

PROJECT MANUAL

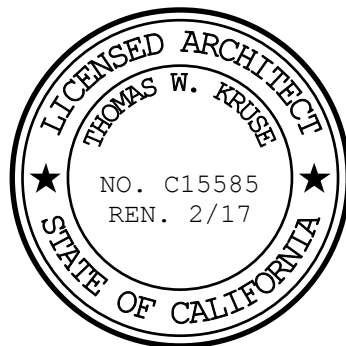
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END OF SECTION

**SECTION 06 10 00
ROUGH CARPENTRY**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Provide the work specified herein consisting of miscellaneous wood framing, sheathing, nails, bolts, screws, framing anchors and other rough hardware and needs for construction as indicated on the drawings for complete and proper installation.
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 07 65 26 Self-Adhering Sheet Flashing
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. CCR, Title 24, Part 2, Chapter 23, 2013 Edition
- B. PS 20 - American Softwood Lumber Standard.
- C. American Forest & Paper Association, National Design Specifications for Wood Construction, 2005 Edition and Supplement.
- D. West Coast Lumberman's Bureau
- E. American Plywood Association
- F. Western Wood Products Association Grading Rules
- G. ASTM D245

1.03 DEFINITIONS

- A. DF: Douglas Fir-Larch

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements

1.05 SUBMITTALS

- A. Product Data
- B. Shop Drawings
- C. Samples
- D. Quality Assurance/Control Submittals
- E. Closeout Submittals

1.06 QUALITY ASSURANCE

- A. Qualifications
 - 1. Use adequate numbers of skilled personnel who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Regulatory Requirements
 - A. Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the

building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure (ATCM) for Composite Wood (17 CCR 93120 et. seq.). Those materials not exempted by the ATCM must meet the specified emission limits as shown in CCR, Title 24, Part 11, Table 5.504.4.5 Formaldehyde Limits

- C. Certifications
 - 1. Provide lumber with visible grade stamp of an approved agency certified by NFPA.
 - 2. Redwood shall be graded by the California Redwood Association, Redwood Inspection Service
- D. Field Samples
- E. Mock-ups
- F. Pre-installation Meetings

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
 - 1. Exercise care in off-loading lumber to prevent damages splitting and breaking.
 - 2. Deliver materials at earliest date possible to allow maximum drying time on site.
- B. Storage and Protection
 - 1. Store materials at job site in a safe area, out of traffic and shored up off ground surface.
 - 2. Identify framing lumber by grades and store grades separately from each other.
 - 3. Protect products with adequate waterproofing.
 - 4. Pile and strip lumber at site to allow free circulation of air with pile protected from sun and moisture.

1.08 PROJECT CONDITIONS

- A. Project Environmental Requirements
 - 1. Air-season all lumber for at least 60 days before covering with finish materials.
 - 2. Moisture Content of sawn lumber shall not exceed 19-percent when framing starts of sheathing is applied. Any noncompliant work shall be rejected and reframed with acceptable lumber
- B. Existing Conditions

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 EXISTING PRODUCTS

2.03 MATERIALS

A. Dimensional Lumber

Unless notes otherwise on Structural Drawings:

1. Non-Load Bearing Studs, minimum DF#2
2. Top Plates, minimum DF#2
3. Sill Plates, preservative treated (PT), minimum DF#2
4. Blocking, minimum DF#2
5. Furring, minimum DF#2
6. Bracing, minimum DF#2
7. Joists, Rafters, Purlins, minimum DF#1
8. Beams and Posts, minimum DF#1
9. Load Bearing Studs < 15', minimum DF#2
10. Load Bearing Studs >15', minimum DF#1

B. Plywood Sheathing

Unless noted otherwise on Structural Drawings:

1. Exterior Stud Wall Sheathing, 15/32" APA Rated, Exposure -1
2. Roof Sheathing, 15/32" APA Rated, Exposure-1

C. Architecturally Exposed Timbers

1. Members 4" nominal in the least dimension shall not contain boxed heart.

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

- A. Nails, spikes, and staples: Common (with standard lengths), except as otherwise indicated, galvanized nails at sill plates for exterior locations, high humidity within conditioned spaces, and treated wood: plain finish for other interior locations; size and type to suit application.
- B. Steel hardware and stock framing connectors: ASTM A36 steel, galvanized for exterior applications, Simpson, or other approved manufacturer. Use of manufactured connectors other than specific brand and catalog no. shown on plans requires D.S.A. approval.
- C. Lag bolts and wood screws: ANSI/ASME Standards B18.2.1 and B18.6.1.
- D. Machine bolts: ASTM A307.
- E. Wood preservative: Wolmanizing treatment at least two weeks prior to delivery to site.

2.08 MIXES

2.09 FABRICATION

2.10 FINISHES

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

A. Site Verification of Conditions

1. Carefully select all members. Ensure that exposed members are free of heart center. Select members so that knots and obvious defects will not interfere with placement of bolts, proper nailing or making

proper connections, and not impair achievement of proper finished appearances where to be exposed.

2. Cut out and discard defects which will render a piece unable to serve its intended function. Lumber may be rejected by architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

3.06 APPLICATION

3.07 CONSTRUCTION

A. General Framing

1. In addition to framing operations normal to fabrication and erection indicated on drawings. Install all wood backing for plaster screeds and control joints required for other work of other trades, and for casework, chalkboards, toilet partitions, etc. as required.
2. Set all horizontal and sloped members with crown up.
3. Non-bearing, non-shear stud walls, sills, and trimmers may be anchored to concrete with shot pins. Use bolts set in concrete when edge distance at concrete is less than 3 inches. No shot pins permitted at curb conditions.
4. All wall and partition studs and mullions shall be continuous from sill to plates. Run at least two studs on each side of openings in stud walls for openings in exterior walls and in partition openings larger than 6 feet, and partitions from sill to plate. For additional details, see structural drawings.
5. Double plates with all joints staggered and lapping at least four feet, and splice to bear on studs at splice joints. See Structural Drawings.
6. Install nailing blocks and backing necessary for attachment of grounds, finishes, trim, fixtures, and do all required cutting, furring, and backing for electrical, plumbing and heating pipes, fixtures, etc.
7. Frame stud partitions, furring and walls containing fire cabinets, electric panels, plumbing, heating, or other pipes to give proper clearance. Cutting of studs in bearing partitions and shear walls is prohibited unless specifically detailed.
8. Fur walls for all pipes over 3/4" dia. Do not place pipes exceeding 1/3 of plate width in partitions used as bearing or plywood sheathed walls, but place them in furring completely clear of studs, unless detailed otherwise. Place approved piping in center of plates using neat hole. No notching is allowed. In no case allow pipes to pass through plates less than 5-1/2 inches wide.
9. Unless otherwise indicated, provide 2-inch by 6-inch studs at 16 inches on centers.
10. Provide cross-bridging at 8 feet on centers maximum for all joists and rafters more than 8 inches (4" at floor joists) depth. Use approved nailable metal type bridging. The lower portion of the cross-bridging shall not be attached until all roof loads have been applied, unless noted otherwise.

11. Provide 1 inch by 6-inch let-in bracing (at approximately 45 degrees) every 25 feet in all stud walls not sheathed. Run continuous from top plate to sill plate. (Optional for alignment purposes only).
 12. Provide all isolated posts with connections at top and bottom; Simpson CC caps or CB base unless specifically detailed otherwise.
 13. Double joist under parallel partitions with solid blocking between joists over all points of support.
 14. Provide a 1/16-inch thick galvanized sheet steel base plate for all untreated wood posts where they are or will be in contact with concrete.
 15. Do not cut or notch wood members unless specifically detailed on drawings.
 16. Retighten all bolts, lags, screws, etc., prior to closing-in and after curing of drypack at sills.
 17. Treat all notches and cuts in treated wood with approved wood preservatives prior to closing-in.
- B. FIRE STOPS
1. Ensure that no fire stop is less than 2 inches thick and no less in width than enclosed space within partition.
 2. Provide stud wall and partitions with continuous rows of bridging or fire stops which will form a complete and effective separation in entire width of partitions, placed in such a manner that there will be no concealed air spaces greater than 8 feet in vertical dimension. Intermediate stops may be in line with opening headers. Provide furred space between stud walls and partitions with continuous fire stops at same elevation as those in the enclosing walls which must be installed horizontally, thus forming a solid stop from outside to outside of studs. At all concealed draft passages or shafts including furring spaces, ensure that maximum dimension is no more than 8 feet. Fire stop all partitions at all suspended ceilings.
- C. DRAFT STOPS
1. Construction materials shall be of the following materials:
 - a. Minimum 5/8" gypsum board.
 - b. Minimum 15/32" plywood sheathing.
 2. Installation shall be at locations indicated on the drawings and per the following requirements:
 - a. At roof-ceiling assemblies so that the area of the concealed space does not exceed 1000 sq. ft. with a maximum horizontal dimension of 60 feet.
 - b. At roof-ceiling assemblies, where automatic fire sprinklers are installed in the concealed space, so that the area of the concealed space does not exceed 3,000 sq.ft. with a maximum horizontal dimension of 100 ft.
 - c. In attics, mansards, overhangs, false fronts set out from walls and similar concealed spaces so that the area between draft stops does not exceed 3000 sq.ft. with a maximum horizontal dimension of 60 ft.
 3. Where automatic fire sprinklers are installed in the aforementioned spaces, the maximum area between draft stops shall be 9,000 sq.ft. with a maximum horizontal dimension of 100 feet.
 4. Draft stops shall form an effective barrier in concealed attic spaces, between ceilings and the underside of roof sheathing.

- D. BEARING
 - 1. Make bearings full unless shown otherwise.
 - 2. Finish bearing surfaces on which structural members are to rest so as to give sure and even support. Where framing members slope, cut or notch ends as required to give uniform bearing surface.
- E. SHIMMING
 - 1. Do not shim any framing member except where specifically shown or required by drawings.
- F. BLOCKING
 - 1. Install blocking required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor.
 - 2. 2x full depth solid blocking, shall be placed between joist or rafters at all supports.
- G. ALIGNMENT
 - 1. On all framing members to receive a finished surface, align finish sub-surface to vary not more than 1/8 inch from plane of surface of adjacent framing and furring members.
- H. PLYWOOD PLACEMENT
 - 1. Place all plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise detailed.
 - 2. Center joints accurately over support unless otherwise shown on drawings.
 - 3. Protect plywood from moisture until succeeding component or materials are installed to cover plywood.
- I. FASTENING
 - 1. Use only common wire nails or spikes of standard lengths and gages
 - 2. For conditions not covered on drawings, provide penetration into piece receiving point not less than 1/2 length of nail or spike, provided that 16d nails may be used to connect two pieces of two inch thickness.
 - 3. For bolts, drill holes 1/32 inch larger in diameter than bolts being used. Drill straight and true from one side only.
 - 4. Bolt threads shall not bear on wood. Use washers under head and nut where both bear on wood. Use washers under all nuts.
 - 5. For lag screws, and wood screws, pre-bore holes same diameter as root of threads; enlarge holes for shank diameter for length of shank.
 - 6. Screw, do not drive, all lag screws and wood screws.
 - 7. Retighten bolts before closing.

- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

SECTION 06 41 16
PLASTIC-LAMINATE-CLAD ARCHITECTURAL CABINETS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Plastic-Laminate-Clad Architectural Cabinets
 - 2. Factory finishing
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 06 10 00 Rough Carpentry
 - 2. 06 41 93 Cabinet and Drawer Hardware
 - 3. 07 92 00 Joint Sealants
 - 4. 12 36 23.13 Plastic-Laminate-Clad Countertops
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. Minimum Standards for work in this section shall be in conformity with the Architectural Woodwork Standards.

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements
 - 1. Performance shall comply with grade requirements specified of Architectural Woodwork Standards, latest edition.
 - a. Appendix B, Section 10 - Casework
 - b. Appendix B, Section 12 - Installation
 - 2. Each elevation of casework shall bear Woodwork Institute certified compliance label.

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturers' plastic laminate data sheets
- B. Shop Drawings
 - 1. Submit shop drawings in conformance with the requirements of the Architectural Woodwork Standards, Section 1 – Submittals.
 - 2. The first page of the shop drawing shall include a Woodwork Institute certified compliance label.
- C. Samples
 - 1. Submit manufacturers' laminate full range of laminate samples
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Furnish Woodwork Institute certified compliance certificate prior to delivery certifying that all materials and fabrication

thereof fully meet the specified grade requirements of Woodwork Institute specification.

E. Closeout Submittals

1. Furnish, after completion of installation, Woodwork Institute certified compliance certificate certifying that the installation fully meets specified grade requirements of Woodwork Institute specification.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Woodwork manufacturer with no less than five years of production experience similar to a specific project, whose qualifications indicate the ability to comply with the requirements of this section.
2. A single manufacturer shall provide and install the work of described in this section.
3. Bidders will be Woodwork Association program participants.

B. Regulatory Requirements

1. Fire-Test-Response Characteristics
 - a. Plastic laminate shall comply with the following surface-burning characteristics as determined by testing identical products per ASTM E-84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 1. Flame-Spread Index: 25 or less
 2. Smoke-Developed Index: 450 or less

C. Certifications

1. Work shall be in accordance with the Grade or Grades specified of the Architectural Woodwork Standards.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading

1. Comply with Woodwork Institute Architectural Woodwork Standards, latest edition, Section 2 – Care & Storage.
2. Deliver materials only when the project is ready for installation and the contractor has provided a clean storage area

B. Acceptance at Site

1. Delivery of millwork shall be made only when the area of operation is enclosed, all plaster and concrete work is dry and the area broom clean.

1.08 PROJECT CONDITIONS

A. Project Environmental Requirements

1. Maintain indoor temperature and humidity within the range recommended by the Architectural Woodwork Standards for the location of the project.

1.09 SEQUENCING

- A. Coordinate fabrication, delivery, and installation with the contractor and other applicable trades.

1.10 SCHEDULING

1.11 WARRANTY

1.12 SYSTEM STARTUP

- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
 - A. Formica Corporation, 10155 Reading Road, Cincinnati, OH 45241
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
 - A. Veneers shall be in accordance with the Architectural Woodwork Standards requirements for its use and the grades.
 - B. Lumber shall be in accordance with the Architectural Woodwork Standards Grade specified for the product being fabricated. Moisture content shall be 6% to 12% for boards up to 2-inches nominal thickness, and shall not exceed 19% for thicker pieces.
 - C. Core shall be MDF meeting the requirements of Architectural Woodwork Standards.
 - D. Cabinet liner shall be type CLS.
 - E. Adhesives used shall be type II
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
 - A. Laminate
 - 1. (Formica) Formica Laminate, See 3.15 Schedules
 - B. Shall be Architectural Woodwork Standards: Premium Grade
 - B. Exposed interior surfaces shall be: Laminate matching exposed surfaces
 - C. Semi-exposed surfaces shall be: Melamine overlay
 - D. Doors, drawer fronts, and false fronts shall be: Flush overlay
 - E. Drawers shall meet the requirements of the AWS for Grade specified.
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
 - A. Site Verification of Conditions
 - 1. Verify the adequacy and proper location of any required or support framing.
 - 2. Verify that mechanical, electrical, plumbing, and other building components affecting work in this section are in place and ready.
- 3.03 PREPARATION
- 3.04 ERECTION

3.05 INSTALLATION

- A. Install all work in conformance with the Architectural Woodwork Standards, latest edition.
- B. Installation shall conform to the AWS Grade of the items being installed
- C. All work shall be secured in place, square, plumb, and level.
- D. All work abutting other building components shall be properly scribed.
- E. Mechanical fasteners used at exposed and semi-exposed surfaces, excluding installation attachment screws shall be countersunk
- F. Equipment cutouts shown on plans shall be cut by the countertop installer.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

- A. Before completion of the installation, the installer shall adjust all moving operating parts to function smoothly and correctly.
- B. All nicks, chips, and scratches in the finish shall be filled and retouched. Damaged items that cannot be repaired shall be replaced.

3.12 CLEANING

- A. Upon completion of installation, the installer shall clean all installed items of pencil and ink marks and broom clean the area of operation, depositing debris in containers provided.

3.13 DEMONSTRATION

3.14 PROTECTION

3.15 SCHEDULES

- A. Laminate
 - 1. Color/Pattern Number & Color Pattern Name: TBD
 - a. As selected by architect from manufacturer's full range of options, including premium selections
 - 2. Grade (Name/Number): TBD
 - b. As selected by architect from manufacturer's full range of options, including premium grades
 - 3. Finish (Name/Number): TBD
 - c. As selected by architect from manufacturer's full range of options, including premium finishes

END OF SECTION

SECTION 06 41 93
CABINET AND DRAWER HARDWARE

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Cabinet and drawer hardware
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 06 41 16 Plastic-Laminate-Clad Architectural Cabinets
 - 2. 12 36 23.13 Plastic-Laminate-Clad Countertops
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. Minimum Standards for work in this section shall be in conformity with the Architectural Woodwork Standards.

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements
 - 1. Performance shall comply with grade requirements specified of Architectural Woodwork Standards, latest edition.
 - a. Appendix B, Section 10 - Casework
 - b. Appendix B, Section 12 - Installation

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturers' products data sheets for each piece of specified hardware.
- B. Shop Drawings
 - 1. Submit shop drawings in conformance with the requirements of the Architectural Woodwork Standards, Section 1 – Submittals.
 - 2. The first page of the shop drawing shall include a Woodwork Institute certified compliance label.
- C. Samples
 - 1. Submit one (1) sample of each piece of specified hardware
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Furnish Woodwork Institute certified compliance certificate prior to delivery certifying that all materials and fabrication thereof fully meet the specified grade requirements of Woodwork Institute specification.
- E. Closeout Submittals
 - 1. Furnish, after completion of installation, Woodwork Institute certified compliance certificate certifying that the installation fully

meets specified grade requirements of Woodwork Institute specification.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Woodwork manufacturer with no less than five years of production experience similar to a specific project, whose qualifications indicate the ability to comply with the requirements of this section.
2. A single manufacturer shall provide and install the work of described in this section.
3. Bidders will be Woodwork Association program participants.

B. Regulatory Requirements

1. Fire-Test-Response Characteristics

- a. Plastic laminate shall comply with the following surface-burning characteristics as determined by testing identical products per ASTM E-84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 1. Flame-Spread Index: 25 or less
 2. Smoke-Developed Index: 450 or less

C. Certifications

1. Work shall be in accordance with the Grade or Grades specified of the Architectural Woodwork Standards.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading

1. Comply with Woodwork Institute Architectural Woodwork Standards, latest edition, Section 2 – Care & Storage.
2. Deliver materials only when the project is ready for installation and the contractor has provided a clean storage area

B. Acceptance at Site

1.08 PROJECT CONDITIONS

A. Project Environmental Requirements

1. Maintain indoor temperature and humidity within the range recommended by the Architectural Woodwork Standards for the location of the project.

1.09 SEQUENCING

- A. Coordinate fabrication, delivery, and installation with the contractor and other applicable trades.

1.10 SCHEDULING

1.11 WARRANTY

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Knappe & Vogt Manufacturing Company, 2700 Oak Industrial Dr., NE Grand Rapids, MI 49505
- B. Blum Inc., 7733 Old Plank Road, Stanely, NC 28164
- C. Pride Industrial, 10825 7th Street, Suite B, Rancho Cucamonga, CA 91730

2.02 EXISTING PRODUCTS

2.03 MATERIALS

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

- A. Pulls:
 - 1. (Pride) Wire Pull SN
Finish: Satin Nickel
Size: 4-inch
- B. Drawer Guides: Full extension
 - 1. (K&V) Heavy-duty (120lbs-200lbs) capacity, per manufacturer's requirements match capacity to drawer size and weight
- C. Hinges: Concealed
 - 1. (Blum) CLIP top BLUMOTION
- D. Door Catches:
 - 1. (K&V) 918 Aluminum Heavy-Duty Aluminum Magnetic Catch
 - a. Finish: Aluminum
- E. Shelf Supports: Self supports for adjustable shelves in wall-hung cabinets and the upper half of tall cabinets shall be designed to prevent shelves from sliding forward in a seismic event.
 - 1. (K&V) 255/256 Steel Series Mortise-Mount Pilaster Shelving System
 - a. Finish: As selected by architect from full range of options.
- F. Locks: N/A

2.07 ACCESSORIES

2.08 MIXES

2.09 FABRICATION

2.10 FINISHES

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

- A. Hardware shall be installed by casework fabricator.

3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. Verify the adequacy and proper location of any required or support framing.
 - 2. Verify that mechanical, electrical, plumbing, and other building components affecting work in this section are in place and ready.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

- A. Install all work in conformance with the Architectural Woodwork Standards, latest edition.
 - B. Installation shall conform to the AWS Grade of the items being installed
 - C. All work shall be secured in place, square, plumb, and level.
 - D. All work abutting other building components shall be properly scribed.
 - E. Mechanical fasteners used at exposed and semi-exposed surfaces, excluding installation attachment screws shall be countersunk
 - F. Equipment cutouts shown on plans shall be cut by the countertop installer.
- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- A. Before completion of the installation, the installer shall adjust all moving operating parts to function smoothly and correctly.
 - B. All nicks, chips, and scratches in the finish shall be filled and retouched. Damaged items that cannot be repaired shall be replaced.
- 3.12 CLEANING
- A. Upon completion of installation, the installer shall clean all installed items of pencil and ink marks and broom clean the area of operation, depositing debris in containers provided.
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

SECTION 07 65 26
SELF-ADHERING SHEET FLASHING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Flexible rubberized asphalt adhesive based self sealing flashing tape
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 06 10 00 Rough Carpentry
 - 2. 08 41 13 Aluminum-Framed Entrances and Storefronts
 - 3. 09 24 00 Portland Cement Plaster
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. ASTM E96 – Test Methods for Water Vapor Transmission of Materials
- B. ASTM D570 – Test Method for Water Absorption of Plastics
- C. ASTM E2112 – Standard Practice for Installation of Exterior Windows, Doors, and Skylights
- D. ASTM D1970 – Standard Specifications for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- E. ASTM D412 – Test Methods for Vulcanized Rubber & Thermoplastic Rubbers and Thermoplastic Elastomers – Tension
- F. ASTM D3652 – Standard Test Method for Thickness of Pressure Sensitive Tapes

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements
 - 1. Meets or exceeds the requirements set forth in AAMA 711-13 voluntary specification for self adhered flashing Level 3 requirement for elevated temperature exposure.
 - 2. Meets or exceeds the requirements set forth in ASTM E2112 for Flashing Exterior Windows and Doors
 - 3. Water Penetration around Nails: ASTM D1970 Section 7.9, modified per section 5.2.1 of AAMA 711 voluntary specification – Pass 1.2 in head of water
 - 4. Tensile Strength: ASTM D412, Die C Modified – Min. 985 kPa (143 psi)
 - 5. Thickness: ASTM 3652 – Min 40 mils

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit each product specified
- B. Shop Drawings
- C. Samples
 - 1. Submit min 6-inch x 6-inch sample of products specified

SELF-ADHERING SHEET FLASHING

- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Submit manufacturer's details and installation procedures
 - b. Submit manufacturer's test reports indicating compliance with the performance requirements of this section.
 - c. Submit manufacturer's standard product warranty that flashing and accessories are free of defects at time of delivery, and are manufactured to meet manufacturer's published physical properties and material specifications.
- 1.06 QUALITY ASSURANCE
 - A. Qualifications
 - B. Regulatory Requirements
 - C. Certifications
 - D. Field Samples
 - E. Mock-ups
 - F. Pre-installation Meetings
- 1.07 DELIVERY, STORAGE, AND HANDLING
 - A. Packing, Shipping, Handling, and Unloading
 - 1. Comply with manufacturer's recommendations for handling of each product.
 - B. Acceptance at Site
 - C. Storage and Protection
 - 1. Comply with manufacturer's recommendations for storage of each product.
- 1.08 PROJECT CONDITIONS
 - A. Project Environmental Requirements
 - B. Existing Conditions
- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
 - A. Warranty period shall be five (5) years from date of completion of the flashing installation.
 - B. Installer to warrant that flashing and accessories have been installed in accordance with manufacturer's recommendations.
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE
 - A. Extra Materials
 - B. Maintenance Service

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
 - A. W.R. Grace & Co., 62 Whittemore Avenue, Cambridge, MA 02140
- 2.02 EXISTING PRODUCTS

- 2.03 MATERIALS
 - A. (Grace) Vycor V40 Flashing
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
 - A. Primer
 - 1. (Grace) Perm-A-Barrier WB Primer
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
 - A. Site Verification of Conditions
 - 1. Examine conditions for compliance with manufacturer's requirements for installation, tolerances and other specific conditions affecting performance of flashing.
- 3.03 PREPARATION
 - A. Protection
 - B. Surface Preparation
 - 1. Remove all deleterious materials from surfaces to be flashed.
- 3.04 ERECTION
- 3.05 INSTALLATION
 - A. Install flashing to dry clean surfaces at air and surface temperatures of 25°F and above in accordance with manufacturer's recommendations at locations indicated on Construction Documents.
 - B. Primer
 - 1. When required by dirty or dusty site conditions or by surfaces having irregular or rough texture, apply primer by air spray, brush or roller or apply primer by brush or roller at the rate recommended by manufacturer, prior to flashing installation. Allow the primer to dry completely before flashing application.
 - a. Not required for most wood substrates including plywood and OSB provided if they are clean and dry.
 - b. Required for concrete, masonry, and gypsum sheathing prior to flashing.
 - C. Self-Adhering Sheet Flashing
 - 1. Precut pieces of flashing to easily handled lengths for each location.
 - 2. Remove silicone-coated release paper and position flashing carefully before placing it against the surface.
 - 3. When properly positioned, place against surface by pressing firmly into place by hand roller. Fully adhere flashing to substrate to prevent water from migrating under flashing.
 - 4. Overlap adjacent pieces 2 in. and roll all seams with a steel hand roller.

SELF-ADHERING SHEET FLASHING

5. Trim bottom edge 1/2 in. back from exposed face of the wall. Flashing shall not be permanently exposed to sunlight.
6. At heads, sills and all flashing terminations turn up ends a minimum of 2 in. and make careful folds to form an end dam, with the seams sealed.
7. Do not expose flashing membrane to sunlight for more than one hundred and twenty (120) days prior to enclosure.

- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

**SECTION 07 92 00
JOINT SEALANTS**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Joint sealants
 - 2. Preparation for application of sealants
 - 3. Back-up material
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
 - 1. Field-Molded Concrete Paving Joint Sealant; See 32 16 00 Curbs, Gutters, Sidewalks, and Driveways
 - 2. Filed-Molded Concrete Unit Masonry Joint Sealant; See 04 22 00 Concrete Unit Masonry
- D. Related Sections
 - 1. 04 22 00 Concrete Unit Masonry
 - 2. 32 16 00 Curbs, Gutters, Sidewalks, and Driveways

1.02 REFERENCES

- A. SCAQMD Rule 1168 VOC Limits
- B. CCR, Title 24, Part 11, Table 5.504.4.1- Adhesive VOC Limit and Table 5.504.4.2 – Sealant VOC Limit

1.03 DEFINITIONS

- A. SCAQMD: South Coast Air Quality Management District
- B. VOC: Volatile Organic Compound

1.04 SYSTEM DESCRIPTIONS

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturer's literature for each sealant material.
- B. Shop Drawings
 - 1. Submit Shop Drawings indicating sealant joint locations, with full-size sealant joint details.
- C. Samples
 - 1. Submit Samples indicating color range available for each sealant material intended for installation in exposed locations.
- D. Quality Assurance/Control Submittals
 - 1. Submit manufacturer's certification materials comply with requirements specified.
 - 2. Submit manufacturer's adhesion compatibility test reports according to ASTM C794 for each substrate.
- E. Closeout Submittals

1.06 QUALITY ASSURANCE

A. Qualifications

1. The Work of this section shall be installed by a firm which has been in the business of installing similar materials for at least five consecutive years; and can show evidence of satisfactory completion of five projects of similar size and scope.
2. Installer shall have applicators trained and approved by manufacturer for performing this Work.

B. Regulatory Requirements

1. Adhesives, adhesive bonding primers, adhesive primers, sealants, sealant primers, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits, as shown in CCR, Title 24, Part 11, Tables 5.504.4.1 and 5.504.4.2. Such products also shall comply with Rule 1168 prohibition on the use of certain toxic compounds (Chlorofoam, ethylene dichloride, methylene chloride, perchloroethylene, and trichloroethylene), except for aerosol products as specified in Subsection 2, below.
2. Aerosol adhesives, and smaller unit sizes of adhesives, and sealant or caulking compounds (in units of product, less packaging, which do not weigh more than one pound and do not consist of more than 16 fluid ounces) shall comply with statewide VOC standards and other requirements, including prohibitions on use of certain toxic compounds, of California Code of Regulations, Title 17, commencing with Section 94507.

C. Certifications

D. Field Samples

1. At locations required, provide a Sample of sealant for each typical installation, approximately 24 inches long, including joint preparation, backing, sealant and tooling. Allow backing to extend 6 inches beyond end of sealant for inspection of substrate.

E. Mock-ups

F. Pre-installation Meetings

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading

B. Storage and Protection

1. Sealants shall be stored and installed at temperatures as recommended by manufacturer.

1.08 PROJECT CONDITIONS

A. Project Environmental Requirements

B. Site Conditions

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

1. Five year material warranty, two year installation/application warranty.

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Tremco Commercial Sealants & Waterproofing, 3735 Green Rd., Beachwood, OH, 44122
- B. Pecora Corporation, 165 Wambold Road, Harleysville, PA 19438
- C. Dow Corning Corporation, P.O. Box 994, Midland, MI 48686

2.02 EXISTING PRODUCTS

2.03 MATERIALS

A. Sealants

Sealants shall have normal curing schedules, shall be nonstaining, color fast and shall resist deterioration due to ultraviolet radiation.

- 1. Sealant 1: Acrylic Latex, Non-Sag, Single-Component
 - a. (Tremco) Tremflex 834
 - b. (Pecora) AC-20+Silicone
- 2. Sealant 2: Butyl, Non-Sag, Single-Component
 - a. (Tremco) Butyl Sealant
 - b. (Pecora Corp) BC-158.
- 3. Sealant 3: Butyl, Non-Sag, Single-Component, Acoustical
 - a. (Tremco) Acoustical Sealant
 - b. (Pecora) BA-98
- 4. Sealant 4: Silicone, Non-Sag, Single-Component
 - a. (Tremco) Spectrem 1
 - b. (Pecora) 864 NST
- 5. Sealant 5: Silicone, Non-Sag, Single Component, Mildew-Resistant
 - a. (Pecora) 898 NST, Color selected by architect
 - b. (Dow Corning) 786, Color selected by architect
- 6. Sealant 6: Polyurethane, Non-Sag, Single Component
 - a. (Tremco) Dymonic 100
 - b. (Pecora) DynaTrol I-XL
- 7. Sealant 7: Polyurethane, Non-Sag, Multi-Component
 - a. (Tremco) Dymeric 240FC
 - b. (Pecora) DynaTrol II

B. Fire Rated Sealants

- 1. See Section 07 84 43 Joint Firestopping

C. Joint Backing

- 1. ASTM D1056; round, closed cell Polyethylene Foam Rod; oversized 30 to 50 percent larger than joint width, reticulated polyolefin foam.

D. Primer:

- 1. Provide primer as required. Non-staining Type.
- 2. Primer shall be a product of manufacturer of installed sealant.
- 3. Primer shall be compatible with not only sealant, but substrate and finish on which to be applied.
- 4. Primer must have been tested for durability on the surfaces to be sealed and specifically recommended for this installation by the manufacturer.

E. Bond Breaker:

- 1. Pressure sensitive tape recommended by sealant manufacturer.

JOINT SEALANTS

- a. Polyethylene tape, pressure sensitive adhesive, with the adhesive required only to hold tape to the construction material.
- b. Aluminum foil conforming to MIL-SPEC-Mil-A-148E.
- c. Wax paper conforming to Federal Specification UU-P-270

- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

- A. Sealants shall be installed by experienced mechanics using specified materials and proper tools.

3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. Verify that joint openings are ready to receive Work and field tolerances are within the guidelines recommended by sealant manufacturer.

3.03 PREPARATION

- A. Protection
 - 1. Protect elements surrounding Work of this section from damage or disfiguration.
- B. Surface Preparation
 - 1. Joints and spaces to be sealed shall be completely cleaned of all dirt, dust, mortar, oil, and other foreign materials which might adversely affect sealing Work. Where necessary, degrease with a solvent or commercial degreasing agent. Surfaces shall be thoroughly dry before application of sealants.
 - 2. If recommended by manufacturer, remove paint and other protective coatings from surfaces to be sealed before priming and installation of sealants.
 - 3. Preparation of surfaces to receive sealant shall conform to the sealant manufacturer's specifications. Provide air pressure or other methods to achieve required results. Provide masking tape to keep sealants off surfaces that will be exposed in finished Work.
 - 4. Etch concrete or masonry surfaces to remove excess alkalinity, unless sealant manufacturer's printed instructions indicate that alkalinity does not interfere with sealant bond and performance. Etch with 5 percent solution of muriatic acid; neutralize with dilute ammonia solution, rinse thoroughly with water and allow to dry before sealant installation.
 - 5. Perform preparation in accordance with ASTM C804 for solvent release sealants, and ASTM C962 for elastomeric sealants.

6. Concrete, masonry, and other porous surfaces, and any other surfaces if recommended by manufacturer, shall be primed before installing sealants. Primer shall be installed with a brush that will reach all parts of joints to be filled with sealant.

3.04 ERECTION

3.05 INSTALLATION

3.06 APPLICATION

- A. Provide sealant around all openings in exterior walls, and any other locations indicated or required for structure weatherproofing and/or waterproofing.
- B. Sealants shall be installed with guns furnished with proper size nozzles. Sufficient pressure shall be furnished to fill all voids and joints solid. In sealing around openings, include entire perimeter of each opening, unless indicated or specified otherwise. Where gun installation is impracticable, suitable hand tools shall be provided.
- C. Sealed joints shall be neatly pointed on flush surfaces with beading tool, and internal corners with a special tool. Excess material shall be cleanly removed. Sealant, where exposed, shall be free of wrinkles and uniformly smooth. Sealing shall be complete before final coats of paint are installed.
- D. Partially fill joints with joint backing material, furnishing only compatible materials, until joint depth does not exceed 1/2 inch joint width. Minimum joint width for metal to metal joints shall be 1/4 inch. Joint depth, shall be not less than 1/4 inch and not greater than 1/2 inch.
- E. Install sealant under sufficient pressure to completely fill voids. Finish exposed joints smooth, flush with surfaces or recessed as indicated. Install non-tracking sealant to concrete expansion joints subject to foot or vehicular traffic.
- F. Where joint depth prevents installation of standard bond breaker backing rod, furnish non-adhering tape covering to prevent bonding of sealant to back of joint. Under no circumstances shall sealant depth exceed 1/2 inch maximum, unless specifically indicated on Drawings.
- G. Sealants shall cure in accordance with manufacturer's printed recommendations. Do not disturb seal until completely cured.

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

- A. Site Test, Inspection
 1. Sealants shall not be installed when they become too jelled to be discharged in a continuous flow from gun. Modification of sealants by addition of liquids, solvents, or powders is not permitted.

3.11 ADJUSTING

3.12 CLEANING

- A. Remove rubbish, debris, and waste materials and legally dispose of off the Project site.

3.13 DEMONSTRATION

3.14 PROTECTION

- A. Protect the Work of this section until Substantial Completion.

3.15 SCHEDULES
A. Application

Location	Type
Interior gypsum board, all interior joints not scheduled	Sealant 1
Under thresholds	Sealant 2
Interior door/window frames -Heads, Jambs, Sills	Sealant 3
Exterior door and window frames.	Sealant 4
Joints within glazed curtain wall system	Sealant 4
Skylight framing system	Sealant 4
Glass and glazing	Sealant 4
Joints in ceramic tile and at plumbing fixtures	Sealant 5
Between metal and concrete, masonry, and mortar	Sealant 6
Exterior and interior vertical joints in concrete and masonry metal flashing	Sealant 6
Interior joints in horizontal surfaces of concrete	Sealant 7

END OF SECTION

**SECTION 08 12 13
HOLLOW METAL FRAMES**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Knocked down, site assembled pre-finished steel interior door frames
 - 2. Knocked down, site assembles prefinished steel interior window frames
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 08 14 16 Flush Wood Doors
 - 2. 08 71 00 Door Hardware
 - 3. 08 80 00 Glazing
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. ASTM A1008M – Standard for cold rolled steel material
- B. ASTM D2197 - Standard Test Method for Adhesion of Organic Coatings by Scrape Adhesion.
- C. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
- D. ASTM D2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- E. ASTM D3361 - Standard Practice for Unfiltered Open-Flame Carbon-Arc exposures of Paint and Related Coatings.
- F. ASTM B117 – Standard test for salt spray testing

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

1.05 SUBMITTALS

- A. Product Data
 - 1. Indicate frame material, gage, configuration and finishes
- B. Shop Drawings
 - 1. Indicate frame elevations, details of frame anchorage, reinforcements required, rough opening requirements, location of hardware embosses, and finishes. Detail each floor of the building separately.
- C. Samples
 - 1. Submit three (3) standard frame samples, illustrating factory finished frame colors
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements

- a. Provide installation instructions for all products under this section.
- b. Provide manufacturer's standard warranty certificate stating material is warranted for a period of one year from date of building occupancy

1.06 QUALITY ASSURANCE

- A. Qualifications
 - 1. Material free from defects in material and according to project specifications for pre-engineered opening systems
 - 2. Proven durability of factory finishes allowing for bending and shaping of material after finish is applied

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
 - 1. Transport, handle, store, and protect products in a dry area off the ground.
- B. Acceptance at Site
 - 1. Accept frames on site in manufacturer's box packaging with identification labels intact. Inspect for damage.
- C. Storage and Protection
 - 1. Do not open individual boxes until installation is to begin.

1.08 PROJECT CONDITIONS

1.09 SEQUENCING

- A. Install pre-finished frames near end of the project after wall painting and wall coverings are applied.
- B. Coordinate installation of glass and glazing in glazed units.
- C. Coordinate installation of frames with installation of hardware

1.10 SCHEDULING

1.11 WARRANTY

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Timely Industries, A Division of SDS Industries, Inc., 10241 Norris Avenue, Pacoima, CA, 91331

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Cold rolled steel, for interior frames in normal atmospheric exposures.

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

- A. Frame Throat Opening
 - 1. As shown on plan details to suit finished wall thickness.
- B. Door Frame Profile

HOLLOW METAL FRAMES

1. Communicator profile, 1-3/4" Door
 - a. "C" Series, 1.2 mm (18 gage) thick
- C. Window Frame Profile
 1. Communicator profile, 1/4" Glazing
 - a. "C" Series, 1.2 mm (18 gage) thick
- D. Casings
 1. Provide steel casings formed to be applied to heat treated clips on frame face after frame is anchored to wall
 - a. Standard Steel - TA-8 with 6 mm (1/4 inch) reveal, on steel frames. Fit factory assembled units with MiterGard corner alignment clips.

2.07 ACCESSORIES

- A. Provide reinforcements shipped loose to project site for hardware application
 1. TA-10 - Regular arm closers, casing mounted coordinators
 2. TA-12 - Parallel arm closers, Rim Exit device strikes, other stop mounted surface hardware
 3. TA-47 - For CK frame, Parallel arm closers, Rim Exit device strikes, other stop mounted surface hardware
 4. TA-25 - Double acting spring hinges, continuous hinges, other surface mounted hardware on door rabbet or cased opening frame
 5. Provide hinge reinforcement (TA-11) of 14 gage steel pierced to create depth of thread for hinge screws equal to or exceeding 7 gage steel.
- B. Silencers
 1. TA-5 vinyl, 2 per frame, clear stick-on type.
- C. Glass Stops
 1. TA-14 removable rolled steel, shape, butted ends. Pre-punch and countersink for flat head tek screws.
- D. Adjustable strikes: Emboss frames for TA-1 strike for cylindrical lock. Provide TA-1 strike in finish compatible with hardware finish. (ANSI 2 3/4" T strike supplied with cylindrical lock cannot be used with standard frame because of unique strike location and screw piercing method)
- E. Prepare frames for ASA 4-7/8" strikes where required. Provide minimum 1/4" depth of threads in factory tapped screw holes
- F. Installation fasteners: Locations as shown on drawings
 1. #6 Drywall type length sufficient to penetrate studs or structure at least 1/2".

2.08 MIXES

2.09 FABRICATION

- A. Shop Assembly
 1. Openings for single swing, pair, borrowed light and sidelight frames to be pre-cut, notched and fabricated at the manufacturer's facility.
 2. Provide minimum 14 gage hinge reinforcement plate tapped for machine screws supplied with hinges. Hinge plate to be mechanically attached to hinge emboss on frame
 3. Casing Clips
 1. Fabricate frames with factory applied, heat treated clips to ensure no deflection in the clip upon application or removal

of casing. Attachment clips may not be of same material as frame

4. Provide notches, tabs and/or stops for positive alignment of frame parts at all corners
5. Mullions to be notched as required to provide tight joints
6. Provide manufacturer's standard mullion brackets for positive connection of frame and mullion parts
7. Provide manufacturer's standard steel glass stop pre-cut to exact length.
8. Provide insert channel full width of borrowed lights installed on finish floor. Provide full width head channel for ceiling height units.

2.10 FINISHES

A. Shop Priming, Shop Finishing

1. Frame Units

- a. Pre-finished with factory applied impact resistant, polyester baked enamel finish.

2. Casing Finishes

- a. Prefinished with factory applied impact resistant, polyester baked enamel finish.

3. Colors

- a. Premium Colors: Black (SC103)

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

- ##### A.
- Install frames using qualified installers familiar with installation of pre-finished drywall frames.

3.02 EXAMINATION

A. Site Verification of Conditions

1. Verify acceptability of existing conditions before starting work.
2. Verify that opening sizes and wall thicknesses are within specified tolerances.
3. Verify that all finished walls are in plane to ensure proper door alignment.

3.03 PREPARATION

A. Protection

B. Surface Preparation

3.04 ERECTION

3.05 INSTALLATION

- ##### A.
- Install frames in accordance with manufacturer's requirements.
- ##### B.
- Anchor frames with screws located at every casing clip or every 11" as shown on manufacturer's instructions. Field verify quantity and location of fasteners prior to installing casing.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

HOLLOW METAL FRAMES

- A. Touch-up blemishes on finished frames with factory prepared touch up paint.
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
 - A. Site Tests, Inspection
 - B. Manufacturers' Field Services
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

SECTION 08 13 16
ALUMINUM DOORS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Aluminum Doors
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 08 41 13 Aluminum-Framed Entrances and Storefronts
 - 2. 08 71 00 Door Hardware
 - 3. 08 80 00 Glazing
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. American Architectural Manufacturers Association (AAMA)
- B. American Society for Testing and Materials (ASTM)
- C. Aluminum Association (AA)

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements
 - 1. Comply with applicable provisions of AAMA Aluminum Storefront and Entrance Manual for design, materials, fabrication and installation of component parts.
 - 2. Arcadia WS512 Series Wide Stile Entrance is a single source package of door, doorframe and hardware that is engineered for the most severe high-volume traffic conditions.
 - 3. Each assembly tested by a recognized testing laboratory or agency in accordance with specified test methods.
 - a. Tested by the dual moment corner joint strength test.

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit Manufacturer's product data
- B. Shop Drawings
 - 1. Submit Manufacturer's shop drawings for all specified doors, including interface with aluminum storefront system
 - 2. Custom hardware templates submitted prior to any fabrication.
- C. Samples
 - 1. Submit finish samples specified
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Provide test reports from AAMA accredited laboratories certifying the performances as specified in 1.04.

- b. Custom door hardware must be submitted and approved prior to fabrication of door

1.06 QUALITY ASSURANCE

1.07 DELIVERY, STORAGE, AND HANDLING

1.08 PROJECT CONDITIONS

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

- A. Door warranted against failure and/or deterioration of metals due to manufacturing process for a period of two (2) years.

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Arcadia, Inc., 2301 E Vernon, Vernon, CA

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Door members
 - 1. Extruded 6063-T6 aluminum alloy (ASTM B221-Alloy G.S. 10a T6).
- B. Screws, fastening devices, and internal components
 - 2. Aluminum, stainless steel, or zinc plated steel in accordance with ASTM A-164. Shall be aluminum or steel, providing the steel is properly isolated from aluminum.
- C. Glazing Gasket
 - 1. Compression-type design.

2.04 MANUFACTURED UNITS

- A. (Arcadia) WS512 Series, Wide Stile Door 1-3/4".
 - 1. Vertical Stiles: 5 inches.
 - 2. Top Rail: 5-1/8 inches.
 - 3. Bottom Rail: 10 inches.
 - 4. Glazing Stops
 - a. Square snap-in type for 1/4" glazing.
 - 1. Model: DS002
 - 5. Major portions of the door stiles a nominal .125 inches and glass stops .050 inches thick.

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

- A. Door Hardware:
 - 1. Weatherstripping
 - a. Hard-backed poly pile in door and/or frame.
 - 2. Threshold
 - b. Extruded Aluminum with ribbed surface.
 - 1. Model: T507 – 5"

ALUMINUM DOORS

3. Sill Sweeps: Brush strip (concealed).
 1. Model: DRB811
4. Pivoting/Hinging: See 08 71 00 Door Hardware
5. Closers: See 08 71 00 Door Hardware
6. Latches/Strike: See 08 71 00 Door Hardware
7. Latch Handle: See 08 71 00 Door Hardware
8. Electric Release: See 08 71 00 Door Hardware
9. Locks/Strike: See 08 71 00 Door Hardware
10. Auxiliary Locks: See 08 71 00 Door Hardware
11. Cylinders: See 08 71 00 Door Hardware
12. Panic Devices: See 08 71 00 Door Hardware
13. Push/Pulls: See 08 71 00 Door Hardware
14. Cylinder Guard: See 08 71 00 Door Hardware

2.08 MIXES

2.09 FABRICATION

A. Shop Assembly

1. Stiles and rails shall be tubular sections accurately joined, flush and hairline at corners with heavy concealed reinforcement brackets secured with machine bolts, with optional MIG weld. Exposed screws not permitted.
2. Each door leaf equipped with an adjusting mechanism, located in the top rail near the lock stile.
3. Prepare internal reinforcement for door hardware.
4. Custom hardware templates and physical hardware must be submitted prior to any fabrication.

2.10 FINISHES

A. Shop Priming, Shop Finishing

1. Finish all exposed areas of aluminum and components as indicated.
 - a. An Architectural Class II or I color anodic coating conforming with AA-M12C22A34/AA-M12C22A44.
 1. Anodized finish color shall be Colornodic AB8 Black.

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

A. Site Verifications of Conditions

1. Examine conditions and verify substrate conditions are acceptable for product installation.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

- A. Install in accordance with approved shop drawings and manufacturers installation instructions.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

ALUMINUM DOORS

- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
 - A. Make all necessary final adjustments to attain normal operation of each door and its mechanical hardware.
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

SECTION 08 14 16
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Flush wood doors
 - 2. Factory pre-fitting, pre-machining for hardware
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 08 12 13 Hollow Metal Frames
 - 2. 08 71 00 Door Hardware
 - 3. 09 91 23 Interior Painting
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. WDMA IS 1A - Window and Door Manufacturers Association (WDMA)
- B. AWS - Quality Standards of the Architectural Woodwork Institute (AWI) & Woodwork Institute (WI)
- C. NFPA 80 - Fire Doors and Windows
- D. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies
- E. Underwriters' Laboratories - UL 10B (neutral pressure) and UL 10C (positive pressure) - Fire Tests of Door Assemblies
- F. ITS (Warnock Hersey) - Certification Listings for Fire Doors
- G. ASTM E90-90 - Measurement of Airborne Sound Transmission Loss of Building Partitions
- H. FSC - Forest Stewardship Council guidelines for environmentally certified wood doors

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit door manufacturer's product construction data, hardware attachment performance data, specifications and installation instructions for each type of wood door, including details of core and edge construction, trim for lite openings and similar components.
- B. Shop Drawings
 - 1. Submit shop drawings in conformance to the requirements of the Architectural Woodwork Standards.
 - 2. Indicate
 - a. Door type
 - b. Door size.
 - c. Fire Rating.

- d. Hardware types and locations.
 - e. Hardware blocking requirements and location.
 - f. Vision panel or louver cutout size and location.
 - g. Door undercuts
- C. Samples
 - 1. Submit samples of not less than 6" x 6" size on representative veneer or paintable surface, with sample date indicated.
 - 2. Corner sections with door faces, edges, and core representative of the specified door type(s). Corner samples to be not less than 6" x 6".
 - 3. Samples shall represent the range of color and grain expected to be provided

1.06 QUALITY ASSURANCE

- A. Qualifications
 - 1. Work shall be in accordance with the Grade or the Grades Specified of the Architectural Woodwork Standards.
 - 2. Company specializing in manufacturing specified products with a minimum of five years documented experience.
 - 3. All doors must be supplied through one Company.
 - 4. A single manufacturer shall provide and install the work of this section.
- B. Regulatory Requirements
 - 1. Fire-rated wood doors to comply with NFPA-80 requirements according to building code standards having local jurisdiction.
 - a. Neutral Pressure Testing UL10B.
 - b. Positive Pressure Testing UL10C.
- C. Certifications
 - 1. Doors to comply with Architectural Woodwork Institute (AWS) Section 9.
 - 2. All doors requiring fire-rating will carry UL label.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
 - 1. Delivery of architectural millwork shall be made only when the area of operation is enclosed, all plaster and concrete work is dry and the area broom clean.
 - 2. When handling doors, always lift and carry. Do not drag across other doors or surfaces. Handle with clean hands or gloves.
- B. Acceptance at Site
- C. Storage and Protection
 - 1. Store and protect doors in accordance with manufacturer's recommendations AWS Standards.
 - 2. Store doors flat and off the floor on a level surface in a dry, well-ventilated building. Do not store on edge. Protect/cover doors from dirt, water and abuse.
 - 3. Certain wood species are light sensitive. Protect doors from exposure to light (artificial or natural) after delivery.
 - 4. Each door shall be marked on top rail with opening number.

1.08 PROJECT CONDITIONS

- A. Project Environmental Requirements

1. Do not subject interior doors to extremes in either heat or humidity. HVAC systems must be operational and balanced, providing a temperature range of 50 to 90 degrees Fahrenheit and 25% to 55% relative humidity.

1.09 SEQUENCING

- A. Deliver materials only when the project is ready for installation and the contractor has provided a clean storage area.

1.10 SCHEDULING

1.11 WARRANTY

- A. The interior doors shall be warranted by the manufacturer to be free of manufacturing defects for the life of the original installation.
- B. Warranty shall provide for repair or replacement of the defective door(s) as originally furnished at manufacturer option. Manufacturer will assume reasonable costs associated with same, including rehanging. Manufacturer may, per its discretion, elect to use either its own or third party resources to resolve warranty claims.

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Algoma Hardwoods, Inc., 1001 Perry Street, Algoma, Wisconsin, 54201
- B. VT Industries, Inc., 16222 Phoebe Ave, La Mirada, CA 90638

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Thickness: 1-3/4-inch
- B. Grade (Per Architectural Woodwork Standard)
 1. Aesthetic Grade: Custom
 2. Performance Grade (Duty Level): Extra Heavy Duty
- C. Hardware Blocking
 1. Not Required
- D. Veneers
 1. Face Grade: A
 2. Veneer Cut: Plain Sliced
 3. Veneer Species: Select White Maple
 4. Veneer Match: Book Match
 5. Veneer Assembly: Pair Match
- E. Glazing
 1. Jobsite glazed with wood beads

2.04 MANUFACTURED UNITS

- A. (Algoma Hardwoods) SLC-5 Stave Lumber Core FD 1/3 Hour
- B. (VT Industries) Heritage 5507H

2.05 EQUIPMENT

2.06 COMPONENTS

FLUSH WOOD DOORS

2.07 ACCESSORIES

2.08 MIXES

2.09 FABRICATION

- A. Factory-prefit and bevel doors (3°) to suit frame sizes indicated, with 1/4" prefit in width, +/- 1/32", tolerances. Prefit top of door 1/8" +/- 1/16", and undercut as designated by floor condition. For fire-rated doors comply with NFPA 80 for prefits and undercuts.
- B. Factory pre-machine doors for hardware that is not surface applied. Locations and hole patterns to comply with specified hardware requirements as per NFPA 80 standards for doors specified; and to maintain door manufacturer's warranty.
 - 1. Specific locations for hardware will be coordinated between frame and door manufacturers.
 - 2. Specific hardware preps will be per hardware schedule(s) provided. Hardware preps to be neatly and cleanly squared as required per hardware templates.
 - 3. Metal astragals and channels to be supplied where fire-ratings will not allow metal-free edge(s).
- C. Factory Preparation for Light Openings and Louvers
 - 1. Cut and trim openings through doors to comply with NFPA 80 requirements where indicated; and to maintain door manufacturer's warranty.
 - 2. Wood beads and wood louvers to be compatible with face veneer. Profiles and installation per door manufacturer's standard(s).

2.10 FINISHES

- A. Finish Location
 - 1. Field Finishing – All doors to be field finished. Proper procedures are critical to ensure satisfactory results. Additional preparatory work is required and should be in compliance with Industry Standards.

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. Verify that frames are set square, plumb, level, and in plane.
 - 1. Confirm that frames comply with type, size, location and swing requirements and that they are installed plumb and square.
 - 2. Inspect doors for any damage, manufacturing defects or prefinish inconsistency prior to installation, e.g. wrong color or poor finish.
 - 3. If frames and doors pass inspections (see 1 and 2 above), proceed to installation. If there are any issues in either frames or doors, do not proceed to installation. Contact appropriate supplier to correct unsatisfactory conditions, and proceed with installation only after corrections have been made.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

- A. Installation of wood doors to comply with Architectural Woodwork Standards, latest edition; specific door manufacturers instructions; and NFPA 80.
 - B. Installation shall conform to the AWS Grade of the items being installed.
 - C. Doors shall be secured in place, square, plumb, and level.
 - D. Hardware shall be installed complete and as recommended by the manufacturer.
- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- A. All nicks, chips, and scratches shall be filled and retouched.
 - B. Damaged items which cannot be repaired to the satisfaction of the architect shall be replaced at no additional cost.
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- A. Before completion of the installation, the installer shall adjust all moving and operating parts to function smoothly and correctly.
- 3.12 CLEANING
- A. Upon completion of installation, the installer shall clean all installed items of pencil and ink marks, and broom clean the area of operation, depositing debris in containers provided by the contractor.
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- A. If required, protect doors following installation from damage that may occur as a result of project completion.
- 3.15 SCHEDULES

END OF SECTION

SECTION 08 41 13
ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Aluminum Storefronts
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 08 13 16 Aluminum Doors
 - 2. 08 80 00 Glazing
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. American Architectural Manufacturers Association (AAMA)
- B. American Society for Testing and Materials (ASTM)
- C. Aluminum Association (AA)

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements
 - 1. Comply with applicable provisions of AAMA Aluminum Storefront and Entrance Manual for design, materials, fabrication and installation of component parts.
 - 2. Arcadia AG451 Series is a framing system suitable for outside or inside glazing.
 - 3. Limit air leakage through assembly to 0.06 CFM/min/sq. ft. of wall area at 6.24 PSF as measured in accordance with ASTM E283.
 - 4. Water Resistance
 - a. No water leakage when measured in accordance with ASTM E331 with a static test pressure of 10 PSF.
 - 5. Dynamic Water Resistance
 - a. No water leakage, when measured in accordance with AAMA 501.1-94 with a dynamic test pressure of 10 PSF.
 - 6. Limit mullion windload deflection of L/175 with full recovery of glazing materials, when measured in accordance with ASTM E 330.
 - 7. System shall not deflect more than 1/8" at the center point, or 1/16" at the center point of a horizontal member, once deadload points have been established.
 - 8. System shall accommodate expansion and contraction movement due to surface temperature differential of 180 degrees F.
 - 9. Seismic testing shall conform to AAMA recommended static test method for evaluating performance of curtain walls and storefront wall systems due to horizontal displacements associated with seismic movements and building sway.

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit Manufacturer's product data
- B. Shop Drawings
 - 1. Submit Manufacturer's shop drawings for all specified storefronts, including interface with aluminum doors
 - 2. Custom hardware templates submitted prior to any fabrication.
- C. Samples
 - 1. Submit finish samples specified
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Custom door hardware must be submitted and approved prior to fabrication of door

1.06 QUALITY ASSURANCE

- A. Qualifications
- B. Regulatory Requirements
- C. Certifications
 - 1. Provide test reports from AAMA accredited laboratories certifying the performances as specified in 1.04.

1.07 DELIVERY, STORAGE, AND HANDLING

1.08 PROJECT CONDITIONS

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

- A. System shall be warranted against failure and/or deterioration of metals due to manufacturing process for a period of two (2) years

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Arcadia, Inc., 2301 E Vernon, Vernon, CA.

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Framing members, transition members, mullions, adaptors, and mounting
 - 1. Extruded 6063-T6 aluminum alloy (ASTM B221 – Alloy G.S. 10a T6).
- B. Screws, fastening devices, and internal components
 - 1. Aluminum, stainless steel, or zinc-plated steel in accordance with ASTM.A-164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from aluminum.
- C. Glazing Gasket

1. Compression-type design, replaceable, molded or extruded santoprene, polyvinyl chloride (PVC), or ethylene propylene diene monomer (EPDM).
2. Shall be of type that locks securely into the glazing reglet to prevent glazing gaskets from disengaging.

2.04 MANUFACTURED UNITS

- A. Arcadia, Inc., AG451 Series.
 1. 2" x 4½" Non-Thermal
 2. Center glazed
 3. Compensating stick for 1/4" glass.

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

- A. Center Glazed Adaptor For ¼" Glazing
Model: TG250

2.08 MIXES

2.09 FABRICATION

- A. Shop Assembly
 1. Continuous sub-sill shall be provided under sill members to collect water infiltration and divert from the interior of the system.
 2. Framing members shall be internally reinforced and secured at head and sill as necessary for structural performance requirements, for hardware attachment, and as indicated.
 3. Fasteners shall be so located as to ensure concealment from view in the final assembly.

2.10 FINISHES

- A. Shop Priming, Shop Finishing
 1. Finish all exposed areas of aluminum and components as indicated.
 - a. An Architectural Class II or I color anodic coating conforming with AA-M12C22A34/AA-M12C22A44. Anodized finish color shall be Colornodic AB8 Black.

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
 1. Examine conditions and verify substrate conditions are acceptable for product installation.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

- A. Install in accordance with approved shop drawings and manufacturers installation instructions

3.06 APPLICATION

ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
 - A. Site Tests, Inspection
 - 1. Test the storefront for water leaks in accordance with AAMA 501.2. Conduct test in the presence of the Architect. Correct deficiencies observed as a result of this test.
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

Section 08 71 00 Door Hardware

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this section.

1.2 SUMMARY

- A. Section Includes: Finish hardware except as otherwise specified or specifically omitted herein.
- B. Related Sections:
 - 1. Section 06 20 00 - Finish Carpentry.
 - 2. Section 08 11 00 - Steel Doors and Frames.
 - 3. Section 08 14 00 - Wood Doors.
 - 4. Section 08 41 00 - Aluminum Storefronts and Entrances.
- C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.
 - 1. Windows.
 - 2. Cabinets and locks.
 - 3. Signs.
 - 4. Toilet accessories.
 - 5. Installation.
 - 6. Rough hardware.

1.3 REFERENCES

- A. Published specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to Work of this Section where cited by abbreviations noted below (latest editions apply unless noted otherwise).
- B. ADA - Americans with Disabilities Act Standards for Accessible Design.
- C. ANSI - American National Standards Institute.
- D. BHMA - Builders Hardware Manufacturers Association.
- E. CBC - California Building Code, (CCR) California Code of Regulations, Title 24, Part 2, California State Accessibility Standards.
- F. NFPA 80 - Fire Doors and Windows.
- G. UL - Underwriters Laboratories

1.4 SUBSTITUTIONS & SUBMITTALS

- A. Requests for substitutions must be made in writing 10 days prior to bid date to allow architect to issue an addendum. If proposing a substitute, submit that product data attached to one showing specified item and indicate savings to be made. Provide sample if requested. No other substitutions will be allowed.
 - 1. Items listed with no substitute manufacturers have been requested by the Owner to match existing.
- B. SUBMITTALS: Submit six copies of schedule within 4 weeks after project has been awarded. Organize schedule into "Hardware Sets" with an index of doors and heading, indicating complete designations of every item required for each door or opening. Include the following information:
 - 1. Type, style, function, size, quantity and finish of each hardware item. Use BHMA Finish codes as per ANSI A156.18.
 - 2. Name, part number and manufacturer of each item.
 - 3. Fastenings and other pertinent information.
 - 4. Location of hardware set cross referenced to indications on drawings both on floor plans and in door schedule.
 - 5. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 6. Mounting locations for hardware.
 - 7. Door and frame sizes and materials.

1.5 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Obtain each kind of hardware (latch and lock sets, exit devices, hinges, and closers) from only one manufacture, although several may be indicated as offering products complying with requirements.
 - 2. Hardware supplier shall be a direct factory contract supplier who has in his employment a certified hardware consultant (AHC) who is available at all reasonable times during the course of the work for project hardware consultation to the Owner, Architect, and Contractor.
- B. Schedule Designations: Except as otherwise indicated, the use of one manufacturer's numeric designation system in schedules does not imply that another manufacturer's products will not be acceptable, unless they are not equal in design, size, weight, finish, function, or other quality of significance. See 1.4.A for substitutions.

1.6 REGULATORY REQUIREMENTS

- A. Fire-Rated Openings: Comply with CBC Section 716 and NFPA Standard No. 80. Provide only hardware tested and listed by UL for the type and size of each door required, which complies with the requirements of the door and frame labels.
 - 1. Where exit devices are required on fire rated doors, provide supplementary marking on door UL label indicating "Fire Door to be Equipped with Fire Exit Hardware", and provide UL label on exit device indicating "Fire Exit Hardware".
- B. Conform to applicable requirements of the Americans with Disabilities Act Standards for Accessible Design regarding accessibility requirements for door and entrance hardware.

- C. Doors and doorways that are part of an accessible route shall comply with CBC Section 11B-404.
- D. The clear opening width for a door shall be 32 inches minimum. For a swinging door it shall be measured between the face of the door and the stop, with the door open 90 degrees. There shall be no projections into the opening below 34 inches and 4 inches maximum projections into the opening between 34 inches and 80 inches above the finish floor or ground. Door closers and stops shall be permitted to be 78 inches minimum above the finish floor or ground. CBC Section 11B-404.2.3.
- E. Handles, pulls, latches, locks, and other operable parts on accessible doors shall comply with CBC Section 11B-309.4 and be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Operable parts of such hardware shall be 34 inches minimum and 44 inches maximum above the finish floor or ground. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides. CBC Section 11B-404.2.7.
- F. The force for pushing or pulling open a door shall be as follows: CBC Section 11B-404.2.9.
 - 1. Interior hinged doors, sliding or folding doors, and exterior hinged doors: 5 lbs. (22.2N) maximum.
 - 2. Required fire doors: the minimum opening force allowable by the DSA Authority, not to exceed 15 lbs. (67N) maximum.
 - 3. The force required to activate any operable parts, such as retracting latch bolts or disengaging other devices shall be 5 lbs. (22.2N) maximum to comply with CBC Section 11B-309.4.
- G. Door closing speeds shall be as follows: CBC Section 11B-404.2.8.
 - 1. Closer shall be adjusted so that the required time to move a door from an open position of 90 degrees to a position of 12 degrees from the latch is 5 seconds minimum.
 - 2. Spring hinges shall be adjusted so that the required time to move a door from an open position of 70 degrees to the closed position is 1.5 seconds minimum.
- H. Thresholds shall comply with CBC Section 11B-404.2.5.
- I. Pair of doors: Limit swing of one leaf to 90 degrees so that a clear floor space is provided beyond the arc of the swing for the wall-mounted tactile sign. CBC Section 11B-703.4.2.1.
- J. Exit device touchpad shall be compliant with State Fire Marshall Standard 12-10-3, Section 12-10-302.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Acceptance at Site: Individually package each unit of finish hardware complete with proper fastening and appurtenances, clearly marked on the outside to indicate contents and specific locations in the Work.
- B. Deliver packaged hardware items at the times and to the locations (shop or field) for

installation, as directed by the Contractor.

1.8 PROJECT CONDITIONS

- A. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents.
- B. Upon request, check the Shop Drawings for doors and entrances to confirm that adequate provisions will be made for the proper installation of hardware.

1.9 WARRANTY

- A. Provide guarantee from hardware supplier as follows:
 - 1. Closers: Five years, except electronic closers, two years.
 - 2. Exit Devices: Two years.
 - 3. All other Hardware: Two years.

PART 2 - MATERIALS

2.1 MANUFACTURERS

- A. Approval of manufacturers other than those listed below shall be in accordance with paragraph 1.4.A.

<u>Item:</u>	<u>Manufacturer:</u>	<u>Acceptable Substitute:</u>
Continuous Hinges	Pemko	McKinney, Ives
Butt Hinges	Stanley	McKinney, Ives
Locksets	IDN	Best 9K3 series
Cylinders	Best	Owners standard
Armor Collars	Keedex	Or equal
Exit Devices	Von Duprin	Owners standard
Surface Closers	IDN	Owners standard
Protection Plates	Trimco	Rockwood, Ives
Door Stops	Trimco	Rockwood, Ives
Silencers	Timely	Rockwood, Ives
Thresholds/Sweeps/Seals	Pemko	Reese, NGP

- B. Furnish items of hardware required to complete the work in accordance with these specifications and the manufacturers' instructions. Items of hardware not specified shall be provided even though inadvertently omitted from this specification. Items shall be of equal quality and type.
- C. Where the exact types of hardware specified are not adaptable to the finished shape or size of the members requiring hardware, furnish suitable types having as nearly as practicable the same operation and quality as the type specified, subject to Architect's approval.

2.2 MATERIALS

- A. Locksets: Locksets and latchsets shall be as specified. Strikes shall be 16 gage curved steel, bronze or brass with 1" deep box construction, and have lips of sufficient length to clear trim and protect clothing.
1. Comply with requirements of local security ordinances.
 2. Provide approved fusible links at levers for labeled doors.
 3. Lock Series and Design: IDN LF2000 series Standard lever.
- B. Continuous Hinges: Hinge open widths shall be minimum, but of sufficient size to permit door to swing 180 degrees. Where necessary to maintain door clearance at jamb trim, frame conditions, door reveals and similar conditions, furnish wide throw hinges as approved by the Architect.
- C. Butt Hinges: Outswinging exterior doors shall have nonremovable (NRP) pin. Hinge open widths shall be minimum, but of sufficient size to permit door to swing 180 degrees.
1. Furnish 3 hinges per leaf to 7 foot, 6 inch height. Add one for each additional 30 inches in height or fraction thereof.
 2. Provide 5 inch heavy weight hinges on doors over 3 feet, 5 inches width.
- D. Exit Devices: Furnish devices with sex bolts unless otherwise specified. Lever handle trim shall match locksets.
1. Provide glass bead kits of proper thickness where the rail assembly of the exit device crosses a lite.
- E. Surface Door Closers: Full rack and pinion type with removable non-ferrous case. Furnish closers with sex bolts unless otherwise specified. Place closers inside building, stairs, and rooms. Closers shall be non-handed, non-sized, and installed to permit door to swing 180 degrees.
1. Flush transom offset brackets shall be used where parallel arm closers are listed for doors with fixed panels over.
 2. Provide drop brackets, shoe supports, and blade stop spacers as required at narrow top rails
- F. Protection Plates: Provide kick, armor, or mop plates with four beveled edges, .050 inches minimum thickness, height called for in schedule by width less 2-inches. Furnish with machine or wood screws of bronze or stainless steel to match other hardware.
- G. Floor Stops: Floor mounted door stops are prohibited where located in the path of travel. Where provided, install maximum 4 inches from wall surface.
- H. Seals: Seals shall be finished to match adjacent frame color. UL label shall be applied on all rated doors.
- I. Screws: Exposed screws shall be Phillips head. Do not use self-drilling, self-tapping screws, unless furnished by hardware manufacturer for the specific condition or for mounting flat-goods such as push plates and kick plates.
- J. Thresholds: Change in level between 1/4 inch and 1/2 inch shall be beveled with a slope no greater than 1 unit vertical to 2 units horizontal (50 percent slope). The floor or landing shall not be more than 1/2 inch lower than the threshold of the doorway.

2.3 FINISH

- A. Generally interior doors to be BHMA 626 Satin Chromium.
 - 1. Areas using BHMA 626 shall have push, pulls and kick plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Aluminum storefront doors 208.1, 225.1, and 235.1 to be BHMA 711 Black Anodized.
- C. Factory paint door closers to match other hardware, unless otherwise noted.
- D. Aluminum items shall be finished to match predominant adjacent material. Seals to coordinate with frame color.

2.4 KEYING REQUIREMENTS

- A. Contact the District Locksmith with Perris Union High School District (951-940-5302) for keying requirements. Keying system shall be approved by Owner's representative in writing. Furnish construction key system in accordance with lock manufacturers' standard. Where interchangeable core systems are used, provide temporary cores for construction keying.
 - 1. Key system shall be Best I/C core cylinder, 7-pin.
- B. For protection of the Owner, key cylinders at the factory of the cylinder manufacturer where permanent records are maintained. Permanently inscribe each key with number that identifies cylinder manufacturer key symbol, and notation "DO NOT DUPLICATE".
- C. Permanent keys and cylinder cores shall be delivered only to Owner's representative. Permanent cores to be installed by the Owner.
- D. Keying Schedule: Submit three copies of separate detailed schedule indicating clearly how the Owner's final instructions on keying of locks have been fulfilled.

PART 3 - EXECUTION

3.1 HARDWARE LOCATIONS:

- A. Lockset: 34 to 44 inches above finished floor. Verify manufacturers' template with door design.
- B. Exit Device: 36 to 44 inches above finished floor. Verify manufacturers' template with door design.
- C. Floor Stop: Installed at a maximum of 4 inches from the face of the wall or partition.
- D. Conform to CCR, Title 24, Part 2, and ADA for positioning requirements for accessibility.

3.2 INSTALLATION

- A. Pre-Installation Meetings: Initiate and conduct with supplier, installer, and related trades,

coordinate materials and techniques, and sequence complex hardware items and systems installation. Include manufacturers' representatives of locks, panic hardware, and door closers in the meetings.

- B. Install each hardware item per manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

3.3 ADJUSTING

- A. Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly.
- B. Inspection: Hardware supplier shall inspect hardware furnished within 10 days of contractors request and include with his guarantee a statement that this has been accomplished. Inspector or Contractor will sign off the hardware as being complete and correctly installed and adjusted. Further corrections of defective material shall be the responsibility of his representative.

3.4 SCHEDULE OF DOOR HARDWARE

- A. Legend of listed manufacturers:

BES	Best
IDN	International Distribution Network
KEE	Keedex
PEM	Pemko
STA	Stanley
TIM	Timely
TRI	Trimco
VON	Von Duprin

- B. The last column in the Hardware Schedule refers to the manufacturer listed above.
- C. The Door Schedule on the Drawings indicates which Hardware Set is used with each door.
- D. Schedule of Door Hardware:

HW-1
Each door to have

3	HINGE	FBB179 - 4.5 x 4.5	652	STA
1	LOCKSET	LFC2800IC x STD LEVER	626	IDN
2	PERMANENT CORE	1C-7	626	BES
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	FLOOR STOP	1214	626	TRI
3	SILENCERS	TA-5	CLR	TIM
Rework existing frame as required for new hardware				

HW-2

Each door to have

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	PRIVACY LOCK	LF2200 x STD LEVER	626	IDN
1	SURFACE CLOSER	DC6816BC x REGULAR ARM	689	IDN
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	MOP PLATE	KM050 - 6 x 1 LDW B4E	630	TRI
1	WALL BUMPER	1270CVPV	626	TRI
1	COAT HOOK	3071	626	TRI
3	SILENCERS	TA-5	CLR	TIM

Rework existing frame as required for new hardware

HW-3

Each door to have

1	CONTINUOUS HINGE	FM-HD1	711	PEM
1	EXIT DEVICE	CD98NL-OP x PA x 110NL x 1439 STK	711	VON
1	MORTISE CYLINDER	1E74	622	BES
1	RIM CYLINDER	12E72	622	BES
2	PERMANENT CORE	1C-7	626	BES
1	ARMOR COLLAR	K-24	711	KEE
1	DOOR PULL	7196-3	711	TRI
1	SURFACE CLOSER	DC6816BC x CUSH-STOP ARM	693	IDN
1	DROP PLATE	DP18A	693	IDN
1 SET	DOOR SEALS	BY FRAME MFR	---	---
1	DOOR SWEEP	57V	711	PEM
1	THRESHOLD	PER SILL DETAIL	711	PEM

HW-4

Each door to have

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	LOCKSET	LFC2500IC x STD LEVER	626	IDN
1	PERMANENT CORE	1C-7	626	BES
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	FLOOR STOP	1214	626	TRI
3	SILENCERS	TA-5	CLR	TIM

HW-5

Each door to have

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	PUSH PLATE	1001-3 - 4 x 16	630	TRI
1	PULL PLATE	1014-3 - 4 x 16	630	TRI
1	SURFACE CLOSER	DC6816BC x REGULAR ARM	689	IDN
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	MOP PLATE	KM050 - 6 x 1 LDW B4E	630	TRI
1	FLOOR STOP	1214	626	TRI

Door Hardware

08 71 00 - 8

3	SILENCERS	TA-5	CLR	TIM
	Rework existing frame as required for new hardware			

HW-6
Each door to have

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	LOCKSET	LFC2500IC x STD LEVER	626	IDN
1	PERMANENT CORE	1C-7	626	BES
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	FLOOR STOP	1214	626	TRI
3	SILENCERS	TA-5	CLR	TIM
	Rework existing frame as required for new hardware			

HW-7
Each door to have

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	LOCKSET	LFC2800IC x STD LEVER	626	IDN
2	PERMANENT CORE	1C-7	626	BES
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	FLOOR STOP	1214	626	TRI
3	SILENCERS	TA-5	CLR	TIM

HW-8
Each door to have

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	LOCKSET	LFC2800IC x STD LEVER	626	IDN
2	PERMANENT CORE	1C-7	626	BES
1	SURFACE CLOSER	DC6816BC x CUSH-STOP ARM	689	IDN
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
3	SILENCERS	TA-5	CLR	TIM
	Rework existing frame as required for new hardware			

HW-9
Each door to have

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	LATCHSET	LF2100 x STD LEVER	626	IDN
1	SURFACE CLOSER	DC6816BC x HOLD-OPEN ARM	689	IDN
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	FLOOR STOP	1214	626	TRI
3	SILENCERS	TA-5	CLR	TIM
	Rework existing frame as required for new hardware			

HW-10
Each door to have

Door Hardware
08 71 00 - 9

3	HINGE	FBF179 - 4.5 x 4.5	652	STA
1	PUSH PLATE	1001-3 - 4 x 16	630	TRI
1	PULL PLATE	1014-3 - 4 x 16	630	TRI
1	SURFACE CLOSER	DC6816BC x REGULAR ARM	689	IDN
1	KICK PLATE	KO050 - 10 x 2 LDW B4E	630	TRI
1	MOP PLATE	KM050 - 6 x 1 LDW B4E	630	TRI
1	FLOOR STOP	1214	626	TRI
3	SILENCERS	TA-5	CLR	TIM

END OF SECTION

**SECTION 08 80 00
GLAZING**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. High-performance architectural glass
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 07 92 00 Joint Sealants
 - 2. 08 12 13 Hollow Metal Frames
 - 3. 08 13 16 Aluminum Doors
 - 4. 08 41 13 Aluminum-Framed Entrances and Storefronts
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 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 C 162 – Standard Terminology of Glass and Glass Products
- D. ASTM C 1036 – Standard Specification for Flat Glass
- E. ASTM C 1048 – Standard Specification for Heat-Treated Flat Glass — Kind HS, Kind FT Coated and Uncoated Glass
- F. ASTM C 1172 – Standard Specification for Laminated Architectural Flat Glass
- G. ASTM C 1376 – Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass
- H. ASTM E 2188 – Standard Test Method for Insulating Glass Unit Performance
- I. ASTM E 2189 – Standard Test Method for Testing Resistance to Fogging in Insulating Glass Units
- J. ASTM E 2190 – Standard Specification for Insulating Glass Unit Performance and Evaluation

1.03 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

1.04 SYSTEM DESCRIPTIONS

A. Design Requirements, Performance Requirements

1. Provide glass capable of withstanding thermal movement and wind and impact loads (where applicable) as specified.
2. 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:
 - a. Glass Thicknesses: Select minimum glass thicknesses to comply with ASTM E 1300, according to the following requirements:
 1. 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.
Basic Wind Speed: _____ mph
Importance Factor: _____
Exposure Category: _____
 - b. Specified Design Snow Loads: As indicated on Drawings, but not less than snow loads applicable to Project as required by ASCE 7, Minimum Design Loads for Buildings and Other Structures: Section 7.0, Snow Loads
 - c. Probability of Breakage for Vertical Glazing: _____ lites per 1000 for lites set vertically or not more than 15 degrees off vertical
 1. Wind Load Duration: Short duration, as defined in ASTM E 1300 or _____ seconds or less
 - d. Probability of Breakage for Sloped Glazing: _____ per 1000 for lites set greater than 15 degrees off vertical
 1. Wind Load Duration: Short duration, as defined in ASTM E 1300 or _____ seconds or less
Snow Load Duration: Long duration, as defined in ASTM E 1300 or _____ days
 - e. Maximum Lateral Deflection: For the following types of glass supported on all 4 edges, provide thickness required that limits center deflection at design wind pressure to _____ times the short side length or 1 inch, whichever is less.
 1. For monolithic-glass lites heat treated to resist wind loads
 2. For insulating glass
 - f. Thermal Movements: Provide glazing that allows for thermal movements resulting from ambient and surface temperatures changes acting on glass framing members and glazing components.
 - g. 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 LBNL WINDOW 6.3 computer program for the following methodologies:
 - a. U-Factors: NFRC 100 expressed as Btu/sq. ft. per h per degree F
 - b. Solar Heat Gain Coefficient: NFRC 200
 - c. Solar Optical Properties: NFRC 300

1.05 SUBMITTALS

- A. Product Data
 1. Submit for each glass product and glazing material indicated
- B. Shop Drawings
 1. 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.
- C. Samples
 1. Submit for all specified products:
 - a. 12-inch square samples for insulating glass units
 - b. Manufacturer's standard sample size for monolithic glass lites
- D. Quality Assurance/Control Submittals
 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.
 1. For solar-control low-e-coated glass, provide documentation demonstrating that fabricator of coated glass is certified by coating manufacturer.
 - b. Qualification Data for installers
 - c. Product Test Reports: For each of the following types of glazing products: Tinted float glass Coated float glass Insulating glass

1.06 QUALITY ASSURANCE

- A. Qualifications
 1. Fabricator Qualifications: Certified Fabricator as acceptable to the manufacturer
 2. 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).

3. Source Limitations for Glass: Obtain the following through one source from a single manufacturer for each glass type: clear float glass, coated float glass and insulating glass.

B. Regulatory Requirements

C. Certifications

1. 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.
2. 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.
 - a. IGMA Publication for Insulating Glass: IGMA TM-3000, Glazing Guidelines for Sealed Insulating Glass Units
 - b. GANA Publications: Laminated Glazing Reference Manual; Glazing Manual
 - c. AAMA: Sloped Glazing Guidelines
 - d. IGMA: Guidelines for Sloped Glazing
3. 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:
 - a. Insulating Glass Certification Council Associated Laboratories, Inc. Insulating Glass Manufacturers Alliance
4. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, Insulating Glass Manufacturers Alliance ANSI Z97.1.
 - a. 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.
 - c. Lites more than 9 square feet in area are required to be Category II materials
 - d. 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.

D. Field Samples

E. Mock-ups

F. Pre-installation Meetings

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading

B. Acceptance at Site

C. Storage and Protection

1. 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.

2. 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.

D. Waste Management and Disposal

1.08 PROJECT CONDITIONS

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

- A. Coated-Glass Products: Manufacturer's standard form, made out to the glass fabricator, in which the coated glass manufacturer agrees to replace coated glass units that deteriorate during normal use within the specified warranty period. Deterioration of the coated glass is defined as peeling and/or cracking, or discoloration that is not attributed to glass breakage, seal failure, improper installation or cleaning and maintenance that is contrary to the manufacturer's written instructions.

1. Warranty Period: _____ years from date of Substantial Completion

- B. 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.

1. Warranty Period: _____ years from date of Substantial Completion

- C. Laminated Glass: Manufacturer's standard form in which the laminated glass manufacturer agrees to replace laminated glass units that deteriorate during normal use within the specified warranty period. Deterioration of laminated glass is defined as defects, such as discoloration, edge separation or blemishes exceeding those allowed by ASTM C 1172 that are not attributed to glass breakage, improper installation or cleaning and maintenance that is contrary to the manufacturer's written instructions.

1. Warranty Period: _____ years from date of Substantial Completion

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

- A. Extra Materials
- B. Maintenance Service

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. PPG Industries, Inc., Glass Business & Discovery Center, 400 Guys Run Rd., Cheswick, PA 15024

2.02 EXISTING PRODUCTS

- 2.03 MATERIALS
- 2.04 MANUFACTURED UNITS
 - A. (PPG) Monolithic Clear Class
 - 1. Type: Uncoated Clear Float Glass
 - 2. Thickness: ¼-inch (6mm) Glass
 - 3. Heat Treatment: Tempered, Herculite brand
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
 - A. Shop Assembly
 - 1. 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.
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
 - A. Site Verification of Conditions
 - 1. Before the shop or field pre-glazing of the curtain wall units, openings will be checked to see that they are square, plumb and in true plane. If found otherwise, glazing shall not proceed until proper corrections are made.
 - 2. Perimeter clearance must be sufficient to avoid point loading and provide for jamb and seismic blocking.
- 3.03 PREPARATION
 - A. Protection
 - B. Surface Preparation
 - 1. Remove lacquer and other coatings from glazing rebates. Thoroughly clean areas to receive glass and glazing materials. The installation shall be in strict accordance with recommendations of window, glass and sealant manufacturers. Glass shall be installed so that no metal-to-glass contact occurs.
- 3.04 ERECTION
- 3.05 INSTALLATION
 - A. Installation shall be in accordance with applicable requirements of the latest edition of the "Glazing Manual" of the Flat Glass Marketing Association. Where vinyl or neoprene glazing beads or channels are used, they shall be in one piece for each edge of glass, with corners neatly mitered and tightly fitted together.

- B. Glass in exterior frames unless otherwise specified shall be "wet-set" with appropriate sealant to ensure a weather tight installation. Channels shall be installed so that no metal-to-glass contact occurs. Corners shall be neatly mitered to hairline joint. Channels shall be installed so that top of channel is flush with top of glazing stops and forms a neat, straight line.
- 3.06 APPLICATION
- 3.07 CONSTRUCTION
 - A. Special Techniques
 - B. Interface With Other Work
 - C. Sequences of Operation
 - D. Site Tolerances
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
 - A. Site Tests, Inspection
 - 1. Upon completion of installation of glass and glazing, perform water tests in accordance with industry standards for such tests, and ASTM E331, AAMA FC-1-76, and NAAMM. Repair leaks and retest. Continue with tests and repairs or replacements until such time as entire installation has been tested and certifiably exhibits no water intrusion, thereby instituting five year guarantee against such water intrusion.
 - B. Manufacturers' Field Services
- 3.11 ADJUSTING
- 3.12 CLEANING
 - A. Immediately prior to scheduled acceptance of work, remove protective materials and clean all glass members, being careful not to use abrasives or harmful cleaning agents.
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
 - 1. Maintain glass is a reasonably clean condition during construction so that it will not be damaged by corrosive action and will not contribute (by wash-off) to the deterioration of glazing materials and other surfaces.
- 3.15 SCHEDULES

END OF SECTION

**SECTION 09 24 00
PORTLAND CEMENT PLASTER**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Three-coat Portland Cement Plaster
 - 2. Metal Lath
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 09 91 13 Exterior Painting
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- 1. ASTM C144 Standard Specification for Aggregate for Masonry Mortar
- 2. ASTM C847 Standard Specification for Metal Lath
- 3. ASTM C897 Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plaster
- 4. ASTM C926 Standard Specification for Application of Portland Cement-Based Plaster
- 5. ASTM C933 Standard Specification for Welded Wire Lath
- 6. ASTM C1063 Standard Specification for Installation of Lathing and Furring for Portland Cement Based Plaster
- 7. ASTM E84 Test Method for Surface Burning Characteristics of Building Materials
- 8. ASTM E119 Method for Fire Tests of Building Construction and Materials

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements
 - 1. Three-Coat Portland Cement Plaster Assembly
 - a. Self-furred metal lath
 - b. Scratch coat
 - c. Brown coat
 - d. Stucco finish coat.
 - 2. Portland cement plaster Functional Criteria
 - a. Portland cement plaster application shall be to vertical substrates or to substrates sloped for positive drainage. Substrates sloped for drainage shall have additional protection from weather exposure that might be harmful to coating performance.
 - b. Substrate materials and construction shall conform to the building code having jurisdiction.
 - c. Substrates shall be sound, dry and free of dust, dirt, laitance, efflorescence and other harmful contaminants.
 - d. Substrate Dimensional Tolerances: Flat with 1/8 in within any 10 ft.

PORTLAND CEMENT PLASTER

09 24 00 - 1

- e. Maximum deflection of substrate system under positive or negative design loads shall not exceed $L/360$ of span.
- 3. Expansion and Control Joints
 - a. Continuous expansion and control joints shall be installed at locations in accordance with ASTM C1063 and ASTM C926.
 - b. Substrate movement, and expansion and contraction of Portland cement plaster and adjacent materials shall be taken into account in design of expansion joints, with proper consideration given to sealant properties, installation conditions, temperature range, coefficients of expansion of materials, joint width to depth ratios, and other material factors. Minimum width of expansion joints shall be as shown on the project drawings.
 - c. In accordance with ASTM C1063, expansion or control joints shall be installed in walls not more than 144 ft² in area, and not more than 100 ft² in area for all non-vertical applications. The distance between joints shall not exceed 18 ft in either direction or a length-to-width ratio of 2-½ to 1.

1.05 SUBMITTALS

- A. Product Data
 - 1. Evaluation Reports and manufacturer's product data sheets
- B. Shop Drawings
- C. Samples
 - 1. Submit samples for approval. Samples shall be of materials specified and of suitable size as required to accurately represent each color and texture used on project.
 - 2. Prepare each sample using same tools and techniques for actual project application. Maintain and make available, at job site, approved samples.
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
- E. Closeout Submittals

1.06 QUALITY ASSURANCE

- A. Qualifications
 - 1. Manufacturer shall have marketed Portland cement plaster assemblies in California for at least ten years and shall have completed projects of same general scope and complexity.
 - 2. Applicator shall be experienced and competent in installation of Portland cement plaster materials, and shall provide evidence of a minimum of five years experience in work similar to that required by this section.
 - 3. Products manufactured under ISO 9001:2000 Quality System.
- B. Regulatory Requirements
- C. Certifications
- D. Field Samples
 - 1. Provide (3) 2 ft. x 2 ft. sample boards of the Portland cement plaster assembly that shows texture and color prior to job mock-up for architect and owner to review and approve. Mock-up not required for repair/patching scope of work.

- E. Mock-ups
 - 1. Furnish a complete 20 ft. long x 9 ft. high sample of each plaster system required on the project. Once the sample is installed and approved, it shall become the standard of quality expected for the systems throughout the project, and will be allowed to be incorporated into the final work. Mock-up not required for repair/patching scope of work.
- 1.07 DELIVERY, STORAGE, AND HANDLING
 - A. Packing, Shipping, Handling, and Unloading
 - 1. Deliver Portland cement plaster assembly materials in original packaging with manufacturer's identification.
 - B. Acceptance at Site
 - C. Storage and Protection
 - 1. Store Portland cement plaster assembly materials in a dry location, out of direct sunlight, off the ground, and protected from moisture.
- 1.08 PROJECT CONDITIONS
 - A. Project Environmental Requirements
 - 1. Substrate Temperature: Do not apply Portland cement plaster assembly materials to substrates whose temperature are below 40°F or contain frost or ice.
 - 2. Inclement Weather: Do not apply Portland cement plaster assembly materials during inclement weather, unless appropriate protection is employed.
 - 3. Sunlight Exposure: Avoid, when possible, installation of the Portland cement plaster assembly materials in direct sunlight. Application of finishes in direct sunlight in hot weather may adversely affect aesthetics.
 - 4. Do not apply Portland cement plaster base coats or Stucco finishes if ambient temperature falls below 40°F within 24 hours of application. Protect Portland cement plaster materials from uneven and excessive evaporation during dry weather and strong blasts of dry air.
 - 5. Prior to installation, the substrate shall be inspected for surface contamination, or other conditions that may adversely affect the performance of the Portland cement plaster assembly materials, and shall be free of residual moisture.
- 1.09 SEQUENCING
 - A. Coordinate Portland cement plaster assembly installation with other construction operations.
- 1.10 SCHEDULING
- 1.11 WARRANTY
 - A. Provide manufacturer's Standard Limited Warranty
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Parex USA, Inc., 4125 E. La Palma Ave., Suite 250, Anaheim, CA 92807

2.02 EXISTING PRODUCTS

2.03 MATERIALS

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

- A. Lath and Accessories: Conform to ASTM C847, ASTM C933, ASTM C1032, ASTM C1063 and Appendix.:
 - 1. Metal Lath: Minimum 3.4 lb/yd² expanded metal diamond lath, Self-Furred.
 - 2. Accessories: Manufacturer's standard steel products with minimum G60 galvanizing unless otherwise indicated
 - 3. Lath Locks: Wind-lock "Lath-lock" steel washer. 1 1/4" diameter, 24 gauge, galvanized steel mechanical fastening washer, having a countersunk central through-hole, and four (4) down-turned legs that prevent rotation during installation and keep the mesh from slipping out from under the plate, or equal.
 - 4. Seals, Sealants and Bond Breakers: Sealants shall conform to ASTM C 920, Grade NS, Class 25, Use NT. Backer rod shall be closed-cell polyethylene foam.

2.08 MIXES

- A. Water
 - 1. Clean and free from injurious amounts of acid, alkali, and organic matter.
- B. Sand
 - 1. Clean and free from organic matter
- C. Portland Cement Plaster Base
 - 1. Parex Fiber-47 Armourwall Scratch and Brown Concentrate
 - 2. LaHabra Fiber -47 Fastwall Scratch and Brown Concentrate
- D. Reinforcing Mesh
 - 1. Parex USA 355 Standard Mesh: Weight 4.5 oz/yd² reinforcing mesh
- E. Stucco Finish
 - 1. Parex Exterior Stucco Color Coat: Integrally colored with fade-resistant pigments, tint base.
 - a. Texture: Match existing
 - b. Color: Match existing
 - 2. LaHabra Exterior Stucco Color Coat: Integrally colored with fade-resistant pigments, tint base.
 - a. Texture: Match Existing
 - b. Color: Match existing

2.09 FABRICATION

2.10 FINISHES

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. Substrate Examination
 - a. Substrate shall be of a type approved by Portland cement plaster assembly manufacturer and the building code having jurisdiction.
 - b. Substrate shall be examined for soundness, and other harmful conditions.
 - c. Substrate shall be free of dust, dirt, laitance, efflorescence, and other harmful contaminants.
 - d. Inform architect of discrepancies preventing proper installation of Portland cement plaster assembly. Do not proceed with the Portland cement plaster assembly work until unsatisfactory conditions are corrected.

3.03 PREPARATION

- A. Protection
- B. Surface Preparation
 - 1. Metal Lath: Install according to ASTM C1063 and Appendix and the Building Code.

3.04 ERECTION

3.05 INSTALLATION

3.06 APPLICATION

- A. Mix products in accordance with manufacturer's instructions, including the applicable Portland cement plaster assembly product data sheets and application guidelines.
- B. Portland cement plaster assembly and its related materials shall conform to the requirements of ASTM C926. Follow manufacturer's current Portland cement plaster Application Guide.
- C. Water Resistive Barrier
 - 1. The water-resistive barrier is placed over all substrates and installed according to manufacturer's instructions.
- D. Portland cement plaster Base
 - 1. Scratch Coat
 - a. Apply scratch coat to a minimum thickness of 3/8 in, using sufficient trowel pressure to key Portland cement plaster into lath or to create bond to substrates as applicable.
 - b. Prior to initial set, scratch horizontally to provide key for bond of brown coat.
 - c. Moist cure scratch coat with clean potable water for at least 48 hours in accordance with ASTM C926 and the building codes following initial application (unless brown coat is applied as soon as the scratch coat has achieved sufficient rigidity to support the brown coat).
 - 2. Brown Coat
 - a. Apply brown coat to a minimum thickness of 3/8 in, using sufficient trowel pressure to key Portland cement plaster into scratch coat.
 - b. Rod surface to true plane and float to densify.

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- c. Trowel to smooth and uniform surface to receive finish coat.
 - d. Moist cure brown coat with clean potable water for at least 48 hours, in accordance with ASTM C926 and the building codes.
- 3. Reinforcing Mesh
 - a. Embed alkali resistant glass fibers into wet basecoat and smoothed with a trowel until mesh is fully embedded
- 4. Stucco Finish
 - a. Remove surface contaminants such as dust or dirt without damaging the substrate.
 - b. Ambient and surface temperature must be 40°F or higher during application and drying time. Supplemental heat and protection from precipitation must be provided as needed.
 - c. Use only on surfaces that are sound, clean, dry, unpainted, and free from any residue that might affect the ability of the finish to bond to the surface.
 - d. After moist curing, allow the Portland cement plaster base to air dry in accordance with Portland cement plaster Application Guide depending on type of finish coat and primer.
 - e. Apply Stucco finish in number of coats thickness recommended by manufacturer to achieve texture indicated, using sufficient trowel pressure or spray velocity to bond finish to base coat.
 - f. Protect finish coats from inclement weather until completely dry.
- E. Curing
 - 1. Keep Portland cement plaster base coat moist for at least 48 hours (longer in dry weather) by lightly fogging walls. Start light fogging after initial set of 1–2 hours. Allow to dry for a period of (5) days prior to application of finish coat.
 - 2. Air dry finish coats only, do not wet cure.
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
 - A. Remove and legally dispose of Portland cement plaster component debris material from job site.
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
 - A. Provide protection of installed materials from water infiltration into or behind them.
 - B. Provide protection of installed Portland cement plaster from dust, dirt, precipitation, and freezing during installation.
 - C. Provide protection of installed finish from dust, dirt, precipitation, freezing, and continuous high humidity until fully dry.
 - D. Clean exposed surfaces using materials and methods recommended by the manufacturer of the material or product being cleaned. Remove and

replace work that cannot be cleaned to the satisfaction of the Architect/Owner.

3.15 SCHEDULES

END OF SECTION

**SECTION 09 29 00
GYPSUM BOARD**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Gypsum board
 - 2. Gypsum board accessories
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 06 10 00 Rough Carpentry
 - 2. 07 92 00 Joint Sealants
 - 3. 09 72 00 Presentation Dry Erase Wallcovering
 - 4. 09 91 23 Interior Painting
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products.
- B. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- C. ASTM C630 Standard Specification for Water-Resistant Gypsum Backing Board.
- D. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board.
- E. ASTM C1396 Standard Specification for Gypsum Board.
- F. ASTM C1658 Standard Specification for Glass Mat Gypsum Panels.
- G. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- H. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.
- I. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
- J. GA-214 Recommended Levels of Gypsum Board Finish.
- K. GA-216 Application and Finishing of Gypsum Panel Products.

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturer's data sheets on each product to be used, including:
 - a. Gypsum board, joint tape and finish.
 - b. Preparation instructions and recommendations.

- c. Storage and handling requirements and recommendations.
 - d. Installation methods.
 - B. Shop Drawings
 - 1. Indicate details associated with fireproofing and acoustical seals, opening locations and details, and opening termination details.
 - C. Samples
 - 1. Provide samples of texture finishes for approval.
 - D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Provide fire test reports on fire-rated wallboard assemblies. Submit copies of evidence of fire hazard classification for wallboard. Certified test reports of other acceptable testing agencies, which perform testing in accordance with ASTM E84, E90 and E119 are acceptable.
 - b. Provide certification that materials meet these specifications.
 - c. Provide manufacturer's printed instructions for installation of assemblies.
 - E. Closeout Submittals
- 1.06 QUALITY ASSURANCE
 - A. Qualifications
 - 1. Provide adequate numbers of skilled personnel who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
 - B. Regulatory Requirements
 - 1. Provide products labeled with third party certification stamp of fire-resistance characteristics, including ITS, UL, cUL, and ULC as applicable.
 - 1. Provide products that comply with the following limits for surface burning characteristics when tested per ASTM E84
 - 1. Flame spread: 25 maximum
 - 2. Smoke developed: 450 maximum
 - C. Certifications
 - D. Field Samples
 - E. Mock-ups
 - 1. At a location on the site where accepted by the Architect, provide a mock-up gypsum wallboard panel.
 - 2. Make the panel approximately 4'-0" square.
 - 3. Provide one mock-up panel for each gypsum wallboard finish used on the Work.
 - 4. The mock-ups may be used as part of the work, and included in the finished work, when accepted by the Architect.
 - 5. Revise as necessary to secure the Architect's acceptance.
 - 6. The mock-up panels, when accepted by the Architect, will be used as datum points for comparison with the remainder of the work of this section for the purpose of acceptance or rejection.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
 - 1. Deliver materials in manufacturer's unopened containers, packages or bundles identified with manufacturer's name, brand, type, and grade clearly marked.
 - 2. Deliver fire rated materials bearing testing agency label and required fire classification number.
- B. Acceptance at Site
- C. Storage and Protection
 - 1. Per GA-801, store products inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other damaging causes.
 - 2. Neatly stack gypsum boards flat to prevent sagging.
 - 3. Handle gypsum boards to prevent damage to edges, ends, and surfaces.
 - 4. Protect adhesives and joint compounds from freezing or overheating per manufacturer's instructions.
 - 5. Protect metal products from rusting.

1.08 PROJECT CONDITIONS

- A. Project Environmental Requirements
 - 1. Comply with ASTM C840 and GA-216 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
 - 2. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
 - 3. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 4. Do not install wallboard products unless installation areas comply with minimum temperature and ventilation requirements recommended by manufacturer. As a minimum, provide temperatures above 50 degrees F during and after installation.
 - 5. Under slow drying conditions, allow additional drying time between coats of joint treatment.
 - 6. Protect installed materials from drafts during hot, dry weather.
 - 7. Protect metal products from rusting.

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

- A. Provide products that offer twelve months of coverage against in-place exposure damage (delamination, deterioration and decay).
- B. Three years against manufacturing defects.

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Georgia-Pacific Gypsum, 133 Peachtree Street, Atlanta GA 30303
- B. United States Gypsum Company, 550 West Adams Street, Chicago, IL 60661

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Gypsum Board
 - 1. (GP) ToughRock Gypsum Board
 - a. Thickness: 1/2-inch
 - b. Width: 4-feet
 - c. Length: 8-feet min.
 - d. Edges: Tapered
 - 2. (USG) SHEETROCK Gypsum Panels, Regular Core
 - a. Thickness: 1/2-inch
 - b. Width: 4-feet
 - c. Length: 8-feet min.
 - d. Edges: Tapered
- B. Fasteners:
 - 1. Metal Framing: ASTM C1002.
 - 2. Wood Framing: ASTM C514.
 - 3. Steel Drill Screws: ASTM C 954.
- C. Joint System
 - 1. Tape, bedding compound, topping compound: ASTM C 475.
- D. Trims
 - 1. Metal Beads: ASTM C1047; formed galvanized steel angle, minimum base steel 0.014 inch thick, sizes as required to suit substrate.
 - 2. Metal Edge/casing bead: ASTM C1047; formed galvanized steel trim, minimum base steel 0.014 inch thick, sizes as required to suit substrate.
 - 3. Metal Control Joints: ASTM C1047; roll-formed zinc control joints with perforations in flanges; center channel with removable tape strip over channel.

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

2.08 MIXES

2.09 FABRICATION

2.10 FINISHES

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. Examine areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper completion of Work. Do not proceed until unsatisfactory conditions are corrected.

2. Examine substrates to which gypsum board construction attaches or abuts. Verify pre-set hollow metal frames, cast-in anchors, and structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board construction.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

- A. Install and finish gypsum board to comply with ASTM C840 and GA-216.
 1. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
 2. Install ceiling boards across framing in the manner which minimizes the number of end-butt joints, and which will avoid end joints in the central area of each ceiling. Stagger end joints a minimum of 24 inches.
 3. Install wall and partition boards vertically unless otherwise noted.
 4. Install exposed gypsum board with face side out. Do not install imperfect, damaged, or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/15.9 inch open space between boards. Do not force into place.
 5. Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges, and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
 6. Attach gypsum board to studs so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.
 7. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cut-outs.
 8. Form control joints and expansion joints at locations indicated on Drawings, and as recommended by Gypsum Association, with space between edges of boards prepared to receive trim accessories.
 9. Maximum distance between control joints: 30 linear feet.
 10. Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls that are properly braced internally.
 11. Fit gypsum board around ducts, pipes, and conduits.
 12. Where partitions intersect open concrete coffer, cut gypsum board to fit profile of coffer and allow 1/4 to 1/2 inch wide joint for sealant.
 13. Isolate perimeter of non-load bearing drywall partitions at structural abutments. Provide 1/4 to 1/2 inch space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
 14. Where sound-rated drywall construction is indicated on Drawings, seal construction at perimeters, control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of partitions. Comply with ASTM C919 and manufacturer's recommendations for location of edge trim, and close off sound-flanking paths around or through

- construction, including sealing of partitions above acoustical ceilings.
15. For double-layer partition systems, construction above acoustical plaster ceilings may be installed with base layer only.
 16. Space fasteners in gypsum boards per referenced gypsum board application and finishing standard and manufacturer's recommendations.
 17. Curved Gypsum Partitions and Surfaces: Install gypsum board panels horizontally with wrapped edges perpendicular to metal framing per manufacturer's recommendations.
- B. Spray-Texture Finish
1. Apply spray texture finish on walls and ceiling surfaces per manufacturer's instructions.
- C. Accessories
1. Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
 2. Install metal corner beads at external corners.
 3. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, except where plastic trim is indicated on Drawings. Provide type with face flange to receive joint compound except where "U" bead (semi-finishing type) is indicated.
 4. Install gypsum board reveals where indicated on Drawings.
 5. Install control joints at locations indicated on Drawings, or if not indicated, at spacing and locations required by referenced gypsum board application and finish standard, and approved by Architect for visual effect.
- D. Joint Treatment
1. Inspect areas to be joint treated, verifying that the gypsum board fits snugly against supporting framework.
 2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees F for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
 3. Apply the joint treatment and finishing compound by machine or hand tool.
 4. Provide a minimum drying time of 24 hours between coats, with 5. additional drying time in poorly ventilated areas.
 5. Embedding Compounds
 - a. Apply to gypsum board joints and fastener heads in a thin uniform layer.
 - b. Spread the compound not less than 3 inches wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then, spread a thin layer of compound over the tape.
 - c. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6 inches wide at joints. Feather edges.
 - d. Sand between coats.

- e. When thoroughly dry, sandpaper to eliminate ridges and high points.
 - 6. Finishing Compounds:
 - a. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and fastener heads.
 - b. Feather the finishing compound to not less than 12 inches wide.
 - c. When thoroughly dry, sandpaper to obtain a uniform smooth surface, taking care to not scuff the paper surface of the board.
 - E. Level of Finish
 - 1. See 3.15 Schedules
- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.
- 3.11 ADJUSTING
- 3.12 CLEANING
- A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum board scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.
 - B. At completion of each segment of installation in a room or space, promptly pick up and remove scraps, debris, and surplus materials of this Section from working area.
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- A. Provide final protection and maintain conditions that ensure gypsum board construction being without damage or deterioration at time of Substantial Completion.
- 3.15 SCHEDULES
- A. Level of finish shall be as per Gypsum Association publication, GA-214 as noted herein.
 - 1. Sand between each coat of compound as required to remove ridges and other imperfections.
 - 2. Where fire resistance rating is required, level of finish shall meet fire rating requirement.
 - B. Level of finish Type 0: **Draft stops**
 - 1. No taping, finishing or accessories required.
 - C. Level of finish Type 1: **Plenum areas above ceilings, areas concealed and not normally open to view.**
 - 1. Tape set in joint compound at joints and interior angles.
 - 2. Tool marks and ridges are acceptable.

- D. Level of finish Type 2: **Substrate to tiling, acoustic tile.**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
 2. Accessories covered with one coat of joint compound.
 3. Fasteners covered with one coat of joint compound.
 4. Surface shall be free of excess joint compound.
 5. Tool marks and ridges are acceptable.
- E. Level of finish Type 3: **Substrate to wall coverings, except presentation dry erase wallcoverings**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
 2. Cover tape with one separate coat of joint compound.
 3. Accessories covered with two separate coats of joint compound.
 4. Fasteners covered with two separate coats of joint compound.
 5. Joint compound shall be smooth and free of tool marks and ridges.
 6. Sand to achieve a smooth paint-ready surface.
- F. Level of finish Type 4: **Typical walls/ceilings to receive paint finish**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
 2. Cover tape with two separate coats of joint compound.
 3. Accessories covered with three separate coats of joint compound.
 4. Fasteners covered with three separate coats of joint compound.
 5. Joint compound shall be smooth and free of tool marks and ridges.
 6. Sand to achieve a smooth paint-ready surface.
- G. Level of finish Type 5: **Restroom walls, Restroom/Shower Ceilings, Substrate to presentation dry erase wallcoverings**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
 2. Cover tape with two separate coats of joint compound.
 3. Accessories covered with three separate coats of joint compound.
 4. Fasteners covered with three separate coats of joint compound.
 5. A skim coat of joint compound shall be applied to entire surface.
 6. The surface shall be smooth and free of ridges and defects. Sand the surface to a smooth, paint-ready condition.

END OF SECTION

SECTION 09 51 13
ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Acoustical ceiling panels for exposed grid suspension system
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 09 53 23 Metal Acoustical Ceiling Suspension Assemblies
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- D. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- E. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
- F. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
- G. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- H. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
- I. ASTM E 1264 Classification for Acoustical Ceiling Products
- J. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
- K. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
- L. ASTM E 1264 Classification for Acoustical Ceiling Products

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturer's technical data for each type of acoustical ceiling unit required.
- B. Shop Drawings
 - 1. Submit ceiling layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.
- C. Samples
 - 1. Submit minimum 6-inch x 6-inch sample of specified acoustical panel.
- D. Quality Assurance/Control Submittals

1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Submit 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.

1.06 QUALITY ASSURANCE

- A. Qualifications
 1. Provide acoustical panel units and grid components by a single manufacturer.
- B. Regulatory Requirements
 1. Fire Performance Characteristics
 - a. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 - b. Surface Burning Characteristics tested per ASTM E 84 and complying with ASTM E 1264 Classification.
 - c. Fire Resistance tested per ASTM E119 and listed in the appropriate floor or roof design in the Underwriters Laboratories Fire Resistance Directory
 2. Acoustical Panels
 - a. As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
 1. 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.
 2. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
 3. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.08 PROJECT CONDITIONS

1.09 SEQUENCING

- A. Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

1.10 SCHEDULING

- 1.11 WARRANTY
 - A. Suspension
 - 1. Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:
 - 1. Grid System: Sagging and warping
 - B. Warranty Period
 - 1. Acoustical panels: Ten (10) years from date of substantial completion.
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE
 - A. Extra Materials
 - 1. Deliver extra materials to Owner.
 - 2. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 - a. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
 - A. Match existing installed product manufacturer. If unable to determine manufacturer, provide one of the following:
 - 1. Armstrong World Industries, P.O. Box 3001 Lancaster, PA 17604
 - 2. USG Interiors, 550 West Adams Street, Chicago, IL 60661
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
 - A. Match existing installed product model. If unable to determine model, provide one of the following:
 - 1. (Armstrong) Ultima Lay-In
 - a. Size: 24-inch x 24-inch
 - b. Edge: Tegular
 - c. Color: White
 - 2. (USG) Astro ClimaPlus Performance
 - a. Size: 24-inch x 24-inch
 - b. Edge: Shadowline Tapered
 - c. Color: White
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. 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.

3.03 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.

3.04 ERECTION

3.05 INSTALLATION

- A. Follow manufacturer installation instructions.
- B. Install panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

- A. Replace damaged and broken panels.

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

3.12 CLEANING

- A. 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. Remove any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

3.13 DEMONSTRATION

3.14 PROTECTION

3.15 SCHEDULES

END OF SECTION

SECTION 09 53 23
METAL ACOUSTICAL CEILING SUSPENSION ASSEMBLIES

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Exposed grid suspension system
 - 2. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings
 - 3. Perimeter Trim
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 09 51 13 Acoustical Ceilings
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
- B. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
- C. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
- D. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- E. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
- F. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
- G. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- H. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
- I. ASTM E 1264 Classification for Acoustical Ceiling Products

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturer's technical data for each type of suspension system required.
- B. Shop Drawings
 - 1. Submit ceiling layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.

- C. Samples
 - 1. Submit minimum 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
 - D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Submit 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.
- 1.06 QUALITY ASSURANCE
- A. Qualifications
 - 1. Provide acoustical panel units and grid components by a single manufacturer.
 - B. Regulatory Requirements
 - 1. Fire Performance Characteristics
 - a. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 - b. Surface Burning Characteristics tested per ASTM E 84 and complying with ASTM E 1264 Classification.
 - c. Fire Resistance tested per ASTM E119 and listed in the appropriate floor or roof design in the Underwriters Laboratories Fire Resistance Directory
 - 2. Acoustical Panels
 - a. As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.
- 1.07 DELIVERY, STORAGE, AND HANDLING
- A. Packing, Shipping, Handling, and Unloading
 - 1. 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.
 - 2. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.
- 1.08 PROJECT CONDITIONS
- 1.09 SEQUENCING
- A. Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

- 1.10 SCHEDULING
- 1.11 WARRANTY
 - A. Suspension
 - 1. Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:
 - 1. Grid System: Rusting and manufacturer's defects
 - B. Warranty Period
 - 1. Grid: Ten years from date of substantial completion
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE
 - A. Extra Materials
 - 1. Deliver extra materials to Owner.
 - 2. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 - a. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
 - A. Match existing installed product manufacturer. If unable to determine manufacturer, provide one of the following:
 - 1. Armstrong World Industries, P.O. Box 3001 Lancaster, PA 17604
 - 2. USG Interiors, 550 West Adams Street, Chicago, IL 60661
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
 - A. Match existing installed product model. If unable to determine model, provide one of the following:
 - 1. (Armstrong) Prelude XL 15/16" Exposed Tee
 - 2. (USG) Donn Brand DX/DXL 15/16" Exposed Tee
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
 - A. Wire for Hangers and Ties
 - 1. ASTM A 641, Class 1 zinc coating, soft annealed, with a yield stress load of at least time three design load, but not less than 12 gauge.
 - B. Edge Moldings and Trim
 - 1. 7/8-in x 7/8-in
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
 - A. Shop Priming, Shop Finishing

1. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint.
2. Color: Flat White

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
 1. 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.

3.03 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.

3.04 ERECTION

3.05 INSTALLATION

- A. Follow manufacturer installation instructions.
- B. 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.
- C. 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.
- D. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
- E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

- A. Replace damaged and broken panels.

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

3.12 CLEANING

- A. 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. Remove any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

METAL ACOUSTICAL CEILING SUSPENSION ASSEMBLIES

- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

**SECTION 09 65 13
RESILIENT BASE AND ACCESSORIES**

PART 1 GENERAL

- 1.01 SUMMARY
 - A. Section Includes
 - 1. Resilient wall base
 - 2. Accessories
 - B. Products Supplied But Not Installed Under This Section
 - 1. **Owner to supply all products**
 - C. Products Installed But Not Supplied Under This Section
 - 1. **Owner to install all products**
 - D. Related Sections
 - 1. 09 65 19 Resilient Tile Flooring
 - 2. 09 68 13 Tile Carpeting
- 1.02 REFERENCES
- 1.03 DEFINITIONS
- 1.04 SYSTEM DESCRIPTIONS
- 1.05 SUBMITTALS
- 1.06 QUALITY ASSURANCE
- 1.07 DELIVERY, STORAGE, AND HANDLING
- 1.08 PROJECT CONDITIONS
- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
- 3.03 PREPARATION
- 3.04 ERECTION
- 3.05 INSTALLATION

- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

**SECTION 09 65 19
RESILIENT TILE FLOORING**

PART 1 GENERAL

- 1.01 SUMMARY
 - A. Section Includes
 - 1. Resilient Tile Flooring
 - 2. Adhesive
 - B. Products Supplied But Not Installed Under This Section
 - 1. **Owner to supply all products**
 - C. Products Installed But Not Supplied Under This Section
 - 1. **Owner to install all products**
 - D. Related Sections
 - 1. 09 65 13 Resilient Base and Accessories
 - 2. 09 68 13 Tile Carpeting
- 1.02 REFERENCES
- 1.03 DEFINITIONS
- 1.04 SYSTEM DESCRIPTIONS
- 1.05 SUBMITTALS
- 1.06 QUALITY ASSURANCE
- 1.07 DELIVERY, STORAGE, AND HANDLING
- 1.08 PROJECT CONDITIONS
- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
- 3.03 PREPARATION
- 3.04 ERECTION
- 3.05 INSTALLATION

- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

**SECTION 09 68 13
TILE CARPETING**

PART 1 GENERAL

- 1.01 SUMMARY
 - A. Section Includes
 - 1. Tile Carpeting
 - B. Products Supplied But Not Installed Under This Section
 - 1. **Owner to supply all products**
 - C. Products Installed But Not Supplied Under This Section
 - 1. **Owner to install all products**
 - D. Related Sections
 - 1. 09 65 13 Resilient Base and Accessories
 - 2. 09 65 19 Resilient Tile Flooring
- 1.02 REFERENCES
- 1.03 DEFINITIONS
- 1.04 SYSTEM DESCRIPTIONS
- 1.05 SUBMITTALS
- 1.06 QUALITY ASSURANCE
- 1.07 DELIVERY, STORAGE, AND HANDLING
- 1.08 PROJECT CONDITIONS
- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
- 3.03 PREPARATION
- 3.04 ERECTION
- 3.05 INSTALLATION
- 3.06 APPLICATION

- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

SECTION 09 72 00
PRESENTATION DRY ERASE WALLCOVERING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Magnetic receptive dry erase wallcovering
 - 2. Accessories
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 09 29 00 Gypsum Board
 - 2. 09 65 13 Resilient Base and Accessories
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. ASTM E84 Test Method for Surface Burning Characteristics of Building Materials
- B. Gypsum Association GA-214-M-97 Recommended Levels of Gypsum Board Finish

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

1.05 SUBMITTALS

- A. Product Data
 - 1. Manufacturer's product data and installation instructions for each type of dry erase wallcovering, adhesive, and accessories required.
- B. Shop Drawings
- C. Samples
 - 1. 7 inch x 9 inch samples of each dry erase material specified.
 - 2. 6 inch samples of trim, tray, and end caps specified.
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Manufacturer's written product data indicating compliance with specified materials required.
 - b. Manufacturer's written installation instructions.
 - c. Manufacturer's written instructions for recommended maintenance of each type of dry erase wall covering required.
- E. Closeout Submittals
 - 1. Maintenance instructions: Include precautions against cleaning materials and methods that may be detrimental to finishes and performance.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Provide each type of dry erase wallcovering required produced by one manufacturer.
2. Installation by skilled commercial wallcovering contractor with no less than three years of documented experience installing dry erase wallcovering of the types and extent required.

B. Regulatory Requirements

1. Provide materials that meet Class I/A rating when tested in accordance with ASTM E84 for flame spread and smoke developed

C. Certifications

D. Field Samples

1. Prepare field samples for architect's review and establish requirements for seaming and finish trim.
 1. Install sample panel of each type presentation wallcovering specified in area designated by architect.
 2. Maintain corrected and approved samples to serve as a standard of performance for the project.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading

1. Deliver presentation wallcoverings to the project site in unbroken and undamaged original factory packaging and clearly labeled with the manufacturer's identification label, quality or grade, and lot number.

B. Acceptance at Site

C. Storage and Protection

1. Store materials in a clean, dry storage area with temperature maintained above 55°F with normal humidity.
2. Store material within original packaging to prevent damage.

1.08 PROJECT CONDITIONS

A. Project Environmental Requirements

1. Do not apply presentation wallcoverings when surface and ambient temperatures are outside the temperature ranges required by the wallcovering manufacturer.
2. Provide continuous ventilation and heating facilities to maintain substrate surface and ambient temperatures above 55°F unless required otherwise by manufacturer's instructions.
3. Apply adhesive when substrate surface temperature and ambient temperature is above 55°F and relative humidity is below forty percent.
4. Maintain constant recommended temperature and humidity for at least 72 hours prior to and throughout the installation period, and for 72 hours after wallcovering installation completion.
5. Provide not less than 80-foot-candles per square foot lighting level measured mid-height at substrate surfaces.

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

- ##### A.
1. Manufacturer's limited five-year written warranty against manufacturing defects.

- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE
 - A. Extra Materials
 - B. Maintenance Service

PART 2 PRODUCTS

- 2.01 MANUFACTURERS
 - A. Walltalkers Wallcoverings by RJF International Corporation, Fairlawn, Ohio,
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
 - A. Wallcovering
 - 1. Walltalkers Magrite magnetic receptive, moderate gloss vinyl surface for dry erase markers.
 - 2. 48 inch width sheets, woven backing.
 - B. Trim and Tray
 - 1. Model: Aluminum Tray TY04-00 for length
 - 2. Finish: Clear satin, anodized aluminum
 - 3. Mounting: Snap-on marker and eraser tray with clips
 - 4. End Caps: ET02-00: 1/4 inch box tray end cap set for marker and eraser tray.
 - C. Wallcovering Trim
 - 1. J Cap Wallcovering Trim: N/A
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
 - A. Adhesives: Heavy-duty clear or clay based premixed vinyl adhesive.
 - B. Substrate Primer/Sealer: White pigmented acrylic base primer/sealer specifically formulated for use with vinyl wallcoverings.
 - C. Presentation Starter Kit: Provide one starter kit containing eight dry erase markers, one eraser, two dry erase cleaning cloths, one empty bottle for water, and one 8 ounce bottle liquid surface cleaning solution for each room installed with dry erase wallcovering.
 - D. Magnets: Heavy duty magnets - black.
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
 - A. Site Verification of Conditions
 - 1. Examine substrates and installation conditions to ensure surface conditions meet or exceed a Level 4 finish, per GA-214-M-97:

PRESENTATION DRY ERASE WALLCOVERING

09 72 00 - 3

Recommended Levels of Gypsum Board Finish, and permanent lighting is installed and operational.

2. Test substrate with suitable moisture meter and verify that moisture content does not exceed four percent.
3. Verify substrate surface is clean, dry, smooth, structurally sound, and free from surface defects and imperfections that would show through the finished surface.
4. Evaluate all painted surfaces for the possibility of pigment bleed-through.
5. Notify the contractor and architect in writing of any conditions detrimental to the proper and timely completion of the installation.
6. Beginning of installation means acceptance of surface conditions.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

- A. Acclimate wallcovering in the area of installation a minimum of 24 hours before installation.
- B. Read and follow the manufacturer's installation instruction sheet contained in each roll of the dry erase wallcovering.
- C. Examine all materials for pattern, color, quantity and quality, as specified for the correct location prior to cutting.
- D. Primer: Use a quality pigmented acrylic wallcovering primer.
- E. Adhesive: Apply a uniform coat of heavy-duty pre-mixed clay-based or extra strength clear wallcovering adhesive.
- F. Install each strip horizontally and in the same sequence as cut from the roll.
- G. Install dry erase wallcovering sheets in exact order as they are cut from bolt. Reverse hang alternate strips (except lined products). Do not crease or bend the wallcovering when handling.
- H. Install dry erase wallcovering horizontally using a level line.
- I. Using a level or straight edge, double cut the seam with a seam-cutting tool (Ex: Double Seam-Cutter or Swedish Knife). Do not score gypsum board when cutting material.
- J. When covering the entire wall, seam the material out of the main writing and viewing areas of the wall.
- K. Apply wallcovering to the substrate using a wallcovering smoother, wrapped with a soft cloth, to remove air bubbles. Do not use sharp edged smoothing tools. Smooth material on the wall from the middle to the outside edge.
- L. Remove excess adhesive immediately after the wallcovering is applied. Clean entire surface with a warm mild soap solution, and clean soft cloths. Rinse thoroughly with water and let dry before using. Change water often to maintain water clarity.
- M. Stop installation of material that is questionable in appearance and notify the manufacturer's representative for an inspection.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

3.12 CLEANING

- A. Upon completion of installation, remove all exposed adhesive immediately using a soft cloth and a warm, mild soap solution and rinse thoroughly with water and dry with clean towel prior to using.
- B. Upon completion of the work, remove surplus materials, rubbish, and debris resulting from the wallcovering installation. Leave areas in neat, clean, and orderly condition.

3.13 DEMONSTRATION

3.14 PROTECTION

3.15 SCHEDULES

END OF SECTION

**SECTION 09 91 13
EXTERIOR PAINTING**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - a. Concrete
 - b. Concrete Masonry Units
 - c. Steel
 - d. Galvanized Metal
 - e. Aluminum (Non-anodized or coated)
 - f. Wood
 - g. Exterior Portland Cement Plaster (Stucco)
 - h. Exterior Gypsum Board
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 07 92 00 Joint Sealants
 - 2. 09 24 00 Portland Cement Plaster
 - 3. 09 91 23 Interior Painting
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. CCR, Title 24, Part 11, 5,504.4.3 Paints and Coatings

1.03 DEFINITIONS

- A. Blocking: Two painted surfaces sticking together such as a painted door sticking to a painted jamb.
- B. Bio-Pruf: Biostabilizing additive, to protect products from premature microbial degradation.
- C. EG: Ethylene Glycol. Ethylene glycol is listed as a hazardous air pollutant (HAP) by the U.S. EPA.
- D. EPR: Environmental Performance Rating. Master Painters Institute (MPI) formula that relates to VOC, Performance of Category, Gloss and Appropriate specified use. Higher values equate to greater eco-efficiency.
- E. MPI: Master Painters Institute. Organization that establishes architectural paint standards and quality assurance programs in North America. www.paintinfo.com.
- F. PDCA: Painting & Decorating Contractors of America. www.pdca.org.
- G. RAVOC: Reactivity adjusted VOC. "Reactivity" means the ability of a VOC to promote ozone formation
- H. SSPC: The Society for Protective Coatings publishes Scopes of SSPC Surface Preparation Standards and Specifications. www.sspc.org.

1.04 SYSTEM DESCRIPTIONS

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit product data for each type of product. Include preparation requirements and application instructions.
- B. Shop Drawings
- C. Samples
 - 1. Submit samples for initial selection
 - 2. Submit samples for verification that in each color and gloss topcoat.
 - a. Submit samples on rigid backing, no smaller than 7" x 10" or larger than 8.5" x 11"
 - b. Label each sample for project, architect, contractor, paint color name and number, and paint brand
- D. Quality Assurance/Control Submittals
 - 1. Design data, Test Reports, Certificates, Manufactures' Instructions, Manufactures' Field Reports, Qualification Statements
 - a. Printed statement of VOC Content
 - b. Documentation indicating the paints and coatings meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Closeout Submittals

1.06 QUALITY ASSURANCE

- A. Qualifications
- B. Regulatory Requirements
 - 1. VOC Content: Products shall comply with VOC limits of SCAQMD and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 50 g/L.
 - 3. Primers, Sealers, and Undercoaters: 100 g/L.
 - 4. Rust Preventative Coatings: 100 g/L.
 - 5. Floor Coatings: 50 g/L.
 - 6. Shellacs, Clear: 730 g/L.
 - 7. Shellacs, Pigmented: 550 g/L.
 - 2. Colorants: The use of colorants containing hazardous chemicals, such as ethylene glycol, is prohibited.
- C. Certifications
- D. Field Samples
- E. Mock-ups
 - 1. Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under verification sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 2. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

- a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
 - b. Other Items: Architect will designate items or areas required.
 - c. Final approval of color selections will be based on mockups.
 - 1. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
 - F. Pre-installation Meetings
- 1.07 DELIVERY, STORAGE, AND HANDLING
 - A. Packing, Shipping, Handling, and Unloading
 - B. Storage and Protection
 - 1. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg. F or more than 120 deg. F.
 - 2. Maintain containers in clean condition, free of foreign materials and residue.
 - 3. Remove rags and waste from storage areas daily.
 - C. Waste Management and Disposal
- 1.08 PROJECT CONDITIONS
 - A. Project Environmental Requirements
 - 1. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 105 deg F.
 - 2. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 - 3. Painting contractor should follow proper painting practices and exercise judgment based on his or her experience and project specific conditions as to when to proceed.
- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE
 - A. Extra Materials
 - 1. Furnish extra materials from the same product run that match products installed and the are packaged with protective covering for storage and identified with labels describing content.
 - a. Paint 5% but not less than 5 gal of each material and color applied.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Dunn-Edwards Corporation, 4885 E. 52nd Place, Los Angeles, CA 90058
- B. Carboline, 2150 Schuetz Road, St. Louis, MO 63146
- C. Rainguard International, 3334 East Coast Highway #143, Corona del Mar, CA 92625
- D. Vista Paint Corporation, 2020 E. Orangethorpe Ave. Suite 210, Fullerton, CA 92831

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Colors: As selected by architect from manufacturer's full range as well as any custom color matching
- B. Block Fillers
Latex, Interior/Exterior
 - 1. (Dunn-Edwards) Smooth Blocfil Select
 - a. VOC: 50 g/L
 - b. RAVOC: 30
- C. Primers/Sealers
 - 1. Primer, Alkali Resistant, Water-Based (Dunn-Edwards) Eff-Stop Premium
 - a. VOC: 20 g/L
 - b. RAVOC: 5 g/L
 - 1 atl. (Vista) Uniprime II
 - 2. Primer, Bonding, Water-Based (Dunn-Edwards) Ultra-Grip Premium
 - a. VOC: 50 g/L
 - b. RAVOC: 20 g/L
 - 3. Primer, Bonding, Water-Based (Dunn-Edwards) Ultrashield Multi-Surface
 - a. VOC: 0 g/L
 - b. RAVOC: 0 g/L
 - 4. Sealer, Graffiti Control (Rainguard International) Blok-Lok With Graffiti Control
 - a. VOC: 15g/L
- D. Metal Primers
 - 1. Primer, Alkyd, Anti-Corrosive for Metal (Dunn-Edwards) Bloc-Rust Premium
 - a. VOC: 30 g/L
 - b. RAVOC: 15 g/L
 - 2. Primer, Rust-inhibitive, Water-Based (Dunn-Edwards) Ultrashield DTM Gray Primer
 - a. VOC: 0 g/L
 - b. RAVOC: 0 g/L
 - 3. Primer, Quick Dry for Aluminum (Dunn-Edwards) Galv-Alum Premium
 - a. VOC: 400 g/L
 - b. RAVOC: 130 g/L
 - 4. Primer, Galvanized and Non-Ferrous, Water Based (Dunn-Edwards) Ultra-Grip Premium

- a. VOC: 50 g/L
 - b. RAVOC: 20 g/L
 - 5. Surface-Tolerant Epoxy Mastic
 - a. (Carboline) Carbogard 890 VOC
 - E. Wood Primers
 - 1. Primer, Latex for Exterior Wood (Dunn-Edwards) EZ-Prime Premium
 - a. VOC: 50 g/L
 - b. RAVOC: 20 g/L
 - E. Water-Based Paints
 - 1. Acrylic Enamel, Latex, Exterior Flat/Velvet/Eggshell/Low-Sheen (Dunn-Edwards) Spartashield
 - a. VOC: 45 g/L
 - b. RAVOC: 30 g/L
 - 1 alt. (Vista) Weather Master
 - F. Solvent-Based Paints
 - 1. Aliphatic Polyurethane, Satin (Carboline) Carbothane 133 MC
- 2.04 MANUFACTURED UNITS
 - 2.05 EQUIPMENT
 - 2.06 COMPONENTS
 - 2.07 ACCESSORIES
 - 2.08 MIXES
 - 2.09 FABRICATION
 - 2.10 FINISHES
 - 2.11 SOURCE QUALITY CONTROL
 - A. Tests, Inspection
 - 1. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 - a. Owner may engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at project site. Samples will be identified, sealed, and certified by testing agency.
 - b. Testing agency will perform tests for compliance with product requirements.
 - c. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will comply with requirements to use compatible products and systems as described in this specification. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 2. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - a. Concrete: 12 percent.
 - b. Masonry (Clay and CMU): 12 percent.
 - c. Wood: 15 percent.
 - d. Gypsum Board: 12 percent.
 - e. Plaster: 12 percent.
 - 3. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
 - 4. Plaster Substrates: Verify that plaster is fully cured, including pH testing to determine that alkalinity is within limits established by the manufacturer.
 - 5. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
 - 6. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
 - 7. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - a. Application of coating indicates acceptance of surfaces and conditions.

3.03 PREPARATION

- A. Protection
- B. Surface Preparation
 - 1. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
 - 2. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - a. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 3. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - a. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
 - 4. Concrete Substrates (Where specifically indicated on drawings)
 - a. Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions, including pH testing to determine that alkalinity is within limits established by the manufacturer.
 - 5. Masonry Substrates (Where specifically indicated on drawings)
 - a. Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints

exceed that permitted in manufacturer's written instructions.

6. Steel Substrates:
 - a. Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 1. SSPC-SP 1, "Solvent Cleaning."
 2. SSPC-SP 2, "Hand Tool Cleaning."
 3. SSPC-SP 3, "Power Tool Cleaning."
 4. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
 5. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
7. Shop-Primed Steel Substrates:
 - a. Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
8. Galvanized-Metal Substrates (Where specifically indicated on drawings)
 - a. Remove grease and oil residue from galvanized sheet metal fabricated from coil stock to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
9. Aluminum Substrates (Where specifically indicated on drawings)
 - a. Remove loose surface oxidation.
10. Wood Substrates:
 - a. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - b. Sand surfaces that will be exposed to view, and dust off.
 - c. Prime edges, ends, faces, undersides, and backsides of wood.
 - d. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
11. Cotton or Canvas Insulation Covering Substrates
 - a. Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.04 ERECTION

3.05 INSTALLATION

3.06 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.

EXTERIOR PAINTING

5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Block Fillers: Provide block fill as scheduled to conform to the following PDCA Standard P12-05:
 1. Level 3 - Premium Fill: One or multiple coats of high performance block filler manufactured to be applied at a high dry film build. Block filler shall be back-rolled to eliminate voids and reduce the majority of the masonry profile depth.
- F. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 1. Paint the following work where exposed in equipment rooms:
 - a. Equipment, including panelboards and switch gear.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.
 - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 2. Paint the following work where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

- A. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

EXTERIOR PAINTING

3.12 CLEANING

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

3.13 DEMONSTRATION

3.14 PROTECTION

- A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

3.15 SCHEDULES

- A. Metals
 - 1. 1st Coat – N/A
 - 2. 2nd Coat – N/A
 - 3. 3rd Coat – N/A
- B. Metals (Steel Gates and Fences)
 - 1. 1st Coat – N/A
 - 2. 2nd Coat – N/A
 - 3. 3rd Coat – N/A
- C. Concrete Unit Masonry
 - 1. 1st Coat – N/A
 - 2. 2nd Coat – N/A
- D. Concrete Unit Masonry (Trash Enclosures, Can Washs)
 - 1. 1st Coat – N/A
 - 2. 2nd Coat – N/A
- E. Concrete (Vertical Faces, Exposed)
 - 1. 1st Coat – N/A
 - 2. 2nd Coat – N/A
- F. Portland Cement Plaster
 - 1. 1st Coat – Primers/Sealers, (Primer, Alkali Resistant, Water-Based)
 - 2. 2nd Coat – Water-Based Paints – Flat
 - 3. 3rd Coat – Water-Based Paints – Flat

END OF SECTION

**SECTION 09 91 23
INTERIOR PAINTING**

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Section includes surface preparation and the application of paint systems on the following interior substrates:
 - a. Concrete
 - b. Concrete Masonry Units
 - c. Steel
 - d. Cast Iron
 - e. Galvanized Metal
 - f. Aluminum (Non-anodized or coated)
 - e. Wood
 - f. Gypsum Board
 - g. Plaster
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 07 92 00 Joint Sealants
 - 2. 09 29 00 Gypsum Board
 - 3. 09 91 13 Exterior Painting
 - 4. 09 91 23 Interior Painting
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. CCR, Title 24, Part 11, 5,504.4.3 Paints and Coatings

1.03 DEFINITIONS

- A. Blocking: Two painted surfaces sticking together such as a painted door sticking to a painted jamb.
- B. Bio-Pruf: Biostabilizing additive, to protect products from premature microbial degradation.
- C. EG: Ethylene Glycol. Ethylene glycol is listed as a hazardous air pollutant (HAP) by the U.S. EPA.
- D. EPR: Environmental Performance Rating. Master Painters Institute (MPI) formula that relates to VOC, Performance of Category, Gloss and Appropriate specified use. Higher values equate to greater eco-efficiency.
- E. MPI: Master Painters Institute. Organization that establishes architectural paint standards and quality assurance programs in North America. www.paintinfo.com.
- F. PDCA: Painting & Decorating Contractors of America. www.pdca.org.
- G. RAVOC: Reactivity adjusted VOC. "Reactivity" means the ability of a VOC to promote ozone formation
- H. SSPC: The Society for Protective Coatings publishes Scopes of SSPC Surface Preparation Standards and Specifications. www.sspc.org.

1.04 SYSTEM DESCRIPTIONS

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit product data for each type of product. Include preparation requirements and application instructions.
- B. Shop Drawings
- C. Samples
 - 1. Submit samples for initial selection
 - 2. Submit samples for verification that in each color and gloss topcoat.
 - a. Submit samples on rigid backing, no smaller than 7" x 10" or larger than 8.5" x 11"
 - b. Label each sample for project, architect, contractor, paint color name and number, and paint brand
- D. Quality Assurance/Control Submittals
 - 1. Design data, Test Reports, Certificates, Manufactures' Instructions, Manufactures' Field Reports, Qualification Statements
 - a. Printed statement of VOC Content
 - b. Documentation indicating the paints and coatings meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Closeout Submittals

1.06 QUALITY ASSURANCE

- A. Qualifications
- B. Regulatory Requirements
 - 1. VOC Content: Products shall comply with VOC limits of SCAQMD and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 50 g/L.
 - 3. Primers, Sealers, and Undercoaters: 100 g/L.
 - 4. Rust Preventative Coatings: 100 g/L.
 - 5. Floor Coatings: 50 g/L.
 - 6. Shellacs, Clear: 730 g/L.
 - 7. Shellacs, Pigmented: 550 g/L.
 - 2. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
 - 3. Colorants: The use of colorants containing hazardous chemicals, such as ethylene glycol, is prohibited.
- C. Certifications
- D. Field Samples
- E. Mock-ups

1. Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under verification sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
2. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
 - b. Other Items: Architect will designate items or areas required.
 - c. Final approval of color selections will be based on mockups.
 1. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

F. Pre-installation Meetings

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
- B. Storage and Protection
 1. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg. F or more than 120 deg. F.
 2. Maintain containers in clean condition, free of foreign materials and residue.
 3. Remove rags and waste from storage areas daily.
- C. Waste Management and Disposal

1.08 PROJECT CONDITIONS

- A. Project Environmental Requirements
 1. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 105 deg F.
 2. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 3. Painting contractor should follow proper painting practices and exercise judgment based on his or her experience and project specific conditions as to when to proceed.

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

- A. Extra Materials

INTERIOR PAINTING

1. Furnish extra materials from the same product run that match products installed and the are packaged with protective covering for storage and identified with labels describing content.
 - a. Paint 5% but not less than 5 gal of each material and color applied.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Dunn-Edwards Corporation, 4885 E. 52nd Place, Los Angeles, CA 90058
- B. Deft by PPG Architectural Finishes, One PPG Place, Pittsburgh, PA 15272
- C. Vista Paint Corporation, 2020 E. Orangethorpe Ave. Suite 210, Fullerton, CA 92831

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Colors: As selected by architect from manufacturer's full range as well as any custom color matching
- B. Block Fillers
Latex, Interior/Exterior
 1. (Dunn-Edwards) Smooth Blocfil Select
 - a. VOC: 50 g/L
 - b. RAVOC: 30
- C. Primers/Sealers
 1. Primer Sealer, Latex, Interior
(Dunn-Edwards) Vinylastic Select Low Odor Zero VOC
 - a. VOC: 4 g/L
 - b. RAVOC: 4 g/L
 - 1 atl. (Vista) Acriglo Interior Primer Zero VOC
 2. Primer, Alkali Resistant, Water Based
(Dunn-Edwards) Eff-Stop Select
 - a. VOC: 50 g/L
 - b. RAVOC: 30 g/L
 3. Primer, Latex for Interior Wood
(Dunn-Edwards) Inter-Kote Low Odor Zero VOC Interior Undercoater
 - a. VOC: 2 g/L
 - b. RAVOC: 2 g/L
 4. Primer, Bonding, Water Based
(Dunn-Edwards) Ultra-Grip Premium
 - a. VOC: 1 g/L
 - b. RAVOC: 1 g/L
- D. Metal Primers
 1. Primer, Rust-Inhibitive, Water Based
(Dunn-Edwards) Bloc-Rust Premium
 - a. VOC: 30 g/L
 - b. RAVOC: 15 g/L
 2. Primer, Galvanized and Non-Ferrous, Water Based
(Dunn-Edwards) Ultra-Grip Premium
 - a. VOC: 50 g/L
 - b. RAVOC: 20 g/L
- E. Water-Based Paints
 1. Latex, Interior, Flat/Velvet/Eggshell/Low Sheen

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- d. Gypsum Board: 12 percent.
- e. Plaster: 12 percent.
- 3. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- 4. Plaster Substrates: Verify that plaster is fully cured, including pH testing to determine that alkalinity is within limits established by the manufacturer.
- 5. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- 6. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- 7. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - a. Application of coating indicates acceptance of surfaces and conditions.

3.03 PREPARATION

- A. Protection
- B. Surface Preparation
 - 1. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
 - 2. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - a. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 3. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - a. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
 - 4. Concrete Substrates (Where specifically indicated on drawings)
 - a. Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions, including pH testing to determine that alkalinity is within limits established by the manufacturer.
 - 5. Masonry Substrates (Where specifically indicated on drawings)
 - a. Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
 - 6. Steel Substrates:
 - a. Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
 - 1. SSPC-SP 1, "Solvent Cleaning."
 - 2. SSPC-SP 2, "Hand Tool Cleaning."

INTERIOR PAINTING

3. SSPC-SP 3, "Power Tool Cleaning."
4. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
5. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
7. Shop-Primed Steel Substrates:
 - a. Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
8. Galvanized-Metal Substrates (Where specifically indicated on drawings)
 - a. Remove grease and oil residue from galvanized sheet metal fabricated from coil stock to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
9. Aluminum Substrates (Where specifically indicated on drawings)
 - a. Remove loose surface oxidation.
10. Wood Substrates:
 - a. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - b. Sand surfaces that will be exposed to view, and dust off.
 - c. Prime edges, ends, faces, undersides, and backsides of wood.
 - d. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
11. Cotton or Canvas Insulation Covering Substrates
 - a. Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.04 ERECTION

3.05 INSTALLATION

3.06 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

INTERIOR PAINTING

- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
 - D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
 - E. Block Fillers: Provide block fill as scheduled to conform to the following PDCA Standard P12-05:
 - 1. Level 3 - Premium Fill: One or multiple coats of high performance block filler manufactured to be applied at a high dry film build. Block filler shall be back-rolled to eliminate voids and reduce the majority of the masonry profile depth.
 - F. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:
 - a. Equipment, including panelboards and switch gear.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Tanks that do not have factory-applied final finishes.
 - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - 2. Paint the following work where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
 - 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- A. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from project site.
 - B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces

INTERIOR PAINTING

3.13 DEMONSTRATION

3.14 PROTECTION

- A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

3.15 SCHEDULES

A. Metals

- 1. 1st Coat – N/A
- 2. 2nd Coat – N/A
- 3. 3rd Coat – N/A

B. Gypsum Board

- 1. 1st Coat – Primers/Sealers, (Primer Sealer, Latex, Interior)
- 2. 2nd Coat – Water-Based Paints – Flat
- 3. 3rd Coat – Water-Based Paints – Flat

C. Gypsum Board (Restrooms, Showers, Moisture Sensitive Areas)

- 1. 1st Coat – Primers/Sealers, (Primer Sealer, Latex, Interior)
- 2. 2nd Coat – Water-Based Paints – Low Sheen
- 3. 3rd Coat – Water-Based Paints – Low Sheen

D. Doors and Frames (Hollow Metal)

- 1. 1st Coat – N/A – Factory Finished Frame
- 2. 2nd Coat – N/A – Factory Finished Frame
- 3. 3rd Coat – N/A – Factory Finished Frame

E. Doors (Wood)

- 1. 1st Coat – Stains - Satin
- 2. 2nd Coat – Stains - Satin
- 3. 3rd Coat – Stains - Satin

END OF SECTION

**SECTION 10 14 67
TACTILE SIGNAGE**

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Plastic tactile signage
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit data sufficient to demonstrate compliance with this section and drawing requirements.
- B. Shop Drawings
 - 1. Submit shop drawing and catalog cuts of items to be provided. Manufacturer or producer's standard drawings and technical information may be acceptable where complete enough to determine acceptability.
- C. Samples
 - 1. Submit samples of products and materials where options of color, finish, pattern or texture exist.
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
- E. Closeout Submittals

1.06 QUALITY ASSURANCE

- A. Qualifications
 - 1. Products and materials to be provided are to be from manufacturers and producers regularly engaged full-time in the manufacture or production of this and similar items, with a history of successful manufacture or production acceptable to the Owner.
 - 2. In addition to complying with pertinent codes and regulations, comply with industry and trade standards normally associated with this product or material, except where specified product or material is superior in quality to industry and trade standards.
 - 3. All tactile lettering shall be monolithic with sign. Adheared letters will not be accepted.

B. Regulatory Requirements

1. All signage shall comply with 2013 CCR, Title 24, Part 2, Chapter 11B
2. Raised characters shall comply with CBC Section 11B-703.2:
 - a. Depth: It shall be 1/32 inch minimum above their background and shall be sans serif uppercase and be duplicated in Braille.
 - b. Height: It shall be 5/8" inch minimum and 2" inches maximum based on the height of the uppercase letter I. CBC Section 11B-703.2.5
 - c. Finish and Contrast: Characters and their background shall have a non-glare finish. Character shall contrast with their background with either light characters on a dark background or dark characters on a light background. CBC Section 11B-703.5.1.
3. Proportions: It shall be selected from fonts where the width of the uppercase letter 'O' is 60% minimum and 110% maximum of the height of the uppercase letter 'I'. Stroke thickness of the uppercase letter 'I' shall be 15% maximum of the height of the character. CBC Sections 11B-703.4 and 11B-703.6
4. Character Spacing: Spacing between individual tactile characters shall comply with CBC Section 11B-703.2.7 and 11B-703.2.8
5. Braille: It shall be contracted (Grade 2) and shall comply with CBC Sections 11B-703.3 and 11B-703.4. braille dots shall have a domed and rounded shape and shall comply with CBC Table and Figure 11B-703.3.1.
6. Mounting Height: A tactile sign shall be located 48" minimum to the baseline of the lowest Braille cells and 60" maximum to the baseline of the highest line of raised characters above the finish floor or ground surface.
7. Mounting location: A tactile sign shall be located on the approach side, as one enters or exits rooms or space, and be reached within 0" of the required clear floor space per CBC Section and Figure 11B-703.4.2 as follows:
 - a. A clear floor space of 18" x 18" minimum, centered on the tactile characters, shall be provided beyond the arc of any door swings between the closed position and 45 degree open position.
 - b. On the wall at the latch side of a single door
 - c. On the inactive leaf of a double door with one active leaf.
 - d. On the wall at the right side of a double door with two active leaves.
 - e. On the nearest adjacent wall where there is no wall space at the latch side of a single door or no space at the right side of a double door with two active leaves.
 - f. Visual Characters shall comply with CBC Section 11B-703.5 and shall be 40" minimum above finish floor or ground.
 - g. Pictograms shall comply with CBC Section 11B-703.6
 - h. Symbol of accessibility shall comply with CBC Section 11B-703.7

C. Certifications

D. Field Samples

E. Mock-ups

TACTILE SIGNAGE

F. Pre-installation Meetings

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
- B. Acceptance at Site
- C. Storage and Protection
 - 1. Store in a safe, dry place with all shop-supplied protection and labeling intact and legible until set, applied or installed.
 - 2. Use all reasonable means necessary to protect products and materials before, during and after installation.

1.08 PROJECT CONDITIONS

1.09 SEQUENCING

1.10 SCHEDULING

1.11 WARRANTY

- A. Provide Owner with a written warranty as a condition of work acceptance, signed by Contractor and installer (where applicable), agreeing to maintain, repair and/or replace products and materials for one year following acceptance, and without additional cost to Owner.

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

- A. Extra Materials
- B. Maintenance Service

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Signs and Lucite Products, Inc., 2721 Kimball Ave., Pomona, CA 91767

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. ¼-inch thick matte acrylic plastic, 1/32-inch tactile lettering, with ¼-inch radius corners

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

2.08 MIXES

2.09 FABRICATION

2.10 FINISHES

- A. Shop Priming, Shop Finishing
 - 1. Color: TBD, As selected by architect
 - 2. Sheen: Matte
 - 3. Coating: Graffiti Proof

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

- 3.01 INSTALLERS
- 3.02 EXAMINATION
 - A. Site Verification of Conditions
- 3.03 PREPARATION
 - A. Protection
 - B. Surface Preparation
- 3.04 ERECTION
- 3.05 INSTALLATION
 - A. Install signs in strict accordance with manufacturer's recommendation and according to details of the drawings.
- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
 - A. In event of damage, regardless of responsibility and culpability, make repairs and replacements necessary to satisfaction of Owner, and at no additional cost to Owner.
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
 - A. Site Tests, Inspection
 - B. Manufacturers' Field Services
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

SECTION 12 36 13
PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes
 - 1. Plastic-Laminate-Clad Countertops
 - 2. Factory finishing
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
 - 1. 06 41 16 Plastic-Laminate-Clad Architecture Cabinets
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

1.02 REFERENCES

- A. Minimum Standards for work in this section shall be in conformity with the Architectural Woodwork Standards.

1.03 DEFINITIONS

1.04 SYSTEM DESCRIPTIONS

- A. Design Requirements, Performance Requirements
 - 1. Performance shall comply with Premium grade requirements of Architectural Woodwork Standards, latest edition.
 - a. Appendix B, Section 11 - Countertops
 - b. Appendix B, Section 12 - Installation
 - 2. Each elevation of casework shall bear Woodwork Institute certified compliance label.

1.05 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturers' plastic laminate data sheets
- B. Shop Drawings
 - 1. Submit shop drawings in conformance with the requirements of the Architectural Woodwork Standards, Section 1 – Submittals.
 - 2. The first page of the shop drawing shall include a Woodwork Institute certified compliance label.
- C. Samples
 - 1. Submit manufacturers' laminate full range of laminate samples
- D. Quality Assurance/Control Submittals
 - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
 - a. Furnish Woodwork Institute certified compliance certificate prior to delivery certifying that all materials and fabrication thereof fully meet the specified grade requirements of Woodwork Institute specification.
- E. Closeout Submittals

1. Furnish, after completion of installation, Woodwork Institute certified compliance certificate certifying that the installation fully meets specified grade requirements of Woodwork Institute specification.

1.06 QUALITY ASSURANCE

A. Qualifications

1. Woodwork manufacturer with no less than five years of production experience similar to a specific project, whose qualifications indicate the ability to comply with the requirements of this section.
2. A single manufacturer shall provide and install the work of described in this section.
3. Bidders will be Woodwork Association program participants.

B. Regulatory Requirements

1. Fire-Test-Response Characteristics

- a. Plastic laminate shall comply with the following surface-burning characteristics as determined by testing identical products per ASTM E-84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 1. Flame-Spread Index: 25 or less
 2. Smoke-Developed Index: 450 or less

C. Certifications

1. Work shall be in accordance with the Grade or Grades specified of the Architectural Woodwork Standards.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling, and Unloading

1. Comply with Woodwork Institute Architectural Woodwork Standards, latest edition, Section 2 – Care & Storage.
2. Deliver materials only when the project is ready for installation and the contractor has provided a clean storage area

B. Acceptance at Site

1. Delivery of millwork shall be made only when the area of operation is enclosed, all plaster and concrete work is dry and the area broom clean.

1.08 PROJECT CONDITIONS

A. Project Environmental Requirements

1. Maintain indoor temperature and humidity within the range recommended by the Architectural Woodwork Standards for the location of the project.

1.09 SEQUENCING

- ##### A.
- Coordinate fabrication, delivery, and installation with the contractor and other applicable trades.

1.10 SCHEDULING

1.11 WARRANTY

1.12 SYSTEM STARTUP

1.13 OWNER'S INSTRUCTIONS

1.14 COMMISSIONING

1.15 MAINTENANCE

PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Formica Corporation, 10155 Reading Road, Cincinnati, OH 45241

2.02 EXISTING PRODUCTS

2.03 MATERIALS

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

- A. Veneers shall be in accordance with the Architectural Woodwork Standards requirements for its use and the grades.
- B. Lumber shall be in accordance with the Architectural Woodwork Standards Grade specified for the product being fabricated. Moisture content shall be 6% to 12% for boards up to 2-inches nominal thickness, and shall not exceed 19% for thicker pieces.
- D. Core shall be hardwood plywood meeting the requirements of Architectural Woodwork Standards.
- E. Adhesives used shall be Type II Water-Resistant

2.07 ACCESSORIES

2.08 MIXES

2.09 FABRICATION

- A. Laminate
 - 1. (Formica) Formica Laminate, See 3.15 Schedules
- B. Core Material
 - 1. Exterior grade hardwood plywood with non-telegraphing grain
 - a. $\frac{3}{4}$ -inch plywood bearing the APA mark of quality
- C. Back Spashes
 - 1. Wall Mount, jobsite assembled
 - 2. Square Top, Square Splash Joint
 - 3. 4-inches high
- D. Front Edges
 - 1. Radiused No-Drip Edge

2.10 FINISHES

2.11 SOURCE QUALITY CONTROL

PART 3 EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
 - 1. Verify the adequacy and proper location of any required or support framing.
 - 2. Verify that mechanical, electrical, plumbing, and other building components affecting work in this section are in place.

3.03 PREPARATION

3.04 ERECTION

3.05 INSTALLATION

- A. Install all work in conformance with the Architectural Woodwork Standards, latest edition.

PLASTIC-LAMINATE-CLAD COUNTERTOPS

- B. Installation shall conform to the AWS Grade of the items being installed
- C. All work shall be secured in place, square, plumb, and level.
- D. All work abutting other building components shall be properly scribed.
- E. Mechanical fasteners used at exposed and semi-exposed surfaces, excluding installation attachment screws shall be countersunk
- F. Equipment cutouts shown on plans shall be cut by the countertop installer.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

- A. Before completion of the installation, the installer shall adjust all moving operating parts to function smoothly and correctly.
- B. All nicks, chips, and scratches in the finish shall be filled and retouched. Damaged items that cannot be repaired shall be replaced.

3.12 CLEANING

- A. Upon completion of installation, the installer shall clean all installed items of pencil and ink marks and broom clean the area of operation, depositing debris in containers provided.

3.13 DEMONSTRATION

3.14 PROTECTION

3.15 SCHEDULES

- A. Laminate
 - 1. Color/Pattern Number & Color Pattern Name: TBD
 - a. As selected by architect from manufacturer's full range of options, including premium selections
 - 2. Grade (Name/Number): TBD
 - b. As selected by architect from manufacturer's full range of options, including premium grades
 - 3. Finish (Name/Number): TBD
 - c. As selected by architect from manufacturer's full range of options, including premium finishes

END OF SECTION