Cut to Square size as required for sloped floor to drain)- Unglazed, with 1/4" grout joints.
 - b. Wall Tile
 1. **12" x 24" Wall Tile** – "Simply Modern" Series, Unglazed, with 1/4" grout joints.
 2. **4" x 12" "Adamas" Series Wall Tile Accent Band – 3 layers high located 6'-0" AFF.** Glazed, with 1/8" grout joints.
 - c. Base:
 1. **6" x 12" Coved Base** – "Schluter Dilex" Series.
 - d. Wainscot Cap:
 1. **3" x 12" Bullnose** – "Simply Modern" Series.
6. Face: Plain with cushion edges.
- B. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:
 1. Size:
 - a. As indicated, coordinated with sizes and coursing of adjoining flat tile, where applicable.
 2. Shapes:
 - a. Selected from manufacturer's standard shapes.
 3. External Corners for Portland Cement Mortar Installations:
 - a. Bullnose shape with a radius of not less than 3/4" unless otherwise indicated.
 4. Internal Corners:
 - a. Field-butt square corners, except use internal cove and cap angle pieces designed to member with stretcher shapes.

2.4 STONE THRESHOLDS

- A. General: Provide stone which is uniform in color and finish, fabricated to sizes and profiles indicated or required to provide transition between tile surfaces and adjoining finished floor surfaces.
- B. Marble Thresholds: Provide marble thresholds complying with ASTM C 503 requirements for exterior use and abrasion resistant for uses subject to heavy foot traffic.
 1. Provide white, bonded marble complying with MIA Group "A" requirements for soundness.

2.5 SETTING MATERIALS

- A. Portland Cement Mortar Installation Materials: Provide materials to comply with ANSI A108.1 as required for installation method designated, unless otherwise indicated.

2.6 GROUTING MATERIALS – FLOOR & WALL

- A. High Performance Epoxy grout that offers color uniformity, durability and stain resistance with extraordinary ease of use.
 1. Laticrete "Spectralock Pro Grout".
 2. Color to be selected by architect after the bid date from manufacturer standards
- B. Epoxy grout is to be installed per manufacturer's instructions.

2.7 MISCELLANEOUS MATERIALS

- A. Single-Component Sealants: ASTM C 920, Type S, Grade NS, use NT (for use in joints in non-traffic areas).
- B. Two-Component Sealants: ASTM C 920, Type M, Grade P, Class 25, use T (for use in joints subject to pedestrian traffic).
- C. Tile Cleaner: Product specifically acceptable to manufacturer of tile and grout manufacturer for application indicated and as recommended by National Tile Promotion Federation, 112 North Alfred St., Alexandria, VA 22134 or Ceramic Tile Institute, 700 N. Virgil Ave., Los Angeles, CA 90029.

2.8 TILE BACKING PANELS

- A. Fiber-Cement Backer Board: ASTM C1288, in maximum lengths available to minimize end-to-end butt joints.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Custom Building Products.
 - c. James Hardie Building Products, Inc.
 - 2. Thickness: 1/2 inch (12.7 mm) unless otherwise indicated on drawings.
- B. Install panels and treat joints in accordance with ANSI A108.11, APA guidelines, and manufacturer's written instructions for type of application indicated

2.9 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Polyethylene Sheet: Polyethylene faced on both sides with fleece webbing; 0.008-inch (0.2-mm) nominal thickness.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Schluter Systems L.P.
 - b. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
- C. Install waterproof membrane to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
 - 1. Allow waterproof membrane to cure and verify by testing that it is watertight before installing tile or setting materials over it.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine surfaces to receive tile work and conditions under which tile will be installed. Do not proceed with tile work until surfaces and conditions comply with requirements indicated in referenced tile installation standard.

3.2 PRE-INSTALLATION CONFERENCE

- A. A pre-installation conference is required before any tiling materials are installed. This conference shall be conducted by a representative of the Architect and attended by the General Contractor and Tile Contractor. Provide at least 72 hours advance notice to participants prior to convening pre-installation conference.
- B. The pre-installation conference is intended to clarify demolition and application requirements for work to be completed before tiling operations can begin. This would include a detailed review of the specifications, plans, finish schedules and approved shop drawings, submittal data, samples and mock-ups. If this pre-installation conference cannot be satisfactorily concluded without further inspection and investigation by any of the parties present, it shall be reconvened at the earliest possible time to avoid delay of the work. In no case should the work proceed without inspection of all tiling areas and substantial agreement on all requirements.
- C. The following are to be accomplished during the conference:
 - 1. To review all requirements listed in the specifications and resolve any questions or conflicts that may arise.
 - 2. To establish trade-related job schedules.
 - 3. To establish tiling schedule and work methods that will prevent progress of other trades.
 - 4. Require that all surface preparations and conditions be complete prior to installing tile work.
 - 5. To establish those areas on the job site that will be designated as work and storage areas for tiling operations.
 - 6. To establish acceptable methods of protecting the finished tile surfaces if any trades must travel across or work on, above or around any areas of the finished tile work.
- D. The Architect shall prepare a written report indicating actions taken and decisions made at this pre-installation conference. This report shall be made a part of the project record and copies furnished to the General Contractor and the Owner.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard: Comply with applicable parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile".
- B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated or, if not otherwise indicated, as applicable to installation conditions shown.
- C. Setting beds:
 - 1. Floor tile: Thinset.
 - 2. Wall tile: Thinset.
- D. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.
- E. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars, or covers overlap tile.
- F. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.
 - 1. For tile mounted in sheets make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.
- G. Lay out tile wainscots to next full tile beyond dimensions indicated.

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- H. Expansion Joints: Locate expansion joints and other sealant filled joints, including control, contraction and isolation joints, where indicated, or if not indicated, at spacing and locations recommended in TCA "Handbook for Ceramic Tile Installation", and approved by Architect.
 - 1. Prepare joints and apply sealants to comply with requirements of referenced standards and sealant manufacturer.
- I. Grout tile to comply with referenced installation standards, using grout materials indicated.

3.4 FLOOR INSTALLATION METHODS

- A. Porcelain Tile: Install tile to comply with requirements indicated below for setting bed methods, TCA installation methods related to types of subfloor construction, and grout types:
 - 1. Concrete Subfloors, Interior: TCA F113 with isolation membrane equal to Nobleseal CIS.
- B. Grout:
 - 1. High Performance Epoxy grout is to be installed per manufacturer's instructions.
- C. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile unless otherwise indicated.
- D. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood or other flooring which finishes flush with top of tile.

3.5 WALL TILE INSTALLATION METHODS

- A. Install types of tile designated for wall application to comply with requirements indicated below for setting bed methods, TCA installation methods related to subsurface wall conditions, and grout types:
 - 1. Solid Backing, Interior: TCA W221 in wet areas and W213 or W223 25
 - a. applicable in other areas.
- B. Grout:
 - 1. High Performance Epoxy grout is to be installed per manufacturer's instructions.

3.6 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Unglazed tile shall be cleaned with non-acid solutions only recommended by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron and vitreous plumbing fixtures from effects of tile cleaning. Flush surface with clean water after cleaning.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.
- C. Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage and wear.
- D. Prohibit foot and wheel traffic from using tiled floors for at least 7 days after grouting is completed. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.7 EXTRA STOCK

- A. Deliver stock of maintenance materials to Owner. Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.
 - 1. Tile Flooring: Furnish not less than one box for each type, color, pattern and size installed.

END OF SECTION

SECTION 09500 – LINEAR METAL CEILING/SOFFIT SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Linear Metal Ceiling/Soffit System.
- B. Related Sections:
 - 1. Section 16000, Electrical.

1.3 REFERENCES

- A. Abbreviations and Acronyms:
 - 1. ASTM: American Society for Testing and Materials
 - 2. IBC: International Building Code
 - 3. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
 - 4. ICCES: International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
 - 5. ICCES: International Code Council-Evaluation Services Report - ESR 2631 Rockfon Chicago Metallic Corporation Suspended Ceiling Framing Systems and Suspension Ceiling Systems
- B. Reference Standards:
 - 1. ASTM A1008-Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
 - 2. ASTM A641- Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
 - 3. ASTM A653-Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
 - 4. ASTM C423- Standard Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 - 5. ASTM C635/C635M- Standard Specification for Manufacture, performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
 - 6. ASTM C636/C636M- Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
 - 7. ASTM D3273- Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
 - 8. ASTM E84- Standard Test Method for Surface Burning Characteristics of Building Materials
 - 9. ASTM E580- Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
 - 10. ASTM E1111/E1111M -Standard Test Method for Measuring the Interzone Attenuation of Open Office Components
 - 11. ASTM E1414/E1414M -Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
 - 12. ASTM E1264- Classification for Acoustical Ceiling Products

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meetings: Conduct meeting at Project site. Agenda includes Project conditions, coordination with work of other trades and layout of items which penetrate ceilings.

1.5 SUBMITTALS

- A. Product Data: Submit manufacturer's Product data, including suspension system and maintenance data.
- B. Samples: Submit samples of specified ceiling panels.
- C. Show Drawings: Necessary technical drawings and documents that pertain to the layout of the acoustical metal ceiling.
- D. Certifications: Acoustical metal ceiling product's certifications that confirm compliance with applicable tests and standards. Acoustical metal ceiling products must also contain information pertaining to certification for NRC.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Supply additional material (full-size ceiling panels) equal to 5% of ceiling area. Additional material should match products installed and have the appropriate labels and identification.
- B. Supply extra materials that match products installed and are packaged with protective covering for storage and identified with labels describing contents.

1.7 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Details: Suspension ceiling components will feature markings of applicable testing and inspecting organization.
- C. Coordination of Work: Coordination between installers and other related professions in reference to acoustical ceiling work can include electrical fixtures and systems, fire safety systems, gypsum and building construction.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect system components from excessive moisture in shipment, storage, and handling. Deliver in unopened bundles and store in a dry place with adequate air circulation.

1.9 WARRANTY

- A. Manufacturer Warranty: Submit a written warranty executed by manufacturer for a period of 1 year from date for metal ceilings, of Substantial Completion, agreeing to repair or replace suspension system components that fail or are compromised within the specified warranty period. Failed or compromised parts can include, but are not limited to:
 - 1. Rusting or defects directly made by the manufacturer.
 - 2. Sagging or warping directly made by the manufacturer.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. Rockfon, | 4849 South Austin Avenue, Chicago, IL 60638 | 1.800.323.7164 | www.rockfon.com.
- B. Certaineed/Hunter Douglass | 5015 Oakbrook Parkway, Suite 100, Norcross, GA 30093 | Ph: 800.366.4327 | www.certaineed.com.
- C. Armstrong World Industries Inc. | www.armstrongceilings.com | Ph: 877.276.7876
- D. Equal products of other manufacturers may be used in the work, provided such products have

been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

- A. Metal Panels: Linear Metal Ceiling System, "PLANARPLUS®" LINEAR CEILINGS" by Rockfon with following characteristics:
1. Surface: Smooth
 2. Composition: Metal
 3. Material: 0.024"
 4. Panel Width: 4" wide.
 5. Panel Profile Depth: 5/8" deep.
 6. Reveal: Manufactured to provide a 3/4" reveal when installed on the manufacturer suspension system.
 7. Panel Length: 12 feet Standard length. 2 feet to 16 feet special lengths.
 8. Edges: Square
 9. Finish/Color: Baked Enamel Paint Finish. Color to be selected by Architect from Manufacturer Standard selections. Color shall include "White".
 10. Perforation: To be Non-perforated.
 11. Filler: Matching Integral.
 12. Fire Class: Class A.
- B. Accessories:
1. Panel Splices: Manufactured from 0.025 inch thick aluminum, 8-3/4 inches long coated with finish identical to linear metal panels, with profile compatible with linear panels.
 2. End Plugs: Manufactured from 0.025 inch thick aluminum with (round) (square) edges. Coated identical to linear metal panels.
 3. Perimeter Trim
 - a. Wall Channel: Manufactured from 0.025 inch thick aluminum 1 13/16 inch I.D. by 1 7/8 inch top flange by 1 inch bottom flange by 120 inches long. Coated identical to linear metal panels.
 - b. Wall Angle: Manufactured from 0.025 inch thick aluminum 1 5/16 inch wide by 3/4 inch high by 144 inches long with hemmed edges.
- C. Suspension System
1. Symmetrical Carrier:
 - a. Manufactured to an inverted "U" shape from 0.040 inch aluminum, 12 feet/144 inches long. Coated with black polyester enamel. Double grip carrier required on all exterior applications.
 - b. Carrier tabs, to which the linear panels are attached, shall be integral to the carrier and shall protrude from each of its legs.
 - c. Holes shall be punched into the spine of the carrier in order to permit direct attachment to overhead structures when appropriate.
 - d. The symmetrical carrier shall be slotted at appropriate intervals in order to receive stabilizing components as described below.
 2. Stabilizer Bars: Manufactured from 0.025 inch thick aluminum (4913/16) (3513/16) (2313/16)

inch long. Coated with black polyester enamel.

3. Radius Carrier: Manufactured to an inverted "U" shape from 0.040" thick aluminum 144" inches long with integral carrier tabs, painted black.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine suspension assemblies, with installer present, for compliance with requirements specified in this and other Sections affecting ceiling/soffit panel installation and with requirements for installation tolerances and other conditions affecting performance of ceiling/soffit assemblies.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install ceiling panels to comply with ASTM C636/C636M, ASTM E580, and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. General:
 1. For exterior soffit applications install in accordance with ASTM C636 (see 1.03, A2.)
- C. Suspension System
 1. Symmetrical Carriers: Installed 50 inches on center by direct suspension from existing structure with not less than 12 gauge hanger wires wrapped tightly 3 full turns, spaced 48 inches on center.
 2. Stabilizer Bars: Shall be utilized to increase the rigidity of the suspension system layout, as well as to permit easy alignment of the symmetrical carriers. Installed perpendicular to symmetrical carrier 24 to 48 inches on center.
- D. Linear Metal Panels:
 1. Attach to main carrier tabs and connect with Panel Splices with joints staggered in adjacent rows.
 2. Panel Splices: Where continuous runs of linear metal panels are required, panel splices shall be used to join consecutive panels and shall be of a design which eliminates any noticeable gap between the panels.
 3. End Plugs: Installed exposed ends of panels. The end plug shall be of sufficient and appropriate dimensions to fit into the open end of a linear panel. Appropriate styles of end plugs, based upon linear panel width and design, shall be made available.
 4. Slip-on Moldings: Install on exposed ends of panels. Where the ends are visible, an end cap, wall angle, or J-molding shall be utilized to trim the exposed ends of the panels.
 5. Wall Angles: Installed on vertical surfaces intersecting system by appropriate method in accordance with industry accepted practice.
 6. Access Panels: If Indicated on drawings, installed in accordance with manufacturers recommendations.

3.3 REPAIR

- A. Remove damaged or compromised components; replace with undamaged components.

3.4 CLEANING

- A. Clean exposed surfaces in accordance with manufacturer's written instructions.

END OF SECTION

SECTION 09510 - ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to work of this section.

1.2 SUMMARY

- A. Extent of acoustical ceilings specified in this section include the following:
 - 1. Acoustical lay-in panel ceilings in an exposed suspended metal grid system.

SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
 - 1. Full size sample of each acoustical panel type, pattern and color.
 - 2. Set of 12" long samples of exposed runners and moldings for each color and system type required.
- B. Certificates: Submit certificates from manufacturers of acoustical ceiling units and suspension systems attesting that their products comply with specification requirements.

1.3 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Provide acoustical ceiling components that are identical to those tested for the following fire performance characteristics, according to ASTM test method indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate marking of applicable testing and inspecting agency.
 - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84.
 - 2. Flame Spread: 25 or less.
 - 3. Smoke Developed: 50 or less.
- B. Fire Resistance Ratings: As indicated by reference to design designation in UL "Fire Resistance Directory" for floor, roof or beam assemblies in which acoustical ceilings function as a fire protective membrane; tested per ASTM E 119. Provide protection materials for lighting fixtures and air ducts to comply with requirements indicated for rated assembly.
- C. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other work supported by, or penetrating through, ceilings, including light fixtures, HVAC equipment, fire-suppression system components (if any), and partition system (if any).
- D. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination or other causes.
- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.5 PROJECT CONDITIONS

- A. Space Enclosures: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete

and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. USG Interiors, LLC. (Basis of Design) | www.usg.com | Ph: 1.800.950.3839
 - 2. Certaineed Corporation | www.certainteed.com | Ph: 1.800.233.8990
 - 3. Armstrong World Industries Inc. | www.armstrongceilings.com | Ph: 877.276.7876
- B. Equal products of other manufacturers may be used in the work provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 GENERAL ACOUSTICAL CEILING TILE UNITS

- A. Standard for Acoustical Ceiling Tile Units: Provide manufacturer's standard units of configuration indicated which are prepared for mounting method designated and which comply with FS SS-S-118 requirements, including those indicated by reference to type, form, pattern, grade (NRC or NIC' as applicable), light reflectance coefficient (LR), edge detail, and joint detail (if any).
 - 1. Mounting Method for Measuring NRC: No. 7 (mechanically mounted on special metal support), FS SS-S-118; or Type E-400 mounting as per ASTM E 795.
- B. Sound Attenuation Performance: Provide acoustical ceiling units with ratings for ceiling sound transmission class (STC) of range indicated as determined according to AMA 1-II "Ceiling Sound Transmission Test by Two-Room Method" with ceilings continuous at partitions and supported by a metal suspension system of type appropriate for ceiling unit of configuration indicated (concealed for tile, exposed for panels).
- C. Colors, Textures and Patterns: Provide products to match appearance characteristics indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors, surface textures, and patterns available for acoustical ceiling units and exposed metal suspension system members of quality designated.

2.3 ACOUSTICAL TILES

- A. **Acoustical Panel Type: Vinyl Covered Ceiling Panels**
 - 1. USG "Sheetrock Brand Clean Room Lay-In Gypsum Panels".
 - 2. Classification: Provide ceiling panels complying with ASTM E 1264 for type, form and pattern as follows:
 - a. Type XX, mineral based with membrane faced overlay. Vinyl face, back and sides covered gypsum ceiling panels.
 - b. Form: Not Applicable
 - c. Pattern: Smooth
 - 3. Color: Flat White 050.
 - 4. LR: Not less than 0.77
 - 5. NRC: Not less than: N/A
 - 6. CAC: Not less than 35
 - 7. Edge / Joint Detail:
 - a. Square (Typical if not indicated on drawings).
 - b. SLT Beveled Reveal (Only if indicated on drawings).
 - 8. Panel Thickness: 1/2 inch (12.7 mm).

9. Modular Size: 24 by 24 inches (610 by 610 mm).
10. Recycled Content: 80%.
11. Panel Features: Washable, scrubbable, soil and impact resistant finish. Meets USDA/FSIS guidelines for use in food processing areas.
12. Clean room performance: Acceptable in applications up to Class 100 Clean rooms.
13. ClimaPlus™ 30 year limited system warranty. Contains a broad spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag resistance performance.
14. Suspension Grid/Width: USG Donn ZXLA; 15/16".

B. Acoustical Panel Type: Lay-In Acoustical Ceiling Panels

1. USG "Radar" Acoustical Panels
2. Classification: Provide ceiling panels complying with ASTM E 1264 for type, form and pattern as follows:
 - a. Type III, mineral base with painted finish
 - b. Form: 2, water felted.
 - c. Pattern: Perforated, small holes and light texture.
3. Color: Flat White 050.
4. LR: Not less than 0.84
5. NRC: Not less than 0.45
6. CAC: Not less than 33
7. Edge / Joint Detail:
 - a. SQ Square (Typical if not indicated on drawings).
 - b. SLT Beveled Reveal (Only if indicated on drawings).
8. Panel Thickness: 5/8 inch (15.8mm).
9. Modular Size: 24 by 24 inches (600 by 600 mm).
10. Recycled Content: Up to 59%.
11. Panel Features:
 - a. Biobased product that is USDA certified.
 - b. Abuse Resistant, high durability and can be cleaned easily with a soft brush & vacummed.
12. ClimaPlus™ 30 year limited system warranty. Contains a broad spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag resistance performance.
13. Suspension Grid/Width: USG Donn DX; 15/16" (24mm).

C. Acoustical Panel Type: High Noise Reduction Lay-In Acoustical

1. Location: [As indicated in drawings.](#)
2. USG "Mars" "High-NRC/High-CAC" Acoustical Panels
3. Classification: Provide ceiling panels complying with ASTM E 1264 for type, form and pattern as follows:
 - a. Type IV, mineral based, Form 2, water felted.
4. Pattern: To be selected by architect during submittal stage of project.
5. LR:

- a. Not less than 0.84.
- 6. NRC:
 - a. Not less than 0.90.
- 7. CAC:
 - a. Not less than 35.
- 8. Size:
 - a. 24" x 24" x 1".
- 9. Edge Profile(s):
 - a. SQ Square.
- 10. Color:
 - a. White
- 11. ClimaPlus™ 30 year limited system warranty. Contains a broad spectrum antimicrobial additive on the face and back of the panel that provides resistance against the growth of mold and mildew. Includes sag resistance performance.
- 12. Suspension Grid/Width: USG Donn DX; 15/16".

2.4 GENERAL METAL SUSPENSION SYSTEMS

- A. Standard for Metal Suspension Systems: Provide metal suspension systems of type, structural classification and finish indicated which comply with applicable STM C 635 requirements.
- B. Finishes and Colors: Provide manufacturer's standard factory applied finish for type of system indicated. For exposed suspension members and accessories with painted finish, provide color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's full range of standard colors.
 - 1. White.
- C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung.
- D. Hanger Wire: Galvanized carbon steel wire, ASTM A 641, soft temper, prestretched, Class 1 coating, sized so that stress at 3- times hanger design load (ASTM C 635, Table 1, Direct Hung), will be less than yield stress of wire, but provide not less than 12 gage.
- E. Edge Moldings and Trim: Formed steel section; exposed surfaces prefinished to match suspension system components.
 - 1. Provide shadow molding for edges equal to MS174; 9/16" thick exposed flange; 3/8" x 3/8" reveal; 7/8" vertical flange.
 - 2. At penetrations of ceiling install manufacturer's standard molding which fits with type of edge detail and suspension system indicated.
 - 3. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
- F. Hold-Down/Impact Clips: Where indicated provide manufacturer's standard impact clip system design to absorb impact forces against lay-in panels. Install hold down clips at all ceiling panels within 10'-0" of and exterior door.

2.5 METAL SUSPENSION SYSTEMS

- A. **USG Donn Brand ZXLA 15/16" Acoustical Suspension System**
 - 1. Double-web design; Intermediate Duty as defined by ASTM C635. Bottom face with 15/16" (24mm) exposed flange with pre-painted aluminum cap; cross tee holes and hanger wire holes at 6 in oc; integral reversible splices, commercial quality pretreated and painted,

exposed surfaces prefinished in manufacturer's enhanced corrosion resistant polyester paint finish. Cross tees; roll-formed into double-web design with rectangular bulb; 15/16 (24mm) in exposed flange with pre-painted aluminum cap; Stainless Steel clips clenched to the web. Main tees and cross tees shall be positively locked yet shall be removable without the use of tools.

2. Structural Classification: Intermediate Duty.
3. Tee Profile: 15/16" (24mm) wide.
4. Color: White

2.6 SEALANT

- A. Acoustical Sealant: Resilient, non-staining, non-shrinking, non-hardening, non-skinning, non-drying, non-sag sealant intended for interior sealing of concealed construction joints.
- B. Manufacturers: The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 1. BA-98; Pecora Corp.
 2. Tremco Acoustical Sealant; Tremco
 3. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect, not less than Ten (10) days prior to schedule bid opening.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustical ceilings.
 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.
- B. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Coordinate ceiling layout with lighting layout. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans.

3.2 INSTALLATION

- A. General: Install materials in accordance with manufacturer's printed instructions, and to comply with governing regulations, fire-resistance rating requirements as indicated, and CISC standards applicable to work.
- B. Arrange acoustical units and orient directionally-patterned units (if any) in manner shown by reflected ceiling plans.
- C. Install suspension systems to comply with ASTM C 636, with hangers supported only from building structural members.
 1. Locate hangers within 6" inches from each end and spaced 4'-0" along each carrying channel or direct-hung runner, unless otherwise indicated, leveling to tolerance of 1/8" in 12'-0".
 2. Locate hangers on all 4 corners of the ceiling grid where a projector is installed
- D. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye-screws, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperature.
- E. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum which are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal force by bracing, counter-splaying or other equally effective means.

- F. Install edge moldings of type indicated at perimeter of acoustical ceiling area and at locations where necessary to conceal edges of acoustical units.
- G. Sealant Bed: Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg before installing moldings.
- H. Screw-attached moldings to substrate at intervals not over 16" o.c. and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12'-0". Miter corners accurately and connect securely.
- I. Install acoustical panels in coordination with suspension system with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
- J. Install hold-down clips on panels, within 10'-0" of exterior door openings, where panels are other than horizontal, and in areas where required by governing regulations or for fire-resistance ratings; space as recommended by panel manufacturer, unless otherwise indicated or required.

3.3 EXTRA STOCK

- A. Deliver stock of maintenance materials to Owner. Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.
 - 1. Ceiling Tile: Furnish not less than one box for each type, color, pattern and size installed.

END OF SECTION

SECTION 09650 - RUBBER BASE

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Extent of rubber base is shown on drawings and in schedules.

1.2 QUALITY ASSURANCE

- A. Manufacturer: Provide each type of rubber base as produced by a single manufacturer, including recommended, adhesives.
 - 1. Wherever possible, provide required rubber base produced by a single manufacturer.

1.3 SUBMITTALS

- A. Product Data: Submit 2 copies of manufacturer's technical data and installation instructions for each type of rubber base.
- B. Samples: Submit, for verification purposes, samples of each type, color, and pattern of rubber base,

1.4 JOB CONDITIONS

- A. Maintain minimum temperature of 65°F in spaces to receive rubber base for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. Store rubber base materials in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 55°F in areas where work is completed.
- B. Install after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Armstrong World Industries, Inc.
 - 2. Flexco
 - 3. Roppe Corporation
- B. Equal products of other manufacturers may be used in the work provide such products have been approved, by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

- A. Colors and Patterns: As selected by Architect from manufacturer's standards.
- B. Wall Base: Provide rubber base complying with FS SS-W-40, Type II, with matching end stops and pre-formed or molded corner units and as follows:
 - 1. Height: 4"
 - 2. Thickness: 1/8"
 - 3. Style: Standard Top-Set Cove
 - 4. Finish: Matte

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed

corner units, or fabricated from base materials with mitered or coped inside corners. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.

1. On masonry surfaces, or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
- B. Place resilient edge strips tightly butted to flooring and secure with adhesive. Install edging strips at edges of flooring which would otherwise be exposed.

3.2 CLEANING AND PROTECTION

- A. Remove any excess adhesive or other surface blemishes, using neutral type cleaners as recommended by flooring manufacturer. Protect installed flooring with heavy Kraft paper or other covering.
- B. Finishing: After completion of project and just prior to final inspection of work, thoroughly clean floors and accessories.
- C. Apply polish and buff, with type of polish, number of coats, and buffing procedures in compliance with flooring manufacturer's instructions.

END OF SECTION

SECTION 09651 – LUXURY VINYL TILE FLOORING (LVT)

PART 1 – GENERAL

1.1 DESCRIPTION OF WORK

- A. Luxury Vinyl Tile flooring and accessories as indicated on drawings and in schedules.

1.2 RELATED REQUIREMENTS

- A. Section 09650 – Rubber Base.

1.3 QUALITY ASSURANCE

- A. Manufacturer: Provide each type of Luxury Vinyl Tile flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants and leveling compounds.
 - 1. Wherever possible, provide required Luxury Vinyl Tile flooring and accessories produced by a single manufacturer.

1.4 SUBMITTALS

- A. Product Data: Submit 2 copies of manufacturer's technical data and installation instructions for each type of Luxury Vinyl Tile flooring and accessory.
- B. Samples: Submit, for verification purposes, samples of each type, color, and pattern of Luxury Vinyl Tile, including accessories, required, indicating full range of color and pattern variation.

1.5 JOB CONDITIONS

- A. Store Luxury Vinyl Tile flooring products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by the manufacture, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).
- B. Maintain minimum temperature of 65°F in spaces to receive Luxury Vinyl Plank Tile flooring for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. Store Luxury Vinyl Tile materials in spaces where they will be installed for at least 48 hours before beginning installation.
- C. Maintain the ambient relative humidity between 40% and 60% during installation.
- D. Until Substantial Completion, maintain ambient temperatures within range recommended by the manufacture but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).
- E. Install Luxury Vinyl Tile flooring and accessories after other finishing operations, including painting, have been completed. Do not install Luxury Vinyl Tile Flooring over concrete slabs until the latter have been cured and are sufficiently dry to achieve bond with adhesive as determined by manufacturer's recommended bond and moisture test.

PART 2 – PRODUCTS

2.1 MANUFACTURER

- A. The following manufacturers' products have been used to establish minimum standards for materials, workmanship and function:
 - 1. Mannington Commercial, 1844 U.S. Highway 41 S.E. Calhoun, GA 30701; PH: 800.241.2262; www.manningtoncommercial.com.
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

- A. LVT: "Spacia" Collection; "Abstract" Series
 - 1. Construction High Performance Luxury Vinyl Tile flooring

2. Class / ASTM F 1700 Class III Printed Film Vinyl Tile, Type B (embossed)
 3. Wear layer Thickness 20 mil or 0.020" (0.5 mm) Quantum Guard Elite
 4. Overall Thickness 4.0 mm or nominal
 5. Nominal Dimensions: 4" wide x 36" long
 6. Backing Class Commercial Grade
 7. Installation Glue Down
 8. Slip Resistance / ASTM D 2047 >0.65 (wet/dry)
 9. Warranty: 15 year limited commercial wear warranty.
 10. Colors as selected by the Owner.
- B. Concrete Slab Primer: Non-staining type as recommended by flooring manufacturer.
- C. Leveling Compound: ProSpec Feather Edge, premium, polymer modified, rapid setting, trowelable underlayment that results in a very smooth, ultra thin finish or as recommended by the flooring manufacture.
- D. Surfaces must be solid, completely clean, free of oil, gypsum compounds, wax, grease, sealers, curing compounds, asphalt, paint, dirt, loose surface material and any contaminants that act as a bond breaker. Weak concrete surfaces must be cleaned down to solid sound concrete by mechanical means. Acid etching or chemical cleaning is not acceptable. Remove all dirt by vacuuming. All subfloors must be clean, dry and at least 40° F (4° C) prior to applying ProSpec Feather Edge.
- E. Installation: ProSpec Feather Edge will accept standard floor coverings such as VCT, vinyl sheet goods, tile and carpeting in approximately 15-30 minutes after placement.
- F. Materials: Extruded rubber accessories as required (i.e. nosings, reducer strip.)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufactures written instructions to ensure adhesion of Luxury Vinyl Tile Flooring.
 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrate paint, coatings and other substances that are incompatible with adhesives or contain soap, wax, oil, solvents, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
 3. Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
 4. Prepare Substrates according to ASTM F 710 including the following:

Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

- i. Perform anhydrous calcium chloride test, ASTM F 1869. Results must not exceed 5 lbs. Moisture Vapor Emission Rate per 1,000 sq. ft. in 24 hours.
- or**
- ii. Perform relative humidity test using in situ probes, ASTM F 2170. Results must not exceed 80%.
 - a. A pH test for alkalinity must be conducted. Results should range between 7 and 9. If the test results are not within the acceptable range of 7 to 9, the installation must not proceed until the problem has been corrected.
 - b. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
- B. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Floor covering shall not be installed over expansion joints.
- D. Do not install resilient products until they are the same temperature as the space where they are to be installed.
- E. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 FLOORING INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient tile flooring.
 - 1. Install with manufactures adhesive specified for the site conditions and follow adhesive label for proper use.
 - 2. Follow manufactures recommendation and lay tiles so graining follows the same direction.
 - 3. Roll the flooring in both directions using a 100 pound three-section roller.
- B. Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of room area of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, from wall to wall and under all casework or other fixed equipment. Where construction joints in concrete slab occur, lay tile joint with construction joint.
- C. Match tiles for color and pattern by using tile from cartons in same sequence as manufactured and packaged if so numbered. Cut tile neatly around all fixtures. Broken, cracked, chipped, ordeformed tiles are not acceptable.
 - 1. Lay each color of tile with grain running in basket weave pattern.
- D. Adhere tile flooring to substrates using full spread of adhesive applied in compliance with flooring manufacturer's directions.
- E. Accessories: Apply wall base to walls, columns, pilasters, casework and other permanent fixtures in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units, or fabricated from base materials with mitered or coped inside corners. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
 - 1. On masonry surfaces, or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
- F. Place resilient edge strips tightly butted to flooring and secure with adhesive. Install edging strips at edges of flooring which would otherwise be exposed.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- E. Cover resilient products until Substantial Completion.
- F. Wait 72 hours after installation before performing initial cleaning.
- G. A regular maintenance program must be started after the initial cleaning.

3.5 EXTRA STOCK

- A. Deliver stock of maintenance materials to Owner. Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.
 - 1. Flooring: Furnish not less than one box for each type, color, pattern and size installed.

END OF SECTION

SECTION 09672 - RESINOUS FLOORING

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Decorative Resinous Flooring System consisting of 100% solids epoxy body coats with decorative quartz broadcasts, finished with a durable urethane topcoat ensuring excellent wear and chemical resistance all producing a seamless floor and integral cove base.
- B. Related Requirements:
 - 1. Section 07900 "Joint Sealants" for sealants.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's technical data, application instructions, and recommendations for each resinous flooring component required.
- B. Samples for Verification: For each resinous flooring system required, 6 inches square, applied to a rigid backing by Installer for this Project.
- C. Product Schedule: For resinous flooring. Use same designations indicated on Drawings.

1.3 INFORMATIONAL SUBMITTALS - N/A

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For resinous flooring to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.
 - 1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- C. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Apply full-thickness mockups on 48-inch- square floor area selected by Architect.
 - a. Include 48-inch length of integral cove base with inside corner.
 - 2. Simulate finished lighting conditions for Architect's review of mockups.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent

lighting conditions during resinous flooring application.

- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Dur A Flex: Dur A Quartz (Basis-of-Design Product); 95 Goodwin Street, East Hartford, CT, 06108; Ph.: 877.251.5418: www.dur-a-flex.com.
- B. Subject to compliance with requirements or comparable product by one of the following:
 - 1. American Hi-Tech Flooring Company.
 - 2. BASF Construction Chemicals, Inc.; BASF Building Systems.
 - 3. ChemMasters.
 - 4. Crossfield Products Corp.; Dex-O-Tex.
 - 5. DUDICK Inc.
 - 6. Epoxy Systems, Inc.
 - 7. Key Resin Company.
 - 8. NEOGARD; Division of JONES-BLAIR.
 - 9. Nox-Crete Products Group.
 - 10. Pacific Polymers, Inc.
 - 11. POLY-CARB, Inc.
 - 12. Polymerica, Incorporated.
 - 13. PPG Industries, Inc.
 - 14. Sherwin-Williams Company; General Polymers.
 - 15. Stonhard, Inc.
 - 16. Tamms Industries, Inc.; a division of The Euclid Chemical Company.
 - 17. Tnemec Company, Inc.

2.2 MATERIALS

- A. VOC Content of Liquid-Applied Flooring Components: Not more than 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

2.3 DECORATIVE RESINOUS FLOORING

- A. Resinous Flooring: Abrasion-, impact- and chemical-resistant, decorative- aggregate-filled, epoxy-resin-based, monolithic floor surfacing designed to produce a seamless floor and integral cove base.
- B. System Characteristics:
 - 1. Color and Pattern: As selected by Architect from manufacturer's full range after Bid Date.
 - 2. Wearing Surface: Manufacturer's standard wearing surface.
 - 3. Overall System Thickness: 1/4 inch.
- C. Body Coats:
 - 1. Resin: Epoxy.
 - 2. Formulation Description: 100 percent solids.
 - 3. Application Method: Self-leveling slurry with broadcast aggregates.

- a. Thickness of Coats: 1/16 inch.
 - b. Number of Coats: Two.
- 4. Aggregates: Manufacturer's standard.
- D. Topcoat: Sealing or finish coats.
 - 1. Resin: Epoxy.
 - 2. Formulation Description: 100 percent solids.
 - 3. Type: Clear.
 - 4. Finish: Matte.
 - 5. Number of Coats: Two.

2.4 ACCESSORIES

- A. Primer: Type recommended by manufacturer for substrate and body coats indicated.
 - 1. Formulation Description: 100 percent solids.
- B. Reinforcing Membrane: Flexible resin formulation that is recommended by manufacturer for substrate and primer and body coats indicated and that prevents substrate cracks from reflecting through resinous flooring.
 - 1. Formulation Description: 100 percent solids.
 - a. Provide fiberglass scrim embedded in reinforcing membrane.
- C. Patching and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare and clean substrates according to resinous flooring manufacturer's written instructions for substrate indicated. Provide clean, dry substrate for resinous flooring application.
- B. Concrete Substrates: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with resinous flooring.
 - 1. Roughen concrete substrates as follows:
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface, contains the dispensed shot within the apparatus, and recirculates the shot by vacuum pickup.
 - b. Comply with ASTM C 811 requirements unless manufacturer's written instructions are more stringent.
 - 2. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
 - 3. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application of resinous flooring only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. of slab area in 24 hours.
 - b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
 - 4. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after

substrates pass testing.

- C. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- D. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
- E. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.2 APPLICATION

- A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - 3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply waterproofing membrane, where indicated, in manufacturer's recommended thickness.
 - 1. Apply waterproofing membrane to integral cove base substrates.
 - 2. Apply waterproofing membrane to flooring substrates
- D. Apply reinforcing membrane to substrate cracks.
- E. Integral Cove Base: Apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, and topcoating of cove base. Round internal and external corners.
 - 1. Integral Cove Base: 6 inches high.
- F. Apply self-leveling slurry body coats in thickness indicated for flooring system.
 - 1. Broadcast aggregates at rate recommended by manufacturer and, after resin is cured, remove excess aggregates to provide surface texture indicated.
- G. Apply troweled or screeded body coats in thickness indicated for flooring system. Hand or power trowel and grout to fill voids. When cured, remove trowel marks and roughness using method recommended by manufacturer.
- H. Apply grout coat, of type recommended by resinous flooring manufacturer, to fill voids in surface of final body coat and to produce wearing surface indicated.
- I. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.3 PROTECTION

- A. Protect resinous flooring from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

END OF SECTION

SECTION 09681 - SYNTHETIC TURF

PART 1 – GENERAL

1.1 WORK

- A. Furnishing, delivery, installation and warranty of a complete synthetic turf system including under field drainage, field turf, field markings and resilient infill material.

1.2 RELATED SECTIONS

A. Concrete Sub-Floors

- 1. The general contractor shall furnish and install the concrete subfloor depressing the slab sufficiently to accommodate the turf system. The slab shall be steel troweled smooth to a tolerance of 1/4" in any 10' radius by the general contractor. High spots shall be ground level, and low spots filled in with approved leveling compound by the general contractor to the full approval of the flooring contractor.

B. Membrane Waterproofing

- 1. Concrete subfloors on or below grade shall be adequately waterproofed beneath the slab and at the perimeter walls and on earth side of below grade walls by general contractor using suitable type membrane.

1.3 REFERENCES

A. ATSM Standard Test Methods

- 1. **D1577** – Standard Test Method for Linear Density of Textile Fiber
- 2. **D5848** – Standard Test Method for Mass Per Unit Area of Pile Yarn Floor Covering
- 3. **D418** – Standard Test Method for Testing Pile Yarn Floor Covering Construction
- 4. **D1338** – Standard Test Method for Tuft Bind of Pile Yarn Floor Coverings
- 5. **D1682** – Standard Method of Test for Breaking Load and Elongation of Textile Fabrics
- 6. **D5034** – Standard Test Method of Breaking Strength and Elongation of Textile Fabrics (Grab Test)
- 7. **F1015** – Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces
- 8. **F1551** – Standard Test Methods for Water Permeability
- 9. **D2859** – Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials

B. Carpet & Rug Institute suggested guidelines.

C. STC Suggested Guidelines for the Essential Elements of Synthetic Turf Systems

1.4 SITE EXAMINATION

- A. **A 24 Hour Relaxation Period is recommended before gluing down turf to prevent shrinking and /or expanding after glue down. IDEAL temperatures should be above 70 degrees.**
- B. **When turf is delivered:** Check its texture, color, and style; make sure there are no visible defects before installation. Be sure the installer will adhere to the CRI 105 installation methods (www.carpet-rug.com). Among other things, it requires for proper installation that turf must be power-stretched to minimize wrinkling and rippling. Seam edges must be sealed with appropriate adhesive to prevent delaminating and edge ravel.
- C. **Floor Preparation (when not using seaming tape):** Each subfloor shall be inspected to determine the special care required to make it a suitable foundation for turf. All cracks 1/8 inch (3 mm) wide or protrusions over 1/32 inch (.8 mm) should be filled or leveled.

- D. **Temperature and Humidity:** The environment in which the turf is to be installed must be controlled with the temperature between 65o F and 95o F (18o C and 35o C) and the relative humidity between 10%and 65%. If installing over concrete, the slab temperature should not be less than 65o F (18o C). These conditions must be maintained for at least 48 hours before, during, and 48 hours after the installation.
- E. **Concrete:** Concrete shall be cured, clean, and dry. If the turf is to be installed using an adhesive, the concrete shall be free of paint, dirt, grease, oil, curing or parting agents, and other contaminants, including sealers, that may interfere with the bonding of the adhesive. Whenever a powdery or porous surface is encountered, a primer compatible with the adhesive shall be used to provide a suitable surface for the glue-down installation. Patching of cracks and depressions shall be made with appropriate and compatible latex or polymer fortified patching compound. Do not exceed manufacturer's recommendations for patch thickness. Large patched areas must be primed.
- F. **Moisture Testing (when not using seaming tape):** Concrete floors, even with adequate curing time, can present an unacceptable moisture condition by allowing excessive amounts of moisture vapor to pass through to the surface. This can be a problem even on suspended concrete floors. All concrete floors should be tested for moisture emission rate by utilizing an anhydrous calcium chloride moisture test kit available from installation supplies and accessories distributors. This quantitative method is very precise and must be conducted carefully, with strict attention to the test kit manufacturer's detailed instructions. Moisture emission rate is expressed in lbs/1000 sq. ft. /24 hours. Because the calcium chloride test for emission rate requires 3 days to conduct, proper installation planning is a must. As a general guideline, an emission rate of 3 lbs (1.4 kg) or less is acceptable for most turf. In the range from 3 lbs to 5 lbs (1.4 to 2.3 kg), carpet with porous backings can usually be installed successfully; but the risk of moisture-related problems increases. Since some floor covering products are less tolerant of moisture than others, always consult the individual manufacturer to determine the emission rate for specific products. When any or all corrective procedures have been completed, the finished sub-floor surface must be re-inspected, with the same representatives attending as the initial inspection. If required, additional repair and inspections are to be conducted until the sub-floor surface is deemed acceptable by the Engineer and Synthetic Turf Installer
- G. Once the sub-floor surface has been deemed acceptable, the Contractor shall submit a written certificate indicating the acceptance of:
1. The sub-floor construction finished surface as totally suitable for the application of the selected synthetic turf system, and
 2. The sub-floor construction as totally suitable for work under this section to proceed with the final installation and fully warrant the athletic surface installation for the period and conditions specified herein.
- H. Commencement of work under this section shall constitute acceptance of the work completed under other sections by the Contractor, acceptance of dimensions of the sub-floor, and hence, no claims for extra work based upon these conditions will be permitted.

1.5 ENVIRONMENTAL CONDITIONS

- A. Install synthetic turf surfacing only when ambient air temperature is 35 F or above and the relative humidity is below 35% or as specified by the product manufacturer. Installation will not proceed if rain is imminent.
- B. Install product only when prepared sub-floor is suitably free of dirt, dust, and petroleum products, is moisture free and sufficiently secured to prevent unwanted pedestrian and vehicular access.

1.6 QUALITY CONTROL

- A. **Manufacturer Qualifications:** Company specializing in manufacturing products specified in this section. The Turf Manufacturer:
1. Basis of design shall be "AT740" synthetic turf system as provided by GrassTex™. (800) 544-0439, www.grass-tex.com

2. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.
 3. Must be experienced in the manufacturing of synthetic grass systems with the same fiber as specified.
 4. Must have at least 30 fields of 16,000 sq. ft. or more of the specified material, fiber, infill material and backing, or similar system, in play in the United States.
 5. Manufacturer must be a member in good standing with the STC.
 6. Manufacturer must utilize best practices as certified by ISO-9001 and ISO-14001.
 7. Manufacturer must be owned and operated in the U.S.A.
 8. Manufacturer must have no periods of insolvency over the last 25 years.
- B. Installer Qualifications:** Company specializing in performing the work of this section.
1. The Synthetic Turf Installer must provide competent workmen skilled in this type of synthetic grass installation.
 2. Installer to follow CRI (Carpet and Rug Institute) guidelines.
- C.** Prior to the beginning of installation, the Synthetic Turf Installer shall inspect the sub-floor. The installer will accept the sub-floor in writing when the general contractor provides test results that are in compliance with the synthetic turf manufacturer's recommendations and as stated herein.
- D.** Remove defective Work, whether the result of poor workmanship, defective products or damage, which has been rejected by the Engineer as unacceptable. Replace defective work in conformance with the Contract Documents.

1.7 SUBMITTALS

A. Submit the following with Proposal:

1. Submit the exact product name/description as well as the name and location of the manufacturers and suppliers of each component. Manufacturers and suppliers must not be changed after the contract is awarded unless approved by the Owner in writing.
2. Submit two (2) samples, 12"x12" minimum size, illustrating details of finished product as bid, turf, and infill material if required.
3. Product Literature: Submit two (2) copies of manufacturer's recommended installation and maintenance information, including any technical criteria for evaluation of the installed product. Descriptions of all equipment recommended for the maintenance and repair of turf product, as well as a list of any activities not recommended relative to the warranty.
4. Submit a 1-lb sample of the selected bid infill material(s) if required.
5. A letter and specification sheet certifying that the products of this section meet or exceed specified requirements.
6. Certified copies of independent (third-party) laboratory reports on ASTM tests as follows:
 - a. Pile Height, Face Width & Total Fabric Weight, ASTM D418 or D5848
 - b. Primary & Secondary Backing Weights, ASTM D418 or D5848
 - c. Tuft Bind, ASTM D1335
 - d. Grab Tear Strength, ASTM D1682 or D5034
 - e. Verification that product meets Pill test minimums for ASTM D-2859 for life of installation.
7. ASTM test submittals may vary by no more than ¼" and 6 oz. of the specified product to bid. Bid winner must show NEW ASTM TESTS with contract submittals.

8. Name and experience of the designated supervisory personnel assigned to this project shall be submitted with the proposal. Changes to this assignment after contract can only be made if approved in writing by the Owner. Include a listing of other on-site personnel and their experience.
9. The Synthetic Turf Installer and Turf Manufacturer shall provide evidence that the turf system does not violate any other manufacturer's patents, patents allowed or patents pending.
10. The Synthetic Turf Installer and the Turf Manufacturer shall provide complete information on its warranty/insurance policy and coverage, as noted in Section 1.08. Provide a complete sample copy of all warranty documentation.

B. Prior to ordering of materials:

1. The Contractor shall submit Shop Drawings indicating:
 - a. Field Layout/Seam Plan.
 - b. Field Marking Plan and details for Soccer, Men's Lacrosse, and Women's Lacrosse if required.
 - c. Mid-field emblem layout with color samples.
 - d. Methods of attachment, field openings and perimeter conditions.
2. The Turf Manufacturer must submit the fiber manufacturer's name, type of fiber and composition of fiber.
3. **Shop Drawings:** Shop drawings are to be submitted for review by the Engineer prior to manufacture of product and are to contain information regarding locations of seams, anchorage details, goal post/insert details, line and event marking locations and dimensions, turf roll widths and dimensions.

C. Prior to Final Acceptance, the Contractor shall submit to the Owner:

1. Two (2) copies of Maintenance Manuals, which will include all necessary instructions for the proper care and preventative maintenance of the synthetic turf system, including painting and markings. Also address remedial measures for graffiti removal.
2. Written verification of a suitable training session for the Owner's maintenance staff on how to maintain the completed installation.
3. Project Record Documents: Record actual locations of seams, drains or other pertinent information.
4. Enter into a contract with the Owner to provide annual operations and maintenance assistance for two (2) years. Provide contract, contact information and schedule first visit. Biannually provide care and maintenance services that includes:
 - a. On-site inspection analysis of seams, infill, inlay, edge, and field inserts.
 - b. The contractor shall sweep and groom the field at each visit.
 - c. Synthetic turf report with results of inspection analysis, photos, results of cleaning process, recommendations for future cleaning/maintenance.
 - d. The Contractor must execute an annual operations and maintenance assistance contract before substantial completion can be approved.
5. Test Results: Test certifications issued by an independent testing agency that the synthetic surface meets with the requirements of the ASTM tests noted herein are to be submitted.
6. Sub-floor Conditions Acceptance: Prior to installation of the synthetic turf system, the Contractor is to submit in writing an acceptance of the sub-floor as being acceptable by the turf manufacturer and suitable for the successful installation of the proprietary synthetic turf system.

1.8 WARRANTY

- A. The Contractor shall provide a minimum five (5) year warranty policy by the manufacturer, against defects in materials and workmanship. Defects shall include, but not be limited to ultraviolet ray fading, degradation, or excessive wear of fiber.
- B. Warranty must be backed by a surety licensed to do business in the State of Georgia.
- C. Submit information listing the owner on the COI (Certificate of Liability Insurance).
- D. Limited Warranty shall be for replacement of any damaged product within the warranty period. Warranty shall be comprehensive and sufficient to replace entire field if necessary.
- E. Warranty shall become effective from the date of substantial completion.
- F. The Warranty shall contain no usage limits for warranted field.
- G. Submit Manufacturer Warranty and ensure that forms have been completed in Owner's name and registered with Manufacturer.

PART 2 - PRODUCTS

2.1 SUPPLIER QUALIFICATIONS

- A. The Owner has conducted an extensive review of synthetic turf products, including visiting installed sites and review of other agencies' review criteria. Based upon their research, they have established the following criteria for acceptance of a synthetic turf product. No variation from these criteria shall be allowed. The Owner's review is considered final.
- B. The Synthetic Turf Installer shall have been in business for at least 5 years, actively selling, installing and maintaining sports flooring.
- C. The Synthetic Turf Installer must provide a list of references based on previous installations.
- D. Installation team shall be established, insured installation firm experienced as a premium turf installer with suitable equipment and supervisory personnel, with a minimum of 5 years' experience.
- E. Installation team shall be trained and competent in the installation of the specified material, including seaming and proper installation of the infill mixture.

2.2 TURF SYSTEM

- A. **Turf Fiber:**
 - 1. The turf fiber must be tufted to the backing with a minimum tuft bind of 8 pounds.
 - 2. The tufted fiber weight shall be a minimum of 40 ounces per square yard.
 - 3. The turf fiber shall be polyethylene slit film and texturized nylon.
 - 4. The turf fiber shall be non-abrasive and a minimum of 100 microns thick.
 - 5. The turf fiber must contain less than 100 ppm of lead in all colors.
 - 6. The turf fibers must be from the same dye lots.
 - 7. The turf fibers must be guaranteed for a period of Eight Years not to fade or fail (as distinguished from a change in texture) or have a pile height decrease to 50% of pile height as result of UV degradation
 - 8. The pile fiber shall possess the following characteristics:

Characteristic	Value	Test
Linear Density (Denier)	9,000 Combined	ASTM D 1577
Yarn Thickness	100 Microns (slit); 100 Microns (mono)	ASTM D 3218
Pile Weight*	40 oz./yd2	ASTM D 5848
Fiber manufacturer must be from the same source		
The above specifications are nominal. *Values are +/- 5%.		

9. The pile fabric shall possess the following physical characteristics:

Characteristic	Value	Test
Finished Pile Height*	3/4" (19mm)	ASTM D 5823
Product Weight (total)*	125 oz./yd2	ASTM D 3218
Primary Backing Weight*	7.4 oz./yd2	ASTM D 2256
Secondary coating Weight**	78 oz./yd2	ASTM D 5848
Fabric Width	12' (3.6m)	ASTM D 5793
Tuft Gauge	1/4"	ASTM D 5793
Grab Tear Strength	200-1b-F	ASTM D 5034
Tuft Bind	>8-1b-F	ASTM D 1335
Infill (Sand)*optional	2 lbs Silica Sand	None
Except where noted as a minimum, the above specifications are nominal.		
* Values are +/- 5%. **All values are +/- 3 oz./yd2.		

B. Backing Material

1. Primary Backing:

- Primary backing must be a dual layered woven polypropylene material.
- Primary backing system weight must be a minimum of 7.0 ounces/square yard.

2. Secondary Backing:

- Secondary backing system weight must be a minimum of 75 ounces/ square yard.

- C. **Turf roll seams:** to be glued on site so that no openings larger than the porous backing mat openings are created. Roll width to coincide with tufted-in sports line markings where possible. All turf fabric edges to be securely bound as per the perimeter detail design. Adhesives for joining seams of turf together shall be Nordot 34G, Mapei 2K, Turf Claw or equivalent. No substitutions.
- D. **Fabric surface:** shall be constructed and installed in minimum widths of 12 feet with no longitudinal or transverse seams, except for inlaid lines with a finish roll assembly. Seams shall be 12'-0" apart. Rolls that do not comply with the proper length or conform to the seaming diagram, as approved prior to installation, shall be rejected from the site. No fitted pieces shall be allowed to true alignment. Parallel seams only are acceptable in the main playing areas.
- E. The entire system shall be resistant to weather, including ultra-violet light and heat degradation; insects, rot, mildew and fungus growth and be non-allergenic and non-toxic.
- F. **Fiber Colors:** Submit samples of the full available color palette for owner approval prior to placing order for turf including at a minimum the below listed colors: (Specify or Delete)
- Color 1: Grass, green in standard color, as selected by the Owner
 - Color 2: White for soccer lines and markings
 - Additional colors as needed.

- G. The Mid-field Center Logo shall be provided by the owner in a standard PDF or EPS file to the selected contractor. Contractor shall submit a shop drawing of Logo to include colors and dimensions for approval by the owner prior to ordering. (Specify or Delete)
- H. The turf material shall be non-combustible and pass the DIN standard Pill Burn test or ASTM D 2859.

2.3 LINES, MARKINGS AND IN-LAID TURF

- A. All line material is to be identical dimensionally and of the same material to that used for the main playing field fiber system.
- B. Inlaid material as indicated on the drawings to be identical, except for fiber color, as the main turf field.
- C. All lines and markings shall be accurately set and surveyed to within ½" tolerance of the location shown on the drawings and in conformance with specified field marking standards.

2.4 SYNTHETIC GLUE MATERIAL

- A. Adhesive products shall be Nordot 34G, Mapei 2K, Turf Claw or equivalent as approved by the engineer.
- B. Any adhesive products required for the installation of a proposed turf system shall be purpose-suited to the system. The material and application methods shall be as recommended by the adhesive manufacturer.
- C. Disposal of adhesive containers and unused adhesives as well as any fees resulting from such disposal shall be the responsibility of the Contractor.

2.5 INFILL MATERIAL IF REQUIRED

- A. The synthetic infill material shall consist of silica sand.
 - 1. Sand: specially-graded, dust-free silica sand shall be placed on the turf in a minimum quantity of 1.5 pounds/ square foot and shall include test results that demonstrate the following minimum properties:
 - a. Color – tan
 - b. Sand shall be round non-angular in shape
 - c. Roundness – 0.6+
 - d. Hardness - 0.6-0.8 on the Mohs Scale
 - e. Size – 1.00 mm ± 0.15 mm
 - f. Density – 90 – 95 lbs/ cu ft.
 - g. Dust - < 0.001 %
 - h. Angle of Repose - < 30°
 - i. Sand shall be heavy metal safe

PART 3 - EXECUTION

3.1 GENERAL

- A. Installation of the synthetic turf system is to comply with the manufacturer's recommendations, requirements and the reviewed and approved shop drawings.
- B. Perform all work in strict accordance with the Contract Documents and the manufacturer's specifications and instructions. Only those skilled technicians proposed in the bid phase are to be assigned to this project by the Contractor.
- C. The designated Supervisor for the Synthetic Turf Installer must be present during any and all construction activity associated with the field installation, including testing, cleanup and training.

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- D. All products and equipment are to be from sources approved by the authorized turf manufacturer and conform to the specifications.

3.2 PRODUCT DELIVERY, STORAGE & HANDLING

- A. Deliver products to site in original containers and wrappers as agreed between the Engineer and Contractor. Inspect products upon delivery for damage.
- B. Store products in a location and in a position that protects them from crush damage or any other defects.
- C. Handle and store (on and off site) all materials safely to ensure their physical properties are not adversely affected and that they are not subject to vandalism or damage.
- D. Sand infill shall arrive dry and loose
- E. Adhesives shall arrive in dry, sealed containers.

3.3 PLUGS AND FITTINGS

- A. All permanent field fittings penetrating the turf indicated on the drawings shall be securely sealed to the turf surface.

3.4 TURF INSTALLATION

- A. Install synthetic turf system in accordance with the manufacturer's written installation instructions.
- B. All inlaid areas shall have full fastenings and no loose areas. At no time can pulling on the section separate the material.
- C. Turf shall be attached to the perimeter edge as shown in the construction plans and as per the manufacturer.
- D. All terminations shall be as detailed and approved in the shop drawings.

3.5 INFILL INSTALLATION IF REQUIRED

- A. The synthetic turf shall be thoroughly brushed prior to installation of infill materials to remove wrinkles.
- B. The infill materials shall be installed in layers, in accordance with the turf manufacturer's installation instructions. Any mix of materials shall be uniform and even in thickness.

3.6 FIELD MARKINGS

- A. Sports field lines and event markings as per the Contract Documents shall be accurately positioned and marked in accordance with the current rules of the governing body. All lines shall be straight and true along the length of the marked boundary to within ½" along the length of any such boundary.
- B. All markings shall be accurately measured and applied in widths and colors as required by the governing body and selected from the manufacturer's range of standard colors, or not more than one custom color if the manufacturer's standard colors do not meet the Owner's requirements.

3.7 CLEANING AND COMPLETION

- A. Protect all installed work from other construction activities as installation progresses.
- B. The Contractor shall keep the area clean throughout the construction period and free from the installation process.
- C. Upon completion of the installation, thoroughly clean surfaces and site of all refuse resulting from the installation process.
- D. Any damage to existing fixtures or facilities resulting from the installation of the synthetic turf system shall be repaired to original condition at the Contractor's expense prior to Substantial Completion and commencement of the Warranty Period.

- E. A deficiency list will be produced by the Engineer at the conclusion of the project. All installation project deficiencies not in dispute must be remedied by the Contractor prior to the issuance of a certificate of Substantial Completion.
- F. Contractor to provide a written acceptance by the Turf Manufacturer that the turf and base system is installed in accordance with their recommendations prior to final completion.

END OF SECTION

SECTION 09811 – ACOUSTICAL SOUND DIFFUSERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary conditions and Division 1 Specification sections apply to work of this section.

1.2 SUMMARY

- A. Section Includes: Custom fabricated Sound Diffusers.

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - 2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 3. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

1.4 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. Surface Burning Characteristics (ASTM E84): Ceiling mounted Model Geometric Sound Diffusers shall be Class A rated, minimum.

1.5 SUBMITTALS

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, edge profiles and panel components, including anchorage, accessories, finish colors and textures.
- D. Samples: Submit selection and verification samples of finishes, colors and textures.
- E. Test Reports: Certified test reports showing compliance with specified performance requirements.
- F. Standard Systems: Submit certified copies of previous test reports substantiating performance of system in lieu of retesting.

1.6 DELIVERY, STORAGE & HANDLING

- A. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- B. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Do not install diffusers or reflectors until wet work, such as concrete and plastering, is complete; the building is enclosed; and the temperature and relative humidity are stabilized at 60 - 80 degrees F (16 - 27 degrees C) and 45%, respectively.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers' products have been used to established minimum standards for materials, workmanship and functions:

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1. Acoustical Solutions; (Basis of Design and Quality) 2420 Genoble Road, Richmond, VA 23294; Phone: 800.782.5742; www.acousticalsolutions.com.
 2. Kinetics Noise Control, Inc.; PO Box 655, 6300 Irelan Place, Dublin, OH 43017; Telephone: (614) 889-0480; Fax: (614) 889-0540; E-mail: intsales@kineticsnoise.com; Web site: www.kineticsnoise.com.
 3. Acoustics First; 2247 Tomlyn Street, Richmond, VA 23230-3334; 888.765.2900 or 804.342.2900; www.acousticsfirst.com.
 4. MBI Products Company, Inc. | 801 Bond Street, Elyria, OH 44035 | Ph.: 440.322.6500 | www.mbiproducs.com.
- B. Equal products of other manufacturers may be used in the work provided such products have been approved by the Architect not less than Ten (10) days prior to scheduled bid opening.

2.2 ACOUSTICAL DIFFUSERS

1. Barrel Sound Diffuser, Rigid Molded E-glass:
 - a. Constructed from rigid e-glass molded into one-piece shape.
 - b. Location as indicated on the drawings.
 - c. Size: 2 x 2 ft.
 - d. Edge Detail: Rigid e-glass molded one-piece form with flange in ceiling drop grid.
 - e. Finish: White Gel Coated
 - f. Color: White
 - g. Sound Absorption (ASTM C423): Noise Reduction Coefficient shall be no greater than 10.
 - h. Mounting: Ceiling mounted in T-bar suspended grid system.

PART 3 – EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate or supporting structure, which has been previously installed under other sections, is acceptable for product installation in accordance with manufacturer's instructions.

3.3 CLEANING

- A. Follow manufacturer's instructions for cleaning panels soiled during installation. Replace panels that cannot be cleaned to as new condition.
- B. Keep site free from accumulation of waste and debris.

END OF SECTION

SECTION 09843 - ACOUSTICAL WALL PANELS (FIBERGLASS)

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary conditions and Division 1 Specification sections apply to work of this section.

1.2 SECTION INCLUDES

- A. Acoustical Wall Panels custom-fabricated and fabric-finished. (Fiberglass).

1.3 REFERENCES

- A. ASTM International:
 - 1. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - 2. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 3. ASTM E795 Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

1.4 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. Surface Burning Characteristics (ASTM E84):
 - a. Flamespread: 25 maximum.
 - b. Smoke Developed: 450 maximum.
 - c. Fire ratings for all fabric covered panels is based on testing of the panel wrapped with the standard in-stock fabric, Guilford of Maine Model FR 701 Style 2100.

1.5 SUBMITTAL

- A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures Section.
- B. Product Data: Submit product data sheet, for specified products.
- C. Shop Drawings: Submit shop drawings showing layout, edge profiles and panel components, including anchorage, accessories, finish colors and textures.
- D. Samples: Submit selection and verification samples of finishes, colors and textures.
- E. Test Reports: Certified test reports showing compliance with specified performance requirements.
 - 1. Standard Systems: Submit certified copies of previous test reports substantiating performance of system in lieu of retesting.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with Division 1 Product Requirements Section.
- B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Storage and Protection: Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

1.7 PROJECT CONDITIONS

- A. Environmental Requirements: Do not install panels until wet work, such as concrete and plastering, is complete; the building is enclosed; and the temperature and relative humidity are stabilized at 60 - 80 degrees F (16 - 27 degrees C) and 35% MINIMUM RH and 55% MAXIMUM RH, respectively. All products constructed with wood or wood fiber content must be stored for at

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least 72 hours in the controlled environment specified herein prior to installation to allow the materials to stabilize.

PART 2 - PRODUCTS

2.1 SOUND-ABSORBING WALL PANELS

A. MANUFACTURER

1. Kinetics Noise Control, Inc. (Basis of Design and Quality); PO Box 655, 6300 Irelan Place, Dublin, OH 43017; Telephone: (614) 889-0480; Fax: (614) 889-0540; E-mail: intsales@kineticsnoise.com; Web site: www.kineticsnoise.com.
2. Acoustical Solutions; 2420 Genoble Road, Richmond, VA 23294; Phone: 800.782.5742; www.acousticalsolutions.com.
3. Acoustics First; 2247 Tomlyn Street, Richmond, VA 23230-3334; 888.765.2900 or 804.342.2900; www.acousticsfirst.com.
4. MBI Products Company, Inc. | 801 Bond Street, Elyria, OH 44035 | Ph.: 440.322.6500 | www.mbiproducts.com.

2.2 MANUFACTURED UNITS

A. HARDSIDE PANELS

1. Location: **Type AWP2**
2. Thickness:
 - a. **4 inches (102 mm).**
3. Size: As indicated on the drawings up to a maximum 48 inches (1219 mm) x 120 inches (3048 mm) panel.
4. Core:
 - a. **4 inches (102 mm) thick fiberglass, 6 - 7 pcf (96 - 112 kg/m³) density.**
5. Edge Detail: Pencil hardened with a Class A hardening solution.
6. Facing: 100% polyester fabric, FR 701 Style 2100 by Guilford of Maine.
 - a. Color: As selected by Architect from panel manufacturer's full range of colors after Bid Date.
7. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:
 - a. **4 inches (102 mm) panel: 1.10, minimum, 125 Hz = 0.65 or greater.**
8. Mounting Accessories: HS impaling clips or Z-clips.

B. HIGH IMPACT HARDSIDE PANELS

1. Location: **Type AWP1.**
2. Thickness:
 - a. **4 1/8 inch (105 mm).**
3. Size: As indicated on the drawings up to a maximum 48 inches (1219 mm) x 120 inches (3048 mm) panel.
4. Core:
 - a. **4 inches (102 mm) thick fiberglass, 6 - 7 pcf (96 - 112 kg/m³) density, with bonded facing layer of 10 pcf (192 kg/m³), with 1/8 inch (3.2 mm) thick impact resistant fiberglass layer.**
5. Edge Detail: Pencil hardened with non-resin, Class A hardening solution.
6. Facing: 100% polyester fabric, FR 701 Style 2100 by Guilford of Maine.

- a. Color: As selected by architect from panel manufacturer's full range of colors after Bid Date.
- 7. Sound Absorption (ASTM C423): Noise Reduction Coefficient as follows:
 - a. 2 1/8 inches (54 mm) panel: 1.05, minimum.
- 8. Mounting Accessories: HS impaling clips or Z-clips.

2.3 FABRICATION

- A. General: Treat fabric wrapped panels using heat shrink process to develop fully taut facing.
- B. Wrap panel edges and return facing fabric 1 - 2 inches (25.4 - 51 mm) on back of panel. Secure fabric with adhesive applied to edges and back of panel only.

PART 3 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

- A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

- A. Site Verification of Conditions: Verify that substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.
 - 1. Verify that stud spacing is 16 inches (406 mm) o.c., maximum, for panels installed over open studs.
 - 2. Do not install panels until unsatisfactory conditions are corrected.

3.3 CLEANING

- A. Follow manufacturer's instructions for cleaning panels soiled during installation. Replace panels that cannot be cleaned to as new condition.
- B. Keep site free from accumulation of waste and debris.

END OF SECTION

SECTION 09900 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract including General and Supplementary Conditions and Division 1 Specification sections apply to work of this section.

1.2 DESCRIPTION OF WORK

- A. Extent of painting work is indicated on drawings and schedules, and as herein specified including accent painting.
- B. Work includes painting and finishing of interior and exterior exposed items and surfaces throughout project, except as otherwise indicated.
 - 1. Surface preparation, priming and coats of paint specified are in addition to shop-priming and surface treatments specified under other sections of work.
- C. Work includes field painting of exposed bare and covered pipes, conduits and ducts (including color coding), and of hangers, exposed steel and iron work, and conduits and primed metal surfaces of equipment installed under mechanical and electrical work, except as otherwise indicated.
- D. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- E. Surfaces to be Painted: Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Architect will select these from standard colors or finishes available.
- F. Following categories of work are not included as part of field-applied finish work.
 - 1. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory-finishing or installer finishing is specified for such items as (but not limited to) metal toilet enclosures, prefabricated partition systems, acoustic materials, elevator entrance doors and frames, elevator equipment, and finished mechanical and electrical equipment, including light fixtures, switchgear and distribution cabinets.
 - 2. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.
 - 3. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.
 - 4. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.

G. Following categories of work are included under other sections of these specifications.

1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, metal fabrications, hollow metal work and similar items.
2. Unless otherwise specified, shop priming of fabricated components such as shop-fabricated or factory-built mechanical and electrical equipment or accessories is included under other sections of these specifications.

H. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

1.3 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer and use only within recommended limits.
- B. Coordination of Work: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.
- B. Samples: Prior to beginning work, Architect will furnish color chips for surfaces to be painted. Use representative colors when preparing samples for review. Submit samples for Architect's review of color and texture only.
- C. Provide a listing of material and application for each coat of each finish sample. Provide a 4' x 4' sample application of each color paint for Architect's approval prior to final ordering of product. Sample application shall be applied in an inconspicuous place, satisfactory to the Architect.

1.5 DELIVERY AND STORAGE

- A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:
 1. Name or title of material.
 2. Fed. Spec. number, if applicable.
 3. Manufacturer's stock number and date of manufacturer.
 4. Manufacturer's name.
 5. Contents by volume, for major pigment and vehicle constituents.
 6. Thinning instructions.
 7. Application instructions.
 8. Color name and number.
- B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials and residue.
 1. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions to ensure that workmen and work areas are

adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paints.

1.6 JOB CONDITIONS

- A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50 degree F and 90 degrees F, unless otherwise permitted by paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45 degree F and 95 degree F, unless otherwise permitted by paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85% or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.
 - 1. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The following manufacturers are listed as acceptable substitutions to the establish minimum standards. Sherwin Williams Products are listed as the standard of product performance and quality.
 - 1. Sherwin Williams Paint Company (SW)
 - 2. Benjamin Moore and Co. (Moore).
 - 3. Pittsburgh Paints (PPG).
- B. Equal products of other manufacturers may be used in the work, provided such products have been approved by the Architect, not less than Ten (10) days prior to scheduled bid opening.

2.2 MATERIALS

- A. Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade product will not be acceptable.
 - 1. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.
 - 2. Federal Specifications establish minimum acceptable quality for paint materials. Provide written certification from paint manufacturer that materials provided meet or exceed these minimums.
 - 3. Manufacturer's products which comply with coating qualitative requirements of applicable Federal Specifications, yet differ in quantitative requirements, may be considered for use when acceptable to Architect. Furnish material data and manufacturer's certificate of performance to Architect for any proposed substitutions.
- B. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

PART 3 – EXECUTION

3.1 INSPECTION

- A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator. If work is begun before satisfactory conditions are met, then it shall be the Applicators' responsibility for the finish surfaces conditions.**
- B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.
- C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION

- A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.
 - 1. Provide barrier coats over incompatible primers or remove and reprime as required. Notify Architect in writing of any anticipated problems in using the specified coating systems with substrates primed by others.
 - 2. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.
 - 3. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from cleaning process will not fall onto wet, newly-painted surfaces.
- B. Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block, cement plaster and cement-asbestos board to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.
 - 1. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
 - 2. Clean concrete floor surfaces scheduled to be painted with a commercial solution of muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid and allow to dry before painting.
- C. Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill

holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

1. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, paneling.
 2. When transparent finish is required, use spar varnish for backpriming.
 3. Backprime all exposed exterior wood. Backprime paneling on interior partitions only where masonry, plaster, or other wet wall construction occurs on backside.
 4. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.
- D. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.
1. Touch-up shop-applied prime coats wherever damaged or bare. Clean and touch-up with same type shop primer.
- E. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent.

3.3 MATERIALS PREPARATION

- A. Mix and prepare painting materials in accordance with manufacturer's directions.
- B. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
- C. Stir materials before application to produce a mixture of uniform density and stir as required during application. Do not stir surface film into material. If film exists, remove film and strain paint material.

3.4 APPLICATION

- A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Paint colors, surface treatments, and finishes, are indicated in "schedules" of the contract documents.
 1. Provide finish coats which are compatible with prime paints used.
 2. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to insure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness not less than specified thickness.
 3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently-fixed equipment or furniture with prime coat only before final installation of equipment.
 4. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
 5. Paint back sides of access panels, and removable or hinged covers to match exposed surfaces.

6. Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.
 7. Sand lightly between each succeeding enamel or varnish coat.
 8. Omit first coat (primer) on metal surfaces which have been shop-primed and touch-up painted, unless otherwise indicated.
- B. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and application of another coat of paint does not cause lifting or loss adhesion of the undercoat.
- C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.
- D. Prime Coats: Apply prime coat where required to be painted or finished, and which has not been primed coated by others.
1. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.
- E. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.
- F. Transparent (Clear) Finishes: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats, unless otherwise indicated.
- G. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.5 FIELD QUALITY CONTROL

- A. The right is reserved by Owner to invoke the following material testing procedure at any time, and any number of times during period of field painting:
1. Engage services of an independent testing laboratory to sample paint being used. Samples of materials delivered to project site will be taken, identified and sealed, and certified in presence of Contractor.
 2. Testing laboratory will perform appropriate tests for any or all of following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.
- B. If test results show that material being used does not comply with specified requirements, Contractor may be directed to stop painting work, and remove non-complying paint; pay for

testing; repaint surfaces coated with rejected paint; remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are non-compatible.

3.6 CLEAN-UP AND PROTECTION

- A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each day.
- B. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
 - 1. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.
- D. At completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

3.7 EXTRA STOCK

- A. Deliver stock of maintenance materials to Owner. Furnish maintenance materials from same manufactured lot as materials installed and enclosed in protective packaging with appropriate identifying labels.
 - 1. Paint: Furnish not less than one gallon for each type and color, applied.

3.8 EXTERIOR PAINT SCHEDULE

- A. Paint all new **and old** roof penetrations at roof areas, including roof attic ventilators and exhaust fan housings.
- B. General: Provide the following paint systems for the various substrates, as indicated.
- C. Ferrous Metals: Gloss Alkyd Enamel: 2 Finish coats over primer with total dry film thickness of not less than 6.0 mils.
 - 1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer B66-01310 Series (5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
 - 2nd Coat: S-W Industrial Enamel, B54 Series
 - 3rd Coat: S-W Industrial Enamel, B54 Series, (2-4 mils dry per coat)
 - Optional System:
 - 1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer B66-01310 Series (5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
 - 2nd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series
 - 3rd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series, (1.4 – 1.7 mils dry per coat)
- D. Zinc-Coated Metal: Gloss Alkyd Enamel: 2 Finish coats over primer with total dry film thickness of not less than 2.5 mils.

1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer B66-01310 Series
(5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
2nd Coat: S-W Industrial Enamel, B54 Series
3rd Coat: S-W Industrial Enamel, B54 Series,
(2-4 mils dry per coat)

Optional System:

1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer B66-01310 Series
(5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
2nd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series
3rd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series,
(2-4 mils dry per coat)

- E. Painted Wood: Gloss Acrylic: 2 finish coats over primer with total dry film thickness of not less than 5.0 mils. Back prime all trim.

1st Coat: S-W Exterior Oil-Based Wood Primer, Y24W08020
(4 mils wet, 2.2 mils dry)
2nd Coat: S-W SuperPaint Exterior Latex Gloss Paint, A84 Series
3rd Coat: S-W SuperPaint Exterior Latex Gloss Paint, A84 Series
(4 mils wet, 1.5 mils dry per coat)

- F. Stained Woodwork: Stained Finish: 2 Coats of stain on open grain wood.

1st Coat: S-W Woodscapes Exterior Acrylic Solid Color Stain,
(200-400 sq ft/gal) @ 4-8 mils wet; 1.3-2.6 mils dry.
2nd Coat: S-W Woodscapes Exterior Acrylic Solid Color Stain,
(200-400 sq ft/gal) @ 4-8 mils wet; 1.3-2.6 mils dry.

- G. Masonry Surfaces (pre-cast, poured in place, etc)

1st Coat: S-W Loxon Concrete & Masonry Primer / Sealer, LX02W0050
(5.3 – 8.0 mils wet, 2.1 – 3.2 mils dry per coat)
2nd Coat: S-W Loxon Self-Cleaning Acrylic Coating, LX13 Series
3rd Coat: S-W Loxon Self-Cleaning Acrylic Coating, LX13 Series
(5.0 – 7.0 mils wet, 2.1 – 2.9 mils dry per coat)

- H. CMU (Concrete Masonry Units):

1st Coat: S-W Pro Industrial Heavy Duty Block Filler, B42W00150
(16.0 – 21.0 mils wet, 8.0 - 10.5 mils dry per coat)
2nd Coat: S-W Loxon Self-Cleaning Acrylic Coating, LX13 Series
3rd Coat: S-W Loxon Self-Cleaning Acrylic Coating, LX13 Series
(5.0 – 7.0 mils wet, 2.1 – 2.9 mils dry per coat)

3.9 INTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates, as indicated on drawings, schedules and specifications.
- B. Paint all exposed metals (steel framing, mechanical ducts, conduit, etc.) unless otherwise indicated on drawings.
- C. Painter shall identify all fire and smoke partitions above lay in ceilings as follows: Wording shall be "FIRE AND SMOKE BARRIERS - PROTECT ALL OPENINGS" (4" high), to be applied every 8'- 0" o.c.

- D. Pre-Engineered Metal Building/Structural Steel Building Components: Epoxy Eg-Shel Finish: 2 coats over primer with total dry film thickness not less than 6.0 mils. (All Steel/Metal At Interior of Building)
- 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66W01310 (5 – 10 mils wet, 1.9 – 3.8 mils dry per coat)
- 2nd Coat: S-W Pro Industrial Waterbased Catalyzed Epoxy EgShel Finish, B73-360 Series (5.0 – 12.0 mils wet, 2.0 – 5.0 mils dry per coat)
- 3rd Coat: S-W Pro Industrial Waterbased Catalyzed Epoxy EgShel Finish, B73-360 Series (5.0 – 12.0 mils wet, 2.0 – 5.0 mils dry per coat)
- E. Concrete Masonry Units: **Latex** Semi-Gloss Enamel Finish: 2 Finish coats over filled surface with total dry film thickness of not less than 11.4 mils.
- 1st Coat: S-W Pro Industrial Heavy Duty Block Filler, B42W00150 (16.0 – 21.0 mils wet, 8.0 - 10.5 mils dry per coat)
- 2nd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31W12651 Series
- 3rd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31W12651 Series (4 mils wet, 1.5 mils dry per coat)
- F. Concrete Masonry Units: **Epoxy** Semi-Gloss Finish: 2 Finish coats over filled surface with total dry film thickness of not less than 11.4 mils.
- 1st Coat: S-W Pro Industrial Heavy Duty Block Filler, B42W00150 (16.0 – 21.0 mils wet, 8.0 - 10.5 mils dry per coat)
- 2nd Coat: S-W Pro Industrial® Pre Catalyzed Water-based Epoxy Semi-Gloss, K46-01151 Series (4 mils wet, 1.4 mils dry per coat)
- 3rd Coat: S-W Pro Industrial® Pre Catalyzed Water-based Epoxy Semi-Gloss, K46-01151 Series (4 mils wet, 1.4 mils dry per coat)
- G. Existing Concrete Masonry Units:
1. If existing material is covered with an enamel finished paint, the following shall be used:

1st Coat: S-W Extreme Bond Primer, B51W00150 (3.1 mils wet, .9 mils dry)

2nd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31W12651 Series

3rd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31W12651 Series (4 mils wet, 1.5 mils dry per coat)
 2. If the existing concrete block walls are covered in a latex paint, the following shall be used:

1st Coat: S-W ProMar 200 Zero VOC Latex Primer, B28W02600 (4 mils wet, 1.0 mils dry)

2nd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31W12651 Series

3rd Coat: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31W12651 Series (4 mils wet, 1.5 mils dry per coat)
- H. Epoxy Walls (CMU Walls): 2 coats over filler with total dry film thickness not less than 14.0 mils. (Showers Areas)
- 1st Coat: S-W Pro Industrial Heavy Duty Block Filler, B42W00150 (16.0 – 21.0 mils wet, 8.0 - 10.5 mils dry per coat)

2nd Coat: S-W Pro Industrial Waterbased Catalyzed Epoxy EgShel Finish, B73-360 Series
3rd Coat: S-W Pro Industrial Waterbased Catalyzed Epoxy EgShel Finish, B73-360 Series
(5.0 – 12.0 mils wet, 2.0 – 5.0 mils dry per coat)

I. Epoxy Walls - Sheetrock: 2 coats over filler with total dry film thickness not less than 14.0 mils. (Showers Areas – NOT in Shower bays)

1st Coat: S-W ProMar 200 Zero VOC Latex Primer, B28W02600
(4 mils wet, 1.0 mils dry)
2nd Coat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Finish, K45-01151 EgShel
3rd Coat: S-W Waterbased Catalyzed Epoxy Finish, K45-01151 EgShel
(2-4 mils dry per coat)

Optional System:

1st Coat: S-W ProMar 200 Zero VOC Latex Primer, B28W02600
(4 mils wet, 1.0 mils dry)
2nd Coat: S-W Pro Industrial Waterbased Catalyzed Epoxy EgShel Finish, B73-360 Series
3rd Coat: S-W Pro Industrial Waterbased Catalyzed Epoxy EgShel Finish, B73-360 Series (5.0 – 12.0 mils wet, 2.0 – 5.0 mils dry per coat)

J. Drywall Walls and Ceilings: Interior Semi-Gloss Finish Acrylic Latex, 3 Coat system with dry film thickness not less than 3.8 mils.

1st Coat: S-W ProMar 200 Zero VOC Interior Latex Primer, B28W02600 (4 mils wet, 1.0 mils dry)
2nd Coat: S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31W02651 Series
3rd Coat: S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss, B31W02651 Series (4 mils wet, 1.5 mils dry per coat)

K. Zinc-Coated Metal: Alkyd Gloss Finish: 2 Coats over primer, with total dry film thickness not less than 6.0 mils.

1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer B66-01310 Series (5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
2nd Coat: S-W Industrial Enamel, B54 Series
3rd Coat: S-W Industrial Enamel, B54 Series, (2-4 mils dry per coat)

Optional System:

1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer B66-01310 Series (5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
2nd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series
3rd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series, (1.4 – 1.7 mils dry per coat)

L. Ferrous Metal: Alkyd Gloss Enamel Finish: 2 Finish Coats over primer, with total dry film thickness not less than 6.0 mils.

1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer B66-01310 Series (5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
2nd Coat: S-W Industrial Enamel, B54 Series
3rd Coat: S-W Industrial Enamel, B54 Series, (2-4 mils dry per coat)

Optional System:

- 1st Coat: S-W Pro Industrial Pro-Cryl® Universal Acrylic Primer
B66-01310 Series (5.0-10.0 mils wet, 1.9-3.8 mils dry per coat)
- 2nd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series
- 3rd Coat: S-W Pro Industrial Waterbased Alkyd Urethane Enamel, Gloss, B53 Series,
(1.4 – 1.7 mils dry per coat)

M. Wood Doors & Trim: Interior Semi-Gloss Acrylic Latex with dry film thickness not less than 3.8 mils.

- 1st Coat: S-W ProMar 200 Zero VOC Interior Latex Primer, B28W02600
(4 mils wet, 1.0 mils dry)
- 2nd Coat: S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss,
B31W02651 Series
- 3rd Coat: S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss,
B31W02651 Series (4 mils wet, 1.5 mils dry per coat)

N. Stained Woodwork: Stained Varnish Rubbed Finish: 3 Finish Coats over stain plus filler on open grain wood.

- 1st Coat: S-W MinWax Performance Series Tintable Interior Stain
550 VOC, (450-550 sq ft/gal) Available in 250 VOC Version
- 2nd Coat: S-W MinWax Performance Series Fast-Dry Varnish,
- 3rd Coat: S-W MinWax Performance Series Fast-Dry Varnish
(600-700 sq ft/gal) (available in Gloss, Semi-Gloss, Satin)

O. Wall Panels: (Acoustical and Wood): Interior Semi-Gloss Finish Acrylic Latex with dry film thickness not less than 3.8 mils.

- 1st Coat: S-W ProMar 200 Zero VOC Interior Latex Primer, B28W02600
(4 mils wet, 1.0 mils dry)
- 2nd Coat: S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss,
B31W02651 Series
- 3rd Coat: S-W ProMar 200 Zero VOC Interior Latex Semi-Gloss,
B31W02651 Series (4 mils wet, 1.5 mils dry per coat)

END OF SECTION