

SECTION 08710

FINISH HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

- 1. Mechanical and electrified door hardware for:
 - a. Swinging doors and gates.

B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

- 1. Windows
- 2. Cabinets (casework), including locks in cabinets
- 3. Signage
- 4. Toilet accessories
- 5. Overhead doors

C. Related Sections:

- 1. Division 01 Section "Alternates" for alternates affecting this section.
- 2. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
- 3. Division 26 sections for connections to electrical power system and for low-voltage wiring.
- 4. Division 28 sections for coordination with other components of electronic access control system.

1.3 REFERENCES

A. UL - Underwriters Laboratories

- 1. UL 10B - Fire Test of Door Assemblies
- 2. UL 10C - Positive Pressure Test of Fire Door Assemblies
- 3. UL 1784 - Air Leakage Tests of Door Assemblies
- 4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Key Systems and Nomenclature

C. ANSI - American National Standards Institute

1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.4 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.
2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.

B. Action Submittals:

1. Product Data: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier in like-new condition. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
 - a. Door Index; include door number, heading number, and Architects hardware set number.
 - b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
 - c. Type, style, function, size, and finish of each hardware item.
 - d. Name and manufacturer of each item.

- e. Fastenings and other pertinent information.
- f. Location of each hardware set cross-referenced to indications on Drawings.
- g. Explanation of all abbreviations, symbols, and codes contained in schedule.
- h. Mounting locations for hardware.
- i. Door and frame sizes and materials.
- j. Name and phone number for local manufacturer's representative for each product.
- k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components).
Operational description should include how door will operate on egress, ingress, and fire and smoke alarm connection.
 - 1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.

5. Key Schedule [Provided by DPSS]:

- a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
- b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
- d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
- e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
 - 1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
- f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

C. Informational Submittals:

- 1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
- 2. Product Certificates for electrified door hardware, signed by manufacturer:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
- 3. Certificates of Compliance:
 - a. Certificates of compliance for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.
 - b. Installer Training Meeting Certification: Letter of compliance, signed by Contractor, attesting to completion of installer training meeting specified in "QUALITY ASSURANCE" article, herein.

- c. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in "QUALITY ASSURANCE" article, herein.
 - 4. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by qualified testing agency, for door hardware on doors located in accessible routes.
 - 5. Warranty: Special warranty specified in this Section.
- D. Closeout Submittals:
- 1. Operations and Maintenance Data : Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Name, address, and phone number of local representative for each manufacturer.
 - d. Parts list for each product.
 - e. Final approved hardware schedule, edited to reflect conditions as-installed.
 - f. Final keying schedule
 - g. Copies of floor plans with keying nomenclature
 - h. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
 - i. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.5 QUALITY ASSURANCE

- A. Product Substitutions: Comply with product requirements stated in Division 01 and as specified herein.
 - 1. Where specific manufacturer's product is named and accompanied by "No Substitute," including make or model number or other designation, provide product specified. (Note: Certain products have been selected for their unique characteristics and particular project suitability.)
 - a. Where no additional products or manufacturers are listed in product category, requirements for "No Substitute" govern product selection.
 - 2. Where products indicate "acceptable manufacturers" or "acceptable manufacturers and products", provide product from specified manufacturers, subject to compliance with specified requirements and "Single Source Responsibility" requirements stated herein.
- B. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
 - 1. Warehousing Facilities: In Project's vicinity.
 - 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 - 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

4. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
 - a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

- C. Installer Qualifications: Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.

- D. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC).
 2. Can provide installation and technical data to Architect and other related subcontractors.
 3. Can inspect and verify components are in working order upon completion of installation.
 4. Capable of producing wiring diagrams.
 5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.

- E. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
 1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.
 2. Manufacturers that perform electrical modifications and that are listed by testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

- F. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

- G. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

- H. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

- I. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release latch. Locks do not require use of key, tool, or special knowledge for operation.

- J. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in "REFERENCES" article, herein.
 1. Provide operating devices that do not require tight grasping, pinching, or twisting of wrist and that operate with force of not more than 5 lbf (22.2 N).
 2. Maximum opening-force requirements:

- a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
 - b. Sliding or Folding Doors: 5 lbf (22.2 N) applied parallel to door at latch.
 - c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
3. Bevel raised thresholds with slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
 4. Adjust door closer sweep periods so that, from open position of 70 degrees, door will take at least 3 seconds to move to 3 inches (75 mm) from latch, measured to leading edge of door.
- K. Pre-installation Conference: Conduct conference at Project site.
1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 2. Inspect and discuss preparatory work performed by other trades.
 3. Inspect and discuss electrical roughing-in for electrified door hardware.
 4. Review sequence of operation for each type of electrified door hardware.
 5. Review required testing, inspecting, and certifying procedures.
- L. Coordination Conferences:
1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
 - a. Attendees: Door hardware supplier, door hardware installer, Contractor.
 - b. After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.
 2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.
 - a. Attendees: electrified door hardware supplier, doors and frames supplier, electrified door hardware installer, electrical subcontractor, EDA, DPSS, Architect and Contractor.
 - b. After meeting, provide letter of compliance to Architect, indicating when coordination conference was held and who was in attendance.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
 1. Deliver each article of hardware in manufacturer's original packaging.
- C. Project Conditions:
 1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

2. Provide secure lock-up for door hardware delivered to Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

D. Protection and Damage:

1. Promptly replace products damaged during shipping.
2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

E. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.7 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.
- F. Direct shipments not permitted, unless approved by Contractor.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Years from date of Substantial Completion, for durations indicated.
 - a. Closers:
 - 1) Mechanical: 30 years.
 - b. Locksets:
 - 1) Mechanical: 3 years.
 - 2) Electrified: 1 year.
 - c. Key Blanks: Lifetime

2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and particular project suitability to insure continuity of existing and future performance and maintenance standards. After investigating available product offerings Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- E. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

- A. Fasteners
 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
 4. Install hardware with fasteners provided by hardware manufacturer.
- B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
 1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.3 HINGES

A. Provide three-knuckle, concealed bearing hinges.

1. Manufacturers and Products:

- a. Scheduled Manufacturer and Product: Ives 3CB series
- b. Acceptable Manufacturers and Products: Hager AB series, McKinney TA series

B. Requirements:

1. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
2. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
3. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
4. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
5. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
6. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
7. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
8. Doors 36 inches (914 mm) wide or less furnish hinges 4-1/2 inches (114 mm) high; doors greater than 36 inches (914 mm) wide furnish hinges 5 inches (127 mm) high, heavy weight or standard weight as specified.
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
10. Provide mortar guard for each electrified hinge specified, unless specified in hollow metal frame specification.
11. Provide spring hinges where specified. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Provide one additional bearing hinge for each 30 inches (762 mm) of additional door height.

2.4 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.5 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Yale 5400 Series – No Substitute

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1. Cylinders: Refer to "KEYING" article, herein.
2. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2 inch latch throw. Provide proper latch throw for UL listing at pairs.
3. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
4. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
5. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
6. Provide electrified options as scheduled in the hardware sets.
7. Lever Trim: Solid cast levers without plastic inserts, and wrought roses on both sides.
 - a. Lever Design: Yale AU.

2.6 ELECTRIC STRIKES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: HES 9600 series – No Substitute

B. Requirements:

1. Provide electric strikes designed for use with type of locks shown at each opening.
2. Provide electric strikes UL Listed as burglary-resistant.
3. Where required, provide electric strikes UL Listed for fire doors and frames.
4. Provide fail-secure type electric strikes, unless specified otherwise.
5. Coordinate voltage and provide transformers and rectifiers for each strike as required.

2.7 POWER SUPPLIES:

1. Scheduled Manufacturer and Product: HES SmartPac 2005 series
2. Acceptable Manufacturers and Products: Von Duprin PS900 Securitron BPS series, Security Door Controls 600 series

B. Requirements:

1. Provide power supplies, recommended and approved by manufacturer of electrified locking component, for operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring power supply.
2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
4. Options:
 - a. Provide power supply, where specified, with internal capability of charging sealed backup batteries 24 VDC, in addition to operating DC load.
 - b. Provide sealed batteries for battery back-up at each power supply where specified.
 - c. Provide keyed power supply cabinet.
5. Provide power supply in an enclosure, complete, and requiring 120VAC to fused input.
6. Provide power supply with emergency release terminals, where specified, that allow release of all devices upon activation of fire alarm system complete with fire alarm input for initiating "no delay" exiting mode.

2.8 CYLINDERS

A. Manufacturer and Product:

1. Scheduled Manufacturer and Product: Schlage Classic "C"
2. Approved Manufacturers and Products: No Substitute.

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cylinders; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Nickel silver bottom pins.

2.9 KEYING

A. Permanent keying/key system provided by DPSS

B. Requirements:

1. Provide keys with the following features:
 - a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
2. Quantity: Confirm quantities with DPSS prior to procurement.

- a. Change (Day) Keys: 3 per cylinder/core.
- b. Permanent Control Keys: 3.
- c. Master Keys: 6.
- d. Unused balance of key blanks shall be furnished to Owner with the cut keys.

2.10 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: LCN 1460 series
2. Acceptable Manufacturers and Products: Norton 8501/8501BF series, Sargent 1331 series, Yale 3501/3501BF series

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory.
2. Provide door closers with fully hydraulic, full rack and pinion action cylinder.
3. Closer Body: 1-1/4 inch (32 mm) diameter, with 5/8 inch (16 mm) diameter heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Pressure Relief Valve (PRV) Technology: not permitted.
8. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.11 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide push plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick and beveled 4 edges. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
2. Provide push bars of solid bar stock, diameter and length as scheduled. Provide push bars of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
4. Provide flush pulls as scheduled. Where required, provide back-to-back mounted model.
5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
6. Provide pull plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.

7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
8. Provide decorative pulls as scheduled. Where required, mount back to back with pull.

2.12 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Requirements:

1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:
 - a. Kick Plates: 10 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - b. Mop Plates: 4 inches (102 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
 - c. Armor Plates: 36 inches (914 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

2.13 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers: Glynn-Johnson
2. Acceptable Manufacturers: Rixson, Sargent

B. Requirements:

1. Provide heavy duty concealed mounted overhead stop or holder as specified for exterior and interior vestibule single acting doors.
2. Provide heavy duty concealed mounted overhead stop or holder as specified for double acting doors.
3. Provide heavy or medium duty and concealed or surface mounted overhead stop or holder for interior doors as specified. Provide medium duty surface mounted overhead stop for interior doors and at any door that swings more than 140 degrees before striking wall, open against equipment, casework, sidelights, and where conditions do not allow wall stop or floor stop presents tripping hazard.
4. Where overhead holders are specified provide friction type at doors without closer and positive type at doors with closer.

2.14 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives
2. Acceptable Manufacturers: Burns, Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.

2.15 COAT HOOKS

A. Manufacturers:

1. Scheduled Manufacturer: Ives.
2. Acceptable Manufacturers: Burns, Rockwood

B. Provide coat hooks as specified.

2.16 FINISHES

A. Finish: BHMA 626/652 (US26D); except:

1. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
2. Protection Plates: BHMA 630 (US32D)
3. Overhead Stops and Holders: BHMA 630 (US32D)
4. Door Closers: Powder Coat to Match
5. Wall Stops: BHMA 630 (US32D)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 2. Custom Steel Doors and Frames: HMMA 831.
 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- H. Lock Cylinders: Install construction cores to secure building and areas during construction period.
- I. Wiring: Coordinate with Division 26, ELECTRICAL sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Testing and labeling wires with Architect's opening number.
- J. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless approved by Architect.
- K. Closer/holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- L. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
 - 1. Configuration: Provide [least number of power supplies required to adequately serve doors] with electrified door hardware.
- M. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- N. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- O. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- P. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.3 FIELD QUALITY CONTROL

- A. Architectural Hardware Consultant: Engage qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - 1. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DEMONSTRATION

- A. Provide training for Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section "Demonstration and Training."

3.7 DOOR HARDWARE SCHEDULE

- A. Locksets, exit devices, and other hardware items are referenced in the following hardware sets for series, type and function. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.
- B. Hardware Sets:

Hardware Set 01 - Storeroom

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	STOREROOM LOCK	SI-AU5405LN X 497 X 202	626	YAL
1 EA	FSIC CORE	23-030 OBV	626	SCH
1 EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE

Aluminum door frames have integrated perimeter door seals.

Hardware Set 02 - Regional Manager's Office

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	ENTRANCE LOCK	SI-AU5407LN X 497 X 202	626	YAL
1 EA	FSIC CORE	23-030 OBV	626	SCH
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE
1 EA	COAT AND HAT HOOK	582	626	IVE

Aluminum door frames have integrated perimeter door seals.

Hardware Set 03 - Supervisor's Office

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	PASSAGE LATCH	AU5401LN X 497 X 202	626	YAL
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE
1 EA	COAT AND HAT HOOK	582	626	IVE

Aluminum door frames have integrated perimeter door seals.

Hardware Set 04 - Men's Toilet Room

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	PUSH PLATE	8200 6" X 16"	630	IVE
1 EA	PULL PLATE	8303 10" 6" X 16"	630	IVE
1 EA	SURFACE CLOSER	1461 EDA FC TBSRT	689	LCN
1 EA	BLADE STOP SPACER	1460-61	689	LCN
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE
1 SET	ADA SIGNAGE (MEN)	SBH12M-1 X SB445	BLK	SBH

Aluminum door frames have integrated perimeter door seals.

Hardware Set 05 - Women's Toilet Room

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	PUSH PLATE	8200 6" X 16"	630	IVE
1 EA	PULL PLATE	8303 10" 6" X 16"	630	IVE
1 EA	SURFACE CLOSER	1461 EDA FC TBSRT	689	LCN
1 EA	BLADE STOP SPACER	1460-61	689	LCN
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE
1 SET	ADA SIGNAGE (WOMEN)	SBH12W-1 X SB443	BLK	SBH

Aluminum door frames have integrated perimeter door seals.

Hardware Set 06 - Access Controlled Opening (out-swing)

Qty	Description	Catalog Number	Finish	Mfr
2 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	ELECTRIC HINGE	3CB1 4.5 X 4.5 TW8	652	IVE
1 EA	ELEC PANIC DEVICE	LD-AX-98-L-E996-06-FSE	630	VON
1 EA	RIM CYLINDER	20-057 OBV	626	SCH
1 EA	SURFACE CLOSER	1461 EDA FC TBSRT	689	LCN
1 EA	BLADE STOP SPACER	1460-61	689	LCN
1 EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE
1 EA	POWER SUPPLY	PS902 ACCESS CONTROL BY OTHERS CARD READER BY OTHERS	LGR	SCE

Aluminum door frames have integrated perimeter door seals.

Door frame manufacturer to provide rim strike mounting plate if frame has blade style stops.

Hardware Set 07 - Break Room

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	PASSAGE LATCH	AU5401LN X 497 X 202	626	YAL
1 EA	SURFACE CLOSER	1461 H FC TBSRT	689	LCN
1 EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE

Aluminum door frames have integrated perimeter door seals.

Hardware Set 08 - Conference Room

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	CLASSROOM LOCK	SI-AU5408LN X 497 X 202	626	YAL
1 EA	FSIC CORE	23-030 OBV	626	SCH
1 EA	SURFACE CLOSER	1461 H FC TBSRT	689	LCN
1 EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1 EA	WALL STOP	WS406/407CVX [REQUIRES WALL BACKING]	630	IVE

Aluminum door frames have integrated perimeter door seals.

Hardware Set 09 - Storage Closet (Single)

Qty	Description	Catalog Number	Finish	Mfr
3 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	STOREROOM LOCK	SI-AU5405LN X 497 X 202	626	YAL
1 EA	FSIC CORE	23-030 OBV	626	SCH
1 EA	OH STOP & HOLDER	450F	630	GLY

Aluminum door frames have integrated perimeter door seals.

Hardware Set 10 - Storage Closet (Pair)

Qty	Description	Catalog Number	Finish	Mfr
6 EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1 EA	CONST LATCHING BOLT	FB51T 24"	630	IVE
1 EA	STOREROOM LOCK	SI-AU5405LN X 497 X 202	626	YAL
1 EA	FSIC CORE	23-030 OBV	626	SCH
2 EA	OH STOP & HOLDER	450F	630	GLY

Aluminum door frames have integrated perimeter door seals.

Hardware Set G-01 - Access Controlled Gates

Qty	Description	Catalog Number	Finish	Mfr
3 EA	SELF CLOSING GATE HINGE	108SF AT90 W	BLK	DDT
1 EA	DOOR CORD	788-18	626	SCE
1 EA	PANIC HARDWARE	LD-AX-98-L-NL-06-WH	630	VON
1 EA	RIM CYLINDER	20-057 OBV	626	SCH
1 EA	ELECTRIC STRIKE	9600-LBSM-2005M3-24V	630	HES
		ACCESS CONTROL BY OTHERS		
		CARD READER BY OTHERS		

Self-closing gate hinge application on gates up to 260 lbs. Gate closing hinge may not comply with 5 lb. operational force requirement.

D & D Technologies (gate hinge manufacturer) does not recommend using (3) hinges (quantity specified due to the unknown weight of the gate). D & D has indicated (3) can be used as long as they're in perfect alignment. The gate manufacturer can substitute if they have a tested/proven self-closing hinge or hinge and closer application that comply with the 5lb operational force requirement.

End of Section

SECTION 08800

GLAZING

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 SUMMARY

Section includes High performance architectural insulating glass.

1.03 REFERENCES

- A. ANSI Z97.1 - American National Standard for Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test.
- B. ASCE 7 - "Minimum Design Loads for Buildings and Other Structures".
- C. ASTM International (ASTM):
 - 1. ASTM C 162 - Standard Terminology of Glass and Glass Products.
 - 2. ASTM C 1036 - Standard Specification for Flat Glass.
 - 3. ASTM C 1048 - Standard Specification for Heat-Treated Flat Glass -- Kind HS, Kind FT Coated and Uncoated Glass.
 - 4. ASTM C 1172 - Standard Specification for Laminated Architectural Flat Glass.
 - 5. ASTM C 1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass.
 - 6. ASTM E 2188 - Standard Test Method for Insulating Glass Unit Performance.
 - 7. ASTM E 2189 - Standard Test Method for Testing Resistance to Fogging in Insulating Glass Units.
 - 8. ASTM E 2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.

1.04 DEFINITIONS

- A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or other specified gas.
- D. Sealed Insulating Glass Unit Surface Designations:
 - 1. Surface 1 - Exterior surface of the outer glass lite.
 - 2. Surface 2 - Interspace surface of the outer glass lite.
 - 3. Surface 3 - Interspace surface of the inner glass lite.
 - 4. Surface 4 - Interior surface of the inner glass lite.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: PPG Certified Fabricator Network, as acceptable to the manufacturer.

- B. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance; and who employs glass installers for this Project who are certified under the National Glass Association Glazier Certification Program as Level 2 (Senior Glaziers) or Level 3 (Master Glaziers).
- C. Source Limitations for Glass: Obtain the following through one source from a single manufacturer for each glass type.
- D. Glass Product Testing: Obtain glass test results for product test reports in "Submittals" Article from a qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- E. Glazing Publications: Comply with published recommendations of glass product manufacturers and industry organizations, including but not limited to those below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 - 1. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."
 - 2. GANA Publications: "Laminated Glazing Reference Manual"; "Glazing Manual."
- F. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of the following testing and inspecting agency:
 - 1. Insulating Glass Certification Council.
 - 2. Associated Laboratories, Inc.
- G. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, for wired glass, ANSI Z97.1.
 - 1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.
 - 2. Lites more than 9 square feet (sf) (0.84 sq. m) in area are required to be Category II materials.
 - 3. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2 articles for glazing lites more than 9 sf in area, provide glazing products that comply with Category II materials, and for lites 9 sf. or less in area, provide glazing products that comply with Category I or II materials.

1.06 PERFORMANCE REQUIREMENTS

- A. General: Provide glass capable of withstanding thermal movement and wind and impact loads (where applicable) as specified in paragraph B following.
- B. Glass Design: Glass thickness designations indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites in the thickness designations indicated for various size openings, but not less than thicknesses and in strengths (annealed or heat treated) required to meet or exceed the following criteria:
 - 1. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 - 2. Design Wind Loads: Determine design wind loads applicable to the Project according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.

- a. Basic Wind Speed: 85 mph
 - b. Importance Factor: 1.5
 - c. Exposure Category: C
 - d. Wind Load Duration: Short duration, as defined in ASTM E 1300 or ASCE 7-05 for 3-second gust wind speed.
 - e. For monolithic-glass lites heat treated to resist wind loads.
 - f. For insulating glass.
- C. Thermal Movements: Provide glazing that allows for thermal movements resulting from ambient and surface temperatures changes acting on glass framing members and glazing components.
- D. Thermal and Optical Performance Properties: Provide glass with performance properties specified based on manufacturer's published test data, as determined according to procedures indicated below:
- 1. For monolithic-glass lites, properties are based on units with lites 1/4 inch (6.0 mm) thick.
 - 2. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.
 - 3. Center-of-Glass Values: Based on using LBL-44789 WINDOW 5.0 computer program for the following methodologies:
 - 4. U-Factors: NFRC 100 expressed as Btu/ sq. ft. per h per degree F.
 - 5. Solar Heat Gain Coefficient: NFRC 200.
 - 6. Solar Optical Properties: NFRC 300.

1.07 SUBSTITUTIONS

Substitutions will be considered per General Conditions Article 3.11.4 and Section 01630.

1.08 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Product Data: For each glass product and glazing material indicated.
- C. Verification Samples: For the following products, in the form of 12 inch (305 mm) square samples for insulating glass units.
- D. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.
- E. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is certified by coating manufacturer.
- F. Qualification Data: For installers.
- G. Product Test Reports: For each of the types of glazing products.
- H. Warranties: Special warranties specified in this Section.

1.09 PRODUCT HANDLING

- A. Comply with the requirements of Section 01620.
- B. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes,

direct exposure to sun, or other causes.

- C. For insulating-glass units that will be exposed to substantial altitude changes, comply with insulating-glass manufacturer's written recommendations for venting and sealing to avoid hermetic seal ruptures.

1.10 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: None required
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

1. Warranties listed in this Section shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.

2. Manufacturer's Warranty on Insulating Glass: Manufacturer's standard form in which the insulating glass unit manufacturer agrees to replace insulating-glass units that deteriorate during normal use within the specified warranty period. Deterioration of insulating glass units is defined as an obstruction of vision by dust, moisture, or a film on the interior surfaces of the glass caused by a failure of the hermetic seal that is not attributed to glass breakage, improper installation, or cleaning and maintenance that is contrary to the manufacturer's written instructions.

Warranty Period: 5-years from date of Substantial Completion.

PART 2 -- PRODUCTS

2.01 ACCEPTABLE GLASS MANUFACTURERS

- A. Insulated Glass: PPG Industries, Inc.
- B. Security Glazing: Nippon Electric Glass Company (800) 426-0279.
- C. Clear Fire-Rated Window Glazing: Pyrobel by Interedge (877) 376-3343.
- D. Clear Fire-Rated Door/Sidelight Glazing: PyroEdge or Pyrobel by Interedge (877) 376-3343.

2.02 GLASS MATERIALS (As indicated on the Window Schedule):

- A. General: Exposed "tong" marks are not acceptable.
- B. Interior Tempered Glass: Clear, Tempered ¼" thick. Grade B (tempered), Style I (uncoated), Type I (float or plate).
- C. Insulated Glass Units: Double pane ¼" units with edge seal; interpane ½" space purged with dry hermetic air; total unit thickness of 1 inch. Tempered as required by Code and indicated on drawings. Tinting as indicated on Window Schedule.
- D. Interior Wired Glass: 1/4" clear wire glass.
- E. Interior laminated glazing - one way: Two pieces of 1/8" clear float glass, tempered as required by code, laminated with .030 in. polyvinyl butyl plastic interlayer conforming to 16CFR 1201 Category II for one-way glazing.
- F. Security Glazing: 11/16" thick, glazing assembly consisting of two outer lights of 1/8" clear chemically strengthened glass with a core of two 1/8" polycarbonate sheets laminated with four inter-layers of .50 inch thick urethane.
- G. Clear Fire Glazing: Model as required for required Fire-Rated Assembly.

2.03 GLASS PRODUCTS

- A. Annealed Float Glass: ASTM C 1036, Type I (transparent flat glass), Quality-Q3; of class indicated.
- B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass); Quality-Q3; of class, kind, and condition indicated.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
 - 2. Provide Kind HS (heat-strengthened) float glass in place of annealed float glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
 - 3. For uncoated glass, comply with requirements for Condition A.
 - 4. For coated vision glass, comply with requirements for Condition C (other uncoated glass).
 - 5. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where safety glass is indicated or required.
- C. Pyrolytic-Coated Float Glass: ASTM C 1376, float glass with metallic-oxide coating applied by pyrolytic deposition process during initial manufacture, and complying with other requirements specified.
- D. Insulating-Glass Units, General: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, and complying with ASTM E 774 for Class CBA units and with requirements specified in this Article and in Part 2 "Insulating-Glass Units" Article.
 - 1. Provide Kind HS (heat-strengthened) float glass in place of annealed glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
 - 2. Provide Kind FT (fully tempered) glass lites where safety glass is indicated or required.
 - 3. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thicknesses of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
 - 4. Sealing System: Comply with requirements in Section 07920 - Joint Sealants. Dual seal, with primary and secondary sealants of polyisobutylene and silicone.
 - 5. Spacer Specifications: Manufacturer's standard spacer material and construction complying with the following requirements:
 - 6. Spacer Material: Aluminum with mill or clear anodic finish.
 - 7. Desiccant: Molecular sieve or silica gel, or blend of both.
 - 8. Corner Construction: Manufacturer's standard corner construction.

2.04 FABRICATION OF GLAZING UNITS

Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

2.05 GLAZING COMPOUNDS

- A. Glazing Compound: Modified oil type, non-hardening, knife grade consistency.

- B. Butyl Sealant: Single component; Shore-A hardness of 10-20; black color; non-skinning.
- C. Acrylic Sealant: Single component, solvent curing, cured Shore hardness, non-bleeding.
- D. Silicone Sealant: Single component, non-bleeding, non-staining; Capable of water immersion without loss of properties.

2.06 GLAZING ACCESSORIES

- A. Setting Blocks: Neoprene; 80-90 Shore A durometer hardness; 4 inch minimum long x 1/4 inch thick.
- B. Spacer Shims: Neoprene; 40-50 Shore A durometer hardness; 4 inch long on 18 inch centers for wet-glazed systems.
- C. Glazing Clips: Manufacturer's standard type.

PART 3 -- EXECUTION

3.01 EXAMINATION

- A. Examine the area and conditions under which work of this Section will be performed.
- B. Coordinate work with other trades as needed to assure that proper substrate are provided to receive work of this Section.
- C. Verify surfaces of glazing channels or recesses are clean, square in plane, free of obstructions, and ready for work of this Section.
- D. Verify weep holes in exterior frame are provided.
- E. Correct conditions detrimental to timely and proper completion of the Work.
- F. Do not proceed until unsatisfactory conditions are corrected.
- G. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses.

3.03 EXTERIOR WET METHOD (SEALANT AND SEALANT)

- A. Place setting blocks at 1/4 points and install glass pane.
- B. Install removable stops with pane centered in space by inserting spacer shims both sides at 18-inch intervals, 1/4 inch below sightline.
- C. Fill gap between pane and stops with sealant to depth equal to bite of frame on pane, but not more than 3/8 inch below sightline.
- D. Apply sealant to uniform line, flush with sightline. Tool or wipe sealant surface with solvent for smooth appearance. Security Glazing to be sealed with security sealant as recommended by manufacturer.
- E. Drain or weep the sill of each opening to the outdoors at three points using 3/8-inch diameter weep holes or the equivalent.

3.04 INTERIOR COMBINATION METHOD (TAPE AND SEALANT)

- A. Cut glazing tape to length and install against permanent stops, project 1/16 inch above sightline.
- B. Place setting blocks at 1/4 points.

- C. Rest glass on setting blocks and push against tape to ensure full contact at perimeter of pane.
- D. Install: removable stops, spacer shims between glass, and applied stops at 18-inch intervals 1/4 inch below sightline.
- E. Fill gap between pane and applied stop with sealant to depth equal to bite of frame on pane to uniform and level line.
- F. Trim protruding tape edge.

3.05 INTERIOR WET METHOD (COMPOUND AND COMPOUND)

- A. Install glass resting on setting blocks. Install applied stop and center pane by use of spacer shims at 18-inch centers, kept 1/4 inch below sightline.
- B. Locate and secure glass pane using glaziers' clips.
- C. Fill gaps between pane and stops with glazing compound until flush with sightline.

3.06 CLEANING

- A. After installation, mark pane with an "X" by using plastic tape or removable paste.
- B. Remove glazing materials from finish surfaces.
- C. Remove labels after work is completed.
- D. Clean glass with solvent and normal wash. Final cleaning and polishing shall be done prior to final inspection.
- E. Remove and replace broken, scratched, chipped or otherwise defective glass with new materials and leave the entire installation in a neat, clean, and acceptable condition.

*** END OF SECTION ***

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SECTION 09200

LATH AND PLASTER

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section

1.02 SCOPE OF WORK

Supply and install all Lath and Plaster Work as shown on the Drawings and as specified herein, for a complete and proper installation.

1.03 REFERENCE STANDARDS

Comply with all applicable requirements of the California Lathing and Plastering Contractor's Association "Reference Specifications" except where more stringent requirements are indicated herein or in local building codes.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 3.3 of the Instruction to Bidders of the Bid Package Section 00003.

1.05 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Submit Product Data and color samples and manufacturers application data.
- C. Make (2) samples, at least one-foot square, of selected specified plaster system.

1.06 QUALITY ASSURANCE

- A. In all Work under this Section, coordinate with all other trades whose work connects with, is affected or concealed by lathing and plastering. Before proceeding, make certain all required inspections have been made. Do all cutting and patching required to accommodate the work of other trades.
- B. Inspect surfaces to receive lath and plaster before starting Work and do not start until surfaces are acceptable. Starting Work under this Section implies acceptance of surfaces.

1.07 PRODUCT HANDLING

- A. Adhere to requirements of Section 01620.
- B. Deliver all manufactured materials in original packages bearing manufacturer's name and brand. Use only one brand of each material throughout job. Store materials in dry areas.

1.08 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: None required
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 -- PRODUCTS

2.01 LATH

Paperbacked Lath: K-Lath Corporation: "Aqua K-Lath", or as approved by Architect, 16 gauge wires spaced 1-1/2 inches o.c. vertically and welded to 16 gauge wires spaced 2 inches o.c. horizontally, with perforated Kraft paper to insure plaster embedment and Type I Class B waterproof building paper laminated to back side.

2.02 ACCESSORIES

- A. Corner Bead: #1X Type, Keene or equal, expanded metal flanges integral with nose bead of solid metal, galvanized.
- B. Corner Lath: As specified for expanded metal, three (3) inch legs bent to a 105-degree corner, - "Cornemaster #30" by Keene, or equal.
- C. Casing Beads: #66 Type, Western, or equal, expanded metal flange, galvanized, depth as required by plaster thickness, weighing approximately 200# per 1000 lineal feet for 3/4-inch and 7/8-inch types.
- D. Expansion Joints: #15 by Keene or equal. Cut lath passing under expansion joints. Install where indicated on Drawings, with the following minimum conditions:
 - 1. No length should be greater than 18 feet in either direction
 - 2. No panel shall exceed a maximum of 144 square-feet for vertical applications.
 - 3. No panel shall exceed a maximum of 100 square-feet for horizontal, curved or angular sections.
 - 4. No length-to-width ratio should exceed 2.5 to 1 in any given panel.
- E. Bonding Agent: As recommended for application over smooth monolithic concrete shells. Concrete shells shall be cleaned with bonding agent applied prior to plastering interior.
- F. Wire: Soft, annealed, galvanized steel, 8-gauge for hangers, 16-gauge for channel ties and 18-gauge for lath ties.
- G. Nails: Concrete nails, case hardened steel, 3/4 inch long.
- H. Weep Screed: by Keene or equal. 1-1/4" ground, galvanized.
- I. Building Paper: 15#, asphalt impregnated. Install over Weather Barrier specified in Section 07250 and shown on the Drawings.
- J. Miscellaneous Items: Furnish all miscellaneous components not specified herein but shown on the Drawings and any other items required to complete the installation.
- K. Water: Clean and free of deleterious matter.

2.03 PORTLAND CEMENT PLASTER

- A. Portland Cement: Conforming to ASTM C-150, Type 1.
- B. Sand for Cement Plaster: Conforming to ASA A42.2.
- C. Hydrated Lime: Conforming to ASTM C-206, Type S.
- D. Quick Lime: Conforming to ASTM C-5.
- E. Exterior Cement Plaster:
 - 1. Scratch Coat: One part Portland Cement, four (4) parts sand and hydrated lime equal to 25% volume of cement.
 - 2. Brown Coat: One part Portland Cement, five parts sand and hydrated lime equal to 25% of the volume of cement.
 - 3. Finish Coat: Portland Cement-Lime: one part standard Portland Cement, not more than 1/2 part dry hydrated lime (or an equivalent amount of lime putty) and not more

than one part #20 mesh, and one part #16 mesh silica sand. Submit finish sample(s) for Architect's approval.

4. Thickness: 7/8 inch thick, measured from back of lath.
5. Finish coat to contain integral color. Submit samples to Architect for approval based upon colors indicated on Drawings.

PART 3 -- EXECUTION

3.01 EXAMINATION

- A. Examine the areas and condition under which work of this Section will be performed.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. Correct conditions detrimental to timely and proper completion of the Work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of conditions.

3.02 GENERAL

- A. Coordinate work with other trades as needed to assure that proper substrate are provided to receive work of this Section.
- B. Provide ventilation to properly dry plaster during and subsequent to application. In glazed areas, accomplish by keeping windows open sufficiently to provide air circulation; in enclosed areas lacking normal ventilation, mechanically remove moisture-laden air.

3.03 LATHING

- A. Apply lath with long dimension at right angles to supports; lap side and ends as recommended by manufacturer. Stagger vertical laps. Make no vertical joints at any corner; bend lath around all corners, internal and external.
- B. Attach lath to studs by fasteners at spacings required by local building codes. All attachments to be corrosion resistant.
- C. Install all accessories to plumb, true and level lines, and backing plates as located by the trade furnishing these items.
- D. Install beads, corner laths, control joints, reglets, screeds, and like items, using single lengths wherever possible. Provide corner beads at all exterior corners shown, mitering or coping as required, and fastening at six (6) inches o.c., both sides. Provide casing beads wherever interior plaster angles are shown and wherever one or both abutting surfaces are metal lathed, except corner laths are not required where metal lath is continuous around corner at junctions of walls, or where ceiling lath turns down a wall. Tie outer edges only to adjoining lath at six (6) inches o.c. or stub nail to any concrete. Install access panels supplied by other trades.
- E. Start installation at bottom of wall, working up and from right to left. Apply lath with long dimension at right angles to supports; lap sides and ends as recommended by manufacturer. Stagger vertical laps. Make no vertical joints at any corner; bend lath around all corners, internal and external.
- F. Attach lath to metal and/or wood studs by means of tie wire and nails respectively at spacings as required by Local Building Codes. All attachments shall be corrosion resistant.
- G. Install corner beads at all external corners. Use single length except where standard length is not sufficient. Miter or cope as required; fasten with tie wire at six (6) inches o.c., both sides.

- H. Install at interior angles and sheer one or both abutting surfaces are metal lath. Corner laths are not required where metal lath is continued around corner at junction of walls and where ceiling lath turns down wall unless otherwise noted on drawings. The outer edges only to adjoining lath at six (6) inches o.c., or stub nail to concrete.

3.04 PLASTERING

- A. Do not apply plaster below 55 degrees F temperature. Apply no plaster to frosty surfaces. Dampen any surfaces on which suction must be reduced with fog-spray. Maintain all screeds plumb and true.
- B. Except when had mixing small batches is approved, use approved mechanical mixers. Clean mixers, mixing boxes and tools after mixing each batch. Thoroughly mix with water until uniform in color and consistency. Retempering not permitted. Discard plaster, which has begun to stiffen. Mix in strict accordance with manufacturer's printed directions.
- C. Except in the case of specifically formulated plasters, which require only water added job site, proportion by volume as specified.
- D. Scratch coat: Apply with sufficient material and pressure to shove material through metal lath and form a good key; 3/8 inch minimum thickness, score in horizontal direction with metal scorer with clipped teeth to provide good mechanical key for second coat. Dampen concrete and concrete block surfaces to reduce suction prior to application.
- E. Brown coat: Apply not sooner than 48 hours after application of scratch coat; properly dampen scratch coat; apply sufficient pressure to force plaster into scratches and build out to within 1/8 inch to screeds; for, float and darby to true, plumb surfaces and corners; leave rough for finish coat.
- F. Curing: Keep Brown coat moist for at least 48 hours; commence moistening as soon as plaster has hardened sufficiently so to prevent injury; apply water in a fine fog spray; avoid soaking; curing shall proceed over holidays, Saturdays and Sundays if necessary. If atmospheric conditions are hot and dry, curing time shall be extended as necessary at no additional cost to Owner. Allow plaster base coats to cure for a minimum of fourteen (14) days before applying finish coat.
- G. Finish coats Apply to partially dry base coat, or to a thoroughly dry base coat that has been evenly wetted by brushing or spraying; avoid use of excessive water. Trowel all finish surfaces of plaster to perfectly true and even surface without scratches, ridges, voids, cracks, etc. Fill fissures or breaks in brown coat and existing plaster before application of finish coat. Make coats uniform in thickness with average thickness about 1/8 inch; minimum thickness anywhere: 1/16 inch.

3.05 CLEANING AND PATCHING

- A. A clean floor of droppings immediately after each coat is applied. At any exterior locations, remove droppings or splashes from all concrete, masonry or other finish surfaces.
- B. Patch after all other Work, except painting, has been completed. Cut out damaged or broken plaster to straight lines with clean, sharp edges. Cut out cracks to width of at least one (1) inch. Fill areas to be patched with base materials, and then give a finish coat of same material as adjoining plaster. Patched areas shall match adjoining work in finish and texture. Joining shall be flush and smooth so joints between patch and existing plaster are not noticeable.
- C. At completion of Work, remove excess plaster from beads, screeds, etc., and leave Work clean and ready for painting. Promptly remove plaster, rubbish, surplus material, scaffolding and other equipment from job site. Leave areas broom clean.

*** END OF SECTION ***

SECTION 09250

GYPSUM BOARD SYSTEMS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 SCOPE OF WORK

- A. Fire-Resistance Rated Gypsum Board
- B. Mold and Moisture Resistant Gypsum Board
- C. Fire-Resistance, Mold and Moisture Resistant Gypsum Board
- D. Abuse Resistant Gypsum Board
- E. Cement Board

1.03 PERFORMANCE CRITERIA

- A. Abuse Resistant Gypsum Board
 - 1. Classification:
 - a. Surface Abrasion: Level 1-3
 - b. Surface Indention: Level 1
 - c. Soft Body Impact: Level 1-2
 - 2. Wall Assembly Fire-Resistance Rating: locations per the drawings.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 3.3 of the Instruction to Bidders of the Bid Package Section 00003.

1.05 SUBMITTALS

Provide in accordance with Article 3.11 of the General Conditions.

1.06 PRODUCT HANDLING

Comply with the requirements of Section 01620.

1.07 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: None required
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 - PRODUCTS

2.01 MANUFACTURER / PRODUCTS

Basis of Design: Products of National Gypsum Company

2.02 FIRE-RESISTANCE RATED GYPSUM BOARD

- A. Basis of Design: Gold Bond® BRAND Fire-Shield C Gypsum Board.
- B. Panel Physical Characteristics:
 - 1. Core: Enhanced fire-resistance rated gypsum core
 - 2. Surface paper: 100% recycled content paper on front, back and long edges
 - 3. Long Edges: [Square] or [Tapered] at Contractor's discretion.
 - 4. Overall thickness: 5/8 inch.
 - 5. Panel complies with Type X requirements of ASTM C 1396 Standard Specification for Gypsum Board

2.03 MOLD AND MOISTURE RESISTANT GYPSUM BOARD

- A. Basis of Design: Gold Bond® BRAND XP® Gypsum Board
- B. Panel Physical Characteristics
 - 1. Core: Mold and moisture resistant gypsum core.
 - 2. Surface paper: 100% recycled content moisture/mold/mildew resistant paper on front, back, and long edges.
 - 3. Long Edges: Square or Tapered at Contractor's discretion.
 - 4. Overall thickness: 5/8 inch.
 - 5. Panel complies with requirements of ASTM C 1396 Standard Specification for Gypsum Board.
 - 6. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

2.04 FIRE-RESISTANCE RATED GYPSUM BOARD WITH ENHANCED MOLD AND MILDEW RESISTANCE

- A. Basis of Design: Gold Bond® BRAND XP® Fire-Shield® C Gypsum Board
- B. Type C, Panel Physical Characteristics
 - 1. Core: Mold and moisture resistant, with enhanced fire-resistance rated gypsum core
 - 2. Surface paper: 100% recycled content moisture/mold/mildew paper on front, back and long edges
 - 3. Long Edges: Square or Tapered at Contractor's discretion.
 - 4. Overall thickness: 5/8 inch.
 - 5. Panel complies with requirements Type X of ASTM C 1396 Standard Specification for Gypsum Board
 - 6. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

2.05 ABUSE RESISTANT GYPSUM BOARD

- A. Basis of Design: Gold Bond® BRAND Hi-Abuse® XP® Gypsum Board
- B. Panel Physical Characteristics
 - 1. Core: Fire resistance rated gypsum core, with additives to enhance, surface indentation resistance and impact resistance.

2. Surface paper: Abrasion resistant, 100% recycled content moisture/mold/mildew resistant paper on front, back and long edges
3. Long Edges: Square or Tapered at Contractor's discretion.
4. Overall thickness: 5/8 inch.
5. Panel complies with Type X requirements ASTM C 1396 Standard Specification for Gypsum Board.
6. Surface Abrasion Resistance: 0.009 inch when tested in accordance with ASTM D 4977 Standard Test Method for Granule Adhesion to Mineral Surfaced Roofing by Abrasion
7. Indentation Resistance: 0.132 inch when tested in accordance with ASTM D 5420 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact)
8. Soft Body Impact: 210 ft-lbf when tested in accordance with ASTM E 695 Standard Method for Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading
9. Mold/Mildew Resistance: score of 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

2.06 CEMENT BOARD

A. Cement Backerboard

1. Basis of Design: PermaBase® BRAND Cement Board
2. Panel Physical Characteristics
 - a. Core: Cementitious, water-durable
 - b. Surface: Fiberglass mesh on front and back
 - c. Long Edges: Tapered
 - d. Overall Thickness: 5/8 inch.
 - e. Panel complies with requirements of ASTM C 1325 Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units and ANSI A118.9
 - f. Density: 72 lbs. per cu. ft.
 - g. Water Absorption: Not greater than 8% when tested for 24 hours in accordance with ASTM C 473 Standard Test Methods for Physical Testing of Gypsum Panel Products

B. Cement Board Underlayment

1. Basis of Design: PermaBase® BRAND Cement Board
2. Panel Physical Characteristics
 - a. Core: Cementitious, water-durable
 - b. Surface: Fiberglass mesh on front and back
 - c. Long Edges: Tapered
 - d. Overall Thickness: 1/4 inch
 - e. Panel complies with requirements of ASTM C 1325 and ANSI A118.9
 - f. Density: 72 lbs per cu. ft.

- g. Water Absorption: Not greater than 8% when tested for 24 hours in accordance with ASTM C 473 Standard Test Methods for Physical Testing of Gypsum Panel Products

2.07 ACCESSORY PRODUCTS

A. Acoustical sealant

- 1. Conform to ASTM C 919 Standard Practice for Use of Sealants in Acoustical Applications
- 2. Products/Manufacturer
 - a. Grabber Acoustical Sealant GSC
 - b. STI SpecSeal Smoke N Sound Caulk
 - c. BOSS 824 Acoustical Sound Sealant

B. Firestopping

- 1. Conform to ASTM E 90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- 2. Products/Manufacturer
 - a. STI SpecSeal SSP Putty Pads
 - b. BOSS 818 Fire Rated Putty Pads

C. Fasteners for use with 5/8 inch thick tile backer panels: As recommended by Manufacturer.

D. Fasteners for use with Cement Board:

- 1. PermaBase Cement Board Hi-Lo thread screws (No. 8).
- 2. Wafer head, corrosion-resistant.
- 3. Overall Thickness: As recommended by Manufacturer.
- 4. For use with wood framing and complying with ASTM C 1002 Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.

E. Joint Treatment

- 1. Tape - As recommended by Manufacturer:
 - a. Paper Tape: 2-1/16 inches wide.
 - b. Paper Tape: 2 inches wide with metal strips laminated along the center crease to form inside and outside corners.
 - c. Fiberglass Tape: Nominal 2 inches wide self adhering tape.
 - d. Alkali-resistant Fiberglass Tape: Nominal 2 inches wide polymer coated alkali-resistant mesh tape.
- 2. Drying Type Compound - As recommended by Manufacturer:
 - a. Ready Mix vinyl base compound.
 - b. Ready Mix vinyl base compound formulated for enhanced mold and mildew resistance.
 - c. Ready Mix vinyl base compound formulated to reduce airborne dust during sanding.
 - d. Ready Mix vinyl base topping compound for finish coating.

- e. Ready Mix vinyl base compound for embedding joint tape, corner beads or other accessories.
 - f. Field Mix vinyl base compound.
3. Setting Compound - As recommended by Manufacturer:
 - a. Field mixed hardening compound.
 - b. Field mixed hardening compound for fire resistance rated construction and penetrations.
 4. Joint Sealant: Conform to ASTM C920 Standard Specification for Elastomeric Joint Sealants.
 5. Finish Level: Provide a Level 4 Finish, with a light orange-peel texture. All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compounds shall be smooth and free from tool marks and ridges. The prepared surface shall be coated with Sheet Rock Brand First Coat Primer, or equal, prior to the application of the light orange-peel texture.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas to receive gypsum products to verify conditions.
- B. Report conditions contrary to contract requirements that would prevent a proper installation.
- C. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- D. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the conditions.
- E. Installation indicates acceptance of the conditions with regard to conditions existing at the time of installation.

3.02 INSTALLATION, ABUSE RESISTANT GYPSUM BOARD

Install in accordance with manufacturer recommendations

3.03 INSTALLATION, CEMENT BOARD

Install in accordance w/manufacturer recommendation and ANSI A108.11

3.04 INSTALLATION, TILE BACKER

A. General:

1. Install in accordance with manufacturer recommendations, ASTM C840 and GA-216
2. Install with acrylic coated water barrier side facing away from the framing, so that finishes shall be applied to the coated side.
3. Caulk or seal penetrations and abutments to dissimilar materials.

B. Tile Backer Installation for walls:

1. Install panels horizontal or vertical to supports spaced a maximum of 16 inches on center without blocking or 24 inches on center with blocking at all joints for ½ inch thick panels and 24 inches on center for 5/8" inch thick panels.

2. Space fasteners 8 inches on center along all support members. Drive fasteners flush with the panel surface, do not countersink.
3. Dry Non-Tile Applications
 - a. Tape joints with fiberglass mesh tape and embed with setting type joint compound.
 - b. Skim the surface with a setting or ready-mix joint compound.
4. Wet Non-Tile Applications
 - a. Finish walls with a direct applied finish systems, or materials suitable for humid environments.
 - b. Seal transitions and abutments to dissimilar materials with flexible joint sealant.

*****END OF SECTION*****

SECTION 09300

TILEWORK

PART 1- GENERAL

1.01 GENERAL REQUIREMENTS

- A. Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.
- B. Furnish materials and equipment and perform labor required to complete all Ceramic Tile work as indicated on the drawings, specified herein, and necessary to complete the work of this section.

1.02 SECTION INCLUDES

- A. Porcelain.
- B. Floor and Wall Glazed.
- C. Wall and Counter Glazed.
- D. Natural Stone.
- E. Trim and Accessories.
- F. Setting Materials.

1.03 STANDARDS

- A. Comply with TCNA's "Handbook for Ceramic Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- B. Certificate of grade: Submit for approval, with each delivery, manufacturer's grade certificate in conformance with Tile Manufacturers Association, certifying grade, type and quality of tile furnished.
- C. Dynamic Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ANSI 137.1.
- D. Tile delivered in sealed cartons identified with grade certificate.
- E. Cartons of tile kept dry until tiles are removed, tile prevent from staining.
- F. All tile free from chips, cracks, scratches, pits or other defects.

1.04 PERFORMANCE REQUIREMENTS

Static Coefficient of Friction: Tile on walkway surfaces shall be provided with the following values as determined by testing in conformance with ASTM C 1028.

- 1. Level Surfaces: Minimum of 0.6 (Wet).
- 2. Step Treads: Minimum of 0.6 (Wet).
- 3. Ramp Surfaces: Minimum of 0.8 (Wet).

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products of this section with minimum ten years documented experience.
- B. Installer Qualifications: Company specializing in performing the work of this section with minimum of five years' documented experience.

- C. Single Source Responsibility: Obtain each type and color of tile from a single source. Obtain each type and color of mortar, adhesive and grout from the same source.

1.06 SUBSTITUTIONS

Substitutions will be considered per General Conditions Article 3.11.4 and Section 01630.

1.07 SUBMITTALS

- A. Submit in accordance with Article 3.11 of the General Conditions.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Manufacturer's Specifications, catalog cuts, and other data needed to prove compliance with the specified requirements of tile, sealants, grout, trim, fasteners, adhesives and sealers.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Installation methods.
- C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
- D. Selection Samples: Samples of actual tiles for selection.
- E. Samples: Mount tile and apply grout on two plywood panels, illustrating pattern, color variations, and grout joint size variations.
- F. Manufacturer's Certificate:
 - 1. Certify that products meet or exceed specified requirements.
 - 2. For each shipment, type and composition of tile provide a Master Grade Certificate signed by the manufacturer and the installer certifying that products meet or exceed the specified requirements of ANSI A137.1.
- G. Results of compliance of Flooring Substrate for requirements of Moisture & PH Testing prior to installation – See Item 3.01.E & F.
- H. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Locate mock-ups on site in locations and size directed by Architect.
 - 2. Finish areas designated by Architect.
 - 3. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 - 4. Refinish mock-up area as required to produce acceptable work.
 - 5. Retain and maintain mock-ups during construction in undisturbed condition as a standard for judging completed unit of Work.
 - 6. Obtain Architect's acceptance of mock-ups before start of final unit of Work.

1.08 PRODUCT HANDLING

- A. Comply with the requirements of Section 01620.
- B. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements of ANSI A137.1 for labeling sealed tile packages.
- C. Prevent damage or contamination to materials by water, freezing, foreign matter and other

causes.

- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Environmental: Install mortar, set and grout tile when surfaces and ambient temperature is minimum 50 degrees F (10 degrees C) and maximum 90 degrees F (32 degrees C). Consult with manufacturer for specific requirements.
- C. Do not install mortar, set or grout tile exterior when inclement weather conditions are expected within 48 hours after work is completed unless properly protected.
- D. Protection: Protect adjacent work surfaces during tile work. Close rooms or spaces to traffic of all types until mortar and grout have set.
- E. Safety: Observe the manufacturer's safety instructions including those pertaining to ventilation.

1.10 OPERATION AND MAINTENANCE DATA

Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.11 EXTRA MATERIALS

Provide for Owner's use a minimum of 2 percent, but not less than one box, of the each of the sizes and colors of tile specified, boxed and clearly labeled.

1.12 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: See 1.10 for Information.
- D. Extra Materials: See Part 1.11 for Information.
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2- PRODUCTS

2.01 MANUFACTURERS

- A. Tile: Standard grade, meeting the simplified Practice Recommendations F61-61, also Fed. Spec. SS-T-308B and ANSI A-137.1. Cartons grade sealed
- B. Acceptable Manufacturers:
 - 1. Daltile www.daltile.com - Contact: Scott Chouinard (Architectural Sales Representative) @ (951) 757-4919, scott.chouinard@daltile.com
 - 2. Arizona Tile www.arizonatile.com – Contact: Brett Murdock (Architectural Sales Representative) @ (760) 321-2005, bmurdock@arizonatile.com
 - 3. Emser Stone and Tile, www.emser.com – Contact: Lori Fisher (Architectural Sales Representative) @ (760) 834-2095, lorifisher@emser.com
- C. Substitutions: Subject to the Architect's and Owner's sole determination if alternates are an acceptable equal to the items specified.

2.02 TILE

A. General: Provide tile that complies with ANSI A137.1 for types, compositions and other characteristics indicated. Provide tile in the locations and of the types colors and pattern indicated on the Drawings and identified in the Schedule and the end of this Section. Tile shall also be provided in accordance with the following:

1. Factory Blending: For tile exhibiting color variations within the ranges selected under Submittal of samples, blend tile in the factory and package so tile taken from one package shows the same range of colors as those taken from other packages.
2. Mounting: For factory mounted tile, provide back or edge mounted tile assemblies as standard with the manufacturer, unless otherwise specified.
3. Factory Applied Temporary Protective Coatings: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by pre-coating with a continuous film of petroleum paraffin wax applied hot. Do not coat unexposed tile surfaces.

B. Material:

1. Furnish: size(s), color(s), pattern(s) and shape(s) as indicated on the drawings.
2. Trim Units: Matching bullnose, cove/inside finger cove, radius cap, sink rail, sink rail incorner/outcorner, cement bullnose, cove base, fabric bullnose, grooved bullnose, jolly shapes in sizes coordinated with field tile
3. Provide standard accessory shapes as required and as accepted by Architect.
4. Use appropriate trim shapes to conform to drawings.
5. Metal trims shall have a clear anodized finish – protected as to resist discoloration from adhesives and grouts.
6. Floor Tile: Shall meet the static coefficient of friction (COF) prescribed by ADAAG – 0.6 for level floors and 0.8 for ramps.

2.03 TRIM AND ACCESSORIES

Non-Ceramic Trim: Satin natural anodized extruded aluminum, stainless steel, brass, etc, style and dimensions to suit application, for setting using tile mortar or adhesive; use in the following locations:

1. Product: as indicated on the drawings.
2. Open edges of floor tile.
3. Transition between floor finishes of different heights.
4. Thresholds at door openings.
5. Expansion and control joints, floor and wall.

2.04 SETTING MATERIALS

A. Membranes: Liquid applied waterproof/crack isolation membrane (For Cracks Up To 1/8"):

1. Basis: Custom Building Products RedGard waterproof/crack isolation membrane.
2. Acceptable Products: Laticrete International Hydro Ban Floor and Wall Waterproofing & Crack Isolation & MAPEI Mapelastic AquaDefense.

B. Bonding Materials:

1. Bonded Mortar Bed Installations: Where indicated on the drawings, and elsewhere as required for mortar bed or brown coat as the substrate for tile work; work to conform to ANSI A108.1.

- a. Portland cement: ASTM C 150, Type 1.
 - b. Sand: ASTM C 144.
 - c. Water: Potable, fresh.
 - d. Setting bed reinforcing mesh: 2-inch by 2-inch by 16/16, 3-inch by 3-inch by 13/13 or 1-1/2-inch by 2-inch by 16/13 wire complying with ASTM A 82 or A 185.
 - e. Latex modified dry-set mortar: The following or equal with physical properties equaling or exceeding those of the products specified.
 - f. Mortar Bed Bonding Mortar; Custom Building Products VersaBond mortar bed bonding mortar.
2. Medium Bed/Thin Set (Non Slumping) Mortar:
- a. Basis: Custom Building Products ProLite polymer modified thin set/medium bed mortar.
 - b. Acceptable Products: Laticrete International 255 MultiMax or MAPEI Large Floor Tile Mortar
- C. Grout:
1. Portland cement grout:
- a. Basis: Custom Building Products Polyblend Sanded Grout, ANSI A118.7 for joints 1/8 inch to 1/2 inch.
 - b. Acceptable Products: Laticrete International PermaColor Grout or MAPEI Ultracolor Plus Grout
2. Epoxy Grout
- a. Basis: Custom Building Products Polyblend Sanded Grout, ANSI A118.7 for joints 1/8 inch to 1/2 inch.
 - b. Acceptable Products: Laticrete International PermaColor Grout or MAPEI Ultracolor Plus Grout.
- D. Silicone Sealant: 100% Silicone Caulk by Custom Building Products or equal; color as indicated in drawings.
- E. Tile and Grout Sealer: Aqua Mix, Inc., Santa Fe Springs, CA
- F. Membrane at Walls – provide according to manufacturer requirements:
- 1. No. 15 (6.9 kg) asphalt saturated felt, ASTM D226, Type 1.
 - 2. 4 mil (0.1 mm) thick polyethylene film, ASTM D4397.
 - 3. Reinforced asphalt paper.
- G. Reinforcing – provide according to manufacturer requirements:
- 1. Mesh: 2 by 2 inch (50 by 50 mm) size weave of 16/16 wire size; welded fabric, galvanized.
 - 2. Metal Lath: ASTM C847, Flat expanded diamond mesh, not less than 2.5 lbs/SY, galvanized finish.
- H. Cementitious Backer Board: ANSI A118.9; High density, cementitious, 5/8" thick glass fiber reinforced with 2 inch (50 mm) wide coated glass fiber tape for joints and corners.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that wall surfaces are free of substances which would impair bonding of setting materials, smooth and flat within tolerances specified in ANSI A137.1, and are ready to receive tile.
- B. Verify that sub-floor surfaces are dust-free, and free of substances which would impair bonding of setting materials to sub-floor surfaces, and are smooth and flat within tolerances specified in ANSI A137.1.
- C. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.
- D. Verify that required floor-mounted utilities are in correct location.
- E. Perform subfloor moisture testing in accordance with as required by the Manufacturer. All test results shall be documented and retained.
- F. Perform pH tests on concrete floors regardless of their age or grade level as required by the Manufacturer. All test results shall be documented and retained.
- G. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.
- H. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the conditions. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.02 PREPARATION

A. General

- 1. Coordinate work with other trades as needed to assure that proper substrate are provided to receive work of this Section.
- 2. Before tiling, confirm variations of surface to be tiled fall within maximum variations shown below:
 - a. Cement Mortar Bed: 1/4" in 8' for walls, 1/4" in 10' for floors.
 - b. Epoxy Adhesive: 1/8" in 8' for walls, 1/8" in 10' for floors.
 - c. Organic Adhesive: 1/8" in 8' for walls, 1/8" in 8' for floors
- 3. Surfaces shall be clean and free of dust, oil, grease, paint, tar, wax, curing compound, primer, sealer, form release agent, laitance, loosely bonded topping, loose particles or any deleterious substance and debris which may prevent or reduce adhesion.
- 4. Patch any deep abrasions to the existing mortar bed substrate prior to skim coating and installing the new crack isolation membrane

B. Concrete Surface Preparation

- 1. All concrete substrates shall be at least 28 days old, completely cured and free of hydrostatic conditions, and/or moisture problems.
- 2. New concrete surfaces for dry-set mortar, medium-bed mortar or thick-bed mortar installations shall be wood floated or broom finished. Concrete walls should be bush-hammered or heavily sandblasted. On grade or below grade concrete slabs must be installed over an effective vapor barrier and be exempt from hydrostatic pressures.
- 3. Over excessively dry porous concrete, keep the concrete substrate continuously moist

for at least 24 hours before work begins when using dry-set mortars or medium-bed mortars. Remove all excess water or standing water allowing the surface to become almost dry before installing the leveling coat, dry-set mortar or medium-bed dry-set mortar.

4. For minor repairs and smoothing up to 1/2 inch (12 mm), use Skim Coat & Patch Cement Underlayment or Speed Finish Patching & Finishing Compound.
5. For leveling of large areas use LevelLite Self-Leveling Underlayment for pours up to 2 inches (51 mm) thick, LevelQuik Rapid Setting Self-Leveling Underlayment for pours up to 1 inch (25 mm) thick or Extended Setting Self-Leveling Underlayment for pours up to 1 inch (25 mm) thick.
6. Custom Float Bedding Mortar mixed with water and Acrylic Mortar Admix to build-up or level a concrete substrate requiring a topping between 1/2 inch (12 mm) and 2 inch (50 mm) average thickness (see data sheet for details).

3.03 INSTALLATION - GENERAL

- A. Comply with current TCNA's "Handbook for Ceramic Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- B. Except as otherwise may be specified herein, all tile work shall conform with Standard Specifications A-108.1, A-108.4, A-108.5, A-108.6, A-108.9, A-108.10 issued by the American National Standards Institute.
- C. All tile shall be cut for proper fitting around work in place. Exposed edges of cuts shall be rubbed smooth with an abrasive stone. All tile shall be ground and carefully fitted at intersections against trim finish between fixtures and accessories. Tile shall be carefully fitted around outlets, pipes, fixtures, and fittings so that the plates, escutcheons, or collars all overlap the cut.
- D. Tile shall be kept free of stains before placing. Temporary guide strips shall be set with mortar or spot tiles shall be placed to fit the exact plans of each finish wall line. Mortar bed for interior glazed wall tile shall be not less than 3/8" thick and not more than 1/2" thick.
- E. Pattern of tile shall be accurately laid out and established working from center of each wall or space to assure equal size tiles on ends. Patterns shall be as noted on the drawings.
- F. All joints shall be grouted full, flush and smooth with the specified grout in accordance with the manufacturer's instructions.
- G. All walls shall be checked for plumb and all angles checked for square before tile work is started.

3.04 LIQUID MEMBRANE INSTALLATION

- A. Pre-treat Penetrations: Pack any gaps around pipes, lights or other penetrations with a compressible backer rod and suitable waterproof sealant. Apply a liberal coat of liquid around penetration opening. Embed pieces of 6" (15 cm) wide fabric into liquid. Cover with a second layer of liquid. After curing, seal flashing with a waterproof sealant.
- B. Expansion Joints: Cracks in excess of 1/8" (3 mm) should be treated as expansion joints. Carry these types of joints through any subsequent finishing material. Clean the joint and install open or closed cell backer rod to the proper depth as outlined in EJ 171 in the Tile Council Handbook. Next, compress a sealant as specified by the architect into the joint, coating the sides and leaving it flush with the surface. After the sealant is dry, place bond breaker tape over joint. Apply a minimum 3/64" (1.2 mm) of liquid over the joint and substrate. Install the tile work onto the membrane but do not bridge the joint. After the tile work is set properly, fill the joint with any specified color sealant, following the architect's and manufacturer's instructions.

C. Pre-treat Drains:

1. Drains should have a clamping ring with open weep holes for thin-set application. Cut a square of reinforcing fabric approximately 38" x 38" (96 x 96 cm). In the center of the fabric cut a hole that matches the diameter of the drain throat. Apply a liberal coat of liquid to the bottom flange. Drain should be fully supported without movement and even with plane of substrate.
2. Center the circular cutout over the drain throat and embed the fabric into the liquid making sure it does not obstruct the drainage hole. Then apply an additional coat of liquid. Wet coat thickness should be 20 - 30 mils thick.
3. After curing, apply a waterproof sealant bead where the fabric cutout meets the drain throat. Clamp upper flange onto membrane and tighten. Caulk with a silicone caulk around flange where membrane and upper flange make contact. A toilet flange can be handled in much the same manner.

3.05 SETTING MATERIALS INSTALLATION

- A. Specified medium bed setting materials may be installed up to 3/4 of an inch thick on horizontal surfaces.
- B. Apply mortar or adhesive with notched trowel using scraping motion to work material into good contact with the wall surface to be covered. Maintain 95 percent coverage on back of Tile and fully bed all corners.
- C. When installing natural stone Tiles, trowel a sufficient quantity of mortar adhesive onto back of each Tile.
- D. Maintain 95 percent coverage on back of the Tile and fully bed all corners.
- E. Apply only as much mortar or adhesive as can be covered within allowable windows as recommended by mortar or adhesive manufacturer or while surface is still tacky.
- F. Set Tiles in place and rub or beat with small beating block.
- G. Lightly beat or rap Tile to ensure proper bond and also to level surface of Tile.
- H. The setting materials must be free of voids to create a continuous, solid bond.
- I. Align Tile to show uniform joints and allow for setting until firm.
- J. Clean excess mortar or adhesive from surface of Tile with wet cheesecloth while mortar is fresh.

3.06 GROUT INSTALLATION

- A. Allow tile to set for a minimum of 48 hours prior to grouting. Remove all spacers, ropes, glue and foreign material prior to grouting.
- B. Follow grout manufacturer's recommendations as to grouting procedures and precautions.
 1. Force maximum amount of grout into joints in accordance with pertinent recommendations in ANSI 108.10.
 2. Fill-joints of cushion edged tile to depth of cushion; fill square edged tile flush with surface.
 3. Provide hard finished grout which is smooth and without voids, pinholes or low spots.
 4. Seal grout with specified penetrating sealer 48-72 hours after grout application.

3.07 JOINT INSTALLATION

- A. Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

- B. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
- C. Joints must be carried through all layers of installation materials including tile, setting bed, mortar bed and reinforcing wire. Joints should be every 20 to 25 feet in both directions for interior installations and 8 to 12 feet in both directions for exterior installations. (Refer to TCA Handbook, EJ171 and ANSI AN-3.8 for details on placements, size and specifications of materials).

3.08 INSTALLATION - FLOORS - MORTAR BED METHODS

- A. Over interior concrete substrates, install in accordance with TCA Handbook Method F111, with cleavage membrane, unless otherwise indicated.
 - 1. Where waterproofing membrane is indicated, with standard grout or no mention of grout type, install in accordance with TCA Handbook Method F121.
 - 2. Where epoxy bond coat and grout are indicated, install in accordance with TCA Handbook Method F132, bonded.
 - 3. Where epoxy or furan grout is indicated, but not epoxy or furan bond coat, install in accordance with TCA Handbook Method F114, with cleavage membrane.
- B. Cleavage Membrane: Lap edges and ends.
- C. Waterproofing Membrane: Install as specified in ANSI A108.13.
- D. Mortar Bed Thickness: 1-1/4 to 2 inch (32 to 51 mm) maximum, unless otherwise indicated.

3.09 INSTALLATION - SHOWERS

- A. At tiled shower receptors install in accordance with TCA Handbook Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.
- B. Grout with standard grout as specified above.
- C. Seal joints between tile work and other work with sealant specified in Section 07900.

3.10 INSTALLATION - WALL TILE

- A. Over cementitious backer units on studs, install in accordance with TCA Handbook Method W244, using membrane at toilet rooms.
- B. Over gypsum wallboard on wood or metal studs install in accordance with TCA Handbook Method W243, thin-set with dry-set or latex-portland cement bond coat, unless otherwise indicated.
- C. Over wood studs without backer install in accordance with TCA Handbook Method W231, mortar bed, with membrane where indicated.
- D. Over metal studs without backer install in accordance with TCA Handbook Method W241, mortar bed, with membrane where indicated.

3.11 CLEANING

- A. Clean and seal all tile and grout surfaces.

3.12 PROTECTION OF FINISHED WORK

- A. Do not permit traffic over finished floor surface for 72 hours after installation.
- B. Cover floors with kraft paper and protect from dirt and residue from other trades.
- C. Where floor will be exposed for prolonged periods cover with plywood or other similar type walkways

END OF SECTION

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SECTION 09510
ACOUSTICAL CEILING SYSTEM

PART 1 - GENERAL

1.01 **GENERAL REQUIREMENTS**

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 **SECTION INCLUDES**

- A. Acoustical ceiling panels.
- B. Exposed grid suspension system.
- C. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

1.03 **REFERENCES**

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

1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
8. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
9. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
10. ASTM E 1264 Classification for Acoustical Ceiling Products.
11. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
13. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material.

B. ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"

1.04 **QUALITY ASSURANCE**

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 - 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less
 - b. Smoke Developed: 50 or less
- C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.05 SUBSTITUTIONS

Substitutions will be considered per General Condition Article 3.11.4 and Section 01630.

1.06 SUBMITTALS

- A. Provide in accordance with Article 5 of the General Conditions.
- B. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- C. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- D. Shop Drawings: Layout and details of acoustical ceilings. Show locations of items which are to be coordinated with, or supported by the ceilings.
- E. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.
- F. If the material supplied by the acoustical subcontractor does not have an Underwriter's Laboratory classification of acoustical performance on every carton, subcontractor shall be required to send material from every production run appearing on the job to an independent or NVLAP approved laboratory for testing, at the architect's or owner's discretion. All products not conforming to manufacturer's current published values must be removed, disposed of and replaced with complying product at the expense of the Contractor performing the work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with the requirements of Section 01620.
- B. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
- C. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
- D. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.08 PROJECT CONDITIONS

- A. All ceiling products and suspension systems must be installed and maintained in accordance with Armstrong written installation instructions for that product in effect at the time of installation and best industry practice. Prior to installation, the ceiling product must be kept clean and dry, in an environment that is between 32°F (0°C) and 120°F (49°C) and not subject to Abnormal Conditions.

- B. Abnormal conditions include exposure to chemical fumes, vibrations, moisture from conditions such as building leaks or condensation, excessive humidity, or excessive dirt or dust buildup.

1.09 MAINTENANCE

Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.

- 1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
- 2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

1.10 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: See 1.09 for Information.
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.
 - 1. Warranties listed in this Section shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.
 - 2. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 - 1. Acoustical Panels: Sagging and warping as a result of defects in materials or factory workmanship.
 - 2. Grid System: Rusting and manufacturer's defects

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Ceiling Panels: Armstrong World Industries, Inc. or approved equal.

2.02 ACOUSTICAL CEILING UNITS

- A. Acoustical Panels Type ACT-1:
 - 1. Surface Texture: Fine
 - 2. Composition: Mineral Fiber
 - 3. Color: White
 - 4. Size: 24in X 24in X 3/4in
 - 5. Edge Profile: Beveled Tegral for interface with Suprafine ML 9/16" Exposed Tee.
 - 6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.70.
 - 7. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 35

8. Emissions Testing: Section 01350 Protocol, < 13.5 ppb of formaldehyde when used under typical conditions required by ASHRAE Standard 62.1-2004, "Ventilation for Acceptable Indoor Air Quality"
9. Flame Spread: ASTM E 1264; Class A (UL)
10. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.90.
11. Dimensional Stability: HumiGuard Plus - Temperature is between 32°F (0° C) and 120°F (49° C). It is not necessary for the area to be enclosed or for HVAC systems to be functioning. All wet work (plastering, concrete, etc) must be complete and dry.
12. Antimicrobial Protection: BioBlock Plus - Resistance against the growth of mold/mildew and gram positive and gram negative odor and stain causing bacteria.
13. Acceptable Product: Ultima, 1912 as manufactured by Armstrong World Industries.

2.03 SUSPENSION SYSTEMS

- A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized (galvanized steel, aluminum, or stainless steel) as per ASTM A 653. Main beams and cross tees are double-web steel construction with 9/16 IN type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel (aluminum or stainless steel) in baked polyester paint. Main beams and cross tees shall have rotary stitching (exception: extruded aluminum or stainless steel).
 1. Structural Classification: ASTM C 635 HD.
 2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
 3. Acceptable Product: Suprafine ML 9/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.
- B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.
- C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least three design load, but not less than 12 gauge.
- D. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.
- E. Accessories

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.
- D. Correct conditions detrimental to timely and proper completion of the Work
- E. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

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

3.03 INSTALLATION

- A. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- B. Suspend main beam from overhead construction with hanger wires spaced 4'-0" on center along the length of the main runner. Install hanger wires plumb and straight.
- C. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- D. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- E. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.04 ADJUSTING AND CLEANING

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

*****END OF SECTION*****

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SECTION 09650

RESILIENT FLOORING

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Conditions apply to this Section.

1.02 SCOPE OF WORK

Furnish all materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to comply with the Contract Documents, including, but not limited to these major items:

- A. Resilient tile flooring.
- B. Floor substrate surface.
- C. Rubber base.

1.03 REGULATORY REQUIREMENTS

Conform to applicable code for flame rating requirements of 75 or less in accordance with ASTM E84.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 3.3 of the Instruction to Bidders of the Bid Package Section 00003.

1.05 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Provide product data on specified products, describing physical and performance characteristics.
- C. Submit two samples, illustrating color and pattern for each floor material or base, substituted for those indicated in the Drawings.
- D. Submit manufacturer's installation instructions. When approved by the Architect, will become the basis for accepting or rejecting actual installation procedure used on the Work.

1.06 OPERATION AND MAINTENANCE DATA

Submit cleaning and maintenance data maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Store materials for three days prior to installation in area of installation to achieve temperature stability.
- B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 24 hours after installation of materials.

1.08 EXTRA MATERIALS

Provide 5% of each pattern and color of flooring and of base specified.

PART 2 -- PRODUCTS

2.01 VINYL COMPOSITION TILE

Manufacturer(s), Type(s), Location(s), Color(s), and Pattern(s) as indicated on drawings.

2.02 SHEET VINYL

Manufacturer(s), Type(s), Location(s), Color(s), and Pattern(s) as indicated on drawings.

2.03 BASE MATERIALS

Manufacturer(s), Type(s), Location(s), Color(s), and Pattern(s) as indicated on drawings.

2.04 ACCESSORIES

- A. Subfloor Filler: Latex cement underlayment as recommended by flooring material manufacturer.
- B. Primers and Adhesives: Waterproof; types recommended by flooring manufacturer.
- C. Sealer and Wax: Types recommended by flooring manufacturer.
- D. Welding rod: Use same manufacturer as flooring manufacturer and install per manufacturer's instructions. Colors to be selected from standard colors. All flooring in medical procedure rooms and in restrooms shall be heat welded.
- E. Provide other materials, not specifically described but required for a complete and proper installation as selected by the Contractor subject to the approval of the Architect.

2.05 FLOORING TRANSITIONS

Manufacturer(s), Type(s), Location(s), Color(s), and Pattern(s) as indicated on drawings.

PART 3 -- EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Correct conditions detrimental to timely and proper completion of the Work.
- C. Do not proceed until unsatisfactory conditions are corrected.
- D. Verify that surfaces are smooth and flat with maximum variation of 1/8 inch in 10 ft. and are ready to receive work.
- E. Verify concrete floors are dry to the maximum moisture content of 2.5% (two and one half percent); and exhibit negative alkalinity, carbonization, or dusting. Provide test results to indicate that the substrate meets moisture requirements prior to starting work. Higher moisture content will be as accepted by manufacturer in their written warranty.
- F. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

- A. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.
- B. Apply, trowel, and float filler to leave smooth, flat, hard surface.
- C. Prohibit traffic from area until filler is cured.
- D. Vacuum clean substrate.
- E. Maintain the temperature of the space to receive the flooring and the materials to be installed at

a minimum of 65 degrees F and maximum of 100 degrees F for at least 48 hours prior to, during, and 48 hours after installation. Maintain a minimum temperature of 55 degrees F thereafter.

F. Install flooring after all other trades, including painting, have been completed.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions, conventional full-spread system.
- B. Spread only enough adhesive to permit installation of materials before initial set.
- C. Set flooring in place; press with heavy roller to attain full adhesion.
- D. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.
- E. Install edge strips at unprotected or exposed edges, and where flooring terminates.
- F. Scribe flooring to walls, columns, permanent cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 INSTALLATION -- BASE MATERIAL

- A. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints.
- B. Miter internal corners. At external corners, "V" cut back of base strip to 2/3 of thickness and fold.
- C. Install base on solid backing. Bond tight to wall and floor surfaces.
- D. Scribe and fit to doorframes and other interruptions.

3.05 PROTECTION

Prohibit traffic on floor finish for 48 hours after installation.

3.06 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Clean, seal, and wax floor and base surfaces in accordance with manufacturer's instructions.

***** END OF SECTION *****

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SECTION 09770

FRP - GLASS FIBER REINFORCED PLASTIC PANELING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 SUMMARY

Section Includes: Fiberglass reinforced plastic (FRP) paneling for wall and ceiling surfaces, including trim accessories.

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. ASTM International:
 - 1. ASTM D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.
 - 2. ASTM D5319 – Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.
 - 3. ASTM D5420 - Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
 - 4. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- C. Factory Mutual FM:
 - 1. FM Approval 4880 - Class 1 Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coatings, and Exterior; Wall Systems.
- D. Crane Composites (Inspired by Kemlite):
 - 1. Installation Guide for FRP Panels #6876.

1.04 QUALITY ASSURANCE

- A. Pre-installation Meetings: Conduct pre-installation meeting to clarify Project requirements, substrate conditions, manufacturer's installation instructions and manufacturer's warranty requirements.
- B. Surface-Burning Characteristics: Determined by testing identical products according to ASTM E84 by a testing agency acceptable to authorities having jurisdiction.
 - 1. Flame-Spread Index: 25 (Class A) or less.
 - 2. Smoke-Developed Index: 450 or less.
- C. FMRC (Factory Mutual Research Corporation) Approval: Fire-X Glasbord FM.

1.05 SUBSTITUTIONS

Substitutions will be considered per General Conditions Article 3.11.4 and Section 01630.

1.06 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.

- B. **Manufacturer Qualifications:** Provider of installer training.
- C. **Installer Qualifications:**
 - 1. At least five years experience in the installation of fiberglass reinforced plastic panels.
 - 2. Experience on at least five projects of similar size, type and complexity as this Project.
 - 3. Employer of workers for this Project who are competent in techniques required by manufacturer for installation indicated.
- D. **Product Technical Data:** For each type of product required.
- E. **Mock-Ups:** Install at project site a job mock-up using acceptable products and manufacturer approved installation methods. Obtain Owner and Architect approval and acceptance of finish color, texture, pattern, trim, fasteners and quality of installation.
 - 1. **Mock-Up Size:** one wall (8-foot minimum width).
 - 2. **Incorporation:** Mock-up may be incorporated into final construction upon Owner approval.

1.07 **PRODUCT HANDLING**

- A. Comply with the requirements of Section 01620.
- B. **Delivery:** Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact. Package sheets on skids or pallets for shipment to project site.
- C. **Storage and Handling:** Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Store panels in a dry indoor location at Project site. Remove any foreign matter from face of panel by using a soft bristle brush, avoiding abrasive action.

1.08 **PROJECT CONDITIONS**

- A. Do not begin installation until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.
- B. During installation, and within 48 hours prior to installation, maintain ambient temperature and relative humidity within limits required by type of panel adhesive used and recommendation of panel adhesive manufacturer

1.09 **CLOSE-OUT:** Comply with the requirements of Section 01770 – Contract Closeout.

A. **Reports:**

None required.

B. **As-Builts:**

Comply with the requirements of Section 01770 – Contract Closeout.

C. **Operation and Maintenance Data:**

None required

D. **Extra Materials:**

None required

E. **Extended Warranty:**

Comply with the requirements of the General Condition Article 3.5 and Section 01740.

- 1. Warranties listed in this Section shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.

2. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace FRP panels that fail within specified warranty period.
- A. Failures shall include, but not be limited to substantial defects in material and workmanship, rotting, rusting, corrosion, development of structural surface cracks, or requiring painting or refinishing.
 - B. Warranty Period: Ten years from date of Substantial Completion.

PART 2 – PRODUCTS

2.01 FIBERGLASS REINFORCED PLASTIC (FRP) PANELS

- A. Basis of Design Product: Subject to compliance with requirements provide Crane Composites, Inc.
- B. General: Fiberglass reinforced plastic panels complying with ASTM D5319.
- C. Low-Emitting Materials: Comply with testing and product requirements of California Department of Health Services standards for Volatile Organic Emissions
- D. Nominal Thickness: 0.12 inch
- E. Panel Type, Panel Sizes, Surface Finish, and Color: As indicated on the Drawings.
- F. Performance Criteria:
 1. Scratch Resistance: ASTM D2583 (Barcol Hardness Test according to Panel Type indicated on the Drawings).
 2. Abrasion Resistance: Taber Abrasion Test using CS-17 abrasive wheels with 1000 g weight. Panels shall exhibit weight loss after 25 cycles of no more than 0.038 percent.
 3. Impact Strength: ASTM D5420 (according to Panel Type indicated on the Drawings) showing no visible damage on finish side.

2.02 ACCESSORIES

- A. Moldings, Trim and Caps: One-piece extruded polypropylene or PVC, configured to cover panel edges and corners. Color to match panel.
- B. Panel Adhesive: As recommended by panel manufacturer for the required substrates.
- C. Panel Sealant: As recommended by panel manufacturer.

2.03 SOURCE QUALITY CONTROL

Obtain fiberglass reinforced panels, moldings and other accessories from a single manufacturer.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. General: Comply with manufacturer's product data, including product technical bulletins, and installation instructions in product catalogs and product packaging.
- B. Verify that substrates previously installed under other sections are acceptable for product installation in accordance with FRP manufacturer's instructions.
- C. Examine substrate surfaces to determine that corners are plumb and straight, that surfaces are smooth, sound and uniform, that nails or screw fasteners are countersunk, and that joints and cracks are filled flush and smooth with adjoining surfaces.
- D. Do not begin panel installation until substrate surfaces are in satisfactory condition.

3.02 PREPARATION

- A. Clean substrates to remove substances that could impair bond of adhesive, including oil, grease, dirt, dust or other contamination.
- B. Condition panels by unpacking and placing in installation space no less than 24 hours before installation.
- C. Lay out paneling before beginning installation. Locate panel joints to provide equal panel widths at ends of walls and so that trimmed panels at corners are not less than 12 inches (300 mm) wide.

3.03 INSTALLATION

- A. General: Comply with panel manufacturer's Installation Guide #6876.
- B. Cut and drill panels with carbide tipped saw blades or drill bits, or cut with snips.
- C. Install panels with manufacturer's recommended gap for panel field and corner joints.
 - 1. Pre-drill fastener holes in panels, 1/8 inch (3.2 mm) greater in diameter than fastener.
 - 2. Install panels in a full spread of adhesive. For trowel type and application of adhesive, follow adhesive manufacturer's recommendations.
- D. Install trim accessories with adhesive and nails or staples. Do not fasten through panels.
- E. Sealant:
 - 1. Fill grooves in trim accessories with sealant before installing panels and bed inside corner trim in a bead of sealant.
 - 2. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths.

3.05 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas.
- B. Repair or replace any installed products that have been damaged.
- C. Clean installed panels in accordance with manufacturer's instructions prior to Owner's acceptance.
- D. Remove and lawfully dispose of construction debris from project site.

3.06 PROTECTION

- A. Protect installed product and finish surfaces from damage during construction.

*****END OF SECTION*****

SECTION 09900

PAINTING

PARTS 1 -- GENERAL

1.01 SUMMARY

- A. Division 0, Contract Requirements and Division 1, General Conditions apply to this Section.
- B. Section Includes: Painting and finishing of all interior and exterior items and surfaces, unless otherwise indicated or listed under exclusions below:
 - 1. Paint all exposed surfaces, except as otherwise indicated, whether or not colors are designated.
 - 2. Include field painting of exposed exterior and interior structural steel, plumbing, mechanical and electrical work, except as indicated below.
 - 3. Paint exterior plaster where indicated on Drawings.
- C. Work Included:
 - 1. The intent and requirements of this section is that all work, items and surfaces which are normally painted and finished in a building of this type and quality, shall be so included in this contract, whether or not said work, item or surface is specifically called out and included in the schedules and notes on the drawings, or is, or is not, specifically mentioned in these specifications.
 - 2. All the requirements of Division Zero and Division One apply to this Section.
- D. The following general categories of work and items that are included under other sections, shall not be a part of this section:
 - 1. Shop prime painting of structural and miscellaneous iron or steel.
 - 2. Shop prime painting of hollow metal work.
 - 3. Shop finished work and items.
 - 4. Any drywall or plaster permanently concealed from view.
 - 5. Any factory finished equipment and other materials with a complete factory applied finish.
 - 6. Finish hardware except where primed for paint finish.
 - 7. Any glass, plastics, floor tiles and sheet vinyl coved or vinyl top set bases.
 - 8. Plumbing fixtures: Toilet room accessories.
 - 9. Lighting fixtures except as noted on drawings or specified.
 - 10. Any acoustical surfaces; unless otherwise specified.
- E. The Room Finish Schedules indicated on the drawings, indicates the location of interior room surfaces to be painted or finished. The schedule indications are general and do not necessarily define the detail requirements. Include all detailed refinements and further instructions as may be given for the required complete finishing of all spaces and rooms.

1.02 SUBSTITUTIONS

Substitutions will be considered per Article 3.3 of the General Conditions.

1.03 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.
 - 1. Materials List: Submit complete lists of materials proposed for use, giving the manufacturer's name, catalog number, and catalog cut for each item when applicable. When required, provide a list of paint and coating materials proposed for use, which equates such materials with the design-basis products specified.
- B. Samples: In accordance with provisions of Section 01300, submit, on 8-1/2 inch by 11 inch hardboard, samples of each color, gloss, texture and material selected by the Architect from standard colors available for the coatings required.
 - 1. For natural and stained finishes, provide sample on each type and quality of wood used on the project.
- C. Manufacturer's Instructions: Submit the manufacturer's current recommended methods of installation, including relevant limitations, safety and environmental cautions, application rates, and composition analysis.
- D. Closeout: Coating Maintenance Manual: Provide a S-W Custodian or similar coating maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable codes and regulations of governmental agencies having jurisdiction including those having jurisdiction over airborne emissions and industrial waste disposal. Where those requirements conflict with this Specification, comply with the more stringent provisions.

Regulatory changes may affect the formulation, availability, or use of specified coatings. Confirm availability of coatings to be used prior to job going out to bid and before start of painting project.

- 1. Comply with the current applicable regulations of the California Air Resources Board (CARB) and the South Coast Air Quality Management District (SCAQMD). Field Sample: When and as directed by the Architect, apply one complete coating system for each color, gloss and texture required. When approved, the sample panel areas will be deemed incorporated into the Work and will serve as the standards by which the subsequent Work of this Section will be judged.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection: Use all means necessary to protect the materials of this Section before, during, and after installation.
- B. Deliver materials to job site in new, original, and unopened containers bearing manufacturer's name and trade name. Store where directed in accordance with manufacturer's instructions.

1.06 PROJECT CONDITIONS

Do not apply exterior materials during fog, rain or mist, or when inclement weather is expected within the dry time specified by the manufacturer. No exterior or interior painting shall be done until the surfaces are thoroughly dry and cured. Do not apply paint when temperature is below 50° F. Avoid painting surfaces when exposed to direct sunlight.

PART 2 -- PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Sherwin-Williams. Architectural representative: John Dumesnil; Phone (619) 665-9341 or Email: john.t.dumesnil@sherwin.com.
- B. Acceptable Manufacturers: Frazee Paint Company, Dunn Edwards, and Vista Paint.

2.02 MATERIALS

- A. Paints: Provide Ready-Mixed, except field catalyzed coatings. Pigments shall be fully ground maintaining soft paste consistency, capable of being readily and uniformly dispersed to complete homogeneous mixture. Paints shall have good flowing and brushing properties and be capable of drying or curing free of streaks and sags.
- B. Accessory Materials: Linseed oil, shellac, solvents, and other materials not specified but required to achieve required finishes shall be of high quality and approved by manufacturer.
- C. Colors shall be selected from color chip samples provided by manufacturer of paint system approved for use. Match approved samples for color, texture and coverage.

2.03 MIXES

Mix, prepare, and store painting and finishing materials in accordance with manufacturer's directions.

PART 3 -- EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Examine surfaces to be painted before beginning painting work. Work of other trades that has been left or installed in a condition not suitable to receive paint, stain, other specified finish shall be repaired or corrected by the applicable trade before painting. Painting of defective or unsuitable surface implies acceptance of the surfaces.
- C. Beware of a condition known as "critical lighting". This condition causes shadows that accentuate even the slightest surface variations. A pigmented sealer will provide tooth for succeeding decorative coating, but "does not" equalize smoothness or surface texture. Any corrective action to gypsum board/drywall must be done by the drywall contractor prior to decorating.
- D. Correct conditions detrimental to timely and proper completion of the Work.
- E. Do not proceed until unsatisfactory conditions are corrected.
- F. Beginning of installation means acceptance of conditions.

3.02 PROTECTION

- A. Protect previously installed work and materials, which may be affected by Work of this Section.
 - 1. Protect prefinished surfaces, lawns, shrubbery and adjacent surfaces against paint and damage.
 - 2. Furnish sufficient drop cloths, shields, and protective equipment to prevent spray or splatter from fouling surfaces not being painted.
 - 3. Protect surfaces, equipment, and fixtures from damage resulting from use of fixed, movable and hanging scaffolding, planking, and staging.
- B. Provide WET PAINT signs, barricades, and other devices required to protect newly finished surfaces. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.

3.03 PREPARATION

- A. Perform preparation and cleaning procedures in strict accordance with coating manufacturer's instructions for each substrate condition.
- B. Concrete and masonry surfaces shall be dry, clean, and free of dirt, efflorescence, encrustation, and other foreign matter. Glazed surfaces on concrete shall be roughened or etched to uniform texture.
- C. Ferrous metal shall be cleaned per SSPC-SP1. All welds, loosely adhered rust, and debris must be power tool cleaned per SSPC-SP3. Prime within 3 hours after preparation.
- D. Clean per SSPC-SP1 to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, power tool clean per SSPC-SP3 to remove these treatments.
- E. Remove dust, grit and foreign matter from wood surfaces. Sand surfaces and dust clean. Spot coat knots, pitch streaks, and sappy section with pigmented stain sealer when surfaces are to be painted. Fill nail holes, cracks and other defects after priming and spot prime repairs when fully cured.
- F. Remove hardware and accessories, machined surfaces, plates, lighting fixtures and similar items in place and not-to-be-finish painted, or provide surface-applied protection. Reinstall removed items upon completion of work in each area.
- G. Existing surfaces to be recoated shall be thoroughly cleaned and de-glossed by sanding or other means prior to painting. Patched and bare areas shall be spot primed with same primer as specified for new work.
- H. Thoroughly backpaint all surfaces of exterior and interior finish lumber and millwork, including doors and window frames, trim, cabinetwork, etc., which will be concealed after installation. Backpaint items to be painted or enameled with the priming coat. Use a clear sealer for backpriming where transparent finish is required.
- I. Bar and covered pipes, ducts, hangers, exposed steel and ironwork, and primed metal surfaces of equipment installed under mechanical and electrical work shall be cleaned prior to priming.
- J. Preparation of other surfaces shall be performed following specific recommendations of the coatings manufacturer.
- K. Bond breakers and curing agents must be removed and the surface cleaned before primers, sealers or finish paints can be applied.
- L. All drywall surfaces must be completely dry and dust free before painting. Skim coated drywall must be sealed with an alkyd based sealer or a waterborne sealer recommended by the paint manufacturer for this surface. Use the appropriate light or medium tack masking tape.

3.04 APPLICATION

- A. Apply painting and finishing materials in accordance with the manufacturer's submittals, as approved. Use applicators and techniques best suited for the material and surfaces to which applied.
 - 1. The number of coats specified is the minimum that shall be applied. Apply additional coats when undercoats, stains or other conditions show through final paint coat, until paint film is of uniform finish, color and appearance.
 - 2. All undercoats shall be tinted slightly to approximate the color of the finish coat.
- B. Apply each material at not less than the manufacturer's recommended spreading rate:
 - 1. Provide a total dry film thickness of not less than 1.2 mils for each required coat.

- C. Apply prime coat to surface, which is required to be painted or finished.
- D. Finish exterior doors on tops, bottoms, and edges same as exterior faces, after fitting.
- E. Sand lightly and dust clean between succeeding coats.

3.05 CLEANING, TOUCH-UP AND REFINISHING

- A. Carefully remove all spattering, spots and blemishes caused by work under this section from surfaces throughout the project.
- B. Upon completion of painting work remove all rubbish, paint cans, and accumulated materials resulting from work in each space or room. All areas shall be left in a clean, orderly condition.
- C. Runs, sags, misses, holidays, stains and other defects in the painted surfaces, including inadequate coverage and mil thickness shall be satisfactorily touched up, or refinished, or repainted as necessary.

3.06 FINISH SCHEDULE

- A. Apply the following finishes to the surfaces specified and/or as on the finish schedule on the Drawings. Apply all materials in accordance with manufacturer's instructions on properly prepared surfaces and foundation coats. All intermediate undercoats must be tinted to approximate the final color.
 - 1. Architect will issue a color schedule prior to start of painting to designate the various colors and locations required for the work.

B. Exterior Systems:

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Stucco & Plaster
Flat – 100% Acrylic | <ul style="list-style-type: none"> First Coat Epoxy Tilt-up Primer B42WW49 Second Coat A-100 Exterior Latex Flat A6 Series Third Coat A-100 Exterior Latex Flat A6 Series |
| <ul style="list-style-type: none"> 2. Concrete Tilt-Up
Flat – 100% Acrylic | <ul style="list-style-type: none"> First Coat Epoxy Tilt-up Primer B42WW49 Second Coat A-100 Exterior Latex Flat A6 Series Third Coat A-100 Exterior Latex Flat A6 Series |
| <ul style="list-style-type: none"> 3. Brick Masonry
Flat – 100% Acrylic | <ul style="list-style-type: none"> First Coat Epoxy Tilt-up Primer B42WW49 Second Coat A-100 Exterior Latex Flat A6 Series Third Coat A-100 Exterior Latex Flat A6 Series |
| <ul style="list-style-type: none"> 4. Concrete Block | |
| <ul style="list-style-type: none"> a. Flat – 100% Acrylic | <ul style="list-style-type: none"> First Coat PrepRite Block Filler B25W25 Second Coat A-100 Exterior Latex Flat A6 Series Third Coat A-100 Exterior Latex Flat A6 Series |
| <ul style="list-style-type: none"> b. Satin – 100% Acrylic | <ul style="list-style-type: none"> First Coat PrepRite Block Filler B25W25 Second Coat A-100 Exterior Latex Satin A82 Series Third Coat A-100 Exterior Latex Satin A82 Series |

- c. Gloss – 100% Acrylic
 - First Coat PrepRite Block Filler B25W25
 - Second Coat A-100 Exterior Latex Gloss A8 Series
 - Third Coat A-100 Exterior Latex Gloss A8 Series

- d. High Gloss, High Performance – Acrylic/Urethane
 - First Coat Heavy Duty Block Filler B42W46
 - Second Coat Macropoxy 646-100 B58Series
 - Third Coat High Solids Polyurethane 100 B65 Series

- 5. Ferrous Metal
 - a. Flat – Acrylic
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat A-100 Exterior Latex Flat A6 Series
 - Third Coat A-100 Exterior Latex Flat A6 Series

 - b. Semi-Gloss – Acrylic
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat Solo Acrylic Latex Semigloss A76 Series
 - Third Coat Solo Acrylic Latex Semigloss A76 Series

 - c. Gloss – Acrylic
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat Solo Acrylic Latex Gloss A77 Series
 - Third Coat Solo Acrylic Latex Gloss A77 Series

 - d. Gloss – Rust Preventative Acrylic
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat ProIndustrial Acrylic Gloss B66-600 Series
 - Third Coat ProIndustrial Acrylic Gloss B66-600 Series

 - e. Gloss, Industrial High Performance – Inorganic Zinc/Epoxy/Acrylic
 - First Coat ZincClad III HS-100 B69 Series
 - Second Coat Macropoxy 646-100 B58 Series
 - Third Coat ProIndustrial Acrylic Gloss B66-600 Series

 - f. Matte, Industrial High Performance – Epoxy Primer/Epoxy/Acrylic
(VOC compliant in SCAQMD)
 - First Coat Macropoxy 646-100 B58 Series
 - Second Coat Macropoxy 646-100 B58 Series
 - Third Coat ProIndustrial Acrylic Eg-shel B66-660 Series

 - g. High Gloss, Industrial High Performance – Inorganic Zinc/Epoxy/Urethane
(VOC compliant in SCAQMD)
 - First Coat ZincClad III HS-100 B69 Series
 - Second Coat Macropoxy 646-100 B58 Series
 - Third Coat High Solids Polyurethane 100 Gloss B65 Series

 - h. High Gloss, Industrial High Performance – Epoxy Primer/Epoxy/Urethane
(VOC compliant in SCAQMD)
 - First Coat Macropoxy 646-100 B58 Series
 - Second Coat High Solids Polyurethane 100 Gloss B65 Series
 - Third Coat High Solids Polyurethane 100 Gloss B65 Series

6. Galvanized Metal

- a. Flat – Acrylic
 - Pretreatment GLL Clean n Etch
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat A-100 Exterior Latex Flat A6 Series
 - Third Coat A-100 Exterior Latex Flat A6 Series
 - b. Semi-Gloss – Acrylic
 - Pretreatment GLL Clean n Etch
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat Solo Acrylic Latex Semigloss A76 Series
 - Third Coat Solo Acrylic Latex Semigloss A76 Series
 - c. Gloss – Acrylic
 - Pretreatment GLL Clean n Etch
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat Solo Acrylic Latex Gloss A77 Series
 - Third Coat Solo Acrylic Latex Gloss A77 Series
 - d. Gloss – Rust Preventative Acrylic
 - First Coat ProCryl Universal Acrylic Metal Primer B66-310
 - Second Coat ProIndustrial Acrylic Gloss B66-600 Series
 - Third Coat ProIndustrial Acrylic Gloss B66-600 Series
 - e. Matte, Industrial High Performance – Epoxy Primer/Acrylic (VOC compliant in SCAQMD)
 - First Coat Macropoxy 646-100 B58 Series
 - Second Coat ProIndustrial Acrylic Eg-shel B66-660
 - Third Coat ProIndustrial Acrylic Eg-shel B66-660
 - f. High Gloss, Industrial High Performance – Epoxy Primer/Urethane
 - First Coat Macropoxy 646-100 B58 Series
 - Second Coat High Solids Polyurethane 100 Gloss B65 Series
 - Third Coat High Solids Polyurethane 100 Gloss B65 Series
7. Wood – Paint Finish
- a. Semi-Gloss – Acrylic
 - First Coat PrepRite ProBlock Primer B51W8020
 - Second Coat Solo Acrylic Latex Semigloss A76 Series
 - Third Coat Solo Acrylic Latex Semigloss A76 Series
 - b. Gloss – Acrylic
 - First Coat PrepRite ProBlock Primer B51W8020
 - Second Coat Solo Acrylic Latex Gloss A77 Series
 - Third Coat Solo Acrylic Latex Gloss A77 Series
8. Wood – Stain Finish – Opaque:
- Two Coats AcryStain Water-based Solid Stain CK6688
9. Wood – Stain Finish – Semi-Transparent:
- One Coat WoodScapes Ext Semi-transparent Stain A15T

C. Interior Systems:

- 1. Gypsum Board
 - a. Flat – Acrylic
 - First Coat ProMar 400 Zero VOC Primer B28W4600

- | | |
|---|---|
| Second Coat | ProMar 200 Zero VOC Flat B30-2600 |
| Third Coat | ProMar 200 Zero VOC Flat B30-2600 |
| b. Low Sheen – Acrylic | |
| First Coat | ProMar 400 Zero VOC Primer B28W4600 |
| Second Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| Third Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| c. Eggshell – Acrylic | |
| First Coat | ProMar 400 Zero VOC Primer B28W4600 |
| Second Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| Third Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| d. Semi-Gloss - Acrylic | |
| First Coat | ProMar 400 Zero VOC Primer B28W4600 |
| Second Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| Third Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| e. Gloss – Acrylic | |
| First Coat | ProMar 400 Zero VOC Primer B28W4600 |
| Second Coat | Sologloss Acrylic Latex Gloss A77 Series |
| Third Coat | Sologloss Acrylic Latex Gloss A77 Series |
| f. Gloss– Industrial High Performance – Waterborne Epoxy | |
| First Coat | ProMar 200 Zero VOC Primer B28W2600 |
| Second Coat | WB Catalyzed Epoxy Gloss B73 Series |
| Third Coat | WB Catalyzed Epoxy Gloss B73 Series |
| g. High Gloss – Industrial High Performance – Waterborne Epoxy/Urethane | |
| First Coat | Macropoxy 646-100 B58 Series |
| Second Coat | High Solids Polyurethane 100 Gloss B65 Series |
| Third Coat | High Solids Polyurethane 100 Gloss B65 Series |
| 2. Concrete & Plaster: | |
| a. Flat – Acrylic Copolymer | |
| First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| Second Coat | ProMar 200 Zero VOC Flat B30-2600 |
| Third Coat | ProMar 200 Zero VOC Flat B30-2600 |
| b. Low Sheen – Acrylic Copolymer | |
| First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| Second Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| Third Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| c. Eggshell –Acrylic Copolymer | |
| First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| Second Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| Third Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| d. Semi-Gloss –Acrylic Copolymer | |
| First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| Second Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| Third Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| e. Gloss – 100% Acrylic | |
| First Coat | Epoxy Masonry Tilt Primer B42WW49 |

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|----|--|---|
| | Second Coat | Sologloss Acrylic Latex Gloss A77 Series |
| | Third Coat | Sologloss Acrylic Latex Gloss A77 Series |
| f. | Gloss – Industrial High Performance - Waterborne Epoxy | |
| | First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| | Second Coat | WB Catalyzed Epoxy Gloss B73 Series |
| | Third Coat | WB Catalyzed Epoxy Gloss B73 Series |
| g. | High Gloss- Industrial High Performance - Epoxy/Urethane | |
| | First Coat | Macropoxy 646-100 B58 Series |
| | Second Coat | High Solids Polyurethane 100 Gloss B65 Series |
| | Third Coat | High Solids Polyurethane 100 Gloss B65 Series |
| 3. | Brick | |
| a. | Flat – Acrylic Copolymer | |
| | First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| | Second Coat | ProMar 200 Zero VOC Flat B30-2600 |
| | Third Coat | ProMar 200 Zero VOC Flat B30-2600 |
| b. | Low Sheen – Acrylic Copolymer | |
| | First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| | Second Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| | Third Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| c. | Eggshell –Acrylic Copolymer | |
| | First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| | Second Coat | ProMar 200 Zero VOC Eg-shef B20-2600 |
| | Third Coat | ProMar 200 Zero VOC Eg-shef B20-2600 |
| d. | Semi-Gloss –Acrylic Copolymer | |
| | First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| | Second Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| | Third Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| e. | Gloss – 100% Acrylic | |
| | First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| | Second Coat | Sologloss Acrylic Latex Gloss A77 Series |
| | Third Coat | Sologloss Acrylic Latex Gloss A77 Series |
| f. | Gloss – Industrial High Performance - Waterborne Epoxy | |
| | First Coat | Epoxy Masonry Tilt Primer B42WW49 |
| | Second Coat | WB Catalyzed Epoxy Gloss B73 Series |
| | Third Coat | WB Catalyzed Epoxy Gloss B73 Series |
| g. | High Gloss- Industrial High Performance - Epoxy/Urethane | |
| | First Coat | Macropoxy 646-100 B58 Series |
| | Second Coat | High Solids Polyurethane 100 Gloss B65 Series |
| | Third Coat | High Solids Polyurethane 100 Gloss B65 Series |
| 4. | Concrete Block | |
| a. | Flat – Acrylic Copolymer | |
| | First Coat | PrepRite Block Filler B25W25 |
| | Second Coat | ProMar 200 Zero VOC Flat B30-2600 |
| | Third Coat | ProMar 200 Zero VOC Flat B30-2600 |
| b. | Low Sheen – Acrylic Copolymer | |

- | | | |
|---|-------------|--|
| | First Coat | PrepRite Block Filler B25W25 |
| | Second Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| | Third Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| c. Eggshell –Acrylic Copolymer | | |
| | First Coat | PrepRite Block Filler B25W25 |
| | Second Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| | Third Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| d. Semi-Gloss –Acrylic Copolymer | | |
| | First Coat | PrepRite Block Filler B25W25 |
| | Second Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| | Third Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| e. Gloss – 100% Acrylic | | |
| | First Coat | PrepRite Block Filler B25W25 |
| | Second Coat | Sologloss Acrylic Latex Gloss A77 Series |
| | Third Coat | Sologloss Acrylic Latex Gloss A77 Series |
| f. Gloss – Industrial High Performance - Waterborne Epoxy | | |
| | First Coat | PrepRite Block Filler B25W25 |
| | Second Coat | WB Catalyzed Epoxy Gloss B73 Series |
| | Third Coat | WB Catalyzed Epoxy Gloss B73 Series |
| g. High Gloss- Industrial High Performance – Acrylic/Urethane | | |
| | First Coat | Heavy Duty Block Filler B42W46 |
| | Second Coat | Macropoxy 646-100 B58 Series |
| | Third Coat | High Solids Polyurethane 100 Gloss B65 Series |
| 5. Ferrous Metal | | |
| a. Flat – Acrylic Copolymer | | |
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | ProMar 200 Zero VOC Flat B30-2600 |
| | Third Coat | ProMar 200 Zero VOC Flat B30-2600 |
| b. Low Sheen –Acrylic Copolymer | | |
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| | Third Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| c. Eggshell –Acrylic Copolymer | | |
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| | Third Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| d. Semi-Gloss – Acrylic Primer/ Acrylic Copolymer | | |
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| | Third Coat | ProMar 200 Zero VOC Semigloss B31-2600 |
| e. Semi-Gloss –Rust Preventative Acrylic | | |
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | ProIndustrial Acrylic SemiGloss |
| | Third Coat | ProIndustrial Acrylic SemiGloss |
| f. Gloss – Acrylic Primer /100% Acrylic | | |

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|---|-------------|---|
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | Solo Acrylic Latex Gloss A77 Series |
| | Third Coat | Solo Acrylic Latex Gloss A77 Series |
| g. Gloss –Rust Preventative Acrylic | | |
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | ProIndustrial Acrylic Gloss |
| | Third Coat | ProIndustrial Acrylic Gloss |
| h. Gloss – Industrial High Performance - Waterborne Epoxy | | |
| | First Coat | ProCryl Universal Acrylic Metal Primer B66-310 |
| | Second Coat | WB Catalyzed Epoxy Gloss B73 Series |
| | Third Coat | WB Catalyzed Epoxy Gloss B73 Series |
| i. High Gloss – Industrial High Performance - Epoxy/Urethane | | |
| | First Coat | Macropoxy 646-100 B58 Series |
| | Second Coat | High Solids Polyurethane 100 Gloss B65 Series |
| | Third Coat | High Solids Polyurethane 100 Gloss B65 Series |
| 6. Wood – Paint Finish | | |
| a. Flat – Acrylic Copolymer | | |
| | First Coat | PrepRite ProBlock Primer B51W8020 |
| | Second Coat | ProMar 200 Zero VOC Flat B30-2600 |
| | Third Coat | ProMar 200 Zero VOC Flat B30-2600 |
| b. Low Sheen – Acrylic Copolymer | | |
| | First Coat | PrepRite ProBlock Primer B51W8020 |
| | Second Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| | Third Coat | ProMar 200 Zero VOC Low Sheen B24-2600 |
| c. Eggshell – Acrylic Copolymer | | |
| | First Coat | PrepRite ProBlock Primer B51W8020 |
| | Second Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| | Third Coat | ProMar 200 Zero VOC Eg-shel B20-2600 |
| d. Semi-Gloss – 100% Acrylic | | |
| | First Coat | PrepRite ProBlock Primer B51W20 |
| | Second Coat | Solo Acrylic Latex Semigloss A76 Series |
| | Third Coat | Solo Acrylic Latex Semigloss A76 Series |
| e. Semi-Gloss – Alkyd – Class A Fire Retardant | | |
| | First Coat | Please contact your Sherwin-Williams representative for |
| | Second Coat | fire retardant wood finish information. |
| | Third Coat | |
| f. Gloss – 100% Acrylic | | |
| | First Coat | PrepRite ProBlock Primer B51W8020 |
| | Second Coat | Solo Acrylic Latex Gloss A77 Series |
| | Third Coat | Solo Acrylic Latex Gloss A77 Series |
| 7. Wood – Stain & Lacquer | | |
| (VOC Rule in SCAQMD is 275 g/L for field-applied coatings) | | |
| a. Flat | | |
| | First Coat | SherWood BAC Wiping Stain S64 |
| | Filler | Jasco Paste Wood Filler |
| | Second Coat | KemAqua Lacquer Sanding Sealer T65F520 |

Third Coat	KemAqua Dull Rub Clear Lacquer T75F528
Fourth Coat	KemAqua Dull Rub Clear Lacquer T75F528
b. Semi-Gloss	
First Coat	SherWood BAC Wiping Stain S64
Filler	Jasco Paste Wood Filler
Second Coat	KemAqua Lacquer Sanding Sealer T65F520
Third Coat	KemAqua Semigloss Clear Lacquer T75F526
Fourth Coat	KemAqua Semigloss Clear Lacquer T75F526
c. Gloss	
First Coat	SherWood BAC Wiping Stain S64
Filler	Jasco Paste Wood Filler
Second Coat	KemAqua Lacquer Sanding Sealer T65F520
Third Coat	KemAqua Gloss Clear Lacquer T75C525
Fourth Coat	KemAqua Gloss Clear Lacquer T75C525

*****END OF SECTION*****

SECTION 10100
PROJECTION SCREENS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Conditions apply to this Section.

1.02 SCOPE OF WORK

- A. Projection Screen.
- B. All accessories and hardware for a complete and proper installation.

1.03 RELATED WORK

- A. Documents affecting this Work include: General Conditions, Special Conditions, and Sections of Division 1 of these Specifications.
- B. Gypsum Systems.
- C. Finish Carpentry.

1.04 SUBSTITUTIONS

Substitutions will be considered per General Condition Article 3.11.4 and Section 01630.

1.05 SUBMITTALS

Provide in accordance with Article 3.11 of the General Conditions.

1.06 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: None required
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Da-lite: Model C manual projection screen.
- B. Substitutions under provision of Section 01000.

2.02 FABRICATION

- A. 6'-0" x 8'-0" projection screen recess ceiling mounted.
- B. Screen Fabric: Flame retardant, mildew resistant fiberglass; glass beaded picture surface with black masking borders. Fabric to be permanently attached to roller.
- C. Case: 22 ga. steel case with black enamel finish and end caps.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Verify adequate support of wood encasement by finish carpenter.
- C. Correct conditions detrimental to timely and proper complete of the Work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. Coordinate with other Sections to provide necessary support during the proper sequence of Work.
- B. Install in accordance with manufacturer's instructions.
- C. Install case and screen level and plumb.
- D. Verify smooth operation of all components.

3.03 CLEANING

- A. Leave work clean and operating smoothly.
- B. Wipe clean case after installation.
- C. Clean screen of any marring during installation.

***** END OF SECTION *****

SECTION 10155
SOLID PLASTIC TOILET PARTITIONS

PART 1 -- GENERAL

1.01 DESCRIPTION

- A. Work included: Provide Floor-supported, overhead-braced, plastic toilet partitions where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Furnish all labor and materials necessary for the completion of work in this section as shown on the contract drawings and specified herein.

1.02 QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods for proper performance of the work of this Section.

1.03 SUBSTITUTIONS

Substitutions will be considered per General Conditions Article 3.11.4 and Section 01630.

1.04 SUBMITTALS

Provide in accordance with Article 3.11 of the General Conditions.

1.05 PRODUCT HANDLING

Adhere to requirements of Section 01770.

1.06 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

A. Reports:

None required.

B. As-Builts:

Comply with the requirements of Section 01770 – Contract Closeout.

C. Operation and Maintenance Data:

None required

D. Extra Materials:

None required

E. Extended Warranty:

Comply with the requirements of the General Condition Article 3.5 and Section 01740.

1. Warranties listed in this Section shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.
2. Provide manufacturer's fifteen year warranty against corrosion, breakage and delamination of panels.
3. Provide manufacturer's five year warranty for chrome hardware and lifetime warranty for stainless steel hardware.

PART 2 -- PRODUCTS

2.01 MANUFACTURER

The Mills Company, a subsidiary of Bradley Corporation, P.O. Box 309, Menomonee Falls, WI 53052-0309. Phone 800-BRADLEY (800-272-3539), FAX 262-251-5817.

<http://www.bradleycorp.com>

2.02 MATERIALS

Doors, panels, and pilasters to be 1" thick with homogeneous color throughout, constructed from high-density polyethylene (HDPE) resins that are waterproof, non-absorbent, and have a self-lubricating surface that resists markings from pens, pencils, and other writing instruments.

2.03 CONSTRUCTION

A. Panels, doors and pilasters, 1 inch (25 mm) thick, constructed from high density polyethylene resins compounded under high pressure to form a single component, waterproof, non-absorbent, with a self-lubricating surface.

1. Edges: Rounded to a 3/16 inch (5 mm) radius.
2. Doors and panels 55 inches (1397 mm) high mounted 14 inches (356 mm) above finished floor, with aluminum heat sink fastened to bottom edge of doors.

B. Pilasters 82 inches (2083 mm) high, [minimum 5 inches (127 mm) wide for integral hinges], same construction as panels and doors, supported by pilaster shoe anchored to floor.

2.01 ACCESSORIES

A. One-piece pilaster shoes, 3 inch (76 mm) high type 304 satin stainless steel, anchored in place with stainless steel screws.

B. Head Rails: 1 x 1-1/2 inch (25 x 38 mm) extruded anodized aluminum with anti-grip profile and cast socket wall brackets.

C. Brackets: Continuous 54 inch (1372 mm) long heavy-duty aluminum, double ear style.

D. Fasteners, screws and bolts: Tamper proof stainless steel.

E. Hardware: Extruded aluminum 6463-T alloy and chrome-plated non-ferrous cast metal.

1. Hinge system integrated with doors and pilasters with no exposed metal parts. Hinge mechanism integrated into door and pilaster as a 1/2 inch (13 mm) diameter gravity cam unit with 3/16 inch (5 mm) stainless steel pin at door bottom and 1/2 inch (13 mm) nylon pin at top.
2. Latches fabricated from extruded aluminum with a satin finish for the housing and a black anodized finish for the slide bolt.
3. Door strike and keeper, 6 inches (152 mm) long fabricated from heavy-duty extruded aluminum with satin finish and wraparound flanges. Bumper is black rubber.
4. Coat hook with wall bumper, chrome-plated; one per compartment, mounted on door.
5. Door pull and door stop for each out swinging door.

2.04 OTHER MATERIALS

Provide other materials not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the acceptance of the Architect.

PART 3 -- EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which work of this Section will be performed.

B. Correct conditions detrimental to timely and proper completion of the Work.

C. Do not proceed until unsatisfactory conditions are corrected.

D. Take complete and accurate measurements of complete toilet and urinal compartment

locations.

E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Install the work of this Section in strict accordance with the original design, the accepted Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as accepted by the Architect, anchoring all components firmly into position for long life under hard use.
- C. Adjust doors, except doors to handicapped compartments, to remain at a uniformly open position when unlocked. Handicap compartment doors shall be hung so as to remain closed.
- D. Touch-up scratches and abrasions to be completely invisible to the unaided eye from a distance of five feet.
- E. Coordinate with General Contractor overhead bracing and wall backing and blocking required for all partitions and grab bars.
 - 1. All such expenses are to be borne by the buyer.

*****END OF SECTION*****

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SECTION 10155

SOLID PLASTIC TOILET PARTITIONS

PART 1 -- GENERAL

1.01 DESCRIPTION

- A. Work included: Provide Floor-supported, overhead-braced, plastic toilet partitions where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.
- B. Furnish all labor and materials necessary for the completion of work in this section as shown on the contract drawings and specified herein.

1.02 QUALITY ASSURANCE

Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods for proper performance of the work of this Section.

1.03 SUBSTITUTIONS

Substitutions will be considered per General Conditions Article 3.11.4 and Section 01630.

1.04 SUBMITTALS

Provide in accordance with Article 3.11 of the General Conditions.

1.05 PRODUCT HANDLING

Adhere to requirements of Section 01770.

1.06 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

A. Reports:

None required.

B. As-Builts:

Comply with the requirements of Section 01770 – Contract Closeout.

C. Operation and Maintenance Data:

None required

D. Extra Materials:

None required

E. Extended Warranty:

Comply with the requirements of the General Condition Article 3.5 and Section 01740.

1. Warranties listed in this Section shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.
2. Provide manufacturer's fifteen year warranty against corrosion, breakage and delamination of panels.
3. Provide manufacturer's five year warranty for chrome hardware and lifetime warranty for stainless steel hardware.

PART 2 -- PRODUCTS

2.01 MANUFACTURER

The Mills Company, a subsidiary of Bradley Corporation, P.O. Box 309, Menomonee Falls, WI 53052-0309. Phone 800-BRADLEY (800-272-3539), FAX 262-251-5817.

<http://www.bradleycorp.com>

2.02 MATERIALS

Doors, panels, and pilasters to be 1" thick with homogeneous color throughout, constructed from high-density polyethylene (HDPE) resins that are waterproof, non-absorbent, and have a self-lubricating surface that resists markings from pens, pencils, and other writing instruments.

2.03 CONSTRUCTION

A. Panels, doors and pilasters, 1 inch (25 mm) thick, constructed from high density polyethylene resins compounded under high pressure to form a single component, waterproof, non-absorbent, with a self-lubricating surface.

1. Edges: Rounded to a 3/16 inch (5 mm) radius.
2. Doors and panels 55 inches (1397 mm) high mounted 14 inches (356 mm) above finished floor, with aluminum heat sink fastened to bottom edge of doors.

B. Pilasters 82 inches (2083 mm) high, [minimum 5 inches (127 mm) wide for integral hinges], same construction as panels and doors, supported by pilaster shoe anchored to floor.

2.01 ACCESSORIES

A. One-piece pilaster shoes, 3 inch (76 mm) high type 304 satin stainless steel, anchored in place with stainless steel screws.

B. Head Rails: 1 x 1-1/2 inch (25 x 38 mm) extruded anodized aluminum with anti-grip profile and cast socket wall brackets.

C. Brackets: Continuous 54 inch (1372 mm) long heavy-duty aluminum, double ear style.

D. Fasteners, screws and bolts: Tamper proof stainless steel.

E. Hardware: Extruded aluminum 6463-T alloy and chrome-plated non-ferrous cast metal.

1. Hinge system integrated with doors and pilasters with no exposed metal parts. Hinge mechanism integrated into door and pilaster as a 1/2 inch (13 mm) diameter gravity cam unit with 3/16 inch (5 mm) stainless steel pin at door bottom and 1/2 inch (13 mm) nylon pin at top.
2. Latches fabricated from extruded aluminum with a satin finish for the housing and a black anodized finish for the slide bolt.
3. Door strike and keeper, 6 inches (152 mm) long fabricated from heavy-duty extruded aluminum with satin finish and wraparound flanges. Bumper is black rubber.
4. Coat hook with wall bumper, chrome-plated; one per compartment, mounted on door.
5. Door pull and door stop for each out swinging door.

2.04 OTHER MATERIALS

Provide other materials not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the acceptance of the Architect.

PART 3 -- EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which work of this Section will be performed.

B. Correct conditions detrimental to timely and proper completion of the Work.

C. Do not proceed until unsatisfactory conditions are corrected.

D. Take complete and accurate measurements of complete toilet and urinal compartment

locations.

E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Install the work of this Section in strict accordance with the original design, the accepted Shop Drawings, pertinent requirements of governmental agencies having jurisdiction, and the manufacturer's recommended installation procedures as accepted by the Architect, anchoring all components firmly into position for long life under hard use.
- C. Adjust doors, except doors to handicapped compartments, to remain at a uniformly open position when unlocked. Handicap compartment doors shall be hung so as to remain closed.
- D. Touch-up scratches and abrasions to be completely invisible to the unaided eye from a distance of five feet.
- E. Coordinate with General Contractor overhead bracing and wall backing and blocking required for all partitions and grab bars.
 - 1. All such expenses are to be borne by the buyer.

*****END OF SECTION*****

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SECTION 10263
CORNER GUARDS

PART 1 - GENERAL

1.01 **GENERAL REQUIREMENTS**

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section

1.02 **SUMMARY**

This section includes the following types of wall protection systems: Corner Guards.

1.03 **REFERENCES**

American Society for Testing and Materials (ASTM)

1.03 **QUALITY ASSURANCE**

- A. Installer qualifications: Engage an installer who has no less than 3 years experience in installation of systems similar in complexity to those required for this project.
- B. Manufacturer's qualifications: Not less than 5 years' experience in the production of specified products and a record of successful in-service performance.
- C. Single source responsibility: Provide all components of the wall protection system manufactured by the same company to ensure compatibility of color, texture and physical properties.
- D. Fire performance characteristics: Provide engineered PETG wall protection system components with UL label indicating that they are identical to those tested in accordance with ASTM E84 for Class 1 characteristics listed below:
 - 1. Flame spread: 25 or less.
 - 2. Smoke developed: 450 or less.
- E. Impact Strength: Provide assembled wall protection units that have been tested in accordance with the applicable provisions of ASTM F476.
- F. Chemical and stain resistance: Provide wall protection system components with chemical and stain resistance in accordance with ASTM D543.
- G. Color match: Provide wall protection components that are color matched in accordance with the following:
 - Delta Ecmc of no greater than 1.0 using CIELab color space. (Specifier note: Construction Specialties' colors are matched under cool white fluorescent lighting and computer controlled within manufacturing tolerances. Color may vary if alternate lighting sources are present).
- H. Single source responsibility: Provide all components of the wall protection system manufactured by the same company to ensure compatibility of color, texture and physical properties.

1.04 **SUBSTITUTIONS**

Substitutions will be considered per General Condition Article 3.11.4 and Section 01630.

1.05 **SUBMITTALS**

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Product data and detailed specifications for each system component and installation accessory required, including installation methods for each type of substrate.

- C. Shop drawings showing locations, extent and installation details of corner guards. Show methods of attachment to adjoining construction.
- D. Samples for verification purposes: Submit the following samples, as proposed for this work, for verification of color, texture, pattern and end cap attachment and alignment.
 - 12" (304.8mm) long sample of each model specified including end cap and mounting hardware.
- E. Product test reports from a qualified independent testing laboratory showing compliance of each component with requirements indicated.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Comply with the requirements of Section 01620.
- B. Deliver materials to the project site in unopened original factory packaging clearly labeled to show manufacturer.
- C. Store materials in original, undamaged packaging in a cool, dry place out of direct sunlight and exposure to the elements. A minimum room temperature of 40°F (4°C) and a maximum of 100°F (38°C) should be maintained.
- D. Material must be stored flat.

1.07 PROJECT CONDITIONS

- A. Materials must be acclimated in an environment of 65°-75°F (18°-24°C) for at least 24 hours prior to beginning the installation.
- B. Installation areas must be enclosed and weatherproofed before installation commences.

1.08 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: None required
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Interior surface protection products specified herein and installed on the submittal drawings shall be manufactured by Construction Specialties, Inc. or approved equal.

2.02 MATERIALS

- A. Engineered PETG: Extruded material should be high impact Acrovyn 4000 with shadow-grain texture, nominal .078" (1.98mm) thickness. Chemical and stain resistance should be per ASTM D543 standards as established by the manufacturer. Colors to be indicated in the finish schedule from one of manufacturer's standard color range.
- B. Recycled PETG: PVC-free regrind retainer.
- C. Fasteners: All fasteners to be non-corrosive and compatible with aluminum retainers. All necessary fasteners to be supplied by the manufacturer.

2.03 CORNER GUARDS

- A. Engineered PETG Corner Guards to be Acrovyn 4000 by Construction Specialties: Surface mounted guards consisting of continuous retainer with snap-on Acrovyn 4000 cover. Color matched end caps to be provided for both partial and full height applications. Attachment hardware shall be appropriate for wall construction.

Model SSM-20N 90° surface mounted corner guard with 2" (51mm) legs, ¼" radiused cover and recycled PETG retainer. See Interior Material Schedule for Color.

2.04 FABRICATION

- A. General: Fabricate wall protection systems to comply with requirements indicated for design, dimensions, detail, finishes and member sizes. All based upon required field verified dimensions.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed.
B. Verify that specified items may be installed in accordance with the approved design.
C. Correct conditions detrimental to timely and proper completion of the Work.
D. Do not proceed until unsatisfactory conditions are corrected.
E. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

- A. Surface preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer's instructions.
B. Protection: Take all necessary steps to prevent damage to material during installation as required in manufacturer's installation instructions.

3.03 INSTALLATION

- A. Install the work of this section in strict accordance with the manufacturer's recommendations and the required field verified dimensions.
B. Use only approved mounting hardware, and locating all components firmly into position, level and plumb.
C. Temperature at the time of installation must be between 65°-75°F (18°-24°C) and be maintained for at least 48 hours after the installation.

3.04 CLEANING

- A. General: Immediately upon completion of installation, clean rails and accessories in accordance with manufacturer's recommended cleaning method.
B. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

3.05 PROTECTION

Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

*****END OF SECTION*****

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SECTION 10400

IDENTIFYING DEVICES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 SECTION INCLUDES

- A. Molded plastic signs.
- B. Aluminum free-standing signs.
- C. Aluminum channel letters.
- D. Dedication Plaque

1.03 SUBSTITUTIONS

Substitutions will be considered per Article 3.3 of the Instruction to Bidders of the Bid Package Section 00003.

1.04 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Submit the following:
 - 1. samples illustrating full size sample sign, of type, style and color specified including method of attachment.
 - 2. manufacturer's installation instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package signs, labeled in name groups.
- B. Store adhesive tape at ambient room temperatures.

1.06 ENVIRONMENTAL REQUIREMENTS

Do not install signs when ambient temperature is below 70 degrees F. Maintain this minimum during and after installation of signs.

1.07 PRODUCT HANDLING

Adhere to requirements of Section 01770.

1.08 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: None required
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 -- PRODUCTS

2.01 MATERIALS – EXTERIOR BUILDING SIGNAGE

- A. Basis of Design: A.R.K. Ramos Architectural Signage Systems; Aluminum Channel Letter
- B. Letters and/or Numbers – Font/Size/Finish/Color: as indicated on the Drawings.
- C. Brackets: PPM-1 bracket sleeved stud.
 - 1. Set in adhesive in masonry.
 - 2. Attach to support in framed wall.

2.02 MATERIALS – ROOM ID SIGNAGE

- A. 1/8" thick ES Plastic. Color to be selected by Architect.
- B. Graphics to be vinyl die-cut. 3/4" Helvetica Medium caps.
- C. Adhesive mounting.
- D. All signs to have 1/2" Radius corners.
- E. See Schedule for types.
- F. All signs installed on glass shall have a full size backing plate adhered to the opposite side of the glass of the same color as the sign.

2.03 MATERIALS – OTHER INTERIOR SIGNAGE

- A. Products: See Drawings for types.
- B. Material: 1/8" thick ES Plastic. Size and color as indicated on the drawings. All signs to have 1/2" Radius corners.
- C. Graphics: to be vinyl die-cut. Text, Font, size and color as indicated on the drawings.
- D. Mounting: Adhesive mounting.

2.04 MATERIALS -- ALUMINUM FREE-STANDING SIGN

- A. See Drawings for types and locations.
- B. Provide 1/8" thick aluminum sign, on 1-3/4" x 1-3/4" x 1/8" x 7' post; black duranodic aluminum tubing and sign.
- C. Letters are to be vinyl die-cut. Text shall conform to access requirements of the CBC.
- D. Color to be black anodized with white lettering.
- E. Signs are to be sleeve mounted in concrete footings.

2.05 DEDICATION PLAQUE

See Drawings for: location at Flagpole, size, text, and material details.

2.06 ACCESSORIES

- A. Mounting Hardware: Chrome screws; base sleeve and studs per manufacturer's recommendations.
- B. Tape Mount: Double sided tape, permanent adhesive.
- C. Adhesive: Silastic adhesive as recommended by manufacturer.

PART 3 -- EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Verify adequate support for Building Signs. Coordinate footings with other trades.
- C. Correct conditions detrimental to timely and proper completion of the Work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install signs after doors and surfaces are finished, in locations indicated.
 - 1. Furnish and install all anchorage devices required to install the item and its appurtenances complete. Provide anchorage in ample time when required to be built in by other trades.
 - 2. All wall-mounted items shall be securely fastened to solid backing or blocking.
- C. Center plastic signs on doors, level.
- D. Anchor all components firmly into position for long life under hard use.
- E. Clean and polish.

*****END OF SECTION*****

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SECTION 10520

FIRE PROTECTION SPECIALTIES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 SCOPE OF WORK

A. Provide and install all Fire extinguishers and Cabinets as shown on the documents and as required by the local Fire Marshall.

B. Accessories as required for a complete and proper project.

1.03 QUALITY ASSURANCE

A. Conform to NFPA 10 requirements for extinguishers.

B. Provide fire extinguishers, cabinets, and accessories by single manufacturer.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 3.3 of the Instruction to Bidders of the Bid Package Section 00003.

1.05 SUBMITTALS

A. Provide in accordance with Article 3.11 of the General Conditions

B. Submit the following:

1. Physical dimensions, operational features, color and finish, wall-mounting brackets with mounted measurements, anchorage details, rough-in measurements, location, and details.
2. Manufacturer's installation instructions.
3. Manufacturer's operation and maintenance data.
4. Include test, refill or recharge schedules, procedure, and re-certification requirements.

1.06 ENVIRONMENTAL REQUIREMENTS

Do not install extinguishers when ambient temperatures may cause freezing.

1.07 PRODUCT HANDLING

Comply with the requirements of Section 01640.

1.08 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

A. Reports: None required.

B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.

C. Operation and Maintenance Data: None required

D. Extra Materials: None required

E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 -- PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Larsen's Manufacturing Company or Architect approved equal.

2.02 EXTINGUISHERS

Multi-Purpose Chemical Type: Larsen's Steel tank, Model MP 5, with pressure gage, and UL Rating 2A-10B:C or approved equal.

2.03 CABINETS

Typical Extinguisher Cabinet:

- A. Provide Larsen's 2409-5R Vertical Duo Panel cabinet.
- B. Primer finish.

2.04 ACCESSORIES

- A. Mounting Hardware: Appropriate to cabinet - see manufacturer's installation instructions.
- B. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

2.05 FABRICATION

- A. Form body of cabinet with tight inside corners and seams.
- B. Pre-drill holes for anchorage.
- C. Form perimeter trim and door stiles by welding, filling, and grinding smooth.
- D. Hinge doors for 180 degree opening.
- E. Glaze doors with resilient channel gasket glazing.

2.06 FINISHES

- A. Extinguisher: Red enamel.
- B. Cabinet Trim and Door: Primed to be painted to match adjacent surface.
- C. Cabinet Interior: Enamel white.

PART 3 -- EXECUTION

3.01 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Verify that rough openings for cabinet are correctly sized and located.
- C. Correct conditions detrimental to timely and proper completion of the Work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. Install cabinets plumb and level in wall openings so that there is 54 inches from finished floor to door handle.
- B. Secure rigidly in place in accordance with manufacturer's instructions.

***** END OF SECTION *****

SECTION 10655
OPERABLE PARTITIONS

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 SUMMARY

Single panel partitions, 4 inch thick, operable panel partitions.

1.03 REFERENCES

- A. ASTM E 90 - Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- B. ASTM E 557 - Standard Practice for the Installation of Operable Partitions.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified in writing by the operable partition manufacturer, as qualified to install the manufacturer's partition systems for work similar in material, design, and extent to that indicated for this Project.
- B. Acoustical Performance: Test operable partitions in accordance with ASTM E 90 test procedure to attain no less than the STC rating specified. Provide a complete and unedited written test report by the testing laboratory upon request.
- C. Preparation of Opening: Conform to ASTM E 557.

1.05 SUBSTITUTIONS

Substitutions will be considered per General Conditions Article 3.11.4 and Section 01630.

1.06 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Product Data: Material descriptions, construction details, finishes, installation details, and operating instructions for each type of operable partition, component, and accessory specified.
- C. Shop Drawings: Show location and extent of operable partitions. Include plans, elevations, sections, details, attachments to other construction, and accessories. Indicate dimensions, weights, conditions at openings, and at storage areas, and required installation, storage, and operating clearances. Indicate location and installation requirements for hardware and track, including floor tolerances required and direction of travel. Indicate blocking to be provided by others.
- D. Setting Drawings: Show imbedded items and cutouts required in other work, including support beam punching template.
- E. Samples: Color samples demonstrating full range of finishes available to Architect. Verification samples shall be available in same thickness and material indicated for the work.

1.07 PRODUCT HANDLING

- A. Adhere to requirements of Section 01640.
- B. Clearly mark packages and panels with numbering systems used on Shop Drawings. Do not use permanent markings on panels.
- C. Protect panels during delivery, storage, and handling to comply with manufacturer's

instructions and as required to prevent damage.

1.08 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

A. Reports:

None required.

B. As-Builts:

Comply with the requirements of Section 01770 – Contract Closeout.

C. Operation and Maintenance Data:

None required

D. Extra Materials:

None required

E. Extended Warranty:

Comply with the requirements of the General Condition Article 3.5 and Section 01740.

A. Warranties listed in this Section shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.

B. Provide operable partition manufacturer's written warranty agreeing to repair or replace components with manufacturing defects:

1. Partition: (2) Two years
2. Suspension System: (5) Five years
3. Hinges: Lifetime

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Basis of design Manufacturer: Modernfold, Inc.,

Location: 215 W. New Road, Greenfield, IN 46140;

Toll Free Tel: 800-869-9685; Tel: 317-468-6700;

Fax: 866-410-5016;

Email: info@modernfold.com;

Web: www.modernfold.com

2.02 PRODUCT

Subject to compliance with the requirements, provide the following product: OP-01: Acousti-Seal # 932 manually operated paired panel operable partition.

2.03 OPERATION

A. OP-01: Acousti-Seal #932: Series of paired flat panels hinged together in pairs, manually operated, top supported with operable floor seals.

B. Final Closure: Horizontally expanding panel edge with removable crank.

2.04 PANEL CONSTRUCTION

A. Nominal 3-inch thick panels in manufacturer's standard 48-inch widths. All panel horizontal and vertical framing elements fabricated from 18-gage formed steel with overlapped and

welded corners for rigidity. Top channel is reinforced to support suspension system components. Frame is designed so that full vertical edges of panels are of formed steel and provide concealed protection of the edges of the panel skin.

- B. Panel skin shall be: 0.50-inch Tackable 100% recycled gypsum board, class "A" rated single material or composite layers continuously bonded to panel frame. Acoustical ratings of panels with this construction are a minimum of 50 STC.
- C. Hinges for Panels, Closure Panels, and Pocket Door shall be: Full leaf butt hinges, attached directly to the panel frame with welded hinge anchor plates within panel to further support hinge mounting to frame. Hinges mounted into panel edge or vertical astragal are not acceptable.
- D. Panel Trim: no vertical trim required or allowed on edges of panels; minimal groove appearance at panel joints.
- E. Panel Weights: 8 lbs/square foot.

2.05 PANEL FINISH

- A. Panel finish shall be factory applied, Class "A" rated material. Finish shall be: wall covering and upholstery fabric with surface treatment to resist stains.
- B. Panel Trim: exposed panel trim of one consistent color: to be selected by the Architect.
 - 1. Panel Finish:.
 - 2. Exposed Panel Trim Color: Dark bronze.

2.06 SOUND SEALS

- A. Vertical Interlocking Sound Seals Between Panels: Roll-formed steel astragals, with reversible tongue and groove configuration in each panel edge for universal panel operation. Rigid plastic or aluminum astragals or astragals in only one panel edge are not acceptable.
- B. Horizontal Top Seals: continuous contact extruded vinyl bulb shape with pairs on non-contacting vinyl fingers to prevent distortion without the need for mechanically operated parts.
- C. Horizontal bottom Floor Seals shall be: Modernfold IA2 Bottom Seal. Automatic operable seals providing nominal 2 inches (51 mm) operating clearance with an operating range of plus 0.50 inches (13 mm) to minus 1.50 inches (38 mm), which automatically drop as panels are positioned, without the need for tools or cranks.

2.07 SUSPENSION SYSTEM

- A. Suspension Tracks: Minimum 11-gauge, 0.12 roll-formed steel track, suitable for either direct mounting to wood header or supported by adjustable steel hanger brackets, supporting the load-bearing surface of the track, connected to structural support by pairs of 0.38 inches (10 mm) diameter threaded rods. Aluminum track is not acceptable.
- B. Exposed Track Soffit: Steel, integral to track bracket without exposed fasteners and pre-painted off-white.
- C. Carriers: One all-steel trolley with steel tired ball-bearing wheels per panel (except hinged panels). Non-steel tires are not acceptable.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine flooring, structural support, and opening, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of operable partitions.

- B. Verify that specified items may be installed in accordance with the approved design.
- C. Correct conditions detrimental to timely and proper completion of the Work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. General: Comply with ASTM E557, operable partition manufacturer's written installation instructions, Drawings and approved Shop Drawings .
- B. Install operable partitions and accessories after other finishing operations, including painting have been completed.
- C. Match operable partitions by installing panels from marked packages in numbered sequence indicated on Shop Drawings.
- D. Broken, cracked, chipped, deformed or unmatched panels are not acceptable.

3.03 CLEANING AND PROTECTION

- A. Clean partition surfaces upon completing installation of operable partitions to remove dust, dirt, adhesives, and other foreign materials according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions in a manner acceptable to the manufacturer and installer that insure operable partitions are without damage or deterioration at time of Substantial Completion.

3.04 ADJUSTING

Adjust operable partitions to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and other moving parts

3.05 DEMONSTRATION

- A. Demonstrate proper operation and maintenance procedures to Owner's representative.
- B. Provide Operation and Maintenance Manual to Owner's representative.

*****END OF SECTION*****

SECTION 10800
TOILET AND BATH ACCESSORIES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 QUALITY ASSURANCE

- A. Manufacturer: Provide products manufactured by a company with a minimum of 10 years successful experience manufacturing similar products.
- B. Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.
- C. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.
- D. Hazardous Materials: Comply with EU Directive "Restrictions of Hazardous Substances (RoHS) requirements."

1.03 SUBSTITUTIONS

Substitutions will be considered per General Condition Article 3.11.4 and Section 01630.

1.04 SUBMITTALS

Provide in accordance with Article 3.11 of the General Conditions.

1.05 KEYING

Supply two (2) keys for each accessory to Owner. Master Key all accessories.

1.06 REGULATORY REQUIREMENTS

Conform to Title 24 and City codes for installing work in conformance with ANSI A117.1.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with the requirements of Section 01620.
- B. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations. Protect from damage.

1.08 SEQUENCING AND SCHEDULING

Coordinate the work of this Section with the placement of internal wall reinforcement and reinforcement of toilet partitions to receive anchor attachments.

1.09 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

A. Reports:

None required.

B. As-Builts:

Comply with the requirements of Section 01770 – Contract Closeout.

C. Operation and Maintenance Data:

None required

D. Extra Materials:

None required

E. Extended Warranty:

Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 -- PRODUCTS

2.01 MANUFACTURER

Basis of Design Products: Based on the quality and performance requirements of the project, specifications are based solely on the products of Bobrick Washroom Equipment, Inc.. www.bobrick.com. Location of manufacturing shall be the United States

2.02 TOILET ACCESSORY SCHEDULE

As indicated on the Drawings.

2.03 MATERIALS

A. Stainless Steel Sheet: ASTM A167, Type 304.

B. Tubing: ASTM A269, stainless steel.

C. Fasteners, Screws, and Bolts: Hot dip galvanized as recommended by manufacturer.

D. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.04 PRODUCTS

As indicated on the Drawings.

2.05 FACTORY FINISHING

Stainless Steel: No. 4 satin luster finish.

PART 3 -- EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which work of this Section will be performed.

B. Verify that site conditions are ready to receive work and dimensions are as instructed by the manufacturer.

C. Correct conditions detrimental to timely and proper completion of the Work.

D. Do not proceed until unsatisfactory conditions are corrected.

E. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Deliver inserts and rough-in frames to site at appropriate time for building-in.

B. Provide complete information, diagrams, templates, and instructions for the installation of all items, in sufficient time so that all backing, blocking, framing and formwork can be properly installed, and so that the work of other trades will not be delayed.

C. Verify exact location of accessories for installation.

3.03 INSTALLATION

A. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:

1. Verify blocking has been installed properly.

2. Verify location does not interfere with door swings or use of fixtures.
3. Comply with manufacturer's recommendations for backing and proper support.
4. Use fasteners and anchors suitable for substrate and project conditions
5. Install units rigid, straight, plumb, and level, in accordance with manufacturer's installation instructions and approved shop drawings.
6. Conceal evidence of drilling, cutting, and fitting to room finish.

B. Test for proper operation

3.04 CLEANING AND PROTECTION

- A. Clean exposed surfaces of compartments, hardware, and fittings using methods acceptable to the manufacturer.
- B. Touch-up, repair or replace damaged products until Substantial Completion.

***** END OF SECTION *****

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SECTION 11027

KNOX BOXES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

Division 0, Contract Requirements and Division 1, General Requirements apply to this Section.

1.02 SCOPE OF WORK

This Section describes the requirements for furnishing and installing lock boxes.

1.03 QUALITY ASSURANCE

Coordinate ordering lock boxes with local Fire District.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 3.3 of the Instruction to Bidders of the Bid Package Section 00003.

1.05 SUBMITTALS

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Product Data: Manufacturer's descriptive and technical data and installation details.

1.06 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

- A. Reports: None required.
- B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
- C. Operation and Maintenance Data: None required
- D. Extra Materials: None required
- E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 -- PRODUCTS

2.01 LOCK BOXES

- A. Basis of Design: Knox Company
 - 1. Construction: Heavy-duty, high security
 - 2. Door: 5/8-inch solid steel with gasket
 - 3. Size: 9½-inches high x 9½-inches wide x 5-inches deep
 - 4. Mounting: Recessed
 - 5. Finish: Aluminum Finish
- B. Model:
 - 1. Model #4400 at Doors
 - 2. Model #3770 at Gates
 - 3. Vehicular Gate Key Control Switch: Knox #3502
- C. Fastenings: Non-ferrous, type to suit installation conditions

PART 3 -- EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. Correct conditions detrimental to timely and proper completion of the Work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. Install lock boxes at locations indicated in accordance with manufacturer's instructions.
- B. Securely fasten in place with sides plumb and level.
- C. Exposed surfaces shall be free from scratches, tool marks, and other damage and defects.

***** END OF SECTION *****

SECTION 11450
APPLIANCES

PART 1 – GENERAL

1.01 **GENERAL REQUIREMENTS**

Division 0, Contract Requirements and Division 1, General Conditions apply to this Section.

1.02 **SECTION INCLUDES**

A. Residential appliances of the following types:

1. Refrigerators.
2. Cooking appliances.
3. Microwave ovens.
4. Exhaust Hood.

1.03 **REFERENCES**

- A. ANSI A117.1 - Guidelines for Accessible and Useable Buildings and Facilities.
- B. EPA - Energy Star Appliances.
- C. Public Law 101-336 - Americans with Disabilities Act.

1.04 **QUALITY ASSURANCE**

- A. Regulatory Requirements: Comply with referenced standards and the Americans with Disabilities Act as applicable for fixtures for the disabled.
- B. Energy Rating: Provide appliances with the EPA Energy Star label where applicable.
- C. Coordinate rough-in requirements with adjacent construction. Coordinate components and fittings to ensure compatible parts are installed.

1.05 **SUBSTITUTIONS**

Substitutions will be considered per General Condition Article 3.11.4 and Section 01630.

1.06 **SUBMITTALS**

- A. Provide in accordance with Article 3.11 of the General Conditions.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Model number and selected options for each appliance.
 2. Preparation instructions and recommendations.
 3. Storage and handling requirements and recommendations.
 4. Installation methods.
 5. List of maintenance parts.
- C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.07 **DELIVERY, STORAGE, AND HANDLING**

- A. Comply with the requirements of Section 01620.

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

1.08 PROJECT CONDITIONS

Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.09 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.

A. Reports:

None required.

B. As-Builts:

Comply with the requirements of Section 01770 – Contract Closeout.

C. Operation and Maintenance Data:

None required

D. Extra Materials:

None required

E. Extended Warranty:

Comply with the requirements of the General Condition Article 3.5 and Section 01740.

PART 2 -- PRODUCTS

2.01 MANUFACTURERS

Acceptable Manufacturer: GE Appliances, which is located at: Appliance Park AP4-109 ; Louisville, KY 40225; Toll Free Tel: 800-626-2000; Tel: 502-452-3346; Fax: 502-452-0620; Email: request info; Web: www.geappliances.com

2.02 APPLIANCES

A. Refrigerator:

1. Top-Freezer Refrigerators: GE Energy Star 17.9 Cu. Ft., model no. GTH18ISXSS.
2. Appearance: Stainless steel.

B. Cooking Appliances:

1. Ranges: GE 30" Built-in Clean Design Electric Cooktop, model no. JP356WMBB
2. Appearance: Black on black

C. Microwave Ovens:

1. Microwave Ovens: GE 1.3 Cu. Ft. Countertop Microwave Oven, model no. JES1344SK.
2. Appearance: Stainless steel.

D. Exhaust Hood:

1. Model: GE 30" Energy Star Qualified Ventilation Hood, model number PV970NSS
2. Appearance: Stainless steel.

PART 3-- EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Do not begin installation until substrates have been properly prepared. Coordinate rough-in with appliance sizes and utility requirements.
- C. Correct conditions detrimental to timely and proper completion of the Work.
- D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- E. Do not proceed until unsatisfactory conditions are corrected.
- F. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

Assemble appliances and trim and install in accordance with manufacturer's instructions and the following:

1. Securely mount to substrate.
2. Install appliances plumb and level and in proper relationship to adjacent construction.
3. Connect appliances to building utility, supply and waste systems as applicable.
4. Test for proper operation and drainage. Adjust until proper operation is achieved.

3.04 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

*****END OF SECTION*****

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SECTION 12500

WINDOW TREATMENT - MANUAL ROLLER SHADES

PART 1 – GENERAL

1.01 **SCOPE**

Furnish and install Manual Roller Shades (Premium Quality)

1.02 **REFERENCES**

Flame-Resistant materials shall pass or exceed the following tests:

- National Fire Protection Association (NFPA) 701 (small scale for horizontal applications)
- California Administrative Code Title 19

1.03 **QUALITY ASSURANCE**

- A. Manufacturer, subsidiary or licensed agent shall be approved to supply the products specified, and to honor any claims against product presented in accordance with warranty.
- B. Installer or agent shall be qualified to install specified products by prior experience, demonstrated performance and acceptance of requirements of manufacturer, subsidiary, or licensed agent. Installer shall be responsible for an acceptable installation.
- C. Provide Manual Roller Shades of only one manufacturer for entire project.

1.04 **SUBSTITUTIONS**

Substitutions will be considered per General Conditions Article 3.11.4 and Section 01630.

1.05 **SUBMITTALS**

- A. Provide in accordance with Article 3.11 of the General Conditions
- B. Product Data: Manufacturer's descriptive literature shall be submitted indicating materials, finishes, construction and installation instructions and verifying that product meets requirements specified. Manufacturer's recommendations for maintenance and cleaning shall be included.
- C. Drawings and Diagrams: Wiring diagrams of any motorized components or units, working and assembly drawings shall be supplied as requested.
- D. Samples: Responsible contracting officer or agent shall supply one sample shade of each type specified in this contract for approval. Supplied units shall be furnished complete with all required components, mounting and associated hardware, instructions and warranty.

1.06 **PRODUCT HANDLING**

- A. Adhere to requirements of Section 01770.
- B. Product shall be delivered to site in manufacturer's original packaging.
- C. Product shall be handled and stored to prevent damage to materials, finishes and operating mechanisms.

1.07 **JOB CONDITIONS**

- A. Prior to shade installation, building shall be enclosed.
- B. Interior temperature shall be maintained between 60° F. and 90° F. during and after installation; relative humidity shall not exceed 80%. Wet work shall be complete and dry.

1.08 **OPERATION AND MAINTENANCE DATA**

Submit operation and maintenance data maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

- 1.09 CLOSE-OUT: Comply with the requirements of Section 01770 – Contract Closeout.
- A. Reports: None required.
 - B. As-Builts: Comply with the requirements of Section 01770 – Contract Closeout.
 - C. Operation and Maintenance Data: See 1.08 for Information.
 - D. Extra Materials: None required
 - E. Extended Warranty: Comply with the requirements of the General Condition Article 3.5 and Section 01740.
 - 1. Warranties listed in this Section shall be in addition to, and not a limitation of other rights the owner may have under the contract documents.
 - 2. Lifetime Limited Warranty. Fabrics warranted for 5 years. Specific product warranties available from manufacturer or its authorized agent.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

As indicated on the Drawings

2.02 MANUAL ROLLER SHADES

As indicated on the Drawings

2.03 FABRICATION

Shade measurements shall be accurate to within $\pm 1/8"$ or as recommended in writing by manufacturer.

2.04 FABRICS

Fabric selection by Architect.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine the areas and conditions under which work of this Section will be performed.
- B. Verify that specified items may be installed in accordance with the approved design.
- C. Correct conditions detrimental to timely and proper completion of the Work.
- D. Do not proceed until unsatisfactory conditions are corrected.
- E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

- A. Installation shall comply with manufacturer's specifications, standards and procedures as detailed on contract drawings.
- B. Adequate clearance shall be provided to permit unencumbered operation of shade and hardware.
- C. Clean finish installation of dirt and finger marks. Leave work area clean and free of debris.

3.03 DEMONSTRATION

Demonstrate operation method and instruct owner's personnel in the proper operation and maintenance of the blinds.

*****END OF SECTION*****