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GYPSUM CEMENT UNDERLAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Gypsum cement floor underlayment.

B. Sound control mat

1.02 REFERENCE STANDARDS

A. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Concrete; 2020.

B. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2022.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturer's data sheets documenting physical characteristics and product limitations.

C. Certificate: Certify products of this section meet or exceed specified requirements.

D. Manufacturer's Instructions: Indicate surface preparation.

E. Applicator's qualification statement.

F. Specimen warranty.

1.04 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Store products in manufacturer's unopened packaging until ready for installation.

C. Keep dry and protect from direct sun exposure and freezing.

1.05 FIELD CONDITIONS

A. Maintain minimum ambient temperatures of 50 degrees F (10 degrees C) 24 hours before, during, and 72 hours after installation of underlayment.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for defective materials. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Gypsum Cement Underlayment:
   1. Maxxon Corporation; Gyp-Crete Basic: www.maxxon.com/#sle.
   2. Accucrete; arcosaspecialtymaterials.com.
   3. USG; www.usg.com.
   4. Substitutions: See Section 016000 - Product Requirements.

5. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

B. Sound Control Mat:
1. Maxxon Corporation; Acousti-Mat 1/8: www.maxxon.com/#sle.
2. Accucrete; arcosaspecialtymaterials.com.
3. USG; www.usg.com.
4. Substitutions: See Section 016000 - Product Requirements.
5. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

2.02 MATERIALS

A. Gypsum Cement Underlayment: Gypsum-based mix producing the following properties when mixed with water in accordance with manufacturer's directions:
1. Compressive Strength: Minimum 2,500 psi (17.24 MPa) in accordance with ASTM C472.
2. Density: Maximum 115 pcf (1842 kg/cu m).
3. Thickness: 3/4 inch (19.1 mm) to maximum 3 inches (76.2 mm).
4. Surface Burning Characteristics: Flame spread/smoke developed index of 0/0 in accordance with ASTM E84.

B. Sound Control Mat: Sheet-rolled, entangled mesh mat, attached to water-resistant nonwoven fabric.
1. Thickness: 1/8 inch (3.2 mm).

C. Accessories: Perimeter isolation strips and tape as recommended by underlayment manufacturer.

D. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to underlayment mix materials.

E. Primer: Manufacturer's recommended type for substrates specified for project.

F. Joint and Crack Filler: As recommended by manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify substrates are structurally sound and surfaces are clean, dry, and do not contain petroleum byproducts or other compounds detrimental to underlayment material bond to substrate.

3.02 PREPARATION

A. Remove substrate surface irregularities; fill voids and deck joints with filler. Finish smooth and vacuum surfaces.

3.03 INSTALLATION

A. Mix materials in accordance with manufacturer's instructions.

B. Install in accordance with manufacturer's written instructions.

C. Place to indicated thickness, with top surface level to 1/8 inch in 10 feet (1:1000).

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

3.05 PROTECTION

A. Protect against direct sunlight, heat, and wind; prevent rapid drying to avoid shrinkage and cracking.

B. Do not permit foot traffic over unprotected floor surface until installed surfaces are set for 4 hours minimum.

END OF SECTION

SECTION 074213.23
METAL COMPOSITE MATERIAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior cladding consisting of formed metal composite material (MCM) sheet, secondary supports, and anchors to structure, attached to solid backup.

B. Matching flashing and trim.

1.02 RELATED REQUIREMENTS

A. Section 033000 - Cast-in-Place Concrete: Installation of anchors.

B. Section 042000 - Unit Masonry: Installation of anchors.

C. Section 072500 - Weather Barriers: Water-resistive barrier behind wall panel system.

D. Section 076200 - Sheet Metal Flashing and Trim: Metal flashing components integrated with this wall system.

E. Section 079200 - Joint Sealants: Sealing joints between siding and adjacent construction and fixtures.

1.03 REFERENCE STANDARDS

A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

C. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.

D. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. ASTM D1781 - Standard Test Method for Climbing Drum Peel for Adhesives; 1998 (Reapproved 2021).

F. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics; 2023.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023d.

H. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).

I. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components; 2023.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data - MCM Sheets: Manufacturer's data sheets on each product to be used, including thickness, physical characteristics, and finish, and:
   1. Finish manufacturer's data sheet showing physical and performance characteristics.
   2. Storage and handling requirements and recommendations.
   3. Fabrication instructions and recommendations.

4. Specimen warranty for finish, as specified herein.

C. Product Data - Wall System: Manufacturer's data sheets on each product to be used, including:
   1. Physical characteristics of components shown on shop drawings.
   2. Storage and handling requirements and recommendations.
   3. Installation instructions and recommendations.
   4. Specimen warranty for wall system, as specified herein.

D. Shop Drawings: Show layout and elevations, dimensions and thickness of panels, connections, details and location of joints, sealants and gaskets, method of anchorage, support clips, exposed fasteners, number of anchors, supports, reinforcement, trim, flashings, and accessories.
   1. Indicate panel numbering system.
   2. Differentiate between shop and field fabrication.
   3. Indicate substrates and adjacent work with which the wall system must be coordinated.
   4. Include large-scale details of anchorages and connecting elements.
   5. Include large-scale details or schematic, exploded or isometric diagrams to fully explain flashing at a scale of not less than 1-1/2 inches per 12 inches (1:10).
   6. Include design engineer's stamp or seal on shop drawings for attachments and anchors.

E. Selection Samples: For each finish product specified, submit at least two sample color chips representing manufacturer's standard range of available colors and patterns.
   1. Sealant Color: Color to match wall panels.

F. Certificate: Certify that the work results of this section meet or exceed specified requirements.

G. Design Data: Submit structural calculations stamped by design engineer, for Architect's information and project record.

H. Test Report: Submit report of full-size mock-up tests for air infiltration, water penetration, and wind performance.

I. Manufacturer's Field Reports: Provide within 48 hours of field review. State what was observed and what changes, if any, were requested or required.

J. Designer's qualification statement.

K. Manufacturer's qualification statement.

L. Testing agency's qualification statement.

M. Maintenance Data: Care of finishes and warranty requirements.

N. Executed Warranty: Submit warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

O. Warranty Documentation for Installation of Building Rainscreen Assembly: Submit installer warranty and ensure that forms have been completed in Owner's name and registered with installer.

1.05 QUALITY ASSURANCE

A. Field Measurements: Verify actual dimensions by field measurement before fabrication; show recorded measurements on shop drawings.

B. Design Engineer's Qualifications: Design structural supports and anchorages under direct supervision of a Structural Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

C. Manufacturer Qualifications: Company specializing in manufacturing wall panel systems specified in this section.

D. Testing Agency Qualifications: Independent agency experienced in testing assemblies of the type required for this project and having the necessary facilities for full-size mock-up testing of the type specified.

1.06 MOCK-UPS

A. Provide a mock-up for evaluation of fabrication workmanship.

B. Locate where directed.

C. Provide specified finish on panels.

D. Mock-up may not remain as part of work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact.
   1. Protect finishes by applying heavy-duty removable plastic film during production.
   2. Package for protection against transportation damage.
   3. Provide markings to identify components consistently with drawings.
   4. Exercise care in unloading, storing, and installing panels to prevent bending, warping, twisting, and surface damage.

B. Store products protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.
   1. Store in well-ventilated space out of direct sunlight.
   2. Protect from moisture and condensation with tarpaulins or other suitable weathertight covering installed to provide ventilation.
   3. Store at a slope to ensure positive drainage of accumulated water.
   4. Do not store in enclosed space where ambient temperature can exceed 120 degrees F (49 degrees C).
   5. Avoid contact with other materials that might cause staining, denting, or other surface damage.

1.08 FIELD CONDITIONS

A. Do not install panels when air temperature or relative humidity are outside manufacturer's limits.

1.09 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Special Warranty: Provide 5-year warranty covering water tightness and integrity of seals of wall panels. Complete forms in Owner's name and register with warrantor.

C. Finish Warranty: Provide 20-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Composite Material (MCM) Sheet Manufacturers:
   1. ALUCOBOND by 3A Composites USA; ALUCOBOND PLUS: www.alucobondusa.com/#sle.
   2. Alfrex, LLC; Alfrex fr: www.alfrexusa.com/#sle.
   3. ALPOLIC Materials; ALPOLIC/fr (Fire Retardant core): www.alpolic-americas.com/#sle.

2.02 WALL PANEL SYSTEM

A. Wall Panel System: Metal panels, fasteners, and anchors designed to be supported by framing or other substrate provided by others; provide installed panel system capable of maintaining specified performance without defects, damage, or failure.
   1. Provide structural design by or under direct supervision of a Structural Engineer licensed in the State in which the Project is located.
   2. Provide panel jointing and weatherseal using a "wet", sealant-sealed system.
   3. Anchor panels to supporting framing without exposed fasteners.

2.03 PERFORMANCE REQUIREMENTS

A. Thermal Movement: Provide for free and noiseless vertical and horizontal thermal movement due to expansion and contraction under material temperature range of minus 20 degrees F (minus 29 degrees C) to 180 degrees F (82 degrees C) without buckling, opening of joints, undue stress on fasteners, or other detrimental effects; allow for ambient temperature at time of fabrication, assembly, and erection procedures.
   1. Wind Performance: Provide system tested in accordance with ASTM E330/E330M without permanent deformation or failures of structural members under the following conditions:
   2. Inward Design Wind Pressure: 40 psf (1.915 kPa).
   3. Outward Design Wind Pressure: 70 psf (3.352 kPa).
   4. Maximum deflection of perimeter framing member of L/175 normal to plane of the wall; maximum deflection of individual panels of L/60.
   5. Maximum anchor deflection in any direction of 1/16 inch (1.6 mm) at connection points of framing members to anchors.

2.04 MATERIALS

A. Metal Composite Material (MCM) Sheet: Two sheets of aluminum sandwiching a core of extruded thermoplastic material; no foamed insulation material content.
   1. Overall Sheet Thickness: 0.118 inch (3 mm), minimum.
   2. Bond and Peel Strength: No adhesive failure of the bond between the core and the skin nor cohesive failure of the core itself below 22.4 inch-pound/inch (100 N-mm/mm) with no degradation in bond performance, when tested in accordance with ASTM D1781, simulating resistance to panel delamination, after 8 hours of submersion in boiling water and after 21 days of immersion in water at 70 degrees F (21 degrees C).
   3. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
   4. Flammability: Self-ignition temperature of 650 degrees F (343 degrees C) or greater when tested in accordance with ASTM D1929.

B. Metal Framing Members: Include sub-girts, zee-clips, base and sill angles and channels, hat-shaped and rigid channels, and furring channels required for complete installation.
   1. Provide material strength, dimensions, configuration as required to meet applied loads and in compliance with applicable building code.

2.05 FINISHES

A. Finish: Factory finished highly polished Class I natural anodized finish; AAMA 611 AA-M12C22A41, anodic coating not less than 0.7 mil, 0.0007 inch (0.018 mm) thick.

B. Color/Texture: As selected by Architect from manufacturer's full range. Basis of Design color is Alucobond Bone White.

2.06 ACCESSORIES

A. Flashing: Sheet stainless steel; 0.040 inch (1.0 mm) thick, minimum; finish and color to match MCM sheet; see Section 076200 for additional requirements.

B. Support for Cladding and Continuous Insulation: Thermal clips.
   1. Thermally-broken clips that provide attachment support for girts, angles, channels, and other cladding support framing.
   2. Clip Depth: As required for thickness of insulation.
   3. Spacing of Clips: 16 inches (406 mm) on center, vertically.
   4. Fasteners: As recommended by clip manufacturer.

C. Fasteners:
   1. Exposed Fasteners: Stainless steel; permitted only where absolutely unavoidable and subject to prior approval of the Architect.
   2. Screws: Self-drilling or self-tapping Type 410 stainless steel or zinc-alloy steel hex washer head, with EPDM or PVC washer under heads of fasteners bearing on weather side of metal wall panels.
   3. Bolts: Stainless steel.
   4. Fasteners for Flashing and Trim: Blind fasteners of high-strength aluminum or stainless steel.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine dimensions, tolerances, and interfaces with other work.

B. Examine substrate on-site to determine that conditions are acceptable for product installation in accordance with manufacturer's written instructions.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

D. Notify Architect in writing of conditions detrimental to proper and timely completion of work, and do not proceed with erection until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Do not install products that are defective, including warped, bowed, dented, and broken members, and members with damaged finishes.

B. Comply with instructions and recommendations of MCM sheet manufacturer and wall system manufacturer, as well as with approved shop drawings.

C. Install wall system securely allowing for necessary thermal and structural movement; comply with wall system manufacturer's instructions for installation of concealed fasteners.

D. Do not handle or tool products during erection in manner that damages finish, decreases strength, or results in visual imperfection or failure in performance. Return component parts that require alteration to shop for refabrication, if possible, or for replacement with new parts.

E. Do not form panels in field unless required by wall system manufacturer and approved by the Architect; comply with MCM sheet manufacturer's instructions and recommendations for field forming.

F. Separate dissimilar metals; use gasket fasteners, isolation shims, or isolation tape where needed to eliminate possibility of electrolytic action between metals.

G. Where joints are designed for field-applied sealant, seal joints completely with specified sealant.

H. Install flashings as indicated on shop drawings. At flashing butt joints, provide a lap strap under flashing and seal lapped surfaces with a full bed of non-hardening sealant.

I. Install square, plumb, straight, and true, accurately fitted, with tight joints and intersections maintaining the following installation tolerances:
   1. Variation From Plane or Location: 1/2 inch in 30 feet (10 mm in 10 m) of length and up to 3/4 inch in 300 feet (20 mm in 100 m), maximum.
   2. Deviation of Vertical Member From True Line: 0.1 inch in 25 feet (3 mm in 9 m) run, maximum.
   3. Deviation of Horizontal Member From True Line: 0.1 inch in 25 feet (3 mm in 9 m) run, maximum.
   4. Offset From True Alignment Between Two Adjacent Members Abutting End To End, In Line: 0.03 inch (0.75 mm), maximum.

J. Replace damaged products.

3.03 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Wall System Manufacturer's Field Services: Provide field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with instructions.

C. Site Visits: Schedule two site visits during execution of installation.

3.04 CLEANING

A. Ensure weep holes and drainage channels are unobstructed and free of dirt and sealants.

B. Remove protective film after installation of joint sealers, after cleaning of adjacent materials, and immediately prior to completion of work.

C. Remove temporary coverings and protection of adjacent work areas.

D. Clean installed products in accordance with manufacturer's instructions.

3.05 PROTECTION

A. Protect installed panel system from damage until Date of Substantial Completion.

END OF SECTION

SECTION 081113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Hollow metal frames for wood doors.

C. Fire-rated hollow metal doors and frames.

D. Thermally insulated hollow metal doors with frames.

E. Sound-rated hollow metal doors and frames.

F. Hollow metal borrowed lites glazing frames.

G. Accessories, including glazing and louvers.

1.02 RELATED REQUIREMENTS

A. Section 087100 - Door Hardware.

B. Section 088000 - Glazing: Glass for doors and borrowed lites.

C. Section 099113 - Exterior Painting: Field painting.

D. Section 099123 - Interior Painting: Field painting.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames; 2019.

C. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2022.

D. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames; 2020.

E. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

F. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2020.

G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

H. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2024.

I. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

J. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.

K. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

L. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

M. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

N. ASTM E413 - Classification for Rating Sound Insulation; 2022.
O. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.
P. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.
Q. ITS (DIR) - Directory of Listed Products; Current Edition.
R. NAAMM HMMA 805 - Recommended Selection and Usage Guide for Hollow Metal Doors and Frames; 2012.
S. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.
T. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2011.
U. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2017.
V. NAAMM HMMA 850 - Fire-Rated Hollow Metal Doors and Frames; 2014.
W. NAAMM HMMA 860 - Guide Specifications for Hollow Metal Doors and Frames; 2018.
X. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2014.
Y. NAAMM HMMA 865 - Guide Specifications for Sound Control Hollow Metal Door and Frame Assemblies; 2013.
Z. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.
AA. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.
BB. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2023.
CC. UL (DIR) - Online Certifications Directory; Current Edition.
DD. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.
EE. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.
B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes; and one copy of referenced standards/guidelines.
C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.
D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.
E. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.
F. Manufacturer's Qualification Statement.
G. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years documented experience.
B. Maintain at project site copies of reference standards relating to installation of products specified.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
   2. Fleming Door Products, an Assa Abloy Group company; _____: www.assaabloydss.com/#sle.
   3. Premier Steel Doors and Frames; F Series Commercial Frames: www.trustpremier.com/#sle.
   4. Republic Doors, an Allegion brand; ____: www.republicdoor.com/#sle.
   5. Steelcraft, an Allegion brand; ____: www.allegion.com/#sle.
   6. Substitutions: See Section 016000 - Product Requirements.

B. Sound-Rated Hollow Metal Doors and Frames:
   1. AMBICO Limited; ____: www.ambico.com/#sle.
   2. De La Fontaine; STC - Acoustical Core: www.delafontaine.com/#sle.
   3. Overly Door Company; ____: www.overly.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
   4. Door Edge Profile: Manufacturers standard for application indicated.
   5. Typical Door Face Sheets: Flush.
   6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturer's standard.
   7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.
   8. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Door Finish: Factory primed and field finished.

B. Exterior Doors: Thermally insulated.
   1. Based on NAAMM HMMA Custom Guidelines:
      a. Comply with guidelines of NAAMM HMMA 860 for Hollow Metal Doors and Frames.
      b. Performance Level 3 - Heavy Duty, in accordance with NAAMM HMMA 805.
      c. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
      d. Door Face Metal Thickness: 20 gauge, 0.032 inch (0.8 mm), minimum.
   2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
   3. Door Thickness: 1-3/4 inches (44.5 mm), nominal.
   4. Weatherstripping: Integral, recessed into door edge or frame.
   5. Door Finish: Factory primed and field finished.

C. Interior Doors, Non-Fire-Rated:
   1. Based on NAAMM HMMA Custom Guidelines:
      a. Comply with guidelines of NAAMM HMMA 860 for Hollow Metal Doors and Frames.
      b. Performance Level 2 - Moderate Duty, in accordance with NAAMM HMMA 805.
      c. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
      d. Door Face Metal Thickness: 20 gauge, 0.032 inch (0.8 mm), minimum.
   2. Door Thickness: 1-3/4 inches (44.5 mm), nominal.
   3. Door Face Sheets: Flush.
   4. Door Finish: Factory primed and field finished.

D. Fire-Rated Doors:
   1. Based on NAAMM HMMA Custom Guidelines: Comply with NAAMM HMMA 850 requirements for fire-rated doors.
      a. Comply with guidelines of NAAMM HMMA 860 for Hollow Metal Doors and Frames.
      b. Performance Level 3 - Heavy Duty, in accordance with NAAMM HMMA 805.
      c. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
      d. Door Face Metal Thickness: 20 gauge, 0.032 inch (0.8 mm), minimum.
   2. Fire Rating: As indicated on drawings, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
   3. Provide units listed and labeled by UL (DIR) or ITS (DIR).
      a. Attach fire rating label to each fire rated unit.
   4. Door Thickness: 1-3/4 inches (44.5 mm), nominal.
   5. Door Face Sheets: Flush.
   6. Door Finish: Factory primed and field finished.

E. Sound-Rated Interior Doors:
   1. Based on NAAMM HMMA Custom Guidelines:
      a. Comply with guidelines of NAAMM HMMA 865 for Sound Control Hollow Metal Doors and Frames.
      b. Performance Level 2 - Moderate Duty, in accordance with NAAMM HMMA 805.
      c. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
      d. Door Face Metal Thickness: 14 gauge, 0.0747 inches inch (___ mm), minimum.
   2. Sound Transmission Class (STC) Rating of Door and Frame Assembly: STC of 39, minimum, calculated in accordance with ASTM E413, and tested in accordance with ASTM E90.
   3. Door Core Material: Manufacturer's standard construction as required to meet acoustic requirements indicated.
   4. Door Thickness: As required to meet acoustic requirements indicated.
   5. Door Face Sheets: Flush.
   6. Door Finish: Factory primed and field finished.

7. Sound Seals: Integral, in door and/or frame.
8. Opening Force of Sound-Rated Doors, Non-Fire-Rated: 5 pounds (22.2 N), maximum, in compliance with ADA Standards.

F. Based on NAAMM HMMA Custom Guidelines:
1. Comply with guidelines of NAAMM HMMA 865 for Sound Control Hollow Metal Doors and Frames.
2. Performance Level 2 - Moderate Duty, in accordance with NAAMM HMMA 805.
3. Physical Performance Level C, 250,000 cycles; in accordance with ANSI/SDI A250.4.
4. Door Face Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.

G. Sound Transmission Class (STC) Rating of Door and Frame Assembly: STC of 39, minimum, calculated in accordance with ASTM E413, and tested in accordance with ASTM E90.

H. Door Core Material: Manufacturer's standard construction as required to meet acoustic requirements indicated.

I. Door Thickness: As required to meet acoustic requirements indicated.

J. Door Face Sheets: Flush.

K. Door Finish: Factory primed and field finished.

L. Sound Seals: Integral, in door and/or frame.

M. Opening Force of Sound-Rated Doors, Non-Fire-Rated: 5 pounds (22.2 N), maximum, in compliance with ADA Standards.

N. Heavy-Duty Interior Doors:

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Frame Finish: Factory primed and field finished.

C. Exterior Door Frames: Full profile/continuously welded type.
1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
2. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.
3. Weatherstripping: Separate, see Section 087100.

D. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch (150 mm), maximum, above floor at 45 degree angle.
2. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.

E. Door Frames, Fire-Rated: Full profile/continuously welded type.
1. Fire Rating: Same as door, labeled.
2. Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch (150 mm), maximum, above floor at 45 degree angle.
3. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.

F. Sound-Rated Door Frames: Knock-down type.
1. Frame Metal Thickness: 18 gauge, 0.042 inch (1.0 mm), minimum.

G. Commercial and/or Detention Security-Resistant Door Frames: With same security resistance as door; face welded or full profile/continuously welded construction, ground smooth, fully prepared and reinforced for hardware installation.
1. Frame Metal Thickness: 16 gauge, 0.053 inch (1.3 mm), minimum.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch (0.4 mm) dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
   1. Fire-Rated Frames: Comply with fire rating requirements indicated.

2.06 ACCESSORIES

A. Door Window Frames: Door window frames with glazing securely fastened within door opening.
   1. Size: As indicated on drawings.
   2. Frame Material: 18 gauge, 0.0478 inch (1.21 mm), galvanized steel.
   3. Metal Finish: Dark Bronze polyester powder coating.
   4. Glazing: 1/4 inch (6.4 mm) thick, tempered glass, in compliance with requirements of authorities having jurisdiction.

B. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches (102 mm) as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.

C. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

PART 3 EXECUTION

3.01 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.02 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Install door hardware as specified in Section 087100.

F. Touch up damaged factory finishes.

3.03 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch (1.6 mm) measured with straight edge, corner to corner.

3.04 ADJUSTING

A. Adjust for smooth and balanced door movement.

B. Adjust sound control doors so that seals are fully engaged when door is closed.

END OF SECTION

SECTION 081416
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush and flush glazed configuration; fire-rated, non-rated, acoustical, special function, and louvered.

1.02 RELATED REQUIREMENTS

A. Section 081113 - Hollow Metal Doors and Frames.

B. Section 087100 - Door Hardware.

C. Section 088000 - Glazing.

D. Section 092116 - Gypsum Board Assemblies: Bullet-resistant sheathing and wallboard for bullet-resistant partitions and walls.

E. Section 099123 - Interior Painting: Field finishing of doors.

F. Section 099300 - Staining and Transparent Finishing: Field finishing of doors.

1.03 REFERENCE STANDARDS

A. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2022.

B. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

E. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

F. ASTM F476 - Standard Test Methods for Security of Swinging Door Assemblies; 2023.

G. AWI (QCP) - Quality Certification Program; Current Edition.

H. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards, 2nd Edition; 2014, with Errata (2016).

I. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

J. BHMA A156.2 - Bored and Preassembled Locks and Latches; 2022.

K. BHMA A156.13 - Mortise Locks & Latches Series 1000; 2022.

L. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

M. NAAMM HMMA 805 - Recommended Selection and Usage Guide for Hollow Metal Doors and Frames; 2012.

N. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

O. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; 2021, with Errata (2022).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Shop Drawings: Show doors and frames, elevations, sizes, types, swings, undercuts, beveling, blocking for hardware, factory machining, factory finishing, cutouts for glazing and other details.
   1. Provide information as required by AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS).

D. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

E. Manufacturer's Installation Instructions: Indicate special installation instructions.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Warranty, executed in Owner's name.

1.05 QUALITY ASSURANCE

A. Maintain one copy of the specified door quality standard on site for review during installation and finishing.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section, with not less than three years of documented experience.
   1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

C. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.

D. Woodwork Quality Assurance Program:
   1. Comply with AWI (QCP) woodwork association quality assurance service/program in accordance with requirements for work specified in this section; www.awiqcp.org/#sle.
   2. Provide labels indicating that the installed work complies with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS) requirements for grade or grades specified.
   3. Provide designated labels on shop drawings as required by quality assurance program.
   4. Provide designated labels on installed products as required by quality assurance program.
   5. Submit documentation upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging, and inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic; do not store in damp or wet areas or areas where sunlight might bleach veneer; seal top and bottom edges with tinted sealer if stored more than one week, and break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide manufacturer's warranty on interior doors for the life of the installation. Complete forms in Owner's name and register with manufacturer.
   1. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Wood Veneer Faced Doors:

1. Horton Automatics, a division of Overhead Door Corporation; FlexBarn: www.overheaddoor.com/#sle.
2. Krieger Specialty Products; _____: www.kriegerproducts.com/#sle.
3. VT Industries, Inc; ____: www.vtindustries.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

2.02 DOORS AND PANELS

A. Doors: See drawings for locations and additional requirements.
   1. Quality Standard: Custom Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.
   2. Wood Veneer Faced Doors: 5-ply unless otherwise indicated.

B. Interior Doors: 1-3/4 inches (44 mm) thick unless otherwise indicated; flush construction.
   1. Provide solid core doors at each location.
   2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with UL 10C - Positive Pressure; Underwriters Laboratories Inc (UL) or Intertek/Warnock Hersey (WHI) labeled without any visible seals when door is open.
   3. Wood veneer facing for field transparent finish as indicated on drawings.

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated.

B. Fire-Rated Doors: Mineral core type, with fire resistant composite core (FD), plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

2.04 DOOR FACINGS

A. Veneer Facing for Transparent Finish: Red oak, veneer grade in accordance with quality standard indicated, plain sliced (flat cut), with book match between leaves of veneer, running match of spliced veneer leaves assembled on door or panel face.
   1. Vertical Edges: Same species as face veneer.

B. Facing Adhesive: Type I - waterproof.

2.05 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with stiles and rails:
   1. Provide solid blocks at lock edge for hardware reinforcement.

C. Where supplementary protective edge trim is required, install trim after veneer facing has been applied full-width.

D. Glazed Openings: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings.

E. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

F. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.

G. Provide edge clearances in accordance with the quality standard specified.

2.06 FINISHES - WOOD VENEER DOORS

A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 - Finishing for grade specified and as follows:

1. Transparent:
   a. System - 1, Lacquer, Nitrocellulose.
   b. Stain: As selected by Architect.
   c. Sheen: Satin.

B. Seal door top edge with color sealer to match door facing.

2.07 ACCESSORIES

A. Hollow Metal Door Frames: See Section 081113.

B. FL Doors - Wood Louvers:
   1. Material and Finish: match door species.
   2. Louver Blade: Flush louver.

C. L DoorMetal Louvers:
   1. Material and Finish: Roll formed steel; pre-painted finish to color as selected.
   2. Louver Blade: Inverted slat blade, sight proof, light proof.

D. Glazed Openings:
   1. Heat-Strengthened and Fully Tempered Glass: ASTM C1048.

E. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

E. Coordinate installation of glazing.

3.03 TOLERANCES

A. Comply with specified quality standard for fit and clearance tolerances.

B. Comply with specified quality standard for telegraphing, warp, and squareness.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

END OF SECTION

SECTION 083613
SECTIONAL DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Overhead sectional doors, manually operated.

B. Overhead sectional doors, electrically operated.

C. Operating hardware and supports.

D. Electrical controls.

1.02 RELATED REQUIREMENTS

A. Section 260583 - Wiring Connections.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

C. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

D. DASMA 102 - American National Standard Specifications for Sectional Doors; 2018.

E. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts; 2008 (Reaffirmed 2020).

F. NEMA MG 00001 - Motors and Generators; 2024.

G. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

H. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate opening dimensions and required tolerances, connection details, anchorage spacing, hardware locations, and installation details.

C. Product Data: Show component construction, anchorage method, and hardware.

D. Samples: Two panel finish samples, ___ by ___ inch (___ by ___ mm) in size, illustrating color and finish.

E. Manufacturer's Installation Instructions: Include any special procedures required by project conditions.

F. Installer's qualification statement.

G. Specimen warranty.

1.05 WIND PERFORMANCE REQUIREMENTS

A. Design doors to withstand positive and negative wind loads as calculated in accordance with applicable building code and detailed in structural documents.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of type specified and with at least three years documented experience.

B. Comply with applicable code for motor and motor control requirements.

1.07 WARRANTY

A. Extended Correction Period: Correct defective work within a 2-year period commencing on Date of Substantial Completion.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for electric operating equipment. Complete forms in Owner's name and register with manufacturer.

C. Finish Warranty: 5 Years

D. Parts and Hardware Warranty
   1. Parts and Hardware: 1 Year
   2. Springs: 2 Years or 50,000 cycles.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Sectional Doors:
   1. Clopay Building Products: www.clopaydoor.com/#sle.
   2. Raynor Garage Doors; ____: www.raynor.com/#sle.
   3. Cookson; //www.cooksondoor.com/.
   4. Cornell; https://www.cornelliron.com/

2.02 STEEL DOORS

A. Door Type OT: Clopay Model 3200 Doors: Stile and rail steel with solid panels; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
   1. Door Panels: Steel construction; outer steel sheet of 20 gauge, 0.0359 inch (0.91 mm) minimum thickness, flush profile; inner steel sheet of 20 gauge, 0.0359 inch (0.91 mm) minimum thickness, flat profile; core reinforcement sheet steel roll formed to channel shape, rabbeted weather joints at meeting rails; polyurethane insulation.
   2. Door Nominal Thickness: 2 inches (51 mm) thick.
   3. Exterior Finish:
      a. Factory finished with polyester baked enamel; as selected by architect from manufacturer's custom line.
   4. Interior Finish:
      a. Factory finished with polyester baked enamel; as selected by architect from manufacturer's custom line.
   5. Stile and Rail: 2 stiles per panel, 5 panels
   6. Manual Operation: Chain hoist.

2.03 ALUMINUM DOORS

A. Door Type GT: Cookson Extreme Sectional Door: https EX904: Aluminum Full View Sectional Door. Doors: Stile and rail aluminum with solid and glazed panels; standard lift operating style with track and hardware; complying with DASMA 102, Commercial application.
   1. Door Panels: Flush aluminum construction; outer aluminum sheet 2 1/8 inch (____ mm) thick; inner aluminum sheet ____ inch (____ mm) thick; flat profile; core reinforcement of ____ inch (____ mm) roll formed aluminum; rabbeted weather joints at meeting rails; insulated.
   2. Door Nominal Thickness: 2 1/8 inches (54 mm) thick.
   3. Finish: Factory powder coated; color as selected from the manufacturer's full line.

4. Glazed Lites: Three glazed lights per panel, 5 row; set in place with security glazing stops.
   a. Glazing: Tempered; insulated glass units; tinted; 5/8 inch (15.9 mm) overall thickness.
5. Solid Panel: Bottom panel - Solid Full Panel Width
6. Electric Operation: Electric control station.

2.04 COMPONENTS

A. Door Type GT Track: Rolled galvanized steel, 0.096 inch (2.43 mm) minimum thickness; 3 inch (75 mm) wide, continuous one piece per side; galvanized steel mounting brackets 1/4 inch (6 mm) thick.

B. Door Type OT Track: Rolled galvanized steel, 0.075 inch (1.91 mm) minimum thickness; 2 inch (50 mm) wide, continuous one piece per side; galvanized steel mounting brackets 1/4 inch (6 mm) thick.

C. Lift Mechanism: Torsion spring on cross head shaft, with braided galvanized steel lifting cables.
   1. Spring Counterbalance:
      a. Specialized torsion spring counterbalance mechanism sized to weight of the door. Spring to be helically wound, oil tempered, treated with secondary process to increase cycle life and reliability. Spring to be mounted on a solid steel shaft with center coupling
      b. Cable drum of die cast aluminum with high strength galvanized aircraft cable with minimum 7 to 1 safety factor. Cable to be at minimum 7-19 stranded 3/16 diameter with thimbled loop.
      c. Cable Safety Device: Snubbers to help maintain cable tension.
      d. Spring cycles:
         1) 50,000 cycles standard
         2) Maximum cycles on a single shaft.
   2. For Manual Operation: Requiring maximum exertion of 25 lbs (110 N) force to open.

D. Sill Weatherstripping: Resilient hollow rubber strip, one piece; fitted to bottom of door panel, full length contact.

E. Jamb Weatherstripping: Roll formed steel section full height of jamb, fitted with resilient weatherstripping, placed in moderate contact with door panels.

F. Head Weatherstripping: EPDM rubber seal, one piece full length.

G. Panel Joint Weatherstripping: Neoprene foam seal, one piece full length.

H. Lock: Inside side mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; interior handle.

2.05 MATERIALS

A. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G60/Z180 coating, plain surface.

B. Aluminum Sheet: ASTM B209/B209M, 5005 alloy, H14 temper, plain surface.

C. Float Glass: Provide float glass glazing, unless noted otherwise.
   1. Heat-Strengthened and Fully Tempered Types: ASTM C1048.
   2. Tinted Types: Color Gray.

2.06 ELECTRIC OPERATION

A. Electric Operators; Door Type GT:
   1. Motor Enclosure:

a. Exterior Doors: NEMA MG 00001, Type 4; open drip proof.
2. Motor Rating: ____ hp (____ W); continuous duty.
3. Motor Voltage: 208 volts, three phase, 60 Hz.
4. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
5. Controller Enclosure: NEMA EN 10250, Type 1.
6. Opening Speed: 12 inches per second (300 mm/s).
7. Brake: Adjustable friction clutch type, activated by motor controller.
8. Manual override in case of power failure.
9. See Section 260583 for electrical connections.

B. Wiring Terminations: Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated; enclose terminal lugs in terminal box sized to comply with NFPA 70.

C. Control Station: Provide standard three button (Open-Close-Stop) momentary-contact control device for each operator complying with UL 325.
1. 24 volt circuit.
2. Surface mounted, at interior door jamb.
3. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.
a. Primary Device: Provide electric sensing edge, wireless sensing, NEMA 1 photo eye sensors, or NEMA 4X photo eye sensors as required with momentary-contact control device.
b. Secondary Device: Provide electric sensing edge with wireless edge kit or non-monitored safety edge as an option along with continuous-constant control device.

D. Safety Edge: Located at bottom of sectional door panel, full width; electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object; hollow neoprene covered to provide weatherstrip seal.

E. Provide interconnection to security system.

F. Provide radio control antenna detector.

G. Hand Held Transmitter: Digital control, and resettable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that wall openings are ready to receive work and opening dimensions and tolerances are within specified limits.

B. Verify that electric power is available and of the correct characteristics.

C. If substrate preparation is the responsibility of another entity, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Prepare opening to permit correct installation of door unit to perimeter air and vapor barrier seal.

B. Apply primer to wood frame.

3.03 INSTALLATION

A. Install door unit assembly in accordance with manufacturer's instructions.

B. Anchor assembly to wall construction and building framing without distortion or stress.

C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.

D. Fit and align door assembly including hardware.

E. Coordinate installation of electrical service. Complete power and control wiring from disconnect to unit components.

F. Install perimeter trim and closures.

3.04 ADJUSTING

A. Adjust door assembly for smooth operation and full contact with weatherstripping.

3.05 CLEANING

A. Clean doors and frames and glazing.

B. Remove temporary labels and visible markings.

3.06 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

B. Do not permit construction traffic through overhead door openings after adjustment and cleaning.

END OF SECTION

SECTION 085213
METAL-CLAD WOOD WINDOWS

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. AAMA 450 - Performance Rating Method for Mulled Combination Assemblies, Composite Units, and Other Mulled Fenestration Systems; 2020.

B. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products; 2021.

C. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; 2020.

D. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

E. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

F. ASTM C1036 - Standard Specification for Flat Glass; 2021.

G. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2018.

H. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

I. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015 (Reapproved 2023).

J. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

K. ASTM F2090 - Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms; 2021.

L. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

M. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

N. WDMA I.S. 4 - Industry Specification for Preservative Treatment for Millwork; 2025.

1.02 SUMMARY

A. Section Includes: Wood-framed, aluminum-clad windows of the following types: casement and sash-set fixed.

1.03 REFERENCES

A. General: Standards listed by reference form a part of this specification section. Standards listed are identified by issuing authority, abbreviation, designation number, title or other designation. Standards subsequently referenced in this Section are referred to by issuing authority abbreviation and standard designation.

B. Forest Stewardship Council (FSC): FSC Chain-of-Custody Certification.

C. Insulating Glass Certification Council (IGCC): Insulating Glass Unit Certification.

D. Insulating Glass Manufacturers Alliance of Canada (IGMAC) and Canadian General Standards Board (CGSB): Insulating Glass Units Standard CAN/CGSB 12.8-97.

E. International Standards Organization (ISO): ISO 14021 - Environmental Labels and Declarations -- Self-Declared Environmental Claims (Type II Environmental Labeling).

F. Texas Department of Insurance: Product Evaluation WIN-1875 for compliance with wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

G. KU.S. Environmental Protection Agency (EPA): ENERGY STAR.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Meetings: Conduct pre-installation meeting to clarify Project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.

1.05 PERFORMANCE REQUIREMENTS

A. Structural Performance Requirements:
   1. Comply with requirements of NAFS.

1.06 SUBMITTALS

A. Product Data: For each type of product required.

B. Shop Drawings: Showing methods of installation, plans, sections, elevations and details of walls, specified loads, flashings, vents, sealants, and interfaces with all materials not supplied by the window manufacturer, and identification of proposed component parts and finishes.

C. Samples: Selection and verification samples for finishes, colors and textures. Submit two complete sample sets of each type of material required.

D. Certificates: Signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.

E. Test and Evaluation Reports: Showing compliance with specified performance characteristics and physical properties.

F. Manufacturer Instructions: Manufacturer installation, storage, and other instructions.

G. Sustainable Design Submittals in Compliance with ISO 14021.

H. Qualification Statements: For manufacturer and installer.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. Member in good standing of the Insulating Glass Certification Council (IGCC).
   2. Hallmark Certified Manufacturer and member in good standing of the Window and Door Manufacturers Association (WDMA).
   3. Member in good standing of the U.S. Green Building Council.
   4. U.S. EPA ENERGY STAR Partner.
   5. Capable of demonstrating an extended history of window and door design and production.

B. Installer Qualifications:
   1. Minimum five years' experience in the commercial installation of products required for the Project.
   2. Experience on at least five projects of similar size, type and complexity as the Project.
   3. An entity utilizing workers competent in techniques required by manufacturer for product types and applications indicated.

1.08 DELIVERY, STORAGE AND HANDLING

A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Deliver materials to Project in manufacturer's original unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials and accessories protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by manufacturer off ground, under cover and not exposed to weather and construction activities.

1.09 WARRANTY

A. Special Warranty: Manufacturer's transferrable, non-prorated limited warranty.
   1. Warranty Period, Glass: 20 years.
   2. Warranty Period, Non-Glass Parts: 10 years.

B. Special Warranty: Installer's standard form in which installer agrees to repair or replace windows that fail due to poor workmanship or faulty installation within the specified warranty period.
   1. Warranty Period: 2 years from date of Substantial Completion.

PART 2 PRODUCT

2.01 METAL-CLAD WOOD WINDOWS

A. General: Provide windows complying with the performance requirements indicated and tested according to NAFS.

B. Basis-of-Design Product: Subject to compliance with requirements provide Andersen Corporation: Andersen E-Series windows.

C. Substitution Limitations: All other manufacturers: Submit substitution request in accordance with Section 01 25 00 - "Substitution Procedures"

2.02 MATERIALS

A. Construction:
   1. Cladding: Extruded aluminum, minimum thickness 0.050 inch (1.27 mm).
   2. Frame: Preservative treated laminated veneer lumber.
   3. Interior Exposed Frame: Preservative treated solid lumber, kiln dried and suitable for stain or painted finish.
   4. Sash: Preservative treated solid lumber, kiln dried and suitable for stain or painted finish.

B. Wood Species: Pine

C. Interior Finish:
   1. Primed: Factory-applied before assembly. .

D. Exterior Finish:
   1. Anodized Frame: Architectural quality, in compliance with AAMA 611 Class I Black (Basis of Design) - Architect to select from manufacturer's full line.
   2. Anodized Sash: Architectural quality, in compliance with AAMA 611 Class I Black (Basis of Design) - Architect to select from manufacturer's full line.

2.03 WINDOW

A. Window Type and Performance Requirements: As indicated in window schedule
   1. Casement and Fixed Performance Class CW and Grade, Non-Impact-Resistant: PG60

B. Air Infiltration Requirements:
   1. Air Infiltration Rate: < 0.2 cfm/sf².

C. Environmental Certifications:
   1. ENERGY STAR performance requirements.
   2. Indoor air quality performance.

D. Weatherstrip:
   1. Type and Material for Hung or Gliding: Three fins and pile, polypropylene.
   2. Type and Material for Casement or Awning: Flexible tubular, vinyl.

E. Installation Flange Type: Extruded aluminum.

F. Hardware:
   1. Operator Gear Type and Material: Rotary, die-cast zinc and stainless steel components.
   2. Hinge Type and Material: Concealed hinge and track, 300 Series stainless steel.
   3. Crank Handle Type, Material and Finish: Folding, die-cast zinc, plated.
   4. Operator Cover Material and Finish: Die-cast zinc, plated.
   5. Sash Lock Type and Material: Single-actuation, die-cast zinc and engineered polymer components.
   6. Crank and Sash Lock Color: to be selected by archiect
   7. Operator Gear Type and Material: Rotary, die-cast zinc and stainless steel components.
   8. Hinge Type and Material: Piano hinge, 300 Series stainless steel.
   9. Crank Handle Type, Material and Finish: Folding, die-cast zinc, plated.
   10. Operator Cover Material and Finish: Die-cast zinc, plated.
   11. Sash Lock Type and Material: Multi-point, die-cast zinc components.
   12. Crank and Lock Lever Finish: To be selected by architect
   13. Window Opening Control Device and Color: Provide device to restrict operable sash to less than four inches maximum clear opening, releasable in compliance with ASTM F2090, To be selected by architect
   14. Window Opening Control Device: Provide device to restrict operable sash to less than four inches maximum clear opening and releasable, in compliance with ASTM F2090, To be selected by architect
   15. Sash Lock Mechanism Type and Material: Flush mounted die-cast zinc.
   16. Sash Lift Type and Material: Surface mounted die-cast zinc.
   17. Sash Lock and Lift Color: To be selected by architect
   18. Roller Type and Material: Dual adjustable, brass.
   19. Head and Sill Track Material and Color: Rigid vinyl, To be selected by architect.

G. Divided Lights:
   1. Full Divided Light: Permanent exterior and interior attachment, spacer between glass panes.
      a. Exterior Style: Chamfer.
      b. Interior Style: Ovolo
      c. Width: 5/8 inch (15.88 mm).
      d. e Spacer Color: Match insulated glass spacer color.
      e. Exterior Color: Match window
      f. Interior Finish: Match window

H. Insect Screens:
   1. Type: Conventional.
      a. Frame Material: Aluminum.
      b. Painted Finish and Color: Factory-applied baked-on silicone polyester enamel Bronze.
      c. Veneered Finish and Species: Wood veneer to match window.
      d. Insect Screen Material: Fiberglass mesh.

I. Exterior Trim and Accessories:
   1. Type: 2 inch (50.8 mm) Brick Mould.
   2. Material: Factory-applied extruded aluminum with corner keys.

3. Finish and Color: Match windows

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that all substrate conditions are suitable for installation in compliance with manufacturer's recommendations.

B. Do not begin installation until substrates have been properly prepared and any conditions not in compliance with manufacturer's recommendations have been corrected.

3.02 INSTALLATION

A. General: Comply with manufacturer's product recommendations, including but not limited to the Andersen Unit Installation Guide, installation information in product literature and on product packaging. Comply with Drawings and Shop Drawings for installing windows, hardware, accessories, and other components.

B. Install windows plumb, level and square. Anchor windows securely to structure in correct orientation to flashing and adjacent construction as indicated. Comply with product installation instructions for proper flashing integration into wall system. Install windows so as to drain water penetration to the exterior.

C. Adjust sashes, insect screens, ventilators, hardware and accessories as applicable for correct fit. Adjust weatherstrip for smooth operation and weather-tight closure.

FIELD QUALITY CONTROL

A. Manufacturer's Field Services: If requested by Owner, provide manufacturer's field service consisting of product use recommendations and periodic site visits for observation of product installation in accordance with manufacturer's recommendations.

B. Field Testing: Provide field testing of installed units.
   1. Test units in compliance with AAMA 502.
   2. Use test equipment calibrated according to ASTM E1105.

4.02 CLEANING

A. Refer to manufacturer for guidance on timing for when best to remove protective films and non-permanent labels after installation.

B. Remove excess sealant, soiling, dirt and other substances. Clean window frame and glass surfaces. Avoid damaging coatings and finishes

C. Touch-up, repair or replace glass or other window components broken, scratched or damaged during construction prior to Substantial Completion.

D. Remove and lawfully dispose of construction debris from Project site.

4.03 PROTECTION

A. Protect installed windows and finish surfaces from damage during construction until completion of Project and acceptance by Owner.

END OF SECTION

SECTION 085653
SECURITY WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Security transaction windows with pass-through device.

1.02 RELATED REQUIREMENTS

1.03 REFERENCE STANDARDS

A. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

B. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2024.

C. SSPC-Paint 33 - Coal Tar Mastic Coating, Cold-Applied; 2023.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Furnish anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, to be embedded into concrete or masonry, with setting diagrams and installation, to applicable installer in time for installation.

B. Preinstallation Meeting: Prior to start of installation arrange a meeting on site to familiarize installer and installers of related work with requirements relating to this work.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's published data showing materials, construction details, dimensions of components, and finishes.

C. Shop Drawings: Drawings prepared specifically for this project, showing plans, elevations, sections, details of construction, anchorage to other work, hardware, and glazing.

D. Test Reports: Test reports for specific window model and glazing to be furnished, showing compliance with specified requirements; window and glazing may be tested separately, provided window test sample adequately simulates the glazing to be used.
   1. Include testing agency qualifications.

E. Samples for Selection of Applied Finishes: Color charts for factory finishes.

F. Coordination Drawings: For each window opening, show locations and details of items necessary to anchor windows that must be installed by others, in sufficient detail that installer of those items can do so correctly without reference to the actual window itself.

G. Manufacturer's Qualification Statement.

H. Installer's Qualification Statement.

1.06 QUALITY ASSURANCE

A. Testing Agency Qualifications: Independent testing agency able to show experience in conducting tests of the type specified and:

1.07 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Provide manufacturer's warranty agreeing to repair or replace windows and window components that fail within three years after Date of Substantial Completion due to, but not limited to, the following:
   1. Structural failure, failure of welds, and deterioration of metals and finishes beyond that expected under detention use and normal weathering.
   2. Failure of glazing due to excessive deflection of supporting members under wind load.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Security Transaction Windows with Pass-Through Device:
   1. Architectural Armer; www.architecturalarmour.com/.
   2. Substitutions: See Section 016000 - Product Requirements.

2.02 ASSEMBLIES

A. Security and Detention Windows:
   1. Dimensions, profiles, features, and performance specified and indicated on drawings are required; do not deviate unless specifically approved by Architect under substitution procedures; see Section 016000.
   2. Design to fit openings indicated on drawings; design to accommodate deviation of actual construction from dimensions indicated on drawings.
   3. Fabricate frames and sash with corners mitered or coped full depth with concealed welded joints.
   4. Design anchorages to provide performance equivalent to that required for window unit; provide anchorages at least equivalent to those by which the tested units were anchored to the test frame.
   5. Separate dissimilar metals to prevent corrosion by galvanic action by painting contact surfaces with primer or with sealant or tape recommended by manufacturer for the purpose.
   6. Weld components before finishing and in concealed locations, to greatest extent possible; minimize distortion and discoloration of finish; remove residue of welding; grind exposed welds smooth and finish to match.
   7. Label units to indicate which side is which, such as inside/outside or secure/non-secure; use labels that are removable after installation but durable enough not to be lost during delivery, storage, handling, and installation.

2.03 SECURITY TRANSACTION WINDOWS WITH PASS-THROUGH DEVICE

A. Security Transaction Windows with Pass-Though Device:
   1. Location: Built within exterior and interior wall, as indicated on drawings.
   2. Type of Use: Walk-up.
   3. Window Type: Fixed.
      a. Overall Window Frame Size: As indicated on drawings.
      b. Frame Material: Stainless steel.
   4. Glazing: Single (monolithic), clear, and Bullet Resistant Level 1.
   5. Pass-Through Device: Drawer mounted below window and deal tray built into window sill.
      a. Operation: Manual.
      b. Transaction Drawer Size: 20 inch wide by 5 inch high by 21 inch deep (508 mm wide by 127 mm high by 533 mm deep).
      c. Material: Stainless steel.
   6. Counter Staging Area: Attendant-side.
   7. Communication: Integrated microphone, speaker, and call button.
   8. Products:

a. TSS Hole and Backer Transaction Window; https://www.tssbulletproof.com/ .
b. Substitutions: See Section 016000 - Product Requirements.

2.04 ASSEMBLY COMPONENTS

A. Formed Steel Framing: ASTM A1008/A1008M, Designation CS (commercial steel), cold-rolled steel sheet; 12 gauge, 0.1046 inch (2.66 mm) minimum thickness.

B. Stainless Steel Framing: ASTM A666/A666M, Type 304; 14 gauge, 0.0781 inch (1.98 mm) minimum thickness.

C. Frame Anchors: Mild steel plates, shapes, or bars, concealed in completed construction; provide anchorage devices as necessary to securely fasten windows to adjacent construction; use security fasteners for exposed anchors.
   1. Provide minimum of two anchors per side of window plus one additional anchor for each 18 inches (457 mm) or fraction thereof more than 36 inches (915 mm) in height or width.

D. Weatherstripping: Factory installed; molded EPDM or neoprene.

E. Glazing Seals: Factory installed; molded EPDM or neoprene compressible gaskets and compression strips.

F. Security Fasteners: Operable only by tools produced by fastener manufacturer or manufacturer's licensee; head style appropriate to installation conditions, strength, and finish of materials being fastened; use countersunk heads wherever possible.

G. Deal Trays: Formed stainless steel, recessed into counter or sill for mounting under glazing frame.
   1. Style: Plain curved recess welded into counter or sill.
   2. Clear Opening Height: 1-1/2 inches (38 mm).
   3. Tray Dimensions: 12 by 8 inches (305 by 203 mm), wide by deep.

H. Transaction Drawers: Slide-out drawer with drop down front on non-secure side and cover on secure side that closes automatically when drawer is extended; ball-bearing telescoping drawer slides.
   1. Material: Formed stainless steel.
   2. Inside Dimensions: Minimum of 15 inches (390 mm) wide by 8 inches (200 mm) deep by 4 inches (100 mm) high.

I. Bituminous Paint: Cold-applied asbestos-free asphalt mastic, complying with SSPC-Paint 33; 30 mils, 0.030 inch (0.76 mm) minimum thickness per coat.

2.05 FINISHES

A. Color: As selected by Architect from manufacturer's standard range.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that window openings are ready for installation of windows.

B. Notify Architect if conditions are not suitable for installation of windows; do not proceed until conditions are satisfactory.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions and drawing details.

B. Install windows in correct orientation (inside/outside or secure/non-secure).

C. Anchor windows securely in manner so as to achieve performance specified.

D. Separate metal members from concrete and masonry using bituminous paint.

E. Set sill members and sill flashing in continuous bead of sealant.

3.03 ADJUSTING

A. Adjust operating components for smooth operation while also providing tight fit at contact points and a secure enclosure; lubricate operating hardware.

3.04 CLEANING

A. Clean exposed surfaces promptly after installation without damaging finishes.

B. Remove and replace defective work.

3.05 CLOSEOUT ACTIVITIES

END OF SECTION

SECTION 096500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Installation accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Section 033000 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied resilient flooring.

1.03 REFERENCE STANDARDS

A. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2025a.

B. ASTM F1861 - Standard Specification for Resilient Wall Base; 2021 (Reapproved 2025).

C. ASTM F1913 - Standard Specification for Vinyl Sheet Floor Covering Without Backing; 2019 (Reapproved 2025).

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Indicate seaming plans and floor patterns.

D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

E. Verification Samples: Submit one sample, 9 by 9 inch (____by____ mm) in size illustrating color and pattern for each resilient flooring product specified, and two 3 by 3 inch samples.

F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Flooring Material: Provide minimum of 5% of each type and color.
   3. Extra Wall Base: Provide minimum of 5% of each type and color.
   4. Extra Stair Materials: Quantity equivalent to 5 percent of each type and color.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work similar to that required for this project.

B. Pre-Installation Testing: Conduct pre-installation testing as follows: Moisture tests, Bond test, and pH test.

1.07 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

D. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
   1. Material should be stored in areas that are fully enclosed and weathertight. The permanent HVAC should be fully operational, controlled and set at a minimum of 68º F (20º C) for at least 48 hours prior to the installation.

1.08 WARRANTY

A. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.

B. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

C. Warranty Period: Five (5) year limited warranty commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 SHEET FLOORING

A. Vinyl Sheet Flooring:
   1. Manufacturer: See Finish Legend.
   2. Style Name: See Finish Legend.
   3. Color: See Finish Legend.

B. Vinyl Sheet Flooring - Type _____: Homogeneous without backing, with color and pattern throughout full thickness.
   1. Minimum Requirements: Comply with ASTM F1913.
   2. Thickness: 0.080 inch (2.0 mm) nominal.

C. Vinyl Welding Rod: Solid vinyl bead produced by manufacturer of vinyl flooring for heat welding seams, in color matching field color. (See Finish Legend.)

2.02 RESILIENT TILE FLOORING

A. Luxury Vinyl Tile (LVT):
   1. Minimum Requirements: Comply with ASTM F 1700 Class III, Type B - Embossed Surface.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   3. Smoke Developed: 450 or less, when in accordance with ASTM E 662.
   4. Static Load Limit: 250 psi, when tested in accordance with ASTM F 970 (modified).
   5. Size: See Finish Legend.
   6. Durability: 0.125 inch - Very Good.
   7. Maintainability: 0.125 inch - Excellent.
   8. Resilience: 0.125 inch - Excellent.
   9. Manufacturer/ Style/ Color: See Finish Legend.

10. Provide Acoustic Underlayment

2.03 RESILIENT BASE

A. Resilient Base: ASTM F1861, Type TS rubber, vulcanized thermoset; style as scheduled.
   1. Manufacturers:
      a. Roppe Corporation: www.roppe.com/#sle.
      b. Tarkett Flooring: www.tarkett.com/#sle.
      c. Substitutions: See Section 016000 - Product Requirements.
   2. Height: See Finish Legend.
   3. Thickness: 0.125 inch (3.2 mm).
   4. Finish: As selected by Architect.
   5. Length: Roll.
   6. Color: As indicated on drawings.

2.04 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.

C. Moldings, Transition and Edge Strips: Same material as flooring, except where indicated otherwise.

D. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
   1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

D. Verify that concrete sub-floor surfaces are dry enough and ready for resilient flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F710; obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

F. Confirm tiles are square and true. Cull all non-conforming tiles.

3.02 PREPARATION

A. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

B. Prohibit traffic until filler is fully cured.

C. Clean substrate.

D. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install in accordance with manufacturer's instructions. See finish plans for pattern and tile layout.

C. Fit joints tightly. Window panes in tiles are not acceptable.

3.04 INSTALLATION - TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern.

3.05 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 72 inches (____ mm) between joints.

B. Miter internal corners. At external corners, use premolded units. At exposed ends, use premolded units.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.06 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean, seal, and wax resilient flooring in accordance with manufacturer's instructions, and also upon coordination with manufacturer's representative and Architect.

1. Apply protective floor polish to VCT resilient flooring surfaces free from soil, excess adhesive or surface blemishes. Use commercially available, metal, cross-linked acrylic product acceptable to resilient flooring manufacturer.
    a. Coordinate selection of floor polish with Owner and/or their maintenance service.
    b. Buff floor tile and provide three (3) coats (in accordance with manufacturer's recommendations) of a protective floor polish at or near the point of substantial completion.

3.07 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

3.08 SCHEDULE

A. See Drawings.

END OF SECTION

SECTION 26 3600
TRANSFER SWITCHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Transfer switches for low-voltage (600 V and less) applications.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 26 0526 - Grounding and Bonding for Electrical Systems.

C. Section 26 0529 - Hangers and Supports for Electrical Systems.

D. Section 26 0553 - Identification for Electrical Systems: Identification products and requirements.

E. Section 26 0573 - Power System Studies: Additional criteria for the selection of equipment specified in this section.

F. Section 26 3213 - Engine Generators: For interface with transfer switches.
   1. Includes code requirements applicable to work of this section.
   2. Includes additional testing requirements.
   3. Includes related demonstration and training requirements.

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

B. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

C. NEMA IA 10042-1 - Industrial Control and Systems Part 1: Electromechanical AC Transfer Switch Equipment; 2025.

D. NETA ATS - Standard for Acceptance Testing Specifications for Electrical Power Equipment And Systems; 2025.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. NFPA 110 - Standard for Emergency and Standby Power Systems; 2025.

G. UL 1008 - Transfer Switch Equipment; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate compatibility of transfer switches to be installed with work provided under other sections or by others.
      a. Engine Generators: See Section 26 3213.
   2. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances required by NFPA 70.
   3. Coordinate arrangement of equipment with the dimensions and clearance requirements of the actual equipment to be installed.
   4. Coordinate the work with placement of supports, anchors, etc. required for mounting.
   5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product, including ratings, configurations, dimensions, finishes, weights, service condition requirements, and installed features.

C. Shop Drawings: Include dimensioned plan views and sections indicating locations of system components, required clearances, and field connection locations. Include system interconnection schematic diagrams showing all factory and field connections.
   1. Clearly indicate whether proposed short circuit current ratings are based on testing with specific overcurrent protective devices or time durations; indicate short-time ratings where applicable.
   2. Identify mounting conditions required for equipment seismic qualification.

D. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, installation, and operation of product.

E. Manufacturer’s detailed field testing procedures.

F. Field quality control test reports.

G. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.

H. Project Record Documents: Record actual locations of system components, installed circuiting arrangements and routing, and final equipment settings.

1.06 QUALITY ASSURANCE

A. Comply with the following:
   1. NFPA 70 (National Electrical Code).
   2. NFPA 110 (Standard for Emergency and Standby Power Systems); meet requirements for Level 2 system.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store transfer switches in accordance with manufacturer's instructions.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's instructions to avoid damage to transfer switch components, enclosure, and finish.

1.08 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Provide minimum one year manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Transfer Switches:
   1. ABB/GE: www.electrification.us.abb.com/#sle.

2. Eaton Corporation: www.eaton.com/#sle.
3. Rehlko: www.powersystems.rehlko.com/#sle.
4. Schneider Electric; ASCO Power Technologies: www.ascopower.com/#sle.
5. Thomson Power Systems: www.thomsonps.com/#sle.
6. Kohler Co: www.kohlerpower.com/#sle.

2.02 TRANSFER SWITCHES

A. Provide complete power transfer system consisting of all required equipment, conduit, boxes, wiring, supports, accessories, system programming, etc. as necessary for a complete operating system that provides the functional intent indicated.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Applications:

D. Construction Type: Either "contactor type" (open contact) or "breaker type" (enclosed contact) transfer switches complying with specified requirements are acceptable.

E. Automatic Transfer Switch:
   1. Transfer Switch Type: As indicated on the drawings.
   2. Transition Configuration: Open-transition (no neutral position).
   3. Voltage: As indicated on the drawings.
   4. Ampere Rating: As indicated on the drawings.
   5. Neutral Configuration: Solid neutral (unswitched), except as indicated.
   6. Load Served: As indicated on the drawings.
   7. Primary Source: As indicated on the drawings.
   8. Alternate Source: As indicated on the drawings.

F. Comply with NEMA IA 10042-1, and list and label as complying with UL 1008 for the classification of the intended application (e.g. emergency, optional standby).

G. Do not use double throw safety switches or other equipment not specifically designed for power transfer applications and listed as transfer switch equipment.

H. Load Classification: Classified for total system load (any combination of motor, electric discharge lamp, resistive, and tungsten lamp loads with tungsten lamp loads not exceeding 30 percent of the continuous current rating) unless otherwise indicated or required.

I. Switching Methods:
   1. Open Transition:
      a. Provide break-before-make transfer without a neutral position that is not connected to either source, and with interlocks to prevent simultaneous connection of the load to both sources.
   2. Obtain control power for transfer operation from line side of source to which the load is to be transferred.

J. Service Conditions: Provide transfer switches suitable for continuous operation at indicated ratings under the service conditions at the installed location.

K. Enclosures:
   1. Environment Type per NEMA EN 10250: Unless otherwise indicated, as specified for the following installation locations:
      a. Indoor Clean, Dry Locations: Type 1 or Type 12.
      b. Outdoor Locations: Type 3R or Type 4.
   2. Provide lockable door(s) for outdoor locations.
   3. Finish: Manufacturer's standard unless otherwise indicated.

L. Short Circuit Current Rating:

1. Withstand and Closing Rating: Provide transfer switches, when protected by the supply side overcurrent protective devices to be installed, with listed withstand and closing rating not less than the available fault current at the installed location as determined by short circuit study performed in accordance with Section 26 0573.
2. Short Time Rating: Where the requirement for selectivity is indicated, provide transfer switches with short time ratings suitable for the maximum short time delay setting of the supply side overcurrent protective device.

M. Automatic Transfer Switches:
1. Description: Transfer switches with automatically initiated transfer between sources; electrically operated and mechanically held.
2. Control Functions:
   a. Automatic mode.
   b. Test Mode: Simulates failure of primary/normal source.
   c. Voltage and Frequency Sensing:
      1) Undervoltage sensing for each phase of primary/normal source; adjustable dropout/pickup settings.
      2) Undervoltage sensing for alternate/emergency source; adjustable dropout/pickup settings.
      3) Underfrequency sensing for alternate/emergency source; adjustable dropout/pickup settings.
   d. Outputs:
      1) Contacts for engine start/shutdown (except where direct generator communication interface is provided).
      2) Auxiliary contacts; one set(s) for each switch position.
   e. Adjustable Time Delays:
      1) Engine generator start time delay; delays engine start signal to override momentary primary/normal source failures.
      2) Transfer to alternate/emergency source time delay.
      3) Retransfer to primary/normal source time delay.
      4) Engine generator cooldown time delay; delays engine shutdown following retransfer to primary/normal source to permit generator to run unloaded for cooldown period.
   f. In-Phase Monitor (Open Transition Transfer Switches): Monitors phase angle difference between sources for initiating in-phase transfer.
   g. Engine Exerciser: Provides programmable scheduled exercising of engine generator selectable with or without transfer to load; provides memory retention during power outage.
3. Status Indications:
   a. Connected to alternate/emergency source.
   b. Connected to primary/normal source.
   c. Alternate/emergency source available.
4. Automatic Sequence of Operations:
   a. Upon failure of primary/normal source for a programmable time period (engine generator start time delay), initiate starting of engine generator where applicable.
   b. When alternate/emergency source is available, transfer load to alternate/emergency source after programmable time delay.
   c. When primary/normal source has been restored, retransfer to primary/normal source after a programmable time delay. Bypass time delay if alternate/emergency source fails and primary/normal source is available.
   d. Where applicable, initiate shutdown of engine generator after programmable engine cooldown time delay.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings and configurations of transfer switches are consistent with the indicated requirements.

C. Verify that rough-ins for field connections are in the proper locations.

D. Verify that mounting surfaces are ready to receive transfer switches.

E. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Arrange equipment to provide minimum clearances and required maintenance access.

D. Provide required support and attachment in accordance with Section 26 0529.

E. Install transfer switches plumb and level.

F. Unless otherwise indicated, mount floor-mounted transfer switches on properly sized 3 inch high concrete pad constructed in accordance with Section 03 3000.

G. Provide grounding and bonding in accordance with Section 26 0526.

H. Identify transfer switches and associated system wiring in accordance with Section 26 0553.

3.03 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Prepare and start system in accordance with manufacturer's instructions.

C. Automatic Transfer Switches:
   1. Inspect and test in accordance with NETA ATS, except Section 4.
   2. Perform inspections and tests listed in NETA ATS, Section 7.22.3. The insulation-resistance tests listed as optional are not required.

D. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.

3.04 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.05 CLOSEOUT ACTIVITIES

A. Demonstration: Demonstrate proper operation of transfer switches to Owner, and correct deficiencies or make adjustments as directed.

B. Training: Train Owner's personnel on operation, adjustment, and maintenance of transfer switches.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.

C. Coordinate with related generator demonstration and training as specified in Section 26 3213.

3.06 PROTECTION

A. Protect installed transfer switches from subsequent construction operations.

END OF SECTION 26 3600

SECTION 323500
SCREENING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Plastic screening devices.

B. Aluminum Support Framing

C. Operable gates for access through screens

D. Concrete footings.

1.02 RELATED REQUIREMENTS

A. Section 033000 - Cast-in-Place Concrete.

B. Section 042000 - Unit Masonry.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

C. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

D. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2024.

E. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2024a.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Provide data on posts, panels, accessories, fittings, and hardware.

C. Shop Drawings: Indicate plan layout, post foundation dimensions, hardware anchorage, and spacing and schedule of components.

D. Manufacturer's Instructions: Indicate design requirements and installation procedure.

E. Manufacturer's qualification statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least 3 years of documented experience.

PART 2 PRODUCTS

2.01 MATERIALS

A. Plastic Screening Devices:
   1. Posts: 5 by 5 inches (13 by 13 cm), minimum.
      a. Internal Reinforcement: ASTM A36/A36M, galvanized steel, 11-gauge, 0.125-inch (0.318 cm) Z-shape.
   2. Panels: Impact- and UV-resistant, rotational molded, linear low-density polyethylene (LLDPE) plastic shell, with manufacturer's standard galvanized steel reinforcement in top and bottom of panel.
      a. Size: 48 by 70 inches (122 by 178 cm).
      b. Color: As indicated on drawings.

c. Finish: Smooth.

B. Metal Screening Devices:
1. Posts: Aluminum, extruded in accordance with ASTM B221.
2. Panels: PVC, in accordance with ASTM B209/B209M.
a. Pattern: Solid.
b. Color: As selected by owner.
c. Finish: Smooth.
3. Products:
a. CityScapes Inc; TOUGHGATE: www.cityscapesinc.com/#sle.
b. Substitutions: See Section 016000 - Product Requirements.

C. Concrete Footings:
1. Designed according to manufacturer's recommendations.
2. Normal Weight Concrete:
a. Compressive Strength: 3,000 psi (20.7 MPa) when tested in accordance with ASTM C39/C39M at 28 days.
b. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
c. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
d. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
e. Water-Cement Ratio: Maximum 40 percent by weight.
f. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
g. Maximum Slump: 3 inches (7.5 cm).
h. Maximum Aggregate Size: 5/8 inch (1.6 cm).

PART 3 EXECUTION

3.01 INSTALLATION

A. Concrete Footings:
1. Install according to manufacturer's recommendations.

B. Plastic Screening Devices:
1. Install according to manufacturer's written instructions.
2. Post Framing:
a. Embed posts 3 feet (1 m) in concrete footings.
b. Set posts level and plumb in position indicated on drawings.
c. Make provisions for erection loads and sufficient temporary bracing to maintain structure plumb and in true alignment until completion of erection and installation of permanent bracing.
3. Panel Sheathing:
a. Securely fasten to posts.

C. Metal Screening Devices:
1. Install according to manufacturer's written instructions.
2. Post Framing:
a. Embed posts 3 feet (1 m) in concrete footings.
b. Set posts level and plumb in position indicated on drawings.
c. Make provisions for erection loads and sufficient temporary bracing to maintain structure plumb and in true alignment until completion of erection and installation of permanent bracing.
3. Panel Sheathing:
a. Securely fasten to posts.

3.02 PROTECTION

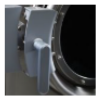
A. Protect installed screening device from subsequent construction operations.

B. Touch up, repair, or replace damaged products.

END OF SECTION

UW SERIES HIGH-PERFORMANCE HARDMOUNT WASHER-EXTRACTOR

85 LB CAPACITY - UWT085V4


For high-capacity on-premises laundries whose operation demands the best of the best, there's no other choice than UniMac® high-performance washer-extractors. Durable construction, industry-leading efficiency and exclusive innovations like UniLinc Touch and OPTispray™ combine to deliver lower costs and higher throughput than any other laundry machine on the planet. Whether you operate a hotel, long-term care facility or any other on-premises laundry, UniMac has a washer extractor for you. With a full line of versatile, industrial-strength commercial laundry machines, we have a solution to suit any on-premises laundry needs.

Model number: UWT085V4

Control: UniLinc Touch

Resources: ARCAT SpecWizard, BIM Objects Online, CAD Symbols

View Controls View Literature

AVAILABLE OPTIONS

45 LB | 65 LB | **85 LB** | 105 LB | 130 LB | 160 LB | 200 LB

SPECIFICATIONS

Control Options	UniLinc™ Touch
Capacity – lb (kg)	85 (38.5)
Cylinder Diameter – in (mm)	36 (914)
Cylinder Depth – in (mm)	22 (559)
Cylinder Volume – cu. ft. (liters)	13 (368)
Height – in (mm)	67.6 (1717)
Width – in (mm)	40.1 (1019)
Depth – in (mm)	51.2 (1300)
Door Opening Size – in (mm)	21 (533)
Door Bottom To Floor – in (mm)	28.8 (732)
Motor Size – HP (kW)	7.5 (5.6)
Total # of Speeds	9
Cylinder Speed – RPM (G-Force)	V Speed
Gentle	28 (.40)
Wash	39 (.78)
Distribution	70 (2.5)
Very Low	230 (27)
Low	443 (100)
Medium	542 (150)
High	626 (200)
Very High	700 (250)
Ultra High	766 (300)

Drain Diameter – in (mm)	2 @ 3 (76)
Steam Connection – in (mm)	1/2 (13)
Water Inlet Connection – in (mm)	4 @ 3/4 (19)
Shipping Dimensions Approx.	
Width – in (mm)	43.2 (1097)
Depth – in (mm)	61.8 (1570)
Height – in (mm)	69.4 (1763)
Net Weight – lb (kg)	1670 (757)
Domestic Shipping Weight – lb (kg)	1720 (780)
Export Shipping Weight – lb (kg)	1870 (848)
Agency Approvals	UL