1. Interior Doors: Level 2, Model 2 – Seamless

   Interior doors shall be minimum 16-gauge steel with both lock and hinge rail edge of door intermittently welded, filled and ground smooth the full height of door. Acceptable Manufacturers/Products:

   a. Ceco: Regent-16-SEM
   b. Curries: 707N-16
   c. Steelcraft: LF16
   d. Architect Approved Equal

2. Exterior Doors: Level 3, Model 2 – Seamless

   Exterior doors shall be minimum 16-gauge galvanized or galvanealed steel with both lock and hinge rail edge of door intermittently welded, filled and ground smooth the full height of door. Exterior doors shall be insulated with a solid slab of expanded polystyrene or polyurethane foam permanently bonded to the inside of each face skin. The top of all doors shall be closed flush by the addition of a 16-gauge screwed-in top cap and sealed to prevent water infiltration. The bottom channel shall include weep-holes. Acceptable Manufacturers/Products:

   a. Ceco: Legion-16-SEM
   b. Curries: 707N-16
   c. Steelcraft: LF16-Polystyrene
   d. Architect Approved Equal

3. Security Doors: Level 3, Model 2 – Seamless

   Doors shall be minimum 14-gauge steel with both lock and hinge rail edge of door continuously wire welded the entire height of the door. Doors shall be reinforced, stiffened, insulated, and sound deadened with continuous 20 gauge vertical steel stiffeners spaced not more than 6" (152) apart. The stiffener ends shall be welded together at the top and bottom ends. All spaces between stiffeners shall be insulated with .75 pound density fiberglass insulation. The top of all doors shall be closed flush by the addition of a 14-gauge screwed-in top cap and sealed to prevent water infiltration. The bottom channel shall include weep-holes. Acceptable Manufacturers/Products:

   a. Ceco: Medallion-14
   b. Curries: 747T-14
   c. Steelcraft: BW14
   d. Architect Approved Equal

4. Bullet Resistant Doors

   a. Bullet resistant hollow metal doors shall be constructed with vertical steel stiffeners and fully welded vertical edge seams for enhanced strength and aesthetic appearance. Internal door construction and concealed armor plate shall vary and is dependent on the required ballistic rating. Provide ballistic level doors as follows:

      i. Level 1: Super 38 Automatic
      ii. Level 2: .357 Magnum Revolver
      iii. Level 3: .44 Magnum Revolver
      iv. Level 4: 30-06 Rifle

   b. Subject with compliance to the outline requirements, provide products by the following manufacturers:

      i. Ceco: Armorshield
      ii. Curries: 847/857
      iii. Security Metals

iv. Architect Approved Equal

B. All doors shall be reinforced for hardware as shown below where necessary to preclude the use of thru-bolts.

1. Exit Devices: 14-gauge
2. Door Closers: 12-gauge

C. All doors shall be beveled 1/8" in 2" and shall have top and bottom channels of not less than 16-gauge, flush or inverted, welded to the face sheets. Doors shall have a full height 14-gauge hinge rail reinforcement channel, or individual 10 gauge hinge reinforcements

D. All doors to conform to ANSI-A250.4 Level "A" criteria and shall be tested to 1,000,000 operating cycles and 23 twist tests. Certification of Level "A" doors is to be submitted with approval drawings by supplier upon request. Do no bid or supply any type or gauge of door not having been tested and passed these criteria

2.04 METAL FRAMES

A. Provide hollow metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on the drawings and schedules. Conceal fastenings unless otherwise indicated:

1. Interior Frames: Level 2, 16-gauge
2. Exterior Frames: Level 2, 16-gauge, galvanized or galvanealed
3. Security Grade Frames: 14-gauge

B. Acceptable Manufacturers/Products:

1. Ceco: SU Series
2. Curries: M Series
3. Steelcraft: F Series

C. All frames over 36" in width shall be 14-gauge.

D. Fabricate frames with mitered corners. Weld both the inside the throat of the corners and the face of the corners, re-prime at the welded areas. All welds to be flush with neatly mitered or butted material cuts.

E. All frames shall have minimum 7-gauge hinge reinforcements, 14-gauge lock strike reinforcing, and 12-gauge closer reinforcing.

F. All frames shall have minimum 7-gauge hinge reinforcements with an additional high frequency 12-gauge hinge reinforcement welded to the top hinge, 14-gauge lock strike reinforcing, and 12-gauge closer reinforcing.

G. Provide temporary shipping bars to be removed before setting frames.

H. Except on weather stripped frames, drill stops to receive three (3) silencers on strike jambs of single frames and two (2) silencers on heads of double frames.

I. Provide minimum 0.0179" thick steel plaster guards or mortar boxes at back of hardware cutouts where mortar or other materials might obstruct hardware operation and to close off interior of openings

2.05 DOOR LOUVERS

A. Fire-Rated Louver:

1. Each fire-rated louver shall have the listing mark of Underwriter's Laboratories Inc. affixed to louver assembly.

2. All louvers in fire-rated doors shall be 16-gauge cold rolled steel with stainless steel operating springs.

3. Louvers shall be sight-proof per SDI-111C.

B. Fixed-Blade Louver:

1. All fixed blade louvers shall be 18-gauge cold rolled steel with mitered and welded frames and countersunk mounting holes.

2. Louvers shall be sight-proof per SDI-111C.

3. Provide insect screen where louver occur in exterior doors.

2.06 FABRICATION

A. Fabricate steel door and frame units to be rigid, neat in appearance, and free from defects, warp, or buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at Project site. Comply with ANSI/SDI 100 requirements.

1. Clearances shall be no more than 1/8" at jambs and heads except between non fire rated pairs of doors which may be no more than 1/4."

2. Clearances shall be no more than 3/4" at the bottom of the doors.

3. Clearances shall be no more than 1/4" at thresholds and curbs allow unless otherwise detailed.

B. Fabricate exposed faces of doors and panels, including stiles and rails of non-flush units, from only cold-rolled steel sheet.

1. All doors shall be of types and sizes on the drawings, and shall be fully welded seamless construction with no visible seams or joints on their faces or vertical edges. Doors shall be strong, rigid and neat in appearance, free from warpage or buckle. Corner bends shall be true and straight and of minimum radius for the gauge of metal used.

2. Door faces shall be joined at their vertical edges by a continuous weld extending the full height of the door. All such welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.

3. Top and bottom edges shall be closed with a continuous recessed 16 gauge steel channel extending the full width and spot welded to both faces. Exterior doors shall have an additional flush closing channel at the top edge. Opening shall be provided in the bottom closer for escape of entrapped moisture.

4. Doors shall be mortised, reinforced, drilled and tapped at the factory for fully template hardware only. Where surface mounted hardware is to be applied, doors shall have reinforcing plates only, with drilling and tapping to be done in the field.

5. The Face sheets of Exterior and Security doors shall be stiffened by continuous vertical formed steel sections occupying the full thickness of the interior space between door faces. These stiffeners shall be not less than 20 gauge, spaced not more than 6" apart and securely attached to both face sheets by spot welds not more than 4" o.c. Spaces between stiffeners shall be sound deadened and insulated the full height of the door with an inorganic non-combustible batt-type material.

C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."

1. All door and louver frames shall be strong and rigid, neat in appearance, square, true and free of defects, warp and buckle. Molded members shall be clean cut, straight and of uniform profile and back-bends shall be as detailed.
2. Corner joints shall have all contact edges closed tight, with trim faces and stops mitered and continuously welded. All welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.
3. Unit frames for installation in stud partitions shall be provided with steel anchors of suitable design for welding to steel studs. Anchors shall be not less than 16-gauge and shall be securely welded inside each jamb. Anchors are to be spaced at 24" on center.
4. Dust cover boxes of not less than 26-gauge shall be provided at all hardware mortises on frames to be set in masonry or drywall partitions.

D. Fabricate concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold- or hot-rolled steel sheet.

E. Unless otherwise indicated, provide exposed fasteners with countersunk flat or oval heads for exposed screws and bolts.

F. Labeled doors and frames shall be provided for those openings requiring fire protection ratings, as scheduled on the drawings. Such doors and frames shall be constructed as tested by the Underwriter's Laboratories, Inc., and shall bear their label for the required rating. Provide additional frame accessories as required to maintain the fire protection ratings once the frames are installed in the openings.

G. At exterior locations and elsewhere as shown or scheduled, assemblies fabricated as thermal-insulating door and frame assemblies and tested according to ASTM C 236 or ASTM C 976 on fully operable door assemblies. Unless otherwise indicated, provide thermal-rated assemblies with a minimum U-value rating of 0.41 Btu/sq. ft. x h x deg F.

H. Where shown or scheduled, provide door and frame assemblies fabricated as sound-reducing type, tested according to ASTM E 1408, and classified according to ASTM E 413. Unless otherwise indicated, provide acoustical assemblies with STC sound ratings of 33 or better.

I. Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Comply with applicable requirements of SDI-107 and ANSI-A115 Series specifications for door and frame preparation for hardware.

J. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at Project site. Provide internal reinforcements for all doors to receive door closers and exit devices.

K. Locate hardware as indicated on Shop Drawings or, if not indicated, according to the Door and Hardware Institute's (DHI) "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."

L. Provide glazing stops with minimum 0.0359-inch- thick steel or 0.040-inch- thick aluminum.

M. Provide non-removable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.

N. Provide screw-applied, removable, glazing beads on inside of glass and other panels in doors.

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 FIELD MEASUREMENTS

Verify all opening dimensions in the field prior to fabrication and assembly of frames.

3.03 INSTALLATION

A. Install steel doors, frames, and accessories according to shop drawings, manufacturer's data, and as specified.

B. Comply with provisions of SDI-105, "Recommended Erection Instructions for Steel Door Frames," unless otherwise indicated. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

1. Except for frames located in existing concrete, masonry, or gypsum board assembly construction, place frames before constructing enclosing walls and ceilings.

2. In masonry construction, install at least 3 wall anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors and masonry T-shaped anchors.

3. At existing concrete or masonry construction, install at least 3 completed opening anchors per jamb adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with bolts and masonry anchorage devices.

4. In metal-stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. In steel-stud partitions, attach wall anchors to studs with screws.

5. Install fire-rated frames according to NFPA 80.

C. Fit hollow-metal doors accurately in frames, within clearances specified in ANSI/SDI 100. Install fire rated doors with clearances specified in NFPA 80.

3.04 ADJUST AND CLEAN

A. Immediately after erection, sand smooth all rusted and damaged areas of prime coat, and apply touch-up of compatible air-drying primer.

B. Immediately before final inspection, remove protective wrappings from doors and frames.

C. Final adjustments:

1. Check and readjust operating finish hardware items in hollow metal work just prior to final inspection.

2. Leave work in complete and proper operating condition.

3. Remove defective work and replace with work complying with the specified requirements.

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

SECTION 08200

WOOD DOORS AND FRAMES

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

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

1.02 SUMMARY

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

1.03 REFERENCES

A. Standards:

1. 2010 NFPA-80 – Fire Doors and Windows
2. 2010 NFPA-105 – Recommend Practice for Installation of Smoke Controlled Door Assemblies
3. WDMA I.S. 1A – Wood Door Manufacturer's Association, Flush Wood Door Performance Standards
4. UL10C - Standard for Positive Pressure Fire Tests of Door Assemblies

B. Codes:

1. 2009 NFPA-101 – Life Safety Code
2. 2010 CBC – California Building Code
3. ANSI-A117.1 – Accessible and Usable Buildings and Facilities.
4. 2010 DOJ – ADA Standards for Accessible Design

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications

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

B. Fire-Rated Doors

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

2. A physical label to be permanently affixed to the fire door at an authorized facility. Furthermore, all 45, 60, and 90 minute label fire doors are to have manufacturer's standard laminated stiles for improved screw holding and split resistance capability.

3. At stairwell enclosures and where otherwise indicated, provide doors that have a maximum transmitted temperature end point of not more than 250 deg F above ambient after 30 minutes of standard fire-test exposure

1.05 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. Submit the following:

1. Provide a schedule of doors and frames using same reference numbers for details and door openings as those on the contract documents.

2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.

3. Shop Drawings showing details of each frame type, elevations of door designs, details of openings, and details of construction, installation, and anchorage.

4. Samples:

a. Corner sections of doors approximately 8" x 10" with door faces and edgings representing the typical range of color and grain for each species of veneer and solid lumber required.

b. Factory finishes applied to actual door face materials, approximately 8" x 10" inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

c. Frames for light openings, 6" long, for each material, type, and finish required.

d. Louver blade and frame sections, 6 inches long, for each material and finish specified.

1.07 PRODUCT HANDLING

A. Comply with the requirements of Section 01620.

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

C. Identify each door with individual opening numbers that correlate with designation system used on shop drawings and contract drawings for door, frames and hardware. Use only temporary, removable, or concealed markings.

D. Do not deliver or install doors until building is enclosed and weather tight, wet-work is complete and dry, and HVAC system is operating and maintaining ambient temperature and relative humidity at occupancy level in storage and installation areas.

1.08 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.

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. Submit written warranty on manufacturer's standard form signed by the manufacturer agreeing to replace or repair defective doors which have:
3. Delamination in any degree.
4. Warp or twist of 1/4" or more in any 3' x 6" x 7' plane of door face.
5. Telegraphing of stile, rail or core through face to cause surface variation in excess of 1/100" in any 3" spans.
6. Contractor shall replace or refinish doors where contractor's work contributed to rejection or voiding of manufacturer's warranty.
7. Solid core interior doors shall be warranted for the life of their installation.

PART 2 -- PRODUCTS

2.01 MANUFACTURERS

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

2.02 FIRE RATED DOORS

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

2.03 DOORS

A. See Door Schedule for Types

B. Plastic Laminated Wood Doors:

1. Manufacturers:
    a. Ampco Products, Inc., (305) 821-5700, Opa Locka, Florida, 33054-5133
    b. VT (800) 827-1615
    c. Marshfield (800) 869-3667
    d. Eggers (920) 722-6444
    e. See 08210 - High Impact Resistant Wood Doors for alternate
2. Door Type: Flush Interior Doors: solid particleboard core construction.
3. Door Construction: Core: (rated and unrated) – AWI section 1300 Type PC – HPDL, FD 1/3, PC – HPDL – 3, or Ampco PC, PC20, or equal.
4. Flush Door Facing
    a. High-pressure decorative laminate general purpose grade 50 (GP50 - .050" thick) complying with NEMA standard LD-3.

b. Apply faces prior to edges, ease all corners.

c. Edges to match face.

5. Adhesives

a. Face to Core / Frame: Type II

b. Piles of Face Material: Type II

6. Fabrication

a. Fabricate in accordance with AWI Quality Standards.

b. Blocking for hardware reinforcement provided when necessary.

c. Factory machine for finish hardware.

C. Faces for Transparent Finish

1. Doors shall have premium grade A faces with manufacturer's standard five (5) ply construction; minimum 1/8" thick with stiles and rails bonded to the core.

2. Faces shall be minimum 1/50" at 12% moisture content thick after finish sanding.

a. Veneer Cut: Plain Sliced

b. Face Assembly: Book Match, Running Match

c. Veneer Species: Per Drawings.

3. Exposed vertical edges shall be of the same species as the face material.

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

D. Faces for Opaque Finish

1. Faces shall be MDF; five (5) ply construction with stiles and rails bonded to the core.

a. Hardboard Faces: AHA A135.4, Class 1 (tempered) or Class 2 (standard).

b. MDF Faces: ANSI A208.2, Grade 150 or 160.

2. Exposed vertical edges shall be any closed-grain hardwood.

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

E. Non Rated and 20-Minuted Fire-Rated Doors

1. Supply particleboard core complying with WDMA I.S. 1A and ANSI-A208.1, Grade 1-LD, bonded to the door faces, stiles and rails using a Type I adhesive. Components are to be assembled to meet or exceed 20 minute fire door specifications for UL10C fire test requirements.

a. Algoma: Super Novodor / FD 1/3

b. Eggers: PC5 / PC5-20

c. Graham: GPD PC5 / GPD PC5-20

d. Marshfield: DPC-1 / DFP-20

e. VT Industries: 5502

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

F. Fire Rated Doors over 20 Minutes
1. Supply fire resistive composite mineral core construction to provide the fire rating indicated, boned to door faces, stiles and rails using a Type I adhesive. Components are to be assembled to meet or exceed fire door specifications for UL10C fire test requirements.
    a. Algoma: FD
    b. Eggers: FGP
    c. Graham: GPD FD5
    d. Marshfield: DFM
    e. VT Industries: 5545/5511
2. For mineral-core doors, provide composite blocking with improved screw holding capability approved for use in doors of fire ratings indicated as necessary to eliminate need for through-bolting hardware and as follows:
    a. Provide 5" top-rail blocking.
    b. Provide 4 1/2" x 10" lock blocks.
    c. Provide 5" mid-rail blocking, at doors indicated to have exit devices.
3. At hinge stiles, provide manufacturer's standard laminated-edge construction with improved screw-holding capability and split resistance and with outer stile matching face veneer.

G. Factory Finishing
1. Finish all doors to receive a transparent finish at the factory as indicated below; field finish doors indicated to receive an opaque finish in accordance with Division 9, Finishes.
    a. Grade: Premium
    b. Finish: WDMA TR-6 catalyzed polyurethane.
    c. Stain: Clear-coat only.
    d. Effect: Semi-filled finish, produced by applying an additional finish coat to partially fill the wood pores.
2. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

3. Finish doors using three (3) coats of water-clear 100% solids, modified acrylic urethane, cured immediately with ultra-violet light.

4. Factory seal transparent finish doors on all six (6) sides using manufacturer's standard meeting these applications.

H. Vision Light Frames:

1. Provide wood beads for light openings in doors up to and including 20-minute rating; at 20-minute rated doors provide wood beads and metal glazing clips approved for such use.

   a. Wood Species: Same species as door faces.

   b. Profile: Flush rectangular beads. [Lipped tapered beads.]

2. For fire-rated doors over 20-minute rated provide manufacturer's standard metal light frame formed of 0.048 inch thick cold-rolled steel sheet with baked-enamel or powder-coated finish approved for use in doors of fire rating indicated.

I. Louvers:

1. Provide manufacturer's standard solid wood louvers unless otherwise indicated; species shall be the same as door faces.

2. Provide metal louvers with vision-proof inverted V or inverted Y blades constructed of galvanized 0.040 inch thick steel factory primed for paint finish with baked-enamel or power-coated finish.

3. Provide metal louvers for fire-rated doors with fusible link and closing device listed and labeled for use in doors with fire-protection rating of-1 1/2 hours or less. Subject to compliance with rating requirements, louver construction and material shall be the same as non-rated versions.

J. Fabrication

1. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated: Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements of NFPA 80 for fire-rated doors.

2. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

   a. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

   b. Pre-machine metal astragals and formed-steel edges for hardware for pairs of fire-rated doors.

3. Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required. Trim openings with moldings of material and profile indicated.

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. For hardware installation, see Division 8 Section "Door Hardware."

B. Install wood doors to comply with manufacturer's written instructions, referenced quality standard and as indicated.

C. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.

D. Align factory fitted doors in frames for uniform clearance at each edge.

3.03 ADJUSTING, PROTECTING AND CLEANING

A. Verify that each item has been fabricated and installed in accordance with the specified requirements

B. Adjust, re-hang or replace doors that do not swing or operate freely.

C. Refinish or replace doors damaged during installation as necessary to make surface blemishes permanently invisible to the unaided eye.

D. Protect doors as recommended by door manufacturer to ensure that wood doors are without damage or deterioration at the time of Substantial Completion.

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

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SECTION 08310

ACCESS DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Fire rated and Non-fire rated wall access doors.
2. Fire rated and Non-fire rated ceiling access panels.
3. Related hardware and attachments.

B. Related Requirements:

1. Section 09250 - Gypsum Board Systems
2. Section 09510 - Acoustical Ceiling System
3. Section 09900 - Painting
4. Division 15 - Mechanical.
5. Division 16 – Electrical.

1.2 COORDINATION

A. Provide inserts and anchoring devices that will be built into other Work for installation of access door assemblies.

B. Coordinate delivery with other Work to avoid delay.

1.3 SUBMITTALS

A. Comply with Division 01.

B. Shop Drawings:

1. Door and panel units: Show types, elevations, thickness of metals, full size profiles of door members.
2. Hardware: Show materials, finishes, locations of fasteners, types of fasteners, locations and types of operating hardware, and details of installation.
3. General: Show connections of units and hardware to other Work. Include schedules showing location of each type and size of door and panel units.

C. Product Data: Manufacturer's technical data for each type of access door and panel assembly, including setting drawings, templates, fire-resistive characteristics, finish requirements, and details of anchorage devices.

1. Include complete schedule, types, locations, construction details, finishes, latching or locking provisions, and other pertinent data.

D. Manufacturer's Installation Instructions: Indicate installation requirements and rough-in dimensions.

1.4 QUALITY ASSURANCE

A. Fire-Resistance Ratings: Wherever a fire-resistance classification is indicated, provide access door and panel assemblies with panel door, frame, hinge, and latch from manufacturer listed in Underwriter's Laboratories (UL), "Building Materials Directory" for rating shown.

1. Provide 90 minute UL label at 2-hour rated partitions.

2. Provide 3 hour Warnock Hersey label at horizontal applications, up to 24 inch wide x 36 inch high.

3. Provide 2 hour Warnock Hersey label at horizontal applications greater than 24 inch wide x 36 inch high.

1.5 DELIVERY, STORAGE AND HANDLING

A. Package and ship per manufacturer's recommendations.

B. Store per manufacturer's instructions.

1. Store in dry area out of direct sunlight.

1.6 WARRANTY

A. Provide manufacturer's written warranty.

B. Warrant materials and fabrication against defects after completion and final acceptance of Work.

1. Repair defects, or replace with new materials, faulty materials or fabrication developed during the warranty period at no expense to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Nystrom Building Products. 9300 73rd Avenue North, Minneapolis, MN 55428. Toll Free: 800-547-2635 Fax: 800-317-8770. E-Mail: info@nystrom.com nystrom.com

2.2 DESIGN REQUIREMENTS:

A. Obtain specific locations and sizes for required access doors and frames from trades, including mechanical and electrical, requiring access to concealed equipment and indicate on submittal schedule.

2.3 MATERIALS

A. Commercial quality, cold steel sheet with gray baked on powder coat finish.

B. Galvanized, bonderized steel with gray baked on powder coat finish.

C. Type: No. 304 stainless steel with No. 4 satin polish finish.

2.4 ACCESS PANELS

A. Non rated flush access doors, Nystrom Architectural N series

1. Door: Fabricate from 14-gage cold rolled sheet steel.

2. Frame: Fabricate from 16-gage cold rolled sheet steel. Provide 1/4 inch mounting holes and easy install tabs.

a. NT - All surfaces - 1 inch flange at perimeter.

b. NW - Wallboard surfaces – 22-gage galvanized drywall bead at perimeter.

c. NP - Plaster surfaces – 22-gage galvanized plaster bead at perimeter.

d. PT – Stainless Steel – 1 inch Flange at perimeter.

3. Hinge:

a. NT – Concealed spring button type to allow for door removal.

b. NW and NP – Concealed spring button type to allow for door removal.

c. PT – Pin hinge

4. Latching/Locking Devices: Screwdriver cam latch - standard.

   OPTIONS:

   a. Key operated cylinder cam lock with 2 keys per lock, keyed alike.

   b. Preparation to accept a 1 1/8" mortise cylinder. Cylinder and core specified in Division 8 Section "Door Hardware"

5. Finish Options:

   a. Standard: Gray baked on powder coat finish.

   b. Galvanized, bonderized steel, with gray baked on powder coat finish.

   c. Type No. 304 stainless steel with No. 4 satin polish.

B. Non-rated flush access doors, Nystrom Renovation E series

1. Door: Fabricate from 20-gage cold rolled sheet steel.

2. Frame: Fabricate from 20-gage cold rolled sheet steel. Provide 1/4 inch mounting holes and easy install tabs.

   a. ET - All surfaces - 1 inch flange at perimeter.

   b. EW - Wallboard surfaces – 22-gage galvanized drywall bead at perimeter.

3. Hinge:

   a. ET – Concealed spring button type to allow for door removal.

   b. EW– Concealed spring button type to allow for door removal.

4. Latching/Locking Devices: Screwdriver cam latch - standard.

   OPTION:

   a. Key operated cylinder cam lock with 2 keys per lock, keyed alike.

5. Finish Options:

   a. Standard: Gray baked on powder coat finish.

   b. Galvanized, bonderized steel, with gray baked on powder coat finish.

   c. Type No. 304 stainless steel with No. 4 satin polish.

C. Non-rated access panels for walls only, Nystrom D series

1. Maximum size = 36"w x 48"h (W & P only).

2. Door: Fabricate from 14-gage cold rolled sheet steel.

3. Frame: Fabricate from 16-gage cold rolled sheet steel of configuration to suit material application.

   a. DT- All surfaces - 1 inch flange at perimeter.

   b. DW - Wallboard surfaces – 22-gage galvanized drywall bead at perimeter.

   c. DP- Plaster surfaces – 22-gage galvanized plaster bead at perimeter.

D. Insulated fire rated access panels for walls and ceilings, Nystrom I series

1. Maximum size horizontal applications = 24 inch x 36 inch.

2. Maximum size vertical applications: IT= 48 inch x 48 inch, IW, and IP= 36 inch x 48 inch.

3. Door: Fabricate from 20-gage cold rolled sheet steel, insulated sandwich type construction.
4. Frame: Fabricate from 16-gage cold rolled steel of configuration to suit material application.
    a. IT - All surfaces - 1 inch flange at perimeter.
    b. IW - Wallboard surfaces - 22-gage galvanized drywall bead at perimeter.
    c. IP - Plaster surfaces - 22-gage galvanized plaster bead at perimeter.
5. Hinge: Flush continuous piano type on model IT. Concealed pin hinge on style IW and IP.
6. Latching/Locking mechanism: Knurled knob/flush key operated latch bolt - standard.

    OPTION:

    a. Preparation to accept a 1 1/8" mortise cylinder. Cylinder and core specified in Division 8 Section "Door Hardware"
7. Finish Options:
    a. Standard: Gray baked on powder coat finish.
    b. Galvanized, bonderized steel, with gray baked on powder coat finish.
    c. Type No. 304 stainless steel with No. 4 satin polish.
8. Insulation: 2 inch thick fire rated mineral fiber.
9. Automatic closure device: Integral automatic spring closure device for each door.
10. Interior latch release: Mechanism to allow for panel to open from interior side.

E. Uninsulated fire rated access panels for walls only, Nystrom U series
1. Maximum size = 36"w x 48"h.
2. Door: Fabricate from 14-gage cold rolled sheet steel.
3. Frame: Fabricate from 16-gage cold rolled sheet steel of configuration to suit material application.
    a. UT- All surfaces - 1 inch flange at perimeter.
    b. UW - Wallboard surfaces – 22-gage galvanized drywall bead at perimeter.
    c. UP- Plaster surfaces – 22-gage galvanized plaster bead at perimeter.
4. Finish Options:
    a. Standard: Gray baked on powder coat finish.
    b. Galvanized, bonderized steel, with gray baked on powder coat finish.
    c. Type No. 304 stainless steel with No. 4 satin polish.
5. Hinge: Flush continuous piano type.
6. Latching/Locking mechanism: Knurled knob/flush key operated latch bolt - standard.

    OPTIONS:

    a. Preparation to accept a 1 1/8 inch mortise cylinder. Cylinder and core specified in Division 8 Section "Door Hardware"
    b. Other options as specified.
7. Automatic closure device: Integral automatic spring closure device for each door.

8. Interior release: Mechanism to allow for panel to open from interior side.

F. Oversized Fire Rated Access Panels for horizontal and vertical applications, Nystrom FRD Series

1. Sizes: 30 inch x 30 inch up to 48 inch x 60 inch for horizontal applications. Call factory for single or double door construction options.
2. Sizes: Greater than 48 inch x 48 inch up to 48 inch x 60 inch vertical applications, all panels to be double door construction.
3. Door: Fabricate from 18-gage galvanized steel, insulated sandwich type construction. 22 gage liner.
4. Frame: Fabricate from 16-gage galvanized steel.
   a. .875 flange at perimeter.
5. Hinge: Concealed continuous rod opening to 100 degrees.
6. Latching/Locking Mechanism: Factory installed flush ¼ inch allen key, self-latching.
7. Finish Options:
   a. White electrostatically applied rust inhibitive prime coat.
   b. Options: Type No. 304 stainless steel with No. 4 satin polish.
8. Insulation: 1 ½ inches thick high temperature.
9. Automatic Closure Device: Integral automatic spring closure device for each door, will close and latch all doors from an open position of approximately 90 degrees.
10. Interior Latch Release: Mechanism to allow for panel to open from interior side-standard on all panels.

G. Inward Opening Fire Rated Access Panels for horizontal applications only, Nystrom FRU series

1. Maximum sizes: 24 inch x 36 inch or 30 inch x 30 inch.
2. Door: Fabricate from 18-gage galvanized steel, insulated sandwich type construction.
3. 22-gage liner.
4. Frame: Fabricate from 16-gage galvanized steel.
   a. .75 inch flange at perimeter
5. Hinge: Concealed continuous piano hinge
6. Latching/Locking Mechanism: Factory installed ¼ inch allen key, self-latching.
7. Finish Options:
   a. White electrostically applied rust inhibitive prime coat.
   b. Options: Type No. 304 stainless steel with No. 4 satin finish.
8. Insulation: 1 ½ inches thick hig temperature.
9. Automatic Closure: Gravity self closing.
10. Interior Latch Release: Mechanism to allow for panel to open from interior side-standard on all panels.

H. Recessed access panels, Nystrom R series

1. Door: Fabricate from 16-gage cold rolled sheet steel recessed 5/8 inch for in-fill of material.

2. Frame: Fabricate from 16-gage cold rolled sheet steel of configuration to suit material application.
    a. RW- Wallboard surfaces – 22-gage galvanized drywall bead at perimeter.
    b. RP- Plaster surfaces – 22-gage galvanized plaster bead at perimeter.
    c. RA - Acoustical surfaces - no surface frame.
3. Hinge: Concealed pivoting rod.
4. Latching: Key operated cylinder cam lock with 2 keys per lock, keyed alike.

    OPTION:

    a. Preparation to accept a 1 1/8 inch mortise cylinder. Cylinder and Core specified in Division 8 Section "Door Hardware".
5. Finish: Gray baked on powder coat finish.

I. Security, insulated fire rated access panels, Nystrom S series – walls only
1. Door: Fabricate from 14-gage cold rolled sheet steel, insulated sandwich type construction.
2. Frame: Fabricate from 16-gage cold rolled sheet steel of configuration to suit material application.
    a. ST- All surfaces - 1 inch flange at perimeter.
    b. SW- Wallboard surfaces – 22-gage galvanized drywall bead at perimeter.
    c. SP- Plaster surfaces – 22-gage galvanized plaster bead at perimeter.
3. Hinge: Concealed pin type for concealed frame. Flush continuous piano type for exposed frame and on panels larger than 36 inches in height.
4. Latching:
    a. Preparation to accept a 1 1/8 inch mortise cylinder. Cylinder and Core specified in Division 8 Section "Door Hardware".
    b. Detention dead-bolt lock preparation. Lock specified in Division 8 Section "Door Hardware".
5. Finish Options:
    a. Standard: Gray baked on powder coat finish.
    b. Galvanized, bonderized steel with gray baked on powder coat finish.
    c. Type No. 304 stainless steel with No. 4 satin finish.
6. Automatic closure device: Integral automatic spring closure device for each door.
7. Interior latch release: Mechanism to allow for panel to open from interior side.

J. Medium security access doors, Nystrom M series
1. Door: Fabricate from 12-gage cold rolled sheet steel.
2. Frame: Fabricate from 12-gage cold rolled sheet steel of configuration to suit material application.
    a. MT- All surfaces - 1 inch flange at perimeter.
    b. MW- Wallboard surfaces – 22-gage galvanized drywall bead at perimeter.
    c. MP- Plaster surfaces – 22-gage galvanized plaster bead at perimeter.
3. Hinge: Concealed continuous piano type.

4. Latching/Locking Mechanism: Pinned allen head security cam latches - standard.

   OPTIONS:

   a. Pinned allen head security screws.

   b. Preparation to accept a 1 1/8 inch mortise cylinder. Cylinder and core specified in Division 8 Section "Door Hardware"

   c. Heavy-duty detention deadbolt lock preparation. Lock specified in Division 8 Section "Door Hardware".

5. Finish Options:

   a. Standard: Gray baked on powder coat finish.

   b. Galvanized, bonderized steel with gray baked on powder coat finish.

   c. Type 304 stainless steel with #4 satin finish.

K. High security access panels, Nystrom HS series

1. Door: Fabricate from 10-gage cold rolled steel.
2. Frame: Fabricate from 2 inch by 2 inch by 3/16 inch steel angle.
3. Hinge: Heavy-duty steel butt hinge welded to the door and frame (surface mounted).

   OPTIONS:

   a. Continuous piano type.

4. Frame: Masonry anchors welded to frame.
5. Latching/Locking Mechanism: Pinned allen security screws – standard.

   OPTIONS:

   a. Preparation to accept a 1 1/8" mortise cylinder. Cylinder and core specified in Division 8 Section "Door Hardware"

   b. Heavy-duty detention deadbolt lock preparation. Lock specified in Division 8 Section "Door Hardware".

6. Finish: Gray baked on powder coat finish.

L. Maximum security access panels, Nystrom TS series

1. Door: Fabricate from 7-gage hot rolled steel.
2. Frame: Fabricate from 2 inch by 3 inch by 3/16 inch steel angle.
3. Hinge: Heavy-duty steel butt hinge welded to the door and frame (surface mounted).

   OPTIONS:

   a. Continuous piano type.

4. Frame: Masonry anchors welded to frame.
5. Latching/Locking Mechanism: Heavy-duty detention lock preparation - standard. Lock specified in Division 8 Section "Door Hardware".

   OPTIONS:

   a. Other options as specified.

6. Finish: Gray baked on powder coat finish.

M. Exterior insulated access panel, Nystrom XT series

1. Door: Fabricate from 20-gage galvanized steel, insulated sandwich type construction.

2. Hinge: Stainless steel continuous piano type.

   OPTIONS:

   a. Type No. 304 stainless steel – door only.

3. Frame: Fabricate from 6063-T5 extruded aluminum.
4. Latching/Locking device: 1 or 2 dual acting handles, depending on door size.

   OPTIONS:

   a. Lockable handle for exterior only.

5. Flange: 0.080 6063-T5 extruded aluminum 1.25 inch flange.
6. Finish: Paint grip.
7. Insulation: 2 inch thick fiberglass.
8. Gasket: Extruded santoprene.

N. Special lightweight access panel, Nystrom LW series

1. Door: Fabricate from 26-gage pre-finished embossed galvanized steel.

   OPTIONS:

   a. 0.063 aluminum door panel

2. Frame: 0.045 6063–T5 extruded aluminum with rolled 1-5/16 inch flange
3. Hinge: Zinc plated continuous piano type.

   OPTIONS:

   a. Aluminum continuous piano type.

4. Latching/Locking device: Screwdriver cam latch – standard.

   OPTIONS:

   a. Key operated cylinder lock with 2 keys per lock, keyed alike.

5. Insulation: 3/4 inch polystyrene with 3.8 R-value at 75 degrees F temperature.
6. Finish: White embossed steel.

   OPTIONS:

   a. Mill finish with 0.063 aluminum panel inserts.

2.5 OPTIONS

THE FOLLOWNG MORTISE OPTION MAY BE USED ON N SERIES, I SERIES, U SERIES, S SERIES (WALL ONLY), M SERIES, AND HS SERIES.

A. Mortise cylinder preparation to receive 1 1/8 inch mortise cylinder lock. Lock specified in Division 8 Section "Door Hardware".

2.6 FABRICATION

A. Manufacture each access panel assembly as an integral unit ready for installation.

B. Welded construction: Furnish with a sufficient quantity of 1/4 inch mounting holes to secure access panels to types of supports indicated.

C. Recessed panel: Form face of panel to provide specified recess for application of finish material. Reinforce panel as required to prevent buckling.

D. Furnish number of latches required to hold door in flush, smooth plane when closed.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that rough openings for door and frame are correctly sized and located.

B. Verify mechanical and electrical requirements for ceiling or wall access panels.

3.2 INSTALLATION

A. Install access door and frame units per manufacturer's written instructions.

B. Install frames plumb and level in opening. Secure rigidly in place.

C. Position units to provide convenient access to concealed Work requiring access.

D. Fire-rated units: Include UL or Warnock-Hersey labels.

3.3 ADJUSTING AND CLEANING

A. Adjust panel after installation for proper operation.

B. Remove and replace panels or frames that are warped, bowed, or damaged.

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

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SECTION 08500

ALUMINUM WINDOWS

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:

1. AA®900 ISOWEB® Fixed Window
2. Heavy Commercial Grade (HC rating)/Architectural Grade (AW rating)
3. Architectural details, product descriptions and product performance specifications are based on products manufactured by the Kawneer Company Inc.

1.03 REFERENCES

A. Aluminum Association (AA):

DAF-45	Designation System for Aluminum Finishes

B. American Architectural Manufacturers Association (AAMA):

1. 2605	Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels.
2. 611	Voluntary Specification for Anodized Architectural Aluminum.

C. American National Standards Institute (ANSI):

Z97.1	Specifications and Methods of Test for Safety Glazing Material Used in Buildings.

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

1. A123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
2. A525	General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
3. A526	Sheet Steel, Zinc Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.
4. B209	Aluminum and Aluminum-Alloy Sheet and Plate.
5. B221	Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
6. B308	Aluminum-Alloy 6061-T6 Standard Structural Shapes, Rolled or Extruded.
7. C716	Installing Lock-Strip Gaskets and Infill Glazing Materials.
8. C920	Elastomeric Joint Sealants.
9. E283	Rate of Air Leakage through Exterior Windows, Curtain Walls, and Doors.
10. E330	Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
11. E331	Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

12. E773 Test Method for Seal Durability of Sealed Insulating Glass Units.

13. E774 Sealed Insulating Glass Units.

E. Consumer Product Safety Commission (CPSC)

16 CFR 1201 Safety Standard for Architectural Glazing Materials

F. Federal Specifications (FS):

TT-P-645A Primer, Paint, Zinc Chromate, Alkyd Type.

G. Glass Association of North America (GANA):

Glazing Manual

1.04 SYSTEM DESCRIPTION

A. General: Commercial Grade Architectural Aluminum Windows, including glass and glazing, metal panels, perimeter trims, sills and stools, window installation hardware and accessories, shims and anchors, and perimeter sealing of window units.

B. Aluminum Windows include: Kawneer Company, Inc., AA®900 ISOWEB® Window in accordance with AAMA /WDMA/CSA 101/I.S.2/A440-05 Standard/Specification for Windows, Doors, and Unit Skylights for a Class and Grade of FW-HC90/FW-AW90 and in accordance with CAN/CSA-A440-00 Windows.

C. Test Units:

1. All test unit sizes and configurations shall conform to the minimum size in accordance with AAMA /WDMA/CSA 101/I.S.2/A440-05 for the designation FW-HC90/FW-AW90 and CAN/CSA-A440-00 Windows.

2. Units submitted for laboratory testing shall be units of the manufacturer's standard construction, glazed and assembled in accordance with the manufacturer's specifications and AAMA /WDMA/CSA 101/I.S.2/A440-05 and CAN/CSA-A440-00 Windows.

D. Fixed Window Performance Requirements:

1. Wind loads: Provide window system; include anchorage, capable of withstanding wind load design pressures of based on 85 mph, exposure C, Occupancy Category IV of an enclosed structure. The design pressures are based on the (California) Building Code; (2010) Edition.

2. Air Infiltration: The test specimen shall be tested in accordance with ASTM E283 at a minimum size of 60" x 90" (1524 x 2286). Air infiltration rate shall not exceed 0.10 cfm/ft^2 at a static air pressure differential of 6.24 psf (300 Pa). The test specimen shall meet the Fixed rating of less than 0.25 $(m^3/h)/m$ at 300Pa when tested in accordance with CAN/CSA-A440-00 Windows.

3. Water Resistance: The test specimen shall be tested in accordance with ASTM E547 and ASTM E331 at a minimum size of 60" x 90" (1524 x 2286). There shall be no leakage as defined in the test method at a static air pressure differential of 15 psf (720 Pa). The test specimen shall meet the B7 rating with no water leakage at 720 Pa when tested in accordance with CAN/CSA-A440-00 Windows.

4. Uniform Load Deflection: A minimum static air pressure difference of 90 psf (4310 Pa) shall be applied in the positive and negative direction in accordance with ASTM E330. There shall be no deflection in excess of L/175 of the span of any framing member. The test specimen shall meet the C5 rating when tested in accordance with CAN/CSA-A440-00 Windows.

5. Uniform Load Structural: A minimum static air pressure difference of 135 psf (6465 Pa) shall be applied in the positive and negative direction in accordance with ASTM E330. The unit shall be evaluated after each load.
6. Component Testing: Window components shall be tested in accordance with procedures described in AAMA/WDMA/CSA 101/I.S.2/A440-05.
7. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than 0.34 BTU/hr/ft^2/°F.
8. Condensation Resistance (CRF): When tested to AAMA Specification 1503 and CAN/CSA-A440, the condensation resistance factor (CFR) shall not be less than 67 (66 I-Frame).
9. Forced Entry Resistance: All windows shall conform to AAMA 1302.5.
10. Thermal Barrier Test: Thermal break shall be designed in accordance with AAMA TIR-A8 and tested in accordance with AAMA 505.

1.05 QUALITY ASSURANCE

A. Qualifications:
   1. Installer Qualifications: Installer experienced (as determined by contractor) to perform work of this section who has specialized in the installation of work similar to that required for this project and who is acceptable to product manufacturer.
   2. Manufacturer Qualifications: Manufacturer capable of providing structural calculations, applicable independent product test reports, installation instructions, a review of the application method, customer approval and periodic field service representation during construction.

B. Pre-Installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's installation instructions, and manufacturer's warranty requirements.

1.06 SUBSTITUTIONS

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

B. Substitution Documentation. Provide for evaluation:
   1. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
   2. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for window system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum windows for a period of not less than ten (10) years. (Company Name)
   3. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
   4. Samples: Provide samples of typical product sections and finish samples in manufacturer's standard sizes.

1.07 SUBMITTALS

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

B. Submit the following:
   1. Product Data.
   2. Samples

3. Shop drawings showing installation details for Architect's approval. These drawings shall also show elevations of windows, full-sized details of all sections of windows, collateral materials, details of anchorage and hardware.
4. Supplemental data shall contain instructions for storage, handling and erection of windows

C. Quality Assurance/Control Submittals:

Test Reports: Submit certified test reports showing compliance with specified performance characteristics.

1.08 PRODUCT HANDLING

A. Adhere to requirements of Section 01620.

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

C. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

D. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle window material and components to avoid damage. Protect window material against damage from elements, construction activities, and other hazards before, during and after window installation.

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. Project Warranty: Refer to "Conditions of the Contract" for project warranty provisions.
2. Manufacturer's Product Warranty: Submit, for Owner's acceptance, manufacturer's warranty for window system as follows: Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by Kawneer.

PART 2 -- PRODUCTS

2.01 MANUFACTURERS

A. Kawneer Company, Inc.

B. Vistawall (Oldcastle)

C. Arcadia

D. Architect approved equal.

2.02 WINDOW SYSTEM

A. Kawneer Aluminum Window System

B. Series: AA®900 ISOWEB® Thermal Window System

C. Window Member Profile: 2-5/8" (67) nominal dimension.

D. Finish/Color: (See 2.09 Finishes)

2.03 MATERIALS

A. Aluminum (Windows and Components): Alloy and temper recommended by manufacturer for type of use and finish indicated, complying with the requirements of Extruded Material Standard: ASTM B 221, 6063-T6 alloy and temper.

B. Steel Reinforcement: Complying with ASTM A 36/ A 36M for structural shapes, plates and bars; ASTM A 611 for cold-rolled sheet and strip or ASTM A 570/ A 570M for hot-rolled sheet and strip.

C. Glazing Gaskets: Dry glazing gaskets shall be an extruded EPDM in accordance with ASTM C864.

D. Glazing Sealant: Wet glazing material shall be a 100 percent silicone, neutral-cure sealant in accordance with AAMA 805.2-94, Group A.

E. Fasteners: Where exposed, shall be 300 Series Stainless Steel.

F. Thermal Barrier: The thermal barrier shall be Kawneer ISOWEB® consisting of two parallel glass fiber-reinforced nylon strips installed continuously and mechanically bonded to the aluminum.

2.04 ACCESSORIES

A. Spacers, Setting Blocks, Gaskets, and Bond Breakers: Manufacturer's standard permanent, non-migrating types in hardness recommended by manufacturer, compatible with sealants, and suitable for system performance requirements.

B. Framing system gaskets, sealants, and joint fillers as recommended by manufacturer for joint type.

C. Sealants and joint fillers for joints at perimeter of window system as specified in Division 7 Section "Joint Sealants".

D. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

E. Glazing: Factory glazing as required and specified in Division 8 Section "Glazing".

F. Coupling Mullions: Shall be extruded aluminum of 6063-T6 alloy and temper of profile and dimensions indicated on drawings. Mullions shall provide structural properties to resist wind pressure required by performance criteria and standards.

2.05 RELATED MATERIALS

A. Sealants: Refer to Division 7 Section "Joint Sealants"

B. Glass: Glass thickness and type shall be in accordance with glass manufacturer's recommendations for prescribed design pressure. Refer to Division 8 Section "Glass and Glazing".

1. Factory glazing (if required) shall be in accordance with manufacturer's standard requirements.

2. Glazing materials shall be compatible with aluminum and those sealants and sealing materials used in composite structure which have direct contact with the gasket.

C. Insulation: Refer to Division 7 Section "Building Insulation".

D. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements, except containing no asbestos, formulated for 30-mil (0.762-mm) thickness per coat.

2.06 COMPONENTS

A. The frame depth shall be not less than 2-5/8".

B. All frame members shall have minimum wall thickness of 0.070" and shall provide the structural strength sufficient to meet the specified performance requirements.

C. Glazing beads shall be extruded aluminum and shall be a minimum thickness of 0.060".

D. Reference to tolerances for wall thickness and other cross-sectional dimensions of window members are nominal and in compliance with AA Aluminum Standards and Data.

E. All references to dimensions for wall thicknesses and other cross-sectional dimensions of window members are nominal and in compliance with ANSI H35.2-1990.

F. All frame members shall be tubular.

2.07 FABRICATION

A. General: Fabricate components per manufacturer's installation instructions. When assembled, components shall be accurately fitted to produce hairline joints.

B. Window Frame Joinery: Mitered and mechanically clipped and/or staked.

C. Factory sealed frame and corner joints.

2.08 FINISHES

Factory Finishing -

Fluropon® (70% PVDF), AAMA 2605, Fluoropolymer Coating

Interpon® D2000, AAMA 2604, Powder Coating

Other:

2.09 FINISH

A. Cover all exposed areas of aluminum windows and components. Exterior finish shall be 70% Polyvinylidene Fluoride.

B. Type: high performance baked-on organic coating.

C. AAMA Specification: Comply with AAMA 2605.

D. Aluminum Association Designation: AA.M10.C22.A4X.

E. Color: Match existing City Hall

2.10 SOURCE QUALITY CONTROL

A. Single Source Quality: Provide aluminum windows specified herein from a single source.

B. Building Enclosure System: When aluminum windows are part of a building enclosure system, including entrances, entrance hardware, curtain walls, storefront systems, sliding glass doors, slope glazing, and related products, provide building enclosure system products from a single source manufacturer.

PART 3 -- EXECUTION

3.01 EXAMINATION

A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.

B. Site Verification of Conditions: Verify substrate conditions (which have been previously installed under other sections) are acceptable for product installation in accordance with

manufacturer's instructions. Verify openings are sized to receive window system and sill plate is level in accordance with manufacturer's acceptable tolerances.

C. Report conditions contrary to contract requirements that would prevent a proper installation. Do not proceed with the installation until unsatisfactory conditions have been corrected.

D. Failure to call attention to defects or imperfections will be construed as acceptance and approval of the subfloor. Installation indicates acceptance of substrates with regard to conditions existing at the time of installation.

3.02 INSTALLATION

A. General: Install window system in accordance with manufacturer's instructions and AAMA window guide specifications manual.

1. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.
2. Weathertight Construction: Install sill members and other members in a bed of sealant or with joint filler or gaskets, to provide weathertight construction. Coordinate installation with wall flashings and other components of construction.
3. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.
4. Provide alignment attachments and shims to permanently fasten system to building structure.
5. Align assembly plumb and level, free of warp and twist. Maintain assembly dimensional tolerances aligning with adjacent work.

B. Related Products Installation Requirements:

1. Sealants (Perimeter): Refer to Joint Treatment (Sealants) Section.
2. Glass: Refer to Glass and Glazing Section.
3. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual.

3.03 FIELD QUALITY CONTROL

Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

3.04 PROTECTION AND CLEANING

A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum window system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

B. Cleaning: Repair or replace damaged installed products.

C. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance.

D. Remove construction debris from project site and legally dispose of debris.

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

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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 FINSHES

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 ACCESS CONTROL BY OTHERS CARD READER BY OTHERS	630	HES

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 Pyrolitic 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. Pyrolitic-Coated Float Glass: ASTM C 1376, float glass with metallic-oxide coating applied by pyrolitic 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 lacing 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: ÅSTM 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: ¼" in 8' for walls, ¼" 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 Tegular 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 time 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 tegularized 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:

1. Stucco & Plaster
   Flat – 100% Acrylic

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

2. Concrete Tilt-Up
   Flat – 100% Acrylic

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

3. Brick Masonry
   Flat – 100% Acrylic

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

4. Concrete Block
   a. Flat – 100% Acrylic

First Coat	PrepRite Block Filler B25W25
Second Coat	A-100 Exterior Latex Flat A6 Series
Third Coat	A-100 Exterior Latex Flat A6 Series

   b. Satin – 100% Acrylic

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