

Riverside County – Volunteers in Medicine Clinic
82-915 Avenue 48
Indio, CA.
Project #0901.00

SECTION 04510

MASONRY CLEANING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all masonry, exterior tile pavers, stone, and glass block cleaning, as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 JOB CONDITIONS

- A. Protect adjacent surfaces and materials from damage due to cleaning operations.

1.03 SUBMITTALS

- A. Data: Submit manufacturer's technical data and installation instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cleaning solution: Detergent type. Pro So Co., Sure Klean No. 600 Detergent Masonry Cleaner.
1. To be used on all exposed exterior tile pavers, masonry, and stone.
- B. Cleaning solution: Pro So Co., Vana Trol.
1. To be used on all Glass Block.
- C. Other manufacturers desiring approval comply with Section 01640.

Masonry Cleaning
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2.02 LIMITATIONS

- A. Cleaning should not be performed on wall or paver surfaces in which the ambient air temperature falls below 40 degrees F.
- B. High-pressure pre-wetting and rinsing is not recommended for all masonry or stone surfaces and may cause damage. Where a high-pressure sprayer is used, the masonry wall shall be allowed to cure for 14 days prior to washing. High-pressure application of the cleaning solution shall not be permitted.

2.03 DURING CONSTRUCTION

- A. Proper care should be taken during construction to keep the wall or floor free of mortar and grout smears. Grout left on the wall for even short periods of time become difficult to remove. Use a soft bristle brush immediately after tooling to remove excessive mortar. Avoid cleaning motions that press the mortar and grout into the face.
- B. Cover the wall or floor at the end of each working day. Failure to prevent moisture from entering the wall or floor may result in efflorescence and other leaching problems.
- C. Protect the wall or floor from dirt and mortar splatter.
- D. Store all glass block, masonry, tile, and stone above the ground to protect from soil contamination.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Carefully check masonry, stone, tile, and glass block surfaces.
- B. If necessary point with mortar.
- C. Allow 4 days before start of cleaning.
- D. Remove excess mortar using wooden paddles and scrapers.
- E. Provide protection from adjacent areas which are not to be cleaned.

3.02 CLEANING

- A. The cleaning operation should be undertaken within 2 to 4 weeks from masonry/stone/glass block/tile construction. Cleaning before the wall or flooring has properly cured may weaken the masonry/stone/glass block/tile. Prolonged curing prior to cleaning may create more permanent stains which may become difficult to remove.

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- B. Test a small area of wall/floor in an inconspicuous location using the cleaning mixture specified. A 16 sq. foot area may be sufficient. Where field panels are required, they should be cleaned using the product and procedures specified for the project. This can alert the owners representative and contractor of any adverse reactions prior to cleaning the wall/floor. Allow the test area to dry for one week prior to evaluating the effectiveness of the solution. The Architect shall evaluate and approve the test area prior to cleaning the remainder of the wall/floor. If the cleaning procedure is not effective, contact the manufacturer of the cleaner for further recommendations.
- C. Mask or protect metal, glass, wood and other materials that may be adversely effected by the cleaning solution.
- D. Saturate the area of wall/floor to be cleaned and the area directly below. This will prevent absorption of the dissolved particles into the masonry or stone.
- E. Using a soft-fibered brush or a low pressure spray, apply the cleaning solution. **DO NOT USE HIGH PRESSURE SPRAY.** Allow the solution to remain on the wall for 1 to 3 minutes. Immediately reapply cleaning solution and remove heavy buildups of mortar and grout. **DO NOT ALLOW THE CLEANING SOLUTION TO DRY ON THE MASONRY, TILE, GLASS BLOCK, OR STONE.**
- F. Rinse thoroughly with clean water. Remove all cleaning solution from the area cleaned and any rundown. Failure to remove all cleaning solution may result in streaking, staining and scumming.

3.03 COVERAGE

- A. 600 Detergent: Dilute one part concentrate to 6 to 12 parts water.
- B. Vana Trol: Dilute one part concentrate to 4 to 8 parts water.
- C. The test panel will help to identify the actual coverage rate required.

3.04 PRECAUTIONS

- A. Masonry cleaners are acidic and should be handled with caution. Applicators should wear goggles, rubber gloves, suits, etc. to avoid contact with the skin.

END OF SECTION

**DIVISION 5
METALS**

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SECTION 05120

STRUCTURAL STEEL

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all structural steel as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 QUALITY ASSURANCE

A. References:

1. American Institute of Steel Construction (AISC):
 - a. Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings (referred to herein as AISC Specification).
 - b. Code of Standard Practice for Steel Buildings and Bridges (referred to as AISC Code of Standard Practice). Only those sections referred to are a part of this specification.
 - c. Quality Certification Program.
2. American Welding Society AWS D1.1, Structural Welding Code - Steel (referred to as AWS Code).
3. Research Council on Riveted and Bolted Structural Joints Specification for Structural Joints Using ASTM A325 or A490 bolts (referred to as Specification for Structural Joints).
4. Structural Steel Painting Council (SSPC): Standards indicated.

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- B. Qualifications:
 - 1. Steel fabricator:
 - a. Must be a City of Los Angeles Certified steel fabricator.
 - 2. Steel erector: Minimum 10 years experience in erection of structural steel.
- C. Source quality control:
 - 1. Provide access and facilities for Architect shop and field inspections.
 - 2. Replace or make acceptable repair to rejected work.
- D. Previous acceptance of any material or finished members by Architect shall not prevent its rejection at later date if it does not comply with specifications.
- E. Tolerances:
 - 1. For fabrication: See AISC Code of Standard Practice.
 - 2. Frame placement, after assembly and before welding or tightening:
 - a. Deviation from plumb, level and alignment: 1 in 500, maximum.
 - b. Displacement of centerlines of columns: 1/4" maximum, each side of centerline.
 - c. Displacement of centerlines of exterior columns: 1/8", maximum, each side of centerline.
- F. Inspection: All field full penetration welds require inspection by a licensed California deputy inspector. The Contractor shall coordinate obtaining an inspector by contacting a local testing laboratory. The Architect shall approve the selection of the inspector and all costs shall be billed directly to the Owner, with invoices addressed to the Architect. See Section 01400 - General Testing Procedures.

1.03 SUBMITTALS (SEE SECTION 01340)

- A. Shop Drawings:
 - 1. Show all details including cuts, copes, connections, holes and welds. Indicate all shop and field welds using AWS symbols. Indicate connections where high strength bolts are required.

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1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Handle and store steel members above ground on platforms, skids or other supports.
- B. Keep members free of dirt, grease and other foreign material and protect against corrosion.

PART 2 - PRODUCTS

2.01 MATERIAL

- A. Steel, structural shapes and plate: A STM A36.
- B. Bolts, nuts and washers, high strength: ASTM A325 and ASTM A490.
 - 1. Provide washers for all nuts.
- C. Pipe, round: ASTM A53, Grade B.
- D. Tubing, structural: ASTM A500, A501 or A618 (46 KSI, minimum).
- E. Bolts and nuts, unfinished: ASTM A307, Grade A, typical unless noted otherwise on the drawings.
- F. Washers, plain: ANSI B18.22.1, Type B.
- G. Washers, beveled: ANSI B27.4.
- H. Anchor bolts, except high strength: Section 1(C) of ASTM A307.
- I. Anchor bolts, high strength: ASTM A687, with A325 nuts and load-indicator washers unless noted otherwise on the drawings.
- J. Welding electrodes:
 - 1. Shielded metal - arc: AWS A5.1 or AWS A5.5, E70XX.
 - 2. Submerged-arc: AWS A5.17 or A5.23, E7X-EXXX.
 - 3. Gas metal-arc: AWS A5.18, E70S-X or E70U-1.
 - 4. Flux cored-arc: AWS A5.20, E70T-X (except 2, 3, 10, GS).
- K. Headed studs and deformed bar anchors:
 - 1. Studs: ASTM A108 cold drawn bar, complying with AWS Code, 4.23.

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- a. Uniform diameter.
 - b. Heads: Concentric and normal to shaft.
 - c. Weld end: Chamfered and solid flux.
2. Deformed anchor bars: ASTM A496, cold drawn wire.
 - a. Straight, unless otherwise indicated.
 - b. Solid flux.
 3. Automatic end welded studs shall be Nelson Granular flux filled shear connector or anchor stud or acceptable alternate. Studs shall be manufactured of C-1015 cold rolled steel which conforms to ASTM A-108-58-T.
 4. After welding, free from any substance which would interfere with function as anchor or bond to deformed anchor bars.
 5. Acceptable manufacturers: Erico/Jones Stud Welding Div., Dayton, OH; TRW, Inc./Nelson Div., Lorain, OH; and Omark Industries, Inc./KSM Fastening Systems Div., Moorestown, NJ.
 6. Other manufacturers desiring approval comply with Section 01640.
- L. Grout: Dry pack; 1 part Portland cement, 2-1/2 parts sand, and no more water than needed to make grout cohesive when squeezed in hand.
1. Portland cement: ASTM C150, Type I or II.
 2. Sand: Graded as follows:
 - a. Passing No. 8 sieve: 95-100%.
 - b. Passing No. 16 sieve: 65-90%.
 - c. Passing No. 50 sieve: 10-30%.
 - d. Passing No. 100 sieve: 3-10%.

2.02 FABRICATION - WELDING

- A. All welding, techniques of welding employed, appearance and quality of welds, and methods used to correct defective work shall comply with AWS Code, and requirements indicated.

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- B. Test and qualify welding operators and tackers in compliance with AWS Code for position and type of welding to which they will be assigned.
- C. Qualify joint welding procedures or test in accord with AWS qualification procedures.
- D. Before start of welding work, meet with welders to review and verify procedures.
- E. Comply with AWS Code to minimize shrinkage and distortion stress.
- F. Where groove welds have back-up plates, make first 3 passes with 1/8" round electrodes.
- G. Use back-up plates in accord with AWS Code, extending minimum of 1" either side of joint. Remove extended back-up plates after completion of welding and acceptance of welded joint.
- H. Make flange welds before making web welds.
- I. For manual shielded metal-arc welding: Comply with Article 4.6 of AWS Code.
- J. Low hydrogen electrodes: Dry and store electrodes in compliance with AWS Code.
- K. Do not perform welding when ambient temperature is lower than 0 degF, or where surfaces are wet or exposed to rain, snow, or high wind, or when welders are exposed to inclement conditions.
- L. Before starting welding:
 - 1. Carefully plumb and align members in compliance with AISC Code of Standard Practice.
 - 2. Preheat base metal to temperature stated in Table 4.2 of AWS Code.
 - a. When no preheat temperature is given in Table 4.2 and base metal is below 32 degF, preheat base metal to at least 70 degF.
 - b. Maintain temperature during welding.
 - c. Preheat shall bring surface of all base metal within distance from point of welding equal to thickness of thicker part being welded or 3", whichever is greater, to specified preheat temperature.
 - d. Maintain this temperature during welding.
 - 3. Fully tighten bolts.

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4. Assembly and surface preparation shall comply with section 3 of AWS Code.
5. Each welder shall use identifying mark at welds where he has worked.

M. The Automatic End Welded Stud:

Studs shall be automatically end welded in accordance with the manufacturer's recommendations in such a manner as to provide complete fusion between the end of the stud and the plate. There should be no porosity or evidence of lack of fusion between the welded end of the stud and the plate. The stud shall decrease in length during welding approximately 1/8" for 5/8" and under, and 3/16" for over 5/8" diameter. Welding shall be done only by qualified welders.

2.03 FABRICATION

- A. Comply with requirements of AISC specification with modifications and additional requirements specified herein.
- B. Fabricate and assemble material in shop to greatest extent possible.
- C. Make connections as indicated.
 1. Shop connections may be bolted or welded.
 2. Bolt field connections unless shown otherwise.
 3. Use A325 bolt, friction type connections where indicated.
- D. One sided or other types of eccentric connections not indicated, will not be permitted without prior approval.
- E. Weld in accord with paragraph "Fabrication - Welding".
- F. Bevels for field welds may be flame cut provided such cutting is done automatically. Leave free of burrs and slag.
- G. Accurately mill bearing ends of columns.
- H. Camber beams to amounts indicated on drawings, otherwise fabricate in accord with AISC Code, Section 1.19.1. Fabricate and erect beams without specified camber in accord with AISC Code, Section 1.19.3.
- I. Cut, drill, or punch holes at right angles to surface of metal.
 1. Do not make or enlarge holes by burning.
 2. Make holes clean cut, without torn or ragged edges.

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3. Remove outside burrs resulting from drilling or reaming operations with tool making 1/16" bevel.
 4. Provide holes in members to permit connection of work of other trades.
- J. Make allowances for draw in of all tension bracing.
- K. Make splices only where indicated.
- L. Headed stud type shear connectors and rebar anchors: Automatically end welded in accord with the AWS code.
1. When headed stud type shear connectors are to be field applied, clean top surface of beam flanges in shop to remove oil, scale, rust, dirt and other material injurious to satisfactory welding.
- M. Studs and deformed bar anchors: Automatically end welded in accord with the AWS Code.
1. Fillet welding or headed studs and deformed anchors is not allowed.
 2. Do not weld studs when temperature is below 0 degF or surface is wet with rain or snow.
 3. Quality control: Weld minimum of 2 studs at start of each production period to determine proper generator, control unit, and stud welder settings.
 - a. These studs shall be capable of being bent 45 degrees from vertical without weld failure.
 - b. If, after welding, visual inspection reveals that sound weld or full 360 degree fillet has not been obtained for a particular stud, that stud shall be struck with hammer and bent approximately 15 degrees off perpendicular to the nearest end of the beam.
 - c. Studs meeting this test shall be considered acceptable and shall be repositioned in perpendicular position.
 - d. Studs failing under this test shall be replaced.
 - e. When the temperature is below 32 degF one stud in each 100 shall be tested after cooling.

2.04 SHOP PREPARATION - SURFACES NOT TO BE COATED

- A. Do not coat following surfaces:

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1. Machined surfaces, surfaces adjacent to field welds, contact surfaces of bolt connections, and top flanges of beams to receive shear connectors.
 2. All other members for which no coating is specified.
- B. Clean thoroughly before shipping: remove loose mill scale, rust, dirt, oil and grease.

2.05 SHOP COATING - GALVANIZED

- A. Galvanize the following members:
1. Members set in, or in contact with, exterior surface material, including:
 - a. Embedded items in exterior surfaces.
 2. Other members indicated.
- B. Clean thoroughly before galvanizing.
- C. Galvanize in accord with ASTM A123.

2.06 SHOP COATING - PRIMER FOR EXTERIOR FINISH PAINT

- A. Apply primer for exterior finish paint to following surfaces.
1. Steel exposed permanently to weather and not galvanized.
- B. Primer for exterior finish paint: Tnemec 37 series Chem-Prime.
- C. Clean in accord with SSPC-SP6, Commercial Blast Cleaning.
- D. Apply in accord with paint manufacturer's instructions.
1. Apply minimum 2.5 mils, dry film thickness.

2.07 SHOP COATING - PRIMER FOR INTERIOR FINISH PAINT OR INTERIOR CONCEALED STRUCTURAL MEMBERS

- A. Apply primer to following surfaces not receiving other coating:
1. Surfaces exposed on interior.
 2. Surfaces buried in framing.

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- B. Primer for interior finish paint or concealed steel members: Fast dry alkyd primer, Glidden 5210; or equivalent product of Pratt & Lambert, Sherwin-Williams, PPG, Fuller-O'Brien, or Tnemec.
- C. Clean thoroughly before priming; remove mill scale, rust, dirt, oil and grease in accord with SSPC - SP3.
- D. Apply in accord with paint manufacturer's instructions.
 - 1. Apply in minimum 1.5 mils, dry film thickness.

PART 3 - EXECUTION

3.01 GENERAL

- A. Take into consideration that full structural capacity of many structural members is not realized until structural assembly is complete; that is, until slabs, decks and diagonal bracing are installed.
- B. Use temporary bracing to take care of all loads to which structure may be subjected, including erection equipment and its operation.
 - 1. Keep bracing in place as long as required for safety.
 - 2. As erection progresses, securely fasten work to take care of all dead load, wind and erection stresses.
 - 3. Remove temporary bracing after completion of work.

3.02 ERECTION

- A. Erect structural steel in compliance with AISC.
- B. Set base and bearing plates accurately and grout immediately as indicated.
 - 1. Use metal wedges, shims or setting nuts as required.
 - 2. Pack grout solidly between plate and bearing surface.
- C. Clean bearing and contact surfaces before assembly.
- D. Install A325F bolts with washers. Install and tighten in accord with Section 5 of Specifications for Structural Joints.
- E. Field weld as specified in paragraph "Welding".
- F. Do not use gas cutting to correct fabrication errors on any major members.

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1. Gas cutting on minor members may be permitted when members are not loaded, and only after approval by Architect.
- G. Tighten and leave in place erection bolts used in welded construction.
- H. Provide beveled washers to give full bearing to bolt head or nut where bolts are to be used on surfaces having slopes greater than 1 in 20 with a plan normal to bolt axis.
- I. After bolts are tightened, upset threads of A307 unfinished bolts to prevent nuts from backing off.
- J. After installation, touch up all damaged or abraded areas of primed steel using same material used for shop priming.
1. Clean field welds, bolted connections and abraded areas before touching up.

END OF SECTION

SECTION 05500

METAL FABRICATIONS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all miscellaneous metal fabrications as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related Work Specified Elsewhere:

1. Painting - Section 09900.

1.02 QUALITY ASSURANCE

A. Materials and operations standards:

1. AHDGA, American Hot Dip Galvanizers Association.
2. AISC, American Institute of Steel Construction.
3. ASTM, American Society for Testing and Materials.
4. AWS, American Welding Society
5. NAAMM, National Association of Architectural Metals Manufacturers.

B. Submittals:

1. Shop Drawings: Provide drawings drawn to scale of installation and layout of proposed fabrications.
2. Data: Submit data and cut sheets on prefabricated items.

1.03 JOB CONDITIONS

- A. Provide sleeves, embedded anchors and other built-in items in time for installation, or pay costs of cutting-in items later, and grouting.
- B. Verify field conditions prior to fabrication.

1.04 DESIGN CRITERIA

- A. CBC, latest edition.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Metal manufactured items: As noted for individual items.
 - 2. Other manufacturers desiring approval comply with Section 01640.
- B. Structural steel: ASTM A36.
- C. Bolts: ASTM A307.
- D. Steel pipe: ASTM A53.
- E. Galvanizing: ASTM A123, A386, or A525.
- F. Stainless steel: ASTM A484 or A276, Type 302.
- G. Anchorage devices, masonry: Expansion shields F.S.FF-S-0325.
 - 1. Lead expansion shields for machine screws and bolts 1/4" and smaller: Head-out embedded nut type, single unit class, Group I, Type 1, Class 1.
 - 2. For machine screws and bolts larger than 1/4": Group I, Type 1, Class 2.
 - 3. Bolt anchor expansion shields for lag bolts: Zinc-alloy, long shield anchors class, Group II, Type 1, Class 1.
 - 4. Bolt anchor expansion shields for bolts: Closed-end bottom bearing class, Group II, Type 2, Class 1.
- H. Fasteners: Zinc-coated where built into exterior walls. Select fasteners for type, grade and class required.
 - 1. Bolts and Nuts: Regular hexagon head ASTM A307, Grade A.
 - 2. Lag Bolts: Square head type, F.S.FF-B-561.

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3. Machine Screws: Cadmium plated steel, F.S.FF-S-92.
 4. Plain Washers: Round, carbon steel, F.S.FF-W-92.
 5. Lock Washers: Helical spring carbon steel, F.S.FF-W-84.
- I. Primer: Modified Alkyd paint, low VOC.
1. Use Tnemec Series V10 (99 Red) or primer compatible with finish coats of paint.
 2. Coordinate metal primer with finish paint requirements specified in Section 09900.
- J. Galvanizing repair paint: High zinc dust content paint for regalvanizing welds in galvanized steel.
1. DOD-P-21035.
 2. Z.R.C. by ZRC Co.
- K. Dissimilar metal protection coating: Tnemec Tnem-Tar series 46H-413 or equal.
- L. Grout, non-shrink: Por-Rock; Sika Dur Hi-Mod Gel.

2.02 FABRICATION

- A. Form to shapes indicated with straight lines, sharp angles, smooth curves. If radiused expansion joints are required, factory form radius and then pour in elastomer.
- B. Drill or punch holes with smooth edges for temporary field connections and attachment of work by other trades.
- C. Weld permanent shop connections. All welds continuous fillet type. Grind welds that will be exposed smooth.
- D. Conceal fastenings where practicable.
- E. Fabricate work in shop in a large assemblies as practicable.
1. Meet requirements specified under Structural Steel for fabricating items of structural nature or use.
 2. Qualify welding processes and welding operators in accord with AWS.

2.03 SHOP PRIMING

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- A. Galvanize all items set in, or on, exterior surface, where noted on drawings.
- B. Apply shop primer to all ferrous metal not indicated to be set in or receive concrete.
 - 1. Apply 2 shop coats to metals that will be inaccessible after erection.
 - 2. Do not prime stainless steel, aluminum, copper, brass, or bronze unless specifically indicated.
- C. Remove scale, rust and other deleterious materials before applying shop primer.
 - 1. Clean off rust and loose mill scale in accord with SSPC SP-2, SP-3, or SSPC SP-7.
 - 2. Remove contaminants in accord with SSPC SP-1.
- D. Immediately after surface preparation, prime in accord with manufacturer's instructions.
 - 1. Provide uniform dry film thickness of 1.0 mil.
 - 2. Use methods which will result in full coverage of all exposed surfaces.
- E. Whenever dissimilar metals come in contact with each other, or metal or aluminum is anchored to or in contact with masonry, provide dissimilar metal protection coating.
- F. Retouch any scraped, abraded, and unp primed surfaces.
 - 1. Use primer specified for shop coats.
 - 2. This priming does not count as a coat for finish painting.

2.04 METAL FABRICATIONS

- A. Supply all miscellaneous metal items required to complete construction and installation.
- B. Anchorage accessories: Including anchorage items required to secure wood to metal, wood to masonry, metals to masonry, metal to metal, or metal to other items.
- D. Anchors, embedded: ASTM A36 steel.
 - 1. Size and shape as indicated.

PART 3 - EXECUTION

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3.01 INSPECTION

- A. Verify suitability of substrate to accept installation.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 INSTALLATION

- A. Set work level, true to line, plumb.
- B. Shim and grout as necessary.
- C. Weld field connections and grind smooth.
- D. Where practical, conceal fastenings.
- E. Secure metal to wood with lag screws, of adequate size, with appropriate washers.
- F. Secure metal to concrete with embedded anchors, setting compounds, caulking and sleeves, or setting grout.
 - 1. Use expansion bolts, toggle bolts, or screws for light duty service.
- G. Meet structural requirements for erecting items of structural nature.
- H. Do not field splice fabricated items unless size requires splicing. Weld all splices.
- I. Provide each fabricated item complete with attachment devices as required to install.

END OF SECTION

SECTION 05515

LADDERS AND RUNGS

PART 1: GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. Provide all material, labor, equipment and services and perform all operations necessary or required for the work of this section, in accordance with the Drawings and Specifications.
- B. Related work specified elsewhere includes but is not limited to:
 - 1. Painting in Section 09900.

1.03 PERFORMANCE REQUIREMENTS

- A. Ladder Rungs: Be capable of withstanding a concentrated 1,000 pound load without deformation.
- B. Handrail: Be capable of withstanding a load of 200 pounds applied in any direction at any point on the rail.

1.04 REFERENCES

- A. AA – Aluminum Association.
- B. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- C. ASTM B 221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- D. OSHA 1910.27 – Fixed Ladders.

1.05 SUBMITTALS

- A. Submit under provision of Division 1.
- B. Product Data: Manufacturer's data sheets on each product.

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- C. Shop Drawings:
 - 1. Detail fabrication and erection of each ladder indicated. Included plans, elevations, sections, and details of metal fabrications and their connections.
 - 2. Provide templates for anchors and bolts specified for installation under other Sections.
 - 3. Provide reaction loads for each hanger and brack et.

- D. Qualification Data:
 - 1. Refer to Quality Assurance provisions for submittal requirements evidencing experience, certifications and resources.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in producing aluminum metal ladders similar to those indicated for this Project.
 - 1. Record of successful in-service performance.
 - 2. Sufficient production capacity to produce required units.
 - 3. Professional engineering competent in design and structural analysis to fabricate ladders in compliance with industry standards and local codes.

- B. Installer Qualifications: Competent and experienced firm capable of selecting fasteners and installing ladders to attain designed operational and structural performance.

- C. Product Qualification: Product design shall comply with OSHA 1910.27 minimum standards for ladders.

1.07 DELIVERY, STORAGE, AND HANDLING

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

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1.08 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions by field measurement before fabrication.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, indicate established dimensions on shop drawing submittal and proceed with fabrication.

1.09 WARRANTY

- A. Manufacturer has responsibility for an extended Corrective Period for work of this Section for a period of 5 years from date of Substantial Completion against all the conditions indicated below, and when notified in writing from Owner, manufacturer shall promptly and without inconvenience and cost to Owner correct said deficiencies.
 - 1. Defects in materials and workmanship.
 - 2. Deterioration of material and surface performance below minimum OSHA standards as certified by independent third party testing laboratory. Ordinary wear and tear, unusual abuse or neglect excepted.
 - 3. Within the warranty period, the manufacturer shall, at its option, repair, replace, or refund the purchase price of defective ladder.
- B. Manufacturer shall be notified immediately of defective products, and be given a reasonable opportunity to inspect the goods prior to return. Manufacturer will not assume responsibility, or compensation, for unauthorized repairs or labor. Manufacturer makes no other warranty, expressed or implied, to the merchantability, fitness for a particular purpose, design, sale, installation, or use, of the ladder; and shall not be liable for incidental or consequential damages, losses of or expenses, resulting from the use of ladder products.

PART 2: PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. O’Keeffe’s, Inc.; 325 Newhall St., San Francisco, CA 94124. ASD. Toll Free Tel: (888) 653-3333. Tel: (415) 822-4222. Fax: (415) 822-5222.
- B. The Bilco Company – California Representative: Specialty Building Components, (562) 821-0170.
- C. Requests for substitutions will be considered in accordance with provisions of Division 1.

2.02 APPLICATIONS/SCOPE

- A. Fixed Access Ladder:
 - 1. Heavy Duty Tubular Rail.
 - a. Model 500-10 as manufactured by O’Keeffe’s Inc.
- B. Ladder Up:
 - 1. Heavy Duty Ladder up safety post.
 - a. Model LU-1, steel, black enamel, as manufactured by The Bilco Company. Installed on the fixed ladder.

2.03 FINISHES

- A. Ladder: Mill finish, as extruded.
- B. Ladder Up Safety Post: Steel, black enamel finish.

2.04 MATERIALS

- A. Aluminum Sheet: Alloy 5005-H34 to comply with ASTM B209.
- B. Aluminum Extrusions: Alloy 6063-T6 to comply with ASTM B221.

2.05 FABRICATION

- A. Rungs: Not less than 1-1/4 inches (32-m m) in section and 18-3/8 inches (467-mm) long, formed from tubular aluminum extrusions. Squared and deeply serrated on all sides.
 - 1. Rungs shall withstand a 1,000 pound (454 kg) load without deformation or failure.
- B. Channel Side Rails: Not less than 1/8 inch (3-m m) wall thickness by 3 inches (76-mm) wide.

PART 3: EXECUTION

3.01 PREPARATIONS

- A. Coordination: Coordinate anchorages w ith all other related and adjacent work. Installation shall not start until the construction has progressed to the point that weather conditions and remaining construction operations will not damage stair installation.

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- B. Verifications: Verify that dimensions are correct and that substrate is in proper condition for stair installation. Do not proceed to install until all necessary corrections have been made.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction.

3.03 CLEAN

- A. Leave work areas clean and free of debris.

END OF SECTION

**DIVISION 6
WOOD AND PLASTICS**

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SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment and services for rough carpentry as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See General Conditions and Supplementary Conditions for additional general requirements.

1.02 MEASUREMENTS

- A. Verify all dimensions shown on Drawings by taking field measurements; proper fit and attachment of all parts is required. Before commencing work, check all lines and levels indicated on other work that has been completed. Should there be any discrepancies, immediately report in writing to Architect. In event of failure to do so, Contractor shall be responsible for correction of any errors.

1.03 COORDINATION

- A. Coordinate work with other trades (Electrical, Mechanical, Plumbing, etc.) and do all cutting and patching required to accommodate their work. Protect adjacent work from damage.

1.04 DELIVERY AND STORAGE

- A. Deliver and store lumber off ground and cover for protection.

1.05 GENERAL REQUIREMENTS

- A. Provide each piece of lumber or plywood used for structural framing, graded and marked with grade and trade mark of an accepted lumber grading organization, except that a certificate of grade for such a grading organization may be accepted in lieu of grade and trade marks when approved by Architect. Trade Mark of manufacturer shall also appear on each piece.

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- B. Grading Rules: Conform with all applicable requirements of American Lumber Standards "Simplified Practice Recommendation R-16" and to grading rules of manufacturer's Association under whose rules the lumber is produced.
- C. Reference Standards: Conform with all requirements of U.S. Department of Commerce "Commercial Standards", and American Wood Preserver's "Association Standards" as they apply.

1.06 ROUGH CARPENTRY WORK SHALL INCLUDE, BUT NOT BE LIMITED TO:

- A. Rough Carpentry
 - 1. Structural and non-structural framing.
 - 2. Wall and roof sheathing.
 - 3. Preservative treatment of wood members where required.
 - 4. Miscellaneous furring and stripping for wall finishes.
 - 5. Miscellaneous blocking and canting for roofing systems and related metal flashings.
 - 6. Blocking and canting for roof mounted items.
 - 7. Behind wall wood blocking for support of bathroom accessories and other built-in items.
- B. Exterior Finish Carpentry Work
 - 1. Boxing of structural work.
 - 2. Brackets.
 - 3. Enclosing soffit spaces.
 - 4. Soffits and fascias.
 - 5. Moldings or other miscellaneous trim where required.
 - 6. Preservative treatment where required.

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PART 2 - PRODUCT

2.01 LUMBER SPECIES AND MATERIALS

- A. Framing Lumber: Douglas Fir-Larch, graded as per standard Grading and Dressing Rules #16 of West Coast Lumber Inspection Bureau or Western Wood Products Association and Grade Market. All lumber shall be air dried to a maximum moisture content of 19% before use. All framing lumber: Stress-Grade. All sides surfaced. Grades as indicated on plans.
- B. Plywood: Shall be graded as per US Department of Commerce Product Standard PS-1-83, with each sheet grade stamped. All plywood shall be Structural 1, or CD, Douglas Fir-Larch, exterior glue, thickness as noted on drawings.
- C. Radiant Barrier Plywood: "Plytanium Plywood" thermostatic radiant barrier sheathing as manufactured by Georgia-Pacific or approved substitution. Radiant barrier sheathing includes a highly reflective aluminum foil on one side. Plywood shall be graded as per US Department of Commerce Product Standard PS-1-83, with each sheet grade stamped. All plywood shall be Structural 1, or CD, Douglas Fir-Larch, exterior glue, thickness as noted on drawings.

2.02 WOOD PRESERVATIVE TREATMENT

- A. All wood sill-plates and ledgers in direct contact with concrete or masonry which is within 2-feet of grade shall be pressure treated with Pentachlorophenol oil in accord with the CBC, latest edition in force. All cut surfaces shall be treated with two coats of the original preservative. All sill plates shall be set in a continuous mastic bed.

2.03 CONNECTING HARDWARE

- A. Furnish and install all connecting hardware indicated on Drawings, specified herein or required to complete the work.
- B. Materials
 - 1. Nails: Common wire, galvanized for exterior work. Pre-drill where necessary to avoid splitting of wood.
 - 2. Screws: Standard domestic manufacturer. Bright steel and galvanized for exterior use. Brass, bronze, aluminum or stainless when used to fasten items made of those metals. For attaching interior trim and finish to drywall partitions, use Type "S", self-drilling, self-tapping anodized steel drywall screws of appropriate lengths.

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3. Bolts: Machine bolts (or carriage bolts if indicated on Drawings) of structural grade steel with hexagonal nuts and sizes indicated. Install washers with all bolts.
4. Lag Screws, Shear Plates, Split Ring Connectors: As per National Forest Products Association, "National Design Spec. for Stress-Grade Lumber and its Fastenings". All lags shall be turned into place and not driven. Holes for threads shall be 3/4 of shank diameter. Install washers w/lags.
5. Framing Anchors, Joist Hangers, Etc.: As made by Simpson Company, or acceptable substitute. Sizes and types as indicated on drawings.
6. Power-Driven Inserts: "Hilti," or acceptable substitute. Install as per manufacturer's directions.
7. Miscellaneous Clips, Steel Assemblies: As per ASTM A-36.

2.04 PREFABRICATED WOOD JOIST

- A. TJI, by Trus Joist Corporation. Sizes and spacing as indicated on plans.
- B. All hangers, stiffeners, bridging, bracing to be supplied by Manufacturer.
- C. Trus Joist shall prepare and submit Shop Drawings and calculations for Architect's review, per Section 01340. (Shop drawings and calculations shall be submitted for Building Department review and approval through the Architect.)
- D. Comply with requirements of Section 01640 for substitutions.

2.05 GLUE-LAMINATED BEAMS - SEE SECTION 06180

PART 3 - EXECUTION

3.01 EXECUTION

- A. Erect wood framing, furring, stripping and nailing members true to lines and levels. Do not deviate from true alignment more than 1/4 inch.
- B. Space members at 16 or 24 inches on center per plans.
- C. Construct members of continuous pieces of longest possible lengths.
- D. Construct and erect required built-up beams, lintels, diaphragm beams as required per plans.
- E. Double wall framing members at openings over 100 square inches. Space short members above and below openings in same manner as for walls.

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- F. Provide double joist headers at joist ends and around ceiling openings.
- G. Coordinate installation of joists and beams to miss recessed lights and HVAC registers located on reflected ceiling plans.

3.02 SHEATHING

- A. Place roof and wall sheathing with end joints staggered. Secure sheets over firm bearing. Maintain minimum 1/16 inch and maximum 1/8 inch spacing between joints of sheets on walls. Place perpendicular to framing members.
- B. Radiant Barrier plywood sheathing shall be placed with the aluminum foil side facing down toward the attic space. Installation of radiant barrier plywood shall be in strict accordance with manufacturer's installation instructions.

3.03 STRUCTURAL MEMBERS

- A. Structural members shall not be cut, notched or drilled except as shown or noted on drawings.

END OF SECTION

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SECTION 06180

GLUE LAMINATED BEAMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment and services from glue laminated beams as indicated, in accord with provisions of contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See General Conditions and Supplementary Conditions for additional general requirements.

B. Work Included:

1. Glue laminated beams.
2. Steel hardware and attachment brackets, anchor bolts, anchor plates.

1.02 SHOP DRAWINGS AND SUBMITTALS

- A. Submit Shop Drawings and secure approvals before beginning fabrication, as per GENERAL CONDITIONS and Section 01340.
- B. Submit Certificate of Inspection of each beam.
- C. Submit sample of exposed beam finish as described in paragraph 2.01-F.

1.03 STANDARDS AND INSPECTIONS

- A. Materials and fabrication shall comply with the following UBC Standards: 25-10, 25-11, 25-19, 25-20, 25-23.
- B. Manufacturer shall be AITC Licensed in accordance with USPS 56-73 and AITC 200. On arrival at the site, each beam shall be accompanied by a certificate of inspection or identified by a certified inspector's hammer mark. A certificate of

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inspection for each beam shall be supplied to the Architect and City Building Department.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All lumber shall be Douglas Fir - Larch.
- B. Beams shall have an 'f' value of 2400 psi, combination V-8.
- C. Moisture content at time of fabrication shall be in the range of 7-10%.
- D. Adhesive shall be "wet use". (Exterior Glue)
- E. All concealed members shall be Industrial Grade.
- F. All exposed members shall be Premium Grade. Premium Grade glued laminated timbers shall be sealed with a clear penetrating sealer at the factory.
- G. Manufacturer shall be Standard Structures, or acceptable substitution.

2.02 SEALING AND PROTECTION

- A. Members shall be individually wrapped and shall be carefully handled to prevent any marring or discoloration. Wrappings shall remain in place, or be replaced at connections, until the members are set in place.
- B. After end trimming, seal with clear penetrating sealer in accordance with AITC requirements.

PART 3 - EXECUTION

3.01 SEE REQUIREMENTS IN SECTION 06100 - ROUGH CARPENTRY

END OF SECTION

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SECTION 06200

FINISH CARPENTRY

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment and services for finish carpentry as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See General Conditions and Supplementary Conditions for additional general requirements.

1.02 WORK SPECIFIED IN THIS SECTION

- A. Installation of all miscellaneous exterior and interior wood trim, door frames and stops, appliances, fire extinguishers, and miscellaneous millwork.
- B. Installation of metal and wood doors, finish hardware, joint sealers.
- C. Installation of bathroom accessories (towel bars, tissue holders, etc.).

1.03 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. Rough Carpentry - Section 06100.
- B. Joint Sealers - Section 07915.
- C. Metal Doors and Frames - Section 08100.
- D. Wood Doors and Frames - Section 08210.
- E. Finish Hardware - Section 08710.
- F. Glazing - Section 08800.
- G. Painting - Section 09900.
- H. Toilet and Bath Accessories- Section 10800
- I. Fire Extinguishers, Cabinets and Accessories- Section 10522
- J. Residential Equipment- Section 11450

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1.04 CODES AND STANDARDS

- A. CBC, latest adopted edition.
- B. WIC - Woodworking Institute of California

1.05 QUALITY ASSURANCE

- A. All millwork shall be manufactured in compliance with W.I.C. standards "Manual of Millwork" latest edition, "Custom Grade" as specified herein or indicated on the drawings.
- B. Before delivery to the project job site, the millwork shall be W.I.C. certified in compliance fully meeting all the requirements of grade or grades specified.

1.06 SUBMITTALS

- A. Submit shop drawings and product data in accordance to the General Conditions and Section 01340.
- B. Shop drawings shall bear the W.I.C. Certified Compliance Label on the first page of the drawings.
- C. If required, submit samples of each species of finish wood 8" x 10" minimum and other miscellaneous items required to provide a complete product as indicated on the drawings.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver all materials when the project is ready for installation. A clean storage area is required in compliance with W.I.C. Bulletin 419-B as recommended care and storage of architectural millwork to be furnished to the General Contractor for the spaces required.
- B. Do not store millwork outside following fabrication and prior to installation.
- C. Exercise care in off-loading items to prevent damage, chipping, splitting and breaking.
- D. Any damage shall be subject to rejection and/or repair prior to installation.

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PART 2 - PRODUCTS

2.01 FINISH LUMBER AND MILLWORK

- A. Architectural millwork specified herein shall comply with Section 26 of WIC "Manual of Millwork" for exterior and interior applications as indicated on the drawings.
- B. Lumber surfaces visible after fabrication shall comply with grade rules for species of natural sound lumber, free of decay, shake, pitch, wane and warp.
 - 1. Exterior configurations and usage.

2.02 INTERIOR TRIM HARDWARE

- A. Fry Reglet Corp., aluminum alloy. See Section 09250 – Gypsum Board.
- B. Configurations and locations as indicated on the drawings.

2.03 ACCESSORY MATERIALS

- A. Nails, spikes, staples: Common, except as otherwise indicated. Galvanized for exterior usage, high humidity within conditioned spaces, and treated wood; plain finish for other interior locations; size and type to suit application.
- B. Lag Screws: FS FF-B-561.
- C. Machine Bolts: ASTM A307.
- D. Wood Preservative: Wolmanizing treatment at least two weeks prior to site delivery.

2.04 ADHESIVES

- A. Type II or III adhesive shall be used in compliance with applicable sections of W.I.C. "Manual of Millwork" to be applied where required and per manufacturer's recommendations.

PART 3 - EXECUTION

3.01 SELECTION OF LUMBER

- A. Carefully select all members so that defects will not interfere with proper nailing or making proper connections, and not impair finished appearances where to be exposed.

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3.02 GENERAL FABRICATION

- A. Manufacture, mill, fabricate, assemble and finish all millwork by skilled mechanics, using approved standard methods of manufacture and workmanship all in compliance with W.I.C. standards, custom grade.
- B. Conceal means of fastening where other than glue joinery is employed. Use fine casing nails, carefully set without tool marks.

3.03 INSTALLATION AND GENERAL WORKMANSHIP

- A. All items of this section shall be custom grade as defined in W.I.C. "Manual of Millwork". Exposed wood/millwork shall be concealed fastened, surfaces to be sanded and free from tool marks or similar blemishes. Hand sand in the building after erection, until all defects are entirely removed. Any material showing machinery, sandpaper or other defacing marks will be rejected. Neatly and accurately scribe in place wherever required, maintaining full width end members. Miter all exterior angles. Cope interior angles of molded parts. All color of adjoining finishes shall be selected to match and harmonize. Provide a neat, tight joint where work of this section adjoins other work.
- B. Installer shall be competent, experienced craftsman to complete the installation of all items specified and detailed in a first class workmanship manner as defined in Section 26 - W.I.C. "Manual of Millwork".
 - 1. Miscellaneous exterior and interior trim per detailed configuration.
 - 2. Miscellaneous trims and millwork, securely concealed anchoring as detailed, scribed and butt jointed.
 - 3. Wood doors shall be installed with minimum clearance of 1/8" at head, jambs, and pair of doors. All finish hardware to be installed under this section.

3.04 CLEANUP

- A. Upon completion of the installation of this section, installer shall clean the specified work, pencil or ink marks, and broom clean the areas of work of this section, disposing of all debris from the building and site.

END OF SECTION

SECTION 06410

ARCHITECTURAL CABINETWORK

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all architectural cabinetwork as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.
5. See cabinet elevations for design details.

B. See drawings for types of countertops required.

C. Definitions:

1. Exposed surfaces: All surfaces visible when doors and drawers are closed, inside of doors, visible surfaces in open cabinets or behind glass doors, and:
 - a. Door and drawer fronts, and their edges.
 - b. Exposed end.
 - c. Face frame (if used).
 - d. Interior of open cabinets.
 - e. Toe strip not to be covered by separate base.
 - f. Wall mounted adjustable shelves.
 - g. Bottom of wall case over 4 ft. above floors.
 - h. Top of wall and tall cases below 6 ft. above floor.

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2. Concealed surfaces: Surfaces not visible after installation, and:
 - a. Web frames.
 - b. Dust panels.
3. Semi-exposed surfaces: All other surfaces not exposed or concealed.

1.02 QUALITY ASSURANCE

- A. Construction details, fastening, tolerances and workmanship: latest edition of manual of Millwork of Woodworking Institute of California (W.I.C.), Premium grade standards, with exceptions indicated.
 1. Before delivery to the jobsite, the millwork supplier shall issue a Certified Compliance Letter indicating the millwork products he will furnish for this job and certifying that they will fully meet all the requirements of the W.I.C. grade standards specified. Submit copies to the Architect for compliance.

1.03 SUBMITTALS (SEE SECTION 01340)

- A. Shop Drawings:
 1. Complete details of construction and elevations of all cabinets.
 2. The Shop Drawings for the casework shall indicate the grade or grades specified, and that they meet the W.I.C. standards specified.
- B. Samples:
 1. 12" x 12" size of each wood veneer or plastic laminate depicting the finished pattern, finish, and color selection specified.
 2. Furnish full size sample for approval of Architect, of finished base cabinet unit in a laminated plastic finish, 24" wide, minimum, with one drawer, door and shelf, complete with hardware.

1.04 JOB CONDITIONS

- A. Verify dimensions at site.
- B. Verify locations of items furnished in other sections.
- C. If necessary to vary from arrangement indicated, make such variations only after review and acceptance by Architect.

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- D. Delivery and Storage: Strictly adhere to requirements of Section 26 and W.I.C. Technical Bulletin 419-R "Recommended Care and Storage of Architectural Millwork."

PART 2 - PRODUCTS

2.01 GENERAL

- A. Cabinets are to include all cabinet hardware, horizontal top and bottom edging, pulls, accessories, and special features as designed and shown on drawings. The cabinet contractor shall include all cabinets, etc., including installation, freight, handling charges, and taxes, delivered to the job site. (Turnkey installation). Any and all damaged cabinets, accessories, etc., either during shipment, storage, or installation will be replaced and/or repaired at no additional cost to the Owner. The General Contractor shall be responsible for the coordination of the installation of these cabinets.
- B. Custom Cabinetwork: Custom, shop or factory built casework, complete with all hardware, accessories, countertops and bases, in sizes and configurations indicated. Contractor to include all charges for sales tax, freight, storage, installation and all materials. Materials to comply with Premium Grade.
1. Style: Flush overlay, with square cornered doors and drawer fronts overlapping and concealing face frames and case fronts with minimum reveal, or reveals, noted on drawings.
 2. Laminated Plastic Cabinets: Provide laminated plastic faced cabinets, per selected colors provided by Architect. See Cabinet plans for locations.

2.02 MATERIALS

- A. Acceptable manufacturers:
1. Plastic laminate:
 - a. Base: Ralph Wilson Plastics, Co. (Wilsonart) and Arborite.
 2. Melamine plastic overlay panel products (Cabinet Liners):
 - a. Base: Flakeboard; Olon Industries Inc.; Roseburg; or Uniboard.
 3. Cabinet Hardware: (See Section 06412 – Cabinet and Drawer Hardware)
 - a. Base: Blum. (No substitutions allowed)

4. Cabinet Pulls:
 - a. "Mockett" satin chrome finish, model no. DP 128-26M (6-11/16" long) located per cabinet plan.
 5. Other manufacturers desiring approval comply with Section 00440.
- B. Plastic laminate: NEMA LD3-1975 high pressure laminate, finish as selected by Architect.
1. All exposed and semi-exposed surfaces: 0.020" minimum thickness.
 2. Provide backer sheet on each plastic laminated item: 0.020" in thickness.
 3. Colors as noted on plans.
 4. Color of laminate on edges: Same as surface of the item.
 5. See "Fabrication-Case Components" for components requiring plastic laminate finish.
- C. Plastic overlay: Thermally fused melamine (TFM); Resin impregnated paper overlay hot press cured onto substrates; with backer/balance sheet.
1. Conform to NEMA LQ-1-1977 requirements for "General Purpose" decorative board (not "Light Duty" liner type).
 2. Satin finish, opaque color.
 3. Resin: Melamine. Polyester or phenolic resin may be used on concealed surfaces.
 4. Color: Per Plans.
 5. Substrates: As indicated below: see "Fabrication-Case Components" for components requiring plastic overlay finish.
- D. Particleboard: ANSI A208-1, mat-formed, 45 PCF density.
1. Grade M-3i: Modulus of rupture: 2176 PSI min.; modulus of elasticity: 362,000 PSI, min.
 2. ASTM E84 flame spread; 25 max.; fuel contributed: 25 max.; smoke developed: 75 max.
 3. Formaldehyde Emission Limits: No greater than .18 ppm.
 4. Flakeboard - "Duraflake"; Roseburg – "Ultrablend"; Sierrapine – "Encore".

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- E. Fiberboard: ANSI A208.2, medium density wood fiberboard 48 PCF density, minimum.
 - 1. Grade 130: Modules of rupture: 3130 PSI min.; modulus of elasticity: 313,000 PSI, min.
 - 2. ASTM E84 flame spread; 25 max.; fuel contributed: 25 max.; smoke developed: 75 max.
 - 3. Formaldehyde Emission Limits: No greater than .21 ppm.
 - 4. Flakeboard - "Premier"; Roseburg – "Synergite"; Sierrapine – "Arreis".
- F. Hardboard: ANSI A135.4, tempered, smooth on both sides.
- G. Plywood: PSI-74, softwood plywood, AA grade.
- H. Subcountertop core: Veneer core, spruce faced plywood.
- I. Hardwood: Solid, S4S; ASTM E84 flame spread: 75 max.
- J. The laminated plastic shall be securely glued to the core with Type I adhesive applied as recommended by the adhesive manufacturer. In addition to meeting the requirements of Type I, the adhesive shall meet the Heat Resistant Test Requirements set forth in the Glossary.

2.03 HARDWARE (See Section 06412 – Cabinet and Drawer Hardware)

- A. Locks: Heavy duty institutional pin tumbler type; latch or cam suitable for application; National Lock M2-0106 series.
 - 1. Provide 2 keys for each lock.
- B. Shelf supports (drilled hole type):
 - 1. Holes drilled at 32 mm. o.c.
 - 2. Shelf clips: Polished chrome; designed to engage securely in holes.

2.04 FABRICATION-CASE COMPONENTS

- A. Finishes for cabinets:
 - 1. All exposed and semi-exposed surfaces:
 - a. Plastic Laminate.

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2. Edges and backs of doors, drawer fronts edges and backs:
 - a. Plastic Laminate.
3. All other interior cabinet faces to be melamine cabinet liner.
- B. Case body members (except backs not exposed): Minimum 3/4" thick particleboard.
 1. Base unit top: Use either full sub-top or web frame.
 2. Web frames: solid lumber with glued mortise and tenon joints.
 3. Provide drawer lock rails at all drawers.
 4. Provide backs on all cabinets.
- C. Unexposed case back: Minimum 3/4" thick particleboard.
- D. Interior Shelves: Minimum 3/4" thick particleboard; 1" thick over 36" between supports. Particleboard to be finished with melamine cabinet liner, all exposed faces and edges.
- E. Doors:
 1. Plastic Laminate Faced – 3/4" particle board.
- F. Drawers:
 1. Plastic Laminate Faced:
 - a. Fronts: 3/4" thick particleboard.
 - a. Sub-front (if used), sides and back: Minimum 1/2" thick, particleboard with melamine cabinet liner finishes.
 - c. Bottom: Minimum 1/2" thick, particleboard with melamine cabinet liner finishes. If bottom is over 18" wide, provide intermediate reinforcing rails.
- G. Case base: Separate or integral.
- H. Small compartment dividers and dust panels: 1/4" thick prefinished Baltic Birch plywood.
- I. Filler panels and scribe pieces:
 - a. Particleboard with plastic laminate as required to fit standard size units to space.

2.05 FABRICATION

- A. Case body: All joints glued.
 - 1. Top and bottom (and fixed horizontals):
Lock-jointed, dadoed or rabbetted into ends/dividers; and screwed; or doweled at approximately 2-1/2" OC.
 - 2. Back: Dadoed or rabbetted into top sides and bottom.
 - 3. Fixed small compartment dividers: Dadoed.
- B. Drawers (with sub-front): All joints glued.
 - 1. All corners: Dovetailed or doweled; or front corners dovetailed and back corners lock-jointed; or sides dadoed for front and back and all joints nailed, stapled or screwed.
 - 2. Bottom: Dadoed into all 4 sides.
 - 3. Front: Screwed onto sub-front.
 - 4. Top edges of drawer box rounded.
- C. Drawers (without sub-front): All joints glued.
 - 1. Front corners dovetailed or doweled.
 - 2. Back corners: Dovetailed, doweled, or lock-jointed; or sides dadoed for back and corner nailed or screwed.
 - 3. Bottom: Dadoed into all 4 sides.
 - 4. Top edges of drawer sides and back rounded.
- D. Use no blocking or fasteners in exposed or semi-exposed locations.

2.06 CASE CONFIGURATION

- A. Similar reveal (3/32") at all sides, top and bottom of doors and drawer fronts, and between doors and drawer fronts in same unit, except where noted on drawings.
- B. Double door units: No vertical rail or divider between doors unless called for or unless locks are called for.
- C. Toe space: 4" high (5" for tile floors) by approximately 3" deep; provide on front of each base unit unless otherwise noted on drawings.

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- D. Subcountertop: Set flush with face of frame to allow for quartz solid surfaces where specified.

- E. Mounting of Cabinet Pulls:
 - 1. Drawers: See drawings.
 - 2. Swinging doors: See drawings.

- F. Adjustable shelves: Use drilled hole supports.
 - 1. Depth: 1/4" less than inside cabinet depth.
 - 2. Width: 1/8", maximum, less than inside cabinet width.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine conditions under which products are to be installed.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 INSTALLATION

- A. Use manufacturer's printed instructions or drawings in all cases where items or details are not indicated.
- B. Provide all trim, fillers, closures, stands, supports, sleeves, collars, escutcheons, ferrules, brackets, braces or other miscellaneous items required for complete installation.
- C. Provide all built in lighting specified on drawings. Coordinate with electrical contractor for connections and switching.

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3.03 ADJUST AND CLEAN

- A. Repair all damage done to premises, and remove all debris left by this installation.
- B. Test and adjust for satisfactory operation.
- C. Adjust hinges so doors hang straight.

END OF SECTION

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SECTION 06412

CABINET AND DRAWER HARDWARE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Hinge systems.
- B. Drawer runner systems.

1.02 RELATED SECTIONS

- A. Section 06410 – Architectural Cabi network.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01340.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.04 REFERENCES

- A. ANSI/BHMA - Meets Grade 1 requirements for cycle life, static load and self-closing performance.

1.05 QUALITY ASSURANCE

- A. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Architect.
 - 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

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3. Refinish mock-up area as required to produce acceptable work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approved Manufacturer: Blum, Inc., which is located at: 7733 Old Plank Rd., Stanley, NC 28164. Toll Free: 800-438-6788. Phone: 704-827- 1345. Fax: 704-827-0799. Web: www.blum.com E-mail: sales.us@blum.com
- B. Requests for substitutions will be considered in accordance with provisions of Section 00440.

2.02 CONCEALED HINGES

- A. Approved Product: Blum Clip Top Concealed Hinges.
 1. Model Numbers: 70T5550.TL.
 2. Cabinet Construction: Panel (frameless).
 - a. Flush Overlay.
 3. Hinge Type:
 - a. Straight-arm.
 4. Closing: Free Swing.
 5. Mounting: Screw-on.

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6. Angle:
 - a. 120 degree.
7. Suitable for Door Type:
 - a. Thick door - twin.
8. Hinges per Door:
 - a. Two, min.
9. Cover Caps:
 - a. Nickel plated steel.

2.03 DRAWER RUNNER SYSTEMS

- A. Approved Product: Blum Standard Drawer Runners.
 1. Model Number: Standard 430E Drawer Runners.
 2. Cabinet Construction: Panel (frameless) with the following drawer type:
 - a. Flush Overlay.
 3. Runner Type:
 - a. Full extension, bottom mounted with stay closed detents and lockout stops.
 4. Closing: Free Runners with closed detents.
 5. Mounting: Screw-on.
 6. Drawer Length:
 - a. See Cabinet plans. Provide appropriate length to each drawer (Lengths are between 10" and 32").
 7. Drawer Side Thickness:
 - a. Up to 5/8 inch (16 mm).
 8. Drawer Weight Capacity:
 - a. 75 pounds dynamic/100 pounds static (34/45 kg).

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9. Finish:
 - a. Epoxy Coated Steel – White.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

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

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

3.04 PROTECTION

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

END OF SECTION

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SECTION 06651

SOLID SURFACE FABRICATIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following vertical solid surface product types:

1. Countertops and backsplash conditions.

- B. Related Sections include the following:

1. Division 1 Section "Building Commissioning" for additional LEED requirements.
2. Section 06100 – Rough Carpentry (for blocking).
3. Section 06200 – Finish Carpentry.
4. Section 06410 – Architectural Cabinetwork

1.03 DEFINITION

- A. Solid surface is defined as nonporous, homogeneous material maintaining the same composition throughout the part with a composition of acrylic polymer, aluminum trihydrate filler and pigment.

1.04 SUBMITTALS

- A. Product data:

1. For each type of product indicated.
2. Product data for the following:
 - a. Chemical-resistant tops

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B. Shop drawings:

1. Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices and other components.
 - a. Show full-size details, edge details, thermoforming requirements, attachments, etc.
 - b. Show locations and sizes of furring, blocking, including concealed blocking and reinforcement specified in other Sections.
 - c. Show locations and sizes of cutouts and holes for plumbing fixtures, faucets, soap dispensers, waste receptacle and other items installed in solid surface.

C. Samples:

1. For each type of product indicated.
 - a. Submit minimum 6-inch by 6-inch sample in specified gloss.
 - b. Cut sample and seam together for representation of inconspicuous seam (edge seams and Tongue and Groove joints)
 - c. Indicate full range of color and pattern variation.
2. Approved samples will be retained as a standard for work.

D. Product data:

1. Indicate product description, fabrication information and compliance with specified performance requirements.

E. Maintenance data:

1. Submit manufacturer's care and maintenance data, including repair and cleaning instructions.
 - a. Maintenance kit for finishes shall be submitted.
2. Include in project closeout documents.

F. LEED Submittals:

1. Product Data for Credit EQ 4.1: For installation adhesives, including printed statement of VOC content.

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2. Product Data for Credit EQ 4.4: For adhesives, documentation showing that the adhesive contains no urea formaldehyde.
3. Credit MR 4: For products having recycled content, provide documentation indicating percentages, by weight, of post-consumer and pre-consumer recycled content. Include statement indicating costs for each product having recycled content.
4. Credit MR 5: Identify each regional material along with the location of its harvest, extraction, or manufacture. Include material cost for each item.

1.05 QUALITY ASSURANCE

A. Qualifications:

1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.

B. Fabricator/installer qualifications:

1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.

C. Applicable standards:

1. Standards of the following, as referenced herein:
 - a. American National Standards Institute (ANSI)
 - b. American Society for Testing and Materials (ASTM)
 - c. National Electrical Manufacturers Association (NEMA)
 - d. NSF International
 - e. ASTM G21 "Fungal Resistance", No Growth
 - f. ASTM G22 "Bacterial Resistance", No Growth.
 - g. Stain Resistance, ANSI Z124-6-5.2 1997.
2. Fire test response characteristics:
 - a. Provide with the following Class A (Class I) surface burning characteristics as determined by testing identical products per UL 723 (ASTM E84) or another testing and inspecting agency acceptable to authorities having jurisdiction:

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- 1) Flame Spread Index: 25 or less.
- 2) Smoke Developed Index: 450 or less.

D. Drawings shall:

1. Be produced in 1/2-inch scale for all fabricated items.

E. Job mock-up:

1. Prior to fabrication of architectural millwork, erect sample unit to further verify selections made under sample submittals and to demonstrate the quality of materials and execution.
2. Build the mock-up to comply with the contract documents and install in a location as directed by the architect.
3. Notify the architect two weeks in advance of the date of when the mock-up will be delivered.
4. Should mock-up not be approved, re-fabricate and reinstall until approval is secured.
 - a. Remove rejected units from project site.
5. After approval, the mock-up may become a part of the project.
6. This mock-up, once approved, shall serve as a standard for judging quality of all completed units of work.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver no components to project site until areas are ready for installation.
- B. Store components indoors prior to installation.
- C. Handle materials to prevent damage to finished surfaces.
 1. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.07 WARRANTY

- A. Provide manufacturer's warranty against defects in materials:
 1. Warranty shall provide material and labor to repair or replace defective materials.

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2. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.
3. Warranty shall be transferable to subsequent owner for remainder of warranty period.

B. Manufacturer's warranty period:

1. Ten years from date of substantial completion.

1.08 MAINTENANCE

- A. Provide maintenance requirements as specified by the manufacturer.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers:

1. Subject to compliance with requirements, provide products by the following:
 - a. Basis of Design - Formica Solid Surfacing, Formica Corp, Cincinnati, OH.

2.02 MATERIALS

A. Solid polymer components

1. Homogeneous solid sheets of filled plastic resin complying with ISSFA, through body colors meeting ANSI Z124.3 or ANSI Z124.6, having minimum physical and performance properties specified.
2. Superficial damage to a depth of 0.010 inch (.25 mm) shall be repairable by sanding and/or polishing.

B. Thickness:

1. 1/2 inch

C. Edge treatment:

1. Exposed edges shall have a 3/8" radius per details.

2. Mounting:

- a. Use 100% silicone bonding adhesive to walls.

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E. Performance characteristics:

Property	Typical Result	Test
Tensile Strength	6,000 psi	ASTM D 638
Tensile Modulus	1.5×10^6 psi	ASTM D 638
Tensile Elongation	0.4% min.	ASTM D 638
Flexural Strength	10,000 psi	ASTM D 790
Flexural Modulus	1.2×10^6 psi	ASTM D 790
Hardness	>85 Rockwell "M" Scale	ASTM D 785
Thermal Expansion	3.02×10^{-5} in./in./°C (1.80×10^{-5} in./in./°F)	ASTM D 696
Gloss (60° Gardner)	5–75 (matte—highly polished)	ANSI Z124
Light Resistance	(Xenon Arc) No effect	LD 3-2000 Method 3.3
Fungus and Bacteria Resistance	Does not support microbial growth	ASTM 21&G22
Boiling Water Resistance	No visible change	LD 3-2000 Method 3.5
High Temperature Resistance	No change	LD 3-2000 Method 3.6
Izod Impact (Notched Specimen)	0.28 ft.-lbs. /in. of notch	ASTM D 256 (Method A)
Ball Impact	No fracture—1/2 lb. ball:	LD 3-2000
Resistance: Sheets	1/4" slab—36" drop 1/2" slab—144" drop	Method 3.8
Weatherability	$\Delta E^*_{94} < 5$ in 1,000 hrs.	ASTM G 155
Specific Gravity †	1.7	
Water Absorption	Long-term	ASTM D 570

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	0.4% (3/4")	
	0.6% (1/2")	
	0.8% (1/4")	
Toxicity	99 (solid colors)	Pittsburgh
Flammability	All colors (Class I and Class A)	ASTM E 84, NFPA 255 & UL 723
Flame Spread Index	<25	
Smoke Developed Index	<450	

† Approximate weight per square foot: 1/2" (12.3 mm) 4.4 lbs.

2.03 ACCESSORIES

A. Joint adhesive:

1. Use Formica Solid Surfacing Seaming Cartridges, 9 ounce, color to blend in with solid surface material, to create inconspicuous, nonporous hardseamed joints.

B. Sealant:

1. Manufacturer's standard mildew-resistant, FDA-compliant, NSF 51-compliant (food zone — any type), UL-listed sealant in colors matching components.

2.04 FACTORY FABRICATION

A. Shop assembly

1. Fabricate components to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and manufacturer's printed instructions and technical bulletins.
2. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.
 - a. All horizontal joints shall be tongue and groove joints in accordance with DuPont Surfaces Technical Bulletin for Commercial Interior Surface Installations.

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3. Provide factory cutouts for electrical devices and accessories as indicated on the drawings.
4. Rout and finish component edges with clean, sharp returns.
 - a. Rout cutouts, radii and contours to template.
 - b. Smooth edges.
 - c. Repair or reject defective and inaccurate work.

2.05 FINISHES

- A. Select from the manufacturer's standard color chart.
 1. Color (See cabinet drawings for location of colors):
 - a. Formica Classics – "Gold Nugget" #450.
 - b. Formica Designer Series – "Treasure Artifacts" #802.
- B. Finish:
 1. Provide surfaces with a uniform finish.
 - a. Matte finish, gloss range of 5–20.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install components plumb, level and rigid, scribed to adjacent finishes, in accordance with approved shop drawings and product data.
 1. Provide product in the largest pieces available.
 2. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work.
 - a. Exposed joints/seams shall not be allowed.

Solid Surface Fabrications
06651-8

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3. Cut and finish component edges with clean, sharp returns.
4. Rout radii and contours to template.
5. Align adjacent wall panels form hardseams to comply with manufacturer's written recommendations using adhesive in color to match panel.
6. Carefully dress joints smooth, remove surface scratches and clean entire surface.

3.03 REPAIR

- A. Repair or replace damaged work which cannot be repaired to architect's satisfaction.

3.04 CLEANING AND PROTECTION

- A. Keep components clean during installation.
- B. Remove adhesives, sealants and other stains.

END OF SECTION

DIVISION 7
THERMAL AND MOISTURE PROTECTION

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SECTION 07110

SHEET MEMBRANE WATERPROOFING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all areas within the building area, in accord with provisions of Contract Documents.
 - a. All under slab vapor barriers.
 - b. All vertical or horizontal waterproofing surfaces, including below grade walls and planter walls.
 - c. All shower pan membranes.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 JOB CONDITIONS

- A. Install after substrate construction and penetrating work has been completed, and all defective work is corrected.
- B. All surfaces shall be properly prepared to receive waterproofing in accordance with manufacturer's recommendations. All concrete shall be properly cured and dried.
- C. All components of the waterproofing system must comply with applicable State of California Volatile Organic Compound (VOC) regulations.

1.03 SUBMITTALS (See Section 01340)

A. Project data:

1. Guarantee
2. Manufacturer's specifications and installation instructions
3. Certificate of application qualifications

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- B. Samples of each material specified.

1.04 GUARANTEE

- A. Provide written guarantee signed jointly by applicator and manufacturer.
- B. Guarantee installation and product for a period of 10 years from date of acceptance by Owner.
- C. Guarantee waterproof integrity of installation, adhesion to substrate and surface degradation.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Vapor barrier:
 - a. Base: Visqueen, Griffolyn, or acceptable equal substitution.
 - 2. Waterproofing Systems:
 - a. Base: Bituthene System 4000 as manufactured by W.R. Grace and Co.
 - 4. Other manufacturers desiring approval comply with Section 01640.
- B. Vapor barrier: Polyethylene film.
 - 1. 6 Mil thick, Griffolyn type-65 3-ply laminated manufactured by Reef Industries.
 - 2. Black color.
 - 3. Vapor transmission not exceeding 0.15 perm .
- C. Vapor barrier tape: Polyethylene tape.
 - 1. 4" (100 mm) wide.
 - 2. Griff Tape – Black (#60-0003) manufactured by Reef Industries.

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D. Waterproofing System:

1. Bituthene System 4000 Waterproofing Membrane; A self-adhesive, cold-applied, composite sheet (1.4mm) product consisting of a cross-laminated high density polyethylene film (.1mm). The rubberized asphalt is specifically formulated to adhere to substrates conditioned with water based surface conditioner.
2. Bitustik: A preformed two-sided, self-adhering bituminous rubber compound in tape form. (See Section 07620) for related use.

PART 3 - EXECUTION

3.01 INSTALLATION (UNDER SLAB BARRIER)

- A. Place continuous vapor barrier over finished sub-grade (finish pad elevation). Place 2" thick compacted, clean mortar sand over vapor barrier.
 1. Lap vapor barrier 6" at ends and edges of sheets and seal with vapor barrier tape.
 2. Extend to extremities of area.
- B. Protect vapor barriers so that work of other trades does not puncture, damage or deteriorate vapor barrier.
- C. Repair all punctures, tears and other damage using vapor barrier tape, prior to placing concrete.
- D. Coordinate with Division 2 and 3 requirements and construction.
- E. Trim off excess material after slab is placed.

3.02 INSTALLATION (WATERPROOFING SYSTEM)

- A. All surfaces to receive waterproofing shall be structurally sound and free of voids, spalled areas, loose aggregate, grease, oil, wax, dust, dirt, and debris, described in the Bituthene General Waterproofing Specification.

END OF SECTION

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SECTION 07210

BUILDING INSULATION

PART 1 - GENERAL

1.01 CONDITIONS AND REQUIREMENTS

- A. The General Conditions, Supplementary Conditions, and Division 1 – General Requirements apply.

1.02 SECTION INCLUDES

- A. Formaldehyde-free fiberglass thermal and sound control insulation made with non-toxic acrylic thermosetting resin.
- B. Weather Barrier Material

1.03 RELATED SECTIONS

- A. Section 07546 – Coated Foam Roofing.
- B. Division 15 - Mechanical: Duct insulation, and pipe insulation.

1.04 REFERENCES

- A. ASTM International Inc. (ASTM):
 1. ASTM C165 - Test Method for Measuring Compressive Properties of Thermal Insulations.
 2. ASTM C411 - Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
 3. ASTM C612 - Specification for Mineral Fiber Block and Board Thermal Insulation.
 4. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2001.
 5. ASTM C764 - Specification for Mineral Fiber Loose-Fill Thermal Insulation.

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6. ASTM C1015 - Practice for Installation of Cellulosic and Mineral Fiber Loose-Fill Thermal Insulation.
7. ASTM C1104 - Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
8. ASTM C1304 - Standard Test Method for Assessing the Odor Emission of Thermal Insulation Materials.
9. ASTM C1320 - Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation.
10. ASTM C1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
11. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2001.
12. ASTM E96 - Test Methods for Water Vapor Transmission of Materials.
13. ASTM E119, - Test Methods for Fire Tests of Building Construction and Materials.
14. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C; 1999.
15. ASTM E970 - Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source.
16. ASTM E-1677-95 – Standard Specification for an Air Retarder (AR) Material or System for Low-Rise Framed Building Walls.
17. ASTM D-779 – Dry Indicator Method, Water Penetration Resistance.
18. ASTM D-5733-9 – Trapezoidal Test.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01340.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Test data showing compliance of products with specified requirements.
 2. Preparation instructions and recommendations.
 3. Storage and handling requirements and recommendations.

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4. Installation methods.
5. Test results showing performance characteristics equaling or exceeding those specified.

1.06 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source.
- B. Fire-Test-Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 6. Surface-Burning Characteristics : ASTM E84.
 7. Fire-Resistance Ratings: ASTM E119.
 8. Combustion Characteristics: ASTM E136.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Insulation Manufacturer:
 1. Knauf Insulation, One Knauf Drive, Shelbyville, IN 46176; Toll free Tel: 800-825-4434; Fax: 317-398-3675; www.knaufinsulation.com.
- B. Acceptable Weather Protection Wrap Manufacturer: Fiberweb, Inc., 70 Old Hickory Blvd., Old Hickory, TN 37138, Tel: (800) 284-2780, www.typar.com.
- C. Requests for substitutions will be considered in accordance with Section 01600.

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2.02 INSULATING MATERIALS - GENERAL

- A. General: Provide insulating materials that comply with requirements and with referenced standards.
 - 1. Preformed Units: Sizes to fit applications indicated; selected from manufacturer's standard thicknesses, widths, and lengths.
- B. Recycled Content:
 - 2. Provide insulating materials with post-consumer recycled content constituting a minimum of five (5) percent of cost of materials used for project or post-consumer recycled content plus one-half of pre-consumer recycled content constituting a minimum of 10 percent of cost of materials used for project.

2.03 FORMALDEHYDE-FREE INSULATING MATERIALS

- A. Formaldehyde-Free Unfaced Glass-Fiber Batt Insulation: "EcoBatt" Formaldehyde-Free Unfaced Batts; ASTM C665, Type I, Class A, non-combustible when tested in accordance with ASTM E136; with maximum flame-spread and smoke-developed indices of 25 and 50, respectively; and of the following properties:
 - 3. Thermal Resistance (R-Value): (5 ½" thick) R21 (High Density) in all exterior walls and (12" thick) R38 in all roof/ceiling assemblies.
 - 4. Combustion Characteristics: Passes ASTM E136.
 - 5. Critical Radiant Flux: ASTM E970, greater than 0.11 Btu/sq ft s (0.12 W/cm sq).
 - 6. Water Vapor Sorption: ASTM C1104, 5 percent or less.
 - 7. Odor Emission: Passes ASTM C1304.
 - 8. Corrosiveness: Passes ASTM C665.
 - 9. Fungi Resistance: Passes ASTM C1338.
 - 10. Recycled Content: Certified by Scientific Certification Systems to contain minimum of 18 percent post-consumer and seven (7) percent pre-consumer recycled glass product, on average of manufacturer's products.
 - 11. Thickness: 6" for all exterior walls and 12" for all roof/ceiling assemblies.

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- B. Acoustical Batt Insulation: “EcoBatt” Glass fiber insulation complying with ASTM C665; non-combustible when tested in accordance with ASTM E136: Knauf Quiet Therm.
1. Size: Maximum sizes available to avoid jointing to greatest extent possible.
 2. Stud Walls and Rafter Spaces: Maximum thicknesses to fit wall thickness and rafter depths. Install in all interior walls.
 3. Facing: None, unfaced; ASTM C665, Type 1, Class A.
 - a. Surface Burning Characteristics: Maximum flame spread of 25, developed smoke developed of 50, when tested in accordance with ASTM E84.
 - b. Noise Reduction Coefficient: 1.00, when tested on 2” samples in accordance with ASTM C423.
 4. Facing: Kraft paper faced; ASTM C665, Type II, Class C; extra wide stapling flanges.
 5. VOC Emission: Low VOC emission certified by GreenGuard Environmental Institute.

2.04 INSULATION ACCESSORIES

- A. Tape: Self-adhesive vapor retarder tape with flame spread index of 25 or less, smoke developed index of 50 or less.

2.05 WEATHER PROTECTION BUILDING WRAP

- A. Water Resistant Barrier.
1. Spun-bonded Polypropylene Weather Membrane with a microporous coating, non-woven, non-perforated.
 2. Performance characteristics:
 - a. Gurley Hill TAPP T-460 > 2500.
 - b. Water Transmission > 5 perms and < 20 perms as tested by ASTM E-96-90, Method A.
 - c. Water penetration resistance of 865 cm on hydrostatic head in accordance with AATCC-127.

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- d. Trapezoidal Test of 30/33 in accordance with ASTM D-5733-9.
 - e. Air-ins < .021/S-M @75PA.
 - f. Dry Indicator Method STM D-779 = to 24 hour rating.
 - g. Flame Spread Index = 0.
 - h. Smoke Developed Index = 30.
3. Base product:
- a. Typar Weather-Protection Membrane by BBA Fiberweb.
- B. Sealing Tape/Fasteners.
1. Approved tape products:
- a. Typar Contractor Tape, by BBA Fiberweb.
2. Sealants:
- a. Elastomeric polymer based Butyl rubber, rubber based, and meeting ASTM C920 evaluation.
3. Fasteners for wood studs, plywood, insulating sheathing board, or exterior gypsum board:
- a. Plastic cap nails or plastic cap staples.
4. Fasteners for steel framing members:
- a. Rust resistant screws with washers.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for Sections in which substrates and related work are specified and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

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3.02 PREPARATION

- A. Clean substrates of substances harmful to insulations or weather protection system, including removing projections capable of puncturing weather protection system or of interfering with insulation attachment.

3.03 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.
- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice and snow.
- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- D. Water-Piping Coordination: If water piping is located on inside of insulated exterior walls, coordinate location of piping to ensure that it is placed on warm side of insulation and insulation encapsulates piping.
- E. Apply single layer of insulation to produce thickness indicated, unless multiple layers are otherwise shown or required to make up total thickness.

3.04 INSTALLATION OF GENERAL BUILDING INSULATION

- A. Seal joints between closed-cell (non-breathing) insulation units by applying adhesive, mastic, or sealant to edges of each unit to form a tight seal as units are shoved into place. Fill voids in completed installation with adhesive, mastic, or sealant as recommended by insulation manufacturer.
- B. Install glass-fiber blankets in cavities formed by framing members according to the following requirements:
 - 1. Use blanket widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill cavity, provide lengths that will produce a snug fit between ends.
 - 2. Place blankets in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
- C. For wood-framed construction, install mineral-fiber blankets in accordance with ASTM C1320 and as follows:

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1. With faced blankets having stapling flanges, secure insulation by friction fit inset or face stapling flanges to sides of framing members.
 2. With faced blankets having stapling flanges, lap blanket flange over flange of adjacent blanket to produce airtight installation after concealing finish material is in place.
- D. Acoustical Insulation Installation: Install insulation where indicated in sound rated assemblies. Maintain acoustical rating of assembly.
- E. Between Open Trusses: Secure with 16 or 18 GA wire running perpendicular to the insulation spaced at 24" o.c.
- F. Board Insulation Installation: Install insulation where indicated:
1. Cut and friction fit insulation between vertical or z-shaped framing.
 2. Alternatively install insulation on impaling pins or with suitable adhesives.
 3. Place pins 3 to 5 inches (76-127 mm) from edges of insulation.

3.05 INSTALLATION OF WEATHER PROTECTION SYSTEM

- A. General: Extend weather protection membrane to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage system as indicated. Extend weather protection membrane to cover miscellaneous voids in insulated substrates.
- B. Seal vertical and horizontal joints of weather protection membrane over framing or plywood sheathing by lapping not less than two wall studs horizontally and 12" vertically. Fasten weather protection membrane to framing at top, end, and bottom edges; at perimeter of wall openings; and at lap joints. Space fasteners 16 inches (406 mm) oc.
- C. Seal overlapping joints in weather protection membrane with adhesives or tape according to weather protection membrane manufacturer's instructions. Seal butt joints and fastener penetrations with weather protection membrane tape. Locate all joints over framing members or other solid substrates.
- D. Firmly attach weather protection membrane to substrates with mechanical fasteners or adhesives as recommended by weather protection membrane manufacturer.
- E. Seal joints caused by pipes, conduits, electrical boxes, and similar items penetrating weather protection membrane with weather protection membrane tape to create an airtight seal between penetrating objects and weather protection membrane.

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- F. Repair any tears or punctures in weather protection membrane immediately before concealment by other work. Cover with weather protection membrane tape or another layer of weather protection membrane.

3.06 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION

SECTION 07546

COATED FOAMED ROOFING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. This specification covers the preparation and application to roof surfaces of a monolithic, spray applied rigid urethane foam and roof coating which shall be a composite roof system.
- B. This system shall provide an insulative value and shall provide a waterproof weather barrier possessing adhesion and physical bond strength to substrate. This system shall maintain hydraulic stability without age-hardening or slump.
- C. The applicator shall furnish all labor, materials and equipment and perform all operations required as specified. The plans and specifications do not necessarily include all minor details. The Contractor shall provide labor and material customarily included in work of the same general nature to give a first class complete job.
- D. The Contractor shall, at all times, keep the premises free from accumulation of waste material or rubbish, maintain work area in a neat, orderly manner, and leave the premises in a broom clean condition at the completion of all work.
- E. Installation of foam roofing system shall be by a qualified licensed foam roofing contractor, approved by the manufacturer to install his roofing materials, and shall be in strict accordance with the manufacturer's specifications and recommendations.

1.02 WORK INCLUDED UNDER THIS SECTION

- A. The principal items of work included in this section are:
 - 1. Urethane Foam
 - 2. Fluid Applied Membrane
 - 3. Granules

1.03 RELATED WORK SPECIFIED ELSEWHERE

- A. Sheet Metal Flashing and T rim – Section 07620.
- B. Roof vent flashing provided and installed under mechanical and electrical work.
- C. Roof drains and downspouts.

1.04 QUALITY ASSURANCE

- A. **Manufacturer:** For the purpose of defining quality of the work and materials in this section.
 - 1. For the work intended, the URETHANE FOAM AND FLUID APPLIED COATING shall have been tested and classified by Underwriter's Laboratories, Inc. as a roof deck composite in accordance with U.L. 790.
 - 2. In addition, the sprayed URETHANE FOAM shall have a nominal "in place" density of 3.0 P.C.F. and be classified and listed by U.L. as Class A, 75 (max.) Flame Spread, in accordance with U.L. 723 (ASTM E-84).
- B. **Applicator:** Application shall be by a properly qualified applicator with basic knowledge of these products and who has contacted the manufacturers for proper application procedures. Applicator should have a minimum of 5 years experience in installation of these systems.

1.05 SUBMITTALS (SEE SECTION 01340)

- A. **Manufacturer's Data:** Within 30 days after signing of contract, this Contractor shall submit 5 copies of application instructions and precautions, and manufacturer-contractor warranty. Such submittals, once approved and accepted, shall become a part of this Specification Section.
- B. **Materials or formulation types other than that specified shall be submitted to the Architect for approval not later than ten (10) days prior to bid date. Request shall be accompanied with notarized certification and test data delineating physical properties, coated urethane foam sample and warranty. Certification shall state that all tests have been conducted according to this specification.**
- C. **Samples:** Submit three samples of the proposed coating system applied on urethane foam. Samples shall be 2" x 4" in size.
- D. **Certification of Manufacturer:** Submit on corporate letter head, a letter from the manufacturer of the foam and coating stating that the applicator of this product is an approved applicator.

1.06 PRODUCT HANDLING AND STORAGE

- A. **Products shall be delivered in manufacturer's original sealed containers, with seals and labels intact.**
- B. **Store materials in an enclosed space protected from weather and out of the direct rays of the sun.**

- C. Do not ship or store materials unless protection against freezing (32 degrees F) is available.

1.07 INSPECTION AFFIDAVIT AND WARRANTY

- A. Install work in strict accordance with the manufacturer's directions for conditions involved. After all surfaces have been prepared to receive foam, a manufacturer's representative shall verify that surfaces meet requirements of the specifications. Spray foam manufacturer shall visit job site and take core samples to verify foam density and quality and verify that specifications are being met.
- B. Warranty: contractor shall supply the manufacturer's standard 5 year warranty on coating material and a 5 year warranty from the Contractor covering labor. The Contractor shall provide copies of all field inspection reports from the manufacturer of the coating to conform to the requirements to receive the warranty.
- C. After the protective coating has been applied an authorized representative of the coating manufacturer shall verify that the coating thickness is as called for in the contract documents. These thickness tests shall be taken a minimum of one every 1000 sq. ft. or at random locations as selected by the Architect. Verification shall be forwarded to the Architect.
- D. If deficiencies are found in application, the Contractor shall repair the work to the full satisfaction of the manufacturer's representative and Architect before proceeding with next phase of work.
- E. Upon satisfactory completion of the application, the manufacturer shall inspect the total installation and advise the Architect and Contractor of any deficiencies as it relates to the total system for corrective measures. Contractor shall correct all deficiencies before warranty is to be issued.

1.08 INSURANCE

This Contractor shall carry the proper fire insurance coverage due to the use and application of a flammable material. Certificates of insurance covering such possible fire damage shall be submitted to the Architect for approval prior to commencing any foam application. Certificates shall be submitted along with other submittal documents.

1.09 REBATES (SEE SECTION 01340 FOR SUBMITTALS)

The Roofing Contractor shall include in the scope of the work the obtaining of all documents required for the processing and obtaining of all rebates (if available) with the County of Riverside, State of California, and Imperial Irrigation District, as well as all federal and state tax credits that may qualify due to the "cool roof" designation of this roofing system. The roofing contractor shall submit all documentation to the General Contractor who shall submit all documentation to the Architect for review and signature

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by the Owner. Final Payment to the Roofing Contractor shall not be made until all rebates and tax credit documentation has been completed and submitted to the Owner.

PART 2 - PRODUCTS

2.01 APPROVED MANUFACTURERS

- A. Roofing Manufacturers: The following materials shall all be supplied by one manufacturer. Approved manufacturers are: RTC (Resin Technology Corporation) ICC-ESR # 2132.
- B. Roof Walking Pads: Malarkey Roofing Products
- C. Substitutions: No substitutions during bidding. Substitutions will be considered after bidding in accordance with section 01640.

2.02 MATERIALS:

- A. Primers: They will include the following:

<u>Substrate</u>	<u>Primer</u>
Galvanized Steel	Wash Primer
Plywood or Wood	"Acryprime"

- B. Sprayed Polyurethane Foam: RTC #RT2035- 2.5/3.0. Material shall be a two-component liquid applied sprayable type polyurethane foam. Application shall result in a high quality rigid urethane foam roofing: 3.0 lb. core density conforming to ASTM D-1622 Class B label over combustible decks. 1" minimum thickness, with additional thicknesses and slopes as noted on Drawings.

MINIMUM PHYSICAL PROPERTIES OF THE FOAM

<u>PROPERTY</u>	<u>TEST UNIT</u>	<u>VALUE</u>	<u>TEST METHOD</u>
Nominal Density	lbs./cu.ft.	3.0	ASTM D1622
Compressive Strength - Parallel	psi	45	ASTM F1621
Tensile Strength - Parallel	psi	55	ASTM D1623
Shear Strength - Perpendicular	psi	45	ASTM C273
K Factor (aged)		0.169	ASTM C177
Water Absorption	gm/cc	0.017	ASTM D2842
Water Vapor Transmission	Perms	1.9	ASTM C355

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Flammability	Flame Spread	30	ASTM E84
Closed Cell Content		90% Min.	ASTM D1940

C. Fluid Applied Membrane: The fluid applied membrane shall be a 100% acrylic elastomer coating. The product shall be Permax 108 as manufactured by Henry Company (Resin Technology Co.), Ontario, California with the following typical physical properties:

<u>Physical Properties</u>	<u>Test Method</u>	<u>Value</u>
Solids (by volume)	Calculated	60%
Tensile Strength	ASTM D-6083	273 ± 100
Elongation To Break	ASTM D-6083	240 ± 100
Permeance	ASTM D-1653	6.0 perms.
Emittance (Bright White)	ASTM C-1371	.89
Emittance (With White Granules 35 lbs/sq)		.94
Reflectance (Bright White)	ASTM C-1549	85% ± 1%
Reflectance (With White Granules 35 lbs/sq)		73% ± 1%
Cool Roof Council Rating (Bright White Color)		CRCR # 0620-0022a
a. Solar Reflectance		.86
b. Thermal Emittance		.90
Cool Roof Council Rating (Bright White Granules)		CRCR # 0620-0026
a. Solar Reflectance		.74
b. Thermal Emittance		.94
Accelerated Weathering	ASTM D-822	8000 hours
Flammability	UL 790	
	Combustible Deck	Class B
	Non-Combustible Deck	Class A
	ASTM E-108	
	Combustible Deck	Class B
	Non-Combustible Deck	Class A

D. Granules: #12 Grade calcite rock granules; white color; specific gravity of 2.7; pH level of 9.0; and a density of 180 lbs/cu.ft.

- E. Walking Pads: Malarkey #141 Recycled rubber walkboard pads, to be used as a walk pad for traffic areas on the roof around the roof hatch and rooftop HVAC units as located on the roof plan. Rubber content is 100% recycled tires and binders. Pads are colored black, 3/8" thick and 36" wide x 48" long and have a weight of 16 lb. per pad.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION - GENERAL

- A. Any roof deck that is to receive sprayed urethane foam shall be securely fastened to the building structure.
- B. Remove any contaminants that will interfere with total adhesion of sprayed urethane foam to the substrate. Surface shall be free of loose particles, rust, scale, grease, dirt, latience, paint or other contaminants.
- C. A dry surface is one that is free of visible moisture and that when tested with a moisture meter registers a reading of less than ten percent.
- D. No foam shall be sprayed on a roof deck if the deck temperature is within five (5) degrees of the dew-point.
- E. Sprayed foam shall not be applied on a roof deck surface having a measured temperature less than 50 degrees F.
- F. All surfaces not to receive foam such as wall, air conditioners and other roof mounted equipment are to be carefully masked with tape and paper to avoid overspraying of these surfaces with foam and coating. All coating is to be terminated in clean straight lines.
- G. All new edge metal or flashings shall be installed at the surface preparation stage.

3.02 PRIMING OF SURFACES

- A. All roof surfaces shall be primed with 1/2 gallon per 100 square feet of primer.

3.03 APPLICATION

- A. Sprayed Polyurethane Foam
 - 1. All equipment for the application of polyurethane foam shall be specifically designed for the metering of two component polyurethane foam systems. The system shall be airless and shall have both primary and hose heaters.
 - 2. Wind velocity shall not exceed 10 miles per hour.

3. Application of spray foam shall not proceed if ambient temperature is less than 50 degrees F.
4. Spray foam is not to be applied over moist substrates or where rain or inclement weather is imminent.
5. The polyurethane foam shall be applied to a minimum (1") one inch thickness. Refer to drawings for additional foam thickness.
6. Only as much area as can be brought to final thickness should be attempted in a day. Phasing of the foam is strictly forbidden. (Phasing is foam application on one day and coming back the next day or thereafter and applying another layer of foam. The procedure often leads to the development of blisters in the future.) If additional foam must be added after the 24 hour period, the existing foam must be primed with a catalyzed urethane primer and a minimum of one half inch of foam in a single pass can be applied.
7. The foam shall be free of bumps, pinholes, and ridges. The surface shall exhibit a smooth or orange peel surface texture. Popcorn or tree bark surfaces shall be deemed unacceptable.
8. The foam thickness shall be checked every 500 square feet prior to coating application.
9. Filleting of foam to parapet walls, vents, roof mounted equipment, etc., shall provide a relatively smooth transition to the roof deck, shall be of uniform cross-section thickness and shall meet all other foam surface texture requirements. Utilize power grinder at all transition areas to provide for smooth transition to drains, and at parapet edges.

D. Fluid Applied Membrane:

1. After polyurethane foam has been applied, the roof coating shall be sprayed onto the foam utilizing airless equipment. Edges of flat roof should be precoated in a "picture framing" fashion.
2. Refer to Manufacturer's Application Instructions and Precautions data sheet for specific details on:
 - a. Mixing
 - b. Recommended spray equipment
 - c. Spray techniques
 - d. Cold and hot temperature precautions during application

3. Coating shall be applied in three separate coats to insure uniform coverage and a pinhole-free continuous film. The base coat shall be of contrasting colors to the top coat. The initial base coat shall be 10 mils in thickness and the second base coat shall be 10 mils in thickness. The top coat shall be applied at a rate of 1.5 gallons per 100 square feet. The total thickness shall be 32 mils. While the top coat is still wet, 35 lbs. per 100 square feet of roofing granules shall be broadcast into the wet coating. The coating and granules shall be of a bright white color.
4. All foam is to be coated. Coating shall be extended up and over all foam on vent pipes and terminated a minimum of 2 inches above the foam creating a self-terminating flashing.
5. Contractor shall leave at job site 4 -1 gal. containers of coating (brush grade).
6. The General Contractor shall be responsible for requiring that other trades do not damage roof foam or coating during or after the final coating is applied. Should any damage occur to the foam or coating through the fault of any other trades, the General Contractor shall see that it is repaired properly at no extra cost to the Owner.

E. Roof Walkboard Pads:

1. After polyurethane foam and granules have been applied, apply wallboard pads over roofing using a one-part polyurethane adhesive (Sikaflex 1-A) on the back side of the pads. **DO NOT USE ASPHALT CUT-BACK ADHESIVES.** Spot apply adhesive in "dollar" sizes at each corner of the pads and one in the middle. Press the pads firmly onto the roofing membrane. Layout shall be in accordance with the roof plan.

3.04 CLEAN-UP

- A. During progress of work covered by this Section, roofing applicator shall keep his work and other areas affected, free of overspray and debris caused by the work of this Section.
- B. At completion of Work herein specified, remove from the site all debris caused by the roofing application, clean all adjacent surfaces of foam and coating overspray and leave the work area in an acceptable condition.

END OF SECTION

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SECTION 07620

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all sheet metal flashing and trim work not specifically included in work of other section, as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specifically elsewhere:

1. Coated Foamed Roofing – Section 07545.
2. Mechanical sheet metal work.

1.02 QUALITY STANDARDS

A. Reference standards: as noted for individual items.

1. ANSI/ASTM Standards.
2. SMACNA architectural sheet metal manual.

1.03 SUBMITTALS (SEE SECTION 01340)

A. Project data:

1. Guarantee.
2. Material data from manufacturers.

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1.04 JOB CONDITIONS

- A. Coordinate work with roofing.
- B. Provide all components necessary to create watertight junctures between roofing and sheet metal work.

1.05 GUARANTEE

- A. Furnish 5 year guarantee on sheet metal work, signed jointly by Contractor and sheet metal installer.
 - 1. Agree to repair or replace work which leaks water, deteriorates excessively or otherwise fails to perform as water tight flashing.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Sheet metal flashings:
 - a. Base: 24 gauge, "bonderized" zinc coated metal with a thin layer of zinc phosphate on the surface conforming to ASTM A653. Bonderized metal is solderable and ready to be painted.
 - 2. Other manufacturers desiring approval comply with Section 01640.
- B. Fasteners: Non-ferrous fasteners of same material as sheet metal which will not rust, corrode or react.
 - 1. Self-tapping screws shall be "TEKS" manufactured by Elco Industries.
- C. Retainer clips: 16 ga. galvanized or stainless.
- D. Solder: ASTM B32 or B486, as applicable to materials joined.
 - 1. Use rosin flux for other materials.
- E. Dissimilar metal protection: Alkali resistant bituminous paint, Tnemec Tneme Tar 413.

2.02 FABRICATION - SHEET METAL

- A. Fabricate true and sharp to profiles and sizes indicated.
 - 1. Shop fabricate items to maximum extent possible.

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PART 3 - EXECUTION

3.01 INSPECTION AND PREPARATION

- A. Verify suitability of substrates to accept work.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 INSTALLATION - SHEET METAL

- A. Provide items to be built into other construction to Contractor in time to allow their installation.
- B. If such items are not provided in time for installation, sheet metal fabricator cut in and install.
- C. Fabricate and install in accord with details and recommendations of SMACNA.
- D. Set shop fabricated and welded interior and exterior preformed corners and intersections.
- E. Solder to achieve weathertight joints and required details; do not solder slip joints.
- F. Set top edges of flashings into reglets as indicated.
- G. Fasten materials at recommended intervals.
- H. Caulk joints with 2 beads of sealant on each overlap; see Section 07915.
- I. Turn down cap flashing over base flashings 4".
- J. Form flashings to provide spring action with exposed edges hemmed or folded to create tight junctures.
- K. Provide dissimilar metals and materials protection where dissimilar metals come in contact, or where sheet metal contacts mortar.
- L. Provide all miscellaneous sheet metal items not specifically covered elsewhere, as indicated or required to provide a weathertight installation.

3.03 CLEAN-UP

- A. Upon completion of work, repair all damaged areas.
- B. Clean stains and debris.

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- C. Remove any protective coverings.
- D. Leave work broom clean.

END OF SECTION

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SECTION 07720

ROOF HATCHES

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for roof hatches and safety posts and accessories, as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

- B. Related work specified in Section 02800 - Fountains; ladders - Section 05500 - Metal fabrications; Section 07545 - coated Foam ed Roofing.

1.02 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver in time to allow installation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Acceptable manufacturers:

1. Roof hatches and safety posts:
 - a. The Bilco Company, B.L. Wilcox & Associates, Whittier, CA, (310) 693-2787, (714) 522-5382.
2. Other manufacturers desiring approval comply with Section 01640.

2.02 ROOF HATCHES

- A. The Bilco Company. Cover shall be with a 3" beaded flange and formed reinforcing members welded to support a minimum live load of 40 lb/sf.

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Insulation shall be glass fiber 1" thick, fully covered and protected by a metal liner. Curb shall be 12" in height and shall be with a 3-1/2" flange with holes provided for securing to the roof deck. Curb shall be equipped with an integral metal capflashing of the same gauge and material as the curb, fully welded at the corners for weather tightness. Capflashing shall be equipped with the Bilclip™ flashing system, including stamped tabs and PakRope. Insulation on the exterior of the curb shall be rigid fiberboard 1" in thickness. Scuttle shall be completely assembled with heavy pintle hinges, positive snap latch with turn handles and padlock hasps inside and outside and a mechanically retained thermoplastic rubber gasket. Compression spring operators enclosed in telescopic tubes shall be provided for smooth, easy and controlled door operation throughout the entire arc of opening and closing. Operation shall not be affected by temperature. Cover shall be equipped with an automatic hold-open arm complete with red vinyl grip handle to permit easy release. All hardware shall be zinc plated and chromate sealed. Installation shall be in accordance with manufacturer's instructions.

- B. Roof hatch, Type S, Model S-50, 3'-0" x 2'-6", 100 lbs.
1. Cover: Aluminum, 11 ga.
 2. Metal Liner: Aluminum, 18 ga.
 3. Curb: Aluminum, 11 ga.
 4. Cover release: One-hand control of the cover to its closed and latched position.
 5. Factory finish: Mill finish.
 6. Located at Gate House roof.
 7. Provide safety post to ladder access below hatch.
 8. By others: Provide water proof membrane at Bilclip/PakRope.

2.03 SAFETY POST

Install on fixed ladder access below hatch covers, Model 1 LadderUp safety posts as manufactured by the Bilco Company. Device shall be manufactured of high strength steel with telescoping tubular section that locks automatically when fully extended. Upward and downward movement shall be controlled by a stainless steel spring balancing mechanism. Finish shall be black enamel. Unit shall be completely assembled with fasteners for securing to the ladder rungs in accordance with the manufacturer's instructions. Shipping weight 24 lbs. each.

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PART 3 - EXECUTION

3.01 Furnish and install where indicated on plans metal roof scuttle per manufacturer's instructions by qualified workmen.

3.02 GUARANTEE

Manufacturer shall guarantee against defects in material or workmanship for a period of five years.

3.03 CLEAN-UP

Leave roof hatch clean of any marks, paint, scratches.

END OF SECTION

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SECTION 07840

FIRESTOPPING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all firestopping as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Firestopping of mechanical and electrical penetrations: Divisions 15 and 16.

1.02 SUBMITTALS (SEE SECTION 01340)

A. Material Data:

1. Data substantiating compliance with specified requirements.
2. Manufacturer's installation instructions.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Acceptable manufacturers:

1. Safing insulation:
 - a. Base: U.S. Gypsum Co.
2. RTV foam:

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- a. Base: Any manufacturer U/L listed for systems used.
3. Other manufacturers desiring approval comply with Section 00440 or Section 01640.
- B. Insulation, safing: Glass or other inorganic fibers and binders formed into semi-rigid blankets.
 1. ASTM E84 flame spread: 25, max.
 2. ASTM E119 tested for assembly and rating indicated.
 3. Thickness and density as required to maintain fire rating of assembly.
- C. RTV foam: Room-temperature-vulcanized silicone rubber foam.
 1. U/L listed as "Fill, Void or Cavity Material (ZCPY)" for use in "Wall or Floor Opening Protective, Multiple Cable Systems (ZCOR)".
 2. Forming materials as described in applicable U/L system.

PART 3 - EXECUTION

3.01 INSTALLATION - SAFING INSULATION

- A. Install in accord with manufacturer's instructions, to maintain fire separations indicated.
- B. Install rigid batts, that resist smoke passage in only one direction, in proper orientation to resist smoke passage.

3.02 INSTALLATION - RTV FOAM

- A. Install in accord with manufacturer's instructions, to maintain fire separations indicated.
- B. Fill all openings through floors and/ or walls.
- C. Remove all combustible materials after installation.

END OF SECTION

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SECTION 07915

JOINT SEALERS AND CAULKING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all sealant work as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Definition:

1. Words "caulk" and "caulking" mean sealant work.
2. "Interior wet areas" means toilets, showers, kitchens and similar areas.

C. Work Included: Provide and install sealants at following locations:

1. Flashing reglets and retainers.
2. Exterior wall joints.
3. Masonry control joints, exterior and interior, and between masonry and other materials.
4. Flooring joints.
5. Isolation joints.
6. Paving and sidewalk joints.
7. Joints between paving or sidewalks and buildings.
8. Joints at penetrations of walls, floors and decks by piping and other services and equipment.

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9. Exterior and interior perimeters of all exterior and interior door and window frames, louvers, grilles, etc.
10. Solidly bed all thresholds at exterior door s.
11. Caulk plumbing fixtures to floor and wall (silicone).
12. Other joints where caulking, sealant or com pressible sealant is indicated.

1.02 QUALITY STANDARDS

- A. Sealant materials: ASTM C603 and C510, F.S. TT-S-001543A, TT-S-00227E (3) and TT-S-00230C (2) as they apply.

1.03 SUBMITTALS (SEE SECTION 01340)

- A. Samples:
 1. Five (5) cured samples of each color for color selection.
- B. Project data:
 1. Manufacturer's data sheets.
 2. Guarantee: See Section 01750

1.04 JOB CONDITIONS

- A. Perform sealant work only when ambient temperature is 40 degF (5 deg. °C) or higher.
- B. Apply only to joints which are free of material which will inhibit bond.
- C. Apply to cementitious materials only when thoroughly cured and dry.

1.05 GUARANTEE

- A. Warrant that sealant work will be free of defects for a period of three years from date of final acceptance.
- B. Failure of watertightness constitutes defect.
- C. Remove any defective work or materials and replace with new work and materials and repair any other work damaged as a result of defective sealant work or materials at no additional expense to Owner.
- D. Warranty signed by applicator.

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PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Polyurethane sealants:
 - a. Base: MAMECO International; Sika Chemical Corp.; Sonneborn-Contech; Tremco, Inc. (Dymeric); and Pecora (Dynatrol I or Dynatrol II).
 - 2. Silicone sealants:
 - a. Base: General Electric Co.; Dow Corning Corp; and Pecora.
 - 3. Compressible sealant:
 - a. Base: Sandell Manufacturing Co., Inc.
 - 4. Acrylic sealants:
 - a. Base: MAMECO International; Sonneborn-Contech; Tremco; and Pecora.
 - 5. Other manufacturers desiring approval comply with Section 01640.
- B. Sealants - General:
 - 1. Provide colors matching materials being sealed. Where compound is not exposed to view in finished work, provide manufacturer's color which has best performance.
 - 2. Provide non-sagging sealant for vertical joints.
 - 3. Sealants for horizontal joints may be self-leveling.
 - 4. Before use of any sealant, investigate its compatibility with joint surfaces, fillers and other materials in joint system. Use only compatible materials.
 - 5. Obtain sealing compounds from manufacturers who will provide manufacturers' field service representatives at project site for purpose of advising and instructing installers in proper procedures. Provide such services, at no expense to Owner.

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6. Exterior areas:
 - a. Polyurethane
 - b. Silicone
 7. Interior wet areas: Silicone.
 8. Interior non-wet areas:
 - a. Acrylic, Polyurethane, Silicone.
 9. Use compressible sealant where indicated.
 10. Use epoxy sealant where indicated.
- C. Sealant, polyurethane: To be one component type, Polyurethane based, non-sag elastomeric sealant per ASTM C-920, type S, Grade NS. Suitable for vertical and horizontal joints where maximum depth of sealant shall not exceed ½"; suitable for use with masonry, concrete, or metal frames. Applies to joints in walls, floors, or around door or window frames adjacent to masonry.
- D. Sealant, acrylic: One or two component.
- E. Sealant, silicone: One or two component.
- F. Joint cleaner: As recommended by sealant manufacturer.
- G. Primer-sealer: As recommended by sealant manufacturer.
- H. Bond breaker: As recommended by sealant manufacturer.
- i. Sealant backer rod: Rod stock of polyethylene, polyethylene jacketed polyurethane foam, or other flexible, non-absorbent, non-bituminous material recommended by sealant manufacturer to:
1. Control joint depth.
 2. Break bond of sealant at bottom of joint.
 3. Provide proper shape of sealant bead.
- J. Sealant, compressible:
1. Size so that width of material is twice joint width.
 2. Foamed polyurethane strip saturated with polymerized polybutylene waterproofing coated on front face with non-reactive release agent that will act as bond breaker for applied sealant. Polytite-B.

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- K. Adhesive, compressible sealant: Sandell No. 14.
- L. Sealant, epoxy: Sikadur Hi-Mod Gel.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clean all joints.
- B. Prime if manufacturer recommends.

3.02 INSTALLATION

- A. Seal building and any joints or areas which will permit penetration of moisture, unless sealing work is specifically required under other sections. Make all joints water and airtight.
- B. Where required, prime joint surfaces.
 - 1. Limit application to surfaces to receive caulking.
 - 2. Mask off adjacent surfaces.
- C. Make depth of sealing compounds not more than one-half width of joint, but in no case less than 1/4".
 - 1. Subcaulk joints that are deep, or joints without suitable backstop, to proper depth.
- D. Correctly size backer.
- E. Apply bond breaker where required.
- F. Use sufficient pressure to fill all voids.
- G. Upon completion, leave caulking with smooth even finish.
- H. Install compressible sealant using Poly-Tool or Poly-Guide to position at depth indicated.
 - 1. Take care to avoid contamination of sides of joints.
 - 2. Protect side walls of joint (to depth of caulking) with Sandell No. 3 tape.
 - 3. Install with adhesive on 2 faces in contact with sides of joints.

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- I. Do not use silicone sealant in joints scheduled to receive paint.

END OF SECTION

**DIVISION 8
DOORS AND WINDOWS**

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SECTION 08110

METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes:
 - 1. Standard Hollow Metal Frames.
 - 2. Hollow Metal Doors and Panels.
- B. Related Sections:
 - 1. Section 06200 - Finish Carpentry.
 - 3. Section 08710 - Finish Hardware.
 - 4. Section 08800 – Glass & glazing
 - 5. Section 09900 - Painting.

1.02 REFERENCES:

- A. ASTM E152, Fire Tests of Door Assemblies.
- B. ASTM A525, specification for Steel Sheet, Zinc Coated.
- C. ANSI/SDI 100, Recommended Specifications for Standard Steel Doors and Frames.
- D. ANSI/SDI 119, Performance test Procedures for Steel Door Frames and Anchors.
- E. NFPA 80, Standard for Fire Doors and Windows.
- F. NFPA 101, Life Safety Code.
- G. ANSI A151.1, Test Procedure and Acceptance Criteria for Physical Endurance, Steel Doors and Frames.

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- H. ANSI A224.1, Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- I. SDI 107, Hardware on Steel Doors, Reinforcement Application.
- J. Applicable model building code.
- K. California Title 24.
- L. UBC 7-2, Fire Tests of Door Assemblies.
- M. UBC 7-4, Fire Tests of Window Assemblies.

1.03 SUBSTITUTIONS & SUBMITTALS:

- A. Shop Drawings: Submit six copies. Indicate door and frame elevations, sections, materials, gauges, finish, fabrication/erection details, locations of hardware and vision lites and louvers.
- B. Certification of Compliance: Provide letter of certification that all materials comply with these Specifications.
- C. Samples: Submit as requested by Architect. Samples shall be returned after review.
- D. Substitutions: Make substitution requests in accordance with Division 1. Architect reserves the right to access an hourly fee to review and evaluate substitutions.

1.04 QUALITY ASSURANCE:

- A. Steel Door and Frame Supplier: direct factory supplier who employs a Certified Door Consultant (CDC) or person with equivalent experience, available at reasonable times during course of Work, for consultation to Owner, Architect and Contractor.
- B. Label Construction: A physical label or approved marking shall be affixed to the fire door or fire door frame at an authorized facility as evidence of compliance with procedures of the labeling agency.

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1.05 DELIVERY, STORAGE, AND HANDLING:

- A. Delivery: coordinate delivery to the appropriate locations (shop or field) for installation.
- B. Storage of Doors: Doors shall be stored in an upright position under cover. Place the units on at least 4" (101.6 mm) wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters which create a humidity chamber and promote rusting. If the corrugated wrapper on the door becomes wet, or moisture appears, remove the wrapper immediately. Provide a 1/4" (6.35 mm) space between the doors to promote air circulation.
- C. Storage of Frames: Frames shall be stored under cover on 4" (101.6 mm) wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters, which create a humidity chamber and promote rusting. Assembled frames shall be stored in a vertical position, five units maximum in a stack. Provide a 1/4" (6.35 mm) space between frames to promote air circulation.
- D. Inspect delivered items for damage. Minor damage may be repaired provided repaired items are equal to new Work and accepted by the Architect. Provide new items when directed. Comply with VOC regulations when repairing damage.

1.06 SEQUENCING AND SCHEDULING

- A. Deliver doors and frames to the jobsite in a timely manner so not to delay progress of other trades.
- B. Issue purchase orders to suppliers so as not to interfere with normal quoted delivery times.

1.07 WARRANTY

- A. Steel doors and frames supplied with a one (1) year warranty against defects in materials and workmanship.

1.08 ENVIRONMENTAL

- A. Packaging and Disposal: package in biodegradable packs, paper or cardboard boxes. Dispose of non-biodegradable packs, plastic, styrofoam, polystyrene, and polyurethane to a licensed or authorized collector for proper disposal. Comply with the applicable standards and laws for VOC.

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PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Steelcraft Manufacturing Co., Cincinnati, Ohio
- B. Curries Co., Mason City, Iowa
- C. Ceco Corp., Oakbrook, Illinois

2.02 MATERIALS:

- A. Steel requirements: doors and frames manufactured of commercial quality, stretcher leveled flatness, cold rolled steel per ASTM A366 and A568 general requirements. Galvanized doors and frames to A60 minimum coating weight, dull finish. Internal reinforcing may be manufactured of hot rolled pickled and oiled steel per ASTM A569.
- B. Coating Materials:
 - 1. Primer: Manufacturer's standard rust inhibiting primer to ANSI A224.1.
 - 2. Bonderized
- C. Core Materials
 - 1. Doors: non-toxic honeycomb core manufactured of hot rolled, pickled and oiled steel per ASTM A569.
 - 2. Fire labeled doors with temperature rise rating: mineral fiber core, temperature rating per code.

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2.03 FABRICATION

A. Doors

1. Classification: SDI

<u>GRADE</u>	<u>MODEL</u>	<u>GAUGE</u>	<u>DESCRIPTION</u>	<u>CYCLES</u>
III	1	16	Extra Heavy Duty, Full Flush	1,000,000

2. Vertical lock edges:

- (1) Beveled 1/8 inch in 2 inches.
- (2) Exterior, seamless construction by tack welding and fill.
- (3) Interior, manufacturers standard interlocking and glued edge.

3. Top and bottom channels:

- (1) Not less than 16 gauge, flush or inverted.
- (2) Welded to the face sheets.
- (3) Exterior doors: flush steel top channel.

4. Astragals: flat security type or Z type per details.

B. Frames (Standard Type)

1. Construction:

- (1) 16 gauge cold rolled steel at interior locations; 16 gauge galvanized at exterior locations.
- (2) 12 gauge, full width, face and head reinforcement for non-labeled openings over 48" in width.
- (3) Closer reinforcement and high frequency hinge reinforcement.

2. Corner Construction: weld full depth and face, grind smooth and re-prime. Weld includes faces, rabbets, soffit and stops.

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Provide temporary shipping spreaders to help protect frames from damage during transit and handling. Remove spreaders prior to setting frame.

C. Frame Anchors

1. Attachment to Masonry Construction:
 - (1) Galvanized
 - (2) Adjustable, flat, corrugated or perforated T shaped with leg not less than 2 inches wide by 10 inches long, or wire type, not less than 3/16 inches in diameter.
2. Attachment to Drywall Construction:
 - (1) Wood Stud type to accommodate frame jamb depth and face dimension on welded type frame.
3. Provide one anchor for every 30 inches of jamb or fraction thereof.
4. Floor Anchor: angle clip type.
 - (1) 16 Gauge.
 - (2) Two fasteners per jamb.
 - (3) Weld to bottom of each jamb.
5. Masonry or Concrete
 - (1) 3/8 inch countersunk flat head bolt and expansion shields.
 - (2) Locate 6 inches from top and bottom and maximum 24 inches on center.
 - (3) Weld pipe spacers or other type of spacers, per manufacturers standard design, in back of frame soffit.

D. Preparation for Hardware

1. Reinforce per SDI 107.
2. Lock and Closer reinforcement: box type.

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3. Door Hinge reinforcement: 7 gauge or equivalent, manufacturer's standard.
4. Punch strike jambs to receive three silencers; double leaf frames to receive manufacturer's standard preparation.
5. Hardware locations per "Recommended Locations for Builders' Hardware for Standard Steel Doors and Frames".
6. Provide welded in place guards for all hardware cutouts in frame.
7. Electrical preps: provide welded-in-place boxes, special designed anchors, raceways and access panels as required.

PART 3 EXECUTION

3.01 SETTING FRAMES

- A. Set frames in accordance with SDI 105.
- B. Set welded frames in place prior to construction of adjacent partition work. Properly brace frame until permanent anchors are set.
- C. Install frames plumb and true with only hairline seam at corner joints.
- D. Install fire rated frames in accordance with NFPA 80.

3.02 DOOR INSTALLATION

- A. Clearances:
 1. 1/8 inch between door and frame at head and jambs.
 2. 1/8 inch at meeting edges of pairs.
 3. 1/8 inch at transom panels, without transom bar.
 4. 3/4 inch above finish floor at sills without threshold.
 5. 1/4 inch at sill with threshold.

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3.03 ADJUSTMENT AND CLEANING

- A. Remove dirt and excess sealants, mortar, or glazing compounds from exposed surfaces.
- B. Adjust moving parts for smooth operation. Use shims as required.
- C. Fill dents, holes, etc. with metal filler and sand smooth and flush with adjacent surfaces. Paint to match adjacent surface.

END OF SECTION

SECTION 08210

WOOD DOORS AND FRAMES

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment and services for all wood doors as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Finish hardware: Section 08710.
2. Metal doors and frames: Section 08100.
3. Painting: Section 09900.
4. Glazing: Section 08800.

1.02 QUALITY ASSURANCE

A. Manufacturing standards:

Architectural Woodwork Institute (AWI) Quality Standards, Section 1300, Premium Grade.

B. Fitting tolerances:

1. 1/8" clearance at jambs, heads and meeting stiles.
2. 1/4" clearance at bottoms.

1.03 SUBMITTALS (SEE SECTION 01340)

- A. Sample:
 - 1. (2) 8" x 12" samples showing finish.
- B. Product data:
 - 1. Guarantee.
 - 2. Product data from manufacturer.
- C. Shop drawings indicating sizes, shapes, fenestration, etc.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver doors just prior to installation.
- B. Identify as to type and location.
- C. Provide manufacturer's identifying mark on each door.
- D. Keep all doors protected with wrappings and out of contact with any moisture or sun.

1.05 GUARANTEE

- A. Guarantee doors in writing for life of installation against defects including:
 - 1. Delamination.
 - 2. Warp or twist of 1/4" or more.
 - 3. Telegraphing of any part of core through face veneer.
 - 4. Surface variation exceeding 1/100" or more in 3" span.
 - 5. Any other defect which may impair or affect performance of door for purpose for which it is intended.
- B. Remove and replace defective doors; include cost of removal of defective units, rehanging and refinishing of replacement units.

PART 2 - PRODUCT

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Wood doors:
 - a. Base: Weyerhaeuser
 - 2. Other manufacturers desiring approval comply with Section 01640.
- B. Doors, wood: Flush medium density overlay (MDO) faced, paint finished. (See Section 09900).
 - 1. Face veneer: MDO both faces.
 - 2. Thickness: 1-3/4" solid core, or as noted on Door S schedule on drawings.
- C. Solid wood core: 5-ply particle board non-rated (DPC-1).
 - 1. Type II water resistant adhesive.
 - 2. Engineered fiber crossbanding, securely bonded to core.
- D. Transom Panels: Wherever transom panels or side panels of wood are shown in same framing system as wood doors, provide panels which match quality and appearance of associated wood doors, unless otherwise indicated. Fabricate matching panels with same construction, thickness, exposed surfaces and finish as specified for associated doors.

2.02 FABRICATION

- A. Factory machine doors for application of hardware.
- B. Factory bevel vertical edges, 1/8" in 2" (1 in 16) on lock and butt stile.
- C. Cutouts:
 - 1. Make cutouts accurately and neatly.
 - 2. Seal cut edges with varnish.
 - 3. Provide two sets of wood stop moldings for all openings, one side removable, to completely cover cut edges.
 - 4. Neatly miter stops at corners.

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- 5. Finish to match door.
- D. Seal top and bottom and reseal field cuts.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify suitability of openings to accept installation.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 INSTALLATION

- A. Do not hang damaged, warped, or stained doors.
- B. Condition doors to prevailing humidity prior to hanging.
- C. Fit doors to frames and machine for hardware, to whatever extent not previously worked at factory.
- D. Install doors in accord with manufacturer's instructions, and as indicated.
- E. Adjust for proper fit and uniform clearance.
- F. Finish Doors per Section 09900: Painting.

END OF SECTION

SECTION 08410

ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all storefront and entrance as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Joint Sealers: Section 07900.
2. Finish Hardware: Section 08710.

C. Work installed but not furnished:

1. Glazing: Section 08800.

1.02 QUALITY ASSURANCE

- A. Fabrication, erection and finishing/standards: Applicable standards of AA, AAMA and AWS.
- B. Structural considerations: In accord with local building codes.
- C. Comply with all standards and requirements listed under testing.
- D. Welding and welders:
 1. Utilize skilled and qualified welders, licensed where required in accord with local building regulations.
 2. Perform welding in conformance with AWS structural welding code.

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1.03 SUBMITTALS (SEE SECTION 01340)

- A. Product data:
 - 1. Manufacturer's details and product information.
 - 2. Guarantee: See Section 01750.
- B. Samples:
 - 1. Aluminum finish specified.
 - 2. Components, 12 in. square, or full-size, as applicable.
- C. Shop drawings

1.04 GUARANTEE

- A. Written guarantee signed jointly by fabricator, installer and Contractor, agreeing to repair or replace any items of work performed under this section which fail.
 - 1. Failure includes defects in materials, workmanship, water tightness of assembly, caulking, glazing or any other defects of storefront system which affects its ability to perform as weather tight envelope.
 - 2. Guarantee period is two (2) years from date of acceptance.
- B. Two (2) year guarantee on insulating glass units.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Storefront manufacturers:
 - a. Base: U.S. Aluminum Corp., or acceptable substitute.
- B. Aluminum: ASTM B221, 6063-T5 alloy.
- C. Finish: Clear anodized Aluminum.
- D. Storefront: U.S. Aluminum FF 451 "flush-out", 2 in. x 4 1/2 in. extrusion size, to receive 1" insulating glass, and FF 450 "flush-out" 1 3/4" x 4 1/2" extrusion size to receive 1/4" single glazing.
 - 1. Complete extruded aluminum framing system and glazing.

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2. Include sills, mullions, division bars, anchors and accessories.
 3. Provide complete system under single responsibility.
- E. Fasteners: Anodized aluminum or non-magnetic stainless steel which will not cause electrolytic action or corrosion.
1. Provide Phillips flat-head screws where exposed.
 2. Finish exposed aluminum fasteners to match specified aluminum finish.
- F. Joint Sealers: As specified in 07900.
1. Use exposed sealants of color to match aluminum finish.
 2. Provide and install all sealants and caulking required within and around storefront as work of this section, in accord with manufacturer's recommendations.
- G. Glazing: See Section 08800 for glass to be installed under this section.
- H. Brackets, anchors and reinforcements:
1. Aluminum wherever possible.
 2. Where steel is required, hot-dip galvanize after fabrication, with minimum G-90 zinc coating, complying with ASTM A124, or use 300 series stainless steel.
- I. Flashings: Minimum 0.04" aluminum.
1. Finish to match storefront.
- J. Doors:
1. U.S. Aluminum 400 Series - medium stile with 10" bottom rail to meet ADA requirements. Finish shall be #11 clear anodized aluminum. Glazing stops shall accept 1" insulating glass.
 2. Provide all hardware as follows: Each single door shall include (1) MS hookbolt deadlock – Adams Rite; (1) standard strike for standard deadlatch; (1) lock cylinder with keys; (1) type C pull (PS002); (1) threshold – T-500 flat; concealed bottom and top weather-stripping (DM920 and DM919); (1) concealed overhead closer; (1) set of offset pivots; and (1) "Mid-panel" panic device.
 3. Finish for all hardware, closers, etc. shall match color of door frame, unless otherwise specified in Section 08710 - Finish Hardware.

2.02 FABRICATION

- A. Fully degrease and clean members prior to assembly or application of sealing compound or protective coatings.
- B. Weld by methods recommended by manufacturer and AWS to avoid discoloration at welds.
- C. Grind exposed welds smooth and restore finish.
- D. Ease corner of cut edges to a radius of approximately 1/64 in.
- E. Conceal fasteners wherever possible.
- F. Fit and assemble work at shop to maximum extent possible.
- G. Maintain true continuity of line and accurate relation of planes and angles.
- H. Provide secure attachment and support at mechanical joints, with hairline fit of contacting members.
- I. Reinforce work as necessary to withstand wind loadings and to support system.
- J. Separate dissimilar metals with bituminous paint or preformed separators to prevent corrosion.
- K. Separate metal surfaces at moving joints with plastic inserts or other non-abrasive concealed inserts to permanently prevent freeze-up of joint.
- L. Reinforce frames for hardware.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify suitability of substrate to accept installation.
- B. Installation assumes responsibility for performance.

3.02 INSTALLATION

- A. Comply fully with manufacturer's shop drawings, erection drawings, and recommendations for installation.
- B. Set units plumb, level and true to line.
- C. Anchor securely in place.
- D. Separate metal surfaces from sources of corrosion or electrolytic action.
- E. Set sill and base members in a bed of sealant.

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- F. Provide joint fillers or gaskets for weather tight construction.
- G. Clean aluminum surfaces promptly after installation.
- H. Exercise care to avoid damage to protective coating, if any.
- I. Caulk all joints within and at perimeter of system.

3.03 CLEANING AND PROTECTION

- A. Clean surface promptly after installation of components.
- B. Exercise care to avoid damage to finish, wall members, fastenings, etc. and to protective coating, if any.
- C. Remove excess glazing and sealant compounds and dirt and leave clean.
- D. Protect work and take other precautions required to ensure that work will be without damage at time of acceptance.

END OF SECTION

Door Schedule

Qty	Mark	Arch Door No	HwSet	Mode	Width	Height	Thick	Door	Frame	Rating	Outside Location	Inside Location
1	01	01	01				1-3/4"	A/G	STF	NON-RTD	EXTERIOR	LOBBY
1	02	02	05	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		ADMIN
1	03	03	09	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		MANAGER
1	04	04	09	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		HEALTH
1	05	05	09	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		CONSULT
1	06	06	09	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		CONSULT
1	07	07	01				1-3/4"	A/G	STF	NON-RTD	EXTERIOR	CORRIDOR
1	NOT USED											
1	NOT USED											
1	10	10	12	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		EXAM
1	11	11	12	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		EXAM
1	12	12	12	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		EXAM
1	13	13	12	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		EXAM
1	14	14	01				1-3/4"	A/G	STF	NON-RTD	EXTERIOR	CORRIDOR
1	15	15	09	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		TOILET
1	16	16	02	SGL	3'0"	8'10"	1-3/4"	HMD	HMF	NON-RTD	EXTERIOR	ELEC/TEL
1	17	17	03	SGL	3'0"	8'10"	1-3/4"	HMD	HMF	NON-RTD	EXTERIOR	MECH
1	18	18	11	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		STORAGE
1	19	19	11	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		STORAGE
1	20	20	01				1-3/4"	A/G	STF	NON-RTD	EXTERIOR	COMMUNITY
1	21	21	01				1-3/4"	A/G	STF	NON-RTD	EXTERIOR	WAITING
1	22	22	04	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD	LOBBY	CORRIDOR
1	23	23	14	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		MED
1	24	24	13	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		MED
1	25	25	08	SGL	VAR	7'10"	1-3/4"	WD	HMF	NON-RTD		MED
1	26	26	09	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		LAB
1	27	27	10	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		TOILET
1	28	28	12	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		EXAM
1	29	29	12	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		EXAM
1	30	30	11	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		JAN
1	31	31	13	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		UTILITY
1	32	32	15	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		DISPENSARY
1	33	33	14	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		DATA
1	34	34	04	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD	LOBBY	CORRIDOR
1	35	35	06	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		WOMEN
1	36	36	07	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		EDUCATION
1	37	37	07	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		COMMUNITY
1	38	38	06	SGL	3'0"	7'10"	1-3/4"	WD	HMF	NON-RTD		MEN

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SECTION 08710
FINISH HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Door Hardware.
 - 2. Cylinders for aluminum doors.
- B. Related Sections:
 - 1. Section 06200 - Finish Carpentry: Finish Hardware Installation
 - 2. Section 07915 - Joint Sealers – exterior thresholds
 - 3. Section 08110 - Metal Doors and Frames
 - 4. Section 08210 - Wood Doors
 - 5. Section 08410 - Entrances and Storefronts
 - 6. Section 16010 – Basic Electrical Requirements
- C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.
 - 1. Windows.
 - 2. Cabinets, including open wall shelving and locks.
 - 3. Signs, except where scheduled.
 - 4. Toilet accessories, including grab bars.
 - 5. Installation.
 - 6. Rough hardware.
 - 7. Conduit, junction boxes & wiring.
 - 8. Aluminum storefront hardware except cylinders.

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1.2 REFERENCES:

- A. Use date of standard in effect as of Bid date.
- B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.
- C. BHMA – Builders Hardware Manufacturers Association
- D. DHI – Door and Hardware Institute
- E. NFPA – National Fire Protection Association
 - 1. NFPA 80 – Fire Doors and Windows
 - 2. NFPA 105 – Smoke and Draft Control Door Assemblies
 - 3. NFPA 252 – Fire Tests of Door Assemblies
- F. UL – Underwriters Laboratories
 - 1. UL10C – Positive Pressure Fire Tests of Door Assemblies.
 - 2. UL 305 – Panic Hardware
- G. WHI – Warnock Hersey Incorporated
- H. 2007 State of California Building Code
- I. Local applicable codes
- J. SDI – Steel Door Institute
- K. WI – Woodwork Institute
- L. AWI – Architectural Woodwork Institute
- M. NAAMM – National Association of Architectural Metal Manufacturers

1.3 SUBMITTALS & SUBSTITUTIONS

- A. SUBMITTALS: Submit six copies of schedule per Section 01330. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
 - 1. Type, style, function, size, quantity and finish of hardware items.
 - 2. Use BHMA Finish codes per ANSI A156.18.
 - 3. Name, part number and manufacturer of each item.
 - 4. Fastenings and other pertinent information.

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5. Description of door location using space names and numbers as published in the drawings.
 6. Explanation of abbreviations, symbols, and codes contained in schedule.
 7. Mounting locations for hardware.
 8. Door and frame sizes, handing, materials, fire-rating and degrees of swing.
 9. List of manufacturers used and their nearest representative with address and phone number.
 10. Catalog cuts.
 11. Wiring Diagrams.
 12. Manufacturer's technical data and installation instructions for electronic hardware.
- B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.
- C. Deviations: Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.
- D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.
- E. Substitutions per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.
- F. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE:

- A. Qualifications:
1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.

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- a) Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.
- B. Hardware: Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.
- C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.
- D. Fire-Rated Openings: NFPA 80 compliant. Hardware UL10C / California State Fire Marshal Standard 12-7-4 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.
 - 1. Note: scheduled resilient seals may exceed selected door manufacturer's requirements.
 - 2. See 2.6.E for added information regarding resilient and intumescent seals.
- E. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.
- F. 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. Convene prior to commencement of related work.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Delivery: coordinate delivery to appropriate locations (shop or field).
 - 1. Permanent keys and cores: secured delivery direct to Owner's representative.
- B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

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- C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.6 PROJECT CONDITIONS AND COORDINATION:

- A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.
- B. 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. Furnish related trades with the following information:
 - 1. Location of embedded and attached items to concrete.
 - 2. Location of wall-mounted hardware, including wall stops.
 - 3. Location of finish floor materials and floor-mounted hardware.
 - 4. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
 - 5. Manufacturer templates to door and frame fabricators.
- C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation. Do not order hardware until the submittal has been reviewed by the frame and door suppliers for compatibility with their products.

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1.7 WARRANTY:

- A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties:
 - 1. Locksets: Three years
 - 2. Extra Heavy Duty Cylindrical Lock: Seven Years
 - 3. Exit Devices: Three years mechanical
One year electrical
 - 4. Closers: Ten years mechanical
Two years electrical
 - 5. Hinges: One year
 - 6. Other Hardware Two years

1.8 COMMISSIONING:

- A. Conduct these tests prior to request for certificate of substantial completion:
 - 1. With installer present, test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
 - 2. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
 - 3. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.

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PART 2 PRODUCTS

2.1 MANUFACTURERS:

<u>ITEM:</u>	<u>MANUFACTURER:</u>
Hinges	(IVE) Ives
Key System	(SCH) Schlage
Locks	(SCH) Schlage
Keypad Lock	(SCE) Schlage Electronic
Exit Devices	(VON) Von Duprin
Closers	(LCN) LCN
Silencers	(IVE) Ives
Push & Pull Plates	(IVE) Ives
Kickplates	(IVE) Ives
Stops	(IVE) Ives
Thresholds	(NGP) NGP
Seals & Bottoms	(NGP) NGP
Armor Collar	(KEE) Keedex

2.2 HINGING METHODS:

- A. Drawings typically depict doors at 90 degrees; doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.
- B. Conform to manufacturer's published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices, and notify Architect of deviation from scheduled hardware.

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- C. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.
 - 1. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins and security studs.
 - 2. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.

2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

- A. Mortise Locksets and Latchsets: as scheduled.
 - 1. Chassis: cold-rolled steel, handing field-changeable without disassembly.
 - 2. Latchbolts: 3/4 inch throw stainless steel anti-friction type.
 - 3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
 - a) Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
 - 4. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.
 - 5. Thumbturns: accessible design not requiring pinching or twisting motions to operate.
 - 6. Deadbolts: stainless steel 1-inch throw.
 - 7. Electric operation: Manufacturer-installed continuous duty solenoid.
 - 8. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
 - 9. Scheduled Lock Series and Design: Schlage L series, 17 design.
 - 10. Certifications:
 - a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.
 - b) ANSI/ASTM F476-84 Grade 31 UL Listed.

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- B. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled.
1. Chassis: cylindrical design, corrosion-resistant plated cold-rolled steel, through-bolted.
 2. Locking Spindle: stainless steel, integrated spring and spindle design.
 3. Latch Retractors: forged steel. Balance of inner parts: corrosion-resistant plated steel, or stainless steel.
 4. Latchbolt: solid steel.
 5. Backset: 2-3/4" typically, more or less as needed to accommodate frame, door or other hardware.
 6. Lever Trim: accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to door face.
 7. Electric operation: Manufacturer-installed continuous duty solenoid.
 8. Strikes: 16 gage curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
 9. Lock Series and Design: Schlage ND series, "SPA" design.
 10. Certifications:
 - a) ANSI A156.2, 1994, Series 4000, Grade 1.
 - b) UL listed for A label and lesser class single doors up to 4ft x 8ft.

2.4 EXIT DEVICES / PANIC HARDWARE

- A. General features:
1. Independent lab-tested 1,000,000 cycles.
 2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
 3. 0.75-inch throw deadlocking latchbolts.
 4. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.
 5. No exposed screws to show through glass doors.

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6. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
 7. Releasable in normal operation with 15-lb. maximum operating force per California State Fire Marshal Standard 12-10-3, and with 32 lb. maximum pressure under 250-lb. load to the door.
 8. Exterior doors scheduled with XP-series devices: Static load force resistance of at least 2000 pounds.
 9. Where devices span over door lite frame and the face of the selected lite manufacturer's frame is raised from the face of the door, furnish panic hardware manufacturer's fitted shims or glass-bead kits at no additional cost to the project.
 10. Comply with CBC Section 1003.3.1.9.
- B. Specific features:
1. Non-Fire Rated Devices: cylinder dogging.
 2. Lever Trim: breakaway type, forged brass or bronze escutcheon min .130" thickness, compression spring drive, match lockset lever design.
 3. Rod and latch guards with sloped full-width kickplates for doors fitted with surface vertical rod devices with bottom latches.
 4. Fire-Labeled Devices: UL label indicating "Fire Exit Hardware". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
 5. Inpact recessed devices: 1-1/4 inch projection when push-pad is depressed. Sloped metal end caps to deflect carts, etc. No pinch points to catch skin between touchbar and door.
 6. Delayed Egress Devices: Function achieved within single exit device component, including latch, delayed locking device, request-to-exit switch, nuisance alarm, remote alarm, key switch, indicator lamp, relay, internal horn, door position input, external inhibit input plus fire alarm input. NFPA 101 "Special Locking Arrangement" compliant.
 7. Electrically Operated Devices: Single manufacturer source for electric latch retraction devices, electrically controlled trim, power transfers, power supplies, monitoring switches and controls.
 8. Removable Mullions: Removable with single turn of building key. Securely reinstalled without need for key. Furnish storage brackets for securely stowing the mullion away from the door when removed.

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2.5 CLOSERS

A. Surface Closers:

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
2. ISO 2000 certified. Units stamped with date-of-manufacture code.
3. Independent lab-tested 10,000,000 cycles.
4. Non-sized and adjustable. Place closers inside building, stairs and rooms.
5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
6. Advanced Variable Backcheck (AVB): where scheduled, these units commence backcheck at approximately 45 degrees.
7. Adjustable to open with not more than 5.0lbs pressure to open at exterior doors and 5.0lbs at interior doors. As allowed per California Building Code, Section 1133B.2.5, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15lbs.
8. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
9. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units. EDA arms: rigid main and forearm, reinforced elbow.
10. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
11. Exterior doors: seasonal adjustments not required for temperatures from 120 degrees F to -30 degrees F, furnish checking fluid data on request.
12. Non-flaming fluid, will not fuel door or floor covering fires.
13. Pressure Relief Valves (PRV) not permitted.

2.6 OTHER HARDWARE

- ### **A. Automatic Flush Bolts: Low operating force design.**

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- B. Overhead Stops: Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.
- C. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.
- D. Door Stops: Provide stops to protect walls, casework or other hardware.
 - 1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.
 - 2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum: 90deg stop / 95deg deadstop. Note degree of opening in submittal.
- E. Seals: Finished to match adjacent frame color. Resilient seal material: polyurethane, polypropylene, nylon brush, silicone rubber or solid high-grade neoprene as scheduled. Do not furnish vinyl seal material. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability.
 - 1. Proposed substitutions: submit for approval.
 - 2. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
 - 3. Non-corroding fasteners at in-swinging exterior doors.
 - 4. Sound control openings: Use components tested as a system using nationally accepted standards by independent laboratories. Ensure that the door leafs have the necessary sealed-in-place STC ratings. Fasten applied seals over bead of sealant.
 - 5. Fire-rated Doors, Resilient Seals: UL10C / UBC Standard 7-2 compliant. Coordinate with selected door manufacturers' and selected frame manufacturers' requirements.
 - 6. Fire-rated Doors, Intumescent Seals: Furnished by selected door manufacturer. Furnish fire-labeled opening assembly complete and in full compliance with UL10C / UBC Standard 7-2. Where required, intumescent seals vary in requirement by door type and door manufacture -- careful coordination required
- F. Automatic door bottoms: low operating force units. Doors with automatic door bottoms plus head and jamb seals cannot require more than two pounds operating force to open when closer is disconnected.

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- G. Thresholds: As scheduled and per details. Comply with CBC Section 1133B.2.4.1. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.
1. Exteriors: Seal perimeter to exclude water and vermin. Use sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous 1/4inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).
 2. Fire-rated openings, 90min or less duration: use thresholds to interrupt floor covering material under the door where that material has a critical radiant flux value less than 0.22 watts per square centimeter, per NFPA 253. Use threshold unit as scheduled. If none scheduled, request direction from Architect.
 3. Fire-rated openings, 3hour duration: Thresholds, where scheduled, to extend full jamb depth.
 4. Acoustic openings: Set units in full bed of Division-7-compliant, leave no air space between threshold and substrate.
 5. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.
 6. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.
- H. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.
- I. Key Control Software: Same manufacturer as key cylinders, supply to Owner.

2.7 FINISH:

- A. Generally BHMA 626 Satin Chromium.
1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Door closers: factory powder coated to match other hardware, unless otherwise noted.

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- C. Aluminum items: match predominant adjacent material. Seals to coordinate with frame color.

2.8 KEYING REQUIREMENTS:

- A. Key System: Schlage Everest utility-patented keyway, conventional cylinders with the exception of interchangeable core type operating cylinders for panic hardware. Utility patent protection to extend at least until 2014. Key blanks available only from factory-direct sources, not available from after-market key blank manufacturers. For estimate use factory GMK charge. Initiate and conduct meetings(s) with Owner and I-R Security & Safety Consultants representatives to determine system keyway(s), structure and degree of geographic exclusivity. Furnish Owner's written approval of the system. Keys
 1. New factory registered master key system
 2. Non-I.C. construction keying: furnish inserted type partial key. At substantial completion, remove inserts in Owner's presence; demonstrate consequent non-operability of construction key. Give all removed inserts and all construction keys to Owner; provide accounting for all the pieces.
 3. I. C. Construction keying: furnish temporary keyed-alike cylinders and cores. Remove at substantial completion and install permanent cylinders and cores in Owner's presence. Demonstrate that construction key no longer operates.
 4. Temporary cylinders/cores remain supplier's property.
 5. Furnish 10 construction keys.
 6. Furnish 2 construction insert extractor tool 35-057.
 7. Furnish 2 construction control keys.
 8. For estimate: VKC stamping plus "Do Not Duplicate".
- B. Key Cylinders: furnish utility patented, 6-pin solid brass construction.
- C. Cylinders/Cylinder cores: furnish keyed at factory of lock manufacturer where permanent records are maintained. Locks and cylinders same manufacturer.
- D. Permanent keys: furnish secured shipment direct from point of origination to Owner.
- E. For estimate: 3 keys per change combination, 5 master keys per group, 5 grand-master keys, 3 control keys.

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- F. Bitting List: furnish secured shipment direct from point of origination to Owner upon completion.

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS:

- A. Can read and understand manufacturers' templates, suppliers' hardware schedules and printed installation instructions. Can readily distinguish drywall screws from manufacturers' furnished fasteners. Available to meet with manufacturers' representatives and related trades to discuss installation of hardware.

3.2 PREPARATION:

- A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation.
- B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.
 - 1. Notify Architect of code conflicts before ordering material.
 - 2. Locate levers, key cylinders, t-turn pieces, touchbars and other operable portions of latching hardware between 30 inches to 44 inches above the finished floor, per CBC Section 1133B.2.5.1.
 - 3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.
- C. Overhead stops: before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

3.3 INSTALLATION

- A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.
 - 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
 - 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
 - 3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
 - 4. Replace fasteners damaged by power-driven tools.
- B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.
- C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.
- D. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.
- E. Drill pilot holes for fasteners in wood doors and/or frames. Centerpunch hole locations before using self-drilling type screws to prevent skating. Replace screws that are not centered in their holes.
- F. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

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3.4. ADJUSTING

- A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
 - 1. Hardware damaged by improper installation or adjustment methods: repair or replace to Owner's satisfaction.
 - 2. Adjust doors to fully latch with no more than 1 pound of pressure.
 - 3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
 - 4. Adjust door closers per 1.9 this section.
- B. Inspection: Use hardware supplier's consultant or consultant's agent. Include supplier's report with closeout documents.
- C. Final inspection: Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following:
 - 1. Re-adjust hardware.
 - 2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
 - 3. Identify items that have deteriorated or failed.
 - 4. Submit written report identifying problems

3.5 DEMONSTRATION:

- A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.6 PROTECTION/CLEANING:

- A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.
- B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

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3.7 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

HW SET: 01

VERIFY TYPE & LENGTH OF CYLINDER REQUIRED
 BALANCE OF HARDWARE BY STOREFRONT
 SUPPLIER

HW SET: 02

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	STOREROOM LOCK	L9480P 17A	626	SCH
1	EA	SURFACE CLOSER	4011	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS438	626	IVE
1	SET	SEALS	155S	AL	NGP
1	EA	THRESHOLD	896V MS/LA	AL	NGP
1	EA	ARMOR COLLAR	K-24-26D	626	KEE

HW SET: 03

4	EA	HINGE	3CB1SH 4.5 X 4.5 NRP	630	IVE
1	EA	STOREROOM LOCK	L9480P 17A	626	SCH
1	EA	SURFACE CLOSER	4111 AVB SCUSH	689	LCN
1	EA	CUSH SHOE SUPPORT	4110-419	689	LCN
1	SET	SEALS	155S	AL	NGP
1	EA	THRESHOLD	896V MS/LA	AL	NGP
1	EA	ARMOR COLLAR	K-24-26D	626	KEE

HW SET: 04

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	CLASSROOM LOCK	ND70PD SPA	626	SCH
1	EA	SURFACE CLOSER	4111 DEL EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

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HW SET: 05

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	OFFICE LOCK	ND50PD SPA	626	SCH
1	EA	SURFACE CLOSER	4011 DEL H	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436	626	IVE
1	SET	SEALS	5050CL	CLR	NGP

HW SET: 06

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8305-8 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	4011 DEL	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS401CVX	626	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			SIGNS AND GRAPHICS BY OTHERS		
1		THRESHOLD	THRESHOLD BY OTHERS		

HW SET: 07

4	EA	HINGE	3CB1HW 4.5 X 4.5	652	IVE
1	EA	PANIC HARDWARE	99L 996L X 17	626	VON
1	EA	RIM CYLINDER	20-057-ICX	626	SCH
1	EA	CORE ONLY	23-030	626	SCH
1	EA	SURFACE CLOSER	4011 DEL H	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436	626	IVE
1	SET	SEALS	5050CL	CLR	NGP

HW SET: 08

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	ELECTRONIC LOCK	CO-100-CY-70-KP-SPA-PD	626	SCE
1	EA	SURFACE CLOSER	4011 DEL	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

Finish Hardware
 08710-19

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HW SET: 09

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	OFFICE LOCK	ND50PD SPA	626	SCH
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 10

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	PRIVACY SET	ND40S SPA	626	SCH
1	EA	SURFACE CLOSER	4111 DEL EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS401CVX	626	IVE
3	EA	SILENCER	SR64	GRY	IVE
1			SIGNS AND GRAPHICS BY OTHERS		
1		THRESHOLD	THRESHOLD BY OTHERS		

HW SET: 11

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	STOREROOM LOCK	ND80PD SPA	626	SCH
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 12

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	PASSAGE SET	ND10S SPA	626	SCH
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 13

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	STOREROOM LOCK	ND80PD SPA	626	SCH
1	EA	SURFACE CLOSER	4011 DEL H	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

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HW SET: 14

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	STOREROOM LOCK	ND80PD SPA	626	SCH
1	EA	SURFACE CLOSER	4011 DEL	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HW SET: 15

4	EA	HINGE	3CB1 4.5 X 4	652	IVE
1	EA	CLASSROOM LOCK	ND70PD SPA	626	SCH
1	EA	SURFACE CLOSER	4011 DEL H	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	DOME STOP	FS436	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

END OF SECTION

SECTION 08800

GLAZING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all glass and glazing including mirrors, as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.

1.02 QUALITY ASSURANCE

A. Glass Standards:

1. All glass shall meet ASTM C1036-85, ANSI Z97.1, and CPSC 16 CFR 1201 Standards.

B. Glazing Standards:

1. Flat Glass Marketing Association "Glazing Manual".
2. SIGMA "Glazing Recommendations for Sealed Insulating Glass Units".

1.03 SUBMITTALS (SEE SECTION 01340)

A. Samples:

1. 12" x 12" of each specified type, class and thickness.

B. Project data:

1. Guarantee: See Section 01750.

1.04 JOB CONDITIONS

- A. Do not proceed with installation under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations.

1.05 GUARANTEE

- A. Written 2-year guarantee signed by installer to cover weather tightness of installation including air and water integrity.
- B. Written 2-year guarantee signed by manufacturer or fabricator of insulating glass units.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Glass types:
 - a. Base: Pittsburgh Plate Glass; Pilkington; or approved substitute.
 - 2. Other manufacturers desiring approval comply with Section 01640.
- B. Glass Materials:
 - 1. Comply with indicated standards.
 - 2. See "Glass Types Schedule" for listing of types.
- C. Glazing compounds:
 - 1. Non-sag, non stain type.
 - 2. Pigmented to match frame units not requiring painting.
 - 3. Compatible with adjacent surfaces.
 - 4. For use in setting glass: One or two-part polyurethane or silicone sealant.
 - 5. Sealant tape: Preformed butyl rubber sealant type of ribbon having a continuous neoprene rubber shim.
 - 6. Gaskets: Polyvinyl chloride or neoprene, extruded, flexible, of profile and hardness required to receive glass and provide a watertight installation.
- D. Setting blocks and spacers: Neoprene, compatible with sealants used.
 - 1. Setting blocks: 70 - 90 durometer.
 - 2. Spacers: 40 - 50 durometer.

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3. Compressible filler stock: Closed-cell jacketed rod stock of synthetic rubber or plastic foam.
- E. Shims, clips, springs, angles, beads, attachment screws and other miscellaneous items: As indicated or required.
- F. Mirror edge sealant: Pittsburg Paints CRL-PPG mirror Edge Sealant - #UC 44554. Edges of all mirrors to be coated with edge sealant prior to installation. Applied per manufacturer's recommendations.

2.02 GLASS TYPES SCHEDULE (See Glazing Schedule on Drawing)

A. Fixed Glass:

Type A: 1" thick insulated glass: Outer layer – ¼" tempered PPG Solarban 60 on Solarbronze Low-E (#2 surface); Airspace – ½" air fill; Inner Layer – ¼" tempered clear. Provide samples for architect's review and approval prior to ordering material. (U = .27; SC = .31; and SHGC = .27)

Type B: Mirror - Float, 1/4", copper backing, polished chrome setting channels. Guaranteed 5 years against backing spoilage. Seal edges with CRL-PPG edge sealer.

Type C: Obscure Glass: 9/16" thick laminate with ¼" clear glass, 0.030" Vanceva Arctic Snow (2165) PVB, and ¼" clear glass. Provide samples for architect's review and approval prior to ordering material. (U = .86; SC = .70; and SHGC = .61)

Type D: Exterior Laminated Safety Glass – 9/16" laminate – ¼" PPG Solarban 60 on clear Low-E (#2 surface); 0.060" Clear PVB; ¼" PPG Solarbronze. (U = .87; SC = .43; and SHGC = .37)

Type E: ¼" Tempered Clear Glass

B. Exterior Glass Entrance Doors:

Provide tempered insulating glass doors as shown on drawings manufactured by "US Aluminum" or equal.

1. Glass: 1" Insulating glass – Type A glass above.
2. Door style: Medium stile design (see section 08410) with 10" high bottom rail. Each door shall include hard-backed poly pile weather-stripping for all edges of the door. Finish shall be #11 clear anodized aluminum.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine framing or glazing channel surfaces, backing, stop design, and conditions under which glazing is to be performed.

3.02 INSTALLATION

- A. Do not install glass with edge damage, or mirrors with any silver flaking.
- B. Contractor is responsible for correct glass size for each opening, within tolerances and dimensions established.
- C. Comply with combined recommendations of material manufacturers, except where more stringent requirements are indicated.
- D. As a minimum, comply with FGMA Glazing Manual and SIGMA Glazing Recommendations for Sealed Insulating Glass Units.
- E. Install sealants as recommended by sealant manufacturer.
- F. Install setting blocks in adhesive.
- G. Provide spacers inside and out, of proper size and spacing, for all glass sizes larger than 50 united inches, except where gaskets are used for glazing. Provide 1/8" minimum bite of spacers on glass. Use thickness equal to sealant width. Use preshimmed tape, if tape is used.
- H. Prevent sealant exudation from glazing channels of insulating glass.
 - 1. Leave void at heel (or install compressible filler) at jambs and head.
 - 2. Do not leave void (or install filler) at sill.
- I. Miter cut and bond gasket ends together at corners.
- J. Immediately after installation, attach crossed streamers to framing held away from glass. Do not apply anything to surfaces of glass.
- K. Remove, and replace damaged glass.
- L. All mirrors to be set on counters or splash ledges without full silicone bead to allow moisture to escape.

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3.03 CLEANING AND PROTECTION

- A. Maintain glass reasonably clean during construction, so that it will not be damaged by corrosive action and will not contribute to deterioration of other materials.
- B. Wash and polish glass on both faces not more than 7 days prior to Owner's acceptance of work in each area. Comply with glass manufacturer's recommendations.

END OF SECTION

**DIVISION 9
FINISHES**

SECTION 09120

CEILING SUSPENSION SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all acoustic ceiling and drywall suspension systems as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Section 09510 – Acoustical Ceilings
2. Seismic bracing for mechanical and electrical equipment installed in ceilings: Division 15 and 16.
3. Section 09250 – Gypsum Board

1.02 QUALITY ASSURANCE

- A. Standard for suspension systems: ASTM C635.
- B. Standard for installation: ASTM C636.
- C. Title 24, C.C.R. Part 2, latest adopted C.B.C.

1.03 SUBMITTALS

- A. Samples: Submit data for suspension system main tees and cross tees for review and acceptance.
- B. Shop drawings:

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1. Reflected ceiling plans: Submit ceiling suspension system layout to indicate ceiling modules and related lighting and mechanical systems. Drawings shall show components dashed behind suspended dry wall.
 2. Assembly drawings: Indicate module dimensions, accessory attachments, details of how 2' x 4' light fixtures and/or a/c diffusers will be framed, and installation of related components.
- C. Manufacturer's data:
1. System details: Submit manufacturer's descriptive literature or standard drawings showing details of system with project conditions clearly identified, and manufacturer's recommended installation instructions.
 2. Exposed trim to be manufacturer's standard color to match the T-bar system.
- D. Maintenance materials: Provide additional main tees and cross tees.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Delivery of materials: Deliver materials in original, unopened packages clearly labeled with manufacturer's name, item description, part number, type and class, as applicable.
- B. Inspection: Promptly inspect delivered materials, file freight claims for damage during shipment, and order replacement material, as required.
- C. Storage: Store in manner that will prevent warpage, scratches, or damage of any kind. Prevent interference to/by other trades and any other adverse job conditions due to storage location or methods.
- D. Handling: Handle in such manner to ensure against racking, distortion or physical damage of any kind.

1.05 PROJECT CONDITIONS

- A. Existing conditions: (Include specific alteration work requirements for the project).
- B. Environmental requirements:
 - 1. Building conditions: Building shall be enclosed with all windows and exterior doors in place and glazed, and the roof watertight before installation of suspension system.
 - 2. Interior temperature/humidity in building: Climatic conditions in areas to receive ceiling suspension systems shall range from 60°F (15.56° C) to 85°F (29.44° C) and relative humidity of not more than 70% shall be maintained before installation of components.
- C. Coordination with other work:
 - 1. General: Coordinate with other work supported by or penetrating through the ceiling, including mechanical and electrical work and partition systems.
 - 2. Mechanical work: Ductwork above suspension system shall be complete and permanent heating and cooling systems operating.
 - 3. Electrical work: Installation of conduit above suspension system shall be complete before installation of suspension system.
- D. Protection: Protect completed work above suspension system from damage during installation of suspension system components.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Metal suspension systems (steel):
 - a. Base: Armstrong World Industries, Inc.
 - 2. Other manufacturers desiring approval comply with Section 00440.
- B. Acoustical ceiling suspension systems - General: Heavy duty systems, ASTM C635 and ASTM C636.
 - 1. Main runner jointing by spliced interlocking ends; tab locks, pin locks, or other suitable connections; tie ends together.

2. Cross runners interlocking with main runners.
 3. Provide types indicated.
 4. Provide seismic bracing per drawings.
- C. Suspension system for supporting acoustical ceilings.
1. Armstrong "Prelude" XL Heavy Duty suspension system. Factory baked polyester White finish.
 2. Main Runners: #7301 (144", runs 12" o.c., notched 24" o.c. Heavy duty). Rotary stitched double web construction, web height of 1-11/16" with rectangular top bulb..
 3. Cross Tees: Double web construction, web height 1-11/16" with peaked roof top bulb. Staked on end detail allows cross tee removal. Double rotary stitched for cross tee stability and tight miter condition at all perimeter cuts.
 6. Wall Track: Hemmed shadow moulding with prefinished flanges. #7800 (120", 7/8" x 7/8" angle). Factory baked polyester White finish.
- D. Hangers:
1. Galvanized, soft annealed steel wire for general use.
- E. Trim: Provide wall track as described above wherever ceiling supported by acoustical ceiling suspension system meets walls, partitions, other vertical elements, and other types of ceilings or ceiling fixtures; where ceiling mounted fixtures have integral flange trim, no additional trim is required.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify suitability of substrate to accept installation.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 PREPARATION

- A. Consult other trades involved before start of ceiling work to determine areas of potential interference.
- B. Do not start installation until interferences have been resolved.

3.03 INSTALLATION - ACOUSTICAL CEILING SUSPENSION SYSTEM

- A. Install in accord with ASTM C636, and manufacturer's instructions.
- B. 12 ga. (min.) hanger wires may be used for up to and including 4'-0" x 4'-0" grid spacing along main runners. Splices will not be permitted in any hanger wires.
- C. Provide 12 ga. hanger wires at the ends of all main and cross runners within 8" from the support or within 1/4 of the length of the end tee, whichever is least, for the perimeter of the ceiling area. End connections for runners which are designed and detailed to resist the applied horizontal forces may be used in lieu of the 12 ga. hanger wires subject to OSHPD approval.
- D. Provide trapeze or other supplementary support members at obstructions to main hanger spacing. Provide additional hangers, struts or braces as required at all ceiling breaks, soffits or discontinuous areas. Hanger wires that are more than 1 in 6 out of plumb are to have counter-sloping wires.
- E. Provide sets of four 12 ga. splayed bracing wires oriented 90 degrees from each other at the following spacing:
 - 1. Place sets of bracing wires not more than 8 feet by 12 feet on center. Provide bracing wires at locations not more than 1/2 the spacings given in previous sentence, from each perimeter wall and at the edge of vertical ceiling offsets.

The slope of these wires should not exceed 45 degrees from the plane of the ceiling and should be taut without causing the ceiling to lift. Splices in bracing wires are not permitted.
- F. Fasten hanger wires with not less than 3 tight turns. Fasten bracing wires with 4 tight turns. Make all tight turns within a distance of 1-1/2 inches. Hanger or bracing wire anchors to the structure should be installed in such a manner that the direction of the wire aligns as closely as possible with the direction of the forces acting on the wire. Wire turns made by machine where both strands have been deformed or bent in wrapping can waive the 1 1/2" requirement, but the number of turns should be maintained, and be as tight as possible.
- G. Separate all ceiling hanging and bracing wires at least 6 inches from all unbraced ducts, pipes, conduit, etc. It is acceptable to attach lightweight items, such as single electrical conduit not exceeding 3/4" nominal diameter, to hanger wires using connectors.

- H. Attach all light fixtures to the ceiling grid runners to resist a horizontal force equal to the weight of the fixtures.
- I. Flush or recessed light fixtures and air terminals or services weighing less than 56 pounds may be supported directly on the runners of a heavy duty grid system but, in addition, they must have a minimum of two 12 ga. slack safety wires attached to the fixture at diagonal corners and anchored to the structure above. All 4 ft. x 4 ft. light fixtures must have slack safety wires at each corner.

All flush or recessed light fixtures and air terminals or services weighing 56 pounds or more must be independently supported by not less than 4 taut 12 ga. wires each attached to the fixture and to the structure above regardless of the type of ceiling grid system used.

The 4 taut 12 ga. wires including their attachment to the structure above must be capable of supporting 4 times the weight of the unit.
- J. Support surface mounted light fixtures by at least two positive devices which surround the ceiling runner and which are each supported from the structure above by a 12 ga. wire. Spring clips or clamps that connect only to the runner are not acceptable. Provide additional supports when light fixtures are 8 feet or longer.
- K. Support pendant mounted light fixtures directly from the structure above with hanger wires or cables passing through each pendant hanger and capable of supporting 4 times the weight of the fixture. (See also Note H.)
- L. Ceiling grid members may be attached to not more than 2 adjacent walls. Ceiling grid members should be at least 1/2 inch free of other walls. If walls run diagonally to ceiling grid system runners, one end of main and cross runners should be free and a minimum of 1/2 inch clear of wall.
- M. At the perimeter of the ceiling where main or cross runners are not connected to the adjacent wall, provide interconnection between the runners at the free end to prevent lateral spreading. A metal strut or a 16 ga. wire with a positive mechanical connection to the runner may be used. Where the perpendicular distance from the wall to the first parallel runner is 12" or less, this interlock is not required.
- N. Tightly secure supporting members to hangers to prevent vertical displacement and rotation to tolerance of 1/360 of span.
- O. Install molding where ceilings meet walls, partitions other vertical elements, and other types of ceilings.
 - 1. Support runners and border units on moldings.

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2. Secure moldings to wall construction by fastening through holes drilled in web.
 3. Space holes not more than 3" from each end and not more than 16" on center.
 4. Draw up fasteners for tight set against vertical surfaces.
 5. Miter cut inside and outside corners.
 6. Level to a tolerance no more than 1 in 100.
 7. Install moldings with exposed leg supporting bottom flange of exposed runners.
- P. Leave suspension system ready to accept installation of acoustic materials.
- Q. Coordinate installation with equipment support system.

END OF SECTION

SECTION 09205

FURRING AND LATHING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all metal furring and lathing for soffits and walls as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Furring for suspended gypsum wallboard ceilings: Section 09250.
2. Portland cement plaster for soffits and vertical surfaces: Section 09220.

1.02 QUALITY ASSURANCE

A. Wherever a fire-resistance classification is indicated or scheduled provide materials, accessories and application procedures which have been listed by U/L or tested according to ASTM E119-80 for type of construction.

B. Furring and lathing standards:

1. CBC – latest edition.
2. Applicable requirements of ASTM C841-80.
3. Metal Lath Association recommendations.

C. Materials standards:

1. Lath: ASTM C841-76 and ANSI/ASTM C847-77.

1.02 SUBMITTALS (SEE SECTION 01340)

A. Product Data.

PART 2 - PRODUCT

2.01 MATERIALS

A. Acceptable manufacturers:

1. Furring and lathing: CEMCO
2. Other items as noted.
3. Other manufacturers desiring approval comply with Section 01640.

B. Metal lath: ASTM C841-76 (galvanized).

1. Flat or ribbed lath of weight required for type and support spacing. "CEM-Mesh K" or "CEM-Rib" with factory applied Kraft paper backing.
 - a. "CEM-Mesh K": 2.0 lbs. - 24" o.c. framing;
(ESR-1623) 2.0 lbs. - 16" o.c. framing.
 - b. "CEM-Rib": 3.4 lbs. - 3/8" high ribs.
(ESR-1623)

C. External corner beads: No. 1A Expanded corner bead.

D. Inner corner reinforcement: 2" x 2" min. Cornerite pre-shaped to 105 degrees for snug fit.

D. Casing beads:

1. Where plaster abuts dissimilar construction: No. 66 expanded flange casing bead or "Fry" per details on drawings. Use 7/8" width on traditional stucco thicknesses. Use 1 1/4" width for tile applications. See details for location and method of application.
2. At bottom of plywood edges at sill plates: No. 66 short flange casing bead appropriate to thickness of plywood. See details for application method.

- E. Control and/or expansion joints:
 - 1. "Fry" reveals:
 - a. Where detailed on drawings. Factory prime painted ready for field painting.
 - b. Factory fabricated intersections:
 - (1) "+" intersections.
 - (2) "T" intersections.
 - (3) "L" intersections.
 - c. Connector clips.
- F. Vent (Slotted) Reveals: Extruded aluminum, 0.0625" thick vented drip screed.
 - 1. Finish: Factory prime painted ready for field painting.
 - 2. Fry Reglet Corp.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify suitability of substrate to accept installation.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 INSTALLATION - LATH

- A. Use metal lath of type and weight required to comply with referenced standards.
 - 1. Provide intermediate metal furring supports if required.
- B. Locate end laps over supports. Lap minimum 1". Stagger end laps over different supports.
- C. For vertical surfaces: Use nails with 3/4" penetration into wood or as required by local building code. Exterior attachments must be zinc coated, or 16 ga. galv. staples 7/8" x 3/4" wide. Use 1-1/4" long staples as conditions require.
- D. For horizontal surfaces: Use 11 ga. galv. nails 1-1/4" long with a 7/16" head, or 16 ga. galv. staples, 7/8" long x 3/4" wide - 6" oz.. Use 1-1/4" long staples as required.

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- E. For metal framing members: Use self-tapping 1/2" x 3/4" phillips head with 1/2" wafer head.

3.03 INSTALLATION - PLASTER ACCESSORIES

- A. Attach accessories to bases or substrates with galvanized fasteners spaced maximum 6" on center.
 - 1. Nail to masonry, concrete or wood.
 - 2. Use self-tapping metal screws for all metal stud framing.
- B. Use single length beads wherever length of run does not exceed longest standard stock length available.
 - 1. Miter or cope at corners.
 - 2. Set beads with maximum tolerance of 1 in 100 from plumb or level.
 - 3. Shim as required and align joints with factory fabricated concealed splices or tie plates.
- C. Install corner reinforcement at all external corners.
- D. Install control joints at locations indicated; if not indicated, provide control joints to divide plaster into areas of not more than 100 square feet, and locate at natural crack locations. Architect must approve all locations prior to installation.
 - 1. Install in accord with manufacturer's instructions.

END OF SECTION

SECTION 09220

PORTLAND CEMENT PLASTER

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all Portland cement plaster for soffits and vertical surfaces as indicated, in accord with provisions of Contract Documents. Includes all soffited areas, and other wall or ceiling conditions.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related Work specified elsewhere:

1. Furring and lathing: Section 09205.

1.02 QUALITY ASSURANCE

- A. Plastering standards: California Building Code, latest adopted Edition and ANSI A42.2 for "Portland Cement and Portland Cement Lime Plastering, Exterior (stucco) and Interior".

1.03 JOB CONDITIONS

- A. Protect contiguous work from rusting, damage or soiling as a result of plastering operations.
- B. Protect exterior plaster against climatic conditions as specified in ANSI Standards, and as required to prevent freezing or uneven and excessive evaporation from hot dry air.
- C. Maintain minimum temperature of 55 degF in areas to be plastered for one week prior to, during, and after application.
1. Assure natural or mechanical ventilation.
 2. Comply with ANSI Standards.

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1.04 SUBMITTALS (SEE SECTION 01340)

- A. Samples: Provide 4' x 4' finished textured sample of each color and texture specified for Architect to review and approve prior to installation of finish coat.
- B. Product Data Sheets on stucco material, trim, reveals, accessories, and integral colors.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. US Gypsum Co..
 - 2. Other manufacturers comply with Section 01640.
- B. Portland Cement: ANSI/ASTM C150, Type I or IA.
- C. Lime: ANSI/ASTM C206, Type S.
- D. Aggregate: ANSI/ASTM C35.
- E. Water: Potable.
- F. Portland cement finish coat: Provide factory-prepared proprietary product containing all materials required for finish coat, except water.
 - 1. U.S. Gypsum Co.
 - 2. Integral Color Finish Coat:
 - a. Base: None Used.
 - 3. Finishes (See exterior finish schedule on drawings for locations):
 - a. Light Dash texture applied with plaster gun.
- G. Bonding material: Larsen's Products Corp. Weld-Crete.
- H. Metal Lath: See Section 09205.
- I. Plaster Reveals and Moldings: "Fry", or "CEMCO" as indicated on drawings. Provide factory fabricated intersections. See Section 09205.

2.02 MIXING AND PROPORTIONING

- A. Use ready-mixed materials in accord with manufacturer's instructions.
- B. Mix each batch of plaster in quantity which can be used before it starts to set. Discard plaster which has started to set. Do not retem per.
- C. Follow ANSI standards.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine surfaces to receive plaster; check lath for completeness and soundness.
- B. Correct unsatisfactory conditions.
- C. Start of work constitutes acceptance of substrates and responsibility for performance.

3.02 PREPARATION

- A. Clean surfaces and remove loose and deleterious substances.

3.03 INSTALLATION

- A. Do not use frozen, lumpy, or contaminated materials. Use clean water.
- B. Plaster flush with built-in items.
 - 1. Where plaster is not terminated at metal by casing beads, cut basecoat free before plaster sets.
 - 2. Groove finish coat at junctures with metal.
- C. All interior and exterior corners are to be finished 90 degree corners, using corner reinforcement as specified in Section 09205 – Furring and Lathing.
- D. Whenever permanent grounds are too far apart to serve as guides for rodding, provide plaster screeds and establish true surfaces of screeds with rod before screeds are set.
 - 1. Keep grounds clean.
 - 2. Finish plaster level with grounds.
- E. Apply minimum plaster thicknesses as established by referenced standards.

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- F. Apply greater thickness if indicated.
- G. Use 3-coat plaster system.
 - 1. Apply at consistency required to achieve uniformity.
- H. This Contractor shall provide and apply scratch coat to all shower locations, for setting bed application by others.
- I. Apply finish coat minimum 1/8" thick.

3.04 FIELD QUALITY CONTROL

- A. First coat shall be allowed to dry at least 48 hours, with 48 hours duration between first and second coat. Second coat shall be allowed to dry at least 48 hours with 7 days duration between second and finish coat. Allow another 7 days cure time before painting finish coat.
- B. Plaster which is cracked or crazed will not be accepted.
- C. Remove and replace unacceptable plaster, including base materials if damaged during removal of defective plaster.

3.05 REPAIR AND CLEANING

- A. Cut, patch, repair and point-up plaster as required and as directed by Architect.
 - 1. Repair cracks and indented surfaces by moistening plaster and filling with new material.
 - 2. Re-shoot with plaster gun all adjoining surfaces, to match texture specified for finish or adjacent area finish.
 - 3. Point-up finish plaster surfaces around items which are built into or penetrate plaster.

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- B. Promptly remove misplaced plaster from surfaces which are not to be plastered .
1. Repair surfaces which have been stained, marred or damaged during plastering work.
 2. When plastering is completed, remove unused materials, containers and equipment.
 3. Clean adjacent surfaces of plaster debris.

END OF SECTION

SECTION 09250

GYP SUM BOARD

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all gypsum board work as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 QUALITY ASSURANCE

- A. Wall furring and suspended ceiling installation standards: ASTM C841.
- B. Fire-resistant materials and assembly standards: Provide materials, accessories and application procedures which have been tested in accord with ASTM E119, and listed by U/L, or other approved testing laboratory, for type of construction and rating indicated, and accepted by local code authority.
- C. Installer must have a minimum of 3 years experience installing drywall systems.

1.03 JOB CONDITIONS

- A. Coordinate installation with work of other trades to allow time for correct installation of their work.

1.04 SUBMITTALS (SEE SECTION 01340)

- A. Samples: Provide 4' x 4' finished textured sample of each texture specified for Architect to review and approve prior to installation of finish coat.
- B. Product Data Sheets on gypsum board material, accessories, and texture material.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Gypsum wallboard:
 - a. Base: U.S. Gypsum Co., and as noted for individual items.
 - b. Optional manufacturers: National Gypsum Co.; Celotex Corp.; Flinkote Building Products Co.; and Georgia-Pacific, Domtar Gypsum Co.
 - 2. Accessories: U.S. Gypsum Co., CEMCO, Clarke-Western, or Fry Reglet.
 - 3. Other manufacturers desiring approval comply with Section 01640.
- B. Gypsum wallboard: ANSI/ASTM C36. Furnish in lengths as long as practicable with tapered edges.
 - 1. Interior non-fire rated board: 5/8" thick.
- C. Gypsum Spray Texture:
 - 1. USG Spray texture finish - unaggregated form.
 - 2. "Orange Peel" - light finish.
- D. Gypsum wallboard accessories: Galvanized for general use, zinc for wet areas.
 - 1. Corner bead: Clarke-Western standard drywall corner bead.
 - 2. Edge metal: Clarke-Western #202 drywall "L" metal.
 - 3. Drywall Moldings: Aluminum Fry Reglet as indicated on drawings. Provide factory fabricated intersections.
- E. Screws:
 - 1. For Gypsum Board to Metal Framing: ASTM C1002 Type S Bugle Head - 1/2"; 1-1/4"; and 1-3/4" long where applicable.
 - 2. For Gypsum Board to Wood Framing: ASTM C1002 Type W Bugle Head - 1-1/4" length to penetrate framing member not less than 3/8".
- F. Joint treatment compound: ANSI/ASTM C475.

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- G. Joint tape: Perforated type, ANSI/ASTM C475.
- H. Caulking, sound: Acrylic based - see Section 07915.
- I. Furring Channels: 25 gauge x 1" x 2" angles.

PART 3 - EXECUTION

3.01 INSPECTION AND PREPARATION

- A. Examine supporting structure and conditions under which wallboard is to be installed.
- B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 INSTALLATION - GENERAL

- A. Erect in strict accordance with wall details to comply with sound attenuation requirements.
- B. Apply joint treatment compound in accord with manufacturer's directions.
 - 1. Fill joints and internal corners with compound.
 - 2. Embed tape in compound.
 - 3. After drying, apply additional compound to joint, feather out on each side of joint until a smooth, even surface, free of defects, is obtained.
 - 4. Install other accessories in like manner.
- C. Apply joint treatment compound over heads of fasteners.
 - 1. Allow to dry, then lightly sand.
 - 2. Apply second layer and sand.
- D. Avoid roughing paper.
- E. Spray texture evenly to surfaces to provide a light "Orange Peel" finish.
- F. If wallboard is damaged or surfaces are roughened, repair, or remove and replace, to satisfaction of Architect, at no additional cost to Owner.

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- G. Apply drywall primer with roller to equalize drywall porosity and texture.
- H. After painter has applied primer to wallboard surfaces, repair and refinish any areas which show defects.

END OF SECTION

SECTION 09310

CERAMIC TILE

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all ceramic tile, marble, granite, and exterior pavers as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 QUALITY STANDARDS

A. Tile grading and certification: ANSI A137.1-1995.

B. Tile installation standards:

1. Tile Council of America/Ceramic Tile Institute Handbook for Ceramic Tile Installation, latest edition.
2. American National Standards Institute Specifications for the Installation of Ceramic Tile, as indicated.

1.03 SUBMITTALS (SEE SECTION 01340)

A. Samples:

1. (4) 6" x 6" tile samples and corresponding grout colors.

1.04 PRODUCT DELIVER, STORAGE AND HANDLING

- A. Deliver materials and store on site in original containers with seals unbroken and grade labels intact until use.
- B. Provide grade identification on each container.

1.05 JOB CONDITIONS

- A. Maintain temperature at minimum 50 degF during tile work and for a minimum of 7 days after completion.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
1. Adhesives, mortars, grouts and leveling compounds (except combination waterproofing and adhesive):
 - a. Base: Custom Building Products.
- B. Grout: Polymer – Modified Portland Cement Grout.
1. Custom Building Products Polyblend Sanded Tile Grout; ANSI A118.6, for joints 1/8" – 1/2" wide.
 2. Mix in accord with manufacturer's instructions.
 3. Colors as noted on the drawings.
- C. Cementitious Tile Adhesive: ANSI A118.4 – Polymer-Enhanced Mortar.
1. Custom Building Products Versabond Flex Fortified Thin-Set Mortar.
- D. Mortar Bed Installations: Where indicated on the drawings for mortar bed as the substrate for tile work – conform to ANSI A108.1.
1. Custom Building Products Custom Float Bedding Mortar mixed with 1/2 water and 1/2 Thin – Set Mortar Admix.
- E. Leveling compound: As required; use only where necessary to obtain satisfactory installation.
- F. Backer Board: 1/2" thick "Hardie" Backer Board.
- G. Elastomeric Joint Sealant: ANSI A108.01.3.7, where indicated on the drawings.
1. All joints between floors and walls and at joints between tile and dissimilar materials.

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2.02 SCHEDULE OF CERAMIC TILE

- A. Ceramic Tile Schedule:
 - 1. See drawings for locations of specific sizes and colors.

2.03 EXTRA MATERIAL

- A. Extra tile: Upon completion of work, deliver extra tile of same size, pattern and color as used on job to Owner for use in repair and maintenance work.
 - 1. Furnish tile in original boxes, properly marked:
 - 2. Provide 12 sf. of each type and color.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine substrates and conditions under which tile is to be installed.
- B. Correct unsatisfactory conditions.

3.02 INSTALLATION - (FOR THIN SET)

- A. Provide setting beds as required for floor and wall installations. See drawings for locations and details.
- B. Install tile in accordance with Tile Council of America Details:
 - 1. Floors (Interior):
 - a. Concrete: Detail F 111-99 for cement mortar method. Include cleavage membrane.
 - b. Concrete: Detail F 113-99 for dry-set mortar method. Include bond coat.
 - 2. Walls (Interior):
 - a. Wood Stud Framing: Detail W 243 with dry-set portland cement mortar or latexbond coat. Use "Hardie" Backer Board in lieu of gypsum board backing.

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3.03 INSTALLATION - GENERAL

- A. Setting:
 - 1. Place tiles in patterns shown on drawings.
 - 2. Align tile joints on adjoining walls, where applicable.
 - 3. Lay out and center tile fields in both directions in each space or on each wall area.
 - 4. Avoid use of tile and pavers less than 1/2 size.
 - 5. Adjust tile and pavers to minimize cutting.
 - 6. Provide uniform joint widths.
- B. Maintain nominal 1/4" wide joint at perimeter of tile and paver floor areas and caulk with sealant.
- C. Extend combination waterproofing membrane up walls and over curbs.
- D. Perform water test without leakage for 12 hours prior to installing tile.

3.05 PROTECTION

- A. Protect installed tile work with Kraft paper or other non staining covering during construction to prevent damage.

END OF SECTION

SECTION 09510
ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all acoustical materials as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Ceiling suspension system: Section 09120.

1.02 SUBMITTALS (SEE SECTION 01340)

- A. Provide (4) 6" x 6" samples of each tile material type.
- B. Provide product data for each material type.

1.03 JOB CONDITIONS

- A. Carefully coordinate ceiling layout with other work that penetrates acoustical ceiling systems.

PART 2 - PRODUCTS

2.01 SCHEDULE OF ACOUSTICAL MATERIALS

A. Mineral fiber –

1. Ceiling Type #1: Non rated suspended acoustical tile ceiling. Armstrong 24" x 24" x 3/4" thick "Cirrus" , white #589 beveled tegular, with Armstrong "Prelude XL" 15/16" heavy duty exposed tee system. White colors.

2.02 ACOUSTICAL MATERIALS

- A. Acceptable manufacturers:
 - 1. Acoustical materials: As indicated for individual products.
 - 2. Other manufacturers desiring approval comply with Section 01640.

- B. Ceiling tile, mineral fiber:
 - 1. Factory applied washable vinyl latex paint finish.
 - 2. Noise reduction coefficient: 0.70
 - 3. Class A incombustible units.
 - 4. Edges uniformly fabricated, true, square and undamaged.
 - 5. Sizes as required to fit suspension system and as indicated.
 - 6. Light reflectance: .86
 - 7. Tegular style:
 - a. Beveled 3/4" thick

2.03 EXTRA MATERIAL

- A. Provide Owner with one carton of type and pattern of material for maintenance purposes. Provide in sealed labeled box to facilitate identification.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine suspension system for suitability to receive acoustic materials.
- B. Installation constitutes acceptance of responsibility for performance.

3.02 INSTALLATION

- A. Install into suspension system in accord with manufacturer's instructions.
- B. Perform field cutting as required to fit materials to grid. Make all cuts square and true.

3.03 CLEANING

- A. Perform cleaning and replacement of defective units in time to avoid delay in progress of work and before final acceptance of work.

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- B. Carefully clean all soiled surfaces. Remove and replace all irregular, discolored, defective or damaged components at no additional expense to Owner.

END OF SECTION

SECTION 09655

RESILIENT TILE FLOORING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all resilient tile flooring as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 QUALITY ASSURANCE

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

1. ASTM D638M-91 Standard Test Method for Tensile Properties of Plastics.
2. ASTM E648-88 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.
3. ASTM E662-83 Test Method for Specific Density of Smoke Generated by Solid Materials.
4. ASTM F510-81 (1987) Standard Test Method for Resistance to Abrasion of Resilient Floor Coverings Using an Abrader with a Grit Feed Method.
5. ASTM F1303-90 Specification for Sheet Vinyl Floor Covering.
6. ASTM F710-86 Practice for Preparing Concrete Floors and Other Monolithic Floors to Receive Resilient Flooring.

B. National Fire Protection Association (NFPA):

1. NFPA 253-1984 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source.

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2. NFPA 258-1989 Test Method for Specific Density of Smoke Generated by Solid Materials.
- C. Applicator must be approved in writing by materials manufacturer.

1.03 SUBMITTALS (SEE SECTION 01340)

- A. Samples:
1. Provide (4) four samples of types and colors selected by Architect.
- B. Project data:
1. Certification of applicator qualifications.
 2. Letter that extra material has been delivered to Owner.
 3. Guarantee

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Store in heated space at minimum 70°F for 72 hours before use.

1.05 JOB CONDITIONS

- A. Maintain temperature in spaces to receive flooring at minimum 70°F for 72 hours prior to, during, and 72 hours after installation.
- B. Remove any compounds applied to concrete, that might retard satisfactory drying, in time to prevent delay. If artificial heating or cooling is required, furnish it.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
1. Sheet linoleum manufacturers:
 - a. Base: Ozoloc
 2. Rubber base manufacturers:
 - a. Base: Burke Flooring
 3. Other manufacturers desiring approval comply with Section 01640.
- B. Rubber Base: 4" high Thermoset Vulcanized Rubber Base.
1. "Cove" Base for all linoleum flooring applications and "Toeless" Base for all carpet flooring applications. Provide factory pre-molded rubber wall base corners for outside and inside corners.

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a. Color shall be #434 Cherrywood.

C. Resilient interlocking non-adhesive Tiles.

1. Ozoloc "Concrete" color #62842KC and color #62851KC. Colors are to be installed in accordance with patterns and layout shown on drawings.

a. 12" x 24" non-adhesive type interlocking Tiles

b. Width: 12"

c. Length: 24'

d. Gauge: 4.5mm

e. Weight: 3.77 lbs. per tile/34 lbs. per carton

f. Coverage: 2 SF/tile/9tiles per carton/18 SF per carton

g. Pattern and color: "Concrete" #62842KC and #62851KC

h. Wear Layer: 0.5 mm (20 mil) – Thermal Bonded

i. Finish: Infused ceramic bead barrier

j. Coefficient of Friction: ASTM-D2047-93 – 0.60

k. Stain/Chemicals: ASTM – F- 925

l. PSI Load: ATTM-F-970 – 1,000 lbs/square inch

m. Critical Radiant Flux/

Smoke: ASTM-E-648 – Class I – 0.45 watts cm²
ASTM-E-662 - <450

n. Adhesive: Ozoloc Patented Locking system – no adhesive required

o. Warranty: 10-year Limited Commercial Warranty

p. Maintenance: Requires no waxing, stripping, no buffing, and no sealers.

q. LEED Credits: IE Q Credit 4.3 – 1 point

r. Slip resistance: Exceeds/Compliant with ADA requirements
100% water resistant

D. Floor Leveling compound: "Mapei" Ultraplan 1 Plus

E. Transition Thresholds: Solid surface materials between different flooring materials. See Section 06651 for solid surface specifications.

F. Floor Sealer: None required.

G. Concrete Sealer: Dependable Cutdown II

2.02 EXTRA MATERIAL

- A. Furnish Owner with 100 sf. of each color and type for maintenance.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine substrate and conditions under which flooring is to be installed.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.
- C. Installation indicated acceptance of substrates and responsibility for performance.

3.02 PREPARATION

- A. Assure that substrate is dry, clean and level prior to installation.
- B. Sand all concrete substrates smooth.
- C. Apply concrete sealer and underlayment material prior to installing flooring.
- D. Test concrete substrate as recommended by manufacturer to determine moisture content. Do not proceed with installation until moisture content is within manufacturer's acceptable level.
- E. Remove foreign matter that would prevent adhesion. Remove curling compounds.
- F. Rinse subfloor and allow to dry thoroughly before applying adhesive.

3.03 INSTALLATION

- A. Install flooring and base as scheduled for rooms, and under and behind equipment. Install in patterns shown on finish floor plan.
- B. Install material in accord with manufacturer's instructions.
 - 1. Install in maximum possible sizes.
 - 2. Provide transition strips as required where flooring abuts other flooring materials.
 - 3. Install with accurate, tight seams.
- C. All sheets in one room or area to be from same production run. Mismatched materials will be rejected.

3.04 CLEAN

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- A. When final building cleanup is being accomplished, clean flooring in accordance with manufacturer's directions and specifications.
- B. Remove damaged flooring and replace with new flooring at no additional expense to Owner.

END OF SECTION

SECTION 09688

CARPET

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all carpet tile work as indicated in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 QUALITY ASSURANCE

- A. Tests for smoke developed: NFPA 258-76.
- B. Test for static rating: AATCC 134-1975.
- C. Test for critical flux: ASTM E648, Flooring Radiant Panel Test (NBS).
- D. Pill Test: DOC FF-1-70.
- E. Installer qualifications: Trained, skilled mechanics supervised by experienced superintendent.

1.03 SUBMITTALS (SEE SECTION 01340)

A. Samples:

1. Submit (4) 6" x 6" samples of color and type specified.

B. Product data:

1. Manufacturer's technical data and installation instructions.
2. Guarantee: See Section 01750.

C. Submittals of samples and product information for approval – submit to Architect.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver with mill register numbers attached.
- B. Tag and mark accessory items for identification.

1.05 JOB CONDITIONS

- A. Install after all other finishing operations in area are complete.

1.06 GUARANTEE

- A. Guarantee that entire carpet installation complies with specifications and that damaged or defective carpet or carpet stained by adhesives will be removed and replaced. Guarantee that carpet will not show excessive wear for a period of 5 years from date of acceptance. Excessive wear is defined as wearing away of face yarns which reduces pile height by more than 10 percent in any area or pulling out of nap.
- B. Guarantee entire cost of replacement, including removal and disposal of defective carpet.
- C. Written guarantee to be jointly signed by Contractor, installer and manufacturer.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Carpet:
 - a. Base: PacifiCrest
- B. Carpet: First quality, no seconds or imperfects.
 - 1. Comply with applicable state and local codes.
 - 2. Smoke developed (ASTM E662): Less than 450.
 - 3. Static rating: Less than 3.5KV.
 - 4. ASTM E648 Flammability: Class 1 (Glue Down).
- C. Adhesive: Non-staining, non-bleeding strippable type as recommended by carpet manufacturer.
- D. Underlayment: "Mapei" Ultraplan 1 Plus, self – leveling underlayment.
- E. Sealer: "Dependable Cutdown II" for sealing concrete substrate.

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2.02 CARPET

A. Construction:

1. Style: Zeus (P0987)
2. Machine: Patterned loop
3. Yarn System: "XTI" type 6,6 nylon
4. Gauge: 1/8
5. Yarn Construction: 2 ply Heatset
6. Stitches Per Inch: 13.33
7. Finished Ave. Pile Height: .187"
8. Tufted Yarn Weight: 26 oz. per square yard
9. Total weight: 63 oz. per square yard
10. Dyeing Process: Piece Dyed
11. Primary Backing: Woven Polypropylene
12. Secondary Backing: ActionBac
13. Soil Retardant: Royalguard
14. Warranty: 10-year limited abrasive wear and limited Lifetime Anti-static
15. LEED Credits: EQ 4.3 – 1 point
MR 5.1 – 1 point
15. Color: ZS9087-03 Hercules

2.03 EXTRA MATERIAL

- A. Furnish Owner with minimum of 1% additional material of each type, pattern and color for maintenance purposes.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Verify suitability of substrate to accept installation.

- B. Prior to installing carpet, apply "Dependable Cutdown III" concrete sealer in accordance with manufacturer's specifications.
- C. Test for moisture content of substrate in accordance with ASTM F1869-04 to insure sealer is blocking any moisture from coming up through the substrate.

3.02 PREPARATION

- A. Thoroughly clean all areas to receive carpet.
- B. Fill all cracks, joints, holes or uneven areas with "Mapei" Ultraplan 1 Plus high performance, quick setting, self-leveling underlayment.
- C. Before commencing work, test an area with glue and carpet to determine "open-time" and bond.

3.03 INSTALLATION

- A. Install in accord with manufacturer's instructions.
- B. Cut as required, making sure that pile-lay runs in same direction.
- C. Apply adhesive along edges where carpet butts to a wall, where carpet terminates, or to any cut edges.
- D. Apply adhesives as recommended by manufacturer.
- E. Brush or roll looseness and air bubbles out.
- F. Place carpet within allowable open time of adhesive.
- G. Do not mix dye lots in same area.
- H. Place carpet with tight butted joints.
- I. Keep joint lines straight.
- J. Where carpet terminates at non-carpeted floor surface, install threshold from solid surface material specified in Section 06651. Coordinate installation with solid surface fabricator.

3.04 CLEAN

- A. Remove any spillage of glue or adhesive from face or seam using remover provided by manufacturer.
- B. Clean all spots; remove all loose threads.
- C. Completely and thoroughly vacuum.

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- D. Advise maintenance personnel regarding care and maintenance.

END OF SECTION

SECTION 09900

PAINTING

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all painting as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Portland Cement Plaster – Section 09220.
2. Gypsum Board – Section 09250.
2. Painting mechanical and electrical equipment: Section 09940.

C. Definitions:

1. "Paint" and "painting" refer to all applied coatings.
2. Finished room or space: One that has finish called out on Room Finish Schedule.

D. Work Included:

1. Paint all exterior surfaces and all surfaces in finished rooms or spaces, unless noted not to be painted, to be painted under other sections, or items are already "factory" painted and installed.

1.02 QUALITY ASSURANCE

- A. Standard of workmanship: Before proceeding, finish the following items with the specified materials for approval as standard of quality for completed work:

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1. One room in each basic color scheme.
2. One area or item of each color.

1.03 SUBMITTALS (SEE SECTION 01340)

- A. Product data:
 1. Manufacturer's data showing conformance to specifications, for all products.
- B. MSDS Sheets.
- C. Samples:
 1. (4) 8" x 12" samples each of manufacturer's paint and colors specified.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver in original containers, labeled as follows:
 1. Name or type number of material.
 2. Manufacturer's name and stock number.
 3. Contents by volume, of major constituents.
 4. Application instructions.
- B. Protect from freezing or damage.
- C. Store materials in place designated by Owner or Architect. Keep storage neat and clean. Repair damage thereto or to surroundings. Remove rags and waste from building daily. Avoid danger of fire.

1.05 JOB CONDITIONS

- A. Perform no work unless temperature in building is maintained at constant 65 degF or above. Assure that adequate ventilation exists for escape of moisture.
- B. Do not apply paints and coatings in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than five (5) degrees F above the dew point; or to damp or wet surfaces.
- C. Avoid wide temperature variations.

- D. Maintain a rough schedule showing when painter expects to complete respective coats of paint for various areas. Keep schedule current as job progress dictates.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Acceptable manufacturers:

1. Contractor will, in most cases, find it necessary to provide products produced by several different manufacturers. Contractor may propose products for use, which are produced by an acceptable manufacturer when he believes the proposed product is comparable to product listed in specification. Architect must agree that proposed product is comparable before it can be used. If Architect does not agree that proposed product is comparable then Contractor will provide product listed in specifications.
2. Paints:
 - a. Base: ICI Dulux / Glidden Professional.
 - b. Optional: Pratt and Lambert, Dunn-Edwards, Benjamin Moore, Frazee, Devoe Paint, Sherwin-Williams Co.
3. Paint Colors:
 - a. Base: All colors specified are Benjamin Moore colors. Paint specified is from ICI Dulux/Glidden Professional, so colors shall be matched to base paint specified.
4. Structural steel paint (primed in 05120):
 - a. Base: Tnemec.
 - b. Optional: Devoe Coatings.
5. Other manufacturers desiring approval comply with Section 01640.

B. Paints: As specified in paragraphs "Paint Systems - Exterior" and "Paint Systems - Interior".

1. Use best quality by acceptable manufacturers.
2. Paints shall comply with the following maximum VOC Limits:
 - a. Architectural Flat Paints – 50 g/l (SCAQMD / Green Seal GS-11)
 - b. Architectural Non-Flat Paints – 50 g/l (SCAQMD 7/1/07)

- c. Primers, Sealers, Undercoaters – 100 g/l (SCQAMD 7/1/06)
 - d. Anti-Corrosive and Anti-Rust Coatings – 100 g/l (SCAQMD 7/1/06)
 - e. Specialty Primers (Anti-Corrosive) – 100 g/l (SCAQMD 7/1/07)
 - f. Clear Wood Finishes – Varnish – 275 g/l (SCAQMD Rule 1113)
 - g. Clear Wood Finishes – Lacquer – 275 g/l (SCAQMD Rule 1113)
 - h. Floor Coatings – 50 g/l (SCAQMD Rule 1113)
 - i. Sealers – Waterproofing Sealers – 100 g/l (SCAQMD Rule 1113)
 - j. Sealers – Sanding Sealers – 275 g/l (SCAQMD Rule 1113)
 - k. Sealers – All Other Sealers – 100 g/l (SCAQMD Rule 1113)
 - l. Shellac – Clear – 730 g/l (SCAQMD Rule 1113)
 - m. Shellac – Pigmented – 550 g/l (SCAQMD Rule 1113)
 - n. Stains – 100 g/l (SCAQMD Rule 1113)
3. Unspecified products: Use best quality by reputable, recognized manufacturers.
 4. Colors: As noted in Architect's color schedule.
 5. All "low sheen" finish coats shall have a gloss rating of 10 to 15 at 60 deg. angle per ASTM D3134. Add flatteners if necessary to achieve specified gloss.

2.02 INTERIOR PAINT SYSTEMS

A. Drywall (Gypsum Board):

- a. "Dry Areas" - Acrylic Latex Low Odor: ZERO VOC SYTEM
 - 1) 1 coat LM9116 PREP & PRIME Odor-Less Primer-Sealer
 - 2) 2 coats 9300 LIFEMASTER **Eggshell** Interior Enamel

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b. "Wet Areas" - Water-Based High Performance Coatings, Eggshell or Semi-Gloss

- 1) 1 coat 3210 PREP & PRIME GRIPPER Multi-Purpose Primer
- 2) 2 coats 4212HP Devflex - WB Eggshell Acrylic Enamel, or 4216HP Devflex - WB Semi-Gloss Acrylic Enamel

B. Wood (painted) - doors

a. Acrylic Latex Low Odor: ZERO VOC SYSTEM

- 1) 1 coat LM9116 PREP & PRIME Odor-Less Primer-Sealer
- 2) 2 coats 9300 DULUX LIFEMASTER **Eggshell** Interior Enamel

C. Metal (Light trims, air distribution trims, exposed structural members)

a. Acrylic High Performance:

- 1) 1 coat 4020 DEVFLEX Direct to Metal Primer & Flat Finish
- 2) 2 coats 4212HP Devflex - WB Eggshell Acrylic Enamel

2.03 EXTERIOR PAINT SYSTEMS

A. Plaster (spray applied)

- a. 2 coats 2200V DULUX PROFESSIONAL Exterior 100% Acrylic **Flat** Finish – over integral color.

B. Metal

a. Acrylic High Performance:

- 1) 1 coat 4020 DEVFLEX Direct to Metal Primer & Flat Finish
- 2) 2 coats 4212HP Devflex - WB Eggshell Acrylic Enamel, or 4216HP Devflex – WB Semi-Gloss Acrylic Enamel

C. Bonderized and Jetcoat/Galvannealed sheetmetal (back-prime all sheetmetal with one coat primer undercoat prior to installation)

a. Acrylic High Performance:

- 1) 1 coat 4020 DEVFLEX Direct to Metal Primer & Flat Finish
- 2) 2 coats 4212HP Devflex - WB Eggshell Acrylic Enamel, or 4216HP Devflex – WB Semi-Gloss Acrylic Enamel

PART 3 - EXECUTION

3.01 INSPECTION

- A. Examine surfaces carefully for defects which cannot be corrected and might prevent satisfactory results.
- B. Commencing of work in a specific area constitutes acceptance of surfaces, and responsibility for satisfactory work.

3.02 PREPARATION - GENERAL

- A. Assure that surfaces are clean and dry.
- B. Assure that surfaces are free of foreign material which will affect adhesion or appearance.
- C. Remove mildew and neutralize surface.
- D. Eliminate efflorescence before painting.
- E. Before painting, test surfaces with moisture meter.
- F. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that 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.

3.03 PREPARATION - WOOD

- A. Sandpaper smooth, then clean surfaces of all dust.
- B. After priming coat has dried, seal all knots, pitch and resinous sapwood. Putty all nail holes and minor defects, to match wood color.
- C. Wood - Pressed Board, Hard Board, Particle Board, PVC Composition Trim Board: Prime entire surface and all edges with the primer specified. Caulk with a latex-type caulk after priming.

3.04 PREPARATION - FERROUS METAL SURFACES AND HOLLOW METAL

- A. Follow requirements of SSPC-SP 1-63 and 3-63.
- B. Wire brush, or grind as necessary to remove shoulders at edge of sound paint to prevent telegraphing. Best results are obtained over a surface sandblasted to at least a Commercial Blast (SSPC-SP6). Performance over hand or power tool cleaned surfaces is dependent on the degree of cleaning.

- C. Touch up damaged shop coats. For surfaces with touched up shop coat, omit first coat.

3.05 PREPARATION - GALVANIZED METAL SURFACES AND NON-ANODIZED ALUMINUM

- A. Solvent clean per SSPC-SP1 or clean with TSP or other appropriate cleaner followed by thorough water rinsing. If the surface has been treated with chromates or silicates, first clean by the method chosen and apply a test patch of the coating system specified. Allow product(s) to cure at least one week before testing adhesion per ASTM D3359 (tape Adhesion). Brush blast prior to painting if adhesion is poor. Passivate.

3.06 APPLICATION - INTERIOR

- A. Back-prime all wood trim, with penetrating sealer.
- B. Finish door edges same as faces of doors.
- C. Paint all surfaces behind A/C grilles flat black, unless otherwise indicated.

3.07 APPLICATION – EXTERIOR BONDERIZED SHEETMETAL

- A. Back-prime all sheetmetal prior to installation with primer undercoat.
- B. Prime coat all cut edges and seams.

3.08 PROTECTION AND CLEANUP

- A. Protect adjacent work against damage by painting and finishing work. Clean, repair or replace, and repaint damaged work as directed by Architect.
- B. Provide "Wet Paint" signs.
- C. Remove temporary protective wrappings, provided by others for protection of their work, after completion of painting operation. Clean all paint spattered surfaces. Use care not to damage finished surfaces.
- D. Remove any surplus materials, scaffolding and debris. Leave areas broom clean.

END OF SECTION

SECTION 09940

PAINTING MECHANICAL AND ELECTRICAL WORK

PART 1- GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all painting of mechanical and electrical work as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

B. Related work specified elsewhere:

1. Identification of mechanical and electrical work: See Divisions 15 and 16.

C. Definitions:

1. "Paint" and "painting" refer to all applied coatings.
2. Finished room or space: One that has finish called for on Room Finish Schedule.
3. Mechanical work (and equipment): All work included in Division 15.
4. Electrical work (and equipment): All work included in Division 16.

D. Work shall include painting all:

1. Mechanical access panels exposed in habitable rooms, closets or corridors.
2. Electrical panel covers exposed in habitable rooms, closets or corridors. (Do not paint panels located in Electrical or Mechanical Rooms and do not paint labels on covers.)
3. Exposed ductwork, piping, conduit, raceways, busways.

4. All mechanical air diffusers, electrical light trims, and smoke detectors.
- E. Do not paint:
1. Anodized aluminum, chromium plated metal, stainless steel face plates, glass, and light switch and receptacle plates.
 2. Moving parts of operating units.
 3. Code labels, equipment, identification and rating plates.

1.02 SUBMITTALS (SEE SECTION 01340)

- A. Product data:
1. Manufacturer's data showing conformance to specifications, for all products.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver in original containers, labeled as follows:
1. Name or type number of material.
 2. Manufacturer's name and stock number.
 3. Contents by volume, of major constituents.
 4. Application instructions.
- B. Protect from freezing or damage.
- C. Store materials in place designated by Owner or Architect. Keep storage neat and clean. Repair damage thereto or to surroundings. Remove rags and waste from building daily. Avoid danger of fire.

1.04 JOB CONDITIONS

- A. Perform no work unless temperature in building is maintained at constant 65 degF or above. Assure that adequate ventilation exists for escape of moisture.
- B. Do not apply paints and coatings in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than five (5) degrees F above the dew point; or to damp or wet surfaces.
- C. Avoid wide temperature variations.
- D. Maintaining a rough schedule showing when painter expects to complete respective coats of paint for various areas. Keep schedule current as job progress dictates.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Acceptable manufacturers:
 - 1. Paints:
 - a. Base: ICI/Dulux - Glidden Professional
 - b. Optional: Pratt & Lambert, Dunn-Edwards, Benjamin Moore, Pratt and Lambert, Frazee, Devoe Paint, Sherwin-Williams Co.
 - 2. Other manufacturers desiring approval comply with Section 00440.
- B. Paints: As specified in paragraphs "Paint Systems - Exterior" and "Paint Systems - Interior".
 - 1. Use best quality by approved manufacturers.
 - 2. Paints shall comply with the following maximum VOC Limits:
 - a. Architectural Flat Paints – 50 g/l (SCAQMD / Green Seal GS-11)
 - b. Architectural Non-Flat Paints – 50 g/l (SCAQMD 7/1/07)
 - c. Primers, Sealers, Undercoaters – 100 g/l (SCAQMD 7/1/06)
 - d. Anti-Corrosive and Anti-Rust Coatings - 100 g/l (SCAQMD 7/1/06)
 - e. Specialty Primers (Anti-Corrosive) – 100 g/l (SCAQMD 7/1/07)
 - f. Clear Wood Finishes – Varnish – 275 g/l (SCAQMD Rule 1113)
 - g. Clear Wood Finishes – Lacquer – 275 g/l (SCAQMD Rule 1113)
 - h. Floor Coatings – 50 g/l (SCAQMD Rule 1113)
 - i. Sealers – Waterproofing Sealers – 100 g/l (SCAQMD Rule 1113)
 - j. Sealers – Sanding Sealers – 275 g/l (SCAQMD Rule 1113)
 - k. Sealers – All Other Sealers – 100 g/l (SCAQMD Rule 1113)
 - l. Shellac – Clear – 730 g/l (SCAQMD Rule 1113)
 - m. Shellac – Pigmented – 550 g/l (SCAQMD Rule 1113)
 - n. Stains – 100 g/l (SCAQMD Rule 1113)

- C. Unspecified products: Use best quality by reputable recognized manufacturers.
- D. Colors:
 - 1. Mechanical/Plumbing: Piping and ducting as noted on mechanical and plumbing plans. Confirm colors with Architect prior to painting any items.
 - 2. Electrical: Trim and covers to match adjacent wall/ceiling colors.
 - 3. Mechanical Grills and Registers: Trims and grilles/diffusers shall be painted to match adjacent wall or ceiling colors. The inside of each grille/diffuser (exposed duct/sheet metal) shall be painted "flat black".

2.02 PAINT SYSTEMS - GENERAL

- A. Following is a listing of surface and type of paint to be applied to each.
- B. All "low sheen" finish coats shall have a gloss rating of 10 to 15 at 60 degree angle per ASTM D3134. Submit gloss samples for approval prior to use. Add flateners if necessary to achieve specified gloss.

2.03 INTERIOR SYSTEMS

- A. Exposed pipes and ducts
 - a. 2 coats 1280 Spraymaster Pro Uni-Grip-WB Aquacrylic Dryfall Flat
- B. All other interior finishes: Same as in Section 09900.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine surfaces carefully for defects which cannot be corrected and might prevent satisfactory results.
- B. Commencing of work in specific area constitutes acceptance of surfaces, and responsibility for satisfactory work.

3.02 PREPARATION - GENERAL

- A. Assure that surfaces are clean and dry.
- B. Assure that surfaces are free of foreign materials which will affect adhesion or appearance.
- C. Remove mildew and neutralize surface.

- D. Eliminate efflorescence before painting.
- E. Before painting, test surfaces with moisture meter. Do not paint until moisture is within paint manufacturer's acceptable limits.

3.03 APPLICATION - GENERAL

- A. Paint surfaces as specified in Paragraphs "Paint Systems".
- B. Provide complete coverage and hide.
 - 1. All paint systems are "to cover".
 - 2. When color or undercoats show through, apply additional coats until paint film is of uniform finish and color, at no additional cost.
- C. Employ only skilled mechanics.
- D. Mix and apply as recommended by manufacturer.
- E. If Architect so directs, do not apply succeeding coats until he has an opportunity to observe previous coat.
- F. Remove and protect hardware, accessories, plates, fixtures, finished work, and similar items; or provide ample in-place protection. Upon completion of painting, carefully replace all removed items and/or remove protection.
- G. Apply all materials under adequate illumination. Evenly spread and smoothly flow on for full, smooth, cover.
- H. Assure that coats are dry before recoating.
- I. Touch up abraded areas of shop prime coats before subsequent coats are applied.
- J. Paint all surfaces behind A/C grilles flat black, unless otherwise indicated.

3.04 PROTECTION AND CLEANUP

- A. Protect adjacent work against damage by painting and finishing work. Clean, repair or replace, and repaint damaged work as directed by Architect.
- B. Provide Wet Paint signs.
- C. Remove temporary protective wrappings, provided by others for protection of their work, after completion of painting operations. Clean all paint spattered surfaces. Use care not to damage finished surfaces.

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- D. Remove any surplus materials, scaffolding and debris. Leave areas broom clean.

END OF SECTION

**DIVISION 10
SPECIALTIES**

SECTION 10161

TOILET COMPARTMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for all toilet partitions as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 SUBMITTALS (SEE SECTION 01340)

A. Samples:

1. Colors and finishes specified for approval.

B. Data:

1. Provide complete technical and installation data.

C. Shop Drawings:

1. Provide complete shop drawings of each partition and door type.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver anchorage items in time to allow installation.

1.04 JOB CONDITIONS

- A. Verify dimensions by field measurements before fabrication, wherever possible without delaying project.

PART 2 - PRODUCTS

2.01 MATERIALS - GENERAL

- A. Acceptable manufacturers:

1. Toilet partitions:
 - a. Base: Bobrick.
2. Other manufacturers desiring approval comply with Section 00440.
- B. Toilet partitions: Floor Anchored (1041 Series) complete with all accessories. Provide barrier-free access as noted on plans.
- C. Toilet partition panels, pilasters and doors: High pressure laminated plastic NEMA LDS – 1985 minimum thickness 0.050" with matte finish. Colors as noted on the drawings.
 1. Core.
 - a. Stiles: 45-lb density, industrial grade, resin impregnated, particle board bonded to each side of an 11-gauge steel reinforcing core.
 - b. Panels, doors, and screens: 45-lb density, industrial grade, resin impregnated, particle board.
- E. Doors: 1" thick.
- F. Pilasters, floor-braced: Minimum 1-1/4" thick.
 1. Galvanizing steel anchorage devices.
 2. Complete with threaded rods, lock washers, leveling adjustment nuts and shoes.
- G. Pilaster shoes: AISI Type 302/304 stainless steel, 22 ga., 4" high.
- H. Latch and strike-keeper: Chromium-plated brass or stainless steel slide latch, concealed in door or surface mounted. Wrap-around type strike-keeper designed to properly receive and hold latch.
- I. Bumper-coat hook: Rubber tipped combination bumper and coat hook for each compartment.
- J. Anchorages and fasteners:
 1. Exposed fasteners: Manufacturer's standard stainless steel, finish to match hardware.
 2. Concealed anchors: Galvanized steel, hot-dip coated after fabrication complying with ASTM A385.

2.02 FABRICATION

- A. Preassemble units in shop to minimize any field cutting and assembly of units.
- B. Fabricate system in accord with manufacturer's specifications.
- C. Pressure laminate face sheets to core material.
- D. Provide concealed reinforcement for installation of hardware, fittings, brackets, and required accessories.
- E. Reinforce for attachment of grab bars, as required.
- F. Finishing:
 - 1. After fabrication, clean surfaces to remove processing compounds and other contaminants.

PART 3 - EXECUTION

3.01 INSPECTION

- A. Verify suitability of substrate to accept installation.
- B. Correct unsatisfactory constitutes acceptance of responsibility for performance.

3.02 INSTALLATION

- A. Install in a rigid, straight, plumb and level manner, with lay out as indicated.
- B. Clearances:
 - 1. Between pilasters and panels: 1/2", max.
 - 2. Between panels and walls: 1", max.
- C. Secure to walls with minimum of two stirrup brackets near top and bottom of panel.
 - 1. Locate brackets so holes occur in masonry or tile joints.
 - 2. Use manufacturer's recommended anchoring devices, as indicated on shop drawings.
- D. Floor-supported partitions: Secure pilasters to floor with specified anchorage devices.
 - 1. Level, plumb and tighten.

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2. Set tops of closed doors level with tops of pilasters.
3. Set anchors with minimum 2" penetration into floor.

3.03 ADJUST AND CLEAN

- A. Adjust and lubricate hardware for proper operation after installation.
 1. Set hinges on in-swing doors to hold unlatched doors open approximately 30 degrees.
 2. Set hinges on out-swing doors to return to fully closed position.
- B. Protect until time of acceptance by Owner.
- C. Replace damaged work as directed.
- D. Perform final adjustments just prior to final inspection.
- E. Clean exposed surfaces, hardware, fittings and accessories and touch up minor scratches and other imperfections using materials and methods recommended by manufacturer.

END OF SECTION

SECTION 10350

FLAGPOLE

PART 1 - GENERAL

1.01 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment, and services for flagpole, as indicated, in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Division 1 for General Requirements.

1.02 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver in time to allow installation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Acceptable manufacturers:

1. Flagpole:
 - a. American Flagpole, Division of Kearney-National, Inc., Abingdon, VA, telephone (800) 368-7171, Fax (703) 676-3090.
2. Other manufacturers desiring approval comply with Section 01640.

- B. Furnish and erect where indicated on plans, American Flagpole number 92808 complete with standard features listed below. Flagpole shall be fitted with a cam cleat for internal halyard operation, have an exposed height above ground of 30 feet, total length of 33 feet, butt diameter of 6 inches, top diameter of 3-1/2 inches, and butt wall thickness of 0.188 inches. Provide standard flagpole fittings and equipment as manufactured by American Flagpole.

1. Material: Alloy 6063-T6 aluminum tubing with uniform conical taper.

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2. Finish: Directional satin ground.
3. Finial: Clear anodized aluminum ball with flush seam.
4. Truck: Cast aluminum single stationary truck.
5. Halyard: #10 (5/16" diameter) braided polypropylene, with two (2) chrome plated bronze swivel snaphooks, plastic covered counter weight and beaded sling.
6. Cam Cleat: Manually operated cam cleat includes a flush access door with cylinder lock and continuous piano hinge.
7. Collar: Spun aluminum flash collar finished to match pole.
8. Foundation Sleeve: Fabricated from 16 gauge galvanized corrugated steel tube with 3/16" thick steel base and support plate, steel centering wedges and lighting spike.

PART 3 - EXECUTION

3.01 INSTALLATION

Install flagpole, fittings and equipment complete with necessary hardware, anchors and supports in accordance with manufacturers instructions and as specified.

Upon completion of installation, including work by other trades, test and adjust flagpole to operate easily and free.

3.02 CLEAN-UP

END OF SECTION

SECTION 10400

METAL CAST PLAQUES

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Architectural Signage of the Following Types:
 - 1. Plaques and permanent signage systems.

1.02 RELATED SECTIONS

- A. Section 06200 - Finish Carpentry.

1.03 REFERENCES

- A. Underwriters Laboratories (UL).
- B. Americans with Disabilities Act (ADA).

1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be installed, including operation and maintenance data.
- C. Shop Drawings: Shop Drawings shall be complete with installation details.
 - 1. Show details that are show sizes, lettering, graphics, and construction details of each type of sign.
 - 2. Show features of components, including but not limited to edge conditions, profiles, accessories, finishes, and textures.
 - 3. Show layout, profiles, sign mounting types, heights, anchorage methods, and attachment devices.
 - 4. Show electrical connections.
- D. Selection Samples: For each finish specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

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- E. Verification Samples: For each finish product specified, one full-size sign representing actual product, color, and patterns.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum two years documented experience in work of this Section.
- B. Installer Qualifications: Minimum two years documented experience in work of this Section.
- C. Mock-Up: Provide a mock-up for evaluation of material, workmanship.
 - 1. Construct areas designated by Architect.
 - 2. Do not proceed with remaining work until material, details and workmanship are approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.
 - 4. As approved by Architect, mockup may be incorporated into finished work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's recommendations for delivery, storage and handling.
- B. Materials shall be delivered to the location in unopened, labeled factory containers. Upon delivery, materials shall be inspected for damage. Deficient materials shall not be used.

1.07 WARRANTY

- A. Provide manufacturer's standard warranty against defects in materials.

PART 2 - GENERAL

2.01 MANUFACTURERS

- A. Acceptable Manufacturer: id Signsystems, which is located at: 467 Ridge Rd. E ; Rochester, NY 14621 ; Tel: 585-266-5750 ; Email: [request info \(pudley@idsignsystems.com\)](mailto:requestinfo@pudley@idsignsystems.com) ; Web: www.idsignsystems.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.02 PLAQUES AND PERMANENT SIGNAGE SYSTEMS

- A. Donor Recognition Series: Signage as manufactured by "id Signsystems".
 - 1. Design: Plaque shall be 24" long x 18" wide x 3/8" thick, cast bronze. Design shall allow for inscription including phrasing for individual memorialized as well as title of plaque, County Board of Supervisors names, architect's name, General Contractor's name, date of dedication, and embossed likeness of Supervisor Roy Wilson. Final wording, likeness and layout to be included in submittal to architect for review and approval.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Inspect conditions of substrate and other conditions which may affect installation of signage.
- B. Do not begin installation until substrates are within manufacturer's specified tolerances and have been prepared in accordance with manufacturer's instructions.
- C. If substrate preparation is the responsibility of another installer, do not proceed with installation. Notify Architect of unsatisfactory preparation immediately.
- D. Commencement of work is deemed as acceptance of installation conditions.

3.02 PREPARATION

- A. Verify mounting heights and locations for interior signage will comply with specified requirements.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions. Clean mounting locations of dirt, dust, grease or similar conditions that would prevent proper installation.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's printed installation instructions, and in proper relationship with adjacent work.

3.04 PROTECTION

- A. Protect installed products until completion of project.

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- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10441

SIGNS

PART 1: GENERAL

1.01 SECTION INCLUDES

- A. Signs on the exterior and interior of the building.

1.02 RELATED SECTIONS

- A. Section 06200 - Finish Carpentry .

1.03 SUBMITTALS

- A. Submit shop drawings under provisions of Division 1.
- B. Submit shop drawings listing sign styles, lettering and locations, and overall dimensions of each engraved sign.
- C. Submit samples under provisions of Division1.
- D. Submit two samples illustrating full size sample sign, of type, style and color specified including method of attachment.
- E. Submit manufacturer's installation instructions under provisions of Division 1.
- F. Include installation template and fastening hardware where applicable.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1.
- B. Store and protect products under provisions of Division1.
- C. Package signs, labeled in name groups.
- D. Store adhesive tape at ambient room temperatures.

1.05 ENVIRONMENTAL REQUIREMENTS

- A. Do not install signs when ambient temperature is below 70 degF or above 90 degF. Maintain minimum and maximum range during and after installation of signs.

PART 2: PRODUCTS

2.01 MANUFACTURERS

- A. Neutraface designed by Christian Schwartz and available from House Industries.
- B. Substitutions: Under provisions of Division 1.

2.02 LETTERING (EXTERIOR)

- A. Building Name and Address:
 - 1. Building Name: "COACHELLA VALLEY VOLUNTEERS IN MEDICINE" 12" Neutraface Bold. Letters will be individually mounted onto stucco using hidden pin method that provides for a 1" stand-off from the wall surface. Letters will be mounted per the locations shown on the drawings.
 - 2. Building Address: "82-915 AVENUE 48" 12" Neutraface Bold. Letters will be individually mounted onto stucco using hidden pin method that provides for a 1" stand-off from the wall surface. Letters will be mounted per the locations shown on the drawings.
- B. Aluminum Plate: For exterior surfaces of sign, provide 1/8" flat panel (not rolled stock), alloy #3003, H14 mill finish or as required to meet fabrication or engineering requirements. Aluminum shall be finished in a gloss black finish.
- C. Mounting Hardware: stainless steel screws.

2.03 LETTERING (INTERIOR, EXTERIOR IDENTIFICATION and EXIT SIGNS)

- A. Type: 3/4" to 2" Neutraface Bold, Upper Case.
- B. Fabrication: 3/16" acrylic sign panel with raised letters and Braille in accordance with ADA requirements and drawings. Mounted on the latch side. Center of sign panel to be 60" from ground level. Color of the acrylic sign panel shall be purple acrylic (submit colors for architect's approval) with white lettering and figures.
- C. Sign Schedule: (See Sign Schedule – A7.1 and A7.1.1)

2.04 SIGNS FOR ACCESSIBILITY

- A. Character type: Characters on signs shall be raised 1/32 inch minimum and shall be sans serif uppercase characters accompanied by Grade 2 Braille.
- B. Character size: Raised characters shall be a minimum of 5/8 inch and a maximum of 2 inches high.

- C. Finish and contrast: Contrast between character, symbols and their background must be 70% minimum and have a non-glare finish. CBC Section 1117B.5.3.
- D. Proportions: Characters on signs shall have a width to height ratio of between 3:5 and 1:1 and a stroke width to height ratio of between 1:5 and 1:10. CBC Section 1117B.5.3. All letters measured must be uppercase. After choosing a typestyle to test, begin by printing the letters I, X, and O at 1 inch high. Place the template's 1:1 square over the X or O, whichever is narrower. If the character is not wider than 1 inch, nor narrower than the 3:5 rectangle, the proportions are correct. Use the 1:5 rectangle to determine if the stroke of the I is too broad, and the 1:10 rectangle to see if it is too narrow. If all tests are passed, the typestyle is compliant with proportion code.
- E. Braille: California (contracted) Grade 2 Braille shall be used wherever Braille is required in other portions of these standards. Dots shall be 1/10 inch on centers in each cell with 2/10 inch space between cells, measured from the second column of dots in the first cell to the first column of dots in the second cell. Dots shall be raised a minimum of 1/40 inch above the background. Dots shall be rounded or domed California Braille dots, each distinct and separate.

PART 3: EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means installer accepts existing surfaces.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install signs after doors or surfaces are finished, in locations scheduled.
- C. Locate sign on door or wall surface, level.
- D. Clean and polish.

END OF SECTION