

ARCHITECT'S JOB NO. 22-142

DATED: December 22, 2022

COPY NO: _____

**RENOVATION OF FACS AND WELDING LAB FOR MINOR
HIGH SCHOOL AND RENOVATION OF WELDING LAB FOR
PINSON VALLEY HIGH SCHOOL**

OWNER

**JEFFERSON COUNTY BOARD OF EDUCATION
2100 18TH STREET SOUTH
BIRMINGHAM, AL 35209**

BOARD MEMBERS

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MR. OSCAR S. MANN	Vice President
MR. EDDIE BROWN	Board Member
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12-23-22



SPECIFICATION INDEX
RENOVATION OF FACS AND WELDING LAB FOR MINOR HIGH SCHOOL AND
RENOVATION OF WELDING LAB FOR PINSON VALLEY HIGH SCHOOL
Architect Job No. 22-142

Title Sheet
Index
Project Team List
List of Drawings
General Contractor's Qualifying Conditions

BIDDING REQUIREMENTS

Advertisement for Bid
Pre-Bid Procedures
Pre-Bid RFI Form
Digital Plan Room Sign-on Instructions
Instructions to Bidders
E-Verify Memorandum of Understanding
Proposal Form
Attachment - Accounting of Sales Tax
Form of Bid Bond

CONTRACT FORMS

Construction Contract
Performance Bond Form
Payment Bond Form
State of Alabama Disclosure Statement
Application and Certificate for Payment
Inventory of Stored Material
Progress Schedule and Report
Contract Change Order
Change Order Justification
General Contractor's Five Year Building Envelope Guarantee
Certificate of Substantial Completion
Contractor's Affidavit of Payment of Debts and Claims
Contractor's Affidavit of Release of Liens
Consent of Surety to Final Payment
Form of Advertisement of Completion

CONDITIONS OF THE CONTRACT

General Conditions of the Contract

DIVISION 1 - GENERAL REQUIREMENTS

01010 Alternates
01020 Allowances
01025 Summary of Work
01030 Special Project Requirements
01035 Special Project Procedures
01040 Project Coordination
01045 Cutting and Patching
01200 Temporary Facilities and Controls
01300 Quality Control Services
01350 Shop Drawing Submittals
 • Electronic Submittal Agreement
01360 Product Substitution Procedures
 • Substitution Form

01400 Materials and Equipment
01500 Selective Demolition
01510 Interior Demolition
01700 Project Clean-Up
01800 Change Order Procedures
01900 Warranties
01910 Contract Close Out

DIVISION 4 – MASONRY

04200 Unit Masonry

DIVISION 5 – METALS

05500 Miscellaneous Metals

DIVISION 6 – CARPENTRY

06210 Finish Carpentry

DIVISION 7 - MOISTURE PROTECTION

07210 Building Insulation
07910 Caulking and Sealants

DIVISION 8 – WINDOWS AND DOORS

08110 Hollow Metal Doors and Frames
08215 Flush Wood Doors
08710 Finish Hardware
08810 Glass and Glazing

DIVISION 9 - FINISHES

09260 Gypsum Drywall
09510 Acoustical Panel Ceilings
09650 Resilient Tile Flooring
09910 Paint

DIVISION 10 – SPECIALTIES

10110 Markerboards and Tackboards
10426 Identifying Devices
10505 Metal Sport, Athletic Lockers and Staff Lockers

DIVISION 12 - FURNITURE & FIXTURES

12100 Fire Extinguishers
12150 Miscellaneous Furniture and Fixtures
12300 Laminate Clad Casework

DIVISION 15 – PLUMBING AND FIRE PROTECTION

15405 Plumbing Identification
15410 General Provisions - Plumbing
15420 Testing, Cleaning and Adjusting (TCA)
15450 Materials and Methods - Plumbing
15480 Insulation - Plumbing
15490 Fixtures and Equipment – Plumbing

DIVISION 15 - MECHANICAL

15010 General Provisions - HVAC
15020 Testing, Balancing and Adjusting (TBA)
15050 Materials and Methods - HVAC
15080 Piping Specialties - HVAC

15180	Insulation - HVAC
15205	Air Purification System
15740	Coils
15760	Heat Pump Units
15772	Unitary Heating and Cooling
15775	Electric Heaters
15820	Fans
15840	Ductwork
15850	Special Ductwork System
15860	Duct Accessories
15870	Outlets
15880	Filters
15900	Controls

DIVISION 16 – ELECTRICAL

16000	Electrical
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PRE-CONSTRUCTION CONFERENCE AGENDA (Sample)

NOTE: This Index is for convenience only. Its accuracy and completeness are not guaranteed, and it is not to be considered part of the Specifications. In case of discrepancy, the Specifications shall govern. Certain items may be included by means of notes on the Drawings; such items are not necessarily covered in the Specifications. Contractor shall verify all existing conditions and all dimensions at the project site.

**RENOVATION OF FACS AND WELDING LAB FOR MINOR HIGH SCHOOL AND RENOVATION OF
WELDING LAB FOR PINSON VALLEY HIGH SCHOOL
Architect's Job No. 22-142**

OWNER: JEFFERSON COUNTY BOARD OF EDUCATION
2100 18th Street South
Birmingham, AL 35209

ARCHITECT: LATHAN ASSOCIATES ARCHITECTS, P. C.
300 Chase Park South, Suite 200
Hoover, AL 35244
Phone: 205-988-9110
Contact: Ryan Vernon, AIA

MECHANICAL: DEWBERRY/ EDMONDS ENGINEERING
2 Riverchase Office Plaza
Suite 205
Hoover AL 35244
Phone: 205-988-2069
Contact: Wade Stewart, HVAC, Scott Carlisle, Plumbing

ELECTRICAL: STEWART ENGINEERING
P. O. Box 2233
Anniston, AL 36202
Phone: 256-237-0891
Contact: Shawn Crawford

LIST OF DRAWINGS
RENOVATION OF FACS AND WELDING LAB FOR MINOR HIGH SCHOOL AND RENOVATION OF
WELDING LAB FOR PINSON VALLEY HIGH SCHOOL
Architect Job No. 22-142

DRAWINGS INDEX (TOTAL SET 31 TOTAL SHEETS)

PACKAGE A: FACS LAB AND WELDING LAB FOR MINOR HIGH SCHOOL (19 SHEETS)

GENERAL DRAWINGS (2 SHEETS)

T1.0 TITLE AND INDEX
LS1.0A LIFE SAFETY PLAN - MINOR HIGH SCHOOL WELDING LAB AND FACS LAB

ARCHITECTURAL DRAWINGS (8 SHEETS)

A1.0A OVERALL PLAN - MINOR HIGH SCHOOL
A1.1A ENLARGED DEMOLITION PLAN - MINOR HIGH SCHOOL WELDING LAB AND FACS LAB
A2.1A ENLARGED FLOOR PLAN - MINOR HIGH SCHOOL WELDING LAB AND FACS LAB
A2.2A DOOR SCHEDULE AND DETAILS
A6.1A INTERIOR ELEVATIONS - MINOR HIGH SCHOOL
A6.2A INTERIOR MILLWORK/CASEWORK DETAILS - MINOR HIGH SCHOOL WELDING LAB AND FACS LAB
A7.1A REFLECTED CEILING PLAN - MINOR HIGH SCHOOL WELDING LAB AND FACS LAB
A8.1A FINISH FLOOR PLAN - MINOR HIGH SCHOOL WELDING LAB AND FACS LAB

MECHANICAL DRAWING (4 SHEETS)

M0.1A HVAC - MINOR HS - SCHEDULE, LEGENDS, AND NOTES
M0.2A HVAC - MINOR HS - SCHEDULES AND DETAILS
M1.1A HVAC - MINOR HS - WELDING LAB FLOOR PLANS
M1.2A HVAC - MINOR HS - HOME ECONOMICS LAB FLOOR PLANS

PLUMBING DRAWINGS (3 SHEETS)

P0.1A PLUMBING SCHEDULES, NOTES, DETAILS AND FIRE PROTECTION PLAN
P1.1A PLUMBING - MINOR HS - WELDING LAB FLOOR PLANS
P1.2A PLUMBING - MINOR HS - HOME ECONOMICS LAB FLOOR PLANS

ELECTRICAL DRAWINGS (2 SHEETS)

E1.1A SCHEDULES, SYMBOLS, AND NOTES
E2.1A MINOR HIGH SCHOOL - ELECTRICAL

PACKAGE B: WELDING LAB FOR PINSON VALLEY HIGH SCHOOL (12 SHEETS)

GENERAL DRAWINGS (1 SHEET)

LS1.0B LIFE SAFETY PLAN - PINSON VALLEY HIGH SCHOOL STADIUM WELDING LAB

ARCHITECTURAL DRAWINGS (5 SHEETS)

A1.0B PARTIAL PLAN - PINSON VALLEY HIGH SCHOOL STADIUM
A1.1B ENLARGED DEMOLITION PLAN - PINSON VALLEY HIGH SCHOOL STADIUM WELDING LAB
A2.1B ENLARGED FLOOR PLAN - PINSON VALLEY HIGH SCHOOL STADIUM WELDING LAB
A7.1B ENLARGED REFLECTED CEILING PLAN - PINSON VALLEY HIGH SCHOOL STADIUM WELDING LAB
A8.1B ENLARGED FINISH FLOOR PLAN - PINSON VALLEY HIGH SCHOOL STADIUM WELDING LAB

MECHANICAL DRAWINGS (3 SHEETS)

M0.1B HVAC - PINSON HS - SCHEDULES, LEGENDS, AND NOTES
M0.2B HVAC - PINSON VALLEY - SCHEDULES AND CONTROLS
M1.1B HVAC - PINSON VALLEY - WELDING LAB FLOOR PLANS

PLUMBING DRAWINGS (1 SHEET)

P1.1B PLUMBING - PINSON VALLEY - WELDING LAB NOTES & FLOOR PLANS

ELECTRICAL DRAWINGS (2 SHEETS)

E1.1B PINSON VALLEY HIGH SCHOOL - SCHEDULES, SYMBOLS, AND NOTES
E3.1B PINSON VALLEY HIGH SCHOOL - ELECTRICAL

QUALIFYING CONDITIONS FOR GENERAL CONTRACTORS:

The following conditions and terms may be required upon Owner's request and it shall be each Contractor's responsibility to ensure that they meet the minimum requirements set forth.

General Contractors wishing to bid on this school project shall meet the following minimum provisions regarding responsibility, in addition to all other requirements listed herein: Contractor shall have constructed not less than one educational project of similar size and complexity within the last five (5) years, with similar costs prorated for construction cost increases and Contractor shall be capable of 100% bonding of materials and 100% bonding of labor. All General Contractors wishing to bid shall have a minimum of five (5) years of experience doing business under the same firm name in which the bids are submitted. Joint venture contracts will not be approved.

Each General Contractor shall submit a list of all educational projects within the last five years and a statement from the Owners certifying faithful performance that construction completion was, or will be, obtained without protracted delay and/or defective work for the project. Full explanation should be submitted for any delayed completion. Inexperienced or non-responsible contractors are precluded from bidding and award.

Each General Contractor shall submit names and qualifications of main construction personnel to be placed on this project. The proposed project superintendent and the project manager shall have a minimum of five (5) years of work experience in their respective positions in managing and constructing projects similar in size, complexity and cost. Resumes of project superintendent and project manager shall be submitted. The Owner reserves the right of approval of the project superintendent.

Equivalent experience and qualifications will be considered where the bidder can demonstrate special management and construction abilities, expert workmen and past experience in constructing similar complex structures of similar size and cost such as hospitals, college buildings, multi-story office buildings, court houses, jails, hotels, etc. No consideration will be given to wood frame, residential projects, parking structures, small one-story strip shopping centers, warehouses and industrial buildings, etc. Under this provision of equivalency, no consideration or award will be given to any contractor whose comparable project value is less than 50% of the value of the project under bid.

Each General Contractor bidding on this project will be required to demonstrate that his major Subcontractors are capable of pre-qualifying under the same conditions stated above.

All personnel required on the job site must at all times be in possession of **state issued** photo identification subject to examination by Owner or their representative. Other security requirements may also be in place and is the responsibility of the General Contractor to abide by all school rules.

The Owner and its representatives shall be the sole judge of the Contractor meeting the requirements set forth. The Owner's decision in determining qualified General Contractors will be final. The Owner reserves the right to act in its best interests in this determination process to waive all technicalities and informalities and to select the best qualified responsible General Contractors who comply with the above stated provisions.

All of the above information shall be required upon the Owner's request and may be considered a condition for award of contract.

ADVERTISEMENT FOR BIDS

Sealed proposals, in duplicate, from Qualified General Contractors will be received by the Awarding Authority: Jefferson County Board of Education, 2100 18th Street South, Birmingham, AL 35209, on Tuesday, January 31, 2023, until 2:00 p.m., local time,

**RENOVATION OF FACS AND WELDING LAB FOR MINOR HIGH SCHOOL AND RENOVATION OF
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Architect Job No. 22-142
Bid # 07-23**

At such time and place, the bids will be opened and read. Bid Opening shall be videoed by the Architect. Bids that are received via mail and not presented at the bid opening are to be considered non-responsive. It is the responsibility of the bidder to assure that bids are presented at the time of the bid if they choose to mail the bid. Contractors must notify the Awarding Authority if a bid is to be received by mail.

A MANDATORY Pre-Bid Meeting will be held at Jefferson County Board Office on Monday, January 23, 2023, at 11:00 a.m. All General Contractors expecting to submit a bid are strongly encouraged to have a representative at the pre-bid meeting.

A cashier's check or bid bond payable to Jefferson County Board of Education in an amount not less than five (5) percent of the amount of the proposal, but in no event more than \$10,000.00, must accompany the bidder's proposal for each project. Performance and Payment Bonds and evidence of insurance as required in the bid documents will be required at the signing of the Contract.

Drawings and specifications for the project may be examined at the Office of Lathan Associates Architects, P.C., 300 Chase Park South, Suite 200, Hoover, AL 35244, and at the Digital Plan Room at Alabama Graphics (algraphicsplanroom.com). Private Jobs with Password. Password is lathan.

Prior to issuance of plans and specifications, all Contractors must provide evidence that they are properly licensed for the classification of work for this project. Evidence shall be in the form of a copy of current license clearly indicating all classifications, or sub-classifications, bid limits, license number; and expiration date.

General Contractor Bidders may obtain digital copies of drawings and specifications from the Architect for each project upon receipt of Application for Bid. General Contractors will then be placed on Official Bidders List. Hard copy sets of drawings/ specifications will be available to General Contractors for purchase directly from the document printer: Alabama Graphics. Addenda and other proposal information will be issued only to holders of drawings and specifications distributed by the Architect and on the Official Bidders List. Release of contract documents to the bidder does not imply acceptance of the bidder's qualifications by the Owner or Architect.

Bids received from General Contractors who are not on the Official Bidders List may not be accepted or opened. Lathan Associates Architects, P.C. makes no guarantee for plans and specifications obtained by Contractors and Vendors from sources other than the printed contract documents provided by their firm. Contractors and Vendors who base their pricing from contract documents obtained from other electronic sources, either in part or whole, do so at their own risk.

Bids must be submitted on proposal forms furnished by the Architect or copies thereof, issued either with the original contract documents or by addendum. General Contractors shall not use Proposal Forms other than those provided in the contract documents.

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. The Bidder must display current General Contractor's License Number on the outside of the sealed envelope in

which the proposal is delivered, or it will not be considered by the Architect or Owner. The Owner reserves the right to reject any or all proposals and to waive technical errors if, in the Owner's judgment, the best interests of the Owner will thereby be promoted.

Jefferson County Board of Education
Awarding Authority

Lathan Associates Architects, P.C.
205-988-9112

PRE-BID PROCEDURES

1. OBTAINING PLANS AND SPECIFICATIONS

A. General Contractors

General Contractors must contact the office of the Architect and give the following information about their company:

1. Name, address, phone, email address, Alabama General Contractor's License Number, Bid Limit, and Bid Classification as it appears on current license. This is required in order for Architect to verify that Contractor is currently licensed in a classification that qualifies the General Contractor to bid on the subject project.
2. A maximum of two (2) sets of plans and specifications will be issued to the General Contractor after qualifications have been confirmed and deposit has been received.
3. General Contractors must obtain the contract documents directly from the Architect and be placed on the Architect's official Bidders List. General Contractors may NOT obtain plans, specifications, proposal forms, and other contract documents exclusively from an Internet source, or any source other than the Architect. **If the General Contractor is not on the official Bidders List, their proposal may not be received and recognized at the bid opening.**
4. The following Plan Rooms are used:
 - a. Alabama Graphics Digital Plan Room is also used. See attachment for contact information. **Project Password is Lathan.**
 - b. Refer to Advertisement for Bids for list of Plan Rooms and addresses of Awarding Authority and Architect.
5. Addenda are only sent to the Plan Rooms, the Awarding Authority and the General Contractors who are on the Official Bidders List. Addenda are not sent to Subcontractors and/or Vendors.
6. Electronic files and/or CAD files are not considered to be Contract Documents.
 - a. Errors may occur during translation and Lathan Associates Architects, P.C. makes no representation or warranty as to any information contained therein. It will be the responsibility of the General Contractor, Subcontractor and/or Vendor to verify all layouts, dimensions and other information for accuracy with the Contract Documents and subsequent Addenda.
 - b. Electronic files and/or CAD files will not be sent by the Architect, Engineers or Consultants to Contractors for bid purposes.

B. Subcontractors and Vendors

1. Subcontractors and Vendors may obtain plans and/or specifications from the following sources:
 - a. Plan Rooms listed in Item 4 above.
 - b. General Contractors
 - c. View set at office of Architect or Awarding Authority.

2. Architect's office will not release plans and specifications to Subcontractors and Vendors.
3. Architect's office will email a copy of Bidders List to Subcontractors and Vendors upon request. Bidders List is also available on Alabama Graphics Digital Plan Room.

2. DEPOSIT ON PLANS AND SPECIFICATIONS

- A. Deposit will be returned. to General Contractors under the following conditions:
 1. Plans and specifications must be returned to the office of the Architect within thirty days of bid date.
 2. Plans and specifications must be bound in the same manner as originally received from the Architect.
 3. Plans and specifications must be in good, reusable condition. Missing pages/sheets, excessive markings, use of highlighters, and other detrimental conditions may cause forfeiture of deposit. Rule of thumb: If the Architect cannot present the set to the successful Contractor for use in construction, then the set will be destroyed, and cost of re-printing is used from the proceeds of the forfeited deposit.
 4. General Contractors who obtain plans and specifications and wish to withdraw from the Bidders List must do one of the following prior to bid date:
 - a. Return plans and specifications to the office of the Architect, or
 - b. Submit a letter to the office of the Architect stating request to be withdrawn, otherwise, deposit will be forfeited.

3. REQUEST FOR INFORMATION (RFI's)

- A. All RFI's must be numbered and made in writing to the Architect's email rfi@lathanassociates.com. Please include your name, company name, telephone number, and fax number so that we may respond appropriately. Verbal RFI's will not be answered. All RFI's must be in writing.
- B. The Team List provided within the Specification Manual is for informational purposes only and should not be used to contact Engineers and/or Consultants directly with questions regarding the project.
- C. All questions that need to be directed to an Engineer / Consultant must be routed through the Architect's office. If applicable, the Architect will contact the appropriate Engineer / Consultant for information.
- D. Bids shall be based upon the official Contract Documents consisting of Plans, Specifications and Addenda. Architect assumes no responsibility for information used by Contractors outside the official Contract Documents.
- E. We will not respond to any correspondence received via any e-mail other than the one listed.

4. REQUESTS FOR PRODUCT APPROVAL

- A. All Requests for Product Approval must be made in writing to the office of the Architect. Requests must be accompanied by Product Substitution Form completed and signed found in Specification Section - 01360 and may be delivered/ mailed/ or emailed to Lathan Associates Architects, P.C., 300 Chase Park South, Suite 200, Hoover, AL 35244. rfi@lathanassociates.com. Please include your name, company name, telephone number, fax number or email address so that we may respond appropriately.
- B. Vendor/Contractor submitting Request for Product Approval must submit data sheets and other such fact-based documentation for substitution with items clearly marked to show compliance with product originally specified. Request must identify model number of substitution that complies with product originally specified. Architect and Interior Design staff will not review Requests for Product Approval that are catalogs and/or binders of manufactured products without separate details showing comparison between specified product and requested substitution.
- C. Products approved by Architect, Interior Designer, Engineer and/or Consultant shall be contingent upon meeting or exceeding the specification and drawing requirements.
- D. The Team List provided within the Specification Manual is for informational purposes only and should not be used to contact Engineers and/or Consultants directly with requests for product approval.
- E. All requests that need to be directed to an Engineer /Consultant must be routed through the Architect's office. If applicable, the Architect will contact the appropriate Engineer / Consultant for approval of product.

PRE-BID REQUEST FOR INFORMATION FORM

Date: _____

Company Submitting Request: _____

Contact Name: _____ Phone: _____

E-Mail _____

Project Name: _____

Architect Job No. _____

Send to rfi@lathanassociates.com

RFI NO. _____

RESPONSE:

For Architect's Use:
Reviewed By / Date: _____
Responded By/ Date: _____
Processed by Addendum No. _____
Comments: _____

Digital Plan Room Sign-On Instructions

To access the Digital Plan Room, please click on the following link. You will want to add this as a trusted site for future emails.

<https://www.algraphicsplanroom.com>

You will need to register to the plan room as a user. Click “**Log In**” on lower left side. You will need to do a search to see if your company already exists on the plans room. Once you register your company and contact information click on “**Private Jobs with Passwords**” and enter the password provided.

Password for this project is lathan.

For technical assistance please call, Customer Service 205.252.8505 or customerservice@algraphics.com.

INSTRUCTIONS TO BIDDERS

CONTENTS

- | | |
|---|---|
| 1. <u>Bid Documents</u> | 9. <u>Withdrawal or Revision of Bids</u> |
| 2. <u>General Contractor's State Licensing Requirements</u> | 10. <u>Opening of Bids</u> |
| 3. <u>Qualifications of Bidders and Prequalification Procedures</u> | 11. <u>Incomplete and Irregular Bids</u> |
| 4. <u>Preference to Resident Contractors</u> | 12. <u>Bid Errors</u> |
| 5. <u>Examination of Bid Documents and the Site of the Work</u> | 13. <u>Disqualification of Bidders</u> |
| 6. <u>Explanations and Interpretations</u> | 14. <u>Consideration of Bids</u> |
| 7. <u>Substitutions</u> | 15. <u>Determination of Low Bidder by 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:

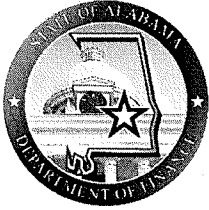
(1) Award of contract by Awarding Authority	30 calendar days after the opening of bids
(2) Contractor's return of the fully executed contract, with bonds and evidence of insurance, to the Awarding Authority	15 calendar days after the contract has been presented to the contractor for signature (from the 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.

END of INSTRUCTIONS TO BIDDERS



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

Kay Ivey
Governor

Bill Poole
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

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.

PROPOSAL FORM

To: Jefferson County Board of Education Date: _____

In compliance with your 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: Renovation of FACS and Welding Lab for Minor High School and Renovation of Welding Lab for Pinson Valley High School in accordance with Drawings and Specifications, dated, December 22, 2022 prepared by Lathan Associates Architects, P.C., 300 Chase Park South, Suite 200, Hoover, AL 35244, Architect.

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.

ALLOWANCES: The Bidder acknowledges by initials _____ that he/she has read Specification Section 01020 - Allowances and has included cost of same in bid.

ALABAMA IMMIGRATION LAW COMPLIANCE: The Bidder acknowledges by initials _____ that he/she will comply with H.B. 56 - Alabama Immigration Law Compliance.

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

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

UNIT PRICES: N/A

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 comply.

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

____ Bid Bond, executed by _____ as Surety,
____ 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)** _____ (Seal)

* Name & Title (print) _____

Telephone Number _____

Email Address _____

* If other than an 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.

ACCOUNTING OF SALES TAX

Attachment to DCM Form C-3: Proposal Form

To: Jefferson County Board of Education Date: _____
(Awarding Authority)

NAME OF PROJECT: Renovation of FACS and Welding Lab for Minor High School and
Renovation of Welding Lab for Pinson Valley High School

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: \$ _____

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) _____

* Title _____

(Seal)

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.

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

- (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	CONTRACTING PARTIES
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>ALABAMA STATE DEPARTMENT OF EDUCATION (SDE) <i>(Required for locally-funded, SDE projects.)</i></p> <p>By _____ Date: _____ State Superintendent of Education</p> </div>	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">_____ Contractor Company</p> <p>By _____ Signature</p> <p>Name & Title _____</p> </div> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">_____ Owner Entity</p> <p>By _____ Signature</p> <p>Name(s) & Title(s) _____</p> </div>

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.

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

(1) PERFORMANCE BOND

SURETY'S BOND NUMBER

Do not staple this form; use clips.

(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.

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

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

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 three bond forms to be attached to each of the three contract copies (with original signatures) 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 three bond forms to be attached to each of the three contract copies (with original signatures) per project.

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



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.

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 <small>(Form C-10SOV's Column F Total)</small>	\$	_____
2. Materials Presently Stored <small>(When this amount is greater than \$0.00, attach Form C-10SM: Inventory of Stored Materials, or similar list)</small>	+\$	_____
3. Total Work Completed to Date & Materials Presently Stored (_____% of Contract To Date)	\$	_____
4. Less Retainage <small>(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.)</small>	-\$	_____
5. Total Due	\$	_____
6. Less Total Previous Payments Billed <small>(Must exactly match #5 Total Due from previous payment application. # 6 is \$0.00 if there is no previous payment application)</small>	-\$	_____
7. Balance Due This Estimate	\$	_____

Final pay app. Yes.

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 _____

- INSTRUCTIONS**
- 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 _____

SCHEDULE OF VALUES (SOV)

DCM Form C-10SOV
Revised October 2021

Project:	DCM (BC) Project Number:
Contractor Company:	PSCA Project Number, if any:
	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 payment application.
2.					\$ -		\$ -		
3.					\$ -		\$ -		
4.					\$ -		\$ -		
5.					\$ -		\$ -		
6.					\$ -		\$ -		
7.					\$ -		\$ -		
8.					\$ -		\$ -		
9.					\$ -		\$ -		
10.					\$ -		\$ -		
11.					\$ -		\$ -		
12.					\$ -		\$ -		
13.					\$ -		\$ -		
14.					\$ -		\$ -		
15.					\$ -		\$ -		
16.					\$ -		\$ -		
17.					\$ -		\$ -		
18.					\$ -		\$ -		
19.					\$ -		\$ -		
20.					\$ -		\$ -		
21.					\$ -		\$ -		
22.					\$ -		\$ -		
23.					\$ -		\$ -		
24.					\$ -		\$ -		
This pay app SOV's column totals must match amounts in this pay app Form C-10 per the following indicated Form C-10 line #s:		C.	None	None	1.	2.	3.	3.	4.

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.

SAMPLE PROGRESS SCHEDULE & REPORT		CONTRACTOR (Contractor may use own form in lieu of Form C-11):	DATE OF REPORT:
DCM (BC) No.:	PROJECT:		PROCEED DATE:
PSCA projects: PSCA No.:		ARCHITECT/ENGINEER:	PROJECTED COMPLETION DATE:

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																		

LEGEND:	—————	- - - - -	—————	- - - - -	USE ADDITIONAL SHEETS IF JOB IS SCHEDULED OVER 12 MONTHS.
	ANTICIPATED ACTIVITY	ACTUAL ACTIVITY	ANTICIPATED CASH FLOW	ACTUAL CASH FLOW	

DCM Form C-11
August 2021

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.

_____ Architectural/Engineering Firm
Recommended By _____ Name & Title _____

APPROVAL

ALABAMA STATE DEPARTMENT OF EDUCATION (SDE) <i>(Required for locally-funded, SDE projects.)</i>	
By _____	Date: _____ State Superintendent of Education

CONTRACTING PARTIES

_____ Contractor Company
By _____ Name & Title _____

_____ Awarding Authority/Owner Entity
By _____ Name & Title _____

CONSENT OF SURETY (for additive \$ change orders only)	
_____ Surety Company	
By _____ (Attach current Power of Attorney)	Name & Title _____

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)	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

GENERAL CONTRACTOR'S FIVE YEAR BUILDING ENVELOPE GUARANTEE

Project Name and Address: 	Owner's Name and Address:
Architect's Name and Address: LATHAN ASSOCIATES ARCHITECTS, P.C. 300 Chase Park South, Suite 200 Hoover, AL 35244 Architect's Job No.: _____	General Contractor's Name, Address, and Phone No.:
EFFECTIVE DATES OF GUARANTEE: Start: _____ Period: Five (5) Years <small style="margin-left: 150px;">Date of Substantial Completion</small>	

General Contractor warrants to the Owner (named above) for a period of Five Years the entire Building Envelope will be weathertight, moisture and wind impermeable and uncompromised as a result of materials and/or workmanship provided. Should any portion of the Building Envelope develop moisture and/or wind infiltration during the warranty period, the General Contractor shall promptly address, employ clean-up and temporary measures to prevent further resultant damage and provide corrections to the Building Envelope and/or consequently damaged work of such quality consistent with the original scope of work as deemed by the Architect. Corrective work shall be subject to special scheduling as required to prevent disruption of the Owner's ongoing operations and shall be subject to the same General Conditions and work ethics as required for the original work.

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 and any damage caused by such addition. If this contract is for an addition to an existing building, then this guarantee covers the work involved at the point of connection.

Upon discovery, the Owner shall promptly notify the General Contractor of observed or suspected compromises and shall afford reasonable opportunity for the General Contractor to inspect the work, and to examine the evidence of such.

The General Contractor shall be afforded reasonable and scheduled opportunity to make periodic preventative observations of the work associated with this warranty.

This Building Envelope Warranty shall be effective concurrently with the required DCM Form C-9 General Contractor's Roofing Guarantee and both shall be submitted fully executed as independent documents to the Architect at the time of the Final Inspection.

This instrument has been duly executed this _____ day of _____, 20__

General Contractor's Authorized Signature

Typed Name and Title

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: _____	DATE: _____
CONTRACTING PARTIES:	
CONTRACTOR: _____	DATE: _____
OWNER: _____	DATE: _____
_____	DATE: _____
APPROVALS:	
DCM INSPECTOR: _____	DATE: _____
DCM CHIEF INSPECTOR: _____	DATE: _____
DCM DIRECTOR: _____	DATE: _____

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>):
---	---

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.

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.

GENERAL CONDITIONS of the CONTRACT

CONTENTS

1. Definitions
2. Intent and Interpretation of the Contract Documents
3. Contractor's Representation
4. Documents Furnished to Contractor
5. Ownership of Drawings
6. Supervision, Superintendent, & Employees
7. Review of Contract Documents and Field Conditions by Contractor
8. Surveys by Contractor
9. Submittals
10. Documents and Samples at the Site
11. "As-built" Documents
12. Progress Schedule
13. Materials, Equipment & Substitutions
14. Safety & Protection of Persons & Property
15. Hazardous Materials
16. Inspection of the Work
17. Correction of Work
18. Deductions for Uncorrected Work
19. Changes in the Work
20. Claims for Extra Cost or Extra Work
21. Differing Site Conditions
22. Claims for Damages
23. Delays
24. Resolution of Claims and Disputes
25. Owner's Right to Correct Work
26. Owner's Right to Stop or Suspend the Work
27. Owner's Right to Terminate Contract
28. Contractor's Right to Suspend or Terminate
29. Progress Payments
30. Certification & Approvals for Payments
31. Payments Withheld
32. Substantial Completion
33. Occupancy or Use Prior to Completion
34. Final Payment
35. Contractor's Warranty
36. Indemnification Agreement
37. Insurance
38. Performance and Payment Bonds
39. Assignment
40. Construction by Owner or Separate Contracts
41. Subcontracts
42. Architect's Status
43. Cash Allowances
44. Permits, Laws and Regulations
45. Royalties, Patents and Copyrights
46. Use of the Site
47. Cutting and Patching
48. In-progress and Final Cleanup
49. Liquidated Damages
50. Use of Foreign Material
51. Sign

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.

END of
GENERAL CONDITIONS of the CONTRACT

1.0 - GENERAL

1.1 Summary

- A. This Section includes administrative and procedural requirements for alternates.
 - 1. Before submitting proposals, Bidders shall read entire specifications, including all divisions, and familiarize themselves with requirements respecting all Alternates, and also how each section of the work is affected by acceptance or omission of Alternates.
 - 2. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.
 - 3. Bidders shall state on the Bid Form the amount to amend the Base Bid for making the following changes, including all incidental omissions, additions, and adjustments as may be necessary or required by such changes
- B. The Owner will award the Alternates in accordance with and as stated in The DCM Instructions to Bidders, 15. A - D and located at the front of this Project Specification Manual.
- C. Before signing the Contracts, the successful Contractor should be familiar with all Alternates and requirements. After signing the contracts, there will be no allowance or extra compensation paid to the Contractor because of omission or ignorance of said requirements.

1.2 Definitions

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 Procedures

- A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Execute accepted alternates under the same conditions as other work of the Contract.

1.4 Schedule:

A Schedule of Alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

ALTERNATE PRICES ARE REQUIRED AS FOLLOWS:

None at this time.

END OF SECTION

1.0 - GENERAL

1.1 Related Documents

Drawings and general provisions of 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 governing handling and processing allowances.

Selected materials, services and equipment, and in some cases, their installation is shown and specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials, services and equipment to a later date when additional information is available for evaluation. Additional requirements, if necessary, will be issued by Change Order. **Allowances indicated shall be included in the Base Bid or Alternates as indicated.**

B. Types of allowances required include the following:

1. Lump sum allowances.
2. Contingency allowance.

C. Procedures for submitting and handling Change Orders are included in the General Conditions of the Contract, Article 43.

1.3 Selection and Purchase

At the earliest feasible date after Contract award, advise the Architect of the date when the final selection and purchase of each service, product or system described by an allowance must be completed in order to avoid delay in performance of the Work.

A. When requested by the Architect, obtain proposals for each allowance for use in making final selections; including recommendations that are relevant to performance of the Work.

B. Purchase products and systems as selected by the Architect from the designated supplier.

C. Specific service providers, i.e., geotechnical and landscaping, shall be selected by the Owner.

1.4 Submittals

A. Submit proposals for purchase of products or systems included in allowances. Reduction and addition in allowances shall be in the form specified for Change Orders.

B. Submit invoices or delivery slips to indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.5 Contingency Allowances

- A. Use the contingency allowance only as directed for the Owner's purposes, and only by written approval which designate amounts to be charged to the allowance.
- B. **With the exception of quantity allowances, all allowances indicated are contingency allowances and therefore the Owner may transfer balances for other discretionary uses. Overhead and profit margins SHALL NOT BE ADDED to any amount drawn from original Allowance(s) regardless of the indicated use.**
- C. Invoicing Procedures:
1. Each contingency allowance shall be a "line item" on the Schedule of Values which is an attachment to the Application and Certificate for Payment as referenced in the "General Conditions of the Contract, Article 29.B".
 2. A copy of actual invoices paid by the Contractor and used against the respective Allowance(s), shall be included with the General Contractor's Application for Payment. This will allow all parties to know the remaining balance of Allowance(s) at all times.
 3. Overages:
Contractor shall submit to the Architect all costs associated with prior approved overages of Allowance(s). The Architect will prepare change order for these prior approved overages.
 4. Unused Balance:
Prior to final Application of Payment, Contractor shall submit total costs associated with Allowance(s). These costs should correspond with Schedule of Values from previous Applications for Payment plus any new charges. The Architect will prepare a change order to credit unused amounts. All 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%.

2.0 - PRODUCTS

Not applicable.

3.0 - EXECUTION

- 3.1 Inspection
Inspect products covered by an allowance promptly upon delivery for damage or defects.
- 3.2 Preparation
Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related construction activities.
- 3.3 Schedule of Allowances
- Allowance No. 1: Include a contingency allowance of \$60,000.00 for the Owner's use throughout the project for unforeseen conditions as directed by the Architect.
- Allowance No. 2: Include a contingency allowance of \$275,000.00 for Owner's use in purchase of welding lab equipment to include but not limited to welding booths, fume

extraction system with arms, welding poles and welders as indicated. Installation and all necessary connections shall be included in base bid. This allowance is for the purchase of the equipment only.

END OF SECTION

1.0 - GENERAL REQUIREMENTS

1.1 Related Documents

Drawings and general provisions of Contract, including General and Supplementary (Special) Conditions and Modifications and other Division - 1 Specifications Sections, apply to work of the Section.

1.2 Project / Work Identification

Project name is Renovation of FACS and Welding Lab for Minor High School and Renovation of Welding Lab for Pinson Valley High School

A. General Description:

1. In general, the project shall consist of selective demolition and new construction including, but not limited to:
Concrete block wall construction, wood doors and hollow metal frames, interior concrete block wall and paint finish, acoustical tile ceiling, hard tile floor and wall finishes, vinyl floor finishes, kitchen appliances, plus plumbing, mechanical and electrical work as required to perform the work under this Contract for Minor and Pinson Valley High Schools and to properly join, connect and finish the new work to bring all to final, finished completion in first class manner ready for use by the Owner, all in strict accordance with Contract Documents including plans and specifications as prepared by Lathan Associates Architects, P. C., Hoover, Alabama; and shall include the furnishing of all labor, materials, equipment and services necessary for the proper completion of the building and other work as called for in the drawings and / or specifications dated December 22, 2022.
2. The Base Bid shall include all work shown or specified.
3. See Section 01010 for Alternates.
4. See Section 01020 for Allowances.
5. It is the intent and requirement under this Contract to accomplish all demolition and preparation necessary to perform the Work under this Contract and to properly join, connect and finish the new work to bring all to final, finished completion in first class manner ready for use by Owner.

B. Contractor's Duties: Except as specifically noted, provide and pay for:

1. Labor, materials and equipment.
2. Tools, construction equipment and machinery.
3. Water, heat, conditioning and utilities required for construction shall be provided by the Contractor.
4. Other facilities and services necessary for the proper execution and completion of the Work. Including hoist if same required for access to site. Provide own telephone service and sanitary portable toilet facilities.
5. Secure and pay for permits, impact fees, government fees, and licenses. This will include, but not be limited to, all permits required by ADEM , the

U.S. Army Corp of Engineers and all fees required by State of Alabama, Division of Construction Management.

6. Give required notices.
7. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of the Work.
8. Promptly submit written notice to the Architect of observed variance of Contract Documents from legal requirements. It is not Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
9. Enforce strict discipline and good order among employees. Do not employ unfit persons or persons not skilled in assigned tasks. **Smoking is prohibited on site.**
10. **Comply with Owner's Covid-19 safety measures, and requirements.**
11. It is intended that all items and systems shown or specified be furnished and installed complete and fully operational when all work is in place and in use. Where more than one trade is involved, the General Contractor shall be responsible for coordination and resolution of disputes between his subcontractors and material suppliers regarding responsibility for furnishing and installing individual parts, systems, materials, connections, proper separation, hardware, adapters, surface preparation, relationship conflicts, supports, blocking and all similar items required for the complete and fully functional weathertight installation of the work.

C. Related Contract Documents:

Related requirements and conditions that are indicated on the Contract Documents include, but are not necessarily limited to, the following:

1. Existing site conditions and restrictions on use of the site.
2. Alterations and coordination with existing work.
3. Work to be performed concurrently by the Owner.
4. Work to be performed concurrently by separate contractors.
5. Work to be performed subsequent to work under this Contract.
6. Equipment / Material assigned as work of the Contract.
7. Requirements for partial Owner occupancy prior to substantial completion of the Contract Work.
8. Safety for and protection for occupancy, operation of existing facilities and construction to remain.

D. Summary by References:

Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary (Special Requirements) Conditions, Specification

Sections, Drawings, addenda and modifications to the Contract Documents issued subsequent to the initial printing of the project manual and including, but not necessarily limited to, printed material referenced by any of these.

It is recognized that 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.

- E. The Owner may provide certain items of furniture, equipment, etc. Coordinate for utility rough-in and / or installation.

1.3 Contractor's Use of Premises:

- A. General:
During the entire construction period the Contractor shall have the exclusive use of that portion of the phased contract work limits for construction operations, in accord with approved phasing plan schedule.

The Contractor shall limit his use of the premises to the work indicated, so as to allow for Owner occupancy and use by the public.

Use of the Site:

Confine operations at the site to the areas and limits permitted under the Contract and by law, ordinances, permits, and special conditions and special project procedures and coordination sections of the documents. Portions of the site beyond areas on which work is indicated are not to be disturbed. Conform to site rules and regulations affecting the work while engaged in project construction.

1. Keep existing driveways and entrances serving the premises clear and available to the Owner and his employees at all times. Do not use these areas for parking or storage of materials.
2. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated. If additional storage is necessary, obtain and pay for such storage off site. Storage of material in the phased contract work limits shall be confined to noncombustible / non-hazard material that is scheduled for immediate use (no longer than 24-hour storage).
3. Lock 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. Release hydraulic pressure when equipment is not in use. All vehicles delivering materials to the site shall be manned at all times, no exception.

- B. Confine operations at site to areas and limits permitted by law, ordinances, permits, Contract Documents and SUPPLEMENTARY CONDITIONS.
- C. Assume full responsibility for insurance, protection and safekeeping of products stored on premises.
- D. Coordinate with the Owner and schedule deliveries and unloading to prevent traffic congestion blocking of access or interference with Work. Arrange deliveries to avoid larger accumulations of materials than can be suitably stored at site.
- E. Contractor to pay for, or satisfactorily repair, all damages incident to their Work, to

sidewalks, streets, other public or private property, or to any public utilities occurring during period of work under Contract.

- F. Owner furnished and installed items that may require coordination between this General Contractor and Owner assigned agent. Contractor should also verify requirements for utility rough-ins for Owner furnished equipment.
- G. Contractor shall maintain all existing adjacent building exits passable for emergency pedestrian egress.
- H. **Comply with Owner's Covid-19 safety measures, and requirements.**

1.4 Owner Occupancy / Partial Owner Occupancy:

The Owner reserves the right to place and install equipment as necessary in completed areas of the building and to occupy such completed areas prior to substantial completion, provided that such occupancy does not substantially interfere with completion of the work. Such placing of equipment and partial occupancy shall not constitute acceptance of the work or any part of the work.

1.5 Alterations and Coordination:

A. General:

The work of this contract includes coordination of the entire work of the project, including preparation of general coordination drawings, diagrams and schedules, and control of site utilization, from beginning of construction activity through project close-out and warranty periods.

B. Alterations:

Where applicable, requirements of the Contract Documents apply to alteration work in the same manner as to new construction.

C. General:

To expedite delivery and for other purposes in his own best interests, the Owner, before the date of the Contract, may negotiate purchase orders or make other commitments with supplies of material and equipment to be incorporated into the work by the Contractor. These purchase orders and commitments will be assigned to the Contractor for installation.

1.6 Miscellaneous Provisions (to include, but not be limited, by the following):

- A. Provide all rough-in and utility connections for all Owner Furnished Equipment and all new plumbing fixtures, new kitchen equipment and for all new electrical fixtures, switches and outlets, etc.
- B. Complete Plumbing, Heating, Ventilating, Air Conditioning, and Electrical systems.
- C. Preparation of new finishes as called for in Finish Schedule and related specified Sections.
- D. Rework and refinish those areas including ceiling tile and grid disturbed by work of Divisions 15 and 16, cutting and patching as required for these specifications. Strict coordination with the Architect and Owner's assigned project representative is mandatory.
- E. Mechanical / Electrical Requirements of General Work:

1. General:
Except as otherwise indicated, comply with applicable requirements of Division 15 Sections for mechanical provisions within units of general (Division 2 - 14) Work. Except as otherwise indicated, comply with applicable requirements of Division 16 Sections for electrical provisions within units of general (Division 2 - 14) Work.

Service Connections: Refer to Division 15 and Division 16 Sections for the characteristics of the mechanical and electrical services to be connected to units of general work. Provide units manufactured or fabricated for proper connection to and utilization of available services.

Except as otherwise indicated, final connection of mechanical services to general work is defined as being mechanical work, and final connection of electrical services to general work is defined as electrical work.

2. Electrical Requirements:
Except as otherwise indicated, comply with applicable provisions of The National Electrical Code (NEC) and standards by National Electrical Manufacturer's Association (NEMA), for electrical components of general work. Provide Underwriters Laboratories listed and labeled products where applicable. See Division 16 and electrical drawings.

- F. Performance Requirements for Completed Work
The Contract Documents indicate the intended occupancy and utilization of the building and its individual systems and facilities. Compliance with governing regulations is intended and required for the work and for the Owner's occupancy and utilization. In addition to the requirement that every element of the work comply with applicable requirements of the contract documents, it is also required that the work as a whole comply with the general building performance requirements.

- 1.7 Utilities for Construction:
Make all arrangements necessary to connect to all utilities required to accomplish work under this contract. The Contractor will be solely responsible for connection to utilities required for construction of this Contract.

- A. The Owner shall pay for water and electricity usage bills required for normal construction purposes.
- B. The Contractor shall provide reasonable heat, cooling and ventilation within the building as required until the mechanical system has been completed, connected and in operation in the normal sequence of construction. This is not "in addition" to any normal requirement for heating, cooling and ventilation under this Contract, but is to clarify that a subcontractor or a Separate Contractor may benefit from the existence of these systems.
- C. Temporary Electrical Lighting and Power:
Until permanent electrical power is installed and until the building lighting fixtures are installed in the normal sequence of construction, the General Contractor will make available in each general area of the contract work, outlets to which the Separate Contractors may connect for temporary lighting and single phase electrical power. The General Contractor will pay all costs for this temporary utility extension and remove this temporary source when permanent electrical lighting and power outlets are installed. When, in the normal sequence of construction, the building lights are installed and connected and the building electrical outlets installed, the use of these shall be available for use by the subcontractor and/or Separate Contractors at no

cost to them. All temporary electrical lighting and power for Separate Contractors shall be single phase, except the General Contractor will provide sufficient three-phase service as required for the operation and testing of certain items of Equipment, such as food service equipment. Verify all electrical service and phasing prior to construction.

1.8 Requirements of Separate Contractors will be as follows:

- A. Separate Contractors to enter the building site to accomplish his work at the approval of the building General Contractor shall cooperate and coordinate with the General Contractor and shall be subject to the General Contractor as to schedule and locations within the site for him to accomplish his work. The General Contractor is responsible for and is in charge of the building site.
- B. The Separate Contractor is entitled to storage, access and work space inside the building in the same manner and subject to the same conditions and requirements as subcontractors for the building contract. The Separate Contractor will be advised of the availability of storage space (location coordinated by the General Contractor), and of responsibility to vacate and clean in time for final finish work.
- C. Separate Contractors are liable for any damage to the building. The Separate Contractor shall immediately make good any stain, harm or damage to the building caused by his forces. Most particularly, his attention is directed to need for caution in not damaging ceiling tile and wall finishes. Before final payment will be made to a Separate Contractor, he must have settled with the building General Contractor for any damage done.
- D. Separate Contractor must provide own toilet and telephone facilities (or make arrangements with the General Contractor as to pay rent for his share of cost).
- E. Separate Contractor to make provisions for his own safety and to accomplish his work in compliance with all National and Local Safety Regulations.
- F. Remove own trash and debris; each Separate Contractor to completely remove all trash and debris, caused by his work, from the building, and from the site.
- G. Do not allow dust to be exhausted through mechanical system.
- H. This Contractor to clean building exterior and interior as outlined in Section 01700-CLEAN UP.

1.9 Quality Control

- A. Shop Drawings and Product Approval:
Compliance with Shop Drawing checking by the Contractor then submittal for approval to the Architect as required by GENERAL CONDITIONS and SUBMITTALS - SECTION 01350 .
- B. Material Approval:
Compliance with SUBMITTALS - SECTION 01350 for submittal of products for approval by Architect before delivery of same to jobsite.
- C. Qualifications of Workmen:
In acceptance or rejection of the work of the Sections specified herein, and in particularly that work involved with the application of finish materials, the Architect

will make no allowance for lack of skill on the part of the workmen.

D. Special Inspections:

Compliance with special inspection requirements of the International Building Code is the responsibility of the General Contractor.

1.10 Patch and Repair Work:

Patch and Repair work under this Contract (in addition to work specified and indicated on the drawings) shall include, but not be limited to, the following:

Maintain fire integrity of walls, floors, ceilings and structure where piercing or openings are made. Use safing material as specified herein for approved UL poke-through applications.

1.11 N.I.C. Items:

Items noted as Not In Contract (N.I.C.) are to be furnished by Owner.

END OF SECTION

SPECIAL PROJECT REQUIREMENTS - SECTION 01030

The Instructions to Bidders, General Conditions, Modified General Conditions and Special Project Requirements as set forth herein are applicable to the work under every Division and Section of these Specifications.

TIME FOR COMPLETION

All work under this Contract shall be complete and ready for Owner occupancy by August 1, 2023. The work under this contract shall commence within Ten (10) calendar days from date of Notice To Proceed.

TIME IS OF THE ESSENCE

The Owner must occupy the work within the completion time indicated herein. Delivery time for equipment and material provided under this contract shall include lead time for storage and ready installation within time limits of the work. Coordination of Owner furnished/Contractor installed equipment and/or materials shall be considered within time limits of the work.

BID GUARANTY

The base bid proposal shall be guaranteed for a period of Sixty (60) days after date of proposal. Alternate proposals (additive or deductive), if requested, shall be guaranteed for a period of Ninety (90) days after date of signing contract. Unit prices, if requested, shall be guaranteed until the date of final acceptance of the project by the Owner. Upon receipt of the drafted construction contract, the contractor shall have no more than fourteen (14) days to execute and return the construction contract to the architect with all supporting documentation in correct order.

INSURANCE

All projects require Builder's Risk Insurance

OWNER

All papers shall be delivered to the Owner, unless otherwise specified in writing to the Contractor. Wherever the term "Owner" is used in the Specification it shall refer to:

JEFFERSON COUNTY BOARD OF EDUCATION
2100 18TH STREET SOUTH
BIRMINGHAM, AL 35209

ARCHITECT

Wherever the term "Architect" is used in the Specifications, it shall refer to:

LATHAN ASSOCIATES ARCHITECTS, P. C.
300 CHASE PARK SOUTH, SUITE 200
HOOVER, AL 35244

who by contract with the Owner, is authorized to prepare all drawings, details, and specifications for this work.

After the award of this contract, supervision of the work will be performed by the aforementioned Architect, his duly authorized representatives, or his duly appointed successor as may be designated in writing to the Contractor by the Owner.

APPLICABLE CODES AND AUTHORITIES

- A. Codes
 - 1. The work of this project shall be in accordance with the 2021 Edition, International Building Code. The minimum building standard code adopted by the Division of Construction Management is the 2021 International Building Code. The following

companion codes to the 2021 International Code are also adopted:

- a. 2021 – International Existing Building Code.
 - b. 2021 – International Plumbing Code.
 - c. 2021 – International Fuel Gas Code.
 - d. 2021 – International Mechanical Code.
 - e. 2020 – National Electrical Code (NFPA 70).
 - f. 2021 – International Fire Code.
 - g. ANSI/ASHRAE/IES Standard 90.1 – 2013 Energy Standard for Buildings.
 - h. 2010 – ADA Standards for Accessible Design.
 - i. 2020 – ICC/NSSA-500 Standard for the Design and Construction of Storm Shelters.
 - j. 2019 NFPA 72: National Fire Alarm and Signaling Code (NFPA 72).
2. The requirements of the 2010 ADA Standards for Accessible Design supersede the accessibility requirements contained in the International Building Code and ANSI A117.1.
 3. Promptly notify the Architect, in writing, if any of the contract documents are in conflict or variance with applicable codes, laws and ordinances. All changes will be made by written addenda or modifications.

B. Precedence of Codes

1. In case of conflict between the State Building Code, local codes, the Life Safety Code enforced by the State Fire Marshal, or other codes, the most stringent requirements shall prevail.
2. All food preparation facilities, private water systems, and sewage disposal systems shall also meet the requirements of and be approved by the applicable county health department.

C. Authorities, including but not limited to:

1. State of Alabama Department of Finance - Division of Construction Management (DCM)
2. Local Municipalities
3. Secure and pay for permits, impact fees, government fees and licenses. This will include, but not be limited to, all permits and/or fees required by ADEM, State of Alabama and the U.S. Army Corp of Engineers.

- D. If any work is performed knowing it to be contrary to such codes, law, ordinances, rules and regulations and without notice to the Architect, the Contractor assumes full responsibility therefore and shall bear all costs for compliance thereto.

FIRE ALARM REQUIREMENTS

The Certified Fire Alarm Act requires that every business who installs fire alarm systems in commercial occupancies must be licensed as a Certified Fire Alarm Contractor. The contractor must have a NICET Level III Technician in a position of responsibility, and the license will be issued in the name of the certificate holder and the contractor. The Certified Fire Alarm Act also requires that technicians working for the Certified Contractor must hold a current NICET Level II or equivalent certification. Contractors wishing to bid on fire alarm work must show evidence at the pre-bid conference that he/she meets the certification requirements of the Act and holds a permit issued by the State Fire Marshal.

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 State of Alabama, the contractor must deliver to the local building official a copy of their State Fire Marshal's Fire Alarm Permit. In addition, the DCM requires the following:

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.

NONRESIDENT BIDDERS

Nonresident bidders must accompany any written bid documents with a written opinion of an attorney at law licensed to practice law in such nonresident bidders' state of domicile, as to the preferences, if any or none, granted by the law of that state to its own business entities whose principal places of business are in that state in the letting of any or all public contracts.

PRE-BID CONFERENCE

A conference of intended bidders may be held by the Owner prior to the time for the opening of bids for the purpose of presenting and explaining the policies of the Board. Notification of date and place for conference shall be given by written addenda.

PRE-CONSTRUCTION CONFERENCE

A conference shall be held at the job site no later than two weeks following the date of "NOTICE TO PROCEED". The purpose of this conference is to define the duties and responsibilities of the Architect, Owner, Contractor and The State of Alabama Department of Finance - Division of Construction Management. All forms, procedures, schedules and other pertinent requirements will be discussed.

PRE-FINISHES CONFERENCE

If elected by the Architect, a conference shall be held at the job site within two weeks prior to the installation of finishes. All Contractors involved with finish work are required to attend. The purpose of this conference is to discuss finish work, coordination issues, the Owner's and Architect's expectations of quality and workmanship and the position of the Owner and Architect regarding poor quality and workmanship. This conference must be scheduled two weeks in advance of any finish installation.

LIST OF SUBCONTRACTORS AND PRINCIPAL MATERIAL SUPPLIERS

A copy shall be prepared by the successful Contractor and delivered to Architect within **Twenty-Four (24) hours after bid**. List shall show following information on each Subcontractor and/or Supplier:

- A. Name of Subcontractor and/or Supplier
- B. Complete mailing address
- C. Telephone Number
- D. Person to contact and position in organization
- E. Scope of Work to be performed by Subcontractor and percent of total contract.
- F. For work involving fire alarm systems, General Contractor's must submit a copy of the Fire Alarm contractor's State Fire Marshall's Fire Alarm Permit at the same time as submission of the subcontractor and supplier list to Architect. The architect or engineer shall reject fire alarm contractors who cannot provide a copy of the required permit.

This list may also be emailed to submittals@lathanassociates.com.

PROGRESS SCHEDULES AND CHARTS

One hard copy prepared by Contractor and delivered to Architect at beginning of job. Five (5) additional copies must be submitted with each monthly request for payment showing actual progress. The schedule shall be in the form of an Analog Bar Chart Schedule of suitable scale to indicate appropriately the percentage of work scheduled for completion at any time. The Contractor shall enter on the Chart his actual progress,

preferably at the end of each week, but in any event, at the end of each month, and deliver to the Architect five (5) copies thereof and attach one to his monthly Application for Partial Payment.

CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart type Contractor's construction schedule. Submit within 30 days of the date established for "Commencement of the Work".
1. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the work as indicated in the "Schedule of Values".
 2. Within each time bar indicate estimated completion percentage in 10 percent increments. As work progresses, place a contrasting mark in each bar to indicate Actual Completion.
 3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 4. Secure time commitments for performing critical elements of the work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the work. Show each activity in proper sequence. Indicated graphically sequences necessary for completion of related portions of the work.
 5. Coordinate the Contractor's construction schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests and other schedules.
 6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Architect's procedures necessary for certification of Substantial Completion.
- B. Work Stages
Indicate important stages of construction for each major portion of the work, including testing and installation.
- C. Cost Correlation
At the head of the schedule, provide a two-item cost correlation line, indicating "precalculated" and "actual" costs. On the line show dollar-volume of work performed as of the dates used for preparation of payment requests.
- D. Distribution
Following response to the initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
- When revisions are made, distribute 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 construction activities.
- E. Schedule Updating and Progress Photographs
Revise the schedule after each bi-weekly meeting or activity, where revisions have been recognized or made. Issue the copies of updated schedule concurrently with progress

photographs and report of each meeting to the Owner and Architect.

NOTICE OF SALES AND USE TAX EXEMPTION

The Owner is a tax-exempt agency. Materials incorporated into the Work are exempt from sales and use tax, therefore Contractor shall NOT include sales and use taxes in his Bid. Pursuant to Alabama Act No. 2013-205 (effective 5/9/2013), Contractors bidding the Work shall be required to attach "Accounting of Sales Tax" (DCM) Form C-3A-Sales Tax) to their Bid. **FAILURE OF THE CONTRACTOR TO COMPLETE THIS ATTACHMENT TO BID PROPOSAL FORM INDICATING THE SALES TAX AS REQUIRED BY ACT 2013-205, SECTION 1 (g) SHALL RENDER THE BID NON-RESPONSIVE.**

It shall be the responsibility of the successful Contractor and any Subcontractor working under the same contract to apply for a Certificate of Exemption from the Alabama Department of Revenue for this specific project and to comply with all ADOR rules and regulations. The Owner shall not consider claims for additional costs resultant of the Contractor's or its subcontractors' failure to comply with such rules and regulations.

However, the Owner may elect to issue Form ST: PAA1 Purchasing Agent Appointment which appoints the Contractor as Agent to purchase materials Tax-Exempt. In this case, invoices must be transmitted for direct payment by the Owner.

DAMAGE TO PROPERTY

- A. The Contractor shall be solely responsible for all work of this contract prior to such work achieving official Substantial Completion as per ARTICLE 32 of the General Conditions of the Contract; and for providing adequate insurance, including: project specific Builder's Risk Insurance and Flood Insurance to cover the following:
1. Any damage to or loss of stored materials.
 2. Any damage to or loss of in-place work.
 3. Any damage to or loss of any portion of on-site or off-site property, existing or new, resulting from failure of or omission of protective measures; or caused by the work of this contract, including but not limited to: property, furnishings, contents or loss of revenue.

The Contractor shall be further responsible for promptly correcting or remedying of any such damage or loss; and shall exercise all reasonable measures to minimize any resulting delays to the projects original completion schedule.

- B. Damaged work shall be considered Defective Work.

USER FEES - CONTRACTOR

The State of Alabama Department of Finance - Division of Construction Management has adopted a new rule, Administrative Rule 170X-8 Collection of User Fees. The full text of Administrative Rule 170X-8 is available on The State of Alabama Department of Finance - Division of Construction Management's website. It is the responsibility of the General Contractor to visit The State of Alabama Department of Finance - Division of Construction Management website to verify these rules.

PERMIT FEE

A permit fee will be required for projects exceeding \$750,000. All projects will be inspected by The State of Alabama Department of Finance - Division of Construction Management. The permit fee is outlined in the Administrative Rule 170X-8.

DCM Form C-8, "General Conditions of the Construction Contract", Article 44, Para. A, states the following:

"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 all 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."

For public works projects falling under The State of Alabama Department of Finance - Division of Construction Management's jurisdiction and bid after October 1, 2014, the Architect shall include a copy of The State of Alabama Department of Finance - Division of Construction Management user fee schedule in the project manual and specify that the permit fee is to be included in the contractor's bid and paid by the Contractor.

The Pre-Construction Conference cannot be held until both (1) the permit fee and (2) the signed construction contract has been received by The State of Alabama Department of Finance - Division of Construction Management.

PERMIT FEE SCHEDULE WORKSHEET	
Cost Categories	Permit Fee Calculation
Less than \$1000	N/A
\$1001 – \$50,000	Cost of the Work minus \$1,000 = _____/1000 x \$5.00 = _____ + \$15.00 = Permit Fee Due
\$50,001 – \$100,000	Cost of the Work minus \$50,000 = _____/1000 x \$4.00 = _____ + \$260.00 = Permit Fee Due
\$100,001 – \$500,000	Cost of the Work minus \$100,000 = _____/1000 x \$3.00 = _____ + \$460.00 = Permit Fee Due
\$500,001 and up	Cost of the Work minus \$500,000 = _____/1000 x \$2.00 = _____ + \$1,660.00 = Permit Fee Due

INSPECTIONS

Scheduling - The contractor will contact the architect by e-mail at inspections@lathanassociates.com of the date the project will be ready for an inspection.

- The Architect will contact The State of Alabama Department of Finance - Division of Construction Management (DCM) Inspector to schedule the first available date for the inspection. Inspections must be requested minimum 14 days in advance.
- When the DCM Inspector confirms the inspection time, the Architect will send an e-mail confirming the inspection time and date.
- Cancellations of any scheduled inspection must be received in writing by e-mail no less than 48 hours prior to the scheduled inspection. If an inspection is cancelled, it will be rescheduled subject to the DCM Inspector's availability.
- If an inspection is cancelled less than 48 hours prior to the scheduled inspection, the re-inspection fee of \$1,500 will be charged to the General Contractor.

- If an inspection is held and the project is not deemed ready for inspection or it does not pass the inspection, a re-inspection fee of \$1,500 will be charged to the General Contractor.

Minimum Requirements - 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.

- Pre-Construction Conference
 - Required Attendees: Contractor, Owner, Architect, Major Subcontractors, DCM Inspector
 - Inspection Requirements:
 - Signed construction contract
 - Verification of payment of permit fee
 - Fire Alarm Contractor's Certification (from State Fire Marshal)
 - ADEM permit, if more than 1 acre of land is disturbed
- Above-Ceiling Inspections
 - Required Attendees: Contractor, Owner, Architect, MEP Engineers, Major Subcontractors DCM Inspector
 - Inspection Requirements:
 - All work must be completed except for install at ion 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
- Life Safety Inspections and Final Inspections
 - Required Attendees: Contractor, Owner, Architect, Engineers, Major Subcontractors, Local Fire Marshal, DCM Inspector
 - Inspection Requirements:
 - Fire alarm certification
 - Kitchen hood fire suppression system certification
 - Provide Smoke Machine for testing of Duct Detectors
 - Above ground and below ground sprinkler certifications
 - Emergency and exit lighting tests
 - Fire alarm must be monitored
 - Boiler/Vessels Inspection completed and Certificate of Operation provided by the State of Alabama Department of Labor
 - 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
- Year-End Inspections
 - Required Attendees: Contractor, Owner, Architect, Engineers, DCM Inspector and /or Major subcontractors may also be required to attend
 - Inspection Requirements:
 - Owner 's list of documented warranty items

MATERIALS

ALL MATERIALS FOR THIS PROJECT SHALL BE ASBESTOS FREE.

PROTECTION OF WORK AND PROPERTY

Contractor shall confine his operations to the project work limits of this contract and shall maintain required exit and fire safety requirements as well as Owner's security requirements. Protect adjoining spaces and cause no damage to same; any damage to be immediately repaired.

- A. Protection of Work and the Public
Provide adequate protection, in full accordance with local, State and Federal regulations, for the work in progress as well as for the public and others using the site, until the completion of all work.
Provide suitable signs, signals and barricades against trespassing by individual and take whatever steps necessary or required by law to protect workers and public from harm. Protect the work and the public from damage of any kind during all operations. Methods described herein are minimum standards acceptable except where exceeded by Federal, State or local requirements.
- B. Safety and Traffic Control Devices During Construction
1. Within the limits of area designated for work under this contract, and any staging or traffic areas, this Contractor shall furnish, install and maintain all safety and traffic control devices during the construction period as described herein, and as required by law.
 2. All safety and traffic control devices shall be in compliance with Federal, State and local laws and regulations, and to the requirements and approval of applicable local officials, State Highway Department and the Architect.
 3. Wherever the work affects the normal flow of vehicular or pedestrian traffic, traffic control devices shall be in accordance with requirements and standards as set forth in the "Manual on the Uniform Traffic Control Devices for Streets and Highways", latest edition, as published by U.S. Department of Transportation, Federal Highway Administration, and Section "G" of the Alabama Manual on Uniform Traffic Control Devices, Volumes I and II, latest edition.
 4. Traffic Control Devices. Traffic control devices shall be installed at the inception of the construction operations and shall be properly maintained during the periods of construction. They shall remain in place only as long as they are needed and shall be removed immediately thereafter.
 5. All traffic control devices must be approved by the City, County and by all affected enforcing agencies.
 6. Protective Construction Site Barricade
 - a. Requirements: Contractor shall furnish, install and maintain throughout the life of the Contract, all necessary barricades, covers, scaffold guards, warning signs, warning lights, channelization markers and other protective devices, all as required by Owner, local rules, regulations and ordinances, and as necessary to protect the work from trespassing.
 - b. Barricades, enclosing devices and warning lights may be standard rental items of equipment in compliance with these requirements; and shall be of a type that affords security, is quite visible and is easily moved.
 - c. Materials for use in construction of site barricades and other protective devices shall be of new exterior plywood and not less than #2 pine structural

lumber, all of good appearance, sound, square, straight, in line, braced and well-constructed. All materials, except those to be walked on, shall be painted.

- d. Move barricades from one area to the next as the work progresses. Remove all upon completion.
- e. Lighting on Barricades: Furnish and install traffic warning lights or barricades, in areas of vehicular traffic. Install yellow traffic signal lamps complete with all wiring, switches, disconnects, fusing, sockets, guards and hanging provisions. These lights shall be turned on during all hours of darkness (dusk to dawn). Maintain in service during the construction period; move forward as site of work moves. Remove all upon completion of work.
- f. **Unauthorized visitors not permitted within working and storage areas.** OSHA approved suitable personal safety devices are to be provided for authorized visitors within working areas. Suitable fire extinguishing equipment, readily accessible from any part of the work, to be provided and maintained. Erect any and all required additional protective barriers, lights, etc., as necessary for safety and protection. Keep area of work closed off when not in use.

C. Utilities

- 1. See Section 01025 for Utility usage billing.
- 2. Other utility bills caused by work of the contract are to be paid by Contractor as outlined in the SUMMARY OF THE WORK. Contractor to provide own telephone, temporary heat and pay costs for same. Contractor to pay for any sewer impact fee as related to this project. All project related sanitary conditions are the responsibility of the Contractor.
- 3. Contractor must investigate and verify the existence and location of all site utilities in the field before starting work. Flag on site all underground service lines in the construction area. Notify the Architect of any condition which, in the Contractor's opinion, may interfere with the completion of work as designated. Excavating in the vicinity of existing utilities shall be done carefully and by hand. Maintain and protect existing utilities.
- 4. The Contractor is responsible for all temporary utility connections to utilities.

D. Protection of Materials

Properly and effectively protect all materials and equipment, before, during and after their installation. Contractor will be allowed to store materials, equipment, etc., on the site. Security of the area(s) will be the sole responsibility of the Contractor. **Protect materials such as insulation and insulated duct from rain exposure.**

E. Watchman

The Contractor, at his own expense and option, may employ a watchman at such time as he deems necessary to protect his work and/or materials.

DAMAGE TO PROPERTY

The contractor will be responsible for, and insure against, any damage to property, furnishings, and/or loss of revenue resulting from any damage to any part of the existing property caused by the work of this Contract.

SPECIAL SAFETY REQUIREMENTS

All exitways shall be maintained free and clear of all stored materials, debris, etc.

No combustible construction materials shall be stored in the Project area after the day's work is complete. Remove any potentially hazardous materials immediately to prevent any fire hazards which may result from the construction of this Project. In addition, precautions shall be made by the General Contractor to prevent any other activities at the site which may constitute a fire hazard.

In addition to any portable fire extinguishers existing in the building, the General Contractor shall provide additional fire extinguishers during the construction as required.

Refer to the General Conditions for additional safety requirements.

USE OF PREMISES, SANITARY PROVISIONS

Refer to SECTION 01035, SPECIAL PROJECT PROCEDURES, for use of premises, sanitary provisions which are specifically related to this project. Note that sanitary conditions are the responsibility of the Contractor.

All personnel required on the job site must at all times be in possession of **state issued** photo identification subject to examination by Owner or their representative. Other security or evacuation requirements may also be in place and is the responsibility of the General Contractor to abide by all school rules.

USE OF OCCUPIED PREMISES

During execution of this Contract, clear passages must be maintained as described along corridors. Owner will endeavor to keep personnel and visitors from work areas, but it will be the Contractor's responsibility to enforce all safety precautions.

CUTTING AND PATCHING

All excavation and cutting of new work to accomplish the work shall be by the respective trades. It is to be noted that Divisions 15 and 16 each are required to perform the necessary cutting of floors, walls, ceilings as necessary to install the work of their trade, all under the direct supervision of the General Contractor and in accordance with the construction schedule. The General Contractor is responsible for the repair, replacement and finish of pavement, roofs, floors, walls and ceiling (all finish work); and same shall be accomplished by competent workmen and finish up in a neat manner, by craftsmen skilled in their work, all to be equal in quality and appearance of adjacent work. Finished installation shall comply with specified tolerances and finishes. The Contractor shall not cut, excavate, or otherwise alter any work in a manner or by a method or methods that will endanger the work, adjacent property, workmen, the public or the work of any other Contractor.

In acceptance or rejection of the work of the Sections involved in the application of finish materials, the Architect will make no allowance for lack of skill on the part of the workmen.

When necessary to cut, or alter completed work to accommodate subsequent work, the Contractor performing the work previously in place shall do such cutting and repairing.

Cost of cutting and repairs necessitated by fault of negligence, or for other reasons, shall be borne by the Contractor at fault in requiring such work.

If a Contractor or Subcontractor fails to do necessary cutting or fails to have restored any work of others damaged by him, for a period of time causing delay in project construction, the Owner may do so and cost thereof shall be charged to the General Contractor.

Cutting of structural members will not be permitted.

FIRE INTEGRITY OF CONSTRUCTION shall be maintained whenever components of rated assemblies are penetrated, jointed, cracked or compromised in any way either intentionally or unintentionally; including, but

roof deck above using consistent materials.

Openings for "poke-through" pipe, conduit, etc., penetrations shall be of minimum size in accordance with UL published requirements for maintaining integrity of rated construction and fire sealed properly. Mortar or concrete in contact with copper will not be accepted. Expansive spray foam fill which is combustible shall not be allowed.

Opening shall be sealed full thickness of penetration, (i.e., grout solid up to within one (1) inch of finish surface then seal with rated sealant material). Any and all pipe and conduit penetrations of a finished wall, floor or ceiling materials shall be finished out with an approved escutcheon plate. Any penetration of rated walls or ceilings by mechanical ductwork shall be protected by use of rated fire damper system at point of penetration. Provide for collars as required at point of penetration through rated construction. Contractor shall provide fire integrity sign on rated wall construction (above ceiling) lines in accordance with the building code, and as outlined in PAINTING - SECTION 09910.

If specified under FIRESTOP CAULKING AND SEALING - SECTION 07840, fire caulking and sealing shall be **single source** provided using same approved materials and certified technicians throughout the project. All applicable trades shall coordinate accordingly and make their work ready to properly receive fire sealant. If fire sealing is not specified under a separate section, then all applicable trades shall fire seal their own work using the same mutually agreed upon fire sealing materials consistently throughout the project installed by manufacturer's certified technician(s). Acceptable fire sealing materials include, but are not limited to: Dow-Corning, 3-M Brand, Tremco meeting ASTM 3-119, ASTM 3-814 and mineral wool fiber safing.

USE AND OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER

- A. Contractor agrees to permit Owner to use and occupy portions of building or Project before formal acceptance by Owner, provided that Owner:
 - 1. Secures written consent of Contractor (except in event that in the opinion of Architect, Contractor is chargeable with unwarranted delay in final completion of contract requirements).
 - 2. Secures endorsement from insurance carrier and consent of the surety, permitting occupancy and use of portions of project during remaining period of construction.
- B. Use and occupancy prior to formal acceptance shall not relieve Contractor of his responsibility to maintain insurance coverage, as called for in specifications, for benefit of Owner, Owner's Agent, Contractor and all Subcontractors until Project is completed and accepted by Owner. However, use and occupancy of any area by the Owner prior to project completion shall mean partial acceptance of that area and any equipment within that area used by the Owner, thereby requiring a substantial completion agreement between the Owner and the Contractor for said area and equipment.

END OF SECTION

SPECIAL PROJECT PROCEDURES - SECTION 01035

1.0 Requirements

As set forth herein are applicable to the Work under every Section or Division of this Specification, of the General Contractor and all Subcontractors.

1.1 Completion Date

Work under this contract shall be sufficiently completed to permit Owner to occupy the building, or a designated portion thereof, on or before date stipulated on the Proposal Form and accepted by Owner. See Paragraph entitled Time For Completion under SPECIAL PROJECT REQUIREMENTS, SECTION 01030.

1.2 Acceptance of Preceding Work

Before starting any operation, Contractor and each Subcontractor shall examine existing work performed by others to which his work adjoins. Failure to remedy faults in or notify Architect of deficiencies or faults in preceding work will constitute acceptance thereof and waiver of any claim of its unsuitability.

1.3 Layouts and Levels

General Contractor shall establish principal lines, grades, levels and corners, and shall set and maintain adequate reference points therefore. Contractor shall lay out own work to dimension from principal lines and shall be responsible for layout of his subcontractor's work.

1.4 Product Approval

A. In addition to items submitted for approval by Shop Drawings, Contractor to submit for approval within ten (10) days after receipt of Notice to Proceed a list of all products proposed for use in the work, listing manufacturer, make, model number, catalog listing subcontractors' and / or vendors' names, and other manufacturers' identification for each particular product for each particular use. Submit in letter form in 3 copies, and approval obtained before material is ordered. Submit list of products requiring color selection. Approved list of products manufacturer and / or vendor will be returned promptly in order to avoid any delay of ordering materials specified. General Contractor shall review with Architect and the Owner the actual status of availability of all materials and schedule of work in the building, (including Alternates).

B. Submit complete Product Data and testing results, if requested.

1.5 Weather Protection

Contractor provide, maintain and pay all cost for all weather protection required to properly protect all parts of structure from damage during construction. Note that building heating and cooling system will remain in operation throughout the contract period.

1.6 Manufacturer's Directions

A. Apply, install, connect and erect manufactured items or materials according to recommendations of manufacturer when such recommendations are not in conflict with Contract Documents.

B. Furnish to Architect, on request, copies of manufacturer's recommendations. Secure approval of recommendations before proceeding with work.

ALL MANUFACTURED ITEMS THAT ARE STRUCTURAL IN NATURE SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF ALABAMA AND SUBMITTED FOR APPROVAL.

1.7 Coordination Between Trades: Contractor's Pre-Construction Coordination Meeting

A. Plumbing, Heating, Ventilating, Air Conditioning and Electrical Drawings are diagrammatic.

- B. BEFORE COMMENCING WORK UNDER THIS CONTRACT, GENERAL CONTRACTOR IS TO ARRANGE FOR A MEETING OF ALL MAJOR SUBCONTRACTORS (AND SEPARATE CONTRACTS AS APPLICABLE) TO DETERMINE THAT ALL ITEMS WILL FIT INTO SPACES PROVIDED, HEADROOMS MAINTAINED, CONCEALMENT REQUIRED, WALL THICKNESS SUFFICIENT FOR RECESS OF ITEMS, PRIORITIES ESTABLISHED IN INSTALLATION OF DUCTS, PIPING, ETC. EACH SUBCONTRACTOR MUST HAVE THEIR RESPECTIVE ON-SITE JOB FOREMAN PRESENT. Each Subcontractor to have drawings of all trades, and to be completely aware of and fully informed of, requirements and locations of work to be installed by other Subcontractors. In case of disagreements in locations, General Contractor is to settle same, giving preference to ductwork and larger items, except where grading of pipe may require preference. All decisions to be recorded on each Subcontractor's drawings and on jobsite set of drawings and fully inform all Subcontractors. No changes to be made which affect finish locations or alter requirements of contract without approval of the Architect. Do not cover or block previously installed alarm devices, valves, etc., without providing for access to same.
- C. If, in any location, it is impossible to install required items and maintain requirements as to ceiling heights, clearances dimensions, etc., or due to structural interference, General Contractor is to advise Architect for a decision.

1.8 City Ordinances

- A. Comply with all City rules, regulations and ordinances in regard to parking, unloading, blocking of street, sidewalk or alley; and provide all lights, barriers, temporary walkways, protection, etc., as necessary for complete compliance.
- B. Comply with applicable Code and all local and Federal laws and ordinances in regard to safeguards during construction and fire protection, and all governing regulations pertaining to requirements during construction.

1.9 Operating and Maintenance Instructions

- A. Contractor shall instruct Owner's operating personnel in proper operation, lubrication and maintenance of all equipment items installed under this contract.
- B. At completion of job, Contractor shall provide three (3) copies of a brochure containing manufacturer's operating, lubricating and maintenance instructions and parts lists for each item of equipment furnished under this contract. Each copy shall be assembled and bound under a substantial hardboard cover with title and index. Provide a complete set of approved manufacturer's and contractor's shop and equipment "setting" drawings for major systems and equipment furnished under this contract.

One (1) copy of the Operating and Maintenance instructions shall be hand delivered to the Architect at the final inspection and the remaining copies shall be provided to the Owner prior to issuance of the Certificate of Substantial Completion

1.10 Site Limitation and Use

- A. General Contractor and each Subcontractor shall note the extent of site available for access and storage. Contractor restricted to those limits.
- B. All personnel required on the job site must at all times be in possession of **state issued** photo identification subject to examination by Owner or their representative. Other security requirements may also be in place and is the responsibility of the General Contractor to abide by all school rules.
- C. Contractor and Subcontractors are further cautioned that the traffic on adjacent streets may place strict limitations on the rates and means of delivery of materials, equipment and supplies, the removal of rubbish, and, in some cases, the hours during which deliveries are

made.

1.11 Protection of Existing Property Adjacent

A. Protect and cause no damage to adjacent area and site.

During progress of work, Contractor will be responsible for full and complete protection of property which the work is being done, insofar as related to work under this Contract. Any damage to adjacent property, or contents caused by failure in performance with these requirements must be made good by Contractor at his own expense and to the satisfaction of Owner. Any damage to existing adjacent areas outside contract work limits shall be replaced with exact same materials as that damaged.

B. Provide for means to prevent objectionable dust and debris blowing onto adjacent property or streets from work being accomplished under this contract.

1.12 Dimensions

Contractor and each Subcontractor shall verify dimensions at site for built-in work, for work adjoining that of other trades and for dimensions shown to existing structures or installations. Notify Architect of any discrepancies.

1.13 Security of Construction Area

Contractor shall secure on site storage of materials and equipment. Storage of materials shall be within the Contractor's limit of construction at the site. This General Contractor shall adhere to Owner's requirements for security of work area and under all conditions shall be subject to these security regulations and requirements. Off-site storage of materials and equipment that are to be installed in the project shall be in a bonded storage area as outlined in the General Conditions.

1.14 Delivering and Storage

A. Deliver packaged materials to site in manufacturer's original, unopened and labeled containers. Do not open containers until approximate time for use.

B. Store materials in a manner that will prevent damage to materials or structure, and that will prevent injury to persons. No materials will be stored outside of contract work area by this Contractor.

C. Store cementitious materials in dry, weathertight, ventilated spaces. Store ferrous materials to prevent contact with ground and to avoid rusting and damage from weather.

1.15 Fire Protection

Contractor to take all necessary steps to ensure prevention of fire. Contractor to have portable extinguishers on hand at site throughout the period of construction. Flammable and combustible materials shall be kept in metal cans with tight covers and removed from building at end of each working day.

Fire protection systems within existing buildings must be maintained in full operation during construction.

1.16 Hoist, Ramps, Elevator Access, etc.

Furnish and Maintain as Necessary: Hoists, ramps, railings, platforms, etc., required in conformance with local applicable regulations. Hoists shall be operated by qualified and experienced mechanics. Space for hoist shall be coordinated with Architect and Owner's assigned project representative.

1.17 Chases and Openings

Provide all proper chases, openings and recesses as indicated for work under this Contract. Build in all sleeves, anchors, etc., for proper engagement of work to be installed. All post piercing of slabs and masonry shall be core drilling.

END OF SECTION

1.0 - GENERAL REQUIREMENTS

- 1.1 Related Documents
Drawings and general provisions of Contract, including General and Supplementary Conditions (plus modifications thereto), and other Division 1 Specification sections, apply to work of this section.
- 1.2 Description of Work
Minimum administrative and supervisory requirements necessary for coordination of work on the project include, but are not necessarily limited to, the following:
- A. Coordination and meetings.
 - B. Administrative and supervisory personnel.
 - C. Surveys and records or reports.
 - D. Limitations for use of site.
 - E. Special reports.
 - F. General installation provisions.
 - G. Cleaning and protection.
 - H. Conservation and salvage.
 - I. Special Inspections.
- 1.3 Coordination and Meetings
- A. General
Prepare a written memorandum on required coordination activities. Include such items as required notices, reports and attendance at meetings. Distribute this memorandum to each entity performing work at the project site. Prepare similar memorandum for separate contractors where interfacing of their work is required.
 - B. Coordination Drawings
Prepare coordination drawings where work by separate entities requires fabrication off-site of products and materials which must accurately interface. Coordination drawings shall indicate how work shown by separate shop drawings will interface and shall indicate sequence for installation.
 - C. Bi-Weekly Coordination Meetings
Hold bi-weekly general project coordination meetings at regularly scheduled times convenient for all parties involved. These meetings are in addition to specific meetings held for other purposes, such as regular project meetings and special pre-installation meetings. Request representation at each meeting by every party currently involved in coordination or planning for the work of the entire project. Conduct meetings in a manner which will resolve coordination problems. Record results of the meeting and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.
 - D. At Contractor's option, bi-weekly coordination meetings can be held integrally with progress meetings.
- 1.4 Administrative / Supervisory Personnel
- A. General
In addition to a General Superintendent and other administrative and supervisory personnel required for performance of the work, provide specific coordinating personnel as specified herein.

B. Project Coordinator

Provide a full-time Project Coordinator experienced in administration and supervision of building construction, including mechanical and electrical work. This Project Coordinator is hereby authorized to act as general coordinator of interfaces between units of work. For the purpose of this provision, "interface" is defined to include scheduling and sequencing of work, sharing of access to work spaces, installation, protection of each other's work, cutting and patching, tolerances, cleaning, selections for compatibility, preparation of coordination drawings, inspections, tests, temporary facilities and services, scheduling and sequencing of mechanical / electrical work, integration of work placed into limited spaces available for mechanical / electrical installations, each trades' protection of work by other trades and preparation of mechanical / electrical coordination drawings.

1.5 Surveys and Records / Reports

A. General

Establish markers to set lines and levels for work as needed to properly locate each element of the project. Calculate and measure required dimensions as shown within recognized tolerances. Drawings shall not be scaled to determine dimensions. Advise entities performing work of marked lines and levels provided for their use.

B. Survey Procedures

Before proceeding with the layout of actual work, verify the layout information shown on the drawings, in relation to the existing partitions and conditions. As work proceeds, check every major element for line, level and plumb. Maintain a record of such checks; make this record available for the Architect or Engineer. Record deviations from required lines and levels and advise the Architect or Engineer promptly upon detection of deviations that exceed indicated or recognized tolerances. Record deviations which are accepted, and not corrected, on record drawings.

1.6 Limitations on Use of the Site

A. General

Limitations on site usage as well as specific requirements that impact site utilization are indicated on the drawings and by other contract documents. In addition to these limitations and requirements administer allocation of available space equitably among entities needing both access and space so as to produce the best overall efficiency in performance of the total work of the project. Schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site.

B. See also specific requirements of SECTION 01030 - SPECIAL PROJECT REQUIREMENTS and SECTION 01035 SPECIAL PROJECT PROCEDURES.

1.7 Special Reports

A. General

Submit special reports directly to the Owner through the Architect within one day of an occurrence. Submit a copy of the report to the other entities that are affected by the occurrence.

B. Reporting Unusual Events

When an event of an unusual and significant nature occurs at the site, prepare and submit a special report. List chain of events, persons participating, response by the Contractor's personnel, and evaluation of the results or affects and similar pertinent information. Advise the Owner in advance when such events are known or predictable.

C. Reporting Accidents

Prepare and submit reports of significant accidents at the site and anywhere else work is in progress. Record and document data and actions. For this purpose, a significant accident is defined to include events where personal injury is sustained, or property loss of substance is sustained, or where the event posed a significant threat of loss or personal injury.

2.0 -PRODUCTS

Not applicable.

3.0 - EXECUTION

3.1 General Installation Provisions

A. Pre-Installation Conferences

Hold a pre-installation meeting at the project site well before installation of each unit of work which requires coordination with other work. Installer and representatives of the manufacturers and fabricators who are involved in, or affected by, that unit of work, and with its coordination or integration with other work that has preceded or will follow shall attend this meeting. Advise the Architect / Engineer of scheduled meeting dates.

1. At each meeting review progress of other work and preparations for the particular work under consideration including specific requirements for the following:

- Contract documents.
- Options.
- Related change orders.
- Purchases.
- Deliveries.
- Shop drawings, product data and quality control samples.
- Possible conflicts and compatibility problems.
- Time schedules.
- Manufacturer's recommendations.
- Compatibility of materials.
- Acceptability of substrates.
- Temporary facilities.
- Space and access limitations.
- Governing regulations.
- Safety.
- Inspection and testing requirements.
- Required performance results.
- Recording requirements.
- Protection.

2. Record significant discussions of each conference, and record agreements and disagreements, along with the final plan of action. Distribute the record of meeting promptly to everyone concerned, including the Owner and Architect / Engineer.
3. Do not proceed with the work if the pre-installation conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the work and reconvene pre-installation conference at the earliest feasible date.

- B. Installer's Inspection of Conditions
Require the Installer of each major unit of work to inspect the substrate to receive work and conditions under which the work is to be performed. The Installer shall report all unsatisfactory conditions in writing to the Contractor. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.
- C. Special Inspections
Coordinate and schedule for Special Masonry Inspections with Masonry Contractor and Owner's Inspector as required to comply with current Building Codes. All grout placement for CMU walls shall be witnessed by the Special Inspector.
- D. Manufacturer's Instructions
Where installations include manufactured products, comply with the manufacturer's applicable instructions and recommendations for installation, to the extent that these instructions and recommendations are more explicit or more stringent than the requirements indicated in the contract documents.
- E. Inspect each item of materials or equipment immediately prior to installation. Reject damaged and defective items.
- F. Provide attachment and connection devices and methods for securing work. Secure work true to line and level and within recognized industry tolerances. Allow expansion and building movement. Provide uniform joint width in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable visual-effect choices to the Architect / Engineer for final decision.
- G. Recheck measurements and dimensions of the work as an integral step of starting each installation.
- H. Install each unit-of-work during weather conditions and project status which will ensure the best possible results in coordination with the entire work. Isolate each unit of work from incompatible work as necessary to prevent deterioration.
- I. Coordinate enclosure of the work with required inspections and tests, so as to minimize the necessity of uncovering work for that purpose.
- J. Mounting Heights
Where mounting heights are not indicated, mount individual units of work at industry recognized standard and A.D.A. acceptable mounting heights for the particular application indicated. Refer questionable mounting height choices to the Architect / Engineer for final decision. For mounting heights on Owner Furnished Equipment, Contractor shall obtain accurate information from data supplied by Owner or from field measurements of actual equipment to be relocated and installed.

3.2 Cleaning and Protection

- A. General
During handling and installation of work at the project site, clean and protect work in progress and adjoining work on the basis of continuous maintenance. Apply protective covering on installed work where it is required to ensure freedom from damage or deterioration at time of substantial completion.
- B. Clean and perform maintenance on installed work as frequently as necessary

through the remainder of the construction period. Adjust and lubricate operable components to ensure proper operation without damaging effects.

C. Limiting Exposures of Work

To the extent possible through reasonable control and protection methods, supervise performance of the work in such a manner and by such means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period. Such exposures include, where applicable, but not by way of limitation, to the following:

Excessively high or low temperatures.

Thermal shock.

Excessively high or low humidity.

Water or ice.

Solvents.

Chemicals.

Electrical current.

Incompatible interface.

Misalignment.

Unprotected storage.

Theft.

Vandalism.

3.3 Conservation and Salvage

It is a requirement for supervision and administration of the work that construction operations be carried out with the maximum possible consideration given to conservation of energy, water and materials.

END OF SECTION

1.0 - GENERAL REQUIREMENTS

1.1 Related Documents

Drawings and General Provisions of Contract, including General and Supplementary Conditions (plus modifications thereto), and other Division 1 Specification Sections, apply to work of this Section.

1.2 Description of Requirements

A. Definition

"Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.

1. "Cutting and patching" is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed or for other similar purposes.
2. Cutting and patching performed during the initial fabrication, erection or installation processes is not considered to be "cutting and patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".

- B. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.

Unless otherwise specified, requirements of this section apply to mechanical and electrical work. Refer to Division 15 and Division 16 Sections for additional requirements and limitations on cutting and patching of mechanical and electrical work.

1.3 Quality Assurance

A. Requirements for Structural Work

Do not cut and patch structural work in a manner that would result in a reduction of load-carrying capacity or of load-deflection ratio.

- B. Before cutting and patching the following categories of work, obtain the Architect / Engineer's approval to proceed with cutting and patching as described in the procedural proposal for cutting and patching.

1. Structural steel.
2. Miscellaneous structural metals, including lintels, equipment supports, stair systems and similar categories or work.
3. Structural concrete.
4. Bearing walls.
5. Structural decking.
6. Exterior wall construction.
7. Piping, ductwork, vessels and equipment.
8. Structural systems of special construction, as specified by Division 13 Sections.

- C. **Where new work is indicated to interface with an existing roofing system or other systems potentially under current warranty, the Contractor shall coordinate as required to verify and provide new work in such manner and with such resources as to maintain the Owners current warranty accordingly without compromise.**

- D. Operational and Safety Limitations
Do not cut and patch operational elements or safety related components in a manner that would result in a reduction of their capacity to perform in the manner intended, including energy performance, or that would result in increased maintenance, or decreased operational life or decreased safety.
- E. Before cutting and patching the following elements of work, and similar work elements where directed, obtain the Owner's approval through the Architect / Engineer to proceed with cutting and patching as proposed in the proposal for cutting and patching. Note fourteen (14) day prior notice requirement of Owner.
1. Primary operational systems and equipment.
 2. Noise and vibration control elements and systems.
 3. Control, communication, conveying and electrical wiring systems.
- F. Visual Requirements
Do not cut and patch work exposed on the building's exterior or in its occupied spaces in a manner that would, in the Architect's opinion, result in lessening the building's aesthetic qualities. Do not cut and patch work in a manner that would result in substantial visual evidence of cut and patch work. Remove and replace work judged by the Architect to be cut and patched in a visually unsatisfactory manner.

1.4 Submittals

- A. Procedural Proposal for Cutting and Patching
Where prior approval of cutting and patching is required, submit proposed procedures for this work well in advance of the time work will be performed and request approval to proceed. Include the following information, as applicable, in the submittal:
1. Describe nature of the work and how it is to be performed, indicating why cutting and patching cannot be avoided. Describe anticipated results of the work in terms of changes to existing work, including structural, operational and visual changes as well as other significant elements.
 2. List products to be used and firms that will perform work.
 3. Give dates when work is expected to be performed.
 4. List utilities that will be disturbed or otherwise be affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted. Request day and time desired for disruption of services.
 5. Where cutting and patching structural work involves the addition of reinforcement, submit details and engineering calculations to show how that reinforcement is integrated with original structure to satisfy requirements.
 6. Approval by the Architect / Engineer to proceed with cutting and patching work does not waive the Architect / Engineer's right to later require complete removal and replacement of work found to be cut and patched in an unsatisfactory manner.

2.0 - PRODUCTS

- 2.1 Materials
Except as otherwise indicated, or as directed by the Architect / Engineer, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics.

3.0 - EXECUTION

- 3.1 Inspection
- A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.
 - B. Before the start of cutting work, meet at the work site with all parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict between the various trades. Coordinate layout of the work and resolve potential conflicts before proceeding with the work.
- 3.2 Preparation
- A. Temporary Support
To prevent failure, provide temporary support of work to be cut.
 - B. Protection
 - 1. Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.
 - 2. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
 - C. Take precautions not to cut existing pipe, conduit or duct serving the building but scheduled to be relocated until provisions have been made to bypass them.
- 3.3 Performance
- A. General
Employ skilled workmen to perform cutting and patching work. Except as otherwise indicated or as approved by the Architect / Engineer, proceed with cutting and patching at the earliest feasible time and complete work without delay.
 - B. Cutting
 - 1. Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible, review proposed procedures with the original installer; comply with original installer's recommendations.
 - 2. In general, where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering, and chopping. Cut through concrete and masonry using a cutting machine such as a Carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.
 - 3. By-pass utility services such as pipe and conduit, before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut-off conduit and pipe in walls or partitions to be removed. After by-pass and cutting, cap, valve or plug and seal tight remaining portion

of pipe and conduit to prevent entrance of moisture or other foreign matter.

C. Patching

1. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
2. Where feasible, inspect and test patched areas to demonstrate integrity of work.
3. Restore exposed finishes of patched areas and, where necessary, extend finish restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.
4. Where removal of walls or partitions extends one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall coverings and replace with new materials.
5. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coat.
6. Patch and repair existing plaster / gypsum board ceilings as necessary to provide an even plane surface of uniform appearance.

3.4 Cleaning

Thoroughly clean areas and spaces where work is performed or used as access to work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION

TEMPORARY FACILITIES AND CONTROLS - SECTION 01200

1.0 GENERAL REQUIREMENTS

Temporary facilities and controls required for this project include, but are not necessarily limited to, the following:

- 1.1 Temporary Structures (Optional)
 - A. Provide and maintain field office separate from the project of not more than 300 sq. ft. in area.
 - B. The entire facility, including furniture, will remain the property of the Contractor and shall be removed from the site by completion of the Work.
 - C. Portable office or trailer shall meet all appropriate regulation and local approval.
- 1.2 Temporary Facilities
 - A. Temporary water and electrical service connections will be provided by General Contractor. This Contractor shall make necessary connections and provide conductors and furnish and install area distribution boxes so located that the individual trades may use 30m (100') maximum length extension cords to obtain adequate power and artificial lighting at all points where required for the Work, and for inspection and safety.
 - B. Cost of temporary water and electric connections and conductors shall be borne by Contractor.
 - C. Provide temporary toilets in portable units. Toilets must meet standards of the County Public Health Department. Toilets shall be maintained for the duration of the project.
 - D. Remove temporary utilities on completion of construction.
- 1.3 Temporary Scaffolds, Lifts, Staging and Stairs

Provide scaffolds, lifts, staging, stairs, ramps, ladders, runways, platforms, hoists and guard rails necessary for execution of construction. Comply with recognized safety rules and prevailing laws or ordinances. Remove on completion of construction.
- 1.4 Protective Barricades and Temporary Walkways
 - A. Contractor to provide and maintain all necessary temporary barricades, covers, enclosing fences, walkways, scaffolds, guards, street barricades, etc., in accordance with requirements of SPECIAL PROJECT REQUIREMENTS - SECTION 01030. Height and location to be in compliance with local codes and ordinances. Provide adequate warning signs and warning lights.
 - B. Materials for construction shall be substantial, sound, all of good appearance, straight, in line, unyielding, complete, well installed, braced and adequate for use intended. All to comply with requirements of local codes and ordinances including the International Building Code. Provide and install gates and doors in enclosing barricade as required.
 - C. Remove upon completion of the work.
- 1.5 Construction Fence
 - A. Provide 6'-0" high chain link fence around area of work, around staging area, and/or material storage area(s) as directed and/or as deemed necessary for safety. Fence shall be supported on steel posts and be free standing with panel stands.

Fence to be maintained in good condition throughout contract period. Remove fence when contract is completed and repair any site damage caused by fence and posts.

- B. Fence adjacent to pedestrian and traffic areas as required to safely maintain ongoing school operations subject to the Site Limits and approval of the Owner and the Architect.
- C. Provide lockable gates (truck gates and pedestrian gate as required). Locate at Contractor's option. Keep gates closed except during actual ingress and egress.
- D. Route fence in behind existing fire hydrants to keep available from street side at all times.
- E. Coordinate fence location with Owner prior to installation of fencing and gates. Fencing and gates shall not obstruct the Owner's daily operation of pedestrian, bus, and or car traffic.

1.6 Protection

Conform to requirements of "Safety & Protection of Persons and Property", in GENERAL CONDITIONS.

1.7 Maintaining Traffic

- A. Do not close or obstruct streets, sidewalks, alleys and passageways without permit. Do not place or store material in streets, alleys or passageways.
- B. Conduct operations with minimum interference to roads, streets, driveways, alleys, sidewalks and facilities, except as noted herein.
- C. Provide, erect and maintain lights, barriers and the like required by traffic regulations or local laws.

1.8 Protection of Structure and Property

- A. Execute work to ensure adjacent property against damages which might occur from falling debris or other cause; do not interfere with use of adjacent property. Maintain free, safe passage to and from same.
- B. Take precautions to guard against movement, settlement or collapse of any sidewalks or street passages adjoining property; be liable for any such movement, settlement or collapse; repair promptly such damage when so ordered.

1.9 Project Signs

Allow no signs or advertising of any kind on the job site except as specifically approved in advance by the Architect.

1.10 Maintenance and Removal

Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work. Remove all such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.

END OF SECTION

1.0 - GENERAL REQUIREMENTS

1.1 Related Documents

Drawings and general provisions of Contract, including General and Supplementary (Special) Conditions, and modifications thereto, and other Division 1 Specifications Sections, apply to work of this Section. See Special Project Requirements Section 01030 for pre-installation meetings and pre-finishes meeting.

1.2 Description of Requirements

A. General

Required inspection and testing services are intended to assist in the determination of probable compliance of the work with requirements specified or indicated. These required services do not relieve the Contractor of responsibility for compliance with these requirements or for compliance with requirements of the Contract Documents.

B. Definitions

The requirements of this section relate primarily to customized fabrication and installation procedures, not to the production of standard products. Quality control services include inspections and tests and related actions including reports performed by independent agencies and governing authorities, as well as directly by the Contractor. These services do not include Contract enforcement activities performed directly by the Architect or Engineer.

1. Specific quality control requirements for individual units of work are specified in the sections of these specifications that specify the individual element of the work. These requirements, including inspections and tests, cover both production of standard products and fabrication of customized work. These requirements also cover quality control of the installation procedures.
2. Inspection, tests and related actions specified in this section and elsewhere in the Contract Documents are not intended to limit the Contractor's own quality control procedures which facilitate overall compliance with requirements of the Contract Documents.
3. Requirements for the Contractor to provide quality control services as required by the Architect / Engineer, the Owner, governing authorities or other authorized entities are not limited by the provisions of this section.

1.3 Responsibilities

A. Testing

Owner shall employ and pay for testing services except where tests are specifically indicated as being the contractor's responsibility.

B. Re-Test Responsibilities

Where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance or related work with the requirements of the Contract Documents, then re-tests are the responsibility of the Contractor, regardless of whether the original test was the Contractor's responsibility. Re-testing of work revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original work.

C. Responsibility for Associated Services

The Contractor is required to cooperate with the independent agencies performing required inspections, tests and similar services. Provide such auxiliary services as are reasonably requested. Notify the testing agency sufficiently in advance of operations to permit assignment of personnel. These auxiliary services include, but are not necessarily limited to, the following:

1. Providing access to the work.
2. Taking samples or assistance with taking samples.
3. Delivery of samples to test laboratories.
4. Security and protection of samples and test equipment at the project site.

D. Coordination

The Contractor and each independent agency engaged to perform inspections, tests and similar services for the project shall coordinate the sequence of their activities so as to accommodate required services with a minimum of delay in the progress of the work. In addition, the Contractor and each independent testing agency shall coordinate their work so as to avoid the necessity of removing and replacing work to accommodate inspections and tests. The Contractor is responsible for scheduling times for inspections, tests, taking of samples and similar activities.

1.4 Quality Assurance

Qualification for Service Agencies: Except as otherwise indicated, engage inspection and test service agencies, including independent testing laboratories, which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which are recognized in the industry as specialized in the types of inspections and tests to be performed.

1.5 Submittals

A. General

Refer to Division - 1 Section of "Submittals" for the general requirements on submittals. Submit a certified written report of each inspection, test or similar service, directly to the Architect / Engineer, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

B. Report Data

Written reports of each inspection, test or similar service shall include, but not be limited to, the following:

1. Name of testing agency or test laboratory.
2. Dates and locations of samples and tests or inspections.
3. Names of individuals making the inspection or test.
4. Designation of the work and test method.
5. Complete inspection or test data.
6. Test results.
7. Interpretations of test results.
8. Notation of significant ambient conditions at the time of sample-taking and testing.
9. Comments or professional opinion as to whether inspected or tested work complies with requirements of the Contract Documents.
10. Recommendations on re-testing, if applicable.

2.0 - PRODUCTS

Not applicable.

3.0 - EXECUTION

3.1 Repair and Protection

Upon completion of inspection, testing, sample-taking and similar services performed on the work, repair damaged work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed finishes. Comply with the Contract Document requirements for "Cutting and Patching". Protect work exposed by or for quality control service activities and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION

1.0 - GENERAL

- A. Summary: Shop drawings may be transmitted for approval by electronic format or by hard copies.

1. Digital Copies:

- a. Shop drawing and product data submittals shall be transmitted to Architect's office in electronic (PDF) format via email at **submittals@lathanassociates.com**. Do not email or copy transmittals to Architect or engineer.
- b. The intent of electronic submittals is to expedite the construction process by reducing paperwork and improving information flow.
- c. **The electronic submittal process is not intended for color samples, color charts, or physical material samples.**
- d. After receiving approved digital submittals, **General Contractor is responsible for printing and delivering 2 hard copies of the approved shop drawings to the Architect within 10 days.** Submittals are not considered complete until 2 copies have been received by the Architect. This may have a direct effect on pay requests or final payment.
- e. The Architect will retain the two (2) hard copies of shop drawing submittals: one for project records, and one to be incorporated with Close-Out Documents for the Owner.
- f. Prior to submitting electronic submittals, GC must sign electronic submittal agreement. Project will be either all electronic or all hard copy. We will not accept electronic submittals once we have begun with hard copies. A copy of this agreement is attached to this section.

DIGITAL file name shall include Architect Job No, Specification Section number and description. (e.g., 15-01, 06100 - Rough Carpentry). We will not accept files that are randomly named. (e.g. scan 1234 or from Xerox Copier, etc.) Digital submittals must still be stamped approved or approved as noted.

B. Submittal Procedures:

1. Coordinate submittals preparation with construction, fabrication, other submittals and activities that require sequential operations. Transmit in advance of construction operations to avoid delay.
2. Coordinate submittals for related operations to avoid delay because of the need to review submittals concurrently for coordination. The Architect reserves the right to withhold action on a submittal requiring coordination until related submittals are received.
3. Processing: General Contractor must review and approve shop drawings and submittals prior to submitting to Architect. Allow the Architect no less than three (3) weeks for initial review. Allow more time if the Architect must delay processing to permit coordination with the sequence of construction, related specification divisions and finishes to be selected in comparison, engineers, consultants and owner's representatives. Allow no less than two (2) weeks for reprocessing.

NOTE: No extension of Contract Time and/or additional costs will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

4. Submittal Preparation: The following information must be included with each transmittal.
 - a. Date
 - b. Project name and architect's project number.
 - c. Name of the General Contractor and contact within company.
 - d. Subcontractor name.
 - e. Supplier name.
 - f. Description of item.
 - g. Specification Section and name of that section.
 - h. Name of the Manufacturer - Model / Style of Item.
 - i. Only project specific items should be sent.

5. Transmittal Letter: Transmit samples, etc. with form that contains Architect's Job name and number, Specification Number, Product Name, Manufacturer name and Model number. On the form, record requests for data and deviations from requirements.

6. Contractors Action/Approval

Include General Contractor's certification stamp that information has been checked and complies with requirements before submitting to architect. General Contractor's action stamp must include Approved or Approved as Noted.

Information received without the contractor's stamp will be returned without any action taken by engineer or architect.

C. Submittal Schedule:

1. After developing the Contractor's Construction Schedule, prepare a schedule of submittals. Submit at or before date of the Pre-Construction Conference.
2. Coordinate with a list of Subcontracts, Schedule of Values, List of Products and the Contractor's Construction Schedule.
3. Prepare the schedule in order by Section number. Provide the following information:
 - a. Date for first submittal.
 - b. Related Section number.
 - c. Submittal category (Shop Drawings, Product Data or Samples).
 - d. Name of the Subcontractor.
 - e. Description of the Work covered.
 - f. Date for the Architect's final approval.

D. Shop Drawings:

Submit newly prepared information drawn to scale. Indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information. Include the following information:

1. Dimensions.
2. Identification of products and materials included by sheet and detail number.
3. Compliance with standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Do not use Shop Drawings without an appropriate final stamp indicating action taken.
7. After receiving approved digital Shop Drawings, General Contractor is responsible for printing and delivering 2 hard copies of the approved shop drawings to the Architect within 10 days. Submittals are not considered complete until 2 copies

have been received by the Architect. This may have a direct effect on pay requests or final payment.

ALL MANUFACTURED ITEMS THAT ARE STRUCTURAL IN NATURE SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF ALABAMA AND SUBMITTED FOR APPROVAL.

E. Product Data:

1. Collect Product Data into a single submittal for each element of construction. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, mark copies to indicate applicable information.
2. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
3. Submittals:
 - a. Unless noncompliance with Contract Documents is observed, the submittal serves as the final submittal.
4. Distribution:
 - a. Furnish copies to Installers, Subcontractors, Suppliers and others required for performance of construction activities.
 - b. Do not use unmarked Product Data for construction.

F. Samples:

1. Submit samples as required/requested and for color/texture finish selections.
2. Include the following:
 - a. Specification Section number and reference.
 - b. Generic description of the Sample.
 - c. Sample source.
 - d. Product name or name of the Manufacturer.
 - e. Compliance with recognized standards.
3. Refer to other Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar characteristics.
 - a. Samples erected at site and not incorporated into the Work, or designated as the Owner's property, are the Contractor's property and shall be removed from the site.

G. Architect's Action:

1. Except for submittals for the record or information, where action and return are required, the Architect will review each submittal, mark to indicate action taken, and return. Compliance with contract documents and specified characteristics is the Contractor's responsibility.
2. Action Stamp

- a. The Architect will stamp each submittal with an action stamp. The Architect will mark the stamp appropriately to indicate the action taken.
- b. Architect's Action Stamp will read as follows:

Reviewed by Lathan Associates Architects, P.C.
Date
Approved for Design as Noted Subject to Contractor Verifying
Quantities and Dimensions

2.0 - PRODUCTS Not applicable.

3.0 - EXECUTION Not applicable.

END OF SECTION

ELECTRONIC SUBMITTAL REQUIREMENTS FOR
LATHAN ASSOCIATES ARCHITECTS, P.C.

1. Processing: General Contractor must review and approve shop drawings and submittals prior to submitting to Architect. Allow the Architect two (2) weeks for initial review. Allow more time if the Architect must delay processing to permit coordination with other engineers and consultants.

NOTE: No extension of Contract Time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

2. Contractors Action / Approval
Include General Contractor's electronic certification stamp that information has been checked by the General Contractor and complies with requirements of the Contract Documents before submitting to architect. General Contractor's action stamp must include **Approved** or **Approved as Noted**.

Information received without the contractor's stamp will not be reviewed and no action will be taken by engineer or architect.

DIGITAL file name shall include Architect Job No, Specification Section number and description. (e.g., 15-01, 06100 - Rough Carpentry). We will not accept files that are randomly named. (e.g. scan 1234 or from Xerox Copier, etc.)

3. Submittal Preparation:
Include the following information on transmittal / email.
 - a. Date
 - b. Project Name and Architect's Project Number.
 - c. Name of the General Contractor and Contact within company.
 - e. Subcontractor/Supplier.

Clearly state **Number** and title of appropriate Specification Section and **Description** of Item and if applicable

- a. Name of the Manufacturer.
- b. Model / Style of Item.

4. **Electronic submittals will only be accepted when emailed to: submittals@lathanassociates.com**

DO NOT COPY ARCHITECTS OR ENGINEERS WITH THE SUBMITTAL

5. After receiving approved submittals, **General Contractor is responsible for printing and delivering 2 hard copies of the approved shop drawings to the Architect within 10 days.** Submittals are not considered complete until these copies are received by the Architect and may have a direct effect on Pay Requests and / or final payment.

I have read the above requirements and agree to the terms set forth in this document.

General Contractor

by: _____
Authorized Signature

Architect Job Name and Number

PRODUCT SUBSTITUTION PROCEDURES - SECTION 01360

1.0 GENERAL

- 1.1 Section Includes:
- A. General requirements for product options and substitution procedures.
 - B. Material and product options.
 - C. Substitutions.
 - D. Coordination
 - E. Substitution Request Form.
- 1.2 Related Sections:
- A. Section 01025 - Summary of Work
 - B. Section 01040 - Project Coordination
 - C. Section 01350 - Shop Drawing Submittals
 - D. Section 01400 - Materials and Equipment
 - E. Section 01900 - Warranties
 - F. Section 01910 - Close Out Procedures
 - G. In addition to "General Conditions of the Contract", comply with product option and substitution requirements specified in this Section.
- 1.3 Material and Product Options:
- A. Materials and products specified by reference standards, by performance, or by description only:
 - 1. Any product meeting specified requirements.
 - B. Materials and products specified by naming products of one or more manufacturers with a provision for an equivalent product:
 - 1. Submit one of the products listed which complies with specified requirements or submit a Request for Substitution for a product of manufacturer not specifically named which complies with specified requirements.
 - C. Materials and products specified by naming products of several manufacturers meeting specifications:
 - 1. Submit one of the products listed which complies with specified requirements or submit a Request for Substitution for a product of manufacturer not specifically named which complies with specified requirements.
- 1.4 Substitutions:
- A. After date of Notice to Proceed, Architect / Engineer will consider requests from Contractor for substitutions. Subsequently, substitutions will be considered only when a material or product becomes unavailable due to no fault of Contractor or as follows:
 - 1. Lockouts
 - 2. Strikes
 - 3. Bankruptcy
 - 4. Discontinuation of products
 - 5. Proven shortage
 - 6. Other similar occurrences
 - B. Each proposed substitution of materials or products for that one specified is a representation by Contractor that he has personally investigated the substitution and determined that the proposed substitution is equivalent or superior to that specified in quality, durability and serviceability, design, appearance, function, finish, performance, and of size and weight which will permit installation in spaces provided and allow adequate service access. Additionally, Contractor agrees that it

will provide and/or do the following:

1. Same warranty on substitution as for specified product or materials;
 2. Coordinate installation and make other changes that may be required for Work to be complete in all respects;
 3. Waive claims for additional costs which may subsequently become apparent;
 4. Verify that proposed materials and products comply with applicable building codes and governing regulations and, where applicable, has approval of governing authorities having jurisdiction.
- C. The Architect/Engineer will review requests from Contractor for substitutions with the Owner. Contractor shall not purchase or install substitute materials and products without written approval. The Architect/Engineer will give written notice to Contractor and the Owner of acceptance or rejection within a reasonable time.
- D. Document each request for substitution with complete data substantiating compliance of proposed substitution with Contract Documents. Contractor shall use the *Substitution Request Form* along with appropriate attachments and submit them to the office of the Architect. A copy of the *Substitution Request Form* is included at the end of this Section.
1. Documents, as appropriate, shall include the following:
 - a. Reason for the proposed substitution;
 - b. Change in Contract Sum and Contract Time, if any;
 - c. Effect on work progress schedule and completion date;
 - d. Changes in details and construction of related work required due to substitution
 - e. Drawings and samples
 - f. Product identification and description
 - g. Performance and test data
 - h. Itemized comparison of the qualities of the proposed substitution to the product specified including durability, serviceability, design, appearance, function, finish, performance, size and space limitations, vibration, noise, and weight
 - i. Availability of maintenance service, source and interchangeability of parts or components
 - j. Additional information as requested.
- E. In the event of credit change in the cost, the Owner shall receive all benefit of the reduction in cost of the proposed substitution. Credit shall be established prior to final approval of the proposed substitution and will be adjusted by Change Order.
- F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals without separate written request, without having been reviewed and approved by Contractor, or when acceptance will require substantial revision of Contract Documents without addition compensation to the Architect / Engineer.
- G. In the event that the Contractor or Subcontractor has neglected to place an order for specified materials and products to meet the work progress schedule, specified requirements, color schemes or other similar provisions, such failure or neglect shall not be considered as legitimate grounds for an extension of completion time nor shall arbitrary substitutions be considered to meet completion date.
- H. Only one request for substitutions will be considered for each product. When substitutions are not accepted, the Contractor shall provide specified product.
- I. Should substitution be accepted, and substitution subsequently is defective or

otherwise unsatisfactory, Contractor shall replace defective material or product with specified material or product at no cost to Owner.

1.5 Coordination:

- A. When a specified, optional, specified by reference standard, or proposed substitution item of equipment or material is submitted which requires minor changes or additions to the designed structure, finishes or to mechanical and/or electrical services due to its requirements being different from those shown on the Contract Documents, itemize the changes required and attach to submittal. Do not proceed with changes without written approval from the Architect / Engineer.
- B. Contractor shall make adjustments and changes required to coordinate Work for installation of optional materials and products, approved substitutions and materials and products specified by reference standards without additional costs to Owner or Architect/ Engineer.

2.0 PRODUCTS
Not applicable.

3.0 EXECUTION
Not applicable.

END OF SECTION

PRIOR APPROVAL / SUBSTITUTION REQUEST FORM

Date: _____

Company Submitting Request: _____
(Name and Address)

Contact Name: _____ Phone: _____ Fax: _____

E-Mail: _____

PROJECT NAME: _____

SPECIFIED ITEM: _____
(Section) (Page) (Description)

The undersigned requests consideration of the following product substitution:

PROPOSED SUBSTITUTION: _____
Provide Product Name / Model /Manufacturer

1. Attached data includes: _____ Product Description _____ Performance and Test Data
_____ Drawings _____ Specifications _____ Photographs
2. _____ Yes / No changes will be required to the Contract Documents for the proper installation of proposed product substitution. If yes, then attach data that includes description of changes.

The undersigned states that the following paragraphs, unless modified by attachments, are correct:

1. The proposed substitution does not affect dimensions shown on the drawings.
2. No changes to the building design, engineering design, or detailing are required by the proposed substitution.
3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or **specified warranty requirements.**
4. No maintenance is required by the proposed substitution other than that required for originally specified product.
5. Other Information

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

Signature: _____ Printed Name: _____

Fax Number: _____

For Architect's Use:

____ Accepted _____ Accepted As Noted _____ Incomplete Information
____ Not Accepted _____ Received Too Late _____ No Substitutions Accepted For This Product

Reviewed By / Date: _____

Processed by Addendum No. _____

Comments: _____

1.0 - GENERAL REQUIREMENTS

1.1 Products and Materials

A. Products, materials and manufactured items or articles of like nature shall, as nearly as possible, be of one brand or manufacturer. No changes or substitutions shall be made without written consent of the Architect. In selection of colors and patterns, the Architect reserves the right to select from the manufacturer's running pattern line (within same price range) of the materials called for in the Specifications without the added cost to the Owner.

B. All products and materials used for this project shall be asbestos free.

1.2 Trade Names

The use of manufacturer's names and serial numbers are given to establish a standard of manufacture and not intended to be restrictive or preferential. Similar, equal, and approved materials of other manufacturers will be acceptable, subject to the approval of the Architect, pursuant to requirements set forth in INSTRUCTIONS TO BIDDERS and as required by the Specifications.

1.3 Measurements

Before ordering any material or doing any work, the Contractor shall verify all measurements of the building and shall be responsible for correctness of same. No extra charge or compensation will be allowed because of differences between actual measurements and the dimensions indicated on the Drawings. Any differences which may be found, shall be submitted to the Architect for consideration before proceeding with the work.

1.4 Salvageable Material

Any salvageable material and/or equipment shall remain the property of the Owner and, upon removal from its existing location, shall be stored where directed by the Architect.

In the event that the Owner does not wish to keep the salvaged material, it shall be the responsibility of the Contractor to remove same promptly from the site.

Salvageable material shall include those items indicated on the drawings as items to be reused or relocated. Remove all finish hardware from doors noted to be removed under demolition. Tag and label finish hardware as to door function (and label), and turn over to Owner.

Coordinate with Architect on questionable salvage items.

1.5 Unused Materials

Unused excess materials purchased for this project and charged against the contract shall be the property of the General Contractor and removed upon final completion.

END OF SECTION

1.0 - GENERAL

1.1 Related Documents

Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division - 1 Specifications Sections, apply to work of this Section. See drawings for additional Demolition and Protection Requirements not stated herein.

1.2 Description of Work

- A. Extent of selective demolition work as indicated on drawings and/or as required for completion of finish work.
- B. Types of Selective Demolition Work: Demolition requires the selective removal and subsequent offsite disposal of the following:
 - 1. It is the intent for all required existing building components, systems, related structure, materials, etc., be removed and/or relocated to allow for completion of new construction, whether indicated or not.
 - 2. All abandoned components, systems and related wiring, piping, ductwork, controls, fixtures, etc., shall be removed from job site, whether specifically indicated or not. Refer to Civil, Structural, Plumbing, Mechanical and Electrical drawings and specifications for respective demolition requirements and coordinate with Architectural.
 - 3. See drawings for other demolition items.

1.3 Submittals

- A. Submit schedule indicating proposed methods and sequence of operations for selective demolition work to Owner's representative for review prior to commencement of work. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control protection.
- B. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
- C. Existing building function and operation shall be maintained during construction unless scheduled and approved by the Owner. Work schedule shall vary as required to complete work as required.
- D. Existing facilities shall be maintained in operation during construction. Protect and/or relocate all utilities, service, security systems, satellite communications, data systems, etc., as required to ensure continuous operation and function. Temporary relocation and utility outages shall be scheduled and approved by the Owner.

1.4 Job Conditions

- A. Owner will be continuously occupying areas of the building immediately adjacent to areas of selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of 72 hours advance notice to Owner of demolition activities which will severely impact Owner's normal operations.
- B. Owner and Architect assume no responsibility for actual condition of items or structures to be demolished.

- C. All salvageable materials, as selected by Owner, shall be removed, stored, and / or delivered to Owner as directed. Salvageable materials shall be protected during removal and delivery. All items of salvage not wanted by the Owner shall be the property of the General Contractor and removed from job site.

- D. Provide temporary barricades and other forms of protection as required to protect Owner's personnel and general public from injury due to selective demolition work.
 - 1. All paths to and from exits and entrances shall be maintained during construction. Provide temporary barricades, fences, warning signs, etc., as required, interior and exterior, to protect building occupants and pedestrians during construction and demolition.
 - 2. Erect temporary covered passageways as required by authorities having jurisdiction.
 - 3. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished, and adjacent facilities or work to remain.
 - 4. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
 - 5. Protect floors with suitable coverings when necessary.
 - 6. Construct temporary insulated solid dust proof partitions where required to separate areas where noisy or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks if required.
 - 7. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
 - 8. Remove protections at completion of work.

- E. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to Owner.

- F. Traffic:
 - 1. Conduct selective demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.
 - 2. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

- G. Explosives: Use of explosives will not be permitted.

- H. Utility Services:
 - 1. Maintain existing utilities indicated to remain, keep in service and protect against damage during demolition operations.
 - 2. Do not interrupt existing utilities or fire alarm/fire protection systems 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. Repair damages to such immediately.

- I. Environmental Controls:
 1. Use water sprinkling, temporary enclosures and other suitable methods to limit dust and dirt, interior and exterior, from rising and scattering in air to lowest practical level. **COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.**
 2. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding and pollution.

2.0 - PRODUCTS

Products are not applicable to this section.

3.0 - EXECUTION

3.1 Inspection

Prior to commencement of selective demolition work, inspect areas in which work will be performed. Photograph existing conditions of structure surfaces, equipment or of surrounding properties which could be misconstrued as damage resulting from selective demolition work; file with Owner's representative prior to starting work.

3.2 Preparation

- A. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.
- B. Cease operations and notify the Owner's representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.
- C. Cover, protect, and relocate furniture, equipment and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.
- D. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to occupied portions of the building.
- E. Where selective demolition occurs immediately adjacent to occupied portions of the building, construct dust-proof partitions of minimum 4" studs, 5/8" drywall (joints taped) on occupied side, 1/2" fire-retardant plywood on demolition side, and fill partition cavity with sound-deadening insulation.
- F. Provide weatherproof closures for exterior openings resulting from demolition work.
- G. Locate, identify, stub off and disconnect utility services that are not indicated to remain.
- H. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shut-down of service is necessary during change over.

3.3 Demolition

- A. Perform selective demolition work in a systematic manner. Use such methods as required to complete work indicated on drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in all sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools; do not use power-driven impact tools.
 2. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, roofs or framing.
 3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.
 4. For interior slab on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.
 5. Existing ceramic tile floor finishes shall be removed down to the top of the existing dropped slab.
- B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to Architect in written, accurate detail. Pending receipt of directive from Architect, rearrange selective demolition schedule as necessary to continue overall job progress without delay.
- 3.4 Disposal of Demolished Materials
- A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off site. Pay all related fees and costs.
 - B. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws and ordinances concerning removal, handling and protection against exposure or environmental pollution.
 - C. Burning of removed materials is not permitted on project site.
- 3.5 Clean-Up and Repair
- A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.
 - B. Repair demolition performed in excess of that required. Return structures and surfaces to remain to condition existing prior to commencement of selective demolition work. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

1.0 - GENERAL

1.1 Scope of Work

- A. Demolition shall, unless otherwise noted, included removal of existing objects or improvements, whether indicated or not, that would in any way prevent or interfere with progress or completion of proposed.
- B. Permits, fees and licenses shall be secured and paid for by Contractor, including disposal charges as required to ensure progress of work will proceed.
- C. Work shall comply with the latest edition of city ordinance or regulations and/or requirements of any governing authorities or utility owners in demolition of existing pavement, curbs and gutters, drainage structures and utilities as may be required.
- D. Demolition requires removal and disposal off-site in a legal manner of the following:
 - 1. All demolished carpet, carpet glue or anything related to carpet system.
 - 2. All demolished wallcovering, glue or anything related to wallcovering system.
 - 3. Wood base and shoe mould that is required to be removed for proper vinyl wallcovering and carpet installation. Any wood base and shoe mould that is damaged during demolition shall be removed and disposed.

1.2 Job Conditions

- A. Occupancy: Areas to be demolished will remain in use for duration of work.
- B. Condition of Structures:
 - 1. Owner assumes no responsibility for actual condition of materials to be demolished.
 - 2. Conditions existing at time of the inspection for bidding purposes will be maintained by Owner insofar as practicable. Variations within structures may occur by Owner's removal and salvage prior to start of demolition work.
- C. Partial Removal:
 - 1. Items of salvageable value to Contractor may be removed from structure as work progresses. Salvaged items must be transported from site as they are removed.
 - 2. Storage or sale of removed items on site will not be permitted.
- D. Protections:
Ensure safe passage of persons around areas of demolition. Conduct operations to prevent damage to adjacent buildings, structures, other facilities and injury to persons.
- E. Damages:
Promptly repair damages caused to adjacent facilities, etc., by demolition operations at no cost to Owner.

2.0 PRODUCTS (Not Applicable)

3.0 - EXECUTION

3.1 Demolition

A. Pollution Controls

1. Use suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.
2. Clean adjacent areas and improvements of dust, dirt and debris caused by demolition operations. Return adjacent areas to condition existing prior to start of work.
3. Protect all items remaining within building as required and clean all areas prior to final inspection.

B. Scaffolding, Barricades, Shoring, etc.

Scaffolding, barricades, shoring, etc. as required shall be provided by the Contractor in compliance with all recognized safety rules and prevailing laws, codes or ordinances applicable thereto. All such scaffolding, barricades, shoring, etc., shall remain until construction has been completed. The Contractor, upon completion, shall remove any and all scaffolding, barricades, shoring, etc., and leave site clean from debris and make ready for other construction or use.

C. Protection

1. Existing walks, curbs, drives, other improvements on or near the site that are to remain, shall be properly protected from damage of any kind by the Contractor during the entire construction operation. Improvements that are damaged shall be replaced to the satisfaction of the Architect at the Contractor's expense.
2. Provide all required protection as may be required by the governing governmental agencies for protection of the public on or near the site.

3.2 Disposal of Demolished Materials

- A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off site. Pay all related fees and costs.
- B. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws and ordinances concerning removal, handling and protection against exposure or environmental pollution.

3.3 Payment

Include all work in this section in lump sum.

END OF SECTION

1.0 - GENERAL

1.1 Scope

The work required under this Section consists of providing all labor, materials and equipment necessary to do all clean-up work; including, but not limited to, periodic cleaning, removal of temporary protection, removal of debris and final cleaning.

1.2 Related Sections

Administrative provisions and technical requirements specified under this Section are in addition to provisions for cleaning specified under various Sections of the Specifications and apply to each Section of Specifications.

1.3 Special Instructions

- A. Contractor shall endeavor to keep interior free of dust and mud, take precautionary measures, and provide protective materials, such as insulated dust and noise partitions and gravel at all entries during dried-in stages of construction.
- B. Upon completion of work in each area or part of the building and immediately prior to final inspection and acceptance of that respective area, that area shall be thoroughly cleaned and made ready for immediate occupancy by the Owner.
- C. In case of failure to comply with the requirements of this Section for any part of the work within the time specified by the Architect, the Architect may cause the work to be done and deduct the price thereof from the Contract Price on the next succeeding monthly Application for Payment.

2.0 - PRODUCTS

2.1 Equipment

- A. For periodic and final cleaning operations, use approved apparatus designed for the specific type of cleaning required and compatible with the particular materials to be cleaned.
- B. Operate equipment in compliance with equipment manufacturer's instructions.

2.2 Materials

All soap, detergents, brushes, scrapers and other materials and accessories utilized in periodic and final cleaning shall be of a type recommended by the material manufacturer as being compatible with and non-injurious to the particular surface, material, equipment or finish to be cleaned.

3.0 - EXECUTION

3.1 Periodic Cleaning

- A. The Contractor shall periodically, or as directed during the progress of the work, clean-up and remove from the premises all refuse, rubbish, scrap materials and debris caused by his employees, his Subcontractors or resulting from his work.
- B. Such clean-up shall be sufficient to assure that at all times the premises are sanitary, safe, reasonably clean, orderly and workmanlike.
- C. Remove oily rags and combustible waste, debris, rubbish and excess materials from the premises at the completion of each day's work, or more often, if required to keep the building and premises free from any accumulation of flammable and dangerous materials.

- D. At no time shall any rubbish, debris or any other material be thrown from window or door openings nor into foundation trenches.
- E. Clean areas prior to any painting work. Take care to settle and minimize dust before painting begins. Use commercial type vacuum cleaners.
- F. Close rooms and areas where painting and decorating work is completed to all but authorized personnel.
- G. All debris and waste materials shall become the property of the Contractor and shall be removed by him from the project site.
- H. Remove Debris from roof tops daily.
- I. Trim excess exposed dur-o-wall flush with face of CMU.
- J. Keep adjacent paved driveways and roads clear of mud and debris intruded as a result of this work.

3.2 Removal of Temporary Facilities

- A. Upon completion of work in each area or part of the building, remove temporary lighting, power, protection and enclosures and repair defects in materials and workmanship noted after removal of such.
- B. Before final completion and final acceptance, the Contractor shall remove from the Owner's property, and from all public and private property, all tools, scaffolding, falsework, temporary structures and/or utilities including the foundations thereof (except as the Owner permits in writing to remain).

3.3 Final Cleaning

- A. Before final completion and acceptance, the Contractor shall remove from the Owner's property, and from all public and private property, all refuse, rubbish, scrap and surplus material and debris caused by his employees, his Subcontractors, or resulting from his work, leaving the site clean and true to line and grade, and the work in a safe and clean condition, ready for use and operation.
- B. Clean all painted, enameled, stained or baked enamel work to remove all marks, stains, smudges, fingerprints and splatters from such surfaces.
- C. Clean and remove all stickers, labels, marks, stains, smudges and paint from all glass. Wash and polish all glass, including, but not limited to, that in mirrors, view windows and doors, on the interior and exterior. Scratched or marred glass shall be replaced.
- D. Clean all hardware and metals to remove all stains, marks, smudges, fingerprints, dirt, dust, paint or other disfigurement and polish. Scratched, marred or otherwise disfigured hardware or metals shall be replaced.
- E. Clean all tile and floor finishes of all kinds to remove all splatters, stains, paint, dirt and dust. Wash and apply a final coat of wax and polish all finished floors except concrete and carpet as recommended by the manufacturer or as required by the Architect.
- F. Clean all manufactured articles, fixtures, materials, appliances and equipment to

remove all stickers, labels, rust stains and temporary covers.

- G. Clean and condition all manufactured articles, fixtures, materials, appliances and equipment and all electrical, heating and air conditioning equipment as recommended or directed by the manufacturer.
- H. Blow out or flush out all foreign matter from all dust pockets, piping, tanks, pumps, fans, motors, devices, switches, panels, fixtures, boilers and similar features of all appliances and equipment and all electrical, heating and air conditioning equipment as recommended or directed by the manufacturer.
- I. Remove all paint from all identification plates on all appliances and equipment and all electrical, heating and air conditioning equipment and polish plates.
- J. Exterior walks, steps, ramps and platforms shall be washed down, and broom cleaned to remove all dirt, dust, stains or other disfigurements.
- K. Interior surfaces of all heating, ventilation and air conditioning ducts shall be damp or wet mopped or vacuum cleaned to remove all dirt and dust.
- L. In general, leave all work clean and free of dirt, dust, smudges, stains, paint spots, mastic, caulk, sealant and other excess materials.
- M. After final cleaning of building and prior to final balancing of heating and air conditioning system, all air filters shall be replaced with clean, new filters.
- N. Upon completion of final cleaning, remove all cleaning equipment, materials and debris from the building and the premises.

END OF SECTION

CHANGE ORDER PROCEDURES - SECTION 01800

1.0 - GENERAL

- A. This Section shall adhere to *General Conditions of the Contract, Article 19, and DCM Form C-12*, as issued by The State of Alabama Department of Construction Management, a copy of which is included within this Specification Manual.
- B. Should changes in the work constitute an increase or decrease in the Contract amount, the General Contractor shall submit a Change Order Request (COR) which shall include a number for identification, description and cost break down.
- C. Contractor shall attach all supporting documentation, including, but not limited to the following:
1. Breakdown of costs which shall include material, labor, delivery (freight), installation, taxes, and mark-up for overhead and profit.
 2. If a Subcontractor is used for the requested change, then supporting documentation listed for Item 1 shall also be provided by the Subcontractor and included with the COR.
- D. In accordance with *General Conditions of the Contract, Article 19*, the General Contractor shall note the following:
1. Mark-Up Procedures for Change Order with net addition to Contract:
 - a. The General Contractor's mark-up for overhead and profit shall not exceed fifteen (15) percent.
 - b. Where Subcontract work is involved, the total mark-up for the Contractor and Subcontractor shall not exceed twenty-five (25) percent.
 - c. The Architect must be able to determine the total amount of mark-up, therefore, supporting documentation **must** state the mark-up of both the Subcontractor and the General Contractor.
 2. Mark-Up Procedures for Change Order with net Credit to Contract:
"General Conditions of the Contract":
Changes which involve a net credit to the Owner shall include credits for overhead and profit on the deducted work of no less than 5%.
 3. Overhead "Indirect Costs": For the purposes of determining an adjustment of the Contract Sum, "overhead" shall cover the Contractor's indirect costs of the change including but not limited to the following:
 - a. Bonds
 - b. Insurance
 - c. Superintendent
 - d. Job Office Personnel
 - e. Watchman
 - f. Job Office, office supplies and expenses
 - g. Temporary facilities and utilities
 - h. Home office expenses

2.0 – PRODUCTS (Not Applicable)

3.0 - EXECUTION

- A. General Contractor shall submit COR to Architect for review and approval. If approved, the Architect will submit to Owner for final approval. Upon approval by the Owner, the Architect will prepare required number of copies of Change Order DCM Form C-12 (local) or DCM

Form C-12 (PSCA) and forward to General Contractor.

- B. Three (3) copies of Change Order are required for locally funded projects and three (3) copies are required for PSCA funded projects. All copies must be signed by the General Contractor's Bonding Company with Power of Attorney attached.
- C. Sequence of execution shall be as follows:
 - 1. General Contractor signs all copies of Change Order. Note: Change Order must be signed by an Officer within the company.
 - 2. General Contractor forwards Change Order to their Bonding Company.
 - 3. Bonding Company signs each copy and returns same to G. C.
 - 4. G. C. forwards Change Order to Architect.
 - 5. Architect forwards Change Order to local Board of Education.
 - 6. Superintendent of local Board of Education executes and returns Change Order to Architect.
 - 7. Architect forwards Change Order to either the State Department of Education (local funded projects) or to The State of Alabama Department of Construction Management (PSCA funded projects).
 - 8. All parties will receive a copy of fully executed Change Order from the appropriate state agency for their permanent records.
- D. General Contractor may include cost of Change Order on Pay Application only after receipt of fully executed Change Order. This cost shall be included on Pay Application as a separate line-item listing change order number and amount. Billing shall be for the percentage of work completed for the change order within the month covered by that Pay Application.
- E. All change(s) in the work shall require approval by the Owner, through the Architect, in advance of the commencement of any work associated with the change(s).
- F. Charges against Allowances shall **not** include General Contractor's mark-up.
- Refer to Specification Section 01020 - Allowances -
- G. Refer to "General Conditions of the Contract" - "DCM Form C-8 for additional information.

END OF SECTION

1.0 - GENERAL

- A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.
 - 1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.
- C. Warranties
 - 1. Subcontractors: General Contractor shall provide a one-year warranty from each Subcontractor they have under contract for the project.
 - 2. Vendors/Suppliers: General Contractor shall obtain a one-year warranty from each Vendor/Supplier for manufactured product used for the project. Example: *XYS Building Products, Inc.* shall provide a one-year warranty for each product they provided for the project, such as, *toilet partitions and hollow metal doors and frames*. This warranty may be on a form or letterhead provided by the Vendor/Supplier and must list all products provided for the project.
 - 3. Manufacturers: The Manufacturer's warranty for each product shall be placed directly behind the applicable Subcontractor or Vendor/Supplier's warranty within the warranty binder.
 - 4. Roof Warranties: The executed roofing warranties shall be presented at Final Inspection. Manufacturer's warranties cannot be prorated.
- D. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's and limitations on product warranties do not relieve suppliers, manufacturer's and subcontractors required to countersign special warranties with the Contractor.
- E. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- F. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- G. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefitted from use of the Work through a portion of its anticipated useful service life.
- H. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise

available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 2. Where the Contract Documents require a special warranty, or similar commitment, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.
- I. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties upon request of the Architect.
1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within 15 days of completion of that designated portion of the Work.
- J. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier, or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect, for approval prior to final execution.
1. Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.
- K. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (115-by-280-mm) paper. Three (3) sets of warranties and close out documents are required: one set will be retained by the Architect and two sets will be delivered to the Owner.
1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the 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 the Installer.
 2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.
 3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

2.0 - PRODUCTS (Not Applicable)

3.0 - EXECUTION

The One-Year Warranty issued by the General Contractor shall list all disciplines they are covering when there is not a warranty from a Subcontractor. For instance, some General Contractors have Masons employed within their company and, therefore, do not contract Masonry work through a Masonry Subcontractor. In that case, the General Contractor's warranty would list Masonry as part of their itemized list of warranted work. Other typical examples are Painting, Rough Carpentry,

Miscellaneous Metals, etc.

Warranties shall bear the same date as the Date of Substantial Completion. All warranties shall be effective for a period of One Year from Date of Substantial Completion with exceptions for special warranties requiring extended periods of warranty coverage.

This list is designed as an aid to comply with close-out procedures; however, it should not be considered a complete and comprehensive list. General Contractor should review warranty requirements specified in Project Manual.

Warranties shall include, but not be limited, to the following:

Warranties from ALL Subcontractors for this project.

DIVISION 4 - MASONRY

Unit Masonry

DIVISION 5 -METALS

Miscellaneous Metals

DIVISION 6 - CARPENTRY

Finish Carpentry

DIVISION 7 - MOISTURE PROTECTION

Building Insulation

Caulking and Sealants

DIVISION 8 - WINDOWS AND DOORS

Hollow Metal Doors and Frames

Wood Doors

Finish Hardware

Glass and Glazing

DIVISION 9 - FINISHES

Gypsum Drywall & Light Gauge Metal Stud System

Acoustical Panel Ceilings

Resilient Tile Flooring

Paint

DIVISION 10 - SPECIALTIES

Markerboards and Tackboards

Identifying Devices

Lockers

DIVISION 12 - FURNITURE AND FIXTURES

Miscellaneous Furnishings and Fixtures

Fire Extinguishers

Laminate Clad Casework

DIVISION 15 – PLUMBING and FIRE PROTECTION

Plumbing Systems – Fixtures - Labor

DIVISION 15 - MECHANICAL – HVAC

Mechanical Systems – Equipment – Labor

DIVISION 16 - ELECTRICAL

Electrical Systems – Fixtures -Equipment – Material and Labor

See attached WARRANTY FORMS immediately following for General Contractors and Subcontractors.

GENERAL CONTRACTOR WARRANTY FORM

G. C.' S PROJECT NO. _____ **ARCHITECT'S PROJECT NO:** _____

PROJECT NAME: _____

GENERAL CONTRACTOR: _____

(Name and Address)

PROJECT OWNER: _____

ARCHITECT: Lathan Associates Architects, P.C., 300 Chase Park South, Suite 200, Hoover, AL 35244

PROJECT SUBSTANTIAL COMPLETION DATE:

This is to certify that we, _____, the General Contractor for the above referenced project, per contract documents, warrant all labor, material and equipment provided and performed for a period of One (1) Year from the Date of Substantial Completion indicated above.

If applicable, we warrant additional work, materials and equipment for One (1) Year on the following:

By: _____

(Name and Title)

Dated this _____ **day of** _____

State of Alabama
County of _____

Sworn to and subscribed before me this

_____ day of _____

Notary Public

My Commission Expires: _____

SUBCONTRACTOR WARRANTY FORM

G. C.' S PROJECT NO. _____ **ARCHITECT'S PROJECT NO:** _____

PROJECT NAME: _____

GENERAL CONTRACTOR: _____

SUBCONTRACTOR: _____

(Name and Address) _____

PROJECT OWNER: _____

ARCHITECT: Lathan Associates Architects, P.C., 300 Chase Park South, Suite 200, Hoover, AL 35244

PROJECT SUBSTANTIAL COMPLETION DATE:

We, _____, Subcontractor for _____,
(name) (work)

as described in Specification Section(s) _____, do hereby warrant that all labor and materials provided and performed in conjunction with above referenced project are in accordance with the Contract Documents and will be free from defects due to defective materials and/or workmanship for a period of One (1) year from the Date of Substantial Completion indicated above or as required by the Specification Section relevant to your trade.

Should any defect develop during the warranty period due to improper materials and/or workmanship, the same, including adjacent work displaced, shall be made good by the undersigned at no expense to the Owner.

The Owner will give Subcontractor written notice of defective work. Should Subcontractor fail to correct defective work within Thirty (30) days after receiving notice, the Owner may, at his option, correct defects and charge Subcontractor cost for such correction. Subcontractor agrees to pay such charges upon demand.

Warranty applies to the following Work: _____

By: _____
(Name and Title)

Dated this _____ day of _____

1.0 - GENERAL

- A. Closeout requirements for specific construction activities are included in the appropriate Sections in Division 2 through 16.
- B. Final Inspection Procedures: See Section 01030 - Special Project Requirements for Inspection Requirements
1. Deliver tools, spare parts, extra stock, and similar items.
 2. Changeover locks and transmit keys to the Owner.
 3. Complete startup testing of systems and instruction of operation and maintenance personnel. **Obtain signature(s) of all Owner's personnel participating in operation and maintenance instructions.**
 4. Remove temporary facilities, mockups, construction tools, and similar elements.
 5. Complete final cleanup requirements, including touchup painting.
 6. Touch up and repair and restore marred, exposed finishes.
- C. After Substantial Completion has been achieved, the General Contractor shall:
1. Submit final payment request with releases and supporting documentation. Include insurance certificates where required.
 - a. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the Work claimed as substantially complete. Include supporting documentation for completion and an accounting of changes to the Contract Sum.
 - b. Advise the Owner of pending insurance changeover requirements.
 - c. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - d. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
 - e. Deliver tools, spare parts, extra stock, and similar items.
 - f. Changeover locks and transmit keys to the Owner.
 - g. Complete startup testing of systems and instruction of operation and maintenance personnel. Obtain signature(s) of all Owner's personnel participating in operation and maintenance instructions.
 2. Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance.
 3. Submit final meter readings for utilities, a record of stored fuel, and similar data as of the date of Substantial Completion.
 4. Submit Consent of Surety to final payment.
 5. Submit Release of Liens.
 6. Submit a final settlement statement.
 7. Submit evidence of continuing insurance coverage complying with insurance requirements.
- D. Record Drawings: Maintain a set of prints of Contract Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark the drawing most capable of showing conditions fully and accurately. Give attention to concealed elements.
1. Mark sets with red pencil.
 2. Mark completed record drawings: "As-Built" Set.
 3. Upon completion of the Work, submit record drawings to the Architect for the Owner's records in the form of two (2) CD's.

- E. Record Specifications: Maintain one copy of the Project Manual, including addenda. Mark to show variations in Work performed in comparison with the text of the Specifications and modifications. Give attention to substitutions and selection of options and information on concealed construction. Note related record drawing information and Product Data. Mark cover of set: "As-Built".

Upon completion of the Work, submit record Specifications to the Architect for the Owner's records in the form of two (2) CD's.

Note: If space allows, both "As-Built" plans and specs may be scanned and saved onto a single CD and 2 copies of record CD's shall be submitted.

- F. Maintenance Manuals: Organize operation and maintenance data into sets of manageable size. Bind in individual, heavy-duty, 3-ring binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following information:

1. Emergency instructions.
2. Spare parts list.
3. Copies of warranties.
4. Wiring diagrams.

- G. Close-Out Documents

Close-Out Documents consists of the following:

1. General Contractor's Warranty
2. Subcontractors' Warranties
3. Manufacturers' Warranties
4. Affidavit of Advertisement of Completion
5. Consent of Surety to Final Payment
6. Contractor's Affidavit of Release of Liens
7. Operating and Maintenance Manuals / Instructions to Owner
8. "As-Built" Plans and Specification Manual
9. Owner's Set of Shop Drawing Submittals

General Contractor shall submit three (3) sets of binders for Items 1-7. Documents should be bound in 3-ring binders in size suitable for amount of material included. Divider tabs should be used to separate items.

If Operating Manuals are large, they can be bound in separate binders as indicated under Paragraph I listed above.

"As-Built" Plans and Specification Manual (2 set of each) should be complete and submitted on CD's. All plans should be submitted as one set. Do not submit separate sets of "As-Built" plans for Plumbing, HVAC, Electrical, etc.

Architect shall submit one copy of the Shop Drawings to the Owner with close-out documentation.

2.0 - PRODUCTS (Not Applicable)

3.0 - EXECUTION

- A. Operation and Maintenance Instructions:

Arrange for each Installer of equipment that requires maintenance to provide instruction in proper operation and maintenance. Include a detailed review of the following items.

1. Maintenance manuals.
2. Spare parts, tools, and materials.

3. Lubricants and fuels.
 4. Identification systems.
 5. Control sequences.
 6. Hazards.
 7. Warranties and bonds.
 8. Maintenance agreements and similar.
- B. As part of instruction for operating equipment, demonstrate the following:
1. Startup and shutdown.
 2. Emergency operations and safety procedures.
 3. Noise and vibration adjustments.
- C. Final Cleaning: Employ experienced cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Complete the following operations before requesting inspection for certification of Substantial Completion.
1. Remove labels that are not permanent labels.
 2. Clean transparent materials, including mirrors and glass. Remove glazing compounds. Replace chipped or broken glass.
 3. Clean exposed finishes to a dust-free condition, free of stains, films, and foreign substances. Leave concrete floors broom clean. Vacuum carpeted surfaces.
 4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication. Clean plumbing fixtures. Clean light fixtures and lamps.
 5. Clean the site of rubbish, litter, and foreign deposits. Rake grounds to a smooth, even textured surface.
- D. Pest Control: Engage a licensed exterminator to make a final inspection and rid the Project of rodents, insects, and other pests.
- E. Removal of Protection: Remove temporary protection and facilities.
- F. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials and dispose of lawfully.

END OF SECTION

UNIT MASONRY - SECTION 04200

1.0 - 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 this Section.

1.2 Summary

- A. This Section includes unit masonry assemblies consisting of , but not limited to the following:
 - 1. Concrete Masonry Units
 - 2. Mortar and Grout
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 8 - Section 08110 -Hollow Metal Doors and Frames
- C. Products installed but not furnished under this Section include the following:
 - 1. Hot dip-galvanized Steel lintels for unit masonry
 - 2. Wood nailers and blocking built into unit masonry
 - 3. Manufactured reglets in masonry joints for metal flashing specified in Division 7 Section "Flashing and Sheet Metal."

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 different masonry unit, accessory, and other manufactured product specified.
- C. Samples for initial selection of the following:
 - 1. Unit masonry samples in full size form showing the full range of colors and textures available for each different exposed masonry unit required.
- D. Samples for verification of the following:
 - 1. Full-size units for each different exposed masonry unit required showing the full range of exposed colors, textures, and dimensions to be expected in the completed construction.
 - 2. Accessories embedded in the masonry.
- E. List of Materials Used in Construction Mockups: List generic names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply and other information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents, unless such deviations are specifically brought to the attention of the Architect and approved in writing.
- F. Material certificates for the following, signed by manufacturer and Contractor, certifying that each material complies with requirements.
1. Each different cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
 2. Each material and grade indicated for reinforcing bars.
 3. Each type and size of joint reinforcing.
 4. Each type and size of anchors, ties, and metal accessories.
- G. Material test reports from a qualified independent testing agency, employed and paid by Contractor or manufacturer, indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:
1. Mortar complying with property requirements of ASTM C 270.
 2. Grout complying with property requirements of ASTM C 476.
 3. Masonry units complying with property requirements of ASTM C90.
- H. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.4 Quality Assurance

- A. Clay Masonry Unit Test: For each clay masonry unit indicated, per ASTM C 67
- B. Concrete Masonry Unit Test: For each different concrete masonry unit indicated, per ASTM C 140
- C. Mortar Test: Test mortar properties per test methods of ASTM C 270
- D. Evaluate mortar composition and properties per ASTM C 780
- E. Grout Test: Test grout for compressive strength per ASTM C 1019
- F. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.
- G. Single-Source Responsibility for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one source and by a single manufacturer for each different product required.
- H. Single-Source Responsibility for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source or producer for each aggregate.
- I. Mockup: Prior to installing unit masonry, construct sample wall panel(s) to verify selections made under sample submittals and to demonstrate aesthetic effects as

well as other qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."
2. Locate mockups on site in the locations indicated or, if not indicated, as directed by Architect.
 - a. Seal control joint complying with Division 7 Section "Joint Sealants".
3. Build mockups for the following types of masonry full thickness, including face and back-up wythes as well as accessories. Include a sealant-filled joint at least 16 inches long in each mockup.
 - a. Typical interior masonry unit wall.
 - b. Clean exposed faces of mockups with masonry cleaner "Sure Klean 600" or other masonry manufacturer approved cleaner.
 - c. Protect accepted mockups from the elements with weather-resistant membrane.
4. Notify Architect one week in advance of the dates and times when mockups will be constructed.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed work.
 - a. Acceptance of mockup is for color, texture and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship and other material and construction qualities specifically approved by Architect in writing.
 - b. Approval of mockups does not constitute approval of deviations from Contract Documents contained in mockups, unless such deviations are specifically approved by Architect in writing.
 - c. When directed, demolish and remove mockups from Project site.
 - d. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 Special Inspections

Cooperate and adhere to the requirements of 2021 International Building Code - Special Inspections. All masonry and masonry reinforcing shall be subject to special inspections and observations, at stage intervals deemed necessary, by the Owners' third party Inspector, Engineer and/or the Architect prior to grout filling.

1.6 Special Markings

- A. The contractor shall chalk-line mark the floor slab for masonry wall locations.
- B. The contractor shall mark on the floor slab location of reinforcing dowels to serve grouted cells so as to be clear as to locations of vertical cell reinforcement.
- C. The contractor shall mark the concrete sub-floor with temporary marker paint to identify location of structural CMU reinforcing dowels so as to accurately locate reinforced cells during wall erection. Markings should be transferred to CMU surfaces as installation allows.
- D. Prefabricated Corner and "T" Wall Reinforcing - upon arrival to the job site and while material is in bundle state, the ends shall be spray painted in the field with permanent bright red paint for easy recognition during site inspections.

1.7 Special Sequencing

- A. After the special markings have been provided and prior to the start of CMU installation, an inspection of the concrete floor slab and CMU reinforcing dowels shall be required.
- B. CMU wall construction designed to receive structural reinforcement and cell grouting shall be installed in such sequencing as to consolidate the work of placing reinforcement and cell grouting to minimum concentrate intervals encompassing such significant quantities as to warrant truck delivery of ready-mixed grout.
- C. The work event of placing structural reinforcement and grouting shall require continuous special observation by the Owner's third party Inspector(s) as required by the 2021 International Building Code. Grout mix samples shall be required for testing purposes. The General Contractor shall directly schedule special masonry observations at least 24 hours in advance and notify Architect accordingly. Cost associated with special sequencing shall be considered and included in base bid.

1.8 Delivery, Storage, and Handling

- A. Store masonry units on elevated platforms, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not install until they are in an air-dried condition.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained, and contamination avoided.
- D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.9 Project Conditions

- A. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 - 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on ground and over wall surface.

2. Protect sills, ledges, and projections from mortar droppings.
 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt on completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with the following requirements:
1. Cold-Weather Construction: When the ambient temperature is within the limits indicated, use the following procedures:
 - a. 40 to 32 deg F: Heat mixing water or sand to produce mortar temperatures between 40 and 120 deg F
 2. Cold-Weather Protection: When the mean daily temperature is within the limits indicated, provide the following protection:
 - a. 40 to 25 deg F: Cover masonry with a weather-resistant membrane for 48 hours after construction.
 - b. 25 to 20 deg F: Cover masonry with insulating blankets or provide enclosure and heat for 48 hours after construction to prevent freezing. Install wind breaks when wind velocity exceeds 15 mi./h.
 - c. 20 deg F and Below: Provide enclosure and heat to maintain temperatures above 32 deg F within the enclosure for 48 hours after construction.
 3. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried out, but not less than 7 days after completion of cleaning.
- E. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F and above.

2.0 - PRODUCTS

2.1 Manufacturers

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
1. Portland Cement, Mortar Cement, Masonry Cement, and Lime:
 - a. Essroc Materials, Inc.
 - b. Glen-Gery Corporation
 - c. Lafarge Corporation
 2. Joint Reinforcement, Ties, and Anchors:
 - a. Dur-O-Wal, Inc.
 - b. Heckman Building Products, Inc.
 - c. Hohmann & Barnard, Inc.
 - d. Wire-Bond

2.2 Concrete Masonry Units

- A. General: Provide shapes indicated and as follows for each form of concrete masonry unit required:
 - 1. Provide special shapes for lintels, corners, jambs, sash, control joints, headers, bonding and other special conditions.
 - 2. Bullnose units are required for all outside corners of vertical surfaces, unless otherwise indicated.
- B. Concrete Masonry Units: ASTM C 90 and as follows:
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2,000 psi.
 - 2. Weight Classification: **NORMAL**
 - 3. Aggregates: Do not use aggregate made from pumice, scoria or tuff.
 - 4. Provide Type N-I moisture-controlled units
 - 5. Size: Manufactured to the actual dimensions indicated on Drawings within tolerances specified in the applicable referenced ASTM specification. Typical unit 8" nominal, 6" nominal, 4" nominal, or 12" nominal as indicated on drawings.

2.3 Mortar and Grout Materials

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Masonry Cement: ASTM C91
- C. Hydrated Lime: ASTM C 207, Type S (for CMU) Type N (for face brick).
- D. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
- E. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch, use aggregate graded with 100 percent passing the No. 16 sieve.
 - 1. White-Mortar Aggregates: Natural white sand and or ground white stone.
- F. Aggregate for Grout: ASTM C 404.
- G. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.
- H. Cold Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C; and recommended by the manufacturer for use in masonry mortar of composition indicated.
- I. Ready-Mixed Mortar: Cementitious materials, water, and aggregate complying with requirements specified in this Article; combined with set-controlling admixtures to produce a ready-mixed mortar complying with ASTM C 1142.
- J. Water: Potable.

- K. Products: Subject to compliance with requirements, provide one of the following:
1. Cold Weather Admixture:
 - a. "Accelguard 80"; Euclid Chemical Co.
 - b. "Morset"; W. R. Grace & Co.
 2. Mortar shall be approved equal to Lafarge as selected by Architect from full range of mortar colors available.

2.4 Ties and Anchors, General

- A. General: Provide ties and anchors specified in subsequent articles that comply with requirements for metal and size of this Article, unless otherwise indicated. Provide ties that will extend into the brick veneer a minimum of one half of the veneer width.
- B. Wire: As follows:
1. Galvanized Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating for wire ties and anchors in exterior walls.
 2. Wire Diameter: 0.1875 inch.

2.5 Bent Wire Ties and Cornices

- A. Individual units prefabricated from bent wire to comply with requirements indicated below:
1. Type for Masonry where Wythes are of Different Material: Adjustable ties composed of 2 parts; 1 with pintles, the other with eyes; with maximum misalignment of 1-1/4 inches. Ties shall be long enough to extend through rigid wall insulation and into outer wythe a minimum of 2 inches.
- B. Joint Reinforcement: Provide 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" elsewhere.
 2. Ladder design with cross rods spaced not more than 16" o.c. One side rod for each face shell of concrete masonry back-up and one rod for brick wythe.
 3. Wire Size: 0.1875" diameter for deformed rods; No. 9 cross rods.
Hot dipped galvanized, Class 3. H. Reinforcing:

2.6 Embedded Flashing Materials

- A. Vinyl Flashing:
1. Thickness: 40 mil thick.
 2. Application: Use where flashing is fully concealed in masonry
- B. Adhesive for Flashings: Of type recommended by manufacturer of flashing material for use indicated.
- C. Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to the following:

1. Vinyl Flashing:
 - a. Gibraltar
 - b. Nervastral
 - c. AFCO

2.7 Miscellaneous Masonry Accessories

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Type 2, Class A, Grade 1; compressible up to 35 percent; of width and thickness indicated; formulated from Neoprene.
- B. Preformed Metal Control-Joints: Heckman 16 oz. copper – Type 93U, designed to fit brick size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep Holes: Provide the following:
 1. Wicking material: Cotton sash cord in length required to produce 2 inch exposure on exterior and 18 inches in cavity between wythes.
- E. Rebar Positioners: 3/16" diameter, hot-dipped galvanized and provided at 48" vertical centers in each reinforced cell.

2.8 Wall Reinforcement and Anchors

- A. Continuous wall reinforcement at 16" o.c. for all masonry walls shall be hot-dipped galvanized and of either truss or ladder design with tabs for exterior two Wythe walls. Reinforcement shall have not less than No. 9 steel wire cross rods and No. 9 deformed side rods. Wires shall conform to ASTM A82. Use manufacturer's preformed corners and intersecting sections and splice as recommended. Basis of material selection shall be Hohmann & Barnard #270 or approved equals by Heckmann Building Products, Wire Bond and Dur-O-Wall.

2.9 Masonry Cleaners

- A. Job Mixed Detergent Solution: Solution of ½ cup dry measure tetrasodium polyphosphate and 1/2 cup dry measure laundry detergent dissolved in 1 gallon of water.
- B. Proprietary Detergent Solution: Manufacturer's standard strength cleaner designed for removing mortar/grout stains, efflorescence and other new construction stains from new masonry surfaces as acceptable to masonry material manufacturer. "Sure Klean" No. 600 Detergent; ProSoCo, Inc., or approved equal. Do not use acid cleaners.

2.10 Mortar and Grout Mixes

- A. General: Do not add admixtures including coloring pigments, 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. Limit cementitious materials in mortar to portland cement-lime.
 - 2. Use Type S or N mortar.
- D. Colored Pigmented Mortar: Select and proportion pigments with other ingredients to produce color required. Do not exceed pigment-to-cement ratio of 1-to-10, by weight.
- E. Grout for Unit Masonry: Comply with ASTM C 476 for grout for use in construction of reinforced and non-reinforced unit masonry. Use grout of consistency indicated or if not otherwise indicated, of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout. Grout to have minimum 2,500 psi compressive strength at 28 days when tested in accordance with ASTM C1019.
 - 1. Use fine grout in grout spaces less than 2" in horizontal direction, unless otherwise indicated.
 - 2. Use coarse grout in grout spaces 2" or more in least horizontal dimension, unless otherwise indicated.

3.0 - EXECUTION

3.1 Examination

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of unit masonry. Do not proceed with installation until unsatisfactory conditions have been corrected.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of unit masonry.
 - 2. Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.

3.2 General

- A. Lay out all masonry work according to the dimensions shown on the drawings. No work shall be laid unless the temperature is 35° F. and rising.
- B. All masonry work shall be laid straight, level, plumb, and true. Exterior walls shall be laid continuously around the entire structure and in no case racked up more than five (5) feet.
- C. Build in all flashing, anchors, reinforcing, inserts, wall plugs, lintels, bearing plates, bond beams and items as required to accommodate the work of others.
- D. All special details such as chases, openings, expansion joints, projections, corbels, etc., shall be built as required and/or indicated on the drawings.
- E. Lay all masonry in full bed of mortar completely filling all joints with mortar. Allow for caulking joints at all window and door frames, and at all wall intersections.
- F. Joints of all exposed masonry surfaces shall be finished after the mortar has taken its initial set. Use a straight edge for horizontal joints. Vertical joints shall be in alignment from top to bottom.

- G. At the end of each day or when rain or frost is imminent, the tops of masonry walls and similar surfaces shall be properly protected by covering top of wall with a strong waterproof membrane well secured in place.
- H. Consult all other trades in advance and make provisions for the installation of their work to avoid cutting and patching. Do all cutting and patching of masonry required to accommodate work of others.
- I. Unfinished work shall be stepped back to permit joining of new work. Masonry work may be toothed only when approved. Before connecting new work with work previously built, sweep clean, remove loose mortar and thoroughly wet the old brick.
- J. As the work progresses, mortar daubs and smears shall be cleaned from masonry work.
- K. Door frames shall be set before the masonry walls are built. As the masonry walls are built around these frames, the inside of the frames shall be grouted solid with mortar. NOTE: See HOLLOW METAL DOORS AND FRAMES - SECTION 08110 for requirements to coat interior of frames prior to grouting.
- L. Extend all rated walls to the underside of structural deck above unless otherwise approved. Fit walls neatly with all joints filled where two levels of ceiling occur, extend walls to high level. Extend all partition walls to 8" above adjacent ceiling.
- M. Weep holes: Provide weep holes in head joints 32" o.c. at thru wall flashing where air space is not open downward. Weep holes shall be below finish floor line and above finish grade.
- N. MORTAR IN CONTACT WITH COPPER PIPING WILL NOT BE ACCEPTED. Coordinate with plumbing or mechanical contractor if copper is encountered without sleeving/insulation. Anticipate additional corrective work.

3.3 Installation, General

- A. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of thickness indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections of the Specifications.
- C. Leave openings for equipment to be installed before completion of masonry. After installing equipment, complete masonry to match construction immediately adjacent to the opening.
- D. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting, where possible. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

3.4 Construction Tolerances

- A. Variation from Plumb: For vertical lines and surfaces of columns, walls, and arrises, do not exceed 1/4 inch in 10 feet, nor 3/8 inch in 20 feet, nor 1/2 inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For vertical alignment of head joints, do not exceed plus or minus 1/4 inch in 10 feet , nor 1/2 inch maximum.
- B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For top surface of bearing walls, do not exceed 1/8 inch in 10 feet, nor 1/16 inch within width of a single unit.
- C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls, and partitions, do not exceed 1/2 inch in 20 feet, nor 3/4 inch in 40 feet) or more.
- D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4 inch nor plus 1/2 inch.
- E. Variation in Mortar-Joint Thickness: Do not vary from bed-joint thickness indicated by more than plus or minus 1/8 inch with a maximum thickness limited to 1/2 inch. Do not vary bed-joint thickness from bed-joint thickness of adjacent course by more than 1/8 inch. Do not vary from head-joint thickness indicated by more than plus or minus 1/8 inch. Do not vary head-joint thickness from adjacent head-joint thickness by more than 1/8 inch. Do not vary from collar-joint thickness indicated by more than minus 1/4 inch or plus 3/8 inch.

3.5 Laying Masonry Walls

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets. Avoid the use of less-than-half-size units at corners, jambs, and where possible at other locations.
- B. Lay walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.
- C. Bond Pattern for Exposed Masonry:
 - 1. Match existing bond pattern
- D. Lay concealed masonry with all units in a wythe as above. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- E. Stopping and Resuming Work: In each course, rack back 1/2-unit length for one-half running bond or 1/3-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar prior to laying fresh masonry.
- F. Built-in Work: As construction progresses, build-in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
- G. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.

- H. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
- I. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- J. Build non load-bearing interior partitions full height of story to underside of solid floor or roof structure above and as follows:
 - 1. Install compressible filler in joint between top of partition and underside of structure above.
 - 2. Wedge non load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.

3.6 Mortar Bedding and Jointing

- A. Lay hollow concrete masonry units as follows:
 - 1. With full mortar coverage on horizontal and vertical face shells.
 - 2. Bed all webs in mortar.
 - 3. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
 - 4. Maintain joint widths indicated, except for minor variations required to maintain bond alignment. If not indicated, lay walls with 3/8-inch joints.
 - 5. Fill bottom course of all CMU solid with mortar.
 - 6. Fill all courses of CMU adjacent to fill in area of ramp and stage solid with mortar.
- B. Lay solid brick-size masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not furrow bed joints or slush head joints.
 - 1. Lay all masonry with full head and bed joints.
 - 2. At cavity walls, bevel beds away from cavity to minimize mortar protrusions into cavity. As work progresses, trowel mortar fins protruding into cavity flat against cavity face of brick.
 - 3. Maintain joint widths indicated, except for minor variations required to maintain bond alignment. If not indicated, lay walls with 1/4-to-3/8-inch joints. Three brick courses and three mortar courses in 8-inch vertical to course with CMU.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
- D. Cut joints flush for masonry walls that are to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

3.7 Structural Bonding of Multiwythe Masonry

- A. Use individual metal ties installed in horizontal joints to bond wythes together. Provide ties as shown, but not less than 1 metal tie for 4 sq. ft. of wall area spaced not to exceed 24 inches o.c. horizontally and vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 36 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24 inches o.c. vertically.

- B. Corners: Provide interlocking masonry unit bond in each course at corners, unless otherwise shown. Provide continuity with horizontal joint reinforcing at corners by using prefabricated "L" units as well as 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 by providing continuity with horizontal joint reinforcing at corners by using prefabricated "T" units.

3.8 Cavities

- A. Keep cavities clean of mortar droppings and other materials during construction. Strike joints facing cavities flush.
 - 1. Use wood strips temporarily placed in cavity to collect mortar droppings. As work progresses, remove strips, clean off mortar droppings, and replace in cavity.
 - 2. Tie exterior wythe to back-up with individual metal ties. Stagger alternate courses.

3.9 Anchoring Masonry to Structural Members

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
 - 1. Space weldable rebar couplers at horizontal bond beams as indicated, but not more than 24 inches o.c. vertically.

3.10 Horizontal Joint Reinforcement

- A. General: Provide continuous horizontal joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2" elsewhere. Lap reinforcing a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches vertically o.c.
 - 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement in mortar joints 1 block course above and below wall openings and extending 12 inches beyond opening.
 - a. Reinforcing above is in addition to continuous reinforcement.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures and other special conditions.

3.11 Control and Expansion Joints

- A. General: Install control and expansion joints in unit masonry where indicated. Build-in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.

- B. Form control joints in concrete masonry by installing preformed control-joint gaskets designed to fit standard sash block.
- C. Form expansion joints in brick made from clay or shale by forming an open joint of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Division 7 Section "Joint Sealants." Maintain joint free and clear of mortar.

3.12 Lintels

- A. Install steel lintels where indicated.
- B. Provide pre-cast masonry lintels where shown and where openings of more than 12 inches for brick size units and 24 inches for block size units are shown without structural steel or other supporting lintels.
- C. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

3.13 Grouting of CMU Walls

- A. Contractor to notify Owner's Testing Agent prior to all grouting of steel reinforced CMU.
- B. All cavities with steel reinforcing to be cleaned of all debris and broken CMU prior to filling with grout.
- C. All reinforcing steel in cells to be filled with grout or concrete to be continuous with laps as required by code.
- D. Grout for filled masonry cells is not to be dropped more than five (5) feet.

3.14 Repairing, Pointing and Cleaning

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units; install in fresh mortar or grout, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point-up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for application of sealants.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears prior to tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film or waterproof masking tape.

4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing the surfaces thoroughly with clear water.
 5. Clean brick by bucket and brush hand-cleaning method described in BIA Technical Note No. 20 Revised, using approved masonry cleaner.
 6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2 applicable to type of stain present on exposed surfaces.
- E. Protection: Provide final protection and maintain conditions that ensure unit masonry is without damage and deterioration at time of Substantial Completion.

3.15 Masonry Waste Disposal

- A. Recycling: Undamaged, excess masonry materials are Contractor's property and shall be removed from the project site.

END OF SECTION

1.0 - GENERAL

- 1.1 Scope
Furnish and install all miscellaneous metals as indicated on drawings, including that shown only on Architectural Drawings, and/or as specified.
- 1.2 Submittals
Submit shop drawings for approvals.
- 1.3 Applicable Standards
Fabrication and erection, except as specified otherwise, shall be in accordance with American Institute of Steel Construction (AISC) Specifications for the Design, Fabrication and Erection of Structural Steel for Building.
- 1.4 Qualification
Manufacturer's names, models, or catalog numbers, referred to herein are intended to show the type, quality and intent of items required. Products of other manufacturers equal or better in quality, similar in design are acceptable subject to the Architect's approval.
- 1.5 Substitutions
Substitutions of sections or modifications of details, shall be submitted with the shop drawings for approval. Approved substitutions, modifications, and necessary changes in related portions of the work shall be coordinated by the contractor and shall be accomplished as no additional cost.

2.0 - PRODUCTS

- 2.1 General Materials
- A. Metals shall be free from defects impairing strength, durability, or appearance and of the best commercial quality for the purposes specified. All materials shall be new materials and shall have structural properties to sustain safely or withstand strains or stresses to which normally subjected. All exposed fastenings shall be of same material, color and finish as the metal to which applied unless otherwise shown.
- B. Provide all accessories such as anchors, hangers, belts, toggle bolts, expansion bolts, rods, shelf angles, clip angles, shims, connections, stiffeners, reinforcements, screws, etc., required for proper complete fabrication, assembly and installation of all miscellaneous steel, metal work and masonry. Bolts, screws, expansion bolts, toggle bolts, etc, shall be brass, bronze, stainless steel or aluminum when used with these metals.
- C. Steel lintels and miscellaneous structural shapes where called for shall be of shapes, lengths and weights, as shown and detailed on the drawings, spanning openings where so indicated, shall be complete with bolts, anchors, etc., for building in. Lintels shall not have less than eight (8") inch bearing upon masonry.
- D. Galvanized steel shall be hot-dipped galvanized in accordance with the Standard Specifications of the American Hot-Dip Galvanizing Association. Galvanizing shall be done after fabrication.
- E. All materials shall be well formed to shape and size with sharp lines. Conceal fasteners where practical. Thickness of metals and details of assembly and

supports shall give ample strength.

- F. Welding shall conform to American Welding Society's Standard Code for Arc and Gas Welding in Building Construction. Welding shall be continuous along entire area of contact, except where tack welding is specifically shown or specified. Tack welding will not be permitted on exposed surface. Grind all exposed welds smooth.

2.2 Painting and Protective Coating

- A. Thoroughly clean off all miscellaneous metal, using power tool cleaning to remove all dirt, grease, rust, and scale and foreign matter.
- B. Treat only concealed galvanized metal with galvanized metal primer as per manufacturer's directions before painting. Exposed galvanized metal to be primed and finished under Painting Section.
- C. Unless otherwise specified, paint all metal items, including concealed galvanized metal, one shop coat of Red or Grey oxide zinc chromate TT-P-636-C. Surfaces inaccessible after assembly shall be painted before assembly. Work paint thoroughly into joints, etc. Do not paint bronze, aluminum or stainless steel.
- D. Insulate faces of all metals in contact with different metals, wood, masonry, and/or concrete; give each contact surface one coat approved alkali-resistant bituminous paint. Let both surfaces dry before installing metals.

2.3 Miscellaneous Metal Items

The following items are intended as a guide to such work in this project and do not necessarily limit the scope of this section.

- A. All structural shapes indicated and/or required.
- B. Miscellaneous Steel Lintels. Provide miscellaneous steel lintels indicated on Architectural and/or Structural Drawings or as required. All miscellaneous steel lintels are subject to structural engineer's review and approval.

3.0 – EXECUTION

3.1 Fabrication

- A. Verify measurements in field for work fabricated to fit job conditions.
- B. Fabricate form work true to detail with clean, straight, sharply defined profiles. Iron shall have smooth finished surfaces unless indicated otherwise. Shearing and punching shall leave clean, true lines and surfaces.
- C. Fastenings shall be concealed where practical. Thickness of metal and details of assembly and supports shall give ample strength and stiffness. Joints exposed to the weather shall be formed to exclude water. Provide holes and connections for the work of other trades.
- D. Joints shall be rigid at adjoining sections for a strong assembly. Weld or rivet permanent connections. Welds shall be continuous and finished flush and smooth on surfaces that will be exposed after installation. Do not use screws or bolts where it can be avoided; where screws or bolts are used, the heads shall be countersunk, screwed up tight and threads nicked to prevent loosening. Unexposed welded joints may be continuous or spot welded as required. Remove weld spatter from adjacent surfaces.

3.2 Installation

- A. Erect work in thorough, first class manner with mechanics experienced in the erection of iron work.
- B. Work shall be strong, secure, and adequate for the purpose intended.
- C. Schedule delivery of items to be built into the masonry so as not to delay the progress of the work and to coordinate for proper installation.
- D. Place and properly secure to form work items such as anchors, sleeves, and inserts which are to be cast in concrete.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. The work under this section consists of all finish carpentry, millwork and related items.
- B. Millwork shall be defined as follows: "All exterior and interior woodwork exposed to view in the finished building, except lumber yard or specialty items. All exposed wood, plywood, hard plastic and wood doors are included."
- C. All millwork shall be produced by the same source of supply to coordinate matching of materials.

1.2 Submittals

- A. Shop drawings shall be furnished on all millwork to the architect for approval prior to fabrication. These drawings to show size, arrangement, type of material, connections and relationship to adjacent work.
- B. All shop drawings shall show species of woods and the manufacturer's name for all manufactured items.
- C. When required, contractor shall submit a sample unit as requested.
- D. Submit samples of decorative laminate colors, patterns, and textures for semi-exposed materials for architect's selection. Samples of other materials or hardware shall be available if requested.

1.3 Applicable Standards

- A. The Quality Standards of the American Woodwork Institute (AWI) shall apply and, by reference, are made a part of this specification.
- B. Millwork materials and workmanship not shown, specified, or normally furnished to a higher degree of quality shall conform to custom grade requirements of the AWI Quality Standards.

1.4 Delivery and Storage

- A. When all millwork items are ready for shipment to the job site, the architect shall be notified through the contractor so that either may inspect the work in the mill prior to shipment.
- B. All materials shall be inspected by the contractor's superintendent upon receipt at the job site. No faulty or damaged materials shall be received. It shall be the contractor's responsibility to produce finished items of work in first class condition.
- C. No interior millwork shall be delivered until the building has been dried out. Heat shall be required in cold or humid weather.
- D. No trim shall be delivered or placed until the areas of the building in which the trim is to be placed are thoroughly dry and ready for the installation. The building shall be enclosed and heated. Allow wood to acclimate for 7-10 days prior to installation.

2.0 - PRODUCTS

2.1 General

- A. All materials shall be of the best of their respective kinds. All materials used in

finished work shall be clear, free from cracks, checks, knots and other imperfections that may interfere with the proper completion of the work and any warped or otherwise imperfect work shall be removed and replaced.

- B. All plywood shall have a grade-trademark which shall identify each panel of plywood as to type, grade and conformance to CS45 or CS122 (current issues). If use is exposed to weather or excessive moisture, plywood shall be of the exterior type. Exposed faces and faces to receive plastic laminates shall be "A" grade. Panels used for concealed cabinet parts may be C-D grade. Thickness and application details shall be as shown on drawings or required for the intended use.

2.2 Interior Woodwork

- A. Lumber used for painted interior woodwork, unless otherwise indicated, shall be one of the following:
 1. Fir - Coast or Inland Douglas White
 2. Pine - Ponderosa, Southern
 3. Redwood
 4. Cypress
 5. Yellow Poplar
 6. Grade of lumber used shall be second grade for paint finish, except cypress may be third grade.
- B. Hardwood: All references to hardwood shall imply stain grade oak.
- C. All interior plywood to be painted shall be Natural Birch.
- D. All interior woodwork and plywood to be stained or finished natural shall be Premium Grade Select White Birch or as specified on drawings. Veneer shall be rotary cut or as indicated on drawings or related specification sections. Semi-exposed parts, as defined by AWI, of natural or stained casework shall be Natural Birch.
- E. Lumber shall be kiln dried with an average moisture content of 6% to 11%.
- F. Particle board shall be U. S. Plywood Corp. "Novoply" Weyerhaeuser Company "Timblend", or approved equal of thickness shown. Factory sanded or sealed or filled, 2 sides.

2.3 Plastic Laminate

- A. Plastic laminate shall be Nevamar, Wilson-Art, Formica, Laminart, Arborite, Pionite, 1/16" thick. See Finish Legend and Schedule for color selections.
- B. Backing sheet shall be high pressure laminate, .020" minimum thickness. Plastic laminate to be used on all interior open shelves. Melamine is not acceptable unless it matches the selected plastic laminate.
- C. The adhesive shall be that recommended by the manufacturer of the laminated plastic used.
- D. Edging Materials:
 1. 1mm PVC banding, machine applied; match laminate as scheduled.
 2. 3mm PVC banding, machine applied and machine profiled to 1/8 inch radius;

match laminate as scheduled

2.4 Solid Polymer Countertop

- A. Solid polymer countertop to be DuPont "Corian"; Color: price group "E" or better; with a matte finish, or pre-approved equal. Provide as indicated on drawings.
- B. Fabrication - Countertops with sinks to be 19 mm thick; edge detail as indicated on Architectural drawings, complete with holes and cutouts for plumbing and bath accessories as indicated on drawings. Provide counter complete with back and side splashes of size shown on Architectural drawings. Fabrications to be performed by a certified Corian fabricator/installer. Components to be fabricated to greatest extent practical to sizes and shapes indicated. Form joints between components using manufacturer's standard joint adhesive. Joints to be inconspicuous in appearance and without voids. Attach 2" wide reinforcing strip of Corian under each joint. Rout and finish component edges to a smooth, uniform finish. Rout all cutouts and then sand all edges smooth.
- C. Installation - Install components plumb and level. Adhere plumbing and bath accessories to countertops using manufacturer's recommended adhesives and color matched silicone sealant. Adhere back and side splashes to countertop using color matched silicone sealant.

2.5 Rough Hardware

All exposed bolts or other anchors shall be chrome-plated brass.

2.6 Finish Hardware

Furnish and install all finish hardware for millwork items including, but not necessarily limited to, cabinet door and drawer pulls and latches, adjustable shelf standards and brackets, and hardware for doors less than 1-3/8" thick. Hardware finish shall match room door hardware finish.

2.7 Thickness of Members

All thicknesses shall be in accordance with the maximum possible dressed size from standard lumber. If widths or thicknesses are not available in hardwood, gluing may be used on widths over 5-1/4" or thicknesses over 1-1/6".

2.8 Workmanship

- A. All exposed surfaces and edges shall be finished smooth and be free of saw cuts, marks or defacement. All joints shall be accurately and neatly made and fit.
- B. End grain shall be concealed. Exposed edges of plywood shall present a finish the same as the finished sides.
- C. Work shall be scribed and fit to other finished surfaces in a careful manner. Should other work be damaged or disturbed, it shall be made good at the expense of this contractor.
- D. Work shall be assembled at the mill insofar as is practicable and delivered ready for erection. When necessary to cut and fit on job, the material shall be made up with ample allowance for cutting.
- E. This contractor shall verify all measurements at the building and shall examine all adjoining work on which his work is dependent.
- F. Millwork shall be executed in accordance with the approved shop drawings, the workmanship shall be of first quality and the construction of all parts shall be of the

best current practice. The work shall be assembled so as to hold together with close joints, fastenings shall be concealed, and all work shall be properly and firmly backed and blocked as required. Provision shall be made for expansion and shrinkage.

- G. Exposed surfaces shall be machine-sanded to an even, smooth surface, nails set, ready for finishing or pre-finishing when noted. All woodwork shall be dry, clean, and smooth before any finishing materials are applied. All nail holes, cuts, cracks and other defects shall be treated so as to be unnoticeable.
- H. All wood surfaces to be set against masonry and/or concealed after erection shall be given a heavy coat of sealer. All woodwork to have paint finish shall be primed under the PAINTING SECTION.
- I. All transparent finished (i.e., stained) woodwork shall be shop finished by Millwork Contractor.
- J. All caulking to match laminate or stain color.
- K. All millwork/casework cabinets in contact with finish floor shall receive scheduled base.

2.9 Carpentry and Millwork Items

- A. The following millwork items are intended to guide such work in this project and do not necessarily limit the scope of this section.
- B. Where not otherwise specified, shelving, cabinet work and millwork of all types shall conform with requirements of Premium Grade of "Quality Standards of the Architectural Woodwork Industry" (Architectural Woodwork Institute).
- C. Wood Base and Shoe Mould - Shall be as detailed on drawings. Base shoe mould lengths to be maximized wherever possible. Wood scraps and remnants used for base material is NOT acceptable. Minimum 8' lengths.

2.10 Materials and Construction

- A. MDF (Medium Density Fiberboard)
Shall be equal to Premier7 MDF, Plus Grade. MDF is to be shop finished by Millwork Contractor with a transparent stain. The actual surface of the MDF is to be visible through the stain color. Stain colors are to match paint selections indicated on drawings. Millwork Contractor to provide stain samples to Architect for approval prior to fabrication.
- B. Panels - End panels, shelves, bottoms and partitions of 3/4" Birch plywood, "Good" grade on all surfaces or plastic laminate covered particle board as approved. All other surfaces may be A grade fir plywood. All edges exposed to sight shall be self edged and sanded smooth and flush.
- C. Doors - Construction of 3/4" Birch plywood, "Good" grade or plastic laminate covered particle board as approved. All edges shall be self edge.
- D. Drawers - Front identical to doors above. Back minimum of 1/2" A-A Grade fir plywood. Sides of solid hardwood of sound grade. Bottoms of 1/4" plywood or 1/4" brown welded fiber board. Front and back connection shall be rigid type. Bottoms shall be let into front, back and sides approximately 1/4 of an inch. Drawer interiors to be Melamine.

- E. Backs - Backs shall be a minimum of 1/4" plywood or 1/4" brown welded fiber board. Open to view 1/4" Birch plywood. All open-to-view backs are to receive plastic laminate.
- F. Adjustable Shelves - 3/4" thick for maximum spans of 30". 1-1/8" thick for maximum spans of 42". All open-to-view shelves are to receive plastic laminate.
- G. Cabinet Base - Cabinet Base and tall units shall have a site-built toe base constructed of 3/4-inch (minimum) lumber unless otherwise shown on the drawings. Base is 96mm (nominal 4 inch) high unless otherwise indicated on the drawings. Particle board is not acceptable.
- H. Finishes - Tops, edges, and backsplashes and any other areas noted shall be plastic laminate covered.
- I. Cabinet Hardware - Contractor shall furnish hardware equal to that as manufactured by Stanley, as hereinafter specified. All hardware to be Brushed Chrome, unless indicated otherwise on drawings.

Pull Handles -

4" wire pull, brushed chrome finish. Two pulls on drawers over 30" wide.

Drawer Guides -

Regular, knee space and pencil: 100-pound load rated epoxy coated steel, bottom corner mounted with smooth and quiet nylon rollers. Positive stop both directions with self-closing feature. Paper storage, 150-pound load rated epoxy coated steel slides.

File: Full extension, 150-pound load rated epoxy coated steel, bottom corner mounted with smooth and quiet nylon rollers. Positive stop both directions with self-closing feature.

Door Hinges - Five knuckle, epoxy powder coated, institutional grade, 2-3/4 inch overlay type with hospital tip. 0.095 inch thick. ANSI-BHMA standard A156.9, Grade 1.

Doors 48 inches and over in height have 3 hinges per door.

Magnetic door catch with maximum 5 pound pull provided, attached with screws and slotted for adjustment.

1. Finish to be selected by Architect.

3.0 - EXECUTION

3.1 Shop Assembly

When it is possible, all items of millwork which can be carried into the building through doorways or windows shall be shop assembled. When it is impractical to shop assemble the entire item in one piece, it shall be shop assembled in sections and perfectly fitted in place on the job by thoroughly experienced and competent mechanics. Where job joining requires gluing, it shall be done by the same method used in the Shop.

3.2 Installation

- A. All finish carpentry and millwork of every sort shall be put up plumb or level, and straight and true. Trim put up with proper grounds and firmly secured. All work fitted and scribed to other work in a careful manner as not to injure the surface in any way. All nailing shall be blind wherever possible, but where not possible, the nailing

driven and set so as to be not visible in the finish.

- B. All trim to be free from defects impairing durability or fitness for receiving finish. All trim properly sanded at mill and hand sanded at the job.
- C. Finished surfaces of interior millwork, detailed or scheduled to be painted, shall be left ready for treatment by the painter. The jointing and framing of all members of the finished millwork shall be executed in accordance with the best and latest recognized mill practice.
- D. This contractor shall cooperate with contractors for other trades with which his work comes in contact.

3.3 Finish Hardware

- A. Install items of hardware furnished under FINISH HARDWARE SECTION.
- B. Hardware shall be accurately fitted and securely attached, without damage to metal or woodwork, and care shall be taken to not mar or injure any work.
- C. Hardware shall be protected as approved or removed for painting.
- D. Upon completion of the work, hardware shall be demonstrated to work freely, keys shall be fitted into their respective locks and upon acceptance of the work, all keys shall be tagged and delivered to the Owner.
- E. All open -to- view shelves are to receive heavy duty, double cleated adjustable standard hardware.

END OF SECTION

BUILDING INSULATION - SECTION 07210

1.0 - GENERAL

- 1.1 Scope
The work under this section consists of all building insulation except rigid roof insulation.
- 1.2 Submittals
Submit samples of all materials hereinafter specified for approval.
- 1.3 Protection
All thermal insulation shall be maintained dry throughout construction. Wet insulation shall be rejected.

2.0 - PRODUCTS

- 2.1 Material
 - A. Sound Attenuation Batt Insulation shall be 3-1/2" thick fiberglass insulation with a Noise Reduction coefficient of 1.05. Equal to Owens Corning.

3.0 - EXECUTION

- 3.1 Installation
 - A. Sound Attenuation Batt Insulation shall be placed on ceiling or stud system and secured and sealed in accordance with manufacturer's recommendations and specifications. Place around or over mechanical equipment rooms, toilet rooms, window in-fill spaces, and other areas as indicated.

END OF SECTION

1.0 - GENERAL

- 1.1 Scope
The work under this section consists of caulking and sealants.
- 1.2 Work Included
See the drawings for all items and places requiring caulking. Completely seal with specified caulking compound joints around door frame and frame base and window frames (inside and outside); all other openings in masonry, concrete, or precast concrete joints in or between precast concrete panels; beneath all exterior thresholds; around plumbing fixtures; all places indicated on the drawings to be caulked; and all other places where caulking is required, whether specifically shown on the drawings or not.
- 1.3 Submittals
Submit for approval product literature and samples of all materials proposed for use. Colors to be approved in the field by the Architect to match adjacent construction color.

2.0 - PRODUCTS

- 2.1 Sealant
- A. Exterior sealant shall be a gun grade one part silicone compound. Materials shall be Tremco Spectrem 1, Dow Corning No. 790 or Pecora No. 890, color as selected.
 - B. Primer, if required, for the silicone sealant shall be a quick drying clean primer as recommended by the manufacturer of the material used.
- 2.2 Caulking
- A. Interior caulking compound shall be a paintable, one part, gun grade butyl rubber base material equal to Tremco Tremflex 834 Acrylic, Pecora BC-158 or DAP Butyl Flex or acrylic latex base caulking compound equal to Pecora AC-20 or DAP Latex Caulk.
 - B. Floor Caulking compound shall be a tintable, semi-self leveling polyurethane base equal to Tremco THC900/901. Colors shall be selected by Architect from manufacturers entire line of colors.
- 2.3 Fire Caulking
All locations indicated and/or all penetrations or openings into fire barriers shall be sealed with fire caulk material meeting UL requirements for such application. Submit product literature indicating UL compliance for approval. All trades shall use same fire caulk product. Installer shall be certified by the manufacturer.
- 2.4 Compressible Joint Sealant
Sealant shall be compressible polyurethane foam impregnated with polybutylene, Polytite as manufactured by Polytite Manufacturing Corporation, or other material as approved.
- 2.5 Filler
Filler shall be polyethylene foam, polyurethane foam, untreated jute, pointing mortar or other oil-free materials subject to approval of the manufacturer of the caulking or sealant compound.

2.6 Accessories

- A. Bond breaker shall be polyethylene tape.
- B. Solvents, cleaning agents, and other accessory materials shall be as recommended by the sealant manufacturer.

3.0 - EXECUTION

3.1 Joint Preparation

- A. Joints deeper than 1/2" shall be built up to a depth of 3/8" below adjacent surfaces with approved filler material prior to applying sealant. All surfaces must be clean and dry. Any protective coating or foreign matter such as oil, dust, grease, dirt, or frost on building materials that will impair bond shall be removed. Masonry and concrete surfaces shall be sound. If required by manufacturer's instructions, apply brush coat of primer to surfaces and allow to dry before applying sealant.
- B. At the option of the applicator, the surfaces next to the joints may be masked to obtain a clean neat line. Remove tape immediately after tooling the sealant.

3.2 Application

- A. Caulking or sealant shall be used from manufacturer's original cartridge in a standard open type, hand operated caulking gun. Nozzle shall be cut to proper size to obtain a neat, smooth and uniform bead. When handling bulk material, manufacturer's instructions shall be followed.
- B. A full bead of caulking or sealant shall be applied into joint under sufficient pressure, drawing nozzle across caulking or sealant to leave a slightly concave surface. Tool with a caulking tool or soft bristled brush moistened with solvent within 10 minutes after exposure. All sealed joints shall be watertight.
- C. Joints shall be caulked before painting adjacent work. Do not paint over silicone sealant compound.
- D. Fire caulk shall be installed to comply with manufacturer's requirements, UL requirements, and requirements of authority having jurisdiction.

3.3 Clean-up

On non-porous surfaces, excess uncured caulking shall be immediately removed with a solvent moistened cloth. On porous surfaces, excess caulking should be allowed to cure overnight, then remove by lightly wire brushing or sanding. All adjacent surfaces shall be clean and free from stains.

END OF SECTION

HOLLOW METAL DOORS & FRAMES - SECTION 08110

1.0 - GENERAL

- 1.1 Scope
Furnish and install all hollow metal doors and frames including view windows, as indicated on the drawings and herein specified.
- 1.2 Submittals
- A. Submit shop drawings for approval.
 - B. Drawings shall show a schedule of openings using architectural opening numbers, all dimensions, jamb and head conditions, construction details, preparations for hardware, gauges, and finish.
- 1.3 Templates
- A. Manufacturer shall obtain templates of all applicable hardware from the Finish Hardware Contractor and make proper provision for the installation of this hardware.
 - B. Unless otherwise specified in the hardware section of the specifications, hardware locations shall be in accordance with the recommendations of The National Builder's Hardware Association.
- 1.4 Marking and Storage
Mark each frame for intended location. Store frames off the ground and in a manner to protect them from damage.
- 1.5 Storage
- A. Doors shall be stored in a dry, secure location to prevent exposure to weather and/or moisture.
 - B. Frames shall be stored off the ground and protected from weather until in place.

2.0 - PRODUCTS

- 2.1 Door Construction
- A. Exterior Doors: Formed up sheets not less than 16 U.S. gauge rigidly connected and reinforced inside with continuous interlocking 20-gauge hat stiffeners, spaced a maximum of 6" apart. Interior Doors: Formed up sheets not less than 18 U.S. gauge rigidly connected and reinforced inside with continuous interlocking 20-gauge hat stiffeners, spaced a maximum of 6" apart. Sound deadening material of rock wool batts, insulites or other standard recognized available sound deadening materials shall be placed between all stiffeners and plates. Honeycomb doors are not acceptable. Suitable provision shall be made to receive glass panels or louvers. Edge seams are to be continuously welded and ground smooth. Bondo seams are not acceptable.
 - B. Doors shall be coordinated with thresholds specified under FINISH HARDWARE - SECTION 08710 to meet A.D.A. requirements. Doors shall be extended as required to seal against threshold.
 - C. Hollow metal doors shall be provided with beveled hinge and lock edges. Bevel hinge and lock door edges 1/8 inch (3 mm) in 2 inches (50 mm).

- D. Exterior door face sheets shall be galvanized steel, level A60 (ASTM A653).
- E. Hardware preparation for hollow metal doors: hinge reinforcements shall be minimum 7-gauge x 9" length.
- F. Hardware Reinforcements:
 1. Hinge reinforcements for full mortise hinges: minimum 7 gage [0.180" (4.7mm)].
 2. Lock reinforcements : minimum 16 gage [0.053" (1.3mm)].
 3. Closer reinforcements : minimum 14 gage [0.067" (1.7mm)], 20" long.
 4. Galvanized doors: include Galvanized hardware reinforcements. Include Galvanized components and internal reinforcements with Galvanized doors. Close tops of exterior swing-out doors to eliminate moisture penetration. Galvanized steel top caps are permitted.
 5. Projection welded hinge and lock reinforcements to the edge of the door.
 6. Provided adequate reinforcements for other hardware as required.

2.2 Frame Construction

- A. Frames shall be of sizes as indicated, completely assembled, buck and frame formed from 14-gauge exterior, 16-gauge interior, steel with 2" face unless otherwise indicated and 5/8", minimum, integral stop. Exterior frames and interior frames at cafeteria, kitchen, locker room and shower areas shall be Galvanized A60 (ASTM A653).
- B. Corners of frames to be mitered and continuously welded. Joints shall be pulled up tight, welded, and ground smooth with faces in correct alignment.
- C. Provide adjustable "T" type anchors, three to each jamb; welded angle clips at bottom of frames for anchorage to floor construction; detachable type metal spreaders. Jamb anchors shall be T-shaped and of the same thickness as the metal of the frames. Where "T" anchors are not feasible, provide anchors as required and/or recommended.
- D. Machine frames for attachment of hardware, including special reinforcing for extra heavy duty use, drilling, and tapping. Provide mortar tight metal dust boxes in back of lock location.
- E. Frames for sidelights shall be integral with door frames; borrowed light window frames and other openings shall be as detailed.
- F. Prepare frames for rubber silencers, three for single swing door and two for each pair of doors.
- G. **While in the shop and prior to shipping, all frames to be installed in masonry shall be thoroughly coated on the inside surface with a bituminous water resistant paint.**

2.3 Labeled Assemblies

- A. All openings shall be protected by assemblies which include doors, frames,

hardware, closing devices, anchorage, sills, etc. installed in accordance with NFPA Standard "FIRE DOORS and WINDOWS, NFPA 80," as per Standard Building Code.

- B. To further clarify the basic requirements and/or the correct method of labeling that will be acceptable; the labels will include, but not be limited to, the following:

1) **Labeling of Fire Doors and Frames**

All door openings in fire resistive walls and partitions requiring a rating shall be protected by assemblies which include doors, frames, hardware, closing devices, anchorage, sills, etc., installed in accordance with the National Fire Protection Association (NFPA) 80, Standard for "Fire Doors and Fire Windows" and the State Building Code.

To further clarify the basic requirements and the correct method of labeling that will be acceptable to the Division of Construction Management, the labels shall include the following:

- a) **Accessibility**: Each component shall bear a label located to be accessible after installation.
 - b) **Permanence**: Each component shall bear a label of a type of material and be so attached that the life of the label and the attachment thereof can reasonably be expected to equal the life of the component to which it is attached. Labels shall be raised or embossed on metal labels or stamped into metal frames. Plastic or paper labels are unacceptable.
 - c) **Legibility**: The label design shall be such that it can always be visible and legible and must be clean of any paint or other coverage making the label illegible.
 - d) **Fire Resistance**: All approved labels on doors and on frames shall include thereon the fire resistance rating in hours and minutes for which the door or frame is labeled. Labels on frames with transoms or sidelights must identify that the opening assembly includes same.
 - e) **Other Requirements**: The labels or stamps applied to frames must be provided by a manufacturer that has been approved by a laboratory or organization to provide testing and follow-up services for fire-rated opening assemblies.
- 2) **Other Requirements** - As directed by the approved laboratory or organization providing testing and follow-up services and labeling.

2.4 **Finish**

- A. Metal doors and frames shall be thoroughly cleaned of dirt, grease, and impurities and shall be bonderized and finished with one coat of baked-on primer ready to receive finish paint.
- B. Primer shall be manufacturer's standard in accordance with ASTM B117.
Do not prime paint labels.

- C. Final painting as specified and applied under Painting Section.

3.0 - EXECUTION

3.1 Installation

- A. **VERIFY THAT ALL FRAMES TO BE INSTALLED IN MASONRY HAVE BEEN COATED WITH A BITUMINOUS WATER RESISTANT PAINT IMMEDIATELY PRIOR TO INSTALLATION.**
- B. Install frames plumb, rigid, and in true alignment; properly brace until built in. Set spreader and attached jambs to floor through floor anchors.
- C. In masonry openings, where required, install a second spreader at the mid-height of the door opening, and do not remove until the masonry jambs are in place. Spreader shall be notched wood of approximate jamb width and 1" minimum thickness. Install a minimum of three anchors per jamb to be imbedded in masonry joint as the wall is laid up.
- D. Frames shall be grouted solid.
- E. Doors shall be rigidly secured in frames, hardware applied, and adjusted to achieve smooth operation without forcing or binding. Doors shall be capable of maintaining any degree of opening.

3.2 Protection

After installation, doors and frames shall be protected from damage during subsequent construction activities. Damaged doors and frames shall be replaced.

END OF SECTION

1.0 – GENERAL

1.1 Summary

A. Section Includes:

Work under this section comprises of furnishing solid core doors (wood veneer faces and hardboard/MDF) light frames, factory fitting and machining and factory finishing for fire labeled and non labeled wood doors.

B. Related Documents:

Related documents, drawings and general provisions of contract, including General and Supplementary Conditions and Division 1 specification sections apply to this section.

C. Related Sections:

1. 06210 – Finish Carpentry
2. 08710 – Finish Hardware Schedule
3. 08110 – Hollow Metal Doors and Frames
4. 08810 – Glass Glazing
5. 09910 – Paint

1.2 References

A. Standards:

1. NFPA-80 – Fire Doors and Windows
2. NFPA-105 – Recommend Practice for Installation of Smoke Controlled Door Assemblies
3. WDMA I.S. 1A – Wood Door Manufacturer’s Association, Flush Wood Door Performance Standards
4. UL10C - Standard for Positive Pressure Fire Tests of Door Assemblies

B. Codes:

1. NFPA-101 – Life Safety Code
2. IBC 2021 – International Building Code
3. ANSI-A117.1 – Accessible and Usable Buildings and Facilities.
4. ADA – Americans with Disabilities Act

1.3 Submittals

A. General Requirements:

Submit copies of the wood door shop drawings in accordance with Section 01350.

B. Product Data:

Submit shop drawings showing fabrication and installation of wood doors. Include details of door elevations, details of construction, location and installation requirements of door hardware.

C. Shop Drawings:

1. Provide a schedule of doors and frames using same reference numbers for details and door openings as those on the contract documents. Shop drawings should include the following information:
 - a. Door core material.
 - b. Mortises and reinforcements.
 - c. Glazed and louvered openings and material.
 - d. Mounting locations of standard hardware.
 - e. Elevation drawings.

D. Samples:

1. Upon request submit the following samples:
 - a. Corner sections of doors approximately 8" x 10" with door faces and edgings representing the typical range of color and grain for each species of veneer and solid lumber required.
 - b. Factory finishes applied to actual door face materials, approximately 8" x 10" inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.
 - c. Frames for light openings, 6" long, for each material, type, and finish required.
 - d. Louver blade and frame sections, 6 inches long, for each material and finish specified.

1.4 Quality Assurance

A. Substitutions:

All substitution requests must be submitted for Architectural approval at least 10 days prior to bid in accordance with Section 01360. Approval of products will be in written form via Addendum.

B. Manufacturer Qualifications

1. Manufacturer shall be a member in good standing of the Wood Door Manufacturer's Association (WDMA).
2. Wherever possible obtain wood doors from a single manufacturer to ensure uniformity in quality of appearance and construction. All material supplied for this project to conform to WDMA I.S. 1A-97 for premium grade wood doors.

C. Fire Rated Doors:

1. Project requires door assemblies and components that are compliant with positive pressure and S-label requirements. Specifications must be cross-referenced and coordinated with hardware and other door manufacturers to ensure that total opening engineering is compatible with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and UBC 7-2, Fire Tests of Door Assemblies.
 - a. Certification(s) of compliance shall be made available upon request by the Authority Having Jurisdiction.
 - b. For units exceeding sizes of tested assemblies provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.

2. A physical label to be permanently affixed to the fire door at an authorized facility. Furthermore, all 45, 60, and 90 minute label fire doors are to have manufacturer's standard laminated stiles for improved screw holding and split resistance capability.
 - a. At stairwell enclosures and where otherwise indicated, provide doors that have a maximum transmitted temperature end point of not more than 250 deg F above ambient after 30 minutes of standard fire-test exposure

1) **Labeling of Fire Doors and Frames**

All door openings in fire resistive walls and partitions requiring a rating shall be protected by assemblies which include doors, frames, hardware, closing devices, anchorage, sills, etc., installed in accordance with the National Fire Protection Association (NFPA) 80, Standard for "Fire Doors and Fire Windows" and the State Building Code.

To further clarify the basic requirements and the correct method of labeling that will be acceptable to the Division of Construction Management, the labels shall include the following:

- a) **Accessibility**: Each component shall bear a label located to be accessible after installation.
- b) **Permanence**: Each component shall bear a label of a type of material and be so attached that the life of the label and the attachment thereof can reasonably be expected to equal the life of the component to which it is attached. Labels shall be raised or embossed on metal labels or stamped into metal frames. Plastic or paper labels are unacceptable.
- c) **Legibility**: The label design shall be such that it can always be visible and legible and must be clean of any paint or other coverage making the label illegible.
- d) **Fire Resistance**: All approved labels on doors and on frames shall include thereon the fire resistance rating in hours and minutes for which the door or frame is labeled. Labels on frames with transoms or sidelights must identify that the opening assembly includes same.
- e) **Other Requirements**: The labels or stamps applied to frames must be provided by a manufacturer that has been approved by a laboratory or organization to provide testing and follow-up services for fire-rated opening assemblies.

1.5 **Delivery, Storage, And Handling**

- A. Protect doors during transit, storage, and handling to prevent damage, soiling, and deterioration. Doors are to be shipped from manufacturer in individual polybags, and shall be inspected immediately upon arrival at jobsite for any damage of defects.

- B. Identify each door with individual opening numbers that correlate with designation system used on shop drawings and contract drawings for door, frames and hardware. Use only temporary, removable, or concealed markings.
- C. Do not deliver or install doors until building is enclosed and weather tight, wet-work is complete and dry, and HVAC system is operating and maintaining ambient temperature and relative humidity at occupancy level in storage and installation areas.

1.6 Warranty

- A. Warranties shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.
- B. Submit written warranty on manufacturer's standard form signed by the manufacturer agreeing to replace or repair defective doors which have:
 - 1. Delamination in any degree.
 - 2. Warp or twist of 1/4" or more in any 3' x 6" x 7' plane of door face.
 - 3. Telegraphing of stile, rail or core through face to cause surface variation in excess of 1/100" in any 3" spans.
- C. Contractor shall replace or refinish doors where contractor's work contributed to rejection or voiding of manufacturer's warranty.
- D. Solid core interior doors shall be warranted for the life of their installation.

2.0 - PRODUCTS

2.1 Manufacturers

Subject to compliance with requirements, provide wood doors by one of the manufacturers as listed.

2.2 Fire Rated Doors

All fire rated doors shall be supplied to meet UL10C positive pressure standards for category "A" doors. All required intumescent seals shall be concealed into the edge of the door; frame applied intumescent seals are not acceptable.

2.3 Doors

A. Faces For Transparent Finish

- 1. Doors shall have premium grade A faces with manufacturer's standard five (5) ply construction; minimum 1/8" thick with stiles and rails bonded to the core.
- 2. Faces shall be minimum 1/50" at 12% moisture content thick after finish sanding.
 - a. Veneer Cut: Plain Sliced
 - b. Face Assembly: Book Match, Running Match
 - c. Veneer Species: Select White Birch
- 3. Exposed vertical edges shall be of the same species as the face material.

4. Doors shall have minimum 1" stiles on the hinge stile and 13/16" minimum on the lock stile; both stiles faces shall match the door veneer. Top and bottom rails shall be a minimum 13/16"; rails shall be mill option hardwood or structural composite lumber (SCL).

B. Faces For Opaque Finish

1. Faces shall be custom grade closed-grain hardwood of mill option, Hardboard or MDF; five (5) ply construction with stiles and rails bonded to the core.
 - a. Hardboard Faces: AHA A135.4, Class 1 (tempered) or Class 2 (standard).
 - b. MDF Faces: ANSI A208.2, Grade 150 or 160.
2. Exposed vertical edges shall be any closed-grain hardwood.
3. Doors shall have minimum 1" stiles on the hinge stile and 13/16" minimum on the lock stile; both stiles faces shall match the door veneer. Top and bottom rails shall be a minimum 13/16"; rails shall be mill option hardwood or structural composite lumber (SCL).

C. Non Rated And 20 Minute Doors

1. Supply particleboard core complying with WDMA I.S. 1A and ANSI-A208.1, Grade 1-LD, bonded to the door faces, stiles and rails using a Type I adhesive. Components are to be assembled to meet or exceed 20 minute fire door specifications for UL10C fire test requirements.
 - a. Algoma: Super Novodor / FD 1/3
 - b. Eggers: PC5 / PC5-20
 - c. Graham: GPD PC5 / GPD PC5-20
 - d. Marshfield: DPC-1 / DFP-20
 - e. VT Industries: 5502
2. Supply engineered core complying with WDMA I.S. 1A, bonded to door faces, stiles and rails using a Type I adhesive. Components are to be assembled to meet or exceed 20 minute fire door specifications for UL10c fire test requirements. Door shall meet or exceed WDMA I.S. 1A Extra Heavy Duty performance standards.
 - a. Algoma: FGFW
 - b. Eggers: SCL5 / SCL5-20
 - c. Graham: GPD EC5 / GPD EC5-20
 - d. Marshfield: DCL-1 / DCL-20
 - e. VT Industries: 5508
3. Provide LSL Timberstrand blocking at particleboard-core doors as follows to preclude the use of thru-bolts:
 - a. Provide 5" top-rail blocking, at doors indicated to have closers.
 - b. Provide 5" mid-rail blocking, at doors indicated to have exit devices.

D. Fire Rated Doors Over 20 Minutes

1. Supply fire resistive composite mineral core construction to provide the fire rating indicated, boned to door faces, stiles and rails using a Type I adhesive. Components are to be assembled to meet or exceed fire door specifications for UL10C fire test requirements.
 - a. Algoma: FD
 - b. Eggers: FGP
 - c. Graham: GPD FD5
 - d. Marshfield: DFM
 - e. VT Industries: 5545/5511
2. For mineral-core doors, provide composite blocking with improved screw holding capability approved for use in doors of fire ratings indicated as necessary to eliminate need for through-bolting hardware and as follows:
 - a. Provide 5" top-rail blocking.
 - b. Provide 4 1/2" x 10" lock blocks.
 - c. Provide 5" mid-rail blocking, at doors indicated to have exit devices.
3. At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.

2.4 Factory Finishing

- A. Finish all doors to receive a transparent finish at the factory as indicated below; field finish doors indicated to receive an opaque finish in accordance with Division 9, Finishes.
 1. Grade: Premium
 2. Finish: WDMA TR-6 catalyzed polyurethane.
 3. Stain: Clear-coat only.
 4. Effect: Semi-filled finish, produced by applying an additional finish coat to partially fill the wood pores.
- B. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
- C. Finish doors using three (3) coats of water-clear 100% solids, modified acrylic urethane, cured immediately with ultra-violet light.
- D. Factory seal transparent finish doors on all six (6) sides using manufacturer's standard meeting these applications.

2.5 Light Frames

- A. Provide manufacturer's standard metal light frame formed of 0.048 inch thick cold-rolled steel sheet with baked-enamel or powder-coated finish approved for use in doors of non fire rated or fire rating indicated.

2.6 Fabrication

- A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:

1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-rated doors.
- B. 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.
 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.
 2. Pre-machine metal astragals and formed-steel edges for hardware for pairs of fire-rated doors.
- C. Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
 1. Trim openings with moldings of material and profile indicated.

3.0 - EXECUTION

3.1 Examination

- A. Examine installed door frames before hanging doors.
 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. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 Installation

- A. For hardware installation, see Division 8 Section "Finish Hardware."
- B. Install wood doors to comply with manufacturer's written instructions, referenced quality standard and as indicated.
- C. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
- D. Align factory fitted doors in frames for uniform clearance at each edge.

3.3 Adjusting And Protecting

- A. Rehang or replace doors that do not swing or operate freely.
- B. Refinish or replace doors damaged during installation.
- C. Protect doors as recommended by door manufacturer to ensure that wood doors are without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 08710 – FINISH HARDWARE

1.0 - 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. Continuous hinges
 - 3. Key control system
 - 4. Lock cylinders and keys
 - 5. Lock and latch sets
 - 6. Closers
 - 7. Overhead holders
 - 8. Miscellaneous door control devices
 - 9. Door trim units
 - 10. Protection plates
 - 11. Weatherstripping for exterior doors
 - 12. Thresholds
- C. Related Sections: The following Sections contain requirements that relate to the following sections.
 - 1. Section 08110: Hollow Metal Doors and Frames
 - 2. Section 08200: Wood Doors
- D. Products furnished but not installed under this Section to include:
 - 1. Cylinders for locks on entrance doors.
 - 2. Final replacement cores and keys to be installed by Owner.

1.3 References

- A. Standards of the following as referenced:
 - 1. American National Standards Institute (ANSI)
 - 2. Door and Hardware Institute (DHI)
 - 3. Factory Mutual (FM)
 - 4. National Fire Protection Association (NFPA)
 - 5. Underwriters' Laboratories, Inc. (UL)
 - a. UL 10C - Fire Tests Door Assemblies
 - 6. Warnock Hersey
- B. Regulatory standards of the following as referenced:
 - 1. Department of Justice, Office of the Attorney General, *Americans with Disabilities Act*, Public Law 101-336 (ADA).
 - 2. CABO/ANSI A117.1: *Providing Accessibility and Usability for Physically Handicapped People*, 2010 edition.

1.4 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. For items other than those scheduled in the "Headings" of Section 3, provide catalog information for the specified items and for those submitted.
- C. Final hardware schedule coordinated with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule into vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Use specification heading numbers with any variations suffixed a, b, etc. Include the following information:
 - a. Type, style, function, size, and finish of each hardware item.
 - b. Name and manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.
 - e. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for hardware.
 - g. Door and frame sizes and materials.
 - h. Keying information.
 - i. Cross-reference numbers used within schedule deviating from those specified.
 - 1) Column 1: State specified item and manufacturer.
 - 2) Column 2: State prior approved substituted item and its manufacturer.
 - 2. Submittal Sequence: Submit final schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work that is critical in the Project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by door hardware, and other information essential to the coordinated review of schedule.
 - 3. Keying Schedule: Submit separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks has been fulfilled.
- D. Provide samples if requested of each type of exposed hardware unit in finish indicated and tagged with full description for coordination with schedule. Submit samples prior to submission of final hardware schedule.
 - 1. Samples will be returned to the supplier. Units that are acceptable and remain undamaged through submittal, review, and field comparison process may, after final check of operation, be incorporated in the Work, within limitations of keying coordination requirements.
- E. Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- F. Contract closeout submittals:
 - 1. Operation and maintenance data: Complete information for installed door hardware.
 - 2. Warranty: Completed and executed warranty forms.

1.5 Quality Assurance

- A. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer.
 - 1. 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 supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced Architectural Hardware Consultant (AHC) who is available for consultation to Owner, Architect, and Contractor, at reasonable times during the course of the Work.
- B. Coordination Meetings:
 - 1. Contractor to set up and attend the following:
 - a. Lock distributor to meet with the Owner to finalize lock functions and keying requirements and to obtain final instructions in writing.
 - b. Lock distributor and lock, closer and exit device manufacturer to meet with the installer prior to beginning of installation of door hardware. Instruct installer on proper installation of specified products.
- C. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 requirements of authorities having jurisdiction.
 - 1. Provide only items of door hardware that are listed and tested by UL or Warnock Hersey for given type/size opening and degree of label. Provide proper latching hardware, door closers, approved-bearing hinges and seals whether listed in the Hardware Schedule or not. All hardware to comply with State and local codes and UL 10C.
 - 2. Where emergency exit devices are required on fire-rated doors, (with supplementary marking on doors' UL labels indicating "Fire Door to be equipped with Fire Exit Hardware") provide UL label on exit devices indicating "Fire Exit Hardware".
- D. All hardware is to comply with Federal and State Handicap laws.
- E. Substitutions: Request for substitutions of items of hardware other than those listed as "acceptable and approved" shall be made to the architect in writing no later than fourteen (14) days prior to bid opening. Approval of substitutions will only be given in writing by Addenda. Requests for substitutions shall be accompanied by samples and/or detailed information for each manufacturer of each product showing design, functions, material thickness and any other pertinent information needed to compare your product with that specified. Lack of this information will result in a refusal.

1.6 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 responsibility of 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 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.

1.7 Warranty

- A. Special warranties:
 - 1. Door Closers: Thirty year period
 - 2. Locks and Cylinders: Three year period

1.8 Maintenance

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions that are packed in hardware items for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

2.0 - PRODUCTS

2.1 Manufactured Units

(*Denotes preferred manufacturer)

A. Hinges:

- 1. Acceptable manufacturers:
 - a. Ives
 - b. Bommer
 - c. McKinney*
- 2. Characteristics:
 - a. Templates: Provide only template-produced units.
 - b. Screws: Provide Phillips flat-head screws complying with the following requirements:
 - 1) For metal doors and frames install machine screws into drilled and tapped holes.
 - 2) For wood doors and frames install threaded-to-the-head wood screws.
 - 3) For fire-rated wood doors install #12 x 1-1/4 inch, threaded-to-the-head steel wood screws.
 - 4) Finish screw heads to match surface of hinges or pivots.
 - c. Hinge pins: Except as otherwise indicated, provide hinge pins as follows:
 - 1) Out-Swing Exterior Doors: Non-removable pins.
 - 2) Out-Swing Corridor Doors with Locks: Non-removable pins.
 - 3) Interior Doors: Non-rising pins.
 - 4) Tips: Flat button and matching plug. Finished to match leaves.
 - d. Size: Size hinges in accordance with specified manufacturer's published recommendations.
 - e. Quantity: Furnish one pair of hinges for all doors up to 5'-0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof, unless otherwise specified in Hardware Headings.

B. Continuous Hinges:

- 1. Acceptable manufacturers:
 - a. Ives
 - b. Select Products
 - c. Pemko*
- 2. Characteristics:
 - a. Continuous gear hinges to be manufactured of extruded 6063-T6 aluminum alloy with anodized finish, or factory painted finish as scheduled.

- b. All hinges are to be manufactured to template. Uncut hinges to be non-handed and to be a pinless assembly of three interlocking extrusions applied to the full height of the door and frame without mortising.
- c. Vertical door loads to be carried on chemically lubricated polyacetal thrust bearings. The door and frame leaves to be continually geared together for the entire hinge length and secured with a full cover channel. Hinge to operate to a full 180°.
- d. Hinges to be milled, anodized and assembled in matching pairs. Fasteners supplied to be steel self-drilling, self-tapping 12-24 x 3/4" screws.
- e. Provide UL listed continuous hinges at fire doors. Continuous hinges at fire doors (suffix -FR) to meet the required ratings without the use of auxiliary fused pins or studs.

C. Cylinders:

- 1. Acceptable manufacturers:
 - a. Match existing keying system
- 2. Characteristics:
 - a. Except as otherwise indicated, provide new master key system for project.
 - b. Metals: Construct lock cylinder parts from brass or bronze, stainless steel, or nickel silver.
 - c. Comply with Owner's instructions for master keying and, except as otherwise indicated, provide individual change key for each lock that is not designated to be keyed alike with a group of related locks.
 - 1) Permanently inscribe each key with number of lock that identifies cylinder manufacturer's key symbol, and notation, "DO NOT DUPLICATE".
 - d. Key Material: Provide keys of nickel silver only.
 - e. Key Quantity: Furnish (3) change keys for each lock, (5) master keys for each master system, (5) grandmaster keys for each grandmaster system, (10) construction master keys, (2) construction Control Keys.
 - 1) Furnish one extra blank for each lock.
 - 2) Furnish construction master keys to General Contractor.
 - 3) Deliver keys to Owner.

D. Mortise Locksets and Latchsets: as scheduled.

- 1. Acceptable manufacturers:
 - a. Sargent 8200 Series*
 - b. Or Approved Equal
- 2. Required Features:
 - a. Chassis: Cold-rolled steel, handing field-changeable without disassembly.
 - b. Latchbolts: 3/4-inch throw stainless steel anti-friction type.
 - c. Lever Trim: Through-bolted, accessible design, cast or solid rod lever as scheduled. Spindles: Independent break-away.
 - d. Thumbturns: Accessible design not requiring pinching or twisting motions to operate.
 - e. Deadbolts: Stainless steel 1-inch throw.

- f. Strikes: 16 gage curved stainless steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
- g. Scheduled Lock Series and Design: Match existing lever design.
- h. Certifications:
 - 1) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
 - 2) ANSI/ASTM F476-84 Grade 30 UL Listed.

E. Exit Devices:

- 1. Acceptable manufacturers:
 - a. Sargent 80 Series*
 - b. Or Approved Equal
- 2. Characteristics:
 - a. Exit devices to be UL Listed for life safety. Exit devices for fire rated openings to have "UL" labels for "Fire Exit Hardware."
 - b. Exit devices mounted on labeled wood doors to be mounted on the door per the door manufacturer's requirements.
 - c. All trim to be thru-bolted to the lock stile case.
 - d. Lever trim to be solid case material with a break-away feature to limit damage to the unit from vandalism. Lever design to match locksets.
 - e. All exit devices to be made of brass, bronze, stainless steel, or aluminum material, powder coated, anodized, or plated to the standard architectural finishes to match the balance of the door hardware.
 - f. Provide glass bead conversion kits to shim exit devices on doors with raised glass beads.
 - g. All exit devices to be one manufacturer. No deviation will be considered.
 - h. All series exit devices to incorporate a fluid damper, which decelerates the touchpad on its return stroke and eliminates noise associated with exit device operation. All exit devices to be non-handed. Touchpad to extend a minimum of 1/2 of the door width and to extend to the height of the cross rail housing for a "no pinch" operation. Plastic touchpads are not acceptable. All latchbolts to be the deadlocking type. Latchbolts to have a self-lubricating coating to reduce wear. Plated or plastic coated latchbolts are not acceptable. Plastic linkage and "dogging" components are not acceptable.
 - i. Surface vertical rod devices to be UL labeled for fire door applications without the use of bottom rod assemblies. Where bottom rods are required for security applications, the devices to be UL labeled for fire doors applications with rod and latch guards by the device manufacturer.
 - j. Exit devices to include impact resistant, flush mounted end cap design to avoid damage due to carts and other heavy objects passing through an opening. End cap to be of heavy-duty metal alloy construction and provide horizontal adjustment to provide alignment with device cover plate. When exit device end cap is installed, no raised edges will protrude.

- F. Closers and Door Control Devices:
1. Acceptable manufacturers:
 - a. Sargent 281 Series*
 - b. Or Approved Equal
 2. Characteristics:
 - a. Door Closers shall be cast construction, minimum 1 ½" closer piston diameter, manufactured in USA, to be certified to exceed ten million (10,000,000) full load cycles by a recognized independent testing laboratory and shall have minimum ten year service record in K-12 school environments. Requests for approval for surface door closers shall be accompanied by project references. Approval shall be solely at the architect's discretion. All closers (overhead, surface and concealed) to be of one manufacturer and carry manufacturer's thirty year warranty
 - b. Door closers to have fully hydraulic, full rack and pinion action.
 - c. All closers to utilize a stable fluid withstanding temperature range of 120°F to -30°F without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors to be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C.
 - d. Spring power to be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Spring power adjustment (LCN Fast™ Power Adjust) allows for quick and accurate power adjustment and visually shows closer power size settings by way of dial adjustment gauge located on closer spring tube. Hydraulic regulation to be by tamper-proof, non-critical valves. Closers to have separate adjustment for latch speed, general speed and back check.
 - e. All closers to have solid forged steel main arms (and forearms for parallel arm closers) and where specified to have a cast-in solid stop on the closer shoe ("CUSH"). All parallel arm mounted closers to have "EDA" type arms or, where door travel on out-swing doors must be limited, use "CUSH" or "SCUSH" type closers. Auxiliary stops are not required when "CUSH" type closers are used. Provide drop plates where top rail of door is not sufficient for closer mounting. Provide "cush shoe supports" and "blade stop spacers" where dictated by frame details.
 - f. Access-Free Manual Closers: Where manual closers are indicated for doors required to be accessible to the physically handicapped provide adjustable units complying with ADA and ANSI A-117.1 provisions for door opening force.
 - g. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors to provide for corridor clear width as required by code. Where possible, mount closers inside rooms.
 - h. Powder coating finish to be certified to exceed 100 hours salt spray testing by ETL, an independent testing laboratory used by BHMA for ANSI certification.

- F. Floor Stops and Wall Bumpers:
1. Acceptable manufacturers:
 - a. Ives
 - b. Trimco
 - c. Rockwood Manufacturing*
 2. Characteristics: Refer to Hardware Headings.

- G. Protective Plates:
 - 1. Acceptable manufacturers:
 - a. Ives
 - b. Trimco
 - c. Rockwood Manufacturing
 - 2. Characteristics:
 - a. Provide manufacturers standard exposed fasteners for door trim units consisting of either machine screws or self-tapping screws.
 - b. Materials:
 - 1) Metal Plates: Stainless Steel, .050 inch (U.S. 18 gage).
 - c. Fabricate protection plates not more than 2 inches less than door width on push side and not more than 1 inch less than door width on pull side.
 - d. Heights:
 - 1) Kick plates to be 8 inches in height.
 - 2) Mop plates to be 6 inches in height.
 - 3) Kick plates and Mop plates to be 1" less than bottom rail height where applicable.

- H. Thresholds:
 - 1. Acceptable manufacturers:
 - a. Pemko*
 - b. National Guard Products, Inc.
 - c. Zero
 - 2. Types: Indicated in Hardware Headings.

- I. Door Seals/Gasketing:
 - 1. Acceptable manufacturers:
 - a. Pemko*
 - b. National Guard Products, Inc.
 - c. Zero
 - 2. Types: Indicated in Hardware Headings.

2.2 Materials And Fabrication

- A. Manufacturer's Name Plate: Do not use manufacturers' products that have manufacturer's name or trade name displayed in a visible location (omit removable nameplates) except in conjunction with required fire-rated labels and as otherwise acceptable to Architect.
 - 1. Manufacturer's identification will be permitted on rim of lock cylinders only.

- B. Base Metals: Produce hardware units of basic metal and forming method indicated, using manufacturer's standard metal alloy, composition, temper, and hardness, but in no case of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

- C. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
 - 1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.

2. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
4. Use thru-bolts for installation of all exit devices, closers, and surface-mounted overhead stops. Coordinate with wood doors and metal doors and frames. Where thru-bolts are used, provide sleeves for each thru-bolt as a means of reinforcing the work, or provide sex nuts and bolts.

2.3 Hardware Finishes

- A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch or lock sets).
- B. Provide finishes that match those established by ANSI or, if none established, match the Architect's sample.
- C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.
- D. Provide protective lacquer coating on all exposed hardware finishes of brass, bronze, and aluminum, except as otherwise indicated. The suffix "-NL" is used with standard finish designations to indicate "no lacquer."
- E. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
 1. Hinges: 652 (US26D) Satin Chrome Plated Steel
 2. Continuous Hinges: 628 (US28) Clear Anodized Aluminum
 3. Mortise Locks: 630 (US32D) Satin Stainless Steel
 4. Door Closers: 689 Powder Coat Aluminum
 5. Push Plates: 630 (US32D) Satin Stainless Steel
 6. Pull Plates: 630 (US32D) Satin Stainless Steel
 7. Protective Plates: 630 (US32D) Satin Stainless Steel
 8. Door Stops: 626 (US26D) Satin Chrome Plated Brass/Bronze
 9. Overhead Holders: 630 Satin Stainless Steel

3.0 - EXECUTION

3.1 Installation

- A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
 1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
 2. "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.
 3. NWWDA Industry Standard I.S.1.7, "Hardware Locations for Wood Flush Doors."

- B. Install each hardware item in compliance with the 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, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.
- C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers".
- F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.2 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.
 - 1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.
- B. Clean adjacent surfaces soiled by hardware installation.
- C. Door Hardware Supplier's Field Service:
 - 1. Inspect door hardware items for correct installation and adjustment after complete installation of door hardware.
 - 2. Instruct Owner's personnel in the proper adjustment and maintenance of door hardware and hardware finishes.
 - 3. File written report of this inspection to Architect.

HARDWARE SCHEDULE

HWSET: A

EACH TO HAVE:

1	CONT. HINGE	CFM	PEM
1	PANIC HARDWARE	16-8804 814-PSB	SAR
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	MC-TB-281 CPS	SAR
1	KICK PLATE	K1050 10" X 2" LDW B-CS	ROC
1	RAIN DRIP	346	PEM
1	DOOR SWEEP	345NB	PEM
1	THRESHOLD	2005	PEM
1	GASKETING	S88	PEM

HWSET: B

EACH TO HAVE:

3	HINGE	TA2714 4.5 X 4.5	MCK
1	ENTRANCE LOCK	11G24	SAR
1	CYL/CORE	AS REQUIRED	
1	SURFACE CLOSER	MC-TB-281 REG ARM	SAR
1	WALL STOP	406/407/408	ROC
1	KICK PLATE	K1050 10" X 2" LDW B-CS	ROC

HWSET: C

EACH TO HAVE:

3	HINGE	TA2714 4.5 X 4.5	MCK
1	CLASSROOM LOCK	11G37	SAR
1	CYL/CORE	AS REQUIRED	
1	WALL STOP	406/407/408	ROC
1	KICK PLATE	K1050 10" X 2" LDW B-CS	ROC

HWSET: D

EACH TO HAVE:

3	HINGE	TA2714 4.5 X 4.5	MCK
1	CLASSROOM LOCK	11G37	SAR
1	CYL/CORE	AS REQUIRED	
1	OH STOP	90S	GLY
1	KICK PLATE	K1050 10" X 2" LDW B-CS	ROC

HWSET: E

EACH TO HAVE:

6	HINGE	TA2714 4.5 X 4.5	MCK
2	FLUSH BOLT	FB458	IVE
1	DUST PROOF STRIKE	DP1	IVE
1	CLASSROOM LOCK	11G37	SAR
1	SINGLE LEVER	11G93	SAR
1	CYL/CORE	AS REQUIRED	
2	OH STOP	90F	ROC

HWSET: F

ALL HARDWARE BY OVERHEAD/COILING DOOR MANUFACTURER/SUPPLIER.

END OF SECTION

1.0 - GENERAL

1.1 Scope

The work under this section consists of all glass and glazing.

1.2 Quality

- A. Glazing shall be provided to comply with Table 5.3.1 Building Envelope Requirements - Climate Zone 1 of the Alabama Building Energy Conservation Code, and the 2021 International Building Code.
- B. Glazing for Fire-Rated Door and Window Assemblies: Glazing tested per NFPA 252 and NFPA 257, as applicable, for assemblies complying with NFPA 80 and listed and labeled per requirements of authorities having jurisdiction.
- C. Safety Glazing Products: Comply with size, glazing type, location, and testing requirements of 16 CFR 1201 for Category I and II glazing products, and requirements of authorities having jurisdiction.
- D. Glazing Industry Publications: Comply with glass product manufacturers' recommendations and the following:
 - 1. GANA Publications: GANA Laminated Division's 'Laminated Glass Design Guide' and GANA's 'Glazing Manual.'
 - 2. IGMA Publication for Insulating Glass: IGMA TM-3000, 'Glazing Guidelines for Sealed Insulating Glass Units.'
- E. Insulating-Glass Certification Program: Indicate compliance with requirements of Insulating Glass Certification Council on applicable glazing products.

1.3 Samples

Submit for approval samples of each kind of glass required. Each sample shall bear a label indicating the kind and quality of the glass and the manufacturer.

1.4 Warranty

- A. Warranty for Coated-Glass Products: Manufacturer's standard form, signed by coated-glass product primary manufacturer or manufacturer/fabricator, as applicable, agreeing to replace coated-glass units that display peeling, cracking, and other deterioration in metallic coating under normal use, within 10 years of date of Substantial Completion.
- B. Warranty for Laminated Glass: Manufacturer's standard form, signed by laminated-glass product manufacturer/fabricator, agreeing to replace laminated-glass units that display edge separation, delamination, and blemishes exceeding those allowed by ASTM C 1172, within five years of date of Substantial Completion.
- C. Warranty for Insulating Glass: Manufacturer's standard form, signed by insulating-glass product manufacturer/fabricator, agreeing to replace insulating-glass units that exhibit failure of hermetic seal under normal use evidenced by the obstruction of vision by dust, moisture, or film on interior surfaces of glass, within 10 years of date of Substantial Completion.
- D. Installer's Warranty: Form acceptable to Owner, signed by glass product Installer, agreeing to replace glass products that deteriorate, or that exhibit damage or

deterioration of glass or glazing products due to faulty installation, within 2 years of date of Substantial Completion.

2.0 - PRODUCTS

2.1 Manufacturer

Glass products shall be as manufactured by Vitro Architectural Glass., Guardian Industries, Inc., or Pre-approved equal. Laminated pattern glass shall be as manufactured by North American Glass Fabrication. Fire-rated, safety-rated wired glass shall be manufactured by Technical Glass Products, Pilkington or SaffFirst.

2.2 Materials

Glass shall be as defined in, and in accordance with Code of Federal Regulations 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

- A. Compound for face glazing, or where shown or indicated as compound shall be an oleo-resinous knife grade elastic glazing compound such as Tremco's Trem-glaze, Pecora's M-242, or Dap-1012.
- B. Sealant where shown or indicated shall be Tremco "Mono," Dow Corning 780, or GE's construction sealant.
- C. Tape where shown or indicated shall be Tremco's 440 Tape, Curtis 606 Tape, or Warflex's "Sealing Tape."
- D. Neoprene setting blocks as approved by glass manufacturer Shore "A" Hardness approximately 70 to 90.
- E. Neoprene spacer shims as approved by glass manufacturer Shore "A" Hardness approximately 40 to 60.
- F. Neoprene glazing beads as approved for aluminum store front and doors.
- G. Color of compound, sealant, tape, etc. shall be as selected.
- H. Interior Tempered Safety Glass shall meet 16CFR1201 Test Requirements, Cat. 1 and/or Cat. 2 as applicable. Etch label and furnish certificate verifying the use of Tempered Safety Glass.

3.0 - EXECUTION

3.1 Preparation

- A. Immediately prior to glazing, all surfaces shall be wiped clean and free of protective coatings, moisture, and dust. All glazing shall be done when the temperature is 35° F or above.
- B. All sash shall be checked prior to glazing to make certain that the opening is square, plumb, and secured in order that uniform face and edge clearances are maintained. Inspect all butt and miter joints. If these joints are open, they shall be sealed with sealant prior to glazing. All ventilators shall be properly adjusted. Maintain 1/8" minimum bed clearance between glass and sash on both sides.
- C. All glass indicated in non-rated doors shall be tempered with etched label.
- D. All glass indicated in rated doors shall be fire safety glass with etched label.

3.2 Setting

- A. Glazing preparation and procedures shall be as outlined in the Glazing Manual of the Flat Glass Jobbers Association.
- B. Glass shall be set without springing, and with an equal bearing the entire width and length of each piece.
- C. The actual sizes required shall be determined by measuring the frames to receive the glass. All glass shall be factory labeled.
- D. Glass shall be properly cut and set in accordance with the best practice of the trade.
- E. Center glass in glazing rabbet to maintain recommended clearances at perimeter for expansion and contraction, each face of glass.

3.3 Protection

Immediately after installation, a marker letter shall be placed upon each pane of glass for protection against careless breakage. All broken, cracked, scratched, or otherwise damaged glass shall be replaced.

3.4 Cleaning

- A. Upon completion of the project, all glass shall have paint, dirt, and other stains removed; glass shall then be washed clean and polished.
- B. Labels on glass shall not be removed until final approval is obtained, and glass is ready for cleaning.

END OF SECTION

GYPSUM DRYWALL & LIGHT GAUGE METAL STUD SYSTEM - SECTION 09260

1.0 - GENERAL

- 1.1 Scope
The work of this section consists of the furnishing and erection of all metal studs and gypsum wall board, finished ready for field decoration.
- 1.2 Submittals
A. Submit manufacturer data, samples and shop drawings.
- 1.3 Applicable Standards
Current editions or revisions of Federal and ASTM standards shall apply unless specifically noted otherwise.
- 1.4 Delivery and Storage
All materials shall be delivered to the job in original unopened containers or bundles and stored in a place protected from the elements and damage.

2.0 - PRODUCTS

- 2.1 Materials
- A. Interior wall metal studs shall be cold rolled "Cee" design 25-gauge steel, prepared to receive self-drill, self-tapping screw fasteners. Metal studs web shall be punched to facilitate work of other crafts. At interior wall with plumbing, provide metal stud framing wide enough to fully conceal plumbing work.
- B. Exterior wall metal studs shall be 3-5/8" 20-gauge metal studs and runners, welded system, unless noted otherwise. At all areas to receive masonry veneer, use 18-gauge metal studs and runners.
- C. Track shall be of proper dimension to receive metal studs and provide a close friction fit.
- D. Metal studs and track shall be hot-dipped galvanized.
- E. Wall board shall be a mill fabricated gypsum board consisting of a core of processed gypsum rock encased in a heavy mineral finished paper on the face side and a strong liner paper on the back side. The face paper shall be folded around the long edges to reinforce and protect the core and the ends shall be square cut and smooth finish. Thickness shall be as indicated on the Drawings but not less than 5/8".
- F. Fire resistant wall board shall be a board having a specifically formulated core which shall meet Underwriter's Laboratory tests for a one-hour fire resistant rating. Material shall be equal to USG Sheetrock® Brand Ultralight Panels Fire code® X as manufactured by U.S. Gypsum, Fire-Shield® LITE® as manufactured by National Gypsum, Fireguard® by Georgia-Pacific.
- G. Moisture- and Mold-resistant, Fire-resistant Gypsum Core shall be 5/8" thick Fire code equal to SHEETROCK® brand MOLD TOUGH™ FIRECODE® .

Provide at all walls subject to moisture and/or at walls behind drinking fountains, sinks, lavatories, urinals, water closets, and all other plumbing fixtures where drywall is indicated.

- H. For High Impact Areas as indicated provide USG Sheetrock® Brand Mold Tough® VHI Firecode® X Panels or pre-approved equal that meets testing requirements for High Impact. The main ASTM standard for abuse classification is **ASTM C1629** which specifies the levels of performance. Annex A1 describes test methods for testing products for Hard Body Impact Resistance.

ASTM C1629 makes reference to three other test methods for abuse resistance: **ASTM E695** for Soft Body Impact, **ASTM D4977** for Abrasion resistance, **ASTM D 5420** for Indentation Resistance.

- I. Runner channels shall be hot-rolled or cold-rolled steel and shall be galvanized or given a coat of rust-inhibitive paint. Runner channels shall be one and one-half inches (1-1/2") with flange approximately one-half inch (1/2") deep, spaced not over forty-eight inches (48") on centers. Hot Rolled Channel shall weigh not less than 850 pounds per 1,000 lineal feet; cold rolled channel shall weigh not less than 475 pounds per 1,000 feet.
- J. Fasteners shall be flat, countersunk head drywall screws, USG Type S or as approved, or annular nails for use with nailer bars or for wood.
- K. Trim shall be hot dip galvanized steel, corner bead, casing, and expansion strips.
- L. Joint tape shall be a heavy perforated cross fibered reinforced paper.
- M. Joint cement shall be a bedding and finishing cement especially prepared for use with reinforcing joint tape.
- N. Metal accessories shall be provided at all exterior corners, where a horizontal surface abuts a vertical surface or where an exposed edge of the wallboard abuts metal. Material shall be as manufactured by or as recommended by the manufacturer of the wall board used.
- O. Control joints shall be provided at all corners, intersections, ceilings, etc., subject to movement. Install control joints in areas as recommended by manufacturer and/or as indicated on drawings.

2.2 Auxiliary Materials

- A. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

3.0 - EXECUTION

- 3.1 A. Floor and ceiling tracks aligned accurately according to partitions layout and anchored securely into structural floor and overhead structure at maximum of 16" o.c. All walls shall extend to underside of deck above.
- B. Studs spaced not greater than 16" o.c. for gypsum board, anchored securely to floor and ceiling tracks. Set studs approximately 2" from abutting partitions or walls at corners, openings and ends of partitions. Anchor door bucks to adjacent studs.
- C. Partitions shall be rigid, sound and plumb with all necessary metal trim, clips and accessories for a complete installation.
- D. Gypsum board shall be applied in single layer or multiple layers as indicated on the Drawings by screw application to metal studs with joints taped and filled with manufacturer's recommended joint compound.

- E. Application of gypsum board and joint finishing shall not begin under cold or damp conditions. The temperature shall be a minimum of 35° before work is begun and shall be maintained at this level or above until the joint cement is set dry and hard. Adequate ventilation shall be provided at all times.
- F. Installation shall be in full accord with the recommendations of the manufacturer. Workmanship shall be by competent workmen experienced in the installation of wall board and all work shall be done in accordance with the best practices of the trade to give a smooth, straight, aligned surface which is ready for the finish.
- G. Apply metal trim at exposed edges.
- H. Neatly cut all openings so that they may be covered by plates and escutcheons.
- I. Vertical Furring - All vertical furring in ceiling shall be of 5/8" fire rated gypsum board on metal framing. DO NOT furr with acoustical panels.

3.2 Drywall Finish

- A. Temperature and Humidity Conditions
Do not install joint treatment compounds unless installation areas comply with the minimum temperature and ventilation requirements recommended by the manufacturer and conditions are acceptable to the installer.
- B. Finish exposed drywall surfaces with joints, corners, and exposed edges reinforced or trimmed as specified, and with all joints, fastener heads, trim accessory flanges and surface defects filled with joint compound in accordance with manufacturer's recommendation for a smooth, flush surface. Drywall finishing work will not be considered acceptable if corners or edges do not form true, level or plumb lines, or if joints, fastener heads, flanges of trim accessories or defects are visible after application of field-applied decoration.
 - 1. Refer to ASTM 6840 for guidelines for acceptable levels of finish.
 - a. Finish Level shall be no less than Level 3 for all exposed Gypsum Board.
- C. Joint and Corner Reinforcing
 - 1. Use joint tape to reinforce joints formed by tapered edges or butt ends of drywall units and at interior corners and angles. Set tape in joint compound then apply skim coat over tape in one application.
 - 2. Where open spaces of more than 1/16" width occur between abutting drywall units (except at control joints), prefill joints with joint compound and allow prefill to dry before application of joint tape.
 - 3. Provide control joints as recommended by manufacturer.
- D. Reinforce external corners of drywall work with specified type of corner bead.

Securely fasten metal corner beads as recommended by the manufacturer. Do not use fasteners which cannot be fully concealed by joint compound fill applied over flanges.
- E. Edge Trimming
Provide specified type of metal casing bead trim. Install in single unjointed lengths unless run exceeds longest available stock length. Miter corners of semi-finished type trim. Coordinate installation of trim continuously with drywall installation.

- F. Application of Joint Compounds
Use only compatible compounds from one manufacturer. After mixing, do not use joint compounds if recommended pot-life time has expired. Allow drying time between applications of joint compound in accordance with manufacturer's recommendations for the relative humidity and temperature levels at the time of application. In no case, allow less than 24 hours drying time between application to joint compound. Apply not less than 3 separate coats of joint compound over joints, fastener heads, and metal flanges. Joint compound treatment is not required at non-fire rated walls above suspended ceiling where partitions/walls are shown or specified to extend to structural deck or ceiling above suspended ceiling.
- G. LEVELS OF FINISH. The following levels of finish are established as a guide for specific final decoration. The minimum requirements for each level shall be as described herein
1. Level 3:
All joints and interior angles shall have tape embedded in joint compound and shall be immediately wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. One additional coat of joint compound shall be applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges. Note: It is recommended that the prepared surface be coated with a drywall primer prior to the application of final finishes. See painting/wallcovering specification in this regard.

END OF SECTION

1.0 - GENERAL

1.1 Related Documents

Drawings and general conditions of Contract, including General and Supplementary Conditions and Division-1 Specification sections apply to work of this section.

1.2 Summary

A. Section Includes:

1. Acoustical ceiling panels.
2. Exposed grid suspension system.
3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

B. Related Sections:

1. Section 09260 - Gypsum Board
2. Section 09910 - Painting
3. Division 15 Sections - Mechanical Work
4. Division 16 Sections - Electrical Work

C. Substitutions:

1. Prior Approval: Unless otherwise provided in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
2. Submittals which do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.
See Section 01360 – Product Substitution for submittal process information and Product Substitution Form.

1.3 References

A. American Society for Testing and Materials (ASTM):

1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
 7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
 8. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
 9. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
 10. ASTM E 1264 Classification for Acoustical Ceiling Products.
 11. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
 12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 13. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.
- B. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"

1.4 Submittals

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
- D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
- E. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.5 Quality Assurance

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less
 - b. Smoke Developed: 50 or less

2. Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which acoustical ceilings function as a fire protective membrane and tested per ASTM E 119.
 - a. Protect lighting fixtures and air ducts to comply with requirements indicated for rated assembly.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.6 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, and 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 damaged units in any way.

1.7 Project Conditions

A. Space Enclosure:

All ceiling products and suspension systems must be installed and maintained in accordance with Armstrong written installation instructions for that product in effect at the time of installation and best industry practice. Prior to and after installation, the ceiling product must be kept clean and dry, in an environment that is between 32°F (0°C) and 120°F (49°C) and not subject to Abnormal Conditions within the space or with interfacing construction such as walls or soffits. Abnormal conditions include exposure to chemical fumes, vibrations, moisture, excessive humidity, or excessive dirt or dust buildup.

HumiGuard Plus Ceilings: Installation of the products shall be carried out where the temperature is between 32°F (0° C) and 120°F (49° C). It is not necessary for the area to be enclosed or for HVAC systems to be functioning. All wet work (plastering, concrete, etc) must be complete and dry. The ceilings must be maintained to avoid excessive dirt or dust buildup that would provide a medium for microbial growth on ceiling panels. Microbial protection does not extend beyond the treated surface as received from the factory, and does not protect other materials that contact the treated surface such as supported insulation materials.

1.8 Warranty

- A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 1. Acoustical Panels: Sagging and warping as a result of defects in materials or factory workmanship.
 2. Grid System: Rusting and manufacturer's defects
 3. Acoustical Panels with BioBlock Plus or designated as inherently resistive to the growth of micro-organisms installed with Armstrong suspension systems: Visible sag and will resist the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.
- B. Warranty Period Humiguard:

1. Acoustical panels and grid systems with HumiGuard Plus or HumiGuard Max performance supplied by one source manufacturer is thirty (30) years from date of substantial completion.
- C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.9 Maintenance

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
 2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

2.0 - PRODUCTS

2.1 Manufacturers

- A. Ceiling Panels:
Armstrong World Industries, Inc. USG or pre-approved equal.

2.2 Acoustical Ceiling Units

- A. Acoustical Panels Type L1 (with fire guard): Product:
Fine Fissured, 1831
1. Surface Texture: Medium
 2. Composition: Mineral Fiber
 3. Color: White
 4. Size: 24in X 24in X 5/8in
 5. Edge Profile: Square Lay-In for interface with Prelude XL Fire Guard 15/16" Exposed Tee.
 6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.55.
 7. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 35
 8. Emissions Testing: < 13.5 ppb of formaldehyde when used under typical conditions required by ASHRAE Standard 62.1- 2007, "Ventilation for Acceptable Indoor Air Quality"
 9. Flame Spread: ASTM E 1264; Fire Resistive
 10. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.85.
 11. Dimensional Stability: HumiGuard Plus - Temperature is between 32°F (0° C) and 120°F (49° C). It is not necessary for the area to be enclosed or for HVAC systems to be functioning. All wet work (plastering, concrete, etc) must be complete and dry.
 12. Antimicrobial Protection: BioBlock Plus - Resistance against the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.

2.3 Suspension Systems (WITH FIRE GUARD CEILING TILES ONLY)

- A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized aluminum as per ASTM A 653. Main beams and cross tees are double-web steel construction with type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized aluminum in baked polyester paint. Main beams and cross tees shall have rotary stitching (exception: extruded aluminum or stainless steel).
 - 1. Structural Classification: ASTM C 635 HD.
 - 2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
 - 3. Acceptable Product: Prelude XL Fire Guard 15/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.
- B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least three times design load, but not less than 12 gauge.
- D. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.

3.0 - EXECUTION

3.1 Examination of Adjoining Work

Do not proceed with installation until all wet work or work that has become wet such as concrete, CMU, terrazzo, plastering and painting has been completed and thoroughly dried out.

3.2 Preparation

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.
- B. Coordination: Furnish layouts for preset inserts, clips, and other ceiling anchors whose installation is specified in other sections.
 - 1. Furnish concrete inserts and similar devices to other trades for installation well in advance of time needed for coordination of other work.

3.3 Installation

- A. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- B. Suspend main beam from overhead construction with hanger wires spaced 4'-0" on center along the length of the main runner. Install hanger wires plumb and straight. Main beams are to be supported with hanger wires within 8" of vertical surface terminations.

- C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- D. Vertical Wall or soffit surfaces intended to be paint finished shall receive the first coat of primer or block fill prior to installation of wall moulding.
- E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 Adjusting and Cleaning

- A. Replace damaged and broken panels.
- B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage.
- C. Ceiling Touch-Up Paint, (Item #5760, 8oz. bottles) (Item #5761, quart size cans), "global white" latex paint should be used to hide minor scratches and nicks in the surface and to cover field tegularized edges that are exposed to view.
- D. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

1.0 - GENERAL

1.1 Section Includes

- A. Flooring and accessories as shown on the drawings and schedules as required for complete installation.

1.2 Submittals

- A. Submit shop drawings, seaming plan, coving details, and manufacturer's technical data, installation and maintenance instructions for flooring and accessories.
- B. Submit the manufacturer's standard samples showing the required colors for flooring and applicable accessories.
- C. If required, submit the manufacturer's certification that the flooring has been tested by an independent laboratory and complies with the required fire tests.
- D. See Section 01350 – Submittals.

1.3 Quality Assurance and Regulatory Requirements

- A. Installer Qualifications: Firm with minimum five years successful experience completing resilient tile installation similar to that required.
- B. Provide types of flooring and accessories supplied by one manufacturer, including leveling and patching compounds, and adhesives.
- C. Materials within each area shall be from one production run as indicated by cartons bearing the same manufacturer's color code.
- D. Materials shall be uniform in thickness and size with accurately cut edges. No seconds, off-goods, or remnants will be allowed.
- E. Provide flooring material to meet the following fire test performance criteria as tested by a recognized independent testing laboratory:
 - 1. ASTM E 648 Critical Radiant Flux of 0.45 watts per sq. cm. or greater, Class I.
 - 2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.
- F. Pre-Installation Conference: Conduct meeting at site prior to commencing work related to resilient tile installation.
 - 1. Require attendance of parties directly affecting resilient tile installation.
 - 2. Review site conditions, procedures, and coordination required with related work.

1.4 Environmental Conditions

- A. Deliver materials in good condition to the jobsite in the manufacturer's original unopened containers that bear the name and brand of the manufacturer, project identification, and shipping and handling instructions.
- B. Store materials in a clean, dry, enclosed space off the ground, and protected from the weather and from extremes of heat and cold. Protect adhesives from freezing. Store flooring, adhesives and accessories in the spaces where they will be installed for at least 48 hours before beginning installation.
- C. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65°F (18°C) and a maximum temperature of 100°F (38°C) for at least 48 hours before, during, and for not less than 48 hours after installation. Thereafter, maintain a minimum temperature of 55°F (13°C) in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.
- D. Install flooring and accessories after the other finishing operations, including painting, have been completed. Close spaces to traffic during the installation of the flooring. Do not install flooring over concrete slabs until they are sufficiently

dry to achieve a bond with the adhesive, in accordance with the manufacturer's recommended bond and moisture tests.

2.0 - PRODUCTS

2.1 Resilient Tile Flooring Materials

- A. Provide "Standard Excelon" Tile Flooring manufactured by Armstrong or pre-approved equal, having a nominal total thickness of 1/8", 12 in. x 12 in. Color and pattern as selected by architect from manufacturer's full range of colors. Vinyl composition tile shall conform to the requirements of ASTM F 1066, Class 2 – through pattern.
- B. Resilient tile patterns shall be indicated on architectural plans. Spacing and patterns shall be as indicated or directed.

2.2 Adhesives

- A. For Tile Installation System, Full Spread: Resilient Tile Adhesive under the tile and Wall Base Adhesive at the wall base shall be as manufactured or recommended by the manufacturer of the materials used. Provide epoxy adhesive at "wet" areas.

2.3 Accessories

- A. For patching, smoothing, and leveling monolithic subfloors (concrete, terrazzo, quarry tile, ceramic tile, and certain metals), shall be as manufactured or recommended by the manufacturer of the products used.
- B. For sealing joints between the top of wall base or integral cove cap and irregular wall surfaces such as masonry, provide plastic filler applied according to the manufacturer's recommendations.
- C. Provide transition/reducing strips tapered to meet abutting materials as shown on drawings.
- D. Provide threshold of thickness and width as shown on the drawings.
- E. Provide feature resilient edge strips, 1" wide x 24" length, of equal gauge to the flooring, homogeneous vinyl composition and color as selected by the Architect from standard colors available.
- F. Provide metal edge strips of width shown on the drawings and of required thickness to protect exposed edges of the flooring. Provide units of maximum available length to minimize the number of joints. Use butt-type metal edge strips for concealed anchorage, or overlap-type metal edge strips for exposed anchorage. Unless otherwise shown, provide strips made of extruded aluminum with a mill finish.
- G. Provide expansion joint cover equal to Construction Services GFST Series. Install per manufacturer's written instructions.

2.4 Waterjet Floor Graphic

- A. Provide waterjet cut floor design. Size and location located on Architectural drawings. Graphic to be provided by Architect.
- B. Cutting of VCT
 1. All cutting is to be done with waterjet technology.
 2. Tolerance between cuts is to be .002 (2/1000th of an inch).
 3. Waterjet cutting company is to be supplied an electronic file of the design.
 4. Includes cutting and assembly of the designs, and the field that surrounds.
- C. Preparation for Shipping of VCT Tiles

1. Each design to be reassembled back into 12"x12"square.
2. Tiles to be faced tape with low tack tape.
3. Entire project to be checked for accuracy prior to boxing which Includes verifying that each assembled piece fits correctly.
4. Tiles to be packed in a 14" x 14" box with foam surrounding VCT.
5. Each box to have labels indicating contents of box.
6. First box to be opened will be clearly marked.
7. Boxes to be palletized and shrink wrapped.
8. Waterjet cutting company will be available in case of emergency.
9. Installer to be notified in writing of the importance of having a smooth flat surface.
10. Shipment to be insured by shipper.

D. Installation

1. Installer to dry lay all waterjet designs prior to final installation.
2. Installer to notify waterjet company of any concerns prior to final installation.

2.5 Warranty

- A. Flooring materials under this section shall be warranted against manufacturing defects for five years from date of substantial completion.
- B. Installation shall be warranted for two years from date of substantial completion. Installation warranty shall include guarantee that products have been installed according to manufacturer's installation instructions, edition which is current at the time of installation.
- C. Prorated Manufacturer's Warranty
 1. **Within One Year:** If a defect is reported in writing to the manufacturer within one year of final completion, manufacturer will supply new material of the same grade sufficient to repair or replace the defective material. Manufacturer will also pay for reasonable labor costs.
 2. **Within Two Years:** If a defect is reported in writing to the manufacturer after one year, but within two years of substantial completion, manufacturer will supply new material of same grade sufficient to repair or replace defective material. Manufacturer will also pay fifty per cent of reasonable labor costs.
 3. **After Two Years:** If a defect is reported in writing to the manufacturer after two years, but within five years of substantial completion, manufacturer will supply new material of same grade sufficient to repair or replace defective material.

3.0 - EXECUTION

3.1 Inspection

- A. Examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond or impair durability or appearance of the flooring material.
- B. Inspect subfloors prior to installation to determine that surfaces are free from curing, sealing, parting and hardening compounds; residual adhesives; adhesive removers; and other foreign materials that might prevent adhesive bond. Visually inspect for evidence of moisture, alkaline salts, carbonation, dusting, mold, or mildew.
- C. Report conditions contrary to contract requirements that would prevent a proper installation. **DO NOT** proceed with the installation until unsatisfactory conditions have been corrected.

3.2 Preparation

- A. Smooth concrete surfaces, removing rough areas, projections, ridges, and bumps, and filling low spots, control or construction joints, and other defects as recommended by the flooring manufacturer.
- B. Remove paint, varnish, oils, release agents, sealers, and waxes. Remove residual adhesives as recommended by the flooring manufacturer. Remove curing and hardening compounds not compatible with the adhesives used, as indicated by a bond test or by the compound manufacturer's recommendations for flooring. Avoid organic solvents.
- C. For Tile Installation System, Full Spread perform subfloor moisture testing in accordance with ASTM F 2170, "Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situ Probes", ASTM F 1869, "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride" or as required by manufacturer to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. Relative humidity shall not exceed 80% and MVER shall not exceed 5 lbs./1000 sq. ft./24 hrs. On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained.
- D. For Tile High-Moisture Installation Warranty, perform subfloor moisture testing in accordance with ASTM F 2170, "Standard Test Method for Determining Relative Humidity in Concrete Slabs Using in-situ Probes", ASTM F 1869, "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride", or required by manufacturer to determine if surfaces are dry; free of curing and hardening compounds, old adhesive, and other coatings; and ready to receive flooring. Relative humidity shall not exceed 90% and MVER shall not exceed 7 lbs./1000 sq. ft./24 hrs. On installations where both the Percent Relative Humidity and the Moisture Vapor Emission Rate tests are conducted, results for both tests shall comply with the allowable limits listed above. Do not proceed with flooring installation until results of moisture tests are acceptable. All test results shall be documented and retained.
- E. Perform pH tests on concrete floors regardless of their age or grade level. All test results shall be documented and retained
- F. Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

3.3 Installation of Tile Flooring

- A. Install flooring in strict accordance with the latest edition of Manufacturer's Guaranteed Installation System and recommended work practices from the Resilient Floor Covering Institute.
- B. Install flooring wall to wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings.
- C. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.
- D. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.
- E. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.
- F. Border pieces less than 6" wide are NOT acceptable.
- G. Installation Direction: Quarter-turned unless otherwise indicated by Architect.

3.4 Installation of Accessories

- A. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required. Install base in lengths as long as practical from base materials that are mitered or coped. Tightly bond base to vertical substrate with continuous contact at horizontal and vertical surfaces.
- B. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.
- C. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.
- D. Apply butt-type and/or overlap metal edge strips where shown on the drawings, before and/or after flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

3.5 Cleaning and Protection

- A. Immediately After Installation
 - 1. Sweep, Dust mop or vacuum the floor thoroughly to remove all loose dust and dirt.
 - 2. Remove any dried adhesive residue with a clean white cloth dampened with mineral spirits, carefully follow warnings on container.
 - 3. Damp mop the floor with a properly diluted neutral detergent solution as recommended by manufacturer.
 - 4. Apply high quality commercial floor sealer and Two (2) coats of high quality commercial floor polish as recommended by manufacturer.
DO NOT wet wash, machine scrub or strip the floor for at least 4 to 5 days after installation. This is to prevent excess moisture from interfering with the adhesive bond and/ or seam treatments.
- B. Preparation for Use
 - 1. Scrub the floor with a neutral detergent and scrubbing pad as recommended by manufacturer.
 - 2. Thoroughly rinse floor and allow to dry.
 - 3. Apply Three (3) additional coats of high-quality commercial floor polish as recommended by Manufacturer for a total of Five (5) coats for final acceptance.
- C. Perform maintenance according to the latest edition of manufacturer's Guaranteed Installation System.
- D. Protect installed flooring as recommended by the flooring manufacturer against damage from rolling loads, other trades, or the placement of fixtures and furnishings.

END OF SECTION

1.0 – GENERAL

1.1 Scope

- A. The work under this section consists of all painting, finishing work and related items.
- B. Paint or Painting shall include sealers, primers, stains, and oil, alkyd, latex and enamel paints and the application of these materials on surfaces prepared to produce a complete job whether or not every item is specifically mentioned. Where items are not mentioned they shall be furnished as specified for similar work. **Only work specifically noted as being excluded shall be left unfinished.**
- C. This specification includes field painting of all exposed piping, metal, ductwork, conduit, hangers, mechanical and electrical equipment in finished spaces. A finished space is one listed in the Finish Schedule as having finish materials on walls and/or ceiling.

1.2 List of Proposed Materials

- A. The contractor shall either verify in writing that he intends to apply the products listed in the Paint Schedule, or shall submit for approval a list of comparable materials of another listed approved manufacturer. This submittal shall include full identifying product names and catalog numbers.

1.3 Submittals

- A. As soon as practicable after contract is let, submit for approval a detailed schedule of the paint proposed, listing the name of each product, and the surface to which it will be applied. Omission of any item from the approved schedule shall not relieve Contractor of his obligation.
- B. Product Data: For each paint system indicated. Include block fillers and primers.
 - 1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - 2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
 - 3. Coating Maintenance Manual: Upon conclusion of the project, the Contractor or paint manufacturer / supplier shall furnish a coating maintenance manual, such as Sherwin-Williams "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product / color / finish was used, product data pages, Material Safety Data Sheet (MSDS), care and cleaning instructions, Touch-up procedures.

1.4 Storage of Materials

- A. Deliver all painting materials to job site at least three (3) days before beginning painting in original unbroken containers showing manufacturers name and type of paint, subject to Architect's inspection and approval.

- B. All materials used on the job shall be stored in a single place. Such storage place shall be kept neat and clean, and all damage thereto or its surroundings shall be made good. Any soiled or used rags, waste, and trash must be removed from the building every night, and every precaution taken to avoid the danger of fire.

1.5 Protection of Other Work

- A. The painting contractor shall furnish and lay drop cloths in all areas where painting is being done to protect floors and other work from damage. He shall be responsible for any damage to other work and shall replace any materials which have been damaged to such an extent that they cannot be restored to their original condition. All damage must be repaired to the satisfaction of the Architect.

1.6 Job, Weather, and Temperature Conditions

- A. Maintain temperature in building at constant 65° F. or above and provide adequate ventilation for escape of moisture from the building in order to prevent condensation mildew, damage to other work, and improper drying.
- B. Exterior painting shall not be done when the temperature is below 50° F., while the surface is damp, or during cold, rainy, or frosty weather, or when the temperature is likely to drop to freezing within 24 hours. Avoid painting surfaces while they are exposed to hot sun.
- C. Before painting is started in any area, the area shall be broom cleaned and excessive dust shall be removed from all areas to be painted. After painting operations begin in a given area, clean only with commercial vacuum cleaning equipment.
- D. Adequate illumination shall be provided in all areas where painting operations are in progress.

1.7 Inspection of Surfaces

- A. Before starting any work, surfaces to receive paint finishes shall be examined carefully for defects which cannot be corrected by the procedures specified under paint manufacturers recommended "Preparation of Surfaces" and which might prevent satisfactory painting results. Work shall not proceed until such damages are correct.
- B. At areas of existing previously painted surface, the painting contractor shall field verify to assure compatibility between existing paint / coating material and the proposed new paint / coating material prior to procuring such new materials or products. Should a material or product compatibility conflict be discovered, the Contractor shall immediately notify the Architect for direction prior to proceeding with procuring such materials or products.
- C. The beginning of work in a specific area shall be construed as acceptance of the surfaces and the Contractor shall be fully responsible for satisfactory work.

1.8 Quality Assurance

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats. An inspection is required by manufacture in between prime coat and finish. Per the request of the Architect.
- C. Coordination of Work: Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings systems 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.
- D. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.

1.9 Cooperation With Other Trades

- A. This work shall be scheduled and coordinated with other trades and shall not proceed until other work and/or job conditions are as required to produce satisfactory results.
- B. The contractor shall examine the specifications for the various trades and shall thoroughly familiarize himself with all provisions regarding painting. **All surfaces that are left unfinished by the requirements of other sections shall be painted or finished as part of the work covered by this section.**

1.10 Maintenance Material

The contractor shall turn over to the Owner at the final inspection one gallon of each type and final color of the paint used on the project.

2.0 – PRODUCTS

2.1 Materials

- A. Except where otherwise specifically stated hereinafter, painting materials shall be products of one of the following manufacturers without substitution of "Equal", and shall be in that manufacturer's top grade of the respective type: Benjamin Moore, PPG, or Sherwin-Williams (Basis of Design). The term "top grade" refers to the manufacturers advertised line of best quality and not to "Professional" or "maintenance" lines. Any deviations from the requirements of this article shall only be by written change order with contract price adjusted accordingly.
- B. If job-mixed paints are used, submit proposed formulas for approval before proceeding with work. Thinning and tinting materials shall be as recommended by the manufacturer of the material used.
- C. Paints and finishing materials shall be free from skins, lumps, or any foreign matter when used, and pigments, fillers, etc., shall be kept well stirred while being applied.
- D. Interior finish materials shall comply with flame spread limitations and smoke production limitations as follows:

Walls and Ceilings - Flame Spread - 25 or less ASTM E-84.
Smoke Production - 350 or less ASTM E-84.

2.2 Colors

- A. Not limited to "stock" ready-mixed colors. Bring to directed shades or tones by mixing.
- B. In two-coat or three-coat work use slightly different colors for different coats to avoid skipping.
- C. Accent or feature areas when indicated shall be colors as selected. Color spacing and pattern shall be as indicated and/or directed. Maximum three (3) colors per area.
- D. Complete color scheme shall be as indicated on Finish Legend and Schedule.

2.3 Accessory Materials

Provide all required ladders, scaffolding, drop cloths, maskings, scrapers, tools, sandpaper, dusters, cleaning solvents, and waste as required to perform the work and achieve the results specified herein.

3.0 – EXECUTION

3.1 Workmanship

- A. Surfaces shall be clean, dry, and free of oil, grease, dirt, mildew, loose or peeling paint, loose wood particles, and in proper condition for painting. All work shall be carefully done by skilled mechanics. Finished surfaces shall be uniform in coverage, gloss, finish and color, and free from brush marks. All coats shall be thoroughly dry before applying succeeding coats.
- B. Do all work in strict accordance with manufacturer's label directions.
- C. Hand sand woodwork until smooth and free from raised grain and other surface imperfections. First coat shall be applied before erection, to all surfaces, front and back. After woodwork is primed, fill nail holes, cracks, etc., full and smooth with putty. Lightly sand between coats where necessary in accord with good practice. Fully finish the top and bottom edges of doors and other woodwork edges not normally visible. Shellac knots and pitch streaks before painting.
- D. On concrete or masonry, do no painting until the surface has dried to the equivalent of eight days drying time under well ventilated conditions in good drying weather.
- E. Vertical surfaces to Interface with suspended acoustical panel ceiling shall be primed/filled to a minimum of 8" about finish ceiling elevation prior to the installation of the acoustical panel ceiling perimeter wall edge molding/trim.
- F. Wash metal surfaces with mineral spirits to remove any dirt, grease, before applying materials. Where rust or scale is present, use wire brush, or sandpaper clean before painting. Clean shop coats of paint that become marred and touch up with specified primer.
- G. Treat galvanized metal surfaces chemically with compound designed for this purpose, apply as per manufacturer's directions before applying first paint coat.
- H. Remove and protect hardware panels, accessories, device plates, lighting fixtures, factory finished work, and similar items; or provide ample in-place protection. Upon completion of each space, carefully replace all removed items.

- I. Exterior doors shall have tops, bottoms, and side edges finished the same as the exterior faces of these doors. Interior door shall have vision windows, louvers, grilles, etc. Finished to match door frame.
- J. All closets and the interior of all cabinets shall be finished the same as adjoining room paint or stain unless otherwise scheduled. All other surfaces shall be finished the same as nearest or adjoining surfaces unless otherwise scheduled or directed.

3.2 Schedule

A. Exterior Metals

- 1. Galvanized metal shall be solvent clean with VM&P Naphtha.
Primer: S-W: Procryl B66 - 1310
Finish: Apply two coats
B66-600 Series
- 2. Non-primed metal shall be cleaned and etched with approved acid and washed with water.
Primer: S-W: Procryl B66 - 1310
Finish: Apply two coats
S-W: Pro Industrial DTM Acrylic Coating
- 3. Primed metals shall be inspected, scuffs, and abrasions sanded free of rust and receive full coat of primer. Concealed metal surfaces shall be spot primed.

Primer: S-W: Procryl B66 - 1310
Finish: Apply two coats
S-W: Pro Industrial DTM Acrylic Coating

B. Interior Metals

- 1. Non-primed metal shall be primed under this section.
Primer: S-W: Procryl B66 - 1310

Finish: Apply two coats
S-W: Pro Industrial DTM Acrylic Coating, Gloss
- 2. Primed metal shall have scratches and abrasions sanded free of rust and receive one full coat of primer.
Primer: S-W: Procryl B66 - 1310

Finish: Apply two coats
S-W: Pro Industrial DTM Acrylic Coating

C. Interior Gypsum Board and Plaster

- 1. Latex Finish system:
Primer: S-W: ProMar 200 Zero VOC Interior Latex Primer, B28-2600
Finish Apply Two Coats:
S-W: ProMar 200 Zero VOC Interior Latex
- 2. High Touch areas - Microbicidal Latex Finish System – passive system for controlling / killing E-COLI, STAPH and MRSA Infections. With topcoat EPA

registered No. 64695-1.

Prime Coat: Primer, latex, interior: S-W ProMar 200 Zero VOC Latex Primer, B28W2600, at 4.0 mils (0.102 mm) wet, 1.0 mils (0.025 mm) dry.

- a. First Coat: Microbicial Latex, interior, matching topcoat.
- b. Topcoat: Microbicial Latex, interior, eggshell:
S-W Paint Shield Interior Latex Eg-Shel Microbicial Paint, D12W51, at 4.0 mils (0.102 mm) wet, 1.8 mils (0.046 mm) dry, per coat. Brush and roll application only.

3. Ceiling Application:

**Note: Provide flat finish for gypsum board in ceiling applications.

S-W: Pro-Mar Ceiling Paint, P200 Flat - B30W2651

4. High Performance System: (All areas not ceiling) ***

Primer: S-W: ProMar 200 Zero VOC Interior Latex Primer, B28-2600

Finish Apply Two Coats:

S-W: Pro Industrial Pre-Catalyzed Waterbased Epoxy

Provide at all wet areas

S-W: Pro Industrial Waterbased Catalyzed Epoxy

D. Interior Concrete and Concrete Masonry

1. Concrete Masonry Surfaces shall be filled unless noted otherwise.

Prime: Pro Industrial Heavy Duty Acrylic Block Filler, B42W151

Finish Apply Two Coats:

S-W: Pro Industrial Pre-Catalyzed Waterbased Epoxy

Provide at all wet areas

S-W: Pro Industrial Waterbased Catalyzed Epoxy

- a. Note: Block Filler should achieve a smooth pinhole free appearance.
- b. This is necessary for proper protection before top coat is applied.
- c. Apply at recommended film thickness and spread rate as indicated by manufacturer.
- d. Architect requires manufacturer' inspection between block filler and top coat.

2. Concrete (Cast in Place or Precast)

Primer: Loxon Exterior / Interior Concrete & Masonry Primer / Sealer A24W8300

Finish Apply Two Coats:

S-W: Pro Industrial Pre-Catalyzed Waterbased Epoxy

3. **Concrete Sealer:** Concrete MUST be etched, with H&C® Concrete Etcher or muriatic acid, following label directions.

Reducer/Cleaner --- Aromatic 100, R2K5, or R7K65

Brush – Use natural bristle brushes

Roller – Use a ¼” – 3/8” nap woven or other solvent-resistant cover
Freshly stained or painted surfaces will require cure time before any application of this H&C® High Performance Industrial Clear. Follow manufacturer's instructions and recommendations.

E. Interior Wood Doors and Natural Finish Wood

One (1) coat - Stain, of selected color, S-W: Wood Classics "250" Interior Wood Stain, A49-800

Or One (1) coat – S-W: Wood Classics Waterborne Polyurethane

- F. Exterior Ground Mount and Roof Top Mechanical Units, Equipment and Accessories. Painting contractor shall examine the site and all drawings and provide one (1) heavy coat of paint for each unit. Provide also one (1) coat primer for galvanized and/or rust areas.
- G. Exposed Ceiling Painting (Dryfall)
Primer: Pro Industrial Pro-Cryl Primer (1 coat)
Finish: Waterborne Acrylic Dry Fall Flat (1-2 coats)
B42W00001

3.3 Material Application

- A. All materials shall be applied in complete accordance with manufacturer's printed instructions.
- B. All coats shall be thoroughly dry before the succeeding coat is applied.

END OF SECTION

MARKERBOARDS AND TACKBOARDS - SECTION 10110

1.0 - GENERAL

- 1.1 Scope
The work under this section consists of all markerboards and tack boards.
- 1.2 Submittals
Submit for approval completely detailed shop drawings including dimensions, construction details, materials, finish, and details of adjacent construction.
- 1.3 Manufacturer
The specifications and drawings are based on products of Claridge Products and Equipment Company to illustrate the standard of quality. Equivalent products by American Visual Display Products, LLC and PolyVision will be acceptable.
- 1.4 Guarantee
The Markerboards and Tack boards Contractor shall guarantee all materials and workmanship covered by this section for a period of one (1) year from date of final acceptance of the Contract, or from occupancy of the building, whichever is earlier.

2.0 - PRODUCTS

- 2.1 Markerboards
Markerboards shall be Claridge LCS 24-gauge Porcelain Enamel steel skin with 3/8" particle board core and .015" thick aluminum sheet backing, typical 4'-0" high x 12'-0" long. (other sizes as indicated). Color to be #32 LCS White. ("MB" as designated on plans.) Nontypical sizes shall be indicated.
- 2.2 Tack board
- A. Tack board shall be Claridge Fabricork Vinyl, 1/2" two-ply with 1/4" cork and 1/4" backing, 4'-0" high x 4'0" wide. Colors as selected. ("TB") as designated on drawings)
 - B. Roll Fabricork #1500 with fabric covered moldings shall be used where wall panel tack boards are indicated. Fabric shall be Maharam Parallel 91180 or pre-approved equal.

3.0 - EXECUTION

- 3.1 Installation
- A. Installation shall be mechanically anchored in accordance with the manufacturer's recommendations. All joints flush and neatly joined. No Glue shall be used.
 - B. Wash markerboards with water and detergent cleaner.
 - C. Contractor shall affix manufacturer's instructions to each Marker/Tack board unit which includes complete instructions on proper BREAKING IN of the markerboard.
 - D. Mounting heights shall be verified by the Owner prior to installation.

END OF SECTION

1.0 - GENERAL

- 1.1 Scope
The work required under this section consists of room/wall/ signs and building plaque(s).
- 1.2 Existing Conditions
 - A. It is the general contractor's responsibility to field verify existing signage before a bid and provide signage that shall match all existing signage types and styles currently installed to provide a continuity of design to the owner as required.
- 1.3 Submittals
 - A. Submit a sample of signs, including size, lettering style, materials, and finish.
 - B. Provide mounting templates.
 - C. Signs shall conform to requirements as set forth by the AMERICANS WITH DISABILITIES ACT Accessibility Guidelines.
 - D. Submit the schedule indicating each room name and number indicated on Architectural Drawings with a corresponding space for the Owner's mark-up for the actual room name and number per school system of each room name and number along with sign type to the Architect for review.

2.0 – PRODUCTS

- 2.1 Manufacturers
Subject to compliance requirements. Provide products by the following
 - 1. Leeds Architectural Letters, Inc. (Basis Of Design)
 - 2. Devaney Sign Service, LLC
 - 3. Bellco Sign & Engraving Specialists
- 2.2 Room and Wall Signs
 - A. Provide photopolymer signs with Grade II Braille 3/4" numerals and 5/8" Letters to comply with ADA (American Disability Act). Signs shall be color selected from the manufacturer's full line of colors.
 - B. Room signs with message insert to have 1/16" front plate, minimum 1/32" solid spacer (no tape spacer), and 1/8" back plate.
 - C. Room Signs (no message slot)- minimum 1/8" thick with 1/32" raised letters.
 - D. Exterior Signs - Exterior Aluminum .040 thick, factory painted, and text to be silkscreened or inkjet print.
 - E. Edge Condition - Square Cut.
 - F. Corners - Round.
 - G. Mounting:
 - 1. Sheet Rock - double sided tape
 - 2. Block or Brick - double sided tape and silicone
 - 3. Signs to be mounted with screws and anchors if specified.
 - 4. Signs mounted on wall adjacent to latch side of door 60" from floor to centerline of signs and 2" from edge of door frame to edge of sign.

H. Typical Signage Guidelines

1. All Offices, Classrooms, and Instructional Areas shall be 6" x 8" with 2-1/2" x 8" changeable clear message insert.
2. All other interior door signs except corridor and vestibule doors shall be 6" x 6" with no message strip.
3. 6" x 6" tactile exit sign at all interior exit doors leading directly to the exterior with raised copy and Braille.
4. Provide Exterior Signs (nominal 12" x 12") at all exterior entrances. Provide mounting as recommended by manufacturer. Exterior sign graphics to be provided by Architect.
5. Provide Framed Signage with Clear View Window. Frame to Match Interior Signage cover) to accommodate 8.5 x 11 Landscape Floor Plan. Provide two (2) per Classroom and Assembly Area.
6. Provide 8"x 8" sign adjacent to all doors leading to electrical equipment rooms containing stationary battery systems indicating "APPLY NO WATER" along with the type of battery system and current maintenance contact information.

2.3 Project Sign - Specification requirements are listed in Section 01030.

3.0 - EXECUTION

3.1 Installation of Signs
Install signs on surfaces and at heights as directed.

END OF SECTION

SECTION 10505 – STUDENT LOCKERS

1.0 - GENERAL

1.1 Scope of Work

Description: Furnish and install factory-assembled Heavy-Duty MIG-Welded Metal Lockers, complete, as shown and specified per contract documents.

1.2 Related Work Specified Elsewhere:

- A. Concrete: Section 03300
- B. Rough Carpentry: Section 06100
- C. Finish Carpentry: Section 06210

1.3 Submittals

- A. General: Refer to Section 01350 - Shop Drawing Submittals
- B. Shop Drawings: Submit drawings showing locker types, sizes, quantities, including all necessary details relating to anchoring, trim installation and relationship to adjacent surfaces.
- C. Color Charts: Provide color charts showing manufacturer's available colors (minimum 24). Provide metal samples if requested.
- D. Numbering: Locker numbering sequence will be provided by the approving authority and noted on approved shop drawings returned to the locker contractor.

1.4 Quality Assurance

- A. Manufacturing Standard: Provide metal lockers that are standard products of a single manufacturer, with interchangeable like parts. Include necessary mounting accessories, fittings, and fastenings.
- B. Fabricator Qualifications: Firm experience (minimum 5 years) in successfully producing the type of metal lockers indicated for this project, with sufficient production capacity to produce required units without causing delay in the work.
- C. Installer Qualifications: Engage an experienced (minimum 2 years) installer who has successfully completed installation of the type of metal lockers and extent to that indicated for this project.

1.5 Product Handling

- A. General: All work shall be fabricated in ample time so as to not delay construction process.
- B. Delivery: All materials shall be delivered to the site at such a time as required for proper coordination of the work. Materials are to be received in the manufacturer's original, unopened packages and shall bear the manufacturer's label.

- C. Storage: Store all materials in a dry and well ventilated place adequately protected from the elements.

1.6 Warranty

- A. Lifetime Warranty: Submit upon completion of the work, in the form prescribed under Section 01910 -Closeouts, Warranty covering all defects in materials and workmanship excluding finish, damage resulting from deliberate destruction and vandalism under this section **for the lifetime of the facility.**

2.0 - PRODUCTS

2.1 Manufacturers

- A. Manufacturers: Subject to compliance with the design, material, method of fabrication and installation as required in this specification section or modified as shown on drawings. Manufacturers offering products which may be incorporated in the work include the following:

Superior Lockers by List Industries Inc. (Basis of Design)
Art Metal Products, Uni- Body Construction
Penco Products, "All- Welded"

2.2 Locker Types

- A. General: Lockers shall be "CLASSMATE CORRIDOR LOCKERS" as manufactured by List Industries Inc. as Basis of Design or pre-approved equals
 - 1. Penco Unibody Welded and Lyon Unibody Welded.

Type: 2 Tier

Size: 12" wide x 12" deep x 36/72" high

- B. Classmate Corridor Lockers::

Doors: 14-gauge sheet steel with recessed handle, and multi-point gravity lift-type latching

Sides: 16-gauge solid sheet steel

Tops, Bottoms, Shelves: 16-gauge solid sheet steel

Backs: 18-gauge solid sheet steel

2.3 Fabrication

- A. Materials:

- 1. Steel Sheet: All sheet steel used in fabrication shall be prime grade free from scale and imperfections and capable of taking a heavy coat of high gloss baked enamel.

- 2. Fasteners: Cadmium, zinc or nickel plated steel; bolt heads, slotless type; self-locking nuts or lock washers.

3. Hardware: Hooks and hang rods of cadmium plated or zinc plated steel or cast aluminum.
 4. Handle: Seamless drawn stainless steel recessed handle.
 5. Number Plates: To be aluminum with not less than 3/8" high etched numbers attached to door with two aluminum rivets.
- B. Construction: Lockers shall be "Superior CLASSMATE Corridor Lockers" as manufactured by List Industries Inc. (Basis of Design) or approved equal. All lockers shall be factory-assembled, of all **MIG** welded construction, in multiple column units to meet job conditions. **Assembly of locker bodies by means of bolts, screws, or rivets will not be permitted. Welding of knockdown locker construction is not acceptable.** Grind exposed welds and metal edges flush and make safe to touch.
- C. Unibody/Vertical Side Panels: Shall be of integral frame and side wall construction manufactured from solid 16-gauge sheet steel. The one-piece side/frame shall be formed to provide a continuous door strike on the hinge side. An additional continuous vertical door strike shall be achieved at the latch side by MIG welding a 16-gauge full height channel frame member to the integral locker side producing a rigid torque-free welded locker body. The frame shall include a tab which engages a slot in the base locking the side panel and frame into position. Sides to be solid. Welded lockers without integral framing system specified will NOT be accepted.
- D. Flat Tops: Shall be formed of one piece of 16 gauge cold rolled sheet steel and shall be an integral part MIG welded to each vertical side panel frame member and be continuous to cover the full width of a multiple locker unit.
- E. Hat Shelves, Intermediate Shelves and Bases: Shall be 16-gauge sheet steel, have double bends at front and shall be MIG welded to the sides.
- F. Backs: Shall be 18 gauge cold rolled sheet steel, be continuous to cover a multiple unibody unit and be welded to each vertical side panel.
- G. Wardrobe Doors: Doors 20" high and over and 15" wide and under shall be fabricated from single sheet prime 14 gauge with single bends at top and bottom and double bends at the sides. The channel formed by the double bend at the latch side is designed to fully conceal the lock bar. Doors to be louvered.
- H. Seamless Drawn Stainless Steel Recessed Locker Handle: All locker doors shall have a seamless drawn 304 stainless steel recessed handle shaped to receive a padlock or built-in combination lock. The recess pan shall be deep enough to have the lock be completely flush with the outer door face. A finger lift/padlock hasp shall protrude through the top of the handle for easy opening of the locker door.
- I. Latching: The latching mechanism shall be finger lift control type constructed of 14-gauge (minimum) steel with a nylon cover that has a generous finger pull. Spring activated nylon slide latches shall be completely enclosed in the lock channel allowing doors to close with the lock in the locked position. Locking devise shall be designed for use with either built-in combination locks or padlocks. Latch hooks shall be 12 gauge (minimum) and shall be MIG welded to vertical frame member. Provide three latch hooks for doors 48" and over and two for doors under 48".

- J. Door Hinges: Hinges for wardrobe doors shall not be less than 16-gauge continuous piano type, securely riveted to frame and welded to the door. All doors shall be right hand side hinged.

2.4 Locker Accessories:

Equipment: Furnish each locker with the following items, unless otherwise shown.

- A. Locks (required): Built-In Combination Locks: Master Lock combination automatic dead bolt locks with 5 control keys. Locks must be capable of a minimum of five combination changes. Basis of Design: Zephyr
- B. Equipment: Furnish each locker with the following items, unless otherwise shown.
1. ADA 5% of total openings to be ADA Compliant. See ADA locations on plans.
- C. Double tier lockers: Openings 30" thru 36" high shall include one double prong ceiling hook and a minimum of two single prong wall hooks.
- D. Finished End Panels (If required): Shall be "Boxed" type formed from 16 gauge cold rolled steel with 1" O.D. double bends on sides and a single bend at top and bottom with no exposed holes or bolts. If lockers have slope tops, end panels must be formed with slope at top to cover the ends of the slope tops. Finish to match lockers. Provide at all exposed ends.
- E. Continuous Slope Tops (required): Not less than 18-gauge sheet steel approximately 18 degrees pitch, in lengths as long as practical but not less than four lockers. To be installed in addition to the locker flat top with end closures for support. Finish to match lockers.
- F. Fillers (required): Provide where indicated, of not less than 16-gauge sheet steel, factory fabricated and finished to match lockers.

- 2.5 FINISHING: All locker parts to be cleaned and coated after fabrication with a seven stage zinc/iron phosphate solution to inhibit corrosion, followed by a coat of high grade enamel electrostatically sprayed and baked at 325 degrees Fahrenheit for a minimum of 30 minutes to provide a tough durable finish. Color to be selected from manufacturer's standard list of colors. **Two-Tone Color Combination: Shall be at no additional cost with the locker body, frame and trim chosen from one color and the doors may be one of any other color chosen from manufacturers standard selection.**

Lockers shall be **GREENGUARD[®] GOLD Certified**.

3.0 - EXECUTION

3.1 Installation

- A. General: Installation shall be in strict conformance with referenced standards, the manufacturer's written directions, as shown on the drawings and as herein specified.
- B. Placement: Lockers shall be set in place, plumb, level, rigid, flush and securely attached to the wall (or bolted together if back-to-back) and anchored to the floor or base according to manufacturer's specifications.

- C. Anchorage: About 48" o.c., unless otherwise recommended by manufacturer, and apply where necessary to avoid metal distortion, using concealed fasteners. Friction cups are not acceptable.
- D. Trim: Sloping tops, metal fillers and end panels shall be installed using concealed fasteners. Provide flush, hairline joints against adjacent surfaces.

3.2 Adjustment

GENERAL: Upon completion of installation, inspect lockers and adjust as necessary for proper door operation. Touch-up scratches and abrasions to match original finish.

3.3 Warranty

All-Welded Lockers are covered against all defects in materials and workmanship excluding finish, damage resulting from deliberate destruction and vandalism under this section **for the lifetime of the facility**.

**** END OF SECTION ****

1.0 - GENERAL

- 1.1 Scope
The work of this section consists of furnishing and installing complete, all miscellaneous furnishings and fixture items as indicated.
- 1.2 Submittals
Shop drawings shall be submitted.
- 1.3 Warranty
Provide Manufacturer's Standard Warranty where manufacturer warrants that the Goods delivered hereunder shall be of the kind described within this agreement and free from defects in material and workmanship under conditions of normal use for a period of six (6) years. Halotron, CO2 and Water/Water based extinguisher will be warranted for a period of five (5) years.

2.0 - PRODUCTS

- 2.1 Fire Extinguisher Cabinets (FEC)
Recessed or semi-recess U.L. approved baked enamel 18 gauge steel cabinet, 24" h. x 10-1/2" w. x 6" d. with 2-1/2" trim. Cabinet door to be baked enamel or epoxy coated with stencil lettering "Fire Extinguisher" equal to J. L. Industries-Panorama #1017 Identity Q horizontal, white w/red letters - type break glass w/cly. lock; Larsen's Mfg. Co.; Amerex Corporation; or approved equal.
- Provide comparable fire rated fire extinguisher cabinets in fire rated walls as per rating indicated.
- 2.2 Fire Extinguisher (FE)
- A. Cabinet Mounted - U.L. approved, 10 pound, tri-class dry chemical for Class A, B, & C fires. Equal to J. L. Industries - Cosmic 10E with hose; Larsen's Mfg. Co.; Amerex Corporation. Provide one with each cabinet.
- B. Wall Mounted - 10 pound, Tri-Class Dry Chemical for Class A, B, C fires, U.L. approved, Model 10 ABCS-1. Manufacturers: J.L. Industries, Larsens, Amerex Corporation.
- C. Provide "K" type fire extinguishers at all kitchen locations.

3.0 - EXECUTION

- 3.1 Installation
Installation of all items shall be in full conformity with manufacturer's specifications, recommendations, ADA and approved details.
- 3.2 Fire Extinguishers shall be cabinet mounted in areas as indicated. Height shall be 4' from floor to extinguisher handles.
- 3.3 Fire Extinguishers shall be wall mounted in areas as indicated or required so that distance of travel between units does not exceed 75 feet. Each separate area shall have a minimum of one unit. Mounting height shall be 4' from floor to handle.

END OF SECTION

MISCELLANEOUS FURNISHINGS AND FIXTURES - SECTION 12150

1.0 - GENERAL

- 1.1 Scope
The work of this section consists of furnishing and installing complete, all miscellaneous furnishings, fixtures, and signage items as indicated.
- 1.2 Existing Conditions
A. It is the general contractor's responsibility to field verify existing signage before a bid and provide signage that shall match all existing signage types and styles currently installed to provide a continuity of design to the owner as required.
- 1.3 Submittals
Shop drawings shall be submitted.

2.0 - PRODUCTS

- 2.1 Building Letters
Cast aluminum letters, equal to Leeds Architectural Letters, Inc., Select from all available fonts. Font, 12" High, lay-out as indicated. Colors as selected by Architect. Provide flush concealed stud mounting.
- 2.2 Building Plaque
A. Dedication plaque shall be of cast aluminum. Furnish and install a 24" x 42" plaque with approximately 500 raised letters and raised border. Field shall have stipple finish. Face of letters and borders shall have ground satin finish surface.
B. Plaque layout and designation shall be furnished by the Architect.
- 2.3 Appliances
A. **Under-Counter Dishwasher (ADA)**
1. Manufacturer – GE Appliances
2. Model # GDT225SSLSS
3. See Electrical/Plumbing drawings and provide equipment with all required electrical and plumbing rough-ins, hook-ups, and installations.
4. Warranty: Provide manufacturer's 1-year warranty.
5. Provide Operation/Maintenance Demonstration for Owner.
- B. **Drop-in Range (ADA) - GE Appliances**
1. Manufacturer – GE Appliances
2. Model #JS7630LSS
3. See Electrical/Plumbing drawings and provide equipment with all required electrical and plumbing rough-ins, hook-ups, and installations.
4. Warranty: Provide manufacturer's 1-year warranty.
5. Provide Operation/Maintenance Demonstration for Owner.
- C. **Refrigerator - GE Appliances Model # GDE25EYKFS**
1. See Electrical/Plumbing drawings and provide equipment with all required electrical and plumbing rough-ins, hook-ups, and installations.
2. Warranty: Provide manufacturer's 1-year warranty.
3. Provide Operation/Maintenance Demonstration for Owner.

3.0 - EXECUTION

- 3.1 Installation
Installation of all items shall be in full conformity with manufacturer's specifications, recommendations, and approved details.
- 3.2 Installation of Building Letters
Install building letters on surfaces and at heights as directed. Install in accordance with manufacturer's recommendations.
- 3.3 Installation of Plaque(s)
Install plaque(s) where directed.
- 3.4 Installation of Appliances
Install appliances as directed. Install in accordance with manufacturer's recommendations.

END OF SECTION

LAMINATE CLAD CASEWORK - SECTION 12300

1.0 – GENERAL

1.1 Section Includes

- A. Fixed modular laminate clad casework and components.
- B. Countertops.
- C. Mobile storage units, tables and components.

1.2 Related Sections

- A. Blocking within walls where indicated: Division 6.
- B. Millwork, trim, and custom cabinetry: Division 6 and 12.
- C. Glass: Division 8.
- D. Base molding: Division 9.
- E. Sinks and service fixtures, service waste lines, connections, and vents: Division 15.
- F. Electrical service fixtures: Division 16.

1.3 Quality Assurance

- A. Manufacturer: Minimum of 5 years' experience in providing manufactured casework systems for similar types of projects, produce evidence of financial stability, bonding capacity, and adequate facilities and personnel required to perform on this project.
- B. Manufacturer: Provide products certified as meeting or exceeding ANSI-A 161.1-2000 testing standards.
- C. All manufactured casework systems, countertops and related items herein specified shall be furnished by one contractor to insure single source responsibility, and integration with other building trades.

1.4 Submittals

- A. Comply with Section 01350, unless otherwise indicated.
- B. Product Data: Manufacturer's catalog with specifications and construction details.
- C. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, specific modifications, component connections, anchorage methods, hardware, and installation procedures, plus the following specific requirements.
 - 1. Include production drawings for all casework systems and section drawings of all casework, work surfaces and accessories.
 - 2. Indicate locations of plumbing and electrical service field connection by others.
 - 3. Include layout with units in relation to surrounding walls, doors, windows, and other building components.

4. Coordinate production drawings with other work involved.

D. Casework Samples:

1. Component samples: Two sets of samples for each of the following:
Decorative laminate color charts / PVC and ABS edgings.

1.5 Product Handling

- A. Deliver completed laminate clad casework, countertops, and related products only after wet operations in building are completed, store in ventilated place, protected from the weather, with relative humidity range of 25 percent to 55 percent.
- B. Protect finished surfaces from soiling and damage during handling and installation with a protective covering.
- C. General Contractor shall be responsible for protection of all casework and tops after installation is complete.

1.6 Job Conditions

- A. Environmental Requirements: Do not install casework until permanent HVAC systems are operating and temperature and humidity have been stabilized for at least 1 week.
 1. Manufacturer/Supplier shall advise Contractor of temperature and humidity requirements for architectural casework installation areas.
 2. After installation, control temperature and humidity to maintain relative humidity between 25 percent and 55 percent.
- B. Conditions: Do not install casework until interior concrete work, masonry, plastering and other wet operations are complete.
 1. Flooring required to be placed under casework and equipment must be installed prior to installation.
 2. Wood or metal blocking (wall grounds) shall be installed within partitions prior to delivery of casework and furnishings to allow for immediate installation on delivery.
 3. Walls and openings shall be plumb, straight and square. Concrete floors shall be level within acceptable trade tolerances. Specifically the floor must be within 1/8" of level per 10 foot run, non-accumulative, when tested with a straight edge in any one direction.
 4. All overhead mechanical, electrical or plumbing rough-in work shall be complete
 5. Ceiling grids (with or without ceiling tiles), overhead soffits, duct work and lighting shall be installed.
 6. Painting shall be complete.
 7. General Contractor shall provide a secure storage area within the building that is clean, dry, well ventilated, protected from direct sunlight and broom clean.

1.7 Warranty

All materials and workmanship covered by this section will carry a five (5) year warranty from date of acceptance.

2.0 – PRODUCTS

2.1 Manufacturers:

- A. Manufacturer:
Casework shall be Stevens, Advanced Cabinet Systems or pre-approved equal. Each manufacturer must be able to provide casework (including selected plastic laminate colors) as specified and detailed in drawings and specifications.
- B. Substitutions:
1. Casework of other manufacturers will be considered for pre-approval, providing written request is received and approved at least ten (10) days prior to announced bid date and approved by Addendum. Bidder shall state in writing any deviations from requirements and specifications. The casework shall conform to the configuration, arrangement, design, material quality, joinery, panel thickness, and surfacing of that specified and shown on drawings.
 2. Manufacturer must be Architectural Woodwork Institute (AWI) Premium Certified.
 3. Requests for product substitutions must comply with Section 01360 – Product Substitution Procedures.

2.2 Materials

- A. Core Materials:
1. Particleboard up to 7/8 inch thick: Industrial Grade average 47-pound density particleboard, ANSI A 208.1-1999, M-3.
 2. Particleboard 1 inch thick and thicker: Industrial Grade average 45-pound density particle-board, ANSI A 208.1-1999, M-2.
 3. Medium Density Fiberboard 1/4 inch thick: Average 54-pound density grade, ANSI A208.2.
 4. MR Moisture Resistant Particleboard: Average 47-pound density particleboard, ANSI A208.1 1-1999, M-3.
- B. Decorative Laminates: GREENGAURD Indoor Air Quality Certified
1. High-pressure decorative laminate VGS (.028), NEMA Test LD 3-2005.
 2. High-pressure decorative laminate HGS (.048), NEMA Test LD 3-2005.
 3. High-pressure decorative laminate HGP (.039), NEMA Test LD 3-2005.
 4. High-pressure cabinet liner CLS (.020), NEMA Test LD 3-2005.
 5. High-pressure backer BKH (.048), (.039), (.028), NEMA Test LD3-2005.
 6. Thermally fused melamine laminate, NEMA Test LD 3-2005, color to be selected by architect.
- C. Laminate Color Selection: Nevamar, Wilson Art, Formica, Laminart, Arbonite, and Pionite are approved manufacturers. Manufacturer, colors, and pattern shall be selected from premium grade laminate and indicated on finish legend and schedule.

- D. Edging Materials:
1. 1mm PVC banding, machine applied; match laminate as schedule
 2. 3mm PVC banding, machine applied and machine profiled to 1/8 inch radius; match laminate as scheduled

2.3 Specialty Items

- A. Support Members:
1. Countertop support brackets: Epoxy powder coated, 11 gauge steel with integral cleat mount opening and wire management opening.
 2. Undercounter support frames: Epoxy powder coated.
 3. Legs: Epoxy powder coated.
 4. Brackets must support minimum of 600 lbs. without use of cross brace.

2.4 Cabinet Hardware

- A. Hinges:
1. 270 degree five knuckle - epoxy powder coated, institutional grade, 2-3/4 inch overlay type with hospital tip. 0.095 inch thick. ANSI-BHMA standard A156.9, Grade 1..
 - a. Doors 48 inches and over in height have 3 hinges per door.
 - b. Magnetic door catch with maximum 5 pound pull provided, attached with screws and slotted for adjustment.
 - c. Finish to be selected by Architect.
 - d. location for installation shall be noted on schedules on the drawings.
- B. Pulls:
- One pull shall be: located at the centerline of the drawer, regardless of width, to ensure ease of operation and maximize drawer slide life. Pull design shall comply with the Americans with Disability Act (ADA). Finish to be selected by Architect.
- a. Anodized aluminum wire pull, 8mm diameter with 96mm O.C. mounting holes
- C. Drawer Slides:
1. Regular, knee space and pencil: 100-pound load rated epoxy coated steel, bottom corner mounted with smooth and quiet nylon rollers. Positive stop both directions with self-closing feature. Paper storage, 150-pound load rated epoxy coated steel slides.
 2. File: Full extension, 150-pound load rated epoxy coated steel, bottom corner mounted with smooth and quiet nylon rollers. Positive stop both directions with self-closing feature.
- D. Adjustable Shelf Supports:
1. Injection molded transparent polycarbonate friction fit into cabinet end panels and vertical dividers, adjustable on 32mm centers. Each shelf support has 2 integral support pins, 5mm diameter, to interface pre-drilled holes, and to prevent accidental rotation of support. The support automatically adapts to 3/4 inch or 1 inch thick shelving and provides non-tip feature for shelving. Supports may be field fixed if desired. Structural load to 1200 pounds (300 pounds per support) without failure.
- E. Locks:
1. Removable core, disc tumbler, cam style lock with strike. Lock for sliding 3/4 inch thick doors is a disc type plunger lock, sliding door type with

strike. Lock for sliding glass/acrylic doors is a ratchet type sliding showcase lock.

2. Keying:

Keying as indicated on drawings shall be:
Alike Per Room & Master. Provide 2 Master keys to owner

3. Elbow catch or chain bolt used to secure inactive door on all locked cabinets.

F. Sliding Door Track: Anodized aluminum double channel.

G. Coat Rods: 1 inch diameter, 14-gauge chrome plated steel installed in captive mounting hardware.

H. File Suspension System: Extruded molding integral with top of drawer box sides to accept standard hanging file folders.

I. Mirrors: 1/4 inch thick polished mirror plate.

2.5 Fabrication:

A. Fabricate casework, countertops and related products to dimensions, profiles, and details shown. Tall Cabinets: All wardrobe cabinets are to be to be 29" deep unless noted otherwise on architectural drawings

B. All casework panel components must go through a supplemental sizing process after cutting, producing a panel precisely finished in size and squared to within 0.010 inches, ensuring strict dimensional quality and structural integrity in the final fabricated product.

C. Cabinet Body Construction:

1. All cabinet body construction shall be secured utilizing concealed interlocking mechanical fasteners. Construction must meet requirements in the AWS Manual, Edition 2, including errata through 2016 and appendix section.

a. Tops, bottoms and sides of all cabinets are particleboard core.

b. Tops, bottoms and sides of sink base units are moisture resistant particleboard core.

c. Sink Base Countertop substrate shall be 3/4" MR particleboard. Which shall run entire length of sink base unit. Joints or breaks at sink opening shall not be accepted. If necessary breaks shall only be allowed 4' to the right or left of the centerline of the drain.

2. Cabinet backs: Minimum 1/4 inch thick particle board core (maximum of 1/2 inch thick particle board)

a. Exposed back on fixed: 3/4 inch thick particleboard with the exterior surface finished in VGS laminate as selected.

b. Exposed back on fixed: 3/4 inch thick moisture resistant particleboard with the exterior surface finished in VGS laminate as selected.

3. Cabinet base and tall units shall have a site-built toe base, constructed of 3/4-inch (minimum) lumber unless otherwise shown on the drawings. Base is 96mm (nominal 4 inch) high unless otherwise indicated on the drawings.
 4. Base units, except sink base units: Full sub-top. Sink base units are constructed of 3/4 inch moisture resistant particleboard and the base shelf shall be laminated both sides with cabinet liner.
 5. Side panels and vertical dividers shall receive adjustable shelf hardware at 32mm line boring centers. Mount door hinges, drawer slides and pull-out shelves in the line boring for consistent alignment.
 6. Exposed and semi exposed edges.
Edging: 1mm PVC.
 7. Adjustable shelf core: 3/4 inch thick particleboard up to 36 inches wide, 1 inch thick particleboard over 36 inches wide.
Front edge: 1mm PVC.
 8. Interior finish, units with open Interiors: (exposed areas)
 - a. Top, bottom, back, sides, horizontal and vertical members, and adjustable shelving faces that are exposed to receive thermally fused melamine to match exterior laminate.
 - b. Laminate color to be selected by architect.
 9. Interior finish, units with closed Interiors:
 - a. Top, bottom, back, sides, horizontal and vertical members, and adjustable shelving faces with thermally fused melamine to match other laminate.
 - b. Laminate color to be selected by architect.
 10. Exposed ends:
Faced with VGS high-pressure decorative laminate.
 11. Wall unit bottom:
Faced with thermally fused melamine laminate. (non-exposed areas only)
 12. Balanced construction of all laminated panels is mandatory. Unfinished core stock surfaces, even on concealed surfaces (excluding edges), are not permitted.
 13. All wardrobe cabinets are to be 29" deep unless noted otherwise on architectural drawings
- D. Drawers:
1. Sides, back and sub front: Minimum 1/2 inch thick particleboard, laminated with thermally fused melamine doweled and glued into sides. Top edge banded with 3mm PVC.
 2. Drawer bottom: Minimum 1/2 inch thick particleboard laminated with thermally fused melamine, screwed directly to the bottom edges of drawer box.

3. Paper storage drawers: Minimum 3/4 inch thick particleboard sides, back, and sub front laminated with thermally fused melamine. Minimum 1/2 inch thick particleboard drawer bottoms screwed directly to the bottom edges of the drawer box. Provide PVC angle retaining bar at the rear of the drawer.
- E. Door/Drawer Fronts:
1. Core: 3/4 inch thick moisture resistant particleboard at sink units.
 2. Provide double doors in opening in excess of 24 inches wide.
 3. Faces:
 - a. Exterior: VGS High-pressure decorative laminate.
 - b. Interior: High-pressure cabinet liner CLS.
 - c. All exposed areas to receive matching laminate color as face.
 4. Door/drawer edges: 3mm PVC, external edges and outside corners machine profiled to 1/8 inch radius.
- F. Miscellaneous Shelving:
1. Core material: 3/4 inch or 1 inch thick particleboard.
 2. Exterior: VGS High-pressure decorative laminate.
 3. Edges: 3mm PVC (at open storage shelving on metal standards), external edges and outside corners machine profiled to 1/8 inch radius.

2.6 Decorative Laminate Countertops:

- A. All laminate clad countertops shown on drawings for fixed casework shall be constructed with minimum 1-1/6" solid particleboard, except at sink and wet areas.
- Furnish plywood core tops and splashes, two and a half feet each side of center line of all sinks. All tops shall be laminated on the top face with GP50 (.050) high pressure decorative laminate and shall also have BK20 backer sheet creating balanced construction. The plastic laminate tops required for the rail mounted casework shall be constructed the same as the fixed laminate tops in the lengths indicated on the drawings. The rail mounted tops mounted over brackets shall be 1-1/4 inches from the wall to create a continuous grommet behind the back of the top. The rail mounted tops shall be supplied with 3mm PVC on all four edges. Provide tight joint fasteners where needed. All exposed edges, including edges of backsplash where used, shall have 3mm PVC banding, machine applied with waterproof hot melt adhesive. Exposed edges and corners shall be machine profiled to 1/8" radius for safety. Edging shall be available in colors as listed in Specification. Furnish 4" high backsplashes behind all sinks and as indicated on architectural drawings.

3.0 - EXECUTION

3.1 Inspection

The casework contractor must examine the job site and the conditions under which the work under this section is to be performed, and notify the building owner in writing of unsatisfactory conditions. Do not proceed with work under this Section until satisfactory conditions have been corrected in a manner acceptable to the installer.

- 3.2 Preparation
Condition casework to average prevailing humidity conditions in installation areas prior to installing.
- 3.3 Installation
- A. Erect casework, plumb, level, true and straight with no distortions. Shim as required. Where laminate clad casework abuts other finished work, scribe and cut to accurate fit.
 - B. Adjust casework and hardware so that doors and drawers operate smoothly without warp or bind.
 - C. Repair minor damage per plastic laminate manufacturer's recommendations.
- 3.4 Cleaning
- A. Remove and dispose of all packing materials and related construction debris.
 - B. Clean cabinets inside and out. Wipe off fingerprints, pencil marks, and surface soil etc., in preparation for final cleaning by the building owner.
- 3.5 Color Selection:
Laminate Color Selection: See Finish Legend and Schedule for color selections.

END OF SECTION

PLUMBING - TABLE OF CONTENTS - SECTION 15400

<u>SECTION NUMBER</u>	<u>TITLE OF SECTION</u>	<u>PAGE(S)</u>
15405	PLUMBING IDENTIFICATION	1-5
15410	GENERAL PROVISIONS - PLUMBING	1-9
15420	TESTING, CLEANING AND ADJUSTING (TCA).....	1-2
15450	MATERIALS AND METHODS - PLUMBING.....	1-5
15480	INSULATION - PLUMBING.....	1-5
15490	FIXTURES AND EQUIPMENT - PLUMBING.....	1-3

PLUMBING IDENTIFICATION – SECTION 15405

1.0 - GENERAL

1.1 SUMMARY

- A. This Section includes the following plumbing identification materials and their installation:
 - 1. Pipe markers.
 - 2. Valve tags.
 - 3. Valve schedules.
 - 4. Equipment labels.
 - 5. Warning signs and labels.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Valve numbering scheme.
- C. Valve Schedules: For each piping system. Furnish extra copies (in addition to mounted copies) to include in maintenance manuals.

1.3 QUALITY ASSURANCE

- A. ASME Compliance: Comply with ASME A13.1, "Scheme for the Identification of Piping Systems," for letter size, length of color field, colors, and viewing angles of identification devices for piping.

1.4 COORDINATION

- A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- B. Coordinate installation of identifying devices with location of access panels and doors.
- C. Install identifying devices before installing acoustical ceilings and similar concealment.

2.0 - PRODUCTS

2.1 PIPING IDENTIFICATION DEVICES

- A. Manufactured Pipe Markers, General: Preprinted, color-coded, with lettering indicating service, and showing direction of flow.
 - 1. Colors: Comply with ASME A13.1, unless otherwise indicated.
 - 2. Lettering: Use piping system terms indicated and abbreviate only as necessary for each application length.
 - 3. Pipes with OD, Including Insulation, Less Than 6 Inches: Full-band pipe markers extending 360 degrees around pipe at each location.

4. Pipes with OD, Including Insulation, 6 Inches and Larger: Either full-band or strip-type pipe markers at least three times letter height and of length required for label.
 5. Arrows: Integral with piping system service lettering to accommodate both directions; or as separate unit on each pipe marker to indicate direction of flow.
- B. Pre-tensioned Pipe Markers: Pre-coiled semi-rigid plastic formed to cover full circumference of pipe and to attach to pipe without adhesive.
- C. Self-Adhesive Pipe Markers: Are not allowed

2.2 VALVE TAGS

- A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers, with numbering scheme approved by Architect. Provide 5/32-inch hole for fastener.
1. Material: 3/32-inch thick laminated plastic with 2 black surfaces and white inner layer.
 2. Valve-Tag Fasteners: Brass wire-link chain, beaded chain or S-hook.

2.3 VALVE SCHEDULES

- A. Valve Schedules: For each piping system, on standard-size bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.
1. Valve-Schedule Frames: Glazed display frame for removable mounting on masonry walls for each page of valve schedule. Include mounting screws.
 2. Frame: Extruded aluminum.
 3. Glazing: ASTM C 1036, Type I, Class 1, Glazing Quality B, 2.5-mm, single-thickness glass.

2.4 EQUIPMENT LABELS

- A. Plastic Labels for Equipment:
1. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
 2. Color Coding:

<u>System</u>	<u>Background Color</u>	<u>Letters</u>
Other equipment	Black	White

3. Temperatures up to 160 deg F.

4. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
 5. Letter shall be a minimum of 1/2" high. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
 6. Fasteners: Stainless-steel self-tapping screws.
 7. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- B. Label Content: Include equipment's Drawing designation or unique equipment number.

2.5 WARNING SIGNS AND LABELS

- A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/16 inch thick, and having predrilled holes for attachment hardware.
- B. Letter Color: White.
- C. Background Color: Yellow.
- D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.
- E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
- F. Minimum Letter Size: Minimum 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
- G. Fasteners: Stainless-steel self-tapping screws.
- H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.
- I. Label Content: Include caution and warning information as indicated elsewhere in the specifications and on the Drawings.

3.0 - EXECUTION

3.1 APPLICATIONS, GENERAL

- A. Products specified are for applications referenced in other Division 15 Sections. If more than single-type material, device, or label is specified for listed applications, selection is Installer's option.

3.2 PIPING IDENTIFICATION

- A. Install manufactured pipe markers indicating service on each piping system. Install with flow indication arrows showing direction of flow.
 1. Pipes with OD, Including Insulation, Less Than 6 Inches: Pre-tensioned pipe markers. Use size to ensure a tight fit.
 2. Pipes with OD, Including Insulation, Less Than 6 Inches: Self-adhesive pipe markers. Use color-coded, self-adhesive plastic tape, [at least 3/4 inch] [1-1/2

inches] wide, lapped at least 1-1/2 inches at both ends of pipe marker, and covering full circumference of pipe.

3. Pipes with OD, Including Insulation, 6 Inches and Larger: Shaped pipe markers. Use size to match pipe and secure with fasteners.
 4. Pipes with OD, Including Insulation, 6 Inches and Larger: Self-adhesive pipe markers. Use color-coded, self-adhesive plastic tape, at least 1-1/2 inches wide, lapped at least 3 inches at both ends of pipe marker, and covering full circumference of pipe.
- B. Locate pipe markers and color bands where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior non-concealed locations as follows:
1. Near each valve and control device.
 2. Near each branch connection, excluding short takeoffs for fixtures. Where flow pattern is not obvious, mark each pipe at branch.
 3. Near penetrations through walls, floors, ceilings, and non-accessible enclosures.
 4. At access doors, manholes, and similar access points that permit view of concealed piping.
 5. Near major equipment items and other points of origination and termination.
 6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
 7. Label 2 psi gas piping at 6 foot intervals.

3.3 VALVE-TAG INSTALLATION

- A. Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; plumbing fixture supply stops; shutoff valves; faucets; convenience and lawn-watering hose connections; and HVAC terminal devices and similar roughing-in connections of end-use fixtures and units. List tagged valves in a valve schedule.
- B. Valve-Tag Application Schedule: Tag valves according to size, shape, and color scheme and with captions similar to those indicated in the following:
1. Valve-Tag Size and Shape:
 - a. Cold Water: 2 inches square.
 - b. Hot /HWR Water: 2 inches square.
 - c. Fire Protection: 2 inches square.
 - d. Gas: 1-1/2 inches round.
 - e. Valve-Tag Color:
 - f. Cold Water: Natural.

- g. Hot Water: Blue.
 - h. Fire Protection: Red.
 - i. Gas: Yellow.
2. Letter Color:
- a. Cold Water: White
 - b. Hot Water: White.
 - c. Fire Protection: White.
 - d. Gas: White.

3.4 VALVE-SCHEDULE INSTALLATION

- A. Mount valve schedule on wall in accessible location in each major equipment room.

END OF SECTION

1.0 - GENERAL

1.1 Scope:

- A. Provisions of this Section apply to all Plumbing work.
- B. Include the provisions of General, Supplementary and Special Conditions and provisions of the Specifications shall apply to and form a part of this Section.
- C. Provide all labor, materials, equipment, and services necessary for the completion of all work shown or specified, except work specifically specified to be done or furnished under other sections of the Specifications. Include performing all operations in connection with the complete installation in strict accordance with the specification and applicable drawings subject to the terms and conditions of the Contract, for the following system:
 - 1. A system of sanitary waste and vent piping.
 - 2. A system of domestic water piping.
 - 3. A system of natural gas piping.
 - 4. A system of compressed air piping.
- D. Give required notices, file drawings obtain and pay for permits, deposits and fees necessary for the installation of the work. Obtain and pay for inspections required by laws, ordinances, rules, regulations or public authority having jurisdiction. Obtain and pay for certificates of such inspections and file such certificates with Owner.
- E. "Provide" means to furnish and install, complete and ready for operation.

1.2 Drawings:

- A. Drawings are diagrammatic and subject to requirements of Architectural Drawings. Drawings indicate generally the location of components and are not intended to show all fittings or all details of the work. Coordinate with Architectural, Structural, Electrical, HVAC and other Building Drawings.
- B. Follow the Drawings closely, check dimensions with Architectural Drawings and field conditions. DO NOT scale Drawings for location of system components.
- C. Make no changes without Architect's written permission. In case of doubt, obtain Architect's decision before proceeding with work. Failure to follow this instruction shall make the Contractor liable for damage to other work and responsible for removing and repairing defective or mis-located work.
- D. Do not scale Drawings to locate sprinkler heads. Coordinate with lighting, ceiling grids, ceiling diffusers and/or reflected ceiling plans. Install Sprinkler Heads in center of ceiling tiles.

1.3 Applicable Codes and Standards:

- A. Comply with the current editions of the following Codes and Standards:
 - 1. ANSI/ASHRAE 15 - Code for Building Services Piping.
 - 2. NFPA 70 - National Electrical Code.

3. NFPA 101 – National Life Safety Code.
4. Other Standards as referenced in other Sections of Division 15.
5. Local Building Code (International Building Code if no local Building Code in effect).
6. Local Plumbing Code (International Plumbing Code if no local Plumbing Code is in effect).
7. Local GasCode (International Fuel Gas Code if no local Plumbing Code is in effect).

1.4 Qualifications of Subcontractor:

A. The Plumbing Contractor shall meet the following qualifications:

1. The Plumbing Contractor must be approved by the Architect.
2. The Plumbing Contractor shall have been in business as a Plumbing Contractor for at least three (3) years prior to Bid Date. He shall have a current Master's Plumber's Certificate and Gas Certificate of competency issued by the State of Alabama and the city and county in which work occurs.
3. The Plumbing Contractor shall have a satisfactory experience record with Plumbing installations of character and scope comparable with this project, and for at least three (3) years prior to the Bid Date and shall have had an established service department capable of providing service inspection or full maintenance contracts.

1.5 Conflicts and Interferences:

A. If systems interfere or conflicts, the Architect shall decide which equipment to relocate regardless of which was first installed.

1.6 Workmanship:

A. Do all work in a neat and first-class manner. Remove and replace work not done in such manner as directed by the Architect.

1.7 Cooperation:

A. Cooperate with all other crafts. Perform work in a timely manner. Do not delay the execution of other work.

1.8 Visiting Site:

A. Visit site and become familiar with location and various conditions affecting work. No additional allowance will be granted because of lack of knowledge of such conditions.

2.00 - PRODUCTS:

2.1 Materials, Substitutions and Submittals:

A. Unless otherwise noted, provide new, standard, first-grade materials throughout. Equipment and materials furnished shall be fabricated by manufacturers regularly engaged in their production and shall be the standard and current model for which replacement parts are available. Equipment shall be substantially the same equipment of a given manufacturer which has been in successful commercial use and operation for at least three (3) years.

- B. Where materials or products are specified by manufacturer's name, brand, trade name, or catalog reference, such named materials or products shall be the basis of the Bid, without substitution, and shall be furnished under the Contract unless requests for substitutions are approved as noted below. Where two or more brands are named the choice of these shall be optional with the Contractor.
- C. Substitutions will be considered only if written request for approval has been received by the Architect TEN (10) DAYS prior to the date established for receipt of Proposals. Each request shall include the name of the material or equipment for which substitution is proposed and a complete description of the proposed substitute including drawings, cuts, performance and test data, samples, and any other information necessary for evaluation. A statement setting forth any changes in other materials, equipment, or other Work that incorporation of the substitute may require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution is final.
- D. If the Architect approves any proposed substitution prior to receipt of Proposals, approval will be set forth in an Addendum. DO NOT rely upon approvals made in any other manner.
- E. No substitutions will be considered after the Contract has been executed, except as described in the General Conditions.
- F. Submittal data and shop drawings shall be submitted at one time, partial submittals will not be considered. Within 30 days of execution of Contract and before ordering materials and equipment, submit to Architect and obtain his approval of a detailed list showing each item which is to be furnished by make, trade name, catalog number, or the like; together with manufacturer's specifications, certified prints, and other data sufficient for making comparisons with items specified. When approved, such schedule shall be of equal force with these specifications in that no variation there from shall be allowed except with Architect's written approval. Number of Shop Drawings and procedure shall be as directed by the Architect.
- G. All pressure vessels shall be constructed and tested in accordance with applicable ASME Codes and shall bear ASME stamps. Certificates of inspection and approval shall be submitted to Architect.
- H. Similar items of equipment shall be the product of the same Manufacturer.
- I. See section, "ALTERNATES" in other sections of the Specifications and Bid accordingly.

2.2 Shop Drawings:

- A. Before starting work, submit and obtain approval of the following:
 - 1. Equipment piping.
 - 2. Plumbing Equipment, Products and Fixtures.

2.03 Record Drawings:

- A. When work starts, obtain from Architect two (2) complete sets of white prints of the Plumbing. All corrections, variations, and deviations, including those required by change orders, if any, must be recorded in colored ink or colored pencil at the end of each working day on these drawings. The marked prints shall be available at all times for the Architect's inspection.
- B. Prior to examining the request for final payment or making any response thereto, the

Architect shall receive from the Contractor one (1) complete set of the white prints, marked as stated above, indicating the actual completed installation of the work Included under this Contract.

- C. The Architect will forward the marked white prints to the Consulting Engineers for review. They will then be returned by the Architect to the Contractor for use in preparing record drawings.
- D. When work is completed, Contractor shall purchase from the Architect (At Architects' printing cost) one (1) set of reproducible electronic files and prints of Plumbing Drawings for use in preparing record drawings. Contractor shall transfer the information from the marked white prints to the dwg record drawings, removing all superseded data in order to show the actual completed conditions.
 - 1. Accurately show location, size and elevation of new exterior piping work and its relationship to any existing piping and utilities, obstructions, etc., contiguous to the area of work.
 - 2. Block out areas modified by change-order and identify them by change-order number.

2.04 Electrical Equipment:

- A. Provide electrical equipment compatible with the current shown on electrical drawings. Verify current characteristics before ordering equipment.
- B. Should the Contractor with the Architect's/Engineer's approval make changes in electrical equipment from those shown on the Electrical Drawings, he shall be responsible for the coordination and cost of required changes.
- C. Provide factory installed fuses in all equipment requiring fusing for branch circuit protection.
- D. Verify electrical characteristics of all equipment and voltages available with Electrical Section prior to ordering any electrical equipment.

2.05 Sleeves:

- A. Refer to the Architectural Life Safety Drawings for wall ratings and close all openings to match rating of wall.
- B. Submit details of all pipe penetrations thru rated walls indicating wall construction, penetrating material and method of closing penetration including materials and listing of detail.
- C. All Penetrations thru walls are to be closed. If the wall is not rated, sheet rock joint compound may be used to close space around piping. For walls with ratings opening shall be closed with a U.L. Listed rating system compatible with wall rating. Insulation is to be continuous thru all openings.
- D. For pipe through floors inside rated chases or through non-fire-rated walls: 20-gauge galvanized steel sleeve 1/2" larger than pipe or pipe covering. Pipe insulation to be continuous thru sleeve. Seal opening between sleeve and pipe or pipe covering
- E. For uninsulated pipe through 2-hour fire rated walls, partitions or floors outside chases: Hilti FS605 with sleeve, U.L. Listing #WL1056.
- F. For insulated pipe passing through fire rated partitions or walls or floors outside chases: Hilti #FS611A with no sleeve, U.L. Listing #WL5029. Insulation: 1" thick fiberglass continuous thru wall.

- G. For pipe passing thru concrete floor, concrete walls, and concrete block walls:
 - 1. Uninsulated Schedule 40 steel and copper: Hilti #FS605 with sleeve, U.L. #CAT1155.
 - 2. Insulated Schedule 40 steel and copper: Hilti #FS611A, U.L. #CAT5045.
- A. For 4" and smaller PVC pipe passing thru 3-hour concrete floor, wall or concrete block wall - Hilti #FS611A with collar, UL System #CAJ095.
- B. For 2" and smaller Schedule 40 PVC pipe penetrating a 1H12 concrete floor or wall - Hilti #FS611A sealant, UL #CAT2062 or UL #CAJ2066.
- C. Under this Section, the Contractor shall be responsible for closing and making fire safe all openings exposed during construction (both new and existing) in the floor and deck above. Closing of opening shall be compatible with rating and shall not compromise the rating of the wall or floor being sealed.
- D. Set sleeves before concrete is poured or masonry is erected. In existing construction, grout sleeves firmly in place.
- E. In Mechanical Rooms extend sleeves 1-1/2" above finish floor and waterproof.
- F. Where exposed pipes pass through walls and partitions in finished or exposed spaces, provide chrome plated F & C plates or escutcheons. Seal wall penetration and case work penetration with silicone prior to installing escutcheon.
- G. All wall floor penetrations shall be closed in a neat manner. The method used to the close penetrations shall be compatible with the rating of the wall and shall in no way compromise the integrity of the partition or floor.

2.06 Access Doors:

- A. Provide access doors for valves, and other items requiring maintenance located above hard ceilings or behind partitions or walls. Doors in fire rated walls and ceilings: UL labeled with fire rating equal to fire rating of wall or ceiling. Provide door styles, sizes and colors as specified under the Architectural section.
- B. Mark lay-in ceilings with paper brads at valve locations and maintenance access points. Bend ends of brads over above ceiling tile.

3.00 - EXECUTION

3.01 Protection of Equipment:

- A. During construction all fixtures and equipment shall be protected from damage caused by weather, masonry, plaster, paint and job accidents.
- B. When installation is complete, clean equipment and make ready for painting. Adjust all flush valves.

3.02 Installation of Fixtures And Equipment:

- A. Install fixtures and equipment to provide normal service access to all components.
- B. Provide sufficient space for removing components, install fixtures and equipment to provide such clearance.
- C. Install fixtures and equipment in accordance with manufacturer's instructions. If manufacture's instructions conflict with contract documents, obtain Architect's

decision before proceeding.

- D. All fixtures and equipment shall be firmly fastened in place:
 - 1. All wall-hung fixtures shall be installed on a floor mounted fixture support with anchoring bolts in all holes of each leg. Bolts shall be sized as per manufacturer's recommendation.

3.03 Cutting and Patching:

- A. Set sleeves and inserts and lay-out and form openings in walls, beams, girders and structural floors in this Section.
- B. Cut, patch and repair as required to accomplish work and finish to match adjacent work. Architect's approval required before cutting any part where strength or appearance of finished work is involved.
- C. Cutting, patching and repairing of walls, floors, etc., where noted in paragraph "A" above, have been located or sized incorrectly are included in this Section.

3.04 Incidental Work:

- A. All power wiring is included in Electrical Section.
- B. Permanent drain and relief connections for Plumbing Equipment to nearest floor drain or to grade are included in this Section whether shown or not.
- C. Items obviously omitted from drawings and/or specifications shall be called to attention of the Architect prior to submitting Bid, after award of Contract any changes or rearrangements necessary to complete Contract shall be at no additional cost to Owner.

3.05 Flashing:

- A. Vent Pipe and Roof Drain Flashing: Specified in "Architectural Roofing Section".
- B. Coordinate all roofing penetrations with Roofing Section.

3.06 Excavation and Backfilling:

- A. Include all excavation and backfilling required to bring the work to line and grade shown, including excavation of rock and all other materials which may be encountered.
- B. Excavate trenches wide enough for proper installation of work. Grade trench bottoms evenly. Provide bell holes as necessary to insure uniform bearing for pipes. Excavate minimum 6" below pipe. Refill cuts below required pipe grade with sand or compacted gravel. Support pipe continuously along its entire length. Do not use piers to support piping.
- C. Backfill after inspection by Architect and authorities having jurisdiction. Backfill compacted areas with "Engineered Fill", sand or fine gravel in accordance with requirements of "Sitework". Backfill paved areas with sand or fine gravel compacted to meet requirements of Paving Section. Backfill shall be free of rock, wood, steel, brick, etc. Do not disturb pipe. Restore or repair pavements and the like after backfilling, to meet the requirements of the authority having jurisdiction.

3.07 Painting:

- A. Refinish equipment damaged during construction to new condition.

- B. Paint all non-potable water pipe and insulation with two (2) coats of bright yellow paint in compliance with the Local Plumbing Code and these specifications. Paint piping prior to installing insulation. Paint type to be equal to Paint Specified in Painting Section of the Specifications.
- C. Other painting is specified in "PAINTING SECTION, Finishes Division".

3.08 Demolition:

- A. Refer to the Architectural Demolition Plans for areas to be demolished and remove all fixtures noted to be removed.
- B. All fixtures and equipment noted "To Be Removed" on the drawings shall remain the property of the Owner. If Owner decides against retention of any or all items this Contractor shall remove from the site.
- C. Where fixtures are removed, remove all abandoned or unused piping back to main or nearest active connection and cap or plug.
- D. When vent stack(s) thru roof(s) are abandoned leave existing vent stack thru roof in place, cut pipe and cap as close as possible to underside of roof deck.
- E. Coordinate all system shut down with Owner. Request shut down minimum 72 hours prior to scheduled shut down period. Do not shut down any system without approval of Owner. Perform shut down at premium time if required.
- F. Refer to Architectural Demolition Plans for fixtures to be removed.

3.09 Connections to Existing Systems:

- A. Make connections to existing systems only at time authorized, in writing, by Owner.
- B. Do not take system out of service during occupied working, office or school hours.
- C. Drain existing systems and fill, vent, test, balance and put existing systems into operation after connections have been made.
- D. Repair existing insulation at points of connection to existing work.

3.10 Pipe Identifications:

- A. Identify all piping exposed to view or accessible through removable ceilings or access panels with plastic snap-on pipe line markers. Color code markers in accordance with ANSI A13.1. Show pipe contents and direction of flow. Markers on lines 8" OD and smaller shall be taped in place; on lines over 8" OD secure with spring clips.
- B. Submit samples of all nameplates, tags, chains and etc., for approval.
- C. Protect all factory identification tags, nameplates, model and serial numbers, stenciling, etc., during construction and replace if damaged.
- D. Label Spacing and Extent:
 - 1. On straight run of pipes; Above suspended ceilings space labels approximately 10 feet on center; elsewhere, 20 feet on center.
 - 2. Wherever a pipe enters or leaves a room or building.
 - 3. At change of direction.

4. At main valves and control valves (not equipment valves).
5. On risers, just above and below floors.

3.11 Valve Tags:

- A. 2" X 3" laminated plastic with 1/2" numbers engraved at top, leaving space for further engraving by others. Secure tags with chains to valve yoke or stem, not handles.
- B. Valve tags colors:
 1. Plumbing: Red tags with white numbers.
- C. Valve tag locations: At all valves on mains, risers and branches.
- D. Valve tag numbers: Starting with Number 1, number tags in sequence from the lowest point to the highest point in the building. In existing building extend existing sequences.
- E. Starting with Number 1, number valve tags on this floor extending existing sequence. If there are no valve tags on existing valve, provide tags for all existing valves and new valves beginning floor sequence with Number 1.

3.12 Valve Charts:

- A. In all mechanical rooms, provide charts showing number and locations of all valves, type of service, etc. Frame with aluminum, under glass.
- B. In existing buildings include existing valves in the charts of new valves.

3.13 Warranty and Instructions:

- A. See General Conditions - One-Year Warranty.
- B. Contractor shall and hereby does warrant all materials, workmanship and equipment furnished and installed by him to be free from defects for a period of one (1) year after date of substantial completion of the Contract. Should any defects in materials, workmanship, or equipment be made know to Contractor within the one (1) year warranty period, Contractor shall replace such materials, workmanship, or equipment without charge.
- C. After completion of the work, Contractor shall operate the equipment which he installs for a period of ten (10) working days, as a test of satisfactory operating conditions. During this time, Contractor shall instruct the Owner's operating personnel in the correct operation of the equipment. Furnish necessary oral and written operating instructions to the Owner's representative.
- D. Provide three (3) sets of manufacturer's operating and maintenance manuals and parts lists including nearest manufacturer's sales and service representative by name, address and phone for all equipment and materials furnished. Provide a maintenance schedule listing routine maintenance operations and suggested frequency there of. Include all warranty dates on equipment and guarantees. Include names, address and phone of any subcontractor and work performed. Bind above items in loose leaf three (3) ring binders with tab for each class of equipment.
- E. During the period of tests, adjust all controls, regulators, etc., to comply with these Specifications.
- F. Make available to the Owner, without additional cost, service and adjustment of the equipment for the guarantee period.

3.14 Project Close-Out Documents:

- A. Prior to the issuance of a certificate for final payment, submit to Architect and obtain his approval of the following:
1. Record drawings – Plumbing. Electronic drawings dwg format and pdf format.
 2. Equipment and Fixture Submittal Data: List of manufacturer's representative including name, address and telephone number that supplied requirement (3).
 3. Equipment operating and maintenance manuals including: Spare parts required (3).
 4. Maintenance schedule (3).
 5. Equipment warranty dates and guarantees (3).
 6. List of Owner's Personnel who have received maintenance instructions.
 7. Record of inspections indicating what system was tested, type of tests, date of tests and those parties witnessing tests.
 8. Valve Tag Chart.

END OF SECTION

1.0 - GENERAL

1.1 Scope:

- A. Provisions of this section apply to all Plumbing work.
- B. Include Section 15410, "GENERAL PROVISIONS - PLUMBING ", with this Section.
- C. All tests shall be witnessed by the Architect in addition to authorities having jurisdiction. A minimum of 48 hour notice is required prior to performance of test.

2.0 - PRODUCTS

2.1 Not Applicable

3.0 - EXECUTION

3.1 General Requirements:

- A. After system have been installed, Test, Balance and Adjust System for proper operation, flow rates, pressures, and temperatures. Correct any noise and/or vibration conditions.
- B. Perform all tests as required by local codes. Contractor shall furnish testing equipment. Keep a record of all tests indicating dates of tests, those persons witnessing tests and results of tests.
- C. Provide with the Close-Out Documents a Testing Record.
- D. If local Codes are more stringent, local Codes shall govern.

3.2 Sanitary System:

- A. Test piping by stopping lower outlets and filling with water to 10' hydrostatic head. Stop leaks and repeat test until watertight. All joints shall be exposed throughout test.
- B. Provide "Ball Test" on all piping 3" and larger with ball 1/2" smaller than pipe diameter.
- C. Provide visual inspection of all building drain piping below grade. Visual inspection shall be by means of a video camera routed through the drain system. Where the drain piping is connected to existing drain piping, the visual inspection shall include the existing drain piping from the point of connection, downstream to the point of connection to the public utility. A video tape and written report, noting any defects, on the findings of the visual inspection shall be provided to the owner with the close-out documents. The Plumbing Contractor shall provide personnel and equipment required for the visual inspection.

3.3 Domestic Water Piping:

- A. On completion of roughing-in, cap all outlets, make connections with house supply line, and put under full water pressure. Test by applying additional pressure (by temporary pump or compressed air connection) to total hydrostatic pressure 1-1/2 times street pressure but not less than 150 psig for not less than 4 hours.
- B. Immediately and completely stop all leaks and retest until system is watertight. After

testing, leave general pressure on until ready to install fixture (except when necessary to drain to avoid freezing during construction). After completion of all tests, repairs, and installation of fixtures, flush all domestic hot and cold-water piping with water to remove all sediment scale and until water runs clear, then disinfect.

- C. Disinfect piping with hypochlorite solution of chlorine or compressed chlorine gas applied through on approved chlorinator. Operate all valves and faucets several times to ensure the chlorine reaches all parts of the system. Feed water and chlorination agent into the system at rates that will provide a residual chlorine content of not less than 200 ppm after a retention period of 3 hours and 50 ppm after a retention period of 24 hours. Upon completion of treatment, flush treated water from each system until the water supply is satisfactory to the public health authority having jurisdiction. Provide Architect a certificate of compliance from the local Health Department.
- D. Clean air aerators, hose sprays, flush valves, etc. and adjust to proper flow rates.

3.4 Natural Gas Piping:

- A. After all piping is roughed-in but before connection to main or to appliances or equipment, test piping for tightness as required by local gas company. In the absence of such requirements, apply in Architect's presence an air pressure test equal to 25 psig. Piping shall maintain pressure without drop for at least four (4) hours. Stop all leaks shown up by such test and repeat test until piping is air-tight.

3.5 Compressed Air Piping:

- A. On completion of roughing-in, cap all outlets, make connections with house supply line, and put under full pressure. Test by applying additional pressure (compressed air connection) to total hydrostatic pressure 1-1/2 times operating pressure but not less than 150 psig for not less than 4 hours.
- B. Immediately and completely stop all leaks and retest until system is Air-tight. After testing, leave general pressure on until ready to install fixture. After completion of all tests, repairs and installation of fixtures, flush piping and remove water.
- C. Compressed Air to be tested per manufacturer requirements.

3.6 Completion Of Test:

- A. Upon completion of all testing, Contractor shall provide to the Architect copies of test results and include a listing of all personnel witness to the tests.

END OF SECTION

1.0 - GENERAL

1.1 SCOPE:

- A. Include Section 15410, "GENERAL PROVISIONS – PLUMBING", with this Section.

2.0 - PRODUCTS

2.1 MATERIALS

- A. All pipe, fittings and valves shall be manufactured in the United States of America.
- B. Pipe and fittings to be the same manufacturer.

2.2 SANITARY - WASTE AND VENT PIPING:

- A. PVC plastic pipe: PVC-DWV, ASTM D-2665. All piping located in a return air plenum shall be insulated to meet ASTM E84.
- B. Joints for PVC plastic pipe: Solvent welded, ASTM B-2564.
- C. Install vent stacks through roof. Terminate 12" above finish roof. Flashing is specified under Roofing Section.
- D. Connect to existing sanitary as shown on the drawings. Contractor to confirm exact size, location, invert, and direction of flow of existing piping prior to installing any new piping.
- E. All work outside the perimeter of the building shall be in compliance with the Jefferson County Environmental Service Department requirements.

2.3 DOMESTIC WATER PIPING:

- A. Domestic Water Piping: Copper tube.
- B. Copper Tube: ASTM C-88, copper water tube, Type "L" hard temper inside building, Type "K" outside building and below slab on grade. Fittings, cast brass or wrought copper water tube fittings, ANSI B-16.18 or B-16.22.
- C. Joints on copper tube:
 - 1. Inside Building: Properly cleaned fluxed and soldered as recommended by manufacturer, using 95-5 solder and 100% lead free flux.
 - 2. Outside Building and below slab on grade: "Sil-Fos".
- D. Provide temporary construction water at site as required.
- E. Connect to existing water piping as shown on the drawings. Patch insulation at point of new connection. Contractor to confirm exact size and location of existing piping prior to installing any new piping.
- F. All water piping installed below slab on grade to be type "K" soft copper bent up on

both ends with no joints below slab.

2.4 NATURAL GAS PIPING:

- A. All gas piping: Black steel. All gas piping below grade, mill-wrapped with fittings field-wrapped with PVC tape, same thickness as millwrapping. Mill wrapping shall be X-TRU coat.
- B. Black steel pipe, Schedule 40, ASTM A-53. Fittings on pipe 2" and smaller, black malleable iron screwed fittings, ASTM A-197. Fittings on pipe 2-1/2" and larger, welded, using butt welding fittings.
- C. Joints on screwed pipe made up with Teflon tape applied to male threads only.
- D. Joints on welded pipe made up with butt welding fittings. Mitering and notching for tees, etc., not permitted. Weldolets are permitted.
- E. Unions 2" and smaller, black malleable iron screwed, unions 2-1/2" and larger flanged.
- F. Arrange for tapping of utilities main, service from main to meter and installation as required by local utility. Pay all charges, fees, temporary deposits, etc.
- G. All gas piping in the 2 psig system, labeled at the beginning, at all gas cocks, at ends and at 4' intervals with labels reading "2 psig". See piping identification for materials.
- H. Install appliance type regulators as shown on drawings. Regulators shall have vent limiting device as required by local code and local utility, or shall be vented to the exterior as approved by Architect.
- I. Sleeved gas piping below slab shall be type "K" copper tubing, ASTM B88, with lead free soldered fittings.
- J. All exposed exterior piping shall be painted with two coats of paint equal to "Tar-Guard" by Sherwin Williams. Coordinate colors with architect.

2.5 COMPRESSED AIR PIPING:

- A. All Piping: Copper Tube.
- B. Copper Tube: ASTM B-88 copper tube Type "L" hard temper with fittings of wrought copper.
- C. Joints on copper tube: Properly cleaned fluxed and soldered as recommended by manufacturer, using 95-5 solder and 100% lead free flux.

2.6 VALVES:

- 1. Domestic Water Piping Valves:
- 2. Ball Valves: All bronze, 150 psig WP, chrome plated bar stock ball, full port Teflon seats, stem packing seal and thrust washer, Watts B-6080 or B-6081, Apollo 20-100, Red White 5044F or 5094F, Kitz 56 or 57. Provide valve handle extension to (minimum 1") clear insulation.
- 3. Check valves 2" and smaller: All bronze, 125 psig WP, bronze disc, swing check, Stockham B-309, Crane 1342, Nibco S-413-B, Milwaukee 1509, Red White 237, Kitz 14.

4. Check valves 2-1/2" and larger: Iron body, bronze trim, switch check, 125 psig WP, Stockham G-931, Crane 373, Nibco F-918-B, Milwaukee F2974, Red White 435, Kitz 78.
 5. Water pressure reducing valves: Watts, Wilkins, or Cash Acme, complete with inlet strainer, unions, inlet and outlet pressure gages and shut-off valve up stream of strainer.
 6. Natural gas valves: Plug cocks 2-1/2" and larger, Rockwell 143; 2" and smaller, Rockwell 142, A.F.C. or Walworth, lubricated, 175 psi.
- B. Gas pressure regulator:
1. System Regulator: Equal to Reliance Model 1893 with built-in under and over pressure shut off size and capacity as shown on drawings.
 2. Appliance Regulator: Equal to Maxitrol 325-5 on 325-5M complete with vent limiting device. Valve shall be full line size and capacity as shown on Drawings.
- C. Compressed air valves: All bronze, 150 psig WP, chrome plated bar stock ball, full port Teflon seats, stem packing seal and thrust washer, Watts B-6080 or B-6081, Apollo 20-100, Red White 5044F or 5094F, Kitz 56 or 57. Provide valve handle extension to (minimum 1") clear insulation.

2.7 PIPE HANGERS:

- A. General: Pipe hangers, Grinnell, PHD, Michigan Hanger, or Elcen. Grinnell figure numbers are given for reference. Provide copper clad hangers on bare copper lines.
- B. Pipe hangers for lines 3" and smaller, adjustable wrought ring hangers, Grinnell Fig. 97 or wrought clevis hangers, Grinnell Fig. 260.
- C. Pipe hangers for lines 4" and larger, adjustable wrought clevis hangers, Grinnell Fig. 260.
- D. Parallel piping graded in same direction may be grouped on trapezes. Trapezes for line 4" and smaller, Unistrut P2000 channel, or equal, with rods sized as specified below for largest pipe on trapeze. Guide lines on (but not anchor to) trapezes using Unistrut Series P1100 clamps. Trapezes shall not exceed 3' in length. Space lines to allow at least 3" clear between adjacent pipe or pipe covering and between pipes or pipe covering and rods. Space trapezes as specified for pipe hangers based upon smallest size of pipe on trapeze.
- E. Provide riser clamps on pipe risers on each floor. Clamps in contact with copper or plastic pipe, plastic coated.
- F. Beam Clamps: Grinnell Fig. 229.
- G. Inserts for hangers in concrete structures: Underwriter's listed cast iron inserts. Grinnell Fig. 282.
- H. For fasteners in existing concrete structures use drilled in expansion anchors with load rating at least 150% of pipe hanger rating (power driven anchors are not acceptable).
- I. Size rods for pipe hangers not smaller than the following: 3/8" rods for pipe up to 2", 1/2" for 2-1/2" and 3" pipe, 5/8" rods for 4" and 5" pipe, 3/4" rods for 6" pipe, and 7/8" rods for 8" and 10" and 12" pipe, 1" rods for 14" and 16" pipe and 1-1/8" rods for 18"

pipe.

- J. Space pipe hangers at maximum: 5' intervals for cast iron pipe with additional hanger at each fittings. Pipe hanger spacing for screwed, solder joint and welded piping: 1/2", 6 ft.; 3/4" to 1-1/4", 8 ft.; 1-1/2" to 2-1/2", 10 ft.; 3", 12 ft.; 4" to 6", 14 ft.; 8" and over, 16 ft. Polypropylene and PVC plastic pipe 4 ft. horizontally maximum or as directed by manufacturer if closer, and 10 ft. vertically. Install additional hangers at change of direction and valve clusters.
- K. Install pipe hangers on insulated pipe over pipe covering. Provide sheet metal saddle under hanger length to be 1-1/2 times the pipe diameter, minimum 12" long.
- L. On sanitary and storm piping requiring insulation, hanger may be installed directly on pipe and insulation installed over hanger. Overflow storm piping shall be insulated same as storm piping.

3.0 - EXECUTION:

3.1 PIPE INSTALLATION:

- A. All piping shall be securely anchored in place to the Building Structure.
- B. Cut pipe square and ream full size after cutting. Clean pipe. Make threaded joints with Teflon tape. Do not spring pipe into place.
- C. Provide welding material and labor in accordance with the welding procedures of the Heating, Piping, and Air Conditioning Contractor's National Association or other approved procedure conforming to the requirements of ANSI B-31.9 "Building Service Piping". Employ only welders fully qualified in the above specified procedure and currently certified by recognized testing authority. Use either electric arc or oxyacetylene welding. Provide full perimeter welds at both face end and collar end of each slip-on flange.
- D. Install piping to allow for expansion. Make connections to all equipment to eliminate undue strains in piping and equipment. Furnish necessary fittings and bends to avoid spring of pipes during assembly.
- E. Install chrome plated floor and ceiling plates on pipe passing through finished surfaces in finished spaces.
- F. Make pipe size reductions using reducing fittings. Bushings are prohibited.
- G. Install 3/4" ball or gate valve drains with hose adapters at low points of water piping and at bases of all risers or where shown provide large drains.
- H. Make connections to equipment using screwed unions in sizes 2" and smaller and flanged unions in sizes 2-1/2" and larger. Install unions in all piping connections to each piece of equipment.
- I. Wherever ferrous pipes or tanks and copper tubing connect, provide dielectric insulation unions or couplings, equal to EPCO.
- J. Run piping concealed, except where specifically shown or specified exposed. Plumb all vertical lines and run mains parallel to building walls unless specifically shown otherwise.
- K. Lay underground pressure piping so top of pipe is at least 18" below finished grade. Provide deeper bury if required by local regulations. Support all underground piping solidly along body of pipe. Strongly suspend other piping from building construction.

- L. Run no piping or tubing in direct contact with slag fill. Where necessary to pass through slag, protect piping with not less than two (2) wrappings of polyvinyl chloride tape or equivalent protection approved by Architect.
- M. Install shock arrestors as manufactured by J. R. Smith, Josam, Zurn or Wade as required by the IPC Plumbing Code and where indicated on drawings. Size in accordance with manufacturer requirements.

3.2 INSTALLATION OF VALVES:

- A. Provide shut-off valves where shown and detailed on Drawings. Locate valves to isolate each item to facilitate maintenance and/or removal.
- B. Locate valves in piping connections to water heaters, etc., so heads and tube bundles can be removed without disconnecting equipment or piping other than union or flange connections immediately adjacent to heat exchangers.
- C. Provide sweat to screw adapters where required.
- D. In Buildings with water pressure exceeding 80 psig, provide and install a water pressure reducing valve(s) immediately upon entering building or as shown on Drawings. The P.R.V. shall be line size and have an integral strainer or separate WYE strainer up stream of P.R.V. Provide a ball or gate valve immediately upstream of P.R.V. and strainer.

END OF SECTION

1.0 - GENERAL:1.1 SCOPE:

- A. Include Section 15410 "GENERAL PROVISIONS - PLUMBING", with this Section.
- B. Repair existing insulation at points of connection to existing work.
- C. "Exposed" is defined as: Exposed to view when construction is complete. Items which are not "exposed" are "concealed".
- D. Insulate all items subject to sweating or loss of heat.
- E. All insulation shall be installed by licensed applicator and applied in accordance with the Manufacturer's Recommendations.

1.2 INSULATION REQUIREMENTS:

- A. Comply with NFPA 90A.
- B. Pipe hanger saddles are specified in Section 15450 "MATERIALS AND METHODS - PLUMBING"
- C. Use insulation and adhesives with Underwriter's Laboratories flame spread rating not over 25 without evidence of continued progressive combustion, and smoke developed rating not exceeding:
 - 1. 50 for pipe covering located in air ducts, plenum or casing.
 - 2. 150 for all other pipe, and equipment insulation.

2.0 - PRODUCTS:2.1 FIBERGLASS PIPE COVERING:

- A. Snap-on glass fiber insulation minimum density 5#/cu. ft. maximum thermal conductivity at 75°F mean temperature 0.25 BTU/(hr) (sq. ft.) (°F/in.) with UL rated vinyl coated and embossed vapor barrier laminate of aluminum foil and kraft reinforced with glass fiber yarns (ASJ).
- B. For all lines seal jacket with self sealing lap and staple with outward clinching staples 3" o.c. Butt adjoining sections of insulation tightly and seal with self-adhering butt joint strips.
- C. Cover fittings to thickness of adjacent covering with factory pre-molded fitting covers. Cover flanged valve bodies with flanged unions. Do not cover screwed unions on hot lines. Finish fittings with a skim-coat of insulating cement and when cement is dry fitting shall be covered with glass fab and vinyl acrylic mastic. Finish fittings exposed in equipment rooms, boiler room, and in finished spaces with vinyl acrylic mastic over glass fab.
- D. At Contractor's option, concealed tees may be insulated with field fabricated tee covers consisting of straight pipe covering on run of tee with notch at branch together with pipe covering on branch contoured to fit notch. Glass fab shall be applied around main, lapping contoured joint at branch by 1" minimum for the full circumference of joint.

Cover entire fitting covering with vinyl- acrylic mastic over glass fab, 1/8" thick (dry) coat. Submit sample of fabricated tee covering to Architect for approval before work is begun.

2.2 ALUMINUM JACKET PIPING COVER:

- A. 0.010" thick corrugated aluminum jacket with laminated polyethylene and draft paper adhered liner.
- B. Securely rivet jacket in place and band with flat aluminum bands 18" o.c.
- C. Finish fittings on aluminum jacketed lines with 1/8" thick (dry) coat of vinyl acrylic mastic reinforced with glass cloth.

2.3 MANUFACTURERS

- A. Acceptable Manufactures for Fiberglass Insulation Materials:
 - 1. Owens-Corning.
 - 2. Certaniteed.
 - 3. Knauf.
 - 4. Manville Corporation
- B. Acceptable Manufacturers for Foamed Plastic Closed Cell Elastometric Insulation Materials:
 - 1. Armstrong AP.
 - 2. Rubatex.
- C. Acceptable Manufacturers for Adhesives, Mastics and Coatings:
 - 1. Armstrong.
 - 2. Benjamin Foster.
 - 3. Childers.
 - 4. Marathon.
- D. Acceptable Manufacturers for Metal Jackets:
 - 1. Childers.
 - 2. Manville Metal-Loc.

2.4 SCHEDULES - PIPING

- A. Plumbing Piping:
 - 1. Domestic Cold Water Interior, Above Grade:
 - a. Glass Fiber Pipe Insulation
 - i. All pipe sizes: 1 inch thick.

- ii. Pipes located in walls: ½ inch thick.
 - b. Foamed Plastic Pipe Insulation
 - i. All pipe sizes: 1 inch thick.
 - ii. Pipes located in walls: ½ inch thick.
- 2. Domestic Hot and Recirculating Water Interior, Above Grade:
 - a. Glass Fiber Pipe Insulation
 - i. All pipe sizes: 1-1/2 inch thick.
 - ii. Pipe located in walls: 1 inch thick.
 - b. Foamed Plastic Pipe Insulation
 - i. All pipe sizes: 1 inch thick.
 - ii. Pipes located in walls: ½ inch thick.
- 3. Floor Drain Bodies, Traps and Waste Piping Between Floor Drain and Waste Stack for Floor Drains Serving Refrigeration Equipment, Ice Machine and AC Units; Interior, Above Grade:
 - a. Glass Fiber Pipe Insulation
 - i. All pipe sizes: 1 inch thick.

2.5 INSTALLATION – EQUIPMENT INSULATION GENERAL

- A. Install in accordance with NAIMA Insulation Standards.
- B. Factory Insulated Equipment: Do not insulate.
- C. Exposed Equipment: Locate insulation and cover seams in least visible locations.
- D. Apply insulation close to equipment by grooving, scoring, and beveling insulation. Fasten insulation to equipment with studs, pins, clips, adhesive, wires or bands.
- E. Fill joints, cracks, seams and depressions with bedding compound to form smooth surface. On cold equipment, use vapor barrier cement.
- F. Insulated equipment containing fluids below ambient temperature: Insulate entire system.
- G. Finish insulation at supports, protrusions, and interruptions.
- H. Equipment in Mechanical Rooms or Finished Spaces: Finish with canvas jacket or as scheduled.
- I. Nameplates and ASME Stamps: Bevel and seal insulation around; do not insulate over.
- J. Equipment Requiring Access for Maintenance, Repair, or Cleaning: Install insulation so it can be easily removed and replaced without damage.
- K. Install in accordance with NAIMA National Insulation Standards.

- L. Exposed Piping: Locate insulation and cover seams in least visible locations.
- M. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
- N. Fit pipe hangers over insulation.
- O. Inserts and Shields:
 - 1. Application: Protect insulated piping at hangers and supports with insulation shield. On pipe sizes over 2 inches, provide insert.
 - 2. Insulation Protection Shield: Galvanized steel formed in half circle to fit insulation. Length and gauge as follows:
 - a. Up to NPS 4: 12 inches long and 22 gauge.
 - b. NPS 6: 18 inches long and 22 gauge.
 - c. NPS 8 through 12: 24 inches long and 18 gauge.
 - d. NPS 14 and Large: 24 inches long and 16 gauge.
 - 3. Insulation-Insert Material: Water repellent treated, ASTM C533, Type I calcium silicate; or ASTM C552, Type II cellular glass of same thickness and vapor barrier jacket specified for surrounding insulation. Insert shall be a minimum of 2 inches longer than the shield.
 - 4. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
 - 5. For Clevis Hangers: Insert shall cover lower 180 degrees of pipe.
 - 6. Option: At Contractor's option, insert may be factory fabricated Thermal Hanger Shield (insulation insert encased in sheet metal shield) equal to Pipe Shield, Inc. "Insulated Pipe Supports."
- P. Continue insulation through metal studs, walls, sleeves, pipe hangers, and other pipe penetrations. Finish firestopping at supports, protrusions, and interruptions. At fire separations, refer to Division 7 and Section 15410: Sleeves.
- Q. Exterior Applications: Provide vapor barrier jacket. Insulate fittings, joints and valves with insulation of like material and thickness as adjoining pipe, and finish with glass mesh reinforced vapor barrier cement. Cover with aluminum jacket with seams located on bottom side of horizontal piping.

3.0 - EXECUTION:

3.1 PLUMBING PIPING INSULATION:

- A. Cold water piping, interior, above grade: "Fiberglass Pipe Covering", 1" thick. Pipe insulation in partitions and chases may be 1/2" thick "Arma-cell" or approved equal.
- B. Hot and Hot Water Return water piping, interior, above grade: "Fiberglass Pipe Covering", 1-1/2" thickness. Pipe insulation in partitions and chases may be 1" thick "Arma-cell" or approved equal.

- C. All horizontal storm piping and roof/overflow drain bodies: "Fiberglass Pipe Covering", 1" thick.
- D. Exposed P-Traps, stops and supplies on handicapped lavatories, and sinks. Equal to "PRO-WRAP" by McGuire.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Include Section 15410, "GENERAL PROVISIONS – PLUMBING", with this Section.
- B. Pay particular attention to requirements in the General Provisions for substitution of products not named or listed as substitutions.

2.0 - PRODUCTS

2.1 Cleanouts

- A. Furnish and install cleanouts where indicated on drawings and at all 90-degree bends, angle, upper terminals and not over 50 feet apart on straight runs. All cleanouts to have bronze countersunk tapered slotted plugs, except acid waste piping cleanouts, which shall be standard of piping system used. Flush-with-floor cleanout access covers shall have non-skid covers. All wall cleanout access covers shall have polished satin finish. All cleanouts shall be full size of pipe, piping larger than 6" shall have minimum 6" cleanout covers.
- B. Exposed Cleanouts: Cast brass plug type, J.R. Smith #4470.
- C. Wall type cleanout plug and access covers, J.R. Smith #4472. Cleanout plug must be within 1" of finish wall and must be tapped for access cover.
- D. Install wall cleanouts on stacks at flush valve fixtures 12" above top of flush valve, 12" above finish floor on sinks, lavatories and water coolers and 12" above grab bars at fixtures with grab bars. Locate cleanouts to clear baseboard at floor.
- E. Floor type cleanout access covers: J.R. Smith #4248-NB. Plug must be within 3" of finished floor. Grout cleanout below access cover to seal watertight.
- F. Outside Cleanouts: J.R. Smith #4258 cleanout access encased in a 18" X 18" X 6" deep concrete pad. See Detail on Drawings.

2.2 Reduced Pressure Zone Backflow Preventer and Double Check Valve Assemblies

- A. One (1) inch and larger: Equal to Watts #909 with gate valves and inlet strainer. Provide additional valve upstream of strainer. Clayton, Beeco, Febco, Conbraco, Wilkins or equal. Provide same size as piping.
- B. One-half (1/2) inch and three-fourth (3/4) inch: Watts #9D, Wilkins #750, same size as pipe.
- C. Pipe relief from backflow preventer full size to nearest floor drain. Provide factory made air gap for relief connection.
- D. Double check valve assemblies: Watts, Clayton or Beeco.

2.3 Plumbing Fixtures and Equipment

- A. All "wetted" domestic potable fixtures, piping materials, valves shall meet the Federal Lead Free Guidelines. All materials shall be clearly marked and submitted with complete data during submittal review.
- B. Unless otherwise specified, all fixtures complete as catalogued, commercial grade,

white color, exposed metal trim chromium plated.

- C. Fixtures and brass shall be securely anchored. Carriers shall be securely anchored to floor with lug bolts in all holes as recommended by the manufacturer.
- D. Flush valve "YJ" supports shall be installed 1" below vacuum breaker on all water closet flush valves
- E. and around vacuum breaker on urinals.
- F. Seal all fixtures at wall and floor with white silicone sealant. Seal countertop fixtures with clear silicone sealant.
- G. Mount all fixtures at standard mounting height unless otherwise noted.
- H. Furnish sinks and lavatories with correct number of drilling required by the faucet and accessories. Cock hole covers are not acceptable.
- I. All items complete as catalogued as shown on drawings:

2.4 Substitute Manufacturers

- A. Where Kohler is listed, American Standard, or Zurn may be substituted.
- B. Where J.R. Smith is listed, Josam, Zurn, or Wade may be substituted.
- C. Where McGuire is listed for traps, outlets and stops, EBC, Kohler, Crane, Eljer or American Standard may be substituted.
- D. Where Symmons is listed, Chicago Faucet or Powers, Zurn may substituted.
- E. Where Chicago Faucet is listed, T&S Brass may be substituted.
- F. Where Willoughby is listed, Acorn may be substituted.
- G. Where Church is listed above, Bemis, Beneke or Centoco may be substituted.
- H. Where Lochinvar water heaters are listed, A.O. Smith, PVI, or Rheem may be substituted.
- I. Where Stern Williams is listed above, Fiat may be substituted.
- J. Where Sloan is listed, Toto and Zurn may be substituted.
- K. Where Symmons is listed above for shower control valves, Speakman, Leonard, Powers, T&S or Zurn may be substituted.
- L. Where Armstrong is listed above, the equal of B & G, Taco, Grundfos or Thrush may be substituted.

3.0 - EXECUTION

3.1 Installation

- A. Equipment shall be installed in accordance with manufacturer's recommendation.
- B. See details for mounting instruction and accessories.

- C. Install electric water heaters so elements can be removed without disconnecting and/or removing heater.
- D. Cleanouts on water closet stacks shall be installed minimum 12" above top of the flush valve on standard water closets, minimum 12" above top of grab bar on handicapped water closets and minimum 12" above top of tanks on non-handicapped tank type water closets. On urinal locate cleanouts minimum 12" above top of flush valve on handicapped urinals and 12" above finish floor on standard units. On lavatories and sinks - 12" above finish floor and all other fixtures 12" above floor or above top of fixture.
- E. Stops and supplies are to be installed with chrome plated brass nipples penetrating wall with deep escutcheon at wall. Compression type stops are not acceptable.
- F. All floor mounted fixture supports are to be securely attached to the floor using anchors in all mounting hole of size as recommended by manufacturer.
- G. Provide wood backing in wall at all flush valve brackets and faucet supports and anchor brackets and supports to wood backing with anchors of sufficient length to penetrate backing.
- H. Handicapped flush valve shall be installed with the pull handle on the open side or side opposite the adjacent wall.

END OF SECTION

TABLE OF CONTENTS - HVAC - SECTION 15000

<u>SECTION NUMBER</u>	<u>SECTION TITLE</u>	<u>PAGE(S)</u>
15010	GENERAL PROVISIONS - HVAC	1 - 13
15020	TESTING, BALANCING AND ADJUSTING (TBA)	1 - 3
15050	MATERIALS AND METHODS - HVAC	1 - 5
15080	PIPING SPECIALTIES - HVAC	1 - 1
15180	INSULATION - HVAC	1 - 4
15205	AIR PURIFICATION SYSTEM	1 - 6
15740	COILS	1 - 1
15760	HEAT PUMP UNITS	1 - 7
15772	UNITARY HEATING AND COOLING	1 - 1
15775	ELECTRIC HEATERS	1 - 1
15820	FANS	1 - 1
15840	DUCTWORK	1 - 3
15850	SPECIAL DUCTWORK SYSTEM	1 - 1
15860	DUCT ACCESSORIES	1 - 4
15870	OUTLETS	1 - 2
15880	FILTERS	1 - 1
15900	CONTROLS	1 - 3

1.0 - GENERAL

1.1 Scope

- A. HVAC means Heating, Ventilation and Air Conditioning.
- B. Provisions of this Section apply to all HVAC and Building Management and Control System (BMCS) work.
- C. Include the provisions of General, Supplementary and Special Conditions and provisions of the Specifications shall apply to and form a part of this Section.
- D. Provide all labor, materials, equipment, and services necessary for the completion of all HVAC work shown or specified, except work specifically specified to be done or furnished under other sections of the Specifications. Include performing all operations in connection with the complete HVAC installation in strict accordance with the specification and applicable drawings subject to the terms and conditions of the Contract.
- E. Give required notices, file drawings, obtain and pay for permits, deposits and fees necessary for the installation of the HVAC work. Obtain and pay for inspections required by laws, ordinances, rules, regulations or public authority having jurisdiction. Obtain and pay for certificates of such inspections, and file such certificates with Owner.
- F. "Provide" means to furnish and install, complete and ready for operation.
- G. All equipment shall be U.L. or E.T.L. Listed as an assembly.

1.2 Drawings:

- A. HVAC Drawings are diagrammatic and subject to requirements of Architectural Drawings. HVAC Drawings indicate generally the location of components and are not intended to show all fittings or all details of the work. Coordinate with Architectural, Structural, Electrical, Plumbing and other Building Drawings.
- B. Follow the Drawings closely, check dimensions with Architectural Drawings and field conditions. DO NOT scale HVAC Drawings for location of system components.
- C. Make no changes without Architect's written permission. In case of doubt, obtain Architect's decision before proceeding with work. Failure to follow this instruction shall make the Contractor liable for damage to other work and responsible for removing and repairing defective or mislocated work.
- D. Do not scale Drawings to locate ceiling diffusers. Coordinate with lighting, ceiling grids and/or reflected ceiling plans.

1.3 Applicable Codes And Standards:

- A. Comply with the current editions of the following Codes and Standards:
 - 1. ANSI/ASHRAE 15 - Code for Building Services Piping.
 - 2. ANSI B9.1 - Safety Code for Mechanical Refrigeration.

3. NFPA 70 - National Electrical Code.
4. NFPA 90A - Air Conditioning and Ventilating Systems.
5. NFPA 101 - Life Safety Code.
6. Other Standard as referenced in other Sections of Divisions 15.
7. Local Building Code (International Building Code if no local Building Code in effect).
8. Local Plumbing Code (International Plumbing Code if no local Plumbing Code in effect).
9. Local Gas Code (International Gas Code if no local Gas Code in effect).
10. Local Mechanical Code (International Mechanical Code if no local Code in effect).

1.4 Qualifications Of Subcontractor:

A. The HVAC Contractor shall meet the following qualifications:

1. The HVAC Contractor must be approved by the Architect.
2. The HVAC Contractor shall have been in business as a HVAC Contractor for at least three (3) years prior to Bid Date.
3. The HVAC Contractor shall have a satisfactory experience record with HVAC installations of character and scope comparable with this project and have completed five projects of the same cost (or more) as the cost of this project, and for at least three (3) years prior to the Bid Date shall have had an established service department capable of providing service inspection or full maintenance contracts.
4. Contractor must have bonding capacity for project of this size and must bond the project.

1.5 Conflicts And Interferences:

A. If systems interfere or conflict, the Architect shall decide which equipment to relocate regardless of which was first installed.

1.6 Workmanship:

A. Do all work in a neat and first-class manner. Remove and replace work not done in such manner as directed by the Architect.

1.7 Cooperation:

A. Cooperate with all other crafts. Perform work in a timely manner. Do not delay the execution of other work.

1.8 Visiting Site:

A. Visit site and become familiar with location and various conditions affecting work.

No additional allowance will be granted because of lack of knowledge of such conditions.

1.9 Scheduled Work Hours And Facility Occupancy:

- A. Schedule all connections to existing systems and shutdowns with the Architect/Owner.

2.0 - PRODUCTS

2.1 Materials, Substitutions And Submittals:

- A. Unless otherwise noted, provide new, standard, first-grade materials throughout. Equipment and materials furnished shall be fabricated by manufacturer regularly engaged in their production and shall be the standard and current model for which replacement parts are available. HVAC equipment shall be substantially the same equipment of a given manufacturer which has been in successful commercial use and operation for at least three (3) years.
- B. Where materials or products are specified by manufacturer's name, brand, trade name, or catalog reference, such named materials or products shall be the basis of the Bid, without substitution, and shall be furnished under the Contract unless requests for substitutions are approved as noted below. Where two or more brands are named the choice of these shall be optional with the Contractor.
- C. Substitutions will be considered only if written request for approval has been received by the Architect ten (10) days prior to the date established for receipt of Proposals. Each request shall include the name of the material or equipment for which substitution is proposed, specification section/paragraph number and a complete description of the proposed substitute including drawings, cuts, performance and test data, samples and any other information necessary for evaluation. A statement setting forth any changes in other materials, equipment or other Work that incorporation of the substitute may require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution is final.
- D. If the Architect approves any proposed substitution prior to receipt of Proposals, approval will be set forth in an Addendum. Do not rely upon approvals made in any other manner. Prior approval to be secured for "equal" or "approved equal" manufacturer.
- E. No substitutions will be considered after the Contract has been executed, except as described in the General Conditions.
- F. Submittal data and shop drawings, except controls, shall be submitted at one time, partial submittals will not be considered. Provide submittal in three (3) ring binders with tab sheets for each major item of equipment. Before ordering materials and equipment, submit to Architect and obtain his approval of a detailed list showing each item which is to be furnished by make, trade name, catalog number, or the like; together with manufacturer's specifications, certified prints, and other data sufficient for making comparisons with items specified. When approved, such schedule shall be of equal force with these specifications in that no variation there from shall be allowed except with Architect's written approval. Number of Shop Drawings and procedure shall be as directed by the Architect.
- G. Architect and / or Engineer's approval of submittal data does not relieve the

contractor of his responsibility to comply with the contract documents.

- H. It is the responsibility of the Mechanical contractor to coordinate all Electrical requirements of the submitted equipment with the Electrical contractor. Any increase in cost due to a variance between the contract documents and the submitted equipment shall be the responsibility of the Mechanical Contractor.
- J. Similar items of equipment shall be the product of the same Manufacturer.
- K. See section, "ALTERNATES" in other section of the Specifications and Bid accordingly.

2.2 Shop Drawings:

- A. Before starting work, submit and obtain approval of detailed drawings of the following, fully dimensioned (including elevations of ductwork and piping) and drawn not less than 1/4"= 1'-0" scale. Submit one (1) set of paper or bond.
 - 1. Ductwork (do not scale diffuser locations, coordinate with ceiling grids and lighting layout). See Section 15860 "DUCT ACCESSORIES".
 - 2. Complete mechanical equipment and fan room plans showing location of equipment, conduit stubs for motors, floor drains, and equipment pads and foundations.
 - 3. Equipment piping.
- B. Submit complete control and power wiring diagrams for approval before installing controls. See Section 15900 "CONTROLS".

2.3 Record Drawings:

- A. When work starts, obtain white prints of the HVAC Drawings. All corrections, variations, and deviations, including those required by change orders, if any, must be recorded in colored ink or colored pencil at the end of each working day on these drawings. The marked prints shall be available at all times for the Architect's inspection.
- B. Prior to examining the request for final payment or making any response thereto, the Architect shall receive from the Contractor one (1) complete set of the white prints, marked as stated above, indicating the actual completed installation of the work included under this Contract.
- C. The Architect will forward the marked white prints to the Consulting Engineers for review. They will then be returned by the Architect to the Contractor for use in preparing record drawings.
- D. When work is completed Contractor shall purchase from the Architect (At Architects' printing cost) one (1) set of prints of HVAC Drawings for use in preparing record drawings. Contractor shall transfer the information from the marked white prints to the mylar record drawings, removing all superseded data in order to show the actual completed conditions.
 - 1. Accurately shown location, size and elevation of new exterior piping work and its relationship to any existing piping and utilities, obstructions, etc., contiguous to the area of work.

2. Block out areas modified by change-order and identify them by change-order number.
- E. Ductwork and Control Drawings may be a set of mylar reproducible shop drawings, up-dated to show actual conditions at completion of work.
- F. HVAC piping drawings may be prepared as noted in paragraph "D" above, or HVAC piping may be added to the ductwork shop drawings as noted in paragraph "E" above.

2.4 Motors, Starters And Electrical Equipment:

- A. Provide electrical equipment compatible with the current shown on electrical drawings. Verify current characteristics before ordering equipment.
- B. Should the Contractor with the Architect's and Engineer's approval make changes in electrical equipment from those shown on the Electrical Drawings, he shall be responsible for the coordination and cost of required changes.
- C. Provide factory installed fuses in all equipment requiring fusing for branch circuit protection.
- D. Motors:
 1. 1750 RPM open drip-proof construction unless otherwise shown or specified. Integral horsepower three phase motors shall be of premium energy-efficient design with apparent efficiency (power factor X efficiency) not less than ASHRAE 90.1.
 2. All motors served by variable frequency drives (VFD's) shall be inverter duty rated.
 3. Unless shown otherwise motors less than 1/2 HP shall be single phase, motors 1/2 HP and larger shall be three phase.
 4. Allis-Chalmer, General Electric, Goulds, Louis Allis, and Westinghouse.
- E. Do not run motors until correct overload elements are installed in starters. Trading overload elements for elements of correct size for motors actually furnished shall be included in this Section.
- F. Starters shall be in motor control centers, furnished mounted on packaged equipment or furnished in this section and installed under "ELECTRICAL SECTION" as indicated and/or shown on the Electrical Drawings. All starters furnished with fused control circuit transformers.
- G. Starters shall be equipped with melting alloy terminal overload protection, in a 3 phase. Starters, unless indicated otherwise, shall be across-the-line type with overload and low voltage protection. Starting equipment shall comply with local utility company requirements.
- H. Starters to be Square "D", Allen-Bradley, Cutler-Hammer or approved equal.
- I. For single phase motors provide manual starters equal to Square "D" Class 2510. When installed in equipment rooms provide surface mounted enclosure, and when installed in finished walls outside equipment rooms provide flush mounted enclosure, key operated.

- J. For three phase motors provide magnetic line voltage starters with NEMA I enclosures and melting alloy overload elements.
- K. Provide H-O-A switches, fused control circuit transformers, auxiliary contacts, etc., as shown on control diagrams or required by control sequences and/or arrange for these items to be furnished with the starters or motor control centers specified in Electrical Work.
- L. All starters shall be by the same manufacturer.
- M. Provide thermal overload with equipment for motors 1/2 HP and less at 120/1/60.

2.5 Sleeves:

- A. For pipe through floors inside rated chases or through non-fire-rated walls: 20 gauge galvanized steel, 1/2" larger than pipe or covering.
- B. For uninsulated pipe through fire rated walls or partitions or floors outside chases: Pipe Shields, Inc., Model WFB or approved equal at walls, Model DFB at floors.
- C. For insulated pipe passing through fire rated partitions or walls or floors outside chases: Pipe Shields, Inc., Model WFB-CS for hot lines, VFB-CS-CW for cold lines. Insulation: Calcium silicate for hot lines and foamglass for cold lines, thickness specified for adjacent pipe covering.
- D. For pipe through concrete beams: Schedule 40 black steel pipe, 1/2" larger than pipe or covering. Pipe covering passing through sleeve: calcium silicate in a 24 gauge galvanized steel shield similar to Pipe Shields, Inc. thermal hanger shield. Caulk space between bare pipe insulation jacket and beam with fire retardant rope at both ends of the sleeve and seal with 3M Brand fire barrier caulk CD 25 or Putty 303, thickness and application in strict accord with manufacturer's recommendations, minimum thickness 1".
- E. At Contractor's option, instead of the factory fabricated sleeves specified above for pipe passing through floors and fire rated walls and partitions substitute 20 gauge galvanized steel sleeve 1/2" larger in diameter than pipe or pipe covering and seal one end of sleeve (both ends if both ends are exposed) with 3M Branch Fire Barrier Caulk CP25 or Putty 303, thickness and application in strict accord with manufacturer's recommendations, minimum thickness 1". Where pipe is insulated, insulation shall be continuous thru sleeve, calcium silicate for hot lines and foamglass for cold lines. In exposed areas, after product has dried it shall be sanded smooth for painting under painting section.
- F. Set sleeves before concrete is poured or masonry is erected. In existing construction, grout sleeves firmly in place.
- G. Sleeves for ducts: See Fire Dampers (See Section 15860 "DUCT ACCESSORIES").
- H. Extend sleeves 1-1/2" above finish floor and waterproof.
- I. Where exposed ducts pass through walls and partitions, provide 4" wide 20 gauge galvanized steel closure plates except at grilles and registers. Fit closure plates snugly to duct and secure to wall. Grout around ducts and sound absorbers at equipment room walls.

- J. Where exposed pipes pass through walls and partitions in finished spaces, provide chrome plated F & C plates or escutcheons.

2.6 Access Doors:

- A. Doors in non-fire rated walls and ceilings: 17-gauge steel with hinges and screwdriver latches, Bilco, Milcor, Miami-Carey, or equal. Doors in fire rated walls and ceilings: UL labeled with fire rating equal to fire rating of wall or ceiling. Provide door styles compatible with adjoining surfaces as selected by Architect. Size doors to permit removal of equipment and/or maintenance, minimum size 18" X 18".
- B. Mark lay-in ceilings with paper brads at maintenance access points. Bend ends of brads over above ceiling tile.

3.0 - EXECUTION

3.1 Protection Of Rotating Parts:

- A. Equip exposed belt drives with belt guards with holes for measuring speeds of driven shafts.
- B. Provide exposed couplings with coupling guards.
- C. Equip propeller fans with guards.
- D. Equip inlets and outlets of open centrifugal fans with 1-1/2" #10 Diamond mesh galvanized steel screens.
- E. All motors or other equipment exposed to weather shall be provided with weatherproof covers.

3.2 Protection Of Equipment:

- A. During construction, protect mechanical equipment from damage or deterioration.
- B. When installation is complete, clean equipment and make ready for painting.
- C. During construction all ductwork, piping, and equipment shall be stored in a clean/dry location. Any ductwork or piping stored outside that is not protected shall be removed from the job site. Installed ductwork and piping shall have open ends covered at the end of each work day to prevent dust, dirt, and water from entering the ductwork and piping.

3.3 Installation Of Equipment:

- A. Install equipment to provide normal service access to all components.
- B. Provide sufficient space for removing components, install equipment to provide such clearance.
- C. Install equipment in accordance with manufacturer's instructions. If manufacturer's instructions conflict with contract documents, obtain Architect's decision before proceeding.
- D. All equipment shall be firmly fastened in place:

1. Roof curbs shall be secured to deck and structure and curb mounted items shall be secured to curbs.
2. Pad mounted equipment shall be secured to pads using poured in place anchor bolts or cinch anchors.
3. Vibration isolators shall be secured to floors, pads or structure and equipment shall be bolted to the isolators.

3.4 Equipment Supports:

- A. Provide supports for ductwork, piping and equipment. Hot dip galvanize after fabrication all grillage, supports, etc., located outdoors.
- B. Set all floor-mounted equipment, other than condensate pumps, on concrete pads or rails (as indicated of height shown, but not less than 4" high). Coordinate pad height with condensate drain trap requirements. Chamfer rails and pads 1". Where shown, provide reinforced floating pads mounted on vibration isolators. Form, reinforce and pour any pads and rails required but not shown on Structural and Architectural Drawings.

3.5 Cutting And Patching:

- A. Set sleeves and inserts and lay-out and form openings in walls, beams, girders and structural floors in this Section.
- B. Cut, patch and repair as required to accomplish HVAC Work and finish to match adjacent work. Architect's approval required before cutting any part where strength or appearance of finished work is involved.

3.6 Incidental Work:

- A. Provide all motors incidental to the Mechanical Systems. Wiring of motors, switches and starters is included in "ELECTRICAL SECTIONS".
- B. Do all control wiring required for Mechanical work.
- C. Provide motor starters as specified above.
- D. Submit refrigerant piping diagrams as prepared by the HVAC Contractor and/or refrigeration equipment manufacturer for approval.
- E. Final water connections to services are included in this Section.
- F. Permanent drain connections for AC units, etc., and auto air vents to nearest floor drain are included in this Section.
- H. Door louvers are not included in this Section.
- I. Items obviously omitted from drawings and/or specifications shall be called to attention of the Architect prior to submitting Bid, after award of Contract any changes or rearrangements necessary to complete Contract shall be at no additional cost to Owner.
- J. All return air and exhaust air grilles shall be covered with filter media if they are started and operated during construction.

3.7 Flashing:

- A. General: Furnish all fans curbs, pitch cups, metal base flashing and counter flashing required for HVAC Work. Installation of above items is specified in "ROOFING SECTION" with coordination by HVAC Contractor.
- B. Fan curbs for power roof ventilators are specified with the fans.
- C. Pitch Cups: 20 gauge galvanized steel, at least 8" deep, bases mitered and soldered and extending at least 4" horizontally.
- D. Metal Base Flashing: Galvanized steel for ferrous items, and stainless steel for stainless steel duct and aluminum for aluminum duct. Minimum thickness 22 gauge (0.034") galvanized steel, 20 gauge (0.038") stainless steel, 0.032" aluminum. Bases mitered and soldered extending out at least 4" horizontally and 8" vertically.
- E. Metal Counter Flashing: Of material and gauges specified for base flashing, lapping base flashing at least 3".

3.8 Hvac Installation Of And Connections To Items Furnished By Others Or Specified In Other Sections:

- A. Clothes Dryers: Provide Vents.
- B. Duct Mounted Smoke Detectors: Install in duct.
- C. Domestic Water Heaters: Provide gas flues and combustion air vents.
- D. Range Hoods: Provide range hoods and duct.
- E. Welding fume extractors.
- F. Welding fume exhaust fans.
- G. Ductwork to welding fume extractors and exhaust fans.
- H. Connect welding extraction arms to main duct work and mount arms to wall brackets per manufacturer.

3.9 Painting:

- A. Refinish equipment damaged during construction to new condition.
- B. Paint all non-potable water pipe and insulation yellow in accordance with Plumbing Code using paint of type specified in Painting Section.
- C. Paint un-insulated duct surfaces visible through grilles and registers flat black.
- D. Other painting is specified in "PAINTING SECTION, Finishes Division".

3.10 Pipe Identifications:

- A. Identify all piping exposed to view or accessible through removable ceilings or access panels with plastic snap-on pipe line markers. Color code markers in accordance with ANSI A13.1. Show pipe contents and direction of flow. Markers

on lines 8" OD and smaller shall be taped in place; on lines over 8" OD secure with spring clips.

- B. Submit samples of all labels, tags, stencils, chains, etc., for approval.
- C. Protect all factory identification tags, nameplates, model and serial numbers, stenciling, etc., during construction and replace if damaged.
- D. Label Spacing and Extent:
 - 1. On straight run of pipes; Above suspended ceilings space labels approximately 10 feet on center; elsewhere, 20 feet on center.
 - 2. Wherever a pipe enters or leaves a room or building.
 - 3. At change of direction.
 - 4. At main valves and control valves (not equipment valves).
 - 5. On risers, just above and below floors.

3.11 Valve Tags:

- A. 2" X 3" laminated plastic with 1/2" numbers engraved at top indicating type service and valve number, leaving space for further engraving by others. Secure tags with chains to valve yoke or stem, not handles.
- B. Valve tags colors: Brass tags with black numbers.
- C. Valve tag locations: At all valves on mains, risers and branches.
- D. Valve tag numbers: Starting with Number 1, number tags in sequence from the lowest point to the highest point in the building. In existing building extend existing sequences.

3.12 Valve Charts:

- A. In all mechanical rooms, provide charts showing number and locations of all valves, type of service, etc. Frame with aluminum, under glass.

3.13 Equipment Identifications:

- A. Provide 2" X 3" or larger laminated plastic nameplates with 1/2" numbers and letters in colors specified below. Screw tags to equipment in obvious locations. Engrave equipment designation and numbers as shown on plans and drawings on upper half of tags, leaving lower half of tag for future engraving by Owner.
- B. Provide similar nameplates for motor starters furnished under this section.
- C. Secure nameplates with acorn head screws.
- D. Colors:
 - 1. Equipment connected to utility power only - black letters on white nameplates.
 - 2. Equipment connected to emergency power - red letters on white

nameplates.

3.14 Exhaust Fan Identifications:

- A. 2" X 3" or larger laminated plastic nameplates with red letters and numbers on white background, identifying type of fans, number according to plans, and rooms served. Engrave on upper half of tag, leaving lower half for engraving by Owner. Fasten with acorn head screws.

3.15 Access Doors:

- A. Provide access doors for valves, fire dampers, dampers, controls, air vents, and other items located above non-lift-out ceilings or behind partitions or walls.

3.16 Use Of Hvac System During Construction:

- A. Ducted HVAC systems may be used during construction as long as the following conditions are met:
 - 1. All AC units shall have filters installed in the AC units that are equal to the filters that are scheduled for each piece of equipment. The contractor shall be responsible for changing the filters in all AC units during construction at a minimum of every 30 days starting from the day the AC units are started. At the completion of the project, the contractor shall replace all filters.
 - 2. All return air and outside air openings shall be protected with temporary filter media. The temporary filter media shall be changed by the contractor. Temporary filter media is required to protect the installed ductwork. During or after construction, if any ductwork is observed without temporary filter media, the contractor shall be solely responsible for cleaning the entire ductwork system and AC unit. Temporary filter media shall be changed bi-weekly at a minimum.
 - 3. All AC units shall have all correct motor overload elements installed and all safeties shall be wired and operational prior to temporary use of the AC unit.
 - 4. Temporary controls and temporary control sequences may be utilized by the contractor until the permanent controls and control sequences are installed. Temporary control methods shall be the sole responsibility of the contractor.
 - 5. All AC units required to have factory start-up shall have factory start-up completed prior to use.
 - 6. The building envelope for the area served by the AC units shall be substantially complete prior to using the AC units during construction.
- B. Ductless split systems shall NOT be used during construction. Protect all indoor sections of ductless split systems during construction to prevent dust, dirt, or water from entering the unit.

3.17 Warranty And Instructions:

- A. See General Conditions - One-Year Warranty.

- B. Contractor shall and hereby does warrant all materials, workmanship and equipment furnished and installed by him to be free from defects for a period of one (1) year after date of substantial completion of the Contract. Should any defects in materials, workmanship, or equipment be made known to Contractor within the one (1) year warranty period, Contractor shall replace such materials, workmanship, or equipment without charge.
- C. All centrifugal, reciprocating, screw or scroll type refrigeration compressors shall bear five (5) year non-pro-rated parts warranty.
- D. All gas fired air furnaces shall bear ten (10) year prorated heat exchanger warranties.
- E. After completion of the work, Contractor shall operate the equipment which he installs for a period of ten (10) working days, as a test of satisfactory operating conditions. During this time, Contractor shall instruct the Owner's operating personnel in the correct operation of the equipment. Furnish necessary oral and written operating instructions to the Owner's representative.
- F. Provide five (5) sets of manufacturer's operating and maintenance manuals and parts lists including nearest manufacturer's sales and service representative by name, address and phone for all equipment and materials furnished. Provide a maintenance schedule listing routine maintenance operations and suggested frequency. Include all warranty dates on equipment and guarantees. Include names, address and phone of any subcontractor and work performed. Bind above items in loose leaf three (3) ring binders with tab for each class of equipment.
- G. During the period of tests, adjust all controls, regulators, etc., to comply with these Specifications.
- H. Supply initial charges of refrigerant, refrigeration lubricating oil; and anti-freeze necessary for the correct operation of the equipment. Maintain these charges during the guarantee period, with no additional cost to the Owner, unless loss of charge is the fault of the Owner.
- I. Make available to the Owner, without additional cost, service and adjustment of the equipment for the guarantee period.
 - 1. Service shall include:
 - a. On call nuisance issues.
 - b. Replenishing refrigerant and antifreeze if loss occurs due to system failure.
 - 2. Service shall not include:
 - a. Routine maintenance of the equipment unless specified in specific equipment specification section(s).

3.18 Project Close-Out Documents:

- A. Prior to the issuance of a certificate for final payment, submit to Architect and obtain his approval of the following:
 - 1. A letter signed by the subcontractors for HVAC, Electrical, and Temperature Control work stating that they have jointly checked each

power circuit and control circuit and mutually agrees that controls and power circuits will function properly.

2. Record drawings - sheet metal work (reproducible).
3. Record drawings - piping (reproducible).
4. Record drawings - control systems (reproducible).
5. Control manufacturer's letter of certification (3).
6. Air balance report (3).
8. Equipment Submittal Data (3).
9. Equipment operating and maintenance manuals (3).
10. Maintenance schedule (3).
11. Equipment warranty dates and guarantees (3).
12. List of Owner's Personnel who have received maintenance instructions.
13. All required factory start-up reports.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Provisions of this section apply to all HVAC work.
- B. All tests shall be witnessed by the Architect in addition to authorities having jurisdiction. A minimum of 48 hour notice is required prior to performance of test.
- C. Provide complete report to Engineer for approval TEN (10) working days prior to Engineer's final site visit.
- D. Commissioning: Each subcontractor and supplier of equipment shall include in his/her quoted price the cost of furnishing the material requested and the manpower necessary for the operation and maintenance manuals, training and system verification as specified under Section 15995 - HVAC Commissioning.

1.2 Qualifications

- A. All TBA work shall be performed by an independent Test and Balance Agency specializing in Testing, Balancing and Adjusting of HVAC Systems.
- B. All TBA work shall be under supervision of a qualified registered professional engineer regularly engaged in the TBA Agency.
- C. TBA Agency shall be an AABC or NEEB Member and/or shall obtain written approval from the Architect prior to Bidding.

1.3 Approval

- A. Application for approval of the TBA agency shall be submitted prior to Bid.
- B. Submittal information regarding the TBA agency to include:
 - 1. List of at least five (5) projects successfully completed of similar size and scope.
 - 2. Copy of reporting forms to be used for this project indicating scope of TBA work.
 - 3. Name of registered engineer in charge with resume of qualifications. List of personnel that will perform TBA work on project and qualifications.
 - 4. List of instruments to be used with dates of latest calibrations.
 - 5. List of memberships in AABC, NEBB or other similar organizations.

2.0 - PRODUCTS

2.1 Instruments

- A. All instruments used for the TBA work shall be calibrated within six (6) months and checked for accuracy prior to start of work.

3.0 - EXECUTION

3.1 General Requirements

- A. After HVAC system has been installed, Test, Balance and Adjust System for proper operation, air distribution, flow rates, temperatures and humidities. Correct any noise and/or vibration conditions.
- B. Include a "Deficiency List" with the TBA air and water balance report. Deficiency list shall include TBA items which are not in accordance with Contract Documents.
- C. Perform all tests as required by local codes. Contractor shall furnish testing equipment.
- D. If local Codes are more stringent, local Codes shall govern.

3.2 Air System

- A. When system has been completed, remove all trash and dirt, set grille bars and diffuser patterns for required throws and adjust and balance air duct systems so air quantities at outlets are as directed and distribution from each supply outlet is free from drafts and excessive noise, and uniform over the face of each outlet. Do all testing and balancing with filters blanked to provide pressure drops midway between clean condition and manufacturer's recommended change-out condition. Balance air quantities to within 10% of indicated air quantities.
- B. Make adjustments so dampers and volume adjusters close to air outlets will have the least pressure drop consistent with volume requirements. Obtain additional pressure drop required for balancing of shorter runs by adjusting dampers at branch duct take-offs. Adjustable fan drives shall be used for making final adjustments of total air quantities. Change sheaves on drives larger than 15 HP. Provide additional sheaves as required.
- C. Direct reading velocity meters may be used for comparative adjustment of individual outlets, but measure air quantities in ducts having velocities of 1000 feet per minute or more with pitot tubes. Cap pitot tube openings in low pressure ducts with plastic plugs. Cap pitot tube openings in medium and high pressure ducts and kitchen and laboratory exhaust ducts with Duro-Dyne test ports.
- D. Permanently mark settings of dampers and other volume adjusting devices so they can be restored if disturbed.
- E. When air balancing has been completed, submit to Architect an air balance log, including design and actual air quantities, pressures, etc., in each branch duct and at each grille, register, and outlet. Individual outlet air rates are required for boots on boot-box systems.
- F. Include for each system the following information:
 - 1. Fan rpm, motor amps, motor nameplate amps, and amp rating of starter heater.
 - 2. Total air quantity supplied by each system and/or fan.
 - 3. Total outside air quantity supplied by each system.
 - 4. Provide velocity pressure across each duct mounted smoke detector and

list manufacturer's required velocity pressure range.

5. Air flow at all grilles.
6. Static pressure profile thru each air handler.

3.3 Coils

- A. Provide the following:
 1. Entering and leaving air temperatures.
 2. Outside air temperature at time of test.
 3. Air pressure drop.

3.4 Start-Up and Service

- A. At the beginning of the first heating season, adjust and balance operating phases and repeat at the beginning of the first cooling season or vice-versa, as the case may be, all without charge.
- B. The Contractor and Factory Representative of the AC units and major HVAC equipment shall place every item of such equipment into satisfactory operation with all automatic and safety devices. Further, all adjustment service required shall be performed during the warranty period. Adjustment services does not include lubricating fans or motors and does not include changing filters or adjusting belts.
- C. In addition, submit equipment manufacturers' start-up reports for items listed above. See "Project Close-Out".

END OF SECTION

1.0 - GENERAL

1.1 SCOPE:

- A. Include Section 15010, "GENERAL PROVISIONS - HVAC", with this Section.

2.0 - PRODUCTS

2.1 MATERIALS:

- A. All pipe, fittings and valves shall be manufactured in the United States of America.

2.2 HVAC DRAIN PIPING:

- A. Standard weight galvanized steel pipe ASTM A-120 with galvanized malleable iron fittings, type "L" hard copper with wrought copper sweat fittings or Schedule 40 PVC, at Contractor's option.
- B. Provide drain traps for AC Unit drain pans. Size traps as required to drain under operating conditions.

2.3 REFRIGERATION PIPING:

- A. ACR hard drawn copper tubing with wrought copper sweat fittings. Joints: Silfossed with continuous flow of dry nitrogen through lines.
- B. Size suction and discharge lines so as to insure oil return at minimum loading.
- C. Small lines 5/8" OD and smaller may be soft copper with flare fittings, provided that all joints are exposed for visual inspection.
- D. Refrigerant piping shall be sized and installed as recommended by the equipment manufacturer. Provide lift traps or double suction risers as required for oil return.

2.4 PIPE HANGERS:

- A. General: Pipe hangers, Grinnell, PHD, Michigan Hanger, or Elcen. Grinnell figure numbers are given for reference. Provide copper clad or plastic coated hangers on bare copper lines. Provide stainless steel or plastic coated hangers in Pool areas subject to chlorine atmosphere.
- B. Equip pipe hangers with vibration isolators as specified under sub-section 2.15 "VIBRATION ISOLATORS".
- C. Pipe hangers for lines 3" and smaller (other than steam and condensate lines), adjustable wrought ring hangers, Grinnell Fig. 97 or wrought clevis hangers, Grinnell Fig. 260.
- D. Pipe hangers for lines 4" and larger (other than steam and condensate lines), adjustable wrought ring hangers, Grinnell Fig. 260.
- E. Parallel piping graded in same direction may be grouped on trapezes. Trapezes for line 4" and smaller, Unistrut P2000 channel, or equal, with rods sized as

specified below for largest pipe on trapeze. Guide lines on (but not anchor to) trapezes using Unistrut Series P1100 clamps. Trapezes shall not exceed 3' in length. Space lines to allow at least 3" clear between adjacent pipe or pipe covering and between pipes or pipe covering and rods. Space trapezes as specified for pipe hangers based upon smallest size of pipe on trapeze.

- F. Beam Clamps: Grinnell Fig. 229.
- G. Inserts for hangers in concrete structures: Underwriter's listed cast iron inserts. Grinnell Fig. 282.
- H. For fasteners in existing concrete structures use drilled in expansion anchors with load rating at least 150% of pipe hanger rating (power driven anchors are not acceptable).
- I. Size rods for pipe hangers not smaller than the following: 3/8" rods for pipe up to 2", 1/2" for 2-1/2" and 3" pipe, 5/8" rods for 4" and 5" pipe, 3/4" rods for 6" pipe, and 7/8" rods for 8" and 10" and 12" pipe, 1" rods for 14" and 16" pipe and 1-1/8" rods for 18" pipe.
- J. Space pipe hangers at maximum: 5' intervals for cast iron pipe. Pipe hanger spacing for screwed, solder joint and welded piping: 1/2", 6 ft.; 3/4" to 1-1/4", 8 ft.; 1-1/2" to 2-1/2", 10 ft.; 3", 12 ft.; 4", 14 ft.; 5", 12 ft. 6", 10 ft., 8" and over, 6 ft. Polypropylene and PVC plastic pipe 4 ft. horizontally maximum or as directed by manufacturer if closer, and 10 ft. vertically. Install additional hangers at change of direction and valve clusters.
- K. Install pipe hangers on insulated pipe (other than steam and condensate lines) over pipe covering. Provide factory fabricated insulated pipe shields equal to Pipe Shields, Inc. "Thermal Hanger Shields" at hangers. Provide shield insulation of waterproofed calcium silicate for hot water piping and foamglass for chilled water piping, same thickness as adjacent pipe covering. At Contractor's option, pipe shields may be field fabricated using waterproof calcium silicate or foam glass insulation with ASJ and 20 gauge galvanized steel protector. Shield length: 1.5 times nominal pipe size but not less than 4".
- L. Wrap bare copper refrigerant lines with sheet lead at hangers.

2.5 VIBRATION ISOLATION:

- A. General: Mount all piping and rotating equipment using vibration isolators as specified below. Amber Booth, Korfund, Mason Industries, Peabody, Vibration Eliminator Co., or VMC. Mason Industries part numbers are given for reference. Minimum 95% isolation efficiency.
- B. Isolators for Suspended Equipment: Combination steel spring and rubber in shear isolators, #30N. Static deflections: As required to provide 95% isolation efficiency or 1" static deflection, whichever is greater. Provide isolators for all suspended rotating equipment.
- C. Mount air handling unit sections in contact with concrete pad on single layer of ribbed neoprene on top of housekeeping pads as shown. Neoprene vibration pad shall cover the entire surface of the unit in contact with the concrete pad.
- D. Provide snubbing isolators, similar to those specified above for pipe hangers for flexible connections at fans.

- F. Bellows type flexible connections in water lines: Laminated 3-ply corrugated type 304 stainless joints designed for 150 psig WP. Joints shall be flanged with Van-Stone flanges and have 5" relaxed face-to-face dimension. For each joint furnish a control unit consisting of four plates, two tie bolts with required nuts, 1" deflection springs, washer, and stop and lock nuts. Flexible connections Keflex, Flexonics, or approved equal. Provide samples if specifically requested (samples will be returned to vendor).
- G. Isolators for Pipe Hangers:
 - 1. Equip all pipe hangers on chilled water, hot water and condenser water lines in equipment rooms with 1" static deflection combination neoprene and spring isolators, #PC-30N.
 - 2. Mount piping riser supports on chilled water and hot water lines using 0.1" static deflection all directional neoprene anchors: #ADA.
- H. Mount air handling unit sections in contact with concrete pad on single layer of ribbed neoprene on top of housekeeping pads as shown. Neoprene vibration pad shall cover the entire surface of the unit in contact with the concrete pad.

2.6 THERMOMETERS AND GAUGES:

- A. Mercury in glass red reading separable socket industrial thermometers with die cast metal or high impact plastic casings of appropriate pattern for each installation, 9" scale lengths and ranges shown, Palmer, Trerice, Weksler, Marsh or equal. Install thermometers in brass or stainless steel wells. Equip thermometers installed in insulated lines with 1" extension stems or long enough to permit unions to clear insulation whichever is greater.
- B. Where shown install brass thermometer wells with screwed caps. Install wells at an angle to retain oil. Size well to fit thermometers specified.
- C. Enlarge pipe 2" and smaller to 2-1/2" at thermometers and thermometer wells.
- D. Install 4-1/2" dial pressure gauges where shown. Gauges shall have bronze or stainless steel bourbon tubes, 316 stainless steel or brass movement, non-ferrous or phenolic solid front cases, and accuracy not less than 1% of full scale over the entire range. Gauges shall be Ashcroft, Trerice, Weksler, U.S., Marsh or equal. Gauge with minimum bourbon tube diameter of 3". Provide brass or stainless bar stock needle valves for all pressure gauges. Provide siphons for steam gages.
- E. Where shown, provide temperature and pressure measurement plugs and caps, equal to Peteron Equipment Co., Inc. "Pete's plug with Nordel seats and seals", flow design or approved equal. Provide one Pressure and Temperature Kit consisting of 0-100 psi pressure gauge with adapters, two (2) thermometers (25E - 125E F and 0E - 220E F), all in carrying cases.

3.0 - EXECUTION

3.1 PIPE INSTALLATION:

- A. Cut pipe square and ream full size after cutting. Clean pipe. Make threaded joints with Teflon tape. Do not spring pipe into place.

- B. Provide welding material and labor in accordance with the welding procedures of the Heating, Piping, and Air Conditioning Contractors' National Association or other approved procedure conforming to the requirements of ANSI B31.9 "Building Service Piping". Employ only welders fully qualified in the above specified procedure and currently certified by recognized testing authority. Use either electric arc or oxyacetylene welding. Provide full perimeter welds at both face end and collar end of each slip-on flange.
- C. Install piping to allow for expansion. Make connections to all equipment to eliminate undue strains in piping and equipment. Furnish necessary fittings and bends to avoid spring of pipes during assembly.
- D. Pitch air conditioning unit drain lines down in direction of flow 1" in 20'.
- E. Install chrome plated floor and ceiling plates on pipe passing through finished surfaces in finished spaces.
- F. Make horizontal water and steam supply line size reductions using eccentric reducers with tops flat in water lines and bottoms flat in steam lines.
- G. Install 3/4" ball or gate valve drains with hose adapters at low points of water piping and at bases of all risers or where shown provide large drains.
- H. Make connections to equipment using screwed unions in sizes 2" and smaller and flanged unions in sizes 2-1/2" and larger. Install unions in all piping connections to each piece of equipment. Provide rubber grommets at pipe penetrations to equipment casings.
- I. Wherever ferrous pipes or tanks and copper tubing connect, provide dielectric insulation unions or couplings, equal to EPCO.
- J. Near heating and air conditioning equipment requiring water valved and capped water outlets of sizes shown, for connection to equipment, including reduced pressure principal backflow preventers shall be provided. Make final connections under HVAC work. Note that all piping and insulation downstream of backflow preventer must be painted yellow.
- K. Run piping concealed, except where specifically shown or specified exposed. Plumb all vertical lines and run mains parallel to building walls unless specifically shown otherwise. All piping shall be ran as high as practical and not on the floor unless otherwise indicated.

3.2 INSTALLATION OF VALVES:

- A. Provide shut-off valves in supply and return to each item of equipment. Locate valves to isolate each item to facilitate maintenance and/or removal.
- B. Provide check valve in discharge line adjacent to each pump.
- C. Locate valves in piping connections to boilers, heat exchangers, water heaters, refrigeration machine, etc., so heads and tube bundles can be removed without disconnecting equipment or piping other than union or flange connections immediately adjacent to heat exchangers.
- D. Provide seat to screw adapters where required.

3.3 REFRIGERATION SYSTEM:

- A. Split Systems: When system is complete, but before the pipe covering has been installed, test components with dry nitrogen and make tight at equipment manufacturer's recommended test pressures. Then evacuate the system to 26" Hg. vacuum which the system shall hold for 24 hours. After passing the above tests, charge and leak test under operating conditions using electronic leak detector.
- B. Split and Packaged Systems: Check operation of refrigeration cycle and report head pressure, suction pressure and oil pressure.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Provisions of this section apply to all HVAC work.

2.0 - PRODUCTS

2.1 Specialties – Refrigerant

- A. Install molded desiccant core filter dryer in each liquid line. Provide throw away dryers for lines 1/2" and smaller. Provide replaceable core dryers for lines 5/8" and larger. Dryers shall be Sporlan "Catchall".
- B. Install moisture indicating sight glass in each liquid line.
- C. Service valves: Wing cap valves, Henry, or approved equal.
- D. Expansion valves: Thermostatic valves with external equalizers, Sporlan, or approved equal.
- E. Hot gas bypass valves: Self-contained valves sized to pass gas flow at last step of compressor unloading and shall discharge between expansion valve outlet and distribution. Sporlan, or approved equal.
- G. Install solenoid valve in each liquid and hot gas bypass line where recommended by manufacturer. Hot gas solenoid valve shall be equipped with a high temperature coil.
- H. Install suction line accumulators in all outdoor heat pumps and condensing units where refrigerant lines exceed 85' in length, or where recommended by manufacturer.
- I. Refrigerant circuit access ports located outdoors shall be fitted with locking-type, tamper-resistant caps. Provide owner with any tools necessary to un-lock the caps.

3.0 - EXECUTION

3.1 Installation

- A. Specialties shall be installed in accordance with manufacturer's recommendations.
- B. See Details for mounting instructions and accessories.

END OF SECTION

1.0 - GENERAL

1.1 SCOPE:

- A. Include Section 15010 "GENERAL PROVISIONS - HVAC", with this Section.
- B. Repair existing insulation at points of connection to existing work.
- C. "Exposed" is defined as: Exposed to view when construction is complete. Items which are not "exposed" are "concealed".
- D. "Attic" is defined as any ceiling space that is adjacent to the roof.
- E. Insulate all items subject to sweating or loss of heat.
- F. All insulation shall be installed by licensed applicator and applied in accordance with the Manufacturer's Recommendations.

1.2 INSULATION REQUIREMENTS:

- A. Comply with NFPA 90A.
- B. Pipe hanger shields are specified in Section 15050 "MATERIALS AND METHODS - HVAC".
- C. Use insulation and adhesives with Underwriter's Laboratories flame spread rating not over 25 without evidence of continued progressive combustion, and smoke developed rating not exceeding 50 for all other pipe, duct and equipment insulation.

2.0 - PRODUCTS

2.1 FOAM PLASTIC PIPE COVERING:

- A. Fire retardant foamed plastic pipe covering, maximum K factory at 75EF mean temperature not exceeding 0.27 BTU/(hr) (sq. ft.) (EF/in). Armstrong "Armaflex II", or approved equal.
- B. Pipe covering may be seamless insulation slipped over piping before erection or may be slit longitudinally and installed over erected piping.
- C. Make fitting covers from segments of pipe covering.
- D. Cement all joints and seams in accordance with manufacturer's instruction using Armstrong 520 adhesive.
- E. Fit pipe hangers over insulation (See PIPE HANGERS). Use hanger shields as specified under pipe hangers.
- F. Thermal performance shall be as follows:
 - 1. 1" thick: R=4.2.
 - 2. 2" thick: R=8.0.

2.2 ALUMINUM JACKET PIPING COVER:

- A. 0.010" thick corrugated aluminum jacket with laminated polyethylene and draft paper adhered liner.
- B. Securely rivet jacket in place and band with flat aluminum bands 18" o.c.
- C. Finish fittings on aluminum jacketed lines with 1/8" thick (dry) coat of vinyl acrylic mastic reinforced with glass cloth.

2.3 DUCT INSULATION, INTERNAL:

- A. Glass fiber acoustical/thermal insulation complying with NFPA 90A and UL 181 and having an erosion resistant anti-microbial membrane equal to Johns Manville, Linacoustic ARC® on the air side. Edge coating shall be factory applied to the edges of the liner core. Shop fabrication cuts and field cuts or tears shall be coated with Superseal Duct Butter. NRC (1" thick) not less than 0.70, minimum density 3 lb/cu. ft., and maximum friction correction factor at 2000 fpm average velocity 1.15 (per TIMA test method AHS-1S2-76U). Thermal performance shall be as follows:
 - 1. 1" thick: R=4.2.
 - 2. 1 1/2" thick: R=6.3.
 - 3. 2" thick: R=8.0.

2.4 DUCT INSULATION, EXTERNAL FOR CONCEALED:

- A. Formaldehyde free flexible glass fiber insulation with foil-scrim-craft (FSK) facing equal to Johnson Manville Micro-Lite AXG®. Flame spread classification, 25 or less, smoke developed rating not exceeding 50. Minimum density, 3/4 lb./cu. ft., 3" thickness, installed R=8.3 minimum.

2.5 DUCT INSULATION, EXTERNAL FOR EXPOSED OUTDOOR DUCTS:

- A. 6 lb/cu. ft. fiberglass board with FSK facing and thermal conductivity not exceeding 0.22 BTU/(hr) (sq. ft.) (°F/in.) at 75°F mean temperature. Finish with glass cloth embedded in vinyl acrylic mastic.

3.0 - EXECUTION

3.1 HVAC PIPING INSULATION:

- A. Refrigerant Suction Lines and Hot Gas Bypass Lines: "Foam Plastic Pipe Covering", 1" thick. Jacket piping located outdoors or exposed to view with aluminum jacket.
- B. AC Unit Drain Lines: "Foam Plastic Covering", 3/4" thick. Jacket piping located outdoors or exposed to view with aluminum jacket.

3.2 AIR TERMINAL DEVICES:

- A. Ceiling Mounted Supply Diffusers: 2" thick duct insulation on back of diffuser, external for concealed.
- B. Fire Dampers for Internally Lined Ducts and Externally Insulated Ducts: 2" thick

duct insulation on all sides, external for concealed.

3.3 DUCT INSULATION INTERNAL (AND EXTERNAL WHERE INDICATED):

- A. Apply in accordance with SMACNA "Duct Liner Application Standard" over full coverage adhesive. Coat all edges with adhesive and seal all punctures or tears with mastic before installing ducts. Cut liner to assure overlapped and compressed longitudinal corner joints. Fasteners shall be sized appropriately for thickness of liner utilized. Provide mechanical fasteners and metal nosings as noted below:
1. For all velocities, provide metal nosings on upstream edge of liner at connections to equipment: Fans, coils, dampers, AC Units, sound absorbers, etc.
 2. For velocities up to 2,000 feet per minute: Start fasteners within 3" of the upstream transverse edges of the liner and 3" from the longitudinal joints and space them a maximum of 12" o.c. around the perimeter of the duct, except that they may be a maximum of 12" from a corner break. Elsewhere locate fasteners a maximum of 18" o.c., except that they shall be placed not more than 6" from a longitudinal joint of the liner nor more than 12" from a corner break.
 3. For velocities from 2,001 to 4,000 feet per minute: Start fasteners within 3" of the upstream transverse edges of the liner and 3" from the longitudinal joints and space them a maximum of 6" o.c. around the perimeter of the duct, except that they may be a maximum of 6" from a corner break. Elsewhere locate fasteners a maximum of 16" o.c., except that they shall be placed not more than 6" from a longitudinal joints of the liner nor more than 12" from a corner break. In addition to the adhesive edge coating of transverse joints, coat and longitudinal joints with adhesive.
 4. For velocities from 4,001 to 6,000 feet per minute: Same as 2 above except that metal nosing shall be installed to secure liner at all upstream transverse edges.
 5. Duct size shown does not include allowance for insulation.
 6. Where ducts are listed to be lined and wrapped, install wrap per section below "Duct Insulation, External, for Concealed Ducts"
- B. Thickness and Extent:
1. Rectangular Return Duct: 1" thick.
 2. Rectangular Supply Duct Connected to an MUA-1 and MUA-1P: 1" thick.
 3. Rectangular Exhaust Duct Connected to an EF-1: 1" thick.

3.4 DUCT INSULATION, EXTERNAL, FOR CONCEALED DUCTS:

- A. Adhere insulation to duct surface with approved adhesive applied in strips above 6" wide on approximately 12" centers. Flare door staples may be used for securing the insulation until the adhesive sets. Lap jacket and vapor seal all joints and seams with suitable mastic.
- B. On rectangular and flat oval ducts 30" wide and wider, additionally support

insulation with weld pins and speed clips 18" on centers. Seal weld pins with mastic and FSK tape.

C. Thickness and Extent:

1. Supply duct: 2" thick. Supply duct located in Attic: 3" thick.
4. 2 hour fire wrap on grease exhaust duct equal to Firemaster.

NOTE: Conical and straight spin-ins on both lined and unlined ducts shall be insulated. Insulation shall be slit at damper rods, at spin-ins and sealed vapor tight.

3.5 INSULATION WETTED DURING CONSTRUCTION:

- A. Contractor shall replace any and all insulation wetted during construction at his own expense.

END OF SECTION

1.00 GENERAL:

1.01 DESCRIPTION OF WORK:

- A. This section describes the design, performance and installation of an air purification system intended for use as part of another manufacturer's air handling unit or mounted on the duct as shown on the plans, details and equipment schedules.

1.02 REFERENCED CODES & STANDARDS:

- A. The following codes and standards are referenced through out. The edition to be used is that currently enforced by the authority having jurisdiction (AHJ) or in absence of such direction that referenced by the current enforceable IBC code or as indicated by the contract documents, except where specifically referenced by this section of the specifications.

1. ASHRAE Standards 62 & 52
2. National Electric Code NFPA 70
3. UL 867 including ozone chamber test required as of December 21, 2007

1.03 RELATED WORK:

1. Testing, Adjusting and Balancing
2. Facility Access and Protection
3. Ductwork
4. Filters
5. Water and Refrigerant Piping
6. Electrical Wiring
7. Control Wiring

1.04 QUALITY ASSURANCE:

- A. Basis of design is Top Product Innovations. Global Plasma Solutions and Phenomenal Aire shall be considered equal subject to meeting all specifications herein.
- B. The Air Purification System shall be a product of an established manufacturer within the USA.
- C. A qualified representative from the manufacturer shall be available to inspect the installation of the air purification system to ensure installation in accordance with manufacturer's recommendation.
- D. Technologies that do not address gas disassociation such as UV Lights, Powered Particulate Filters and/or polarized media filters shall not be considered. Uni-polar ion generators shall not be acceptable. "Plasma" particulate filters shall not be acceptable.

- E. Projects designed using ASHRAE Standard 62, IAQ Procedure shall require the manufacturer to provide Indoor Air Quality calculations using the formulas within ASHRAE Standard 62.1-2013 to validate acceptable indoor air quality at the quantity of outside air scheduled with the technology submitted.
- F. The Air Purification System have been tested by UL or Intertek/ETL to prove conformance to UL 867-2007 including the ozone chamber testing and peak ozone test for electronic devices. Manufacturers that achieved UL 867 prior to December 21, 2007 and have not been tested in accordance with the newest UL 867 standard with the ozone amendment shall not be acceptable. All manufacturers shall submit their independent UL 867 test data with ozone results to the engineer during the submittal process. All manufacturers shall submit a copy with their quotation. Contractors shall not accept any proposal without the proper ozone testing documentation.
- G. The maximum allowable ozone concentration per the UL 867-2007 chamber test shall be 0.007 PPM. The maximum peak ozone concentration per the UL 867-2007 peak test as measured 2 inches away from the electronic air cleaner's output shall be no more than 0.0042 PPM. Manufacturers with ozone output exceeding these ozone values shall not be acceptable.

1.05 SUBMITTALS:

- A. Product Data: Submit manufacturer's technical product data for ion generators including:
 - 1. Schedule of plasma generators indicating unit designation, number of each type required for each unit/application.
 - 2. Data sheet for each type of plasma generator, and accessory furnished; indicating construction, sizes, and mounting details.
 - 3. Performance data for each type of plasma device furnished.
 - 4. Indoor Air Quality calculations using the formulas within ASHRAE Standard 62.1-2013 to validate acceptable indoor air quality at the quantity of outside air scheduled (when projects are designed with outside air reduction).
 - 5. Product drawings detailing all physical, electrical and control requirements.
 - 6. Copy of UL 867 independent ozone test.
- B. Operating & Maintenance Data: Submit O&M data and recommended spare parts lists.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Deliver in factory fabricated shipping containers. Identify on outside of container type of product and location to be installed. Avoid crushing or bending.
- B. Store in original cartons and protect from weather and construction work traffic.
- C. Store indoors and in accordance with the manufacturers' recommendation for storage.

1.07 WARRANTY:

- A. Equipment shall be warranted by the manufacturer against defects in material and workmanship for a period of twenty-four months after shipment, whichever occurs first. Labor to replace equipment under warranty shall be provided by the owner or installing contractor.

2.00 PRODUCTS

2.01 GENERAL:

- A. The air purification system(s) shall be of the size, type, arrangement and capacity indicated and required by the unit furnished and shall be of the manufacturer specified.
- B. Basis of Design: Top Product Innovations Type C unit
- C. All other Suppliers of comparable products requesting prior approval shall:
 - 1. Submit for prior approval in accordance with the requirements of Section 15010.
 - 2. In addition, manufacturers submitting for prior approval for Bi-Polar Ionization must as part of the prior approval request provide their ASHRAE 62.1-2013 calculations that prove conformance to the ASHRAE Standard with the reduction of outside air to the scheduled values. A letter on the manufacturer's letterhead requesting prior approval must accompany the request for prior approval stating their calculations are ASHRAE compliant. A third party validation study performed on a previous installation of the same application shall also be included.
 - 3. Submit independent test data from ETL or UL showing ozone levels produced during the UL 867 ozone chamber test. Manufacturers without this test data shall not be acceptable.

2.02 BI-POLAR IONIZATION DESIGN & PERFORMANCE CRITERIA"

- A. Each piece of air handling equipment, so designated on the plans, details, equipment schedules and/or specifications shall contain a Plasma Generator with Bi-polar Ionization output as described here within.
- B. The Bi-polar Ionization system shall be capable of:
 - 1. Effectively killing microorganisms downstream of the bi-polar ionization equipment (mold, bacteria, virus, etc.).
 - 2. Controlling gas phase contaminants generated from human occupants, building structure and furnishings.
 - 3. Capable of reducing static space charges.
 - 4. Increasing the interior ion levels, both positive and negative, to a minimum of 800 ions/cm³ measured 5 feet from the floor.
- C. The bi-polar ionization system shall operate in a manner such that equal amounts of positive and negative ions are produced. Uni-polar ion devices shall not be acceptable.
 - 1. Air exchange rates may vary through the full operating range of a constant volume or VAV system. The quantity of air exchange shall not be increased due to requirements of the air purification system.
 - 2. Velocity Profile: The air purification device shall not have maximum velocity profile.
- D. Humidity: Plasma Generators shall not require preheat protection when the relative humidity of the entering air exceeds 85%. Relative humidity from 0 - 100%, condensing, shall not cause damage, deterioration or dangerous conditions within the air purification system. Air purification system shall be capable of wash down duty.
- E. Equipment Requirements:
 - 1. Electrode Specifications (Bi-polar Ionization):

- a. Each Plasma Generator with Bi-polar Ionization output shall include the required number of electrodes and power generators sized to the air handling equipment capacity. Unit shall be capable of treating 6,000 CFM (C6.0) or 10,000 CFM (C10.0). Bi-polar ionization tubes manufactured of glass and steel mesh shall not be acceptable due to replacement requirements, maintenance, performance output reduction over time, ozone production and corrosion.
 - b. Electrodes shall be energized when the main unit disconnect is turned on and the fan is operating. Electrodes shall be made from carbon fiber to prevent oxidation over time.
 - c. Electrode pair shall provide a minimum of 140 million ions per cubic centimeter (C6.0) or 200 million ions per cubic centimeter (C10.0), both positive and negative ions in equal quantities. Devices providing less than the rated ion densities shall not be acceptable.
- F. Air Handler Mounted Units:
- 1. Where so indicated on the plans and/or schedules Plasma Generator(s) shall be supplied and installed. The mechanical contractor shall mount the Plasma Generator and wire it to the AHU control power (24VAC) as instructed by the Air Purification Manufacturer's instructions or line voltage subject to power available. Each unit shall be designed with an integral illuminated LED and dry contacts to prove ion output is operating properly. The dry contacts shall close to prove the ion generator is working properly and may be daisy chained in series such that only one dry contact per AHU is required to interface to the BAS or the optional DDC controller. Dry contacts proving power has been applied in lieu of the ion output is actually operating, are not acceptable.
- G. Plenum/Duct Mounted Units: Where so indicated on the plans and/or schedules, Plasma Generators(s) shall be supplied and installed. The generator shall be installed through the duct wall and into the air stream with the external power head in a convenient location for visual indication of power, removal and servicing, by the mechanical contractor. The dry contacts shall close to prove the ion generator is working properly and may be daisy chained in series such that only one dry contact per duct is required to interface to the BAS or the optional DDC controller.
- H. Ionization Requirements:
- 1. Plasma Generators with Bi-polar ionization output shall be capable of controlling gas phase contaminants and shall be provided for all equipment listed above.
 - a. The Bi-polar ionization system shall consist of Bi-Polar Plasma Generator and power supply. The Bi-polar system shall be installed where indicated on the plans or specified to be installed and powered by 24VAC.
 - b. Ionization Output: The ionization output shall be controlled such that an equal number of positive and negative ions are produced. Imbalanced levels shall not be acceptable.
 - c. Ionization output from each electrode shall be a minimum of 140 million ions/cc (C6.0) and 200 million ions/cc (C10.0) when tested at 1" from the ionization generator.
 - d. All manufacturers shall provide documentation by an independent NELEC accredited laboratory that proves the product has minimum kill rates for the following pathogens given the allotted time and in a space condition:
 - A. MRSA - >96% in 30 minutes or less
 - B. E.coli - > 99% in 15 minutes or less
 - C. TB - > 69% in 60 minutes or less
 - D. C. diff - >86% in 30 minutes or less

Manufacturers not providing the equivalent space kill rates shall not be acceptable. All manufactures requesting prior approval shall provide to the engineer independent test data from a NELEC accredited independent lab confirming kill rates and time meeting the minimum requirements stated in section 2.2 B, points 6A, 6B and 6C. Products tested only on Petri dishes to prove kill rates shall not be acceptable.

2. Ozone Generation:

The operation of the electrodes or Bi-polar ionization units shall conform to UL 867-2007 with respect to ozone generation. There shall be no ozone generation during any operating condition, with or without airflow.

I. Electrical Requirements:

1. Wiring, conduit and junction boxes shall be installed within housing plenums in accordance with NEC NFPA 70. The contractor shall coordinate electrical requirements with air purification manufacturer during submittals.

J. Control Requirements:

1. All Plasma Generators shall have internal short circuit protection, overload protection, and automatic fault reset.
2. Integral airflow sensing shall modulate the Plasma output as the air flow varies or stops. A mechanical air flow switch shall not be acceptable as a means to activate the Plasma device due to high failure rates and possible pressure reversal.
3. The installing contractor shall mount and wire the Plasma device within the air handling unit specified or as shown on the plans. The contractor shall follow all manufacturer IOM instructions during installation.
4. All Plasma devices shall have a means to interface with the BAS system. Dry contacts shall be provided to prove there are ions being produced. Systems providing indication that power is applied to the Plasma device, but not directly sensing the power at the ion output, shall not be acceptable.
5. Plasma systems that use multiple modules with ion output alarm wires wired to the same terminal such that all ion modules must fail to show an alarm status shall not be acceptable.

3.00 EXECUTION:

3.01 GENERAL:

- A. The Contractor shall be responsible for maintaining all air systems until the owner accepts the building (Owner Acceptance).

3.02 ASSEMBLY & ERECTION: PLASMA GENERATOR WITH BI-POLAR IONIZATION:

- A. All equipment shall be assembled and installed in a workman like manner to the satisfaction of the owner, architect, and engineer.
- B. Any material damaged by handling, water or moisture shall be replaced, by the mechanical contractor, at no cost to the owner.
- C. All equipment shall be protected from dust and damage on a daily basis throughout construction.

3.03 TESTING:

A. Provide the manufacturers recommended electrical tests.

3.04 COMMISSIONING & TRAINING:

A. A manufacturer's authorized representative shall provide start-up supervision and training of owner's personnel in the proper operation and maintenance of all equipment.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Provisions of this Section shall apply to all HVAC work.

2.0 - PRODUCTS

2.1 Coils

- A. ARI Standard 410-89 rated with capacities and dimensions shown.
- B. Provide coils with aluminum fins and seamless copper tubes.
- C. Headers may be iron castings or steel or copper tubing. Braze return bends.
- D. Space fins not closer than 10 per inch, maximum coil depth of 8 rows.
- E. Prove coils tight with 200 psig under water air test.
- F. Coil casings: Stainless steel and flanges drilled for mounting.

3.0 - EXECUTION

3.1 Installation

- A. Coils shall be installed in accordance with manufacturer's recommendations.
- B. See details for mounting instructions and accessories.

END OF SECTION

1.0 - GENERAL1.1 Scope

- A. Provisions of this Section shall apply to all HVAC work.

2.0 – PRODUCTS

2.01 HEAT PUMP, THRU-WALL TYPE:

- A. Provide packaged terminal heat pumps of the sizes and capacities shown on the schedule. The units shall be located as shown on the drawings and shall include cabinet/wall sleeve, chassis, outdoor louver, and room cabinet.
- B. All units shall be U.L. listed for safety and ARI certified for performance. Units shall be Trane, Amana, Johnson Controls, Carrier, or approved equal. Over-all dimensions of the wall sleeve with an electrical subbase shall not exceed 43" wide and 21" high. The depth of the sleeve shall match the wall thickness. See Architectural Plans.
- C. The minimum EER or energy efficiency ratio in BTU per hour per watt for each unit must be 8.8 for all sizes. The minimum COP for heat pumps, at 47 °F, must be 2.6 for all sizes.
- D. Heating/Cooling Chassis - Chassis shall be slide-in, plug-in type with a self-contained, hermetically sealed, refrigerant circuit. The chassis shall consist of the following components:
1. Vibration isolated compressor, rifled copper tubed evaporator and condenser coils with high efficiency aluminum plate fins mechanically expanded to the tubes for maximum heat transfer, and a capillary restrictor type refrigerant metering device. Coils shall be factory tested at 200 PSIG. Heat pump also include reversing valve and charge balancing device.
 2. Condenser/Evaporator Fans: One direct drive with a permanent split capacitor two-speed motor. The condenser fan will be propeller type and the indoor evaporator fan will be a centrifugal blower type.
- E. During the Cooling Cycle - The compressor, the outdoor fan motor and the indoor fan motor shall be energized. Condensation accumulated on the evaporator coil shall be drained into the outdoor section where it is to be picked up by the condenser fan and evaporated against the outdoor coil.
- F. During the Heating Cycle (Reverse Cycle Heat Pump) - The reversing valve, the compressor, the outdoor condenser fan motor and the indoor fan motor shall be energized. Reverse cycle heating shall occur when the outdoor temperatures are above approximately 35° F. A temperature sensing device shall be used to monitor the outdoor coil temperature to limit the frost build-up. A defrost cycle shall be incorporated to reverse the refrigerant flow in order to instantly defrost the evaporator coil. The time required to defrost the outdoor coil shall not exceed five (5) minutes. Once defrosted, this cycle must de-energize and return the unit to normal operation. Condensation accumulated during reverse cycle heating must NOT be evaporated against the indoor coil so as to prevent contamination of the indoor air with pollutants and odors. Condensation must be disposed of using an external drain system. (Provide drain kit.)

- G. Control - Shall have a four (4) button selector switch containing "Off-Heat-Cool-Fan" and a self-contained, adjustable thermostat with a field adjustable temperature limiting device. Fan speed shall be controlled by a unit mounted switch. A fan cycle shall be incorporated to allow constant fan operation or intermittent fan operation. Intermittent fan operation shall allow the fan to energize only when unit compressor or electric resistance heaters are energized. An adjustable emergency heat switch shall be incorporated to lock out the reverse cycle heating and energize the electric resistance heaters at a specified minimum outdoor temperature.
- H. Room Cabinet - Shall be sloped top, wrap-around design with an 18 gauge front panel that is phosphatized and coated with a baked on, alkyd melamine corrosion resistant finish to match the wall sleeve. Side panels shall be constructed of polycarbonate material and flame class rated U.L. Standard 494.
- 1. Discharge grilles shall be an integral part of the front panel and shall be raised style. Discharge grilles shall be made of the same polycarbonate material as the room cabinet side panels. Grilles shall be sectional, two-position reversible and tamperproof.
- I. Fresh Air Damper - A positive closing manual fresh air damper must be located within the chassis to provide fresh air during fan operation.
- J. Filtration - Shall be accomplished using a permanent, aluminum mesh, cleanable filter, viscosine coated to enhance dust collection abilities. Washable foam type filters are not acceptable. Return air shall enter the filter from the bottom of the chassis. Filter shall include return air and outside air.
- K. Wall Sleeve - Shall be entirely constructed of G-60 galvanized, phosphatized, 18 gauge steel with baked alkyd melamine corrosion resistant finish. Wall sleeves with ordinary enamel finish or those made from polymeric material are not acceptable. Wall sleeves shall be installed through the wall as shown on plans and shall have factory provisions for use of appropriate fastening devices to secure sleeve to the wall. In no event shall fasteners be installed through the basepan in the bottom of the cabinet/wall sleeve. Provide extended wall sleeve to match width of wall.
- L. Outside Air Louvers - Shall be architectural anodized aluminum of color selected by Architect. Louvers shall be easily installed from the inside of the building after the cabinet/wall sleeve has been installed. Special field fabricated louvers must be approved by the PTAC manufacturer as to free area and air circulation requirements.
- M. Subbase (Electrical) - A 3" electrical subbase shall be furnished. Each electrical subbase shall be U.L. listed and conform to the National Electrical Code. Subbase must have adjustable side channels with pre-drilled adjusting holes and score lines. Subbase shall have four (4) adjustable leveling legs each with 1" adjustment.
- N. Equipment supplier must have an established local complete service department including an adequate supply of parts, and factory trained service personnel.
- O. The hermetically sealed motor compressor assemblies and all components of refrigerating circuits not readily separable there from shall be warranted for a period of four (4) years in addition to the standard one (1) year warranty, for a total of five (5) years.
- P. See Drawings for cooling, heating and auxiliary electrical heat capacities.

2.02 Heat Pump - (MINI-Split)

- A. The Heat Pump system shall be a Mitsubishi Electric, Trane, Daikin, Samsung, Bryant or approved equal split system with Variable Speed Inverter Compressor technology. The system shall consist of a ceiling-suspended indoor section with wired, wall mounted controller and a horizontal discharge, single phase outdoor unit.
- B. Quality Assurance
1. The units shall be tested by a Nationally Recognized Testing Laboratory (NRTL) and shall bear the ETL label.
 2. All wiring shall be in accordance with the National Electrical Code (N.E.C.).
 3. The units shall be rated in accordance with Air-conditioning Refrigeration Institute's (ARI) Standard 210 and bear the ARI Certification label.
 4. The units shall be manufactured in a facility registered to ISO 9001 and ISO 14001, which is a set of standards applying to environmental protection set by the International Standard Organization (ISO).
 5. A dry air holding charge shall be provided in the indoor section.
 6. The outdoor unit shall be pre-charged with R-410a refrigerant.
 7. System efficiency shall meet or exceed 13.0 SEER.
- C. Delivery, Storage and Handling
1. Unit shall be stored and handled according to the manufacturer's recommendations.
 2. The wireless controller shall be shipped inside the carton with the indoor unit and able to withstand 105°F storage temperatures and 95% relative humidity without adverse effect.
- D. Warranty
1. The units shall have a manufacturer's parts and defects warranty for a period one (1) year from date of installation. The compressor shall have a warranty of 6 years from date of installation. If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of the manufacturer. This warranty does not include labor.
 2. Manufacturer shall have over 25 years of continuous experience in the U.S. market.
- E. Performance
1. Each system shall perform in accordance to the ratings shown in the table below. Cooling performance shall be based on 80°F DB, 67°F WB (26.7°C DB, 19.4°C WB) for the indoor unit and 95°F DB, 75°F WB (35°C DB, 29.3°C WB) for the outdoor unit. Heating performance shall be based on 70°F DB, 60°F WB (21.1°C DB, 15.6°C WB) for the indoor unit and 47°F DB, 15°F WB (8.3°C DB, 6.1°C WB) for the outdoor unit.

F. Indoor Unit

1. The indoor unit shall be factory assembled, wired and tested. Contained within the unit shall be all factory wiring and internal piping, control circuit board and fan motor. The unit in conjunction with the wired, wall mounted controller shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a test run switch. Indoor unit and refrigerant pipes shall be purged with dry nitrogen before shipment from the factory.

2. Unit Cabinet

The casing shall be ABS plastic and have a Munsell 0.70Y 8.59/0.97 finish. Cabinet shall be designed for suspension mounting and horizontal operation. The rear cabinet panel shall have provisions for a field installed filtered outside air intake connection.

3. Fan

The evaporator fan shall have three high performance, double inlet, forward curve sirocco fans driven by a single motor. The fans shall be statically and dynamically balanced and run on a motor with permanently lubricated bearings. The indoor fan shall consist of four (4) speeds: Low, M1, M2, and Hi.

4. Vane

There shall be a motorized horizontal vane to automatically direct air flow in a horizontal and downward direction for uniform air distribution. The horizontal vane shall provide a choice of five (5) vertical airflow patterns selected by remote control: 100% horizontal flow, 80% horizontal flow (plus 20% downward airflow), 60% horizontal airflow (plus 40% downward airflow), 40% horizontal airflow (plus 60% downward airflow), and swing. The horizontal vane shall significantly decrease downward air resistance for lower noise levels, and shall close the outlet port when operation is stopped. There shall also be a set of vertical vanes to provide horizontal swing airflow movement selected by remote control.

5. Filter

Return air shall be filtered by means of an easily removable washable filter.

6. Coil

The evaporator coil shall be of nonferrous construction with pre-coated aluminum strake fins on copper tubing. The multi-angled heat exchanger shall have a modified fin shape that reduces air resistance for a smoother, quieter airflow. All tube joints shall be brazed with PhosCopper or silver alloy. The coils shall be pressure tested at the factory. A condensate pan and drain shall be provided under the coil.

7. Electrical

The electrical power of the unit shall be 208 volts or 230 volts, 1 phase, 60 hertz. The system shall be capable of satisfactory operation within voltage limits of 198 volts to 253 volts. The power to the indoor unit shall have an option of being supplied from the outdoor unit, using Mitsubishi Electric A-Control system or separate power source for indoor and outdoor units.

8. Control

- a. The control system shall consist of two (2) microprocessors, one on each indoor and outdoor unit, interconnected by a single non-polar two-wire cable. Field wiring shall run directly from the indoor unit to the wall mounted controller with no splices.
- b. For A-Control, a three (3) conductor 14 ga. AWG wire with ground shall provide power feed and bi-directional control transmission between the outdoor and indoor units.
- c. Where separate power is supplied to the indoor and outdoor units, a two (2) 20 ga. AWG wire shall be run between the units to provide bi-directional control communication..
- d. The system shall be capable of automatic restart when power is restored after power interruption. The system shall have self-diagnostics ability, including total hours of compressor run time. Diagnostics codes for indoor and outdoor units shall be displayed on the wired controller panel.
- e. The microprocessor located in the indoor unit shall have the capability of monitoring return air temperature and indoor coil temperature, receiving and processing commands from the wired controller, providing emergency operation and controlling the outdoor unit.
- f. The indoor unit shall be connected to a wall mounted wired controller to perform input functions necessary to operate the system. The wired controller shall have a large multi-language DOT liquid crystal display (LCD) presenting contents in eight (8) different languages, including English, French, Chinese, German, Japanese, Spanish, Russian, and Italian.
- g. There shall be a built-in weekly timer with up to eight pattern settings per day. The controller shall consist of an On/Off button, Increase/Decrease Set Temperature buttons, a Cool/Dry/Fan mode selector, a Timer Menu button, a Timer On/Off button, Set Time buttons, a Fan Speed selector, a Vane Position selector, a Louver Swing button, a Ventilation button, a Test Run button, and a Check Mode button. The controller shall have a built-in temperature sensor. Temperature shall be displayed in either Fahrenheit (°F) or Celsius (°C). Temperature changes shall be by increments of 1°F (1°C) with a range of 67°F to 87°F (19°C to 30°C).
- h. The wired controller shall display operating conditions such as set temperature, room temperature, pipe temperatures (i.e. liquid, discharge, indoor and outdoor), compressor operating conditions (including running current, frequency, input voltage, On/Off status and operating time), LEV opening pulses, sub cooling and discharge super heat.
- i. Normal operation of the wired controller shall provide individual system control in which one wired controller and one indoor unit are installed in the same room. The controller shall have the capability of controlling up to a maximum of sixteen systems at a maximum developed control cable distance of 1,500 feet (500 meters).

- j. The control voltage from the wired controller to the indoor unit shall be 12 volts, DC. The control signal between the indoor and outdoor unit shall be pulse signal 24 volts DC. Up to two wired controllers shall be able to be used to control one unit.
- k. Control system shall control the continued operation of the air sweep louvers, as well as provide On/Off and mode switching. The controller shall have the capability to provide sequential starting with up to fifty seconds delay.

G. Outdoor Unit

- 1. The outdoor unit shall be compatible with the three different types of indoor units (PKA - wall mounted, PCA - ceiling suspending, and PLA - four way ceiling cassette). The connected indoor unit must be of the same capacity as the outdoor unit.
- 2. Models PUY-A24NHA and PUY-A36NHA shall have the option to connect to two indoor units, within the same confined space, to improve air distribution (total capacity shall be equivalent to outdoor unit).
- 3. The outdoor unit shall be equipped with a control board that interfaces with the indoor unit to perform all necessary operation functions.
- 4. The outdoor unit shall be capable of operating at 0°F (-18°C) ambient temperature without additional low ambient controls (optional wind baffle may be required).
- 5. The outdoor unit shall be able to operate with a maximum height difference of 100 feet (30 meters) between indoor and outdoor units.
- 6. System shall have a maximum refrigerant tubing length of 165 feet (50 meters) between indoor and outdoor units without the need for line size changes, traps or additional oil.
- 7. Models PUZ-A24NHA, PUZ-A30NHA and PUZ-A36NHA shall be pre-charged for a maximum of 70 feet (20 meters) of refrigerant tubing. Model PUZ-A42NHA shall be pre-charged for a maximum of 100 feet (30 meters) of refrigerant tubing. The outdoor unit shall be completely factory assembled, piped, and wired. Each unit must be test run at the factory.
- 8. Cabinet

The casing shall be constructed from galvanized steel plate, coated with a finished with an electrostatically applied, thermally fused acrylic or polyester powder coating for corrosion protection and have a munsell 3Y 7.8/1.1 finish. The fan grille shall be of ABS plastic.
- 9. Fan

Models PUZ-A24NHA, PUZ-A30NHA, and PUZ-A36NHA shall be furnished with an AC fan motor. Model PUZ-A42NHA shall have two (2) DC fan motors. The fan motor shall be of aerodynamic design for quiet operation, and the fan motor bearings shall be permanently lubricated. The outdoor unit shall have horizontal discharge airflow. The fan shall be mounted in front of the coil, pulling air across it from the rear and dispelling it through the front. The fan shall be provided with a raised guard to

prevent contact with moving parts.

10. Coil

The L shaped condenser coil shall be of copper tubing with flat aluminum fins to reduce debris build up. The coil shall be protected with an integral metal guard. Refrigerant flow from the condenser shall be controlled by means of linear expansion valve (LEV) metering orifice. The LEV shall be control by a microprocessor controlled step motor.

11. Compressor

The compressor for models PUY-A24NHA, PUY-A30NHA and PUY-A36NHA shall be a DC rotary compressor with Variable Compressor Speed Inverter Technology. The compressor for model PUY-A42NHA shall be a scroll compressor with variable speed technology. The compressor shall be driven by inverter circuit to control compressor speed. The compressor speed shall dynamically vary to match the room load for significantly increasing the efficiency of the system which results in vast energy savings. To prevent liquid from accumulating in the compressor during the off cycle, a minimal amount of current shall be intermittently applied to the compressor motor to maintain enough heat. The outdoor unit shall have an accumulator and high pressure safety switch. The compressor shall be mounted to avoid the transmission of vibration.

12. Electrical

The electrical power of the unit shall be 208volts or 230 volts, 1 phase, 60 hertz. The unit shall be capable of satisfactory operation within voltage limits of 198 volts to 253 volts. The outdoor unit shall be controlled by the microprocessor located in the indoor unit. The control signal between the indoor unit and the outdoor unit shall be pulse signal 24 volts DC. The unit shall have Pulse Amplitude Modulation circuit to utilize 98% of input power supply.

3.0 - EXECUTION

3.1 Installation

- A. Heat pumps shall be installed in accordance with manufacturer's recommendations.
- B. See details for mounting instructions and accessories.

END OF SECTION

UNITARY HEATING AND COOLING - SECTION 15772

1.0 - GENERAL

1.1 Scope

- A. Provisions of this Section shall apply to all HVAC work.

2.0 - PRODUCTS

2.1 UNIT HEATERS - GAS FIRED:

- A. AGA approved horizontal suspended unit heaters having capacity shown. Cabinets shall have baked enamel finish.
- B. Fans shall be (resiliently mounted) (direct driven propeller fans with guards) or (belt driven centrifugal fans with adjustable pitch motor pulleys, adjustable motor bases, belt guards, V belt drives sized for 50% overload, and inlet screens.)
- C. Heat exchanger: Stainless steel and burners shall be alloy steel, stainless steel ribbon burners designed for use with natural gas.
- D. Gas valve train shall include shut off cock, pilot cock, gas pressure regulator and two (2) stage automatic gas valve.
- E. Controls shall include limit control, fan control, control circuit transformer, pilot safety. Controls shall be arranged for 100% shut off. Pilot shall be automatically ignited. Pilot safety shall be automatically reset.
- F. Venting system shall be of separated type with separate combustion air system and direct driven power venter with air flow switch and pre and post purge switches.
- G. Unit heaters shall be equipped with adjustable horizontal and vertical discharge louvers.
- H. Hang unit heaters from construction overhead using at least 2 3/4" pipe hangers.
- I. Unit heaters shall be manufactured by Trane, Ted Reed Thermal, Modine or approved equal.

3.0 - EXECUTION

3.1 Installation

- A. Units shall be installed in accordance with manufacturer's recommendations.
- B. See Details for mounting instructions and accessories.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Provisions of this Section shall apply to all HVAC work.

2.0 - PRODUCTS

2.1 Electric Unit Heaters:

- A. UL listed electric heater having capacity shown with resiliently mounted direct driven propeller fan with guard, finned-sheathed heating elements, and enameled steel enclosure not lighter than 20 gauge. Heater shall be equipped with automatic reset high limit controls, power contactors and control transformer for (120) (or) (24) volt control, factory wired to terminal strips.
- B. For horizontal heaters provide adjustable horizontal louvers. For vertical heaters provide radial diffusers.
- C. For each unit heater provide room thermostat to cycle contactor and fan.
- D. Electric Unit Heater shall be manufactured by Chromalox, Markel, Berko, or approved equal.

3.0 - EXECUTION

3.1 Installation

- A. Units shall be installed in accordance with manufacturer's recommendations.
- B. See Details for mounting instructions and accessories.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Provisions of this Section shall apply to all HVAC work.

2.0 - PRODUCTS

2.1 Fans, Centrifugal – General

- A. Fan Rating: Certified in accordance with AMCA Standard 210 for capacity and sound. Provide fans of class required for service based on static pressures 20% greater than those scheduled. All fans are to be rated for continuous duty.
- B. Provide forward curved blade, radial blade, backward curved blade or air foil blade fans statically and dynamically balanced with L (10) 80,000 hour rated self-aligning, grease lubricated ball or roller bearings rigidly supported by bearing stands.
- C. For all fans furnish adjustable motor bases or rails.
- D. Size V-belt drives for 50% overload, and provide adjustable pitch motor pulleys for drives of 15 BHP and smaller.
- E. For all fans outside casings provide belt and drive guards.
- F. Provide scroll access doors with quick-operating latches for all exhaust fans.
- G. Equip all fans with flanged outlets and casing drains.
- H. Sound power levels shall not exceed those shown.
- I. Size fan motors to provide at least 5% drive loss, with motor service factors not exceeding 1.0. Provide premium efficiency motors as specified under "MOTORS".
- J. Vibration isolators: See "MATERIALS AND METHODS" Section 15050.

2.2 FANS, CENTRIFUGAL ROOF EXHAUST:

- A. Centrifugal power roof ventilators with AMCA certified air and sound ratings, belt or direct driven as shown. Provide permanently oiled bearings, statically and dynamically balanced backward curved blade wheels and spun aluminum housing with curb cap, disconnect switches, back-draft damper and outlet birdscreen. For belt driven fans provide V-belt drive sized for 50% overload, adjustable pitch motor pulley and adjustable motor base. For each fan furnish an 18 gauge galvanized steel insulated prefabricated curb with integral cant. Furnish baffled sound absorbing curbs where required to obtain noise level specified. Static pressure scheduled are external to sound curbs.
- B. For kitchen range hood furnish up-blast discharge fan without sound curb, UL-762 labeled for grease laden air and fan wheels are to be Teflon coated. Fan shall be hinged onto curb for access to cleaning the fan.
- C. All roof mounted fans to be factory painted to match louvers, color by Architect

- D. Fans shall be manufactured by Greenheck, Cook, Acme, Penn, or approved equal.

3.0 - EXECUTION

3.1 Installation

- A. Fans shall be installed in accordance with manufacturer's recommendations.
- B. See details for mounting instructions and accessories.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Include Section 15010, "GENERAL PROVISIONS - HVAC", with this section.
- B. Provisions of this Section shall apply to all HVAC work.

1.2 Shop Drawings

- A. Ductwork shop drawings shall include details of duct constructions: seams, joints, gauges, reinforcing and hanger details for each pressure class and size range together with details of turning vanes, branch connections, dampers and access doors and elevations of all ductwork.

2.0 - PRODUCTS

2.1 Ductwork – General

- A. Unless otherwise shown or specified construct ducts of galvanized steel sheet metal using gauges and recommended details as contained in the current edition of the SMACNA HVAC Duct Construction Standards. Ductwork shall include supply air, exhaust air, return air, and outdoor air ducts, together with all necessary fittings, splitters, dampers, quadrants, flexible connections, sleeves, hangers, support, braces, etc. Hang and install ducts in a neat and workmanlike manner from structural members (not roof deck) with adequate bracing and cross bracing to prevent breathing, rattling, and vibration.
- B. No flexible ductwork on return, exhaust or outside air.
- C. Install Duro-Dyne locking quadrants and Duro-Dyne end bearings on all splitters and manual volume dampers located above accessible ceiling and Young #1 regulator, C.P., and Duro-Dyne end bearings elsewhere.
- D. Duct dimensions shown are net inside dimension and do not include insulation thickness.
- E. Duct Turns: Wherever possible, duct turns shall have a centerline radius equal to 1.5 times the duct width in the plane of the turn. Vane other duct turns to provide a dynamic loss coefficient ("C") not greater than 0.2. No reducing ells or tees to be used.
- F. Duct Sealing: Seal duct seams and joints as noted below. Seal entire circumference of all branch duct connections, tapping collars and spin-ins. Seal ducts using mastic sealant equal to United Duct Sealer.
 - 1. Class "A" Seal: Seal all joints and seams and leak test as specified.
 - 2. Class "B" Seal: Seal entire circumference of all transverse joints, seal all longitudinal joints.
 - 3. Class "C" Seal: Seal entire circumference of all transverse joints.
 - 4. Class "D" Seal: Seal corner of transverse joints.

2.2 Ductwork - Low Pressure

- A. Ductwork: Low Pressure, Pressure and Seal Class shall include: all supply, return, exhaust and outside air ductwork, 2" pressure class, "B" seal.
- B. Construct ducts in accordance with SMACNA Duct Construction Standards for pressure and seal classes noted.
- C. Provide paint grip finish (color by Arch) for all exposed ductwork (includes but is not limited to MUA-1, MUA-1P, EF-1, EF-1P, EF-2P, Supply duct for EF-MW).
- D. See section 15850 for welding exhaust duct.

2.3 Ductwork Located Outdoors:

- A. Construct ducts served by exhaust fans as specified for respective exhaust ducts, above. Seal all seams weather tight using glass cloth tape and carbolastic or United Duct Sealer.

2.4 Ductwork, Plenum Casing:

- A. Include all plenum chambers and enclosures for air passage between air intakes, filters, heating and cooling coils and fans. Unless otherwise shown the floors under casings shall serve as the bottom and sides and tops shall be constructed of sheet metal. Provide concrete pads (4" min. height) under all casings. Any passage definitely shown above and clear of floor shall not be classed as a casing and shall be constructed as specified for ducts.
- B. Construct all exterior walls of casings, partitions between decks and fan discharge partitions of 4" thick factory furnished insulated panels having 20 gauge galvanized steel outer skin, 20 gauge perforated galvanized steel inner skin, fiberglass insulation (flame spread 10 20, fuel contributed 10 15, smoke developed 0 20) (and 0.002" thick mylar film between insulation and perforations). Assemble casing panels with joining members to provide structural rigidity to 10" WG pressure differential. Reinforce and support panels as recommended by panel manufacturer. Minimum "U" value (still air both sides) 0.06 Btu/hr sq. ft. F. Minimum NRC 0.95, minimum STC 37. Casing joints and seams shall be air tight under 8" WG pressure and casing joints will be fully insulated to prevent sweating.
- C. Construct portions of casings other than the panels specified above of 18 gauge galvanized steel with standing seams 42" on center. Locate 2" standing seams on casing perpendicular to direction of air flow. Seal seams with United Duct Sealer and fastened with bolts or tinnier's rivets 6" O.C., reinforce casings with members sized and spaced as follows: $I = 3 \times SP \times C \times L/1000 \times L/1000 \times L/1000$. Where I = moment of inertia of section, inches fourth, SP= static pressure, ins. WG, C = member spacing inches, L = member length, inches.
- D. Brace casings diagonally with 2 X 2 X 3/16 angles and stay as required.
- E. Calk casing floor angles to pads and secure with expansion bolts 12" O.C.
- F. Construct drain pans inside with double construction with insulation between pans and 16 gauge type 304 stainless steel inner pan with welded joints.

- G. Install coil racks of galvanized angle iron inside casings to permit removing coils without dismantling casings. Equip cooling coils with intermediate drip troughs and eliminators as shown. Pipe drip troughs to main drain pans.
- H. Provide access doors where shown and/or required for access to equipment and/or controls. Construct doors with 1" insulation between two (2) sheets 24 gauge galvanized steel. Set doors in frames arranged so that doors will be flush with exterior of casing. Equip each door with at least two (2) hinges and two (2) sets of double acting latches. Latches shall be made from non ferrous metal, with a lever handle on the outside and a lever handle on the inside of the casing. Lever handle on the outside of the casing shall cam over a door pull with a stop. Latches shall be Vent Fabrics #310 Ventlok latch, or equal. Doors shall be reinforced to prevent wracking and warping. Provide 3" butt hinges and weld to doors and to door frames.

2.5 Flexible Ducts

- A. Flexible duct connectors: A two (2) element spiral construction composed of galvanized steel supporting spiral and coated woven textile fabric with metal or mineral base, UL listed as Class I Air Duct and Connector (UL 181) minimum R=6.0.
- B. Flexible connectors shall not exceed 5 feet in length.
- C. Make connections between flexible ducts and other equipment using galvanized steel draw bands with plated screws and buckles and United Duct seal for high and medium pressure ducts and nylon draw bands for low pressure ducts.
- D. Factory insulate cold flexible ducts using insulation equivalent to that specified for cold ducts.
- E. Flexible ducts: Thermoflex M-KC, Wiremold 57K, Technaflex 57K, or Flexmaster Type 4M. Submit sample for approval of any other manufacturer.

3.0 - EXECUTION

3.1 Installation

- A. Ductwork shall be installed in accordance with manufacturer's recommendations.
- B. See details for mounting instructions and accessories.

END OF SECTION

1.00 GENERAL:

1.01 SCOPE:

- A. Include Section 15010, "GENERAL PROVISIONS" with this section.
- B. Provisions of this Section shall apply to all HVAC work.

2.00 PRODUCTS:

2.01 DUCTWORK - WELDING HOODS AND EXHAUST SYSTEM:

- A. All ductwork shall be manufactured from G90 galvanized steel conforming to astm and smacna standards. Construct exhaust ducts for welding exhaust system of galvanized spiral ductwork per smacna class 1, material class 26, and 10" w.g. neg pressure. Ductwork may be joined with gasketed fittings (as preferred method). Slip fit fittings and sheet metal screws may be used.

3.00 EXECUTION:

3.01 INSTALLATION:

- A. Ductwork shall be installed in accordance with SMACNA Standards.
- B. Ductwork shall be installed in accordance with manufacturer's recommendations.
- C. See details for mounting instructions and accessories.

END OF SECTION 15850

1.0 - GENERAL

1.1 Scope

- A. Provisions of this Section shall apply to all HVAC work.

2.0 - PRODUCTS

2.1 Sheet Metal Specialties

- A. Make rectangular take-offs in low pressure supply, return and exhaust ducts using 45 degrees entry tap (SMACNA Duct Construction Standards Figure #2-8) with manual damper with end bearings and locking quadrant in branch. End bearings and quadrants shall have air tight duct connections and shaft seals: Ruskin, Duro-Dyne, or approved equal.
- B. Manual balancing dampers: Comply with SMACNA Duct Construction Standards, Figure 2-14 and 2-15. Equip all dampers with locking quadrants and end bearings. End bearings and quadrants shall have air tight duct connections and shaft seal, Ruskin, Duro-Dyne, or approved equal.
- C. When damper quadrants are located other than above lay-in ceilings.
1. Provide all necessary accessories for remote control of balancing dampers without requiring access doors. Substitute Young #1 regulators and an additional end bearing or Ventlock #688 regulators and an additional end bearing for the quadrant (regulators shall be chrome plated), or, Architect/Engineer option.
 2. Provide access door for access to the quadrant (See sub-section 2.04 "ACCESS DOORS", hereinafter).
- D. Provide "Stand-Offs" (hat sections) for damper quadrants, controls, etc., on externally insulated ducts.
- E. Branch duct connections for connecting round low pressure branches to rectangular low pressure trunks: spin-in fittings with integral dampers with end bearings, stand-off and beaded collars. Seal Class of components penetrating duct shall be consistent with duct pressure class. Spin-in shall be Flexmaster – FLD or equal. Submit sample for approval of other manufacturers for prior approval.

2.2 Fire Dampers

- A. Install UL labeled 1-1/2 hour fire dampers wherever sheet metal ducts pass through chase walls, floors, outside fire chases, and elsewhere as shown or required by local Code. Install dampers per SMACNA "Fire Damper Guide" and UL 555.
1. Fire dampers shall be Type "B" "Venation Blind" dampers. Unless otherwise shown folded blades shall not obstruct duct. Dampers in floors shall be spring loaded.
 2. Provide factory fabricated steel integral wall sleeve 3" longer than wall

thickness for each fire damper and install sleeve using bolts and angles as detailed in Figure #1 of SMACNA "Fire Damper Guide".

3. Provide rectangular, round and/or flat-oval collars. See Drawings for sizes and locations.
 4. For aluminum ductwork provide stainless steel fire dampers.
- B. Install access door in low pressure ducts at each fire damper. Install wall or ceiling access door for access to fire dampers not accessible through lift-out ceilings. See sub-section 2.4 "ACCESS DOORS", below.
 - C. Install three (3) hour fire dampers where sheet metal ducts pierce 4 hour fire walls. Three (3) hour fire damper shall consist of a three (3) hour UL labeled fire door pivoted in a 3" X 3" X 1/4" angle frame bolted through wall. Equip door frame with angle flange and latch. Install Fire Door as shown in Figure 25 and 26 of SMACNA "Fire Damper Guide".

2.3 Automatic Dampers

- A. Factory fabricated dampers with extruded aluminum airfoil blades and frame with full gasket stops for blades ends. Equip blades with air tight plastic or butyl rubber seals and bronze or nylon bearings. Provide jamb seals. Damper widths from 12" to 60" wide shall not leak any greater than 8 cfm sq. ft. at 4" w.g. and a maximum of 3 CFM sq. ft. at 1" w.g. Ruskin Model CD50 or approved equal.
- B. Automatic dampers located near fan outlets or in ducts having maximum velocities exceeding 1500 FPM shall have extruded aluminum air-foil blades and all linkages shall be located outside of airstream. Such dampers shall have leakage rates not exceeding 1% maximum design flow at 4" WG pressure differential.

2.4 Access Doors

- A. Access doors in plenum casings are specified under "DUCTWORK - PLENUM CASINGS".
- B. Access doors in low pressure ducts: Galvanized steel frame with gasket permanently secured to duct with a removable gasket access port held in place with screw driver or thumb operated latches. Door in insulated ducts: Double thickness with insulation. Doors in non-insulated ducts: A single thickness. Weld door frames to kitchen exhaust ducts. Size doors to permit removal of equipment or maintenance. Minimum size 12" X 12".
- C. Mark access points in lift-out ceilings with brass paper brads. Bend points of brads over top of ceiling.

2.5 Smoke Detectors

- A. Smoke detectors will be furnished and wired under Electrical Work but shall be installed in ducts under this Section.
- B. Install access door in duct at each smoke detector. (See sub-section 2.4 "Access Doors").

2.6 Flexible Duct Connections

- A. Install Neoprene coated glass cloth flexible connections at all duct connections to all fans and AC Units.
- B. Install flexible connections in all ducts at building expansion joints.

2.7 Electrical Grounding

- A. Ground all fans.
- B. Install braided copper jumpers around all flexible connections, taking care that jumpers do not bind flexes.

2.8 Air Flow Measuring Stations (Afms):

- A. Thermal dispersion airflow measurement station. Shall be provided with insertion type mounting style, 304 stainless steel mounting bracket, aluminum alloy tube with individual sensors and BMS connectivity. Using recommended placement guidelines for the specified probe sensor density, measurement accuracy of 3% shall be provided.
- B. Air flow measurement stations shall be Ebtron Advantage series or approved equal.
- C. Install an access door in duct immediately upstream from each airflow measuring station.

2.9 INTAKE AND RELIEF HOOD:

- A. Gravity roof ventilators shall be constructed of heavy gauge aluminum as specified.
- B. Hoods shall be constructed of precision formed, arched panels with interlocking seams.
- C. Bases shall be constructed so that the curb cap is 8" larger than the throat size. Provide 12" bases.
- D. Hood support members shall be constructed of galvanized steel and fastened so that the hood can be either removed completely from the base or hinged open.
- E. Birdscreens constructed of 1/2" galvanized steel mesh shall be mounted horizontally across the intake/discharge area of the hood.
- F. Intake units with throat widths through 42" shall ship assembled when throat lengths do not exceed 84". Relief units with throat widths through 48" shall ship assembled when throat lengths do not exceed 96".
- G. Units shall be factory painted to match roof.
- H. Gravity hoods shall be Fabra Hood Model FHI for intake or Model FHR for relief (as specified) as manufactured by Greenheck, Cook or equal.

2.10 GRAVITY ROOF VENTILATORS:

- A. Factory fabricated spun aluminum ventilator with integral curb cap and birdscreen. Equip hood with galvanized steel curb with wood nailer. Minimum material gauges, hood 20 gauge, base 18 gauge, curb 18 gauge.

- B. Gravity Roof Ventilators shall be manufactured by Greenheck, Cook, or approved equal.

3.0 - EXECUTION

3.1 Installation

- A. Duct shall be installed in accordance with SMACNA Standards.
- B. Equipment shall be installed in accordance with manufacturers recommendations.
- C. See details for mounting instructions and accessories.

END OF SECTION

1.0 - GENERAL

1.1 Scope

- A. Include section 15010 "GENERAL PROVISIONS" with this section.
- B. Provisions of this Section shall apply to all HVAC work.

2.0 - PRODUCTS

2.1 Grilles, Registers and Diffusers

- A. General: Air devices may be Titus, Price, Nailor, Krueger or approved equal. Where fire dampers are required at grilles, provide steel grilles, not aluminum.
- B. Supply Registers (SR): Adjustable vertical deflection, adjustable horizontal deflection, removable core, opposed blade damper and multi-blade scoop and baked aluminum enamel finish. Titus "1700".
- C. Wall Return Grilles (WRG): Horizontal bars fixed at about 15° angle, close spacing and plaster frames. Baked aluminum, enamel finish. Titus "1700".
- D. Bar Return Grille (BRG): All steel, heavy duty, 16 gauge border, 14 gauge blades, 1/2" spacing, 38° deflection. Provide all frames. Titus "33R". All BRG's are to appear as a one piece grille. BRG's are to be painted as selected by architect. Submit color chart to architect.
- E. Ceiling Return Grilles (R), Ceiling Exhaust Grilles (E) and Transfer Air Grilles (T): All aluminum, 1/2" X 1/2" X 1/2" cube core and plaster frames as needed. Off-white baked enamel finish. Provide 24 x 24 panel so grille will fit in 24 x 24 ceiling grid. Titus "50F".
- F. Architectural Supply Diffuser (S): The diffuser shall have a heavy gauge aluminum face panel, which shall be a one piece assembly, removable by means of four positive locking posts. The exposed surface of the face panel shall be smooth, flat, and free of visible fasteners. The face panel shall project 1/4" below the outside border of the diffuser back pan. The back of the face panel shall have an aerodynamically shaped, rolled edge to ensure a tight horizontal discharge pattern. The back pan shall be one piece precision die-stamped and shall include an integrally drawn inlet. The diffuser back pan shall be constructed of heavy gauge aluminum. The finish shall be #26 white. The pencil hardness must be HB to H. Directional blow clips shall be provided to restrict the discharge air in certain directions. The manufacturer shall provide published performance data for the square panel diffuser. The diffuser shall be tested in accordance with ANSI/ASHRAE Standard 70-1991. Diffuser shall be Titus "OMNI-AA".
- G. Round Nozzle Diffusers (RND): Nozzle diffusers, gel coat (submit color to architect), with ceiling back up plate and locknut, Sehio model PK or approved equal.

2.2 Weather Louvers

- A. Louvers shall be 6" thick extruded aluminum louvers with 12 gauge blades with drainable head frame, drainable blades, water stop, and with angled sill. 57% F.A.

minimum. Equip with 1/2" mesh aluminum birdscreen on inside of louver.
Finishes: Kynar. Submit color sample to Architect (20 year warranty on finish).
Ruskin ELF6375DX, Louvers & Dampers, Greenheck, Airolite, or approved equal.

3.00 EXECUTION:

3.1 INSTALLATION:

- A. Equipment shall be installed in accordance with SMACNA Standards and manufacturer's recommendations.
- B. See details for mounting instructions and accessories.
- C. Secure louver to structure to comply with FEMA 361 and the following:

END OF SECTION

FILTERS – HVAC - SECTION 15880

1.00 GENERAL:

1.01 SCOPE:

A. Provisions of this section apply to all HVAC work.

2.00 PRODUCTS:

2.01 FILTERS - AIR:

A. 30% Filters, 1" or 2" Thick (Maximum allowed by MFR): Throwaway deep pleated filters, maximum face velocity 350 fpm. Maximum initial pressure drop 0.1" WG, UL Class 1, 30% efficiency per ASHRAE Test Standard 52-76, minimum ratio of media area to face area 4.4:1. Turn system over to Owner with clean filters and provide one (1) set of spare filters. Farr 30/30 or approved equal.

3.00 EXECUTION:

3.01 INSTALLATION:

A. Filters shall be installed in accordance with manufacturer's recommendations.

B. See details for mounting instructions and accessories.

END OF SECTION

1.00 GENERAL:

1.01 SCOPE:

- A. Include Section 15010 "GENERAL PROVISIONS", with this Section.
- B. Provisions of this Section shall apply to all HVAC work.

2.00 PRODUCTS:

2.01 CONTROL SYSTEMS:

- A. Furnish and install complete and ready for operation a control system with control sequences specified below.
- B. Products of a manufacturer maintaining complete service and parts facilities in Alabama continuously for the last three (3) years: Trane, JCI, or Automated Logic, or approved equal.
- C. Control equipment, except for items comprising an integral part of the water or refrigeration piping, shall be installed by trained mechanics employed by the Control Manufacturer.
- D. Include the services of a full time control technician for calibrating and adjusting controls for the first 3 working days after Owner has occupied building.
- E. Before installation, submit for approval five (5) copies of complete power and control wiring and piping diagrams. Hang a photostatic copy of the approved diagram, framed behind glass, in each equipment room. Provide one (1) set of reproducible sepias of "As-Built" control diagrams at completion of project for the Owner's use.
- F. Provide permanent nameplates for control switches and motor starters. Nameplates: engraved laminated plastic with letters legible under normal operating conditions. (White on black).
- G. Permanently identify control devices other than room thermostats, so they may be identified on control diagrams. Provide engraved plastic nameplates for items mounted outside of or on faces of panels. Mark other instruments with indelible ink.

2.02 CONTROL WIRING:

- A. Include control and interlock wiring and power wiring for control panel in this Section. Install in conduit in accordance with provisions of Electrical Work where exposed, concealed in walls or above ceilings other than lay-in type. Provide plenum rated cable above lay-in ceilings (for plenum or non-plenum).
- B. Waterproof and firestop all conduit floor penetrations. Firestop conduit penetrations of fire rated walls partitions.
- C. Wire all devices individually to terminal strips in control panels.
- D. Furnish necessary relays and auxiliary contactors and other accessories required. Provide interlock relays per NEC. Coordinate start-stop stations, auxiliary contacts, etc., with supplier of Starters, Variable Frequency Drive (VFD) and Motors Control Centers specified in Electrical Work.

2.03 CONTROL DEVICES:

- A. Room Thermostats: (Provide seven (7) day occupied/unoccupied, 24 hour, multi-stage programmable thermostats, with 3-hour override, and battery back-up. Thermostats to be provided with local control. Thermostat covers: lockable high impact plastic. Mount room thermostats with tops 4 feet above floors. Provide switches and Hand – Off – Auto switches (H-O-A) as required.
- B. Remote Bulb Thermostats (DDC) and Temperature Transmitters (DDC): Unless otherwise shown use averaging elements not less than 12 feet long for duct or casing cross sections for each 24

square feet of face area.

- C. Thermometers: Pipe line thermometers are specified in another Section. Install digital readout thermometers in ducts where shown on control diagrams, providing averaging bulbs where shown and/or required.
- D. Freezestats: Manual reset, pneumatic not permitted. Locate freezestat bulbs between preheat and chilled water coils in units with chilled water coils and downstream from DX coils in units with DX coils. Provide coverage for each 3' X 3' coil face area section.
- E. Firestats: Single pole double throw, electric, manual reset, pneumatic not permitted. Firestats shown to be connected to the fire alarm system: compatible with fire alarm system, furnished and installed under Controls, wired under Electrical Work. Firestats to be installed in all fans where smoke detectors are not furnished.
- F. Program Clocks / Timers:
Provide digital time clock with 365 day holiday capabilities with 24 single dates, 99 setpoints, separate scheduling for each day of the week, AM/PM format, one minute programming resolution, portable memory module, optional programmer for integration into a Windows based PC for program duplication and modifications, LCD display, daylight savings or standard time, automatic leap year correction, permanent schedule retention, 100 hours of backup, manual override, Nema 3 indoor/outdoor enclosure. Clock/Timer to be Tork or approved equal.
- G. Valve and Damper Operators: Of sufficient power to close/open valves and dampers under operating conditions. Electric valve and damper motors shall have oil immersed gear trains and spring return to normal position. Valves and damper operators to have DDC Controls.
- H. Wells: Install pipe line mounted control and indicating devices in stainless steel or brass thermometer wells.
- I. Capillary Supports: Securely support all duct-mounted and casing- mounting thermostat capillaries using factory fabricated copper bulb supports.
- J. Provide stand-offs for control devices mounted on externally insulated ducts and equipment.
- K. Anchor all items mounted on gypsum board (dry-wall) using toggle bolts or moly bolts, not expansion shields.
- L. Air flow Measuring Station (AFMS): Provide AFMS with probe, transmitter and cable. Unit to average velocity profile thru multiple probes and provide average readout in CFM on transmitters LED screen. Provide 0-10VDC and 4-20MA output (field selectable) to BMCS. Sensor accuracy to be 2%, installed accuracy to be 3%. ARMS to be Ebrnon model GTX116.
- M. Hand-Off-Auto switches (H-O-A): Provide 3 position dial switches (one for each exhaust/supply fan as scheduled). Switches for fans shall be grouped together in panels by building section. Locate panels in nearest Mechanical / Electrical room or where shown (coordinate location with G.C. & owner).

2.04 CONTROL POWER:

- A. All 120 Volt wiring shall be the responsibility of the Control Sub-Contractor from circuit furnished under Electrical Section. Coordinate circuit locations with General and Electrical Contractors.
- B. Power wiring to all automatic dampers shall be included under this section.
- C. Wiring and relays between light and fans for interlock shall be included under this section.

2.05 CONTROL PANELS:

- A. Local Control Panels: Construct of galvanized steel with baked enamel finish or aluminum-plywood-aluminum fronts and backs and extruded tops, bottoms, and ends. All panels

shall have piano hinges and key locking latches (key panels alike). Permanently label instruments located in panels consistent with labeling on control diagram. Cement photostat of approved diagram inside each panel cover. (Include Local-Remote switching for control point adjusters on face of each panel).

2.06 INTERFACES WITH BUILDING MANAGEMENT CONTROL SYSTEM (BMCS):

- A. Relays actuated by BMCS will be mounted in BMCS Panels located in Fan Rooms, Equipment Rooms, etc.
- B. Wiring from local panels (and Engineer panels) to BMCS panels is included in this Section.
- C. Control point adjusters actuated by BMCS system will be located in BMCS Panels.

2.07 CONTROL SEQUENCES:

- A. As shown on drawings.

3.00 EXECUTION:

3.01 INSTALLATION:

- A. Control diagrams on drawings and/or Control Sequences are intended to indicate, in general, control arrangements. Provide all instruments, relays, operators, switches, etc. required to accomplish control sequences whether or not such devices are actually shown.

END OF SECTION 15900

**RENOVATION OF FACS AND WELDING LAB FOR MINOR HIGH SCHOOL AND
RENOVATION OF WELDING LAB FOR PINSON VALLEY HIGH SCHOOL
(#22-142)**

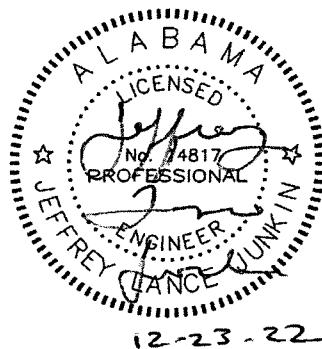
PROJECT NO. 22132

DECEMBER 2022

**STEWART ENGINEERING, INC.
ELECTRICAL CONSULTANTS**

PHONE (256) 237-0891

ANNISTON, ALABAMA 36202



12-23-22

ELECTRICAL - SECTION 16000

1.0 - GENERAL

1.1 Related Documents

The general provisions of the contract, including General Conditions and General Requirements, apply to the work specified in this section.

1.2 Description of Work

Furnish all labor and materials required to complete the electrical work indicated on drawings or herein specified. Major work included in this section shall be:

- A. Arrange with local utility companies for providing such electrical and electronic services as indicated or herein specified. Pay to utility companies any charges associated with providing these services.
- B. Remove or relocate all electrical or electronic services located on or crossing through the project property, either above or below grade, which would obstruct the construction of the project or conflict in any manner with the completed project or any code pertaining thereto.
- C. Furnish and install complete electrical light and power system.
- D. Connect all meters, switchboards, panelboards, circuit breakers, power outlets, convenience outlets, switches and/or other equipment forming part of the system.
- E. Connect all electrical equipment mentioned in this section or noted on drawings, whether furnished by Electrical Contractor or by others.
- F. Procure and pay for permits and certificates as required by Local and State Ordinances and Fire Underwriters Certificate of Inspection.
- G. Visit the Site and determine conditions which affect this contract. Failure to do so will in no way relieve contractor of his responsibility under this contract.
- H. Submit to Architect a Certificate of Final Inspection from local Inspection Department along with assurance of completion of any items on this list.

1.3 Qualifications Of Electrical Subcontractor

The Electrical Subcontractor shall meet the following qualifications:

- A. In business as an Electrical Contractor for two (2) years prior to the date of opening bids. Employees of a General Contractor will not be acceptable for work for this Section.
- B. Have completed at least five (5) projects with Electrical installations of character and scope comparable with this project. Contractor must supply list of projects, with the project shop drawings, for approval. If Contractor uses subcontractor for any portion of project, the name of this subcontractor must be submitted, along with similar project list, for approval.

- C. If Electrical Subcontractor proposes to use any other Subcontractor for any part of the work, these Subcontractors shall also meet the above qualifications before bid is acceptable.
- D. If Subcontractor's office is located more than 75 miles from jobsite, he shall submit the name of a service company with a 20 mile radius of the jobsite, for approval, who will be responsible through him for service required during the warranty period.

1.4 Drawings

- A. Drawings indicate diagrammatically extent, general character and approximate location of work. Where work is indicated but with minor details omitted, furnish and install it complete so as to perform its intended function. For Building Details and Mechanical Equipment follow Architectural, Structural and Mechanical Drawings and fit electrical work thereto.
- B. Take finish dimensions at Job in preference to scale dimension.
- C. Except as above noted, make no changes in or deviations from work as shown or specified except on written order of Architect.

1.5 Manufacturers Drawings and Data

- A. Within twenty (20) days after award of contract submit six (6) copies of Manufacturer's drawings to Architect for review of the following items. Partial submittals will be acceptable. Shop drawings of a specified item or system to be in one submittal:
 - 1. Lighting Fixtures
 - 2. Panelboards
 - 3. Disconnect Switches
 - 4. Dry Type Transformers
 - 5. Occupancy Sensors and Switches
 - 6. List of five (5) projects that Contractor (and any sub-contractor) has completed similar in size and capacity to this project
- B. Drawings of power equipment to contain exact details of device placement, phasing and numbering in elevation form. They shall also contain elevation view of front panelboard/switchboard outside cover.
- C. See Section 01350 – Administrative Requirements, for submittal procedures.

1.6 Progress of Work

- A. Cooperate with other crafts and schedule work as needed. Do not delay other trades. Maintain necessary competent mechanics and supervision to provide an orderly progression of the work.
- B. Be informed as to equipment furnished by other trades but not liable for added cost incurred by equipment substitutions made by others above wiring indicated on drawings.

1.7 Insurance

- A. This Contractor to carry Workman's Compensation Insurance and Public Liability Insurance and save Owner free from damage from suits arising out of the performance of this

contract.

1.8 Protection of Persons and Property During Construction

- A. Take all precautions to provide safety and protection to persons and protection of materials and property as necessary, including protection from injury from rotating or moving equipment, tools, hot surfaces, holes, shafts, falling objects, electrical energy and all other potential hazards. Erect signs, barricades, warning lights, instruct workmen and others who may be subject to construction hazards.
- B. Protect items of equipment from stains, corrosion, scratches and any other damage or dirt, whether in storage at job site or installed. No damaged or dirty equipment, lenses or reflectors will be accepted.

1.9 Service Entrance

- A. Main service shall be as shown on drawings. Verify with the local utility company that the location, arrangement, voltage, phase and connections to utility service as well as required metering equipment are coordinated with and in accordance with requirements of the local utility company. If their requirements are at variance with these drawings or specifications, the contract price shall include any additional cost necessary to meet those requirements without extra cost to the Owner after contract is entered into. Notify Architect of any changes required before proceeding with work.

1.10 Cleaning Up

- A. During the progress of the work keep the Owner's premises in a neat and orderly condition, free from accumulation of debris resulting from this work and at completion of the work, remove all material, scrap, etc., not a part of this contract.

1.11 Operating and Maintenance Instructions

- A. Turn over to Architect one set of marked "as built" drawings, one set of all equipment catalogs and maintenance data and one set of shop drawings on all equipment requiring same. Explain and demonstrate electrical systems to Owner's representative.

1.12 Guarantee

- A. Guarantee that all work executed under this section will be free from defects of workmanship and materials for a period of one year from date of final acceptance of this work. Promptly repair, replace or otherwise make good, any defect becoming apparent during this period, upon notification and at no charge to Owner.
- B. See Section 01910 – Closeout Submittals, for additional warranty requirements.

1.13 Temporary Systems

- A. The Electrical Contractor shall be responsible for the furnishing and installation of all equipment and materials necessary for providing temporary power required by all trades during construction. All temporary wiring shall be installed so as not to interfere with the new construction and shall be made in a safe and approved manner.

- B. It shall be the responsibility of the Electrical Contractor to visit the site prior to submitting

bid and thoroughly review all existing conditions affecting the temporary system requirements.

2.0 PRODUCTS

2.1 Standard of Materials

- A. All materials shall be new and listed by the Underwriters' Laboratories as conforming to these standards.
- B. Material substitutions will be considered only when evidence of equality and suitability, satisfactory to the Architect, has been presented in writing, with samples, if requested by the Architect. All proposed substitutions shall be approved in writing at least five days prior to bid date.
- C. It shall be understood that the Architect has the authority and may reject any material or equipment not specified or approved, or showing defects of manufacturer or workmanship, before or after installation.

2.2 Conduits

- A. Rigid: To be mild steel piping, galvanized inside and outside, and conform to ASA Specification C80.180.1 and Underwriters' Laboratories Specifications. By Sprang, Republic, Wheatland, Triangle or Pittsburg.
- B. Intermediate Metal Conduit: Shall be hot dipped galvanized inside and outside, and manufactured in accordance with U.L. Standard #6 or #1242. By Allied or approved equal.
- C. E.M.T.: To be of high grade steel electro-galvanized outside and lacquer or enamel coating inside and conform to ASA Specification C80.1 and Underwriters' Laboratories Specifications. By Sprang, Republic, Wheatland, Triangle or Pittsburg.
- D. PVC: To be of high impact PVC Schedule 40 and conform to Underwriters' Laboratories Standard UL-651. PVC to be used only where indicated on drawings. By Pittsburg, R. G. Sloane or Carlon.

2.3 Couplings and Connectors

- A. Rigid & IMC: By Raco, Efcor, Republic or Appleton.
- B. E.M.T.: All steel raintight type. Pressure indented type or cast metal will not be approved. All connectors to be insulated. By Appleton, Raco or Efcor.
- C. PVC: To be of high impact PVC Schedule 40. Joints to be made with PVC solvent cement as recommended by manufacturer. By Pittsburg, R.G. Sloane or Carlon.

2.4 Bushings

- A. All rigid bushings 1 1/4" and larger shall be the insulated grounding type. All other bushings shall be OZ. Mfg. Co., Type B or Efcor Type 55 insulated metallic type or by Sylvania.

- 2.5 Conduit Seals
- A. All conduit seals for wall, floor or ceiling penetrations shall be by 3M Company or approved equal.
- 2.6 Conduit Accessories
- A. Conduit clamps and supports by Efcor, Steel City or G. A. Tinnerman. Conduit fittings by Pyle-National, Crouse-Hinds and Appleton.
- 2.7 Building Wire
- A. Conductors shall have current carrying capacities as per N.E.C. and with 600 volt insulation THW #12 minimum. Conductors #3 and smaller to be copper. Conductors #2 and larger to be copper unless specifically indicated aluminum on drawings. Insulation for conductors to be N.E.C. Type THW for #3 and smaller. Insulation for conductors #2 and larger shown in cable specifications. By Phelps-Dodge, Rome, Simplex, General Cable, Okonite or Anaconda.
- 2.8 Cable
- A. Conductors for 0-600 volts shall have copper, current carrying capacities as per N.E.C. with cross-linked polyethylene insulation and thickness to IPCEA standards, and U.L. Standard #44. Rated for wet and dry locations. Type THW or THWN. By Phelps-Dodge, Rome, Simplex, General Cable, Okonite or Anaconda.
- 2.9 Fixture Wire
- A. Conductors for fixtures of 300 watts or less shall be #16 type TFN, for fixtures of more than 300 watts #14 type TFN shall be used. Conductors in channel of fluorescent fixtures shall be type THHN or RHH. Conductors shall be either Phelps-Dodge, Anaconda, Rome or General Cable.
- 2.10 Control and Signal System Wire
- A. Type TFF minimum size #16 copper and fully color coded. Conductors by Phelps-Dodge, Anaconda, Rome or General Cable.
- 2.11 Junction Boxes (thru 4-11/16")
- A. Sheet Metal: To be standard type with knockouts made of hot dipped galvanized steel by Steel City, Raco, Appleton or approved equal.
- B. Cast: To be type FS, FD, JB, GS or SEH as required for application.
- C. Junction and Pull Boxes (larger than 4-11/16"): To be cast aluminum for all below grade exterior use and where shown all other shall be oil tight, JIC boxes not less than 16 gauge. Hoffman type "CH" Boxes.

2.12 Gutters

- A. Up to and including 8" x 8" shall be a standard manufacturer's item as manufactured by Square D, ITE or B & C Company. Special gutters shall be made of code grade galvanized sheet steel with hinged covers having approved fastening devices. At each location shown for gutters, install a wood backboard not less than 3/4" thick, paint 2 coats of gray enamel, mount all equipment thereon. Conductors serving a gutter shall be extended without reduction in size for the entire length of the gutter. Tap-offs to the switches and other items serviced by the gutter shall be made with Penn-Union and Anderson compression connectors for aluminum conductors. Properly tape and insulate.

2.13 Outlet Boxes

- A. Standard type with knockouts made of hot dipped galvanized steel. Ceiling outlet boxes shall be 4" octagon 1-1/2" deep or larger if required due to number of wires.
- B. Boxes shall be provided with approved 3/8" fixture studs where required. Except when located in exposed concrete block switch and receptacles boxes shall be 4" square for single gang installation. Appropriate gang boxes shall be used for mounting ganged switches. Use Raco square block boxes for exposed block walls. By Steel City, Raco, National or Appleton.

2.14 Safety Switches

- A. Furnish and install safety switches as indicated on the drawings. Switch to be NEMA Heavy Duty type HD and Underwriters' Laboratories listed. Safety switches to be G.E., Cutler Hammer, Sylvania or Square D Heavy Duty type.
- B. Appropriately identify each safety switch by engraving micarta name plate.

2.15 Fuses

- A. Branch feeder fuses to be Bussman Manufacturing Company dual element and fusetrion. Main switch fuses to be Bussman Manufacturing Company dual Hi-Cap. Fuses to be used only where indicated on drawings. Equals by Littell Fuse accepted.

2.16 Manual Motor Switches

- A. Thermal overload protection to be provided for single phase motors by manual switches with overload units rated as required by specific motor to be served. Manufactured by Cutler Hammer or Square D with NEMA Type 1 enclosure.

2.17 Wiring Devices

- A. Switches shall be A.C. type as made by Hubbell, P & S, Sierra, Bryant, Slater or Arrow Hart as shown on the drawings.
- B. Receptacles shall be Hubbell, Bryant, P & S, Sierra, Slater or Arrow Hart as shown on the drawings.
- C. Wiring devices shall be gray with stainless steel plates, beige with brass, ivory with ivory bakelite, brown and brown bakelite.

2.18 Special Purpose Receptacles

- A. Special purpose receptacles (other than 120V, 20A) shall be complete with a matching cord grip cap of the same manufacturer. See plans for special receptacles required in various locations.

2.19 Floor Outlets

- A. Floor outlets shall be an adjustable, galvanized floor box finished with accessories as required for a complete installation for power or communications. Except as identified otherwise on the plans, use Type "A" outlets as follows:
 - 1. Type "A" Outlet: Power outlets shall be Hubbell #2429 floor box finished with #S-2425 brass plate, #SC-3091 service fitting, receptacle and required accessories. Signal outlets shall be the same except #SC-3090 service fitting.
 - 2. Type "B" Outlet: Power outlets shall be Hubbell #2429 floor box finished with #S-3825 brass plate and complete with duplex receptacle and required accessories. Signal outlets shall be the same, less receptacle and with #S-2425 plate and #S-3086 nozzle furnished to the Owner.
 - 3. Type "C" Outlet: Power outlets shall be Hubbell #B-2529 floor box furnished with #S-3042 carpet flange and #S-3040 service fitting with duplex receptacle. Signal outlets shall be the same, except with #S-3041 service fitting.
- B. Where equipment is to be connected above floor level, delete service fitting and nipple or flex to connection from threaded brass floor plate.

2.20 Finishes

- A. All electrical items (device and telephone plates, junction, floor outlets, under-floor duct junctions, outlets, and other miscellaneous items) to match finish of building hardware in area installed. Unfinished areas with exposed conduit, shall have surface mounted boxes, gray switches and outlets, galvanized metal plates with beveled edges. All outlets to be gray with stainless steel plates.

2.21 Fixtures

- A. Fixtures shall be furnished as shown in fixture schedule on drawings. It shall be specifically the responsibility of this Contractor to verify exact type ceiling and recessing depth of all recessed fixtures, prior to any purchasing of fixtures. Stems shall be approved ball aligner type swivel 30 degrees from vertical and swivel below canopy. Paint stems same color as fixture trim. Stems in unfinished areas to be unpainted conduit.

2.22 Guarantee And Warranty - Lamps

- A. The guarantee and warranty shall apply to lamps as follows:
 - 1. LED Fixtures: Per manufacturer's warranty period for LED driver.
- B. Guarantees shall begin from date of final acceptance.

2.23 Panelboards

- A. Furnish and install circuit breaker panelboards as indicated in the panelboard schedule and where shown on the plans. Panelboards shall be of dead front construction equipped with thermal-magnetic molded case circuit breakers of frame size and trip ratings as shown on the schedule.
- B. Circuit breakers shall be Square D type EDB (bolt-on) thermal-magnetic, molded case circuit breakers. Breakers shall be 1,2 or 3 pole with an integral crossbar to assure simultaneous opening of all poles in multipole circuit breakers. Breakers shall have an overcenter, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have "ON", "OFF" and "TRIPPED" positions. In addition, trip indication shall include a VISI-TRIP indicator appearing in the window of the breaker case.
- C. Circuit breakers shall be UL listed in accordance with UL Standard 489 and shall be rated with continuous current ratings as noted on the plans. Single pole, 15 and 20 ampere circuit breakers intended to switch fluorescent lighting loads on a regular basis shall carry the SWD marking.
- D. Panelboard bus structure and main lugs or main circuit breaker shall have current ratings as shown on the panelboard schedule. Such ratings shall be established by heat rise tests, conducted in accordance with UL Standard 67. Bus structure shall be insulated. Bus bar connections to the branch circuit breakers shall insulated. Bus bar connections to the branch circuit breakers shall be the "distributed phase" or phase sequence type and shall only bolt-on circuit breakers. All current carrying parts of the bus structure shall be plated.
- E. The panelboard bus assembly shall be enclosed in a steel cabinet. The rigidity and gauge of steel to be as specified in UL Standard 50 for cabinets. Wiring gutter space shall be in accordance with UL Standard 67 for panelboards. The box shall be fabricated from galvanized steel or equivalent rust resistant steel. Each front shall include a door and have a flush, cylinder tumbler-type lock with catch and spring-loaded stainless steel door pull. All panelboard locks shall be keyed alike. Fronts shall have adjustable indicating trim clamps which shall be completely concealed when the doors are closed. Doors shall be mounted with completely concealed steel hinges. Fronts shall not be removable with door in the locked position. Each front shall be furnished with a "hinged trim" accessory. 600A panelboard fronts shall have exposed trim clamps. Column width fronts shall be provided on the inside of the door.
- F. Each panelboard, as a complete unit, shall have a short circuit current rating equal to or greater than the integrated equipment rating shown on the panelboard schedule or on the plans. This rating shall be established by testing with the overcurrent devices mounted in the panelboard. The short circuit tests on the overcurrent devices and on the panelboard structure shall be made simultaneously by connecting the fault to each overcurrent device with the panelboard connected to its rated voltage source. Method of testing shall be per Underwriters Laboratories Standard UL 67. The source shall be capable of supplying the specified panelboard short circuit current or greater. Testing of panelboard overcurrent devices for short circuit rating only while individually mounted is not acceptable. Also, testing of the bus structure by applying a fixed fault to the bus structure alone is not acceptable. Panelboards shall be marked with their maximum short circuit current rating at the supply voltage and shall be UL listed.

- G. Panelboards shall be listed by Underwriters Laboratories and shall bear the UL label. When required, panelboards shall be suitable for use as service equipment. Panelboards shall be by Square D, General Electric, Siemens, or Eaton (Cutler Hammer).

2.24 Distribution And Power Panels

- A. Furnish and install distribution and power panelboards as indicated in the panelboard schedule and where shown on the plans. Panelboards shall be deadfront, safety type equipped with thermal-magnetic, molded case circuit breakers with trip ratings as indicated on the schedule.
- B. Panelboard bus structure and main lugs or main breaker shall have current rating as indicated on the panelboard schedule. Ratings to be established by heat rise tests conducted according to UL Standard UL67.
- C. Circuit breakers shall be equipped with individually insulated, braced and protected connectors. The front faces of all circuit breakers shall be flush with each other. Permanent circuit identification to be on each breaker. Tripped indication shall be clearly shown by breaker handle taking a position between ON and OFF. Provisions for additional breakers shall be such that no additional connectors will be required to add breakers.
- D. Panelboard assembly shall be enclosed in a steel cabinet. The rigidity and gauge of steel to be as specified in UL Standards. The size of wiring gutters to be in accordance with UL Standards. Cabinets to be equipped with spring latch and tumbler-lock on door trim. Doors over 48" long shall be equipped with three point latch and vault lock. All locks to be keyed alike. End walls shall be removable. Front locks shall be code gauge, full finished steel with rust-inhibiting primer and baked enamel finish. Each front shall be furnished with a "hinged trim" accessory. A circuit directory frame and card with clear plastic covering shall be provided on the inside of the door. The directory shall be typed to identify the load fed by each circuit. Furnish an engraved micarta plate on front of panel with panel name and rating.
- E. The panelboard interior assembly to be deadfront with panelboard front removed. Main lugs or main breaker shall be barriered on five sides. The barrier in front of the main lugs to be hinged to fixed part of the interior. The end of the bus structure opposite the mains shall be barriered.
- F. Panelboards to be listed by Underwriters' Laboratory and bear UL label. When required, panelboards to be suitable for use as Service Equipment. Panelboards to be by Square D, General Electric, Siemens, or Eaton (Cutler Hammer).
- G. When utilized as Service Entrance Equipment, this panelboard shall be equipped with built-in surge protection.

2.25 Dry Type Transformers

- A. The transformers shall be manufactured, tested and rated in accordance with ANSI C89.1-1961 and NEMA STI-4-1961 Standards, and these specifications.
- B. The transformers shall be two winding, dry-type, air-cooled, 60Hz with indoor enclosures, except as otherwise noted on the drawings.

- C. The minimum KVA rating shall be as shown on the drawings and shall be equipped with standard full capacity high voltage taps, 2-2-1/2% above and 4-2-1/2% below normal high voltage.
- D. Overload capacities shall be:
 - 160% - 2 hour
 - 140% - 1 hour
 - 125% - 2 hours
 - 110% - 4 hours
 - 105% - 8 hours
- E. The transformers shall have core material of non-aging, high permeability, grain oriented, cold reduced silicon steel.
- F. The transformers shall be 480 Volt, 3 Phase, 3 Wire to 120/208 volts, 3 Phase, 4 Wire grounded secondary neutral.
- G. The maximum continuous full rated load temperature rise shall be 150 degrees C.
- H. The transformers shall successfully withstand the maximum short circuit current at rated top voltage, in conformance with NEMA Standards: STI-4 and ANSI C.89.1.
- I. The maximum percent voltage regulation at unity power factor load shall be 2%.
- J. Noise levels shall conform to NEMA Standards: STI-4 and ANSI C.89.1.
- K. Maximum impedance at 75 degrees C. shall be 3%.
- L. Minimum load efficiency shall be 97%.
- M. A floor mounted transformer enclosure and supports shall make no contact with wall surfaces.
- N. All conduit directly connected to transformer enclosures shall be flexible steel conduit, and shall extend for a minimum of one foot from transformer enclosures, measured along the conduit center lines.
- O. Manufacturers shall be Square D, General Electric, Siemens, or Eaton (Cutler Hammer).

3.0 EXECUTION

3.1 Workmanship

- A. All work shall be executed in workmanlike manner and present a neat and mechanical appearance upon completion.
- B. Balance load as equally as practical on services and all feeders, circuits, and panel busses. All wiring in panelboards shall be laced and looped in a workmanlike manner.
- C. Upon completion of work, test entire wiring system and show to be perfect working order in accordance with intent of specifications and drawings. This Contractor to have all systems

ready for operation and electrician available to assist in removal of panel fronts, etc., to permit inspection as required.

- D. All work shall be in accordance with the National Electrical Code and the rules and regulations of the local bodies having jurisdiction.

3.2 Excavation Cutting and Patching

- A. Provide cutting and patching required for this section of work under supervision of the General Contractor. Coordinate with other trades as work progresses so cutting and patching will be minimal.

3.3 Sleeves, Inserts, and Supports

- A. Provide and install No. 16 gauge galvanized steel or iron sleeves in all walls, floors, ceilings, and partitions. Sleeves shall have not more than 1/2" clearance around pipes and insulation.
- B. Contractor shall furnish to other trades all sleeves, insert, anchors and other required items which are to be built in by trades for the securing of all hangers or other supports by the Contractor.
- C. Contractor shall assume all responsibility for the placing and size of all sleeves, inserts, etc., and either directly supervise or give explicit instructions for installation.
- D. Seal all conduits through floor, smoke or fire walls and sound barrier walls. All such penetrations shall be made with an Underwriters' Laboratories firestop assembly. Through floor conduit shall be sealed water tight.
- E. Furnish and install steel angles and channels as required for mounting and bracing heavy equipment, and conduits. Steel shall be securely bolted or welded to structure and equipment bolted to steel framework. Obtain approval of Architect prior to welding.

3.4 Roof Penetrations

- A. Furnish roof flashing for all equipment installed under this section that penetrates through the roof. Galvanized sheet, 24 gauge with base extending 6" beyond pipe.

3.5 Grounding

- A. All equipment shall be grounded and bonded in accordance with local regulations and National Electrical Code. Ground main service to code size cold water pipe and driven ground rod, maximum of 2 driven rods. All conduits entering a free standing switchboard or motor control center shall be bonded together with approved grounding lugs and bare copper wire.
- B. Interior metal water piping shall be bonded to the system ground as outlined in NEC Section 250-80.
- C. This Contractor shall bond all metal air ducts to the respective unit grounding conductor.

Install additional bonding jumpers at joints, flexible sections, etc., to insure that entire duct system is bonded.

3.6 Conduit Installation

- A. Where rigid conduits enter boxes secure in place by approved lock nuts and bushings. Where E.M.T. enters boxes secure in place with approved insulated fittings. Conduit ends shall be carefully plugged during construction.
- B. Use of running threads is absolutely prohibited. Conduits shall be joined with approved conduit couplings.
- C. Install conduit runs to avoid proximity to steam or hot water pipes. In no place shall a conduit be run within 3" of such pipes except where crossings are unavoidable, then conduit shall be kept at least 1" from the covering of the pipe crossed.
- D. Before installing raceways for motors and fixed appliances, check locations of motors and appliance connections. Locate and arrange raceways appropriately.
- E. Provide flexible conduit connections to all motors and/or any equipment which has moving or vibrating parts. Sealtite flexible conduit shall be used in all cases where exposed to moisture and in mechanical equipment rooms.
- F. Exposed conduit runs shall be parallel and/or at right angles to building walls and/or partitions.
- G. Where conduit crosses a structural expansion joint, an approved conduit expansion fitting will be installed.
- H. Leave aluminum pull wire in all empty conduit.
- I. Conduit shall be cut square and the ends reamed after threading.
- J. Fasten conduit securely in place by means of approved conduit clamps, hangers, supports, and fastening. Arrangement and method of fastening all conduits subject to Architect's direction and approval.
- K. Apply two (2) coats of asphaltum paints to all underground rigid conduit. Carefully retouch any breaks in paint and allow to dry before covering. Leave exposed until after Architect's inspection.
- L. Conduits shall be sized in accordance with National Electrical Code as amended to date, except when the size is shown larger on the drawings.
- M. Conduit with an external diameter larger than 1/3 the thickness of the slab shall not be placed in the slab. Conduit in the slab shall not be spaced closer than 3 diameters on center. No conduit in porous fill.
- N. E.M.T. may be used where concealed in ceiling or walls where there is no danger of mechanical injury. Rigid conduit shall be used, where embedded in concrete, areas exposed to moisture and danger of mechanical injury, in hazardous areas, and for feeders and motor circuits. PVC shall be allowed for branch circuit conduits installed in floor slab (rigid steel 90's).

3.7 Wire and Cable Installation

- A. No conductor shall be smaller than #12 except where so designated on the drawings or hereinafter specified.
- B. Joints and splices on wire shall be made with solderless connectors, and covered so that insulation is equal to conductor insulation. Wire nuts not permitted.
- C. Multi-wire lighting branches shall be used as indicated.
- D. No splices shall be pulled into conduit.
- E. Both conductors and conduits shall be continuous from outlet to outlet.
- F. No conductor shall be pulled until conduit is cleaned of all foreign matter.
- G. In installing parallel conductors, it is mandatory that all conductors making up the feeder be exactly the same length, the same size and type of conductor with the same insulation. Each group of conductors making up a phase or neutral must be bonded together at both ends in an approved manner.

3.8 Feeder Designation

- A. Non-ferrous identifying tags or pressure sensitive labels shall be fastened securely to all cables, feeders and power circuits in vaults, pull boxes, manholes, switchgear and at termination of cables. Tags or labels shall be stamped or printed to correspond with markings on drawings so that feeder or cable number or phase can be readily identified.

3.9 Circuits and Branch Circuits

- A. Outlets shall be connected to branch circuits as indicated on drawings by circuit number adjacent to outlet symbols, and no more outlets than are indicated shall be connected to a circuit.

3.10 Wire Joints

- A. On copper wire larger than #12 joints shall be made with solderless connectors and covered with Scotch #33 Electrical Tape so that insulation is equal to conductor insulation. Connectors by Penn-Union or Anderson.
- B. #12 and smaller wire joints shall be made with T & B Sta-Kon wire joints, complete with insulating caps, Ideal Wing nuts, or Buchanan Electrical Products Series 2000 pressure connectors complete with nylon snap-on insulators.
- C. Joints on aluminum cable #0 and larger shall be made with compression lugs and bolted to terminals using stainless steel bolts and Belleville washers. Torque to 50 to 60 foot pound or torque with torque wrench. Aluminum cable and joints shall be used only where indicated on drawings. Connectors by Penn-Union or Anderson. Connection to panelboard by Burndy Connector and stud.

3.11 Outlet Boxes Installation

- A. Outlet boxes shall be securely fastened.
- B. Surface Fixture outlet boxes shall be set so edge of cover comes flush with finished surface.
- C. There shall be no more knockouts opened in any outlet box than are actually required.
- D. Boxes shall be sealed during construction. Protect interiors (including panel cans) from paint and mortar.
- E. Unless otherwise shown, outlets shall be located as follows: centerline of boxes shall be following distance above the finished floor:

Receptacles General -----	1'4" - Centerline
Receptacles Over Counters -----	3'8" - Centerline
Telephone Outlets General -----	1'4" - Centerline
Wall Telephone Outlets -----	4'0" - Centerline
General Clock Outlets -----	7'6" - Centerline
Switches General -----	4'0" - Top
Fire Alarm Pulls -----	4'0" - Top
Fire Alarm Signals -----	6'8" - Bottom
Bells -----	6'8" - Centerline
T V & Computer Outlets -----	1'4" - Centerline

- F. Symbols on drawings and mounting heights as indicated on drawings and in specifications are approximate only. The exact locations and mounting heights must be determined on the job and it shall be the Contractor's responsibility to coordinate with all trades to secure correct installation, i.e., over counter in or above back splashes, in stud walls, and other specific construction features. Mount all receptacles vertical. In block walls (exposed), use nearest joint as approved by Architect.

3.12 Fixture Installation

- A. Support of all fixture shall be responsibility of this Contractor. Fixtures shall be supported independent of ceiling from structure members of building. Contractor shall submit typical hanging detail to Architect/Engineer before installing any fixtures. All grid fixtures shall be wired by flex individually to junction and not wired fixture to fixture.
- B. Fixture conductors shall be connected by soldering and tying or by approved connectors.
- C. All stems on fluorescent fixtures shall be installed as follows: except fixtures with slide grip hangers first and last stem in row in first knockout from end of fixture. One stem shall be installed between each two fixtures, stem shall center joint where fixtures join, and attach by use of "joining plates". All fixtures in continuous rows other than recessed grid type shall be connected by nipples with lock nuts and bushings.
- D. Thoroughly clean all fixture lens and reflectors immediately prior to the final inspection.

3.13 Installation of Motors, Electric Heaters, and Controls

- A. Provide feeders and make connections for motors, electric heating units and controls.

- B. An approved H.P. rated safety switch shall be provided within sight of each motor and each heating unit. Provide fused switches where branch circuit fuses are not sized for overload protection. Weatherproof switches are to be used where switches are located outdoors. Safety switches shall be as manufactured by G.E., Square D, or Cutler Hammer.
- C. Manual motor starters with thermal overload protection may be used in lieu of safety switches for motors under 1/2 H.P. Manufacturers shall be same as above.
- D. The heating and air conditioning contractor shall furnish all motor starters.
- E. The temperature control contractor shall furnish and install all low and line voltage wiring necessary for the temperature control systems and interlocking with air handling units, cabinet unit heaters.
- F. The electrical contractor shall install all motor starters, except for factory mounted. He will furnish wire and disconnect switches. He will furnish and install all power wiring from the power panels on packaged equipment. He will not furnish nor install any low and line voltage wiring necessary for the temperature control system and interlocking with air handling units, or cabinet unit heaters.

3.14 Alterations & Additions to Electrical Systems in Existing Building

Work in existing building shall be performed as indicated or requested to perform its intended function on Electrical and Architectural plans. This contract shall include removing, relocating, extending, etc., any items of electrical nature required to facilitate work as indicated. All circuits interrupted by rework shall be extended and left energized. Contractor shall include night and weekend work in bid as required to keep all outages to a minimum four (4) hours, during non-school hours only.

END OF SECTION 16000

PRE-CONSTRUCTION CONFERENCE CHECK-LIST

Project: RENOVIATION OF FACS AND WELDING LAB FOR MINOR HIGH SCHOOL AND RENOVIATION OF WELDING LAB FOR PINSON VALLEY HIGH SCHOOL

Funding: Local

Location: TBD

Date/Time: TBD

DCM Insp:

Please note that all items listed below may not be applicable to this project.

1. **Introductions / Sign In**
2. **Owner's Comments**
3. **Preface / Pass Along To Others**
4. **General Contractor's Team Members (contact information)**

Project Manager: _____

Superintendent: _____

5. **Verify all alternates accepted.**
6. **E-Verify. Alabama Immigration Law. Be sure that all subcontractors comply with E-Verify requirements.**
7. **List of Sub-Contractors, submit for approval.**
A Complete list of sub-contractors must be submitted and approved by the Architect and Owner prior to any work commencing. Contractor cannot replace subs unless approved by the Architect and Owner (GCS 41)

8. **Cost Breakdown and Progress schedule.**
Cost breakdown and progress schedule must be submitted and approved on proper state forms prior to first pay request. **GC is required to provide an updated progress schedule at each OAC.**

Start: _____ Completion Date: _____ Days: _____

9. **Method of approving monthly pay request.**
Due by the 25th of each month. Architect will verify, sign and forward to Owner, who will forward to DCM, if applicable.
10. **Allowances.**
 - A. With the exception of quantity allowances, all allowances indicated are contingency allowances and therefore the Owner may transfer balances for other discretionary uses.

Overhead and profit margins SHALL NOT BE ADDED to any amount drawn from original Allowance(s) regardless of the indicated use.

- B. Each contingency allowance shall be a "line item" on the Schedule of Values.
- C. The following allowance(s) are a part of this project:
 -
 -
- D. If applicable, note special material/equipment delivery dates associated with allowances.
 -

11. Change Orders Requests. No work prior to final approval; Architect can approve in writing if emergency.

- A. All changes in work are to be submitted via Change Order Request, regardless of monetary value.
- B. COR's must be submitted in sequential order on GC letterhead.
- C. All COR's must be broken down to the fullest degree, including breakdown of GC's cost by GC's labor, materials, subcontractor, sub-subcontractor cost and OH&P. Subcontractor and sub-subcontractor cost must be documented with copies of quotes detailing OH&P included.
- D. COR's applied to allowances cannot include OH&P.
- E. Credit COR's must include a minimum of 5% OH&P.
- F. Upon Owner and/or Architects' approval of COR's, a revised Change Order and Allowance Usage log will be sent to GC via email.
- G. GC is to maintain a COR Log and present updated copy at each OAC meeting.
- H. **NOTE: The following information is required for ALL Change Order Requests submitted:**
 - a. Each material number shall include an invoice / quote listing unit quantities, unit price, and extended total.
 - b. Each labor number shall include a breakdown showing number of laborers, hours of labor worked, hourly wage, and extended total.
 - c. Each equipment number shall have an invoice / quote listing the hours of use, hourly rate, and extended total.
- I. An official Change Order to the State CANNOT be prepared if all backup paperwork is not provided and accounted for.
- J. This information is required for all contractors, subcontractors, and sub-subcontractors.

12. Shop Drawings.

- A. Submittal Schedule must be submitted to Architect at or before Pre-Construction Conference. Correlate this submittal schedule with the listing of subcontractors and with list of materials as specified in contract documents. The submittal schedule should be in chronological order following the critical timing of the approval of submittals in accordance with the Work Progress Schedule.
- B. Submit all items proposed for use in work. Do not combine submittals with requests for substitutions
- C. Must bear GC's action stamp as APPROVED OR APPROVED AS NOTED. Contractor shall review and stamp approval and submit shop drawings, product data and samples far

enough in advance to allow ample time for Architect review. Color selections may take longer than actual submittal approval, but in any case will not be given via phone calls. If submittals are not marked as approved by the GC, they will be returned without action.

- D. Digital Copies: Provide via email to submittals@lathanassociates.com. Do not send directly to Architect. **See attached Sample.**
- E. Submittal Preparation:
- **Include the following information on transmittal / email.**
 - Date
 - Project Name and Architect's Project Number.
 - Name of the General Contractor and Contact within company.
 - Subcontractor/Supplier.
 - Clearly state **Number** and title of appropriate Specification Section and **Description** of Item and if applicable
 - Name of the Manufacturer.
 - Model / Style of Item

General Contractor must review and approve shop drawings and submittals prior to submitting to Architect. Allow the Architect no less than three (3) weeks for initial review. Allow more time if the Architect must delay processing to permit coordination with the sequence of construction, related specification divisions, engineers, consultants and owner's representatives. Allow no less than two (2) weeks for reprocessing.

NOTE: No extension of Contract Time and/or additional costs will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.

- F. Material shall not be fabricated or work performed without approval of respective submittal.
- G. GC is to maintain copies of all approved shop drawings at the site and have available for architect and/or engineers at all times.
- H. **GC is to maintain a Submittal Log and present updated copy log at each OAC meeting.**
- I. **Important:** Contractor shall perform no portion of the work for which the contract documents require submittal and review of Shop Drawings, Data, Installer Qualifications, etc. until respective submittal has been approved by the Architect.
- J. **Important:** Submittals are not Contract Documents and are not used to make changes in scope of project or intent of Contract Documents, and not used to request or IMPLY substitutions or to otherwise make changes in project requirements.
- K. **Important:** The only changes that can be made to the project once it is bid, is through Change Order Requests and Approvals.
- L. **Important:** After receiving approved digital submittals, General Contractor is responsible for printing and delivering 2 hard copies of the approved shop drawings to the Architect within 10 days. Submittals are not considered complete until 2 copies have been received by the Architect. This may have a direct effect on pay requests or final payment.
13. **CAD Files / PDF**
- A. This project was bid under the assumption that electronic CAD files would not be available.
- B. Electronic CAD files are owned individually by each design professional according to discipline. If electronic CAD files or portions thereof are made available, be reminded that electronic CAD files can be manipulated and do not constitute the Contract Documents. The business of acquiring such files shall be between the contractor and the individual design professional. Fees may or may not be applicable. It shall be the Contractor's

responsibility to investigate and procure at no added expense to the Owner.

C. PDF files shall be made available to the General Contractor for use during construction.

14. Advanced notice of required inspections.

The contractor will contact the architect by e-mail at inspections@lathanassociates.com of the date the project will be ready for an inspection by the DCM Inspector: Pre-Roofing, Fire Above Ceiling, Final, and Year End. Special Inspections shall be required for all work of the Storm Shelters and the Fire Water Lines. Schedule well in advance to prevent delays.

- Inspections must be requested 14 days in advance.
- When the DCM Inspector confirms the inspection time, the Architect will send an e-mail confirming the inspection time and date.
- Cancellations of any scheduled inspection must be received in writing by e-mail no less than 48 hours prior to the schedule inspection. If an inspection is cancelled, it will be rescheduled subject to the DCM Inspector's availability.
- If an inspection is cancelled less than 48 hours prior to the schedule inspection, the re-inspection fee of \$1,500 will be charged.

15. Inspection Minimum Requirements.

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.

- Pre-Construction Conference
 - Required Attendees: Contractor, Owner, Architect, Major Subcontractors
 - Inspection Requirements:
 - ✓ Signed construction contract
 - ✓ Verification of payment of permit fee
 - ✓ Fire Alarm Contractor's Certification (from State Fire Marshal)
 - ✓ ADEM permit, if more than 1 acre of land is disturbed
- Above-Ceiling Inspections
 - Required Attendees: Contractor, Owner, Architect, MEP Engineers, Major Subcontractors, DCM Inspector
 - Inspection Requirements:
 - ✓ 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
- Life Safety Inspections and Final Inspections
 - Required Attendees: Contractor, Owner, Architect, Engineers, Major Subcontractors, Local Fire Marshal, DCM Inspector
 - Inspection Requirements:
 - ✓ Emergency and exit lighting tests
 - ✓ Fire alarm must be monitored
 - ✓ **Test and Balance Report previously accepted by Engineer**
 - ✓ Must have clear egress/access and emergency (for first responders) access to building

✓ Must have ADA access completed

• Year-End Inspections

- Required Attendees: Contractor, Owner, Architect, Engineers and /or Major subcontractors may also be required to attend
- Inspection Requirements:
 - ✓ Owner 's list of documented warranty items

16. Above Ceiling Inspection by the Architect, Engineers and DCM Inspector.

No above ceiling work is to be done after the Above Ceiling Inspection other than correction of deficiencies noted during the inspection. (Pre-Above Ceiling Inspection)

Fire Caulking Tented Fixtures Wire at Light Fixtures Debris
Temporary Lighting Penetrations Pipe Saddles

Insulation - No Kraft - Exposed Fire-Rated FSK or FRK - Type III, Class A.

17. Other inspections required before work is covered.

- A. Local inspectors may require a full range of inspections on this project, footings, under-slab, etc. A wall inspection will be held before any finish paints are applied.
- B. Material Testing.

18. Observation report distribution.

Architect will submit field reports promptly to the Owner, GC, DCM Inspector. Architect will fill in all blanks on the field report form.

(GCS 16 & MP 8D)

19. Record drawings, definitions of procedures.

G.C. is to keep all changes made in the field red lined daily. Cut and paste all addendums onto the plans at their respected locations. One clean set of plans is to be secured at the job trailer at all times for review by all interested parties. This set with changes could be used as the record drawings. Final pay approval is subject to receipt of these as-built drawings.

20. Project sign and other job signs.

State required sign is the only sign allowed on project.

Job trailers with contractor and/or sub-contractor names are allowed.

21. Overall phasing of project.

Superintendent is responsible to plan ahead in order to avoid delays and conflicts. GC is to advise Architect on delays of critical path items. Superintendent is to be on site at all times when any work is in progress; no exceptions (GCS 6A & B)

22. Contractor's duty to coordinate work of separate contractor.

Contractors employed by others for installation of data, computer and etc. (GCS 40D)

23. Use of existing site, building and access drive.

- A. Use of existing building site for lay down is to be determined by local owner and Architect. Local owner will advise contractor on proper route to site. Material delivery times are to be made as to not interfere with the school bus schedule. Area is to be reviewed after this meeting, if necessary. Maintain traffic flow.
- B. No workmen are allowed in existing building unless prior approval is granted by the Owner and arranged by the General Contractor. There is to be no communication between workers and faculty/staff or students; through vocal, looks, stares or body language.
- C. Since most projects are hard hat areas, the worker's name will be on his/her hat for identification purposes.

- D. If a faculty/staff member or student is causing a problem with a worker, the worker is to report the incident to the Project Superintendent. The Superintendent should then report the incident to the Owner. Under no circumstances should the Worker try and handle the problem by him/herself.
 - E. There is to be no profanity on the job site.
 - F. School Lunchroom is off limits to workers.
 - G. Use of existing site, building and access drive.
 - H. Workmen are expected to dress appropriately. Tee-shirts are expected to be non-offensive to all parties.
 - I. State school properties are tobacco free areas. No smoking, chewing, or dipping of tobacco products are allowed.
 - J. State school properties are drug free areas. Vehicles are subject to search and seizure by law enforcement authorities.
 - K. Firearms are not allowed on school property. Cased, uncased, loaded, or unloaded.
- 24. Use of existing toilets.**
There will be no use of existing toilets. G.C. is to provide proper number of toilets for all workers. School telephone is off limits.
- 25. Coordinate any utilities supplied by the Owner / New equipment.**
- A. Existing sites, normally water only.
 - B. Coordination - OAC /Sub Meetings
 - C. New equipment utilities may be different than those existing utilities that the design is based upon. Coordinate with actual equipment cut sheets submitted and approved.
- 26. Coordinate outages with Owner.**
Provide as much notice as possible. Superintendent is to verify that coolers and freezers are back on line. Coordinate with key testing date, do not disrupt on-going school operations. *Roofing fumes must be minimized with afterburner.*
- 27. Keeping existing exit paths open.**
Required exits are to be maintained at all times.
- 28. Routine job clean up.**
Debris is to be removed daily/weekly from building and site. Do not allow dumpster to spill over. Burning of trash on site is not allowed. (GCS 48, A & C)
- 29. Safety is General Contractor's responsibility.**
As a courtesy, advise the Architect if there has been a problem.
- 30. Project limits.**
Defined on drawings.
- 31. Materials Testing / Re-testing**
Retesting shall be the at the contractor's expense.
- 32. What is expected of masonry work, mortar additive.**
All masonry work shall be as stated in the specs. Full head and bed bull-nose outside corners. Joints are expected on both sides of the units. Pre-formed corner tees, durowall and flashing are required. Mortar mix shall be made with same proportions everyday throughout entire project, using appropriate measuring devices. For tooling of brick or block, refer to specs. No brick or block

less than a half unit is allowed at any opening. Full head weeps at 32" on center. All substandard masonry will be removed. Cull blocks; do not lay chipped blocks. Cut holes for electrical outlet boxes the proper size; caulking and oversized plates are not allowed.

- 33. Problems with hollow metal (install proper fire labels).**
Do not paint fire labels. Labels will be attached; rating is to be embossed in minutes and/or hours. Specs require coating the interior of the frames. Grout frames solid.
- 34. Potential conflict of mechanical and electrical equipment.**
It is the responsibility of the GC to coordinate the installation of all equipment where a conflict may occur. G.C., HVAC, Plumbing and Electrical subs are to read their sections of specs. Each foreman is to sign their section on the master copy, which is kept in the job trailer.
- 35. Problems with fire damper installations.**
Installation of the dampers will be as shown on the plans. All other installation procedures will be unacceptable.
 - A. Fire stop material; workmen must be certified to install firestop material. Firestop system must be a UL approved assembly. (See manufactures' manual).
 - B. Stencil all fire walls, both sides every 20ft.
- 36. Certificate of Substantial Completion.**
Architect will provide at the final inspection, provided contractor has copies of all roof warranties and the fire alarm certification.
- 37. Project Closeout Procedures / Final payment.**
 - A. Warranties must be effective the Date of Substantial Completion. All warranties must identify the product covered.
 - B. Operating and maintenance manuals. All training required for the MPE fields will be completed prior to the final request being released.
 - C. As-built drawings.
 - D. Other requirements. G.C. is to make a list of all over-stocks that are required by specs and have at final for B.O.E. signature and acceptance.
 - E. Final Payment. Punch list items must be completed to the Architect and DCM Inspector's satisfaction, all close out documents must be received by the Architect, all change orders must be fully executed and Certificate of Substantial Completion must be fully executed before final payment is made. (GCS, 34A & B, MP 7 G4)
- 38. Advertisement of Completion. START AD AFTER SUBSTANTIAL COMPLETION.**
 - A. 1 week for projects valued less than \$50,000.00.
 - B. 4 consecutive weeks for projects exceeding \$50,000.00.
 - C. General Contractor is responsible for placement and payment of advertisement.
- 39. Time Extensions.**
The GC can submit time extension request to the Architect on a weekly basis, with reasons for extension. Delays caused by rain, must exceed the five year average. (GCS 23).
- 40. Quality Control.**
Urinals 17" A.F.F. Flush valves at wide side. Rigid conduit under slab. Fire strobes 80" to bottom, within 15' of exits.
- 41. Requests For Information (RFI'S)**

- A. All RFI's must be numbered and made in writing to the Architect's email rfi@lathanassociates.com by the General Contractor. Please include your name, company name, telephone number, and fax number so that we may respond appropriately. Verbal RFI's will not be answered. All RFI's must be in writing.
- B. The Architect will not accept RFI's directly from subcontractors or vendors.
- C. The Team List provided within the Specification Manual is for informational purposes only and should not be used to contact Engineers and/or Consultants directly with questions regarding the project.
- D. All questions that need to be directed to an Engineer / Consultant must be routed through the Architect's office. If applicable, the Architect will contact the appropriate Engineer / Consultant for information.
- E. Bids shall be based upon the official Contract Documents consisting of Plans, Specifications and Addenda. Architect assumes no responsibility for information used by Contractors outside the official Contract Documents.
- F. **A RFI Log shall be kept by the Contractor and reviewed at each OAC Meeting.**
It will be the contractor's responsibility to inform Architect of any outstanding RFI's in a timely manner.

42. Liquidated Damages

Liquidated damages will be strictly enforced for not reaching substantial completion by the scheduled completion date. Liquidated damages will be deducted from the General Contractors final payment.