SECTION 03320

CONCRETE SEALERS

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 DESCRIPTION

A. Work included: Seal, harden or color concrete surfaces where indicated on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Concrete floor sealer/hardener/densifier shall react with concrete surfaces to produce a dense, hydrophobic, insoluble, moisture barrier to seal out contaminants, while hardening and densifying concrete surface.

1.03 QUALITY ASSURANCE

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

B. Use an applicator currently approved in writing by the manufacturer of the specified product.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Sufficient technical data to prove compliance with the specified requirements.

2. Evidence satisfactory to the Architect that the proposed applicator is currently approved by the manufacturer of the specified product.

1.06 JOB CONDITIONS

A. Ensure concrete has been cured a minimum of 3-days, is free of curing compounds and other sealers, and is free of laitance, grease, oil, and contaminants.

B. Protect adjacent surfaces/areas from damage due to over-spray

1.07 EXTENDED WARRANTY

Warranty sealed concrete floors to be free of dusting from abrasion for a period of 10-years from date of Substantial Completion. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

PART 2 -- PRODUCTS

2.01 SEALER

A. Wherever the Drawing indicates concrete with sealer, the surface shall be treated with ready-to-apply clear sealing compound. Where a sealer is used in conjunction with a

hardener with color, use only a product recommended by the manufacturer of the hardener as accepted by the Architect.

B. Comply with ASTM C 309, Type I, Class B.

C. Acceptable products:

1. Curcrete Chemical Company Inc. (Springville, Utah) "Ashford Formula".

2. "Industrial Concrete Sealer" by Burke Company, San Mateo, California, (213) 724-6690.

3. "Sealtight Intex" by W.R. Meadows, Inc., Benica, California, (714) 759-5006.

4. "Lithothane Concrete Sealer" by L.M. Scofield Company, Los Angeles, California, (213) 723-5285.

2.02 HARDENER

A. Wherever the Drawings indicate concrete with hardener, the surface shall be treated with a non-metallic dust-on floor hardener.

B. Acceptable products:

1. "Non-metallic Floor Hardener" by Burke Company.

2. "Mastercron" by Master Builders, Inc., Anaheim, California, (714) 978-6961.

3. "Lithocrome" by L.M. Scofield.

2.03 HARDENER WITH COLORS

A. Wherever the Drawings indicate colored concrete floor hardener, the surface shall be treated with a non-metallic dust-on hardener in colors selected by the Architect.

B. Acceptable products:

1. "Lithocrome Color Hardener" by L.M. Scofield Company.

2. "Colorcron" by Master Builders, Inc.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 APPLICATION OF SEALER

A. Preparation:

1. On freshly finished concrete surfaces, no additional surface preparation is required.

2. On areas where forms are recently removed, remove all form oil and breaking compound residue to assure penetration of the product in to the pores of the material to be treated.

3. On existing concrete, vertical surfaces, and masonry surfaces:

a. Sweep all areas to be treated, using a fine bristle broom, or hose off with water and let dry to remove all surface dust and dirt.

b. Free the surface from all contaminants which would inhibit penetration of the product into the pores of the material to be treated.

c. Remove all curing, sealing, and coating agents by use of chemical or mechanical means as necessary.

d. If acid is used to remove surface coatings, flush the surface with water sufficiently to remove all acid and acid residue.

4. When applying near windows, mask the glass.

5. Avoid contact with plant life, glass, aluminum, and other finished surfaces. Where contact occurs, immediately wipe a damp cloth or flush with water.

6. Avoid contact with asphaltic concrete.

B. Application:

1. On freshly finished surfaces, spray the product with a low pressure sprayer immediately following the finishing operation.

a. To assure proper curing, apply the product to the entire surface as soon as the surface is firm enough to walk on, and before checking and temperature cracking begins.

b. Keep the entire surface wet for 30 minutes by brooming excess product on to the dry spots, or by re-spraying the dry spots immediately.

c. As the product begins to dry into the surface and becomes slippery underfoot, lightly sprinkle the surface with water to aid penetration and to bring alkali to the surface.

d. As the product again begins to dry into the surface and become slippery underfoot, flush the surface with water and squeegee the surface totally dry, removing all excess product and alkali or other impurities brought to the surface.

2. On broom-finished surfaces, no flushing is required, but squeegee or broom the excess product form surface after 30 to 40 minutes.

3. On cured concrete surfaces, saturate the surface with the specified product.

a. If dry spots appear, broom excess material onto the dry spots or re-spray them immediately.

b. Keep the entire surface wet with the product for 30 minutes.

c. If, after 30 to 40 minutes, the majority of the product has not been absorbed into the surface, broom or squeegee the excess product from low spots and puddles so it will be absorbed into the surface, or remove such excess product from the surface.

d. If, after 30 to 40 minutes, the majority of the product is still on the surface, wait until the surface becomes slippery underfoot and then flush the entire surface with clear water and squeegee completely dry. If no water is available, squeegee the excess product from the surface after 30 minutes so that the surface is completely dry.

3.03 APPLICATION OF HARDENER

Apply the hardener after the surface of the concrete has reached the stage where no excess moisture shows, but while still plastic.

1. Hardener shall be applied at the rate of 40 pounds per 100 square feet of surface for the initial application.

2. Hardener shall be evenly distributed and thoroughly floated into the surface mortar with a wood float. 20 pounds of additional hardener shall be applied over each uniform color and texture.

3. All hardener and/or colored concrete floors shall be cured and protected with concrete curing paper or plastic until just prior to final cleaning.

4. Before applying curing paper or plastic, interior floors treated with colored hardener shall be given a heavy protective coat of colored wax left unpolished, and then immediately covered with the paper. If wax is not applied within two (2) hours after final troweling, the concrete shall be sprayed with a fine water mist and kept continuously moist until wax is applied, unless spraying is not recommended by the manufacturer of the hardener.

5. Cleaning and finishing: After all other work including plastering and painting has been completed, the curing paper shall be removed and waxed floors cleaned of protective wax coating. Clean all floors to remove dirt, stains or blemishes, and repair and restore damaged floors to their original condition. The hardener manufacturer's recommendations, directions, and recommended materials and methods shall be used for the protective wax coating, cleaning and finishing work.

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

SECTION 03345

CONCRETE FINISHING

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 DESCRIPTION

Work included: Provide finishes on cast-in-place concrete as called for on the Drawings, as specified herein, and as needed for a complete and proper installation.

1.03 QUALITY ASSURANCE

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

B. Except as may be modified herein or otherwise directed by the Architect, comply with ACI 301, "Specifications for Structural Concrete for Buildings".

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.06 PRODUCT HANDLING

Comply with pertinent provisions of Division 1.

PART 2 -- PRODUCTS

2.01 MATERIALS

A. General:

1. Carefully study the Drawings and these Specifications, and determine the location, extent, and type of required concrete finishes.
2. As required for the Work, provide the following materials, or equals accepted in advance by the Architect.

B. Liquid bonding agent: "Weld-Crete," manufactured by the Larsen Products Corporation.

C. Curing and protection paper:

1. Comply with ASTM C171, Type 1, regular.

2. Accepted products:

a) "Sisalkraft, Seekure 896";

b) Equal non-staining products faced with polyethylene film.

D. Slip-resistant abrasive aggregate:

1. Provide aluminum oxide grains, uniformly graded, screen size 12-13, 14-36 or 16-30.

2. Acceptable product:

a) Emerchrome Floor Hardener by L.M. Scofield Company.

b) Frictex H by Sonneborn.

c) or approved equal.

2.02 OTHER MATERIALS

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

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 FINISHING OF FORMED SURFACES

A. General:

1. After removal of forms, give exposed concrete surfaces the finish specified below.

2. Revise the finish as needed to secure the acceptance of the Architect.

B. Rubbed finish:

1. Do not start cleaning operations until all contiguous surfaces to be cleaned are completed and accessible.

2. Do not permit cleaning as the work progresses.

3. Mix one part portland cement and 1-1/2 parts fine sand with sufficient water to produce a grout having the consistency of thick paint.

4. Substitute white portland cement for part of the gray portland cement as required to produce a color matching the color of surrounding concrete, as determined by a trial patch.

5. Wet the surface of the concrete sufficiently to prevent absorption of water from the grout, and apply the grout uniformly with brushes or spray gun.

6. Immediately after applying the grout, scrub the surface vigorously with a cork float or stone to coat the surface and fill all air bubbles and holes.

7. While the grout is still plastic, remove all excess grout by working the surfaces with a rubber float, sack, or other means.

8. After the surface whites from drying (above 30 minutes at normal temperatures), rub vigorously with clean burlap.

9. Keep the surface damp for at least 36 hours after final rubbing.

3.03 FINISHING SLABS

A. Definition of finishing tolerances:

1. "Class A": True plane within 1/8" in ten feet as determined by a ten foot straightedge placed anywhere on the slab in any direction.

2. "Class B": True plane within 1/4" in ten feet as determined by a ten foot straightedge placed anywhere on the slab in any direction.

B. Scratched finish: For surfaces scheduled to receive bond-applied cementitious applications.

1. After the concrete has been placed, consolidated, struck off, and leveled to a Class B tolerance, roughen the surface with stiff brushes or rakes before the final set.

C. Floated finish: For surfaces intended to receive roofing.

1. After the concrete has been placed, consolidated, struck off, and leveled, do not work the concrete further until ready for floating.

2. Begin floating when the water sheen has disappeared and when the surface has stiffened sufficiently to permit the operation.

3. During or after the first floating, check the planeness of the surface with a ten foot straightedge applied at not less than two different angles.

4. Cut down high spots and fill low spots, and produce a surface with a Class B tolerance throughout.

5. Refloat the slab immediately to a uniform sandy texture.

D. Troweled finish:

1 Provide a floated finish as described above, followed by a power troweling and then a hand troweling which is relatively free from defects, but which still may show some trowel marks.

a. Monolithic Trowel Finish: For all floor surfaces not otherwise specified. Steel trowel and retrowel to smooth surface. After concrete has set enough to ring true, retrowel to a burnished impervious finish, free of trowel marks or other blemishes.

b. Steel Float Finish: for all slabs to receive resilient tile, waterproof membrane, or carpeting. Same as monolithic finish except omit burnish retroweling.

c. Fine Swirl Finish (when shown on the Drawings): Prepare same as steel float finish. When ready, perform such finishing operations as necessary to produce Architect-selected fine textured, non-slip finish. Construct sample panel for Architect's acceptance prior to placement. Sample panel shall consist of tooled edges and have a tooled joint within field of panel.

2 Provide a finished surface essentially free from trowel marks, uniform in texture and appearance, and in a plane of Class A tolerance.

E. Broom finish: For slabs to receive thin set tiles, apply steel float finish followed by very fine broom finish. For surfaces to receive mortar setting beds and for exterior concrete driveway ramps, curbs and gutters, spandrels, etc.

1. Provide a finished surface uniform in texture and appearance, and in a plane of Class A tolerance. Roughen surface with coarse broom.

F. Rock Salt finish: Exterior walkways and pavings except where non-slip finish is specified.

1. Provide a floated finish as described above.

2. While the surface is still plastic, broadcast rock salt into the surface and embed uniformly into the surface by light tamping.

3. Float the surface until it has been brought to a true plane with Class B tolerance.

4. After the concrete has completely set, flood the surface with water to dissolve the rock salt, using a fine bristle brush as necessary to remove the salt.

5. Provide a sample panel at the site of the proposed finish and receive the acceptance of the Architect of that finish prior to placing of the paving.

G. Non-slip finish: For exterior platforms, steps, and landings; and Interior and exterior pedestrian ramps.

1. Provide a floated finish as described above.

2. While the surface is still plastic, broadcast abrasive aggregate as specified in Paragraph 2.01.F above and work into the surface according to the manufacturer's recommendations.

3. Complete finishing surface as described above for a troweled finish, and as recommended by the aggregate manufacturer.

3.04 CURING AND PROTECTION

A. Beginning immediately after placement, protect concrete from premature drying, excessively hot and cold temperatures, and mechanical injury.

B. Preservation of moisture:

1. Unless otherwise directed by the Architect, apply one of the following procedures to concrete not in contact with forms, immediately after completion of placement and finishing.

a. Ponding or continuous sprinkling;

b. Application of absorptive mats or fabric kept continuously wet;

c. Application of sand kept continuously wet;

d. Continuous application of team (not exceeding 150° F) or mist spray;

e. Application of waterproof sheet materials specified in Part 2 of this Section;

f. Application of other moisture-retaining covering as accepted by the Architect.

g. Where forms are exposed to the sun, minimize moisture loss by keeping the forms wet until they can be removed safely.

2. Cure concrete by preserving moisture as specified above for at least ten days.

C. Temperature, wind, and humidity:

1. Cold weather:

a) When the mean daily temperature outdoors is less than 40° F, maintain the temperature of the concrete between 50° F and 70° F for the required curing period.

b) When necessary, provide proper and adequate heating system capable of maintaining the required heat without injury due to concentration of heat.

c) Do not use combustion heaters during the first 24 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases which contain carbon dioxide.

2. Hot weather: When necessary, provide wind breaks, fog spraying, shading, sprinkling, ponding, or wet covering with a light colored material, applying as quickly as concrete hardening and finishing operations will allow.

3. Rate of temperature change: Keep the temperature of the air immediately adjacent to the concrete during and immediately following the curing period as uniform as possible and not exceeding a change of 5° F in any one hour period, or 50° F in any 24 hour period.

D. Protection from mechanical injury:

During the curing period, protect the concrete from damaging mechanical disturbances such as heavy shock, load stresses, and excessive vibration.

1. Protect finished concrete surfaces from damage from construction equipment, materials, and methods, by application of curing procedures, and by rain and running water.

2. Do not load self-supporting structures in such a way as to over stress the concrete.

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

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SECTION 04100

MORTAR AND GROUT

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 SCOPE OF WORK

Work included in this Section:

1. Mortar and grout for masonry.

1.03 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.04 SUBMITTALS

In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Maintain materials and surrounding air temperatures to minimum 40° F prior to, during, and 48 hours after completion of masonry work.

B. Protect construction from direct exposure to wind and sun when erected in ambient air temperature of 99° F in the shade, with relative humidity less than 50%.

1.07 MIX TESTS

A. Testing of Mortar Mix: in accordance with ASTM C780. Test mortar mix for compressive strength. Refer to structural drawings for required strength.

B. Testing of Grout Mix: in accordance with ASTM C1019. Test grout mix for compressive strength. Refer to structural drawings for required strength.

PART 2 -- PRODUCTS

2.01 MATERIALS

A. Portland Cement: ASTM C150, Type I or II (Type I for glass block).

B. Mortar Aggregate: ASTM C144, standard masonry type.

1. Provide clean, sharp, well-graded aggregate free from injurious amounts of dust, lumps, shale, alkali, surface coatings, and organic matter complying with UBC Standards.

2. Not less than 3% shall pass the No. 100 sieve.

C. Hydrated Lime: ASTM C207, Type S.

D. Grout "Course": 1 part Portland cement to 2-1/4 parts minimum to 3 parts maximum of damp loose sand to 1/10 part lime putty and 2 parts coarse of maximum 3/8 inch

aggregate with sufficient water to achieve fluid consistency per ASTM C476. Not less than 5% of the sand shall pass No. 100 sieve. Use in grout spaces 2 inches wide or more and in all filled cell construction.

E. Grout "Fine": 2-1/4 to 3 parts maximum damp, loose sand to 1/2 to 1/4 part lime putty with 1 part Portland cement and sufficient water to achieve fluid consistent per ASTM C476. Not less than 5% of the sand shall pass No. 100 sieve. To be used where shown on Drawings and where grout space is less than 2" in least dimension.

F. Water: Clean, potable and free from deleterious amounts of acids, alkalis and organic materials.

G. Lime Putty: Shall be made from pulverized (processed) quick lime or from hydrated lime.

2.02 COLOR

Mortar and Grout Color: Provide pre-ground mineral oxides, non-fading and alkali proof as manufactured by L.M. Scofield or approved equal. The Architect shall select color.

2.03 MORTAR MIXING

A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270 - Type S.

B. Add mortar color in accordance with manufacturer's instructions. Provide uniformity of mix and coloration.

C. Do not use anti-freeze compounds to lower the freezing point of mortar. Do not use any admixtures unless specifically accepted in advance by the Architect through the submittal process.

D. Use mortar within two hours after mixing at temperatures of 80° F, or two-and-one-half hours at temperatures under 50° F.

E. Mechanically mix in a batch mixer for not less than three minutes, using only sufficient water to produce a mortar that is spreadable and of a workable consistency.

F. Re-temper mortar with water as required to maintain high plasticity. Do not re-temper mortar after 1-1/2 hours following initial mixing.

2.04 GROUT MIXING

A. Mix concrete in accordance with ASTM C94.

B. Add admixtures in accordance with manufacturer's instructions when previously approved. Provide uniformity of mix.

a. Waterproofing admixture shall be A.C. Horn's "Hydratite" or approved equal.

b. To reduce early water loss and produce expansive action admixture shall be Sika Grout Aid.

C. Do not use anti-freeze compounds to lower the freezing point of grout.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

E. Request inspection of spaces to be grouted. Do not proceed until all sub-surfaces and spaces are acceptable.

3.02 INSTALLATION

A. Install mortar and grout to requirements of the specific masonry Sections.

B. Work grout into masonry cores and cavities to eliminate voids.

C. Do not displace reinforcement while placing grout.

D. Remove grout spaces of excess mortar.

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

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SECTION 04200

REINFORCED UNIT MASONRY SYSTEM

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 SCOPE OF WORK

The work under this section includes furnishing all labor, materials and equipment, and performing all operations in connection with all masonry work, concrete block and glass block, indicated on the Drawings, specified herein, or reasonably required to complete all masonry work. Coordinate with other trades and install all embeds and inserts required.

1.03 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.04 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Submit shop drawings indicating bar sizes, spaces, locations, quantities of reinforcement, bending and cutting schedules and spacing devices.

C. Submit product data on masonry units.

1.05 QUALITY CONTROL

A. Company specializing in performance of work of this Section for a minimum of 5 years. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Design engineered masonry work under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of California.

1.06 DELIVERY AND STORAGE

All materials shall be delivered, stored and handled so as to prevent the inclusion of foreign materials and/or damage. Packaged materials shall be delivered and stored in original packages until ready for use. Packages or materials showing evidence of damage shall be rejected.

PART 2 -- PRODUCTS

2.01 MASONRY UNITS

A. Concrete Block shall be hollow concrete masonry units conforming to the requirements for Grade N units, Type I under ASTM Specification C-90.

B. Masonry Units shall be 8"x8"x16" nominal as manufactured by Orco Block Co. or approved equal (909) 849-7891.

1. Block types, sizes, and patterns as indicated on the drawings.

2.02 MORTAR AND GROUT

A. Mortar shall be as specified in Section 04100 and shall develop a compressive strength of not less than 750 lbs. per square inch at seven (7) days or less than 1800 pounds per

square inch at twenty-eight (28) days or as specified on the Structural Drawings. The total clay content, including that in the sand, shall not exceed 2 percent of the sand content or 6 percent of the cement content.

B. Grout fill for cells shall consist coarse grade as specified in Section 04100. Minimum grout strength to be 2000 pounds per square inch (psi) unless otherwise specified on the Structural Drawings.

2.03 REINFORCEMENT AND ANCHORAGE

A. Single wythe joint reinforcement for CMU: Truss type; hot dip galvanized after fabrication cold-drawn steel conforming to ANSI/ASTM A82.

B. Reinforcing Steel for CMU: Deformed bar billet type, specified in Section 03200; size as shown on Drawings, unprotected finish.

C. Strap anchors for CMU: Bent Steel shapes as shown on Drawings or required for complete and proper installation of this Work.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Verify items provided by other Sections of work are properly sized and located.

E. Verify that built-in items are in proper location, and ready for roughing into masonry work.

F. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied to other Sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

C. Preparation. Concrete surface to receive masonry shall be free from all dirt, oil, curling compound, or other deleterious substance. All such surfaces shall be thoroughly washed with water before laying block and shall be in a condition to provide maximum suction at the time the mortar bed is placed.

D. Verify that Channel and Anchor placement for Glass Block is at all head and jambs.

3.03 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Lay concrete masonry units in running bond. One Course is one unit and one mortar joint and is equal to 8 inches. Form flush mortar joints. Do not use chipped or broken units.

3.04 ENVIRONMENTAL CONDITIONS

A. Do not place masonry units when air temperature is below 40 degrees F.

B. Protect masonry from direct exposure to wind and sun. When erected in ambient air temperature of 99 degrees F in the shade, with relative humidity less than 50%.

3.05 PLACING AND BONDING – CMU

A. General:

1. Do not commence installation of the work of this Section until horizontal and vertical alignment of foundation is within 1/2" of plumb and the lines shown on the Drawings.

2. Use masonry saws to cut and fit masonry units.

3. Set units plumb, true to line, and with level courses accurately spaced.

4. Clean the top surface of foundation free from dirt, debris, and laitance, and expose the aggregate prior to start of installing first course of sandblasting or water blasting.

5. Accurately fit the units to plumbing, ducts, openings, and other interfaces, neatly patching all holes.

6. Keep the walls continuously clean, preventing grout and mortar stains. If grout does run over, clean immediately.

7. All bolts embedded in masonry shall be grouted in place with not less than one inch of grout between the bolt and a masonry unit and shall be accurately set with templates.

B. Do not use chipped or broken units. If such units are discovered in the finished wall, the Architect may require their immediate removal and replacement with new units at no additional cost to the Owner.

C. Laying up: Pattern shall be running bond.

1. Place units in mortar with full shoved bed and head joints.

2. Align vertical cells of hollow units to maintain a clear and unobstructed system of flues.

3. Hold racking to an absolute minimum.

4. Provide running bond with vertical joints located at center of masonry units in the alternate course below.

5. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

6. Interlock intersections and external corners.

D. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.

E. Remove excess mortar as Work progresses.

F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

H. Cut mortar joints flush where resilient base is scheduled. Joints shall be 3/8" thick. Split block joints shall be raked.

I. Isolate masonry partitions from vertical structural framing members with a control joint.

J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.06 REINFORCEMENT AND ANCHORAGES -- CONCRETE UNIT MASONRY

A. Install horizontal joint reinforcement 16 inches unless structural plans note otherwise.

B. Place joint reinforcement continuous in first joint below top of walls.

C. Lap joint reinforcement ends minimum 40 bar diameters. Install reinforcement in first horizontal course above openings. Extend minimum 24 inches each side of openings.

D. Support and secure reinforcing bars from displacement. Maintain position with 1/2 inch of dimensioned position. Provide metal accessories to ensure adequate alignment of steel during grout filling operations.

E. Embed anchors attached to structural steel members. Embed anchorages in every second block joint.

F. Reinforce joint corners and intersections with strap anchors 16 inches OC.

3.07 GROUTED COMPONENTS

A. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch of dimensioned position.

B. Place and consolidate grout fill without displacing reinforcing. Solidly fill all cells and courses unless otherwise indicated on the Drawings. Maximum grout lift shall be 24 inches.

C. Consolidate grout at time of pour by puddling with mechanical vibrator to completely fit all voids and interstices in the masonry work.

3.08 ENGINEERED MASONRY

A. Lay masonry units with core cells vertically aligned clear of mortar and unobstructed.

B. Place mortar in masonry unit bed joints back 1/4 inch from edge of unit grout spaces, bevel back and upward. Permit mortar to cure seven (7) days before placing grout.

C. Reinforce masonry unit cores with reinforcement bars and grout as indicated.

D. Retain vertical reinforcement in position at top and bottom of cells and at intervals not exceeding 192 bar diameters. Splice reinforcement in accordance with Section 03200. See Drawings for indication of locations where splicing is unacceptable.

E. Wet masonry unit surfaces in contact with grout just prior to grout placement.

F. Grout spaces less than 2 inches in width with fine grout using low lift grouting techniques. Grout spaces equal to or greater than 2 inches in width with course grout using high or low lift grouting techniques.

G. When grouting is stopped for more than one hour, terminate grout 1-1/2 inch below top of upper masonry unit to form a positive key for subsequent grout placement.

H. Low Lift Grouting: Place first lift of grout to a height of 16 inches and rod for grout consolidation. Place subsequent lifts in 8-inch increments and rod for grout consolidation.

3.09 CONTROL AND EXPANSION JOINTS

A. Do not continue horizontal joint reinforcement through control joints.

B. Install performed control joint devices in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions. Control joints shall be 12'-0" O.C. maximum.

C. Size control joint in accordance with Section 07900 for sealant performance.

3.10 BUILT-IN WORK

A. As work progresses, build in metal doorframes, anchor bolts, plates, and other items furnished by other Sections.

B. Build in items plumb and level.

C. Bed anchors of metal doorframes in adjacent mortar joints. Fill frame voids solid with grout. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.

D. Do not build in organic materials subject to deterioration.

3.11 DEFECTIVE MASONRY OR MATERIALS

Any masonry materials delivered to the job site that do not conform to the requirements of these Specifications, shall be immediately removed from the work. Completed masonry that does not conform to the requirements of the Drawings and these Specifications shall be deemed defective materials and/or workmanship, and the Contractor shall remove it from the site, at no extra cost to the Owner.

3.12 CURING

All masonry work shall be kept continuously moist until and for not less than three (3) days after grouting. Curing water shall not be permitted to pond around buildings or structures.

3.13 TOLERANCES

A. Maximum Variation From Alignment of Columns: 1/4 inch.

B. Maximum Variation From Unit to Adjacent Unit: 1/32 inch.

C. Maximum Variation From Plane of Wall: 1/4 in. in 10 feet and 1/2 in. in 20 feet or more.

D. Maximum Variation From Plumb: 1/4 inch per story non-cumulative.

E. Maximum Variation From Level Coursing: 1/8 inch in 3 feet, 1/4 inch in 10 feet, and 1/2 inch in 30 feet.

F. Maximum Variation of Joint Thickness: 1/8 inch in 3 feet.

3.14 CUTTING AND FITTING

A. Cut and fit for pipes, conduits, sleeves, and grounds. Coordinate with other Sections of work to provide correct size, shape, and location.

B. Obtain Architect approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

3.15 CLEANING

A. Clean surfaces of masonry as required for proper application of the specified finishes.

B. Concrete Unit Masonry:

1. Use all means necessary to prevent staining of the exposed face by mortar, grout, and other material.

2. Remove mortar and grout stains as the work progresses.

3. Upon completion of the work of this Section, clean all exposed veneer surfaces with a 10% solution of muriatic acid in clear water, using fiber bristle brooms or brushes, followed by thorough rinsing with clear water.

4. In the event ordinary cleaning is not adequate, use a light sandblasting or other means as directed by the Architect, and at no additional cost to the Owner.

5. Replace defective mortar. Match adjacent work.

3.16 TEST & INSPECTIONS

A. Refer to structural drawings.

B. Mortar shall be tested as per U.B.C. Standards.

C. Grout shall be tested as per U.B.C. Standards.

3.17 PROTECTION OF FINISHED WORK

A. Protect finished installation.

B. Without damaging completed work, provide protective boards at exposed external corners, which may be damaged by construction activities.

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

SECTION 05120

STRUCTURAL STEEL

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 DESCRIPTION

The work under this section includes furnishing all labor, materials and equipment, and performing all operations in connection with Structural and Miscellaneous Steel and related items indicated on the Drawings, specified herein or reasonably implied to complete the work.

1. Structural Steel framing members, support members, embed angles, and struts.
2. Base plates, anchor bolts and structural framing accessories for a complete and proper installation of the work.

1.03 QUALITY ASSURANCE

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

B. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedures." Conform to AWS Code D1.1-85. Welding Inspection:

1. It shall be the responsibility of the Contractor that the Architect be notified of the commencement of welding, shop or field, in ample time to provide inspection.
2. A representative of the Owner will inspect installation of Automatic end and welded studs. At the beginning of each day's work, a minimum of two test stud welds shall be made with the equipment to be used to metal, which is the same as the actual work piece. The test studs shall be subjected to a 90-degree bend test by striking them with a hammer. After the above test, the weld section shall not exhibit any tearing out or cracking.

C. The American Institute of Steel Construction (AISC) "Manual of Steel Construction" shall apply in the performance of this work, except for clauses contradicted by the General and special Conditions and this section of the Specifications.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Producers' or manufacturers specifications and installation recommendations for the following products, including laboratory test reports and other data required to prove compliance with the specified requirements.
   a. Structural steel, including certified copies of mill test reports covering chemical and physical properties;
   b. Unfinished bolts and nuts;

c. Structural steel primer paint.

2. Shop Drawings including complete details and schedules for fabrication and shop assembly of members. Shop Drawings shall be generally in accordance with AISC "Structural Steel Detailing"

a. Include details of cuts, connections, camber, holes, and other pertinent data;

b. Indicate welds by AWS symbols, and show size, type, and length of weld;

c. Provide setting drawings, templates, and directions for installing anchor bolts and other required anchors;

d. Identify details by reference to sheet and detail number of the Drawings.

1.06 PRODUCT HANDLING

A. All material shall be handled, shipped, and stored in a manner that will prevent distortion or other damage. Material shall be stored off of the ground, in a clean location and kept properly drained. All damaged material shall be replaced or repaired as directed by the Architect.

B. Delivery and storage:

1. Delivery materials to the job site properly marked to identify the location for which they are intended.

2. Use markings corresponding to markings shown on the approved Shop Drawings.

3. Store in a manner to maintain identification and to prevent damage.

PART 2 -- PRODUCTS

2.01 MATERIALS

A. Rolled steel plates and bars: Comply with ASTM A36.

1. Girder and beam sections and beam cover plates.

2. All other bars, plates and shapes.

B. Steel Tube: Comply with ASTM A500, grade B. 46 ksi

C. Anchor bolts: Comply with ASTM A307, non-headed type with double hexagonal nuts unless otherwise indicated.

D. Unfinished threaded fasteners:

1. Comply with ASTM A307, grade A, regular low carbon steel bolts and nuts.

2. Provide either hexagonal or square heads and nuts, except use only hexagonal units for exposed connections.

3. High strength bolts: ASTM A-325

E. Primer: Use "10-99 Tnemec Primer," "Rustoleum No. 5769 Primer," or equal approved in advance by the Architect.

F. Anchor bolt templates: Provide separate steel templates not less than 10 gage for each anchor bolt group or assembly.

G. Electrodes for welding: Comply with AWS Code, using AWS A5.1 or A5.5 E70XX electrodes as required for intended use.

H. Welding rod for mild steel: ASTM A-233

I. Resistance welded studs shall be as manufactured by Nelson Stud Welding Division of Gregory Industries or by KSM Products, Inc.

2.02 FABRICATION

A. Shop fabrication and assembly:

1. Fabricate items of structural steel in accordance with AISC specifications: "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", latest edition, and as indicated on the approved Shop Drawings.

2. Properly mark and match-mark materials for field assembly and for identifications as to location for which intended.

3. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.

4. Where finishing is required, complete the assembly, including welding of units, before start of finishing operations.

5. Provide finish surfaces of members exposed in the final structure free from markings, burrs, and other defects.

B. Connections:

1. Provide bolts and washers of types and sizes required for completion of field erection.

2. Welded construction: Comply with AWS Code for procedures, appearance, and quality of welds, and methods used in correcting welded work.

3. Assemble and weld built-up sections by methods that will produce true alignment of axes without warp.

C. Experienced welding operators shall do welding. The operator, the welding equipment, the electrodes, the methods of making the welds, and all structural welds, as completed, shall be as approved by the representative of the approved Testing Laboratory.

D. Resistance welded studs shall be installed with special approved welding equipment, in accordance with stud manufacturer's recommendations.

E. Shop welds shall in general be made with the material to be welded positioned for down-hand welding. Root passes of all "U" or "V" joints for butt welds by manual process shall be made with #6010 rod; roots of butt welds shall be chipped or flame-gouged prior to deposition of seal weld or of initial pass of back-up weld.

F. Anchors. Welding rod for welded bar anchors shall be E 70 Series low hydrogen.

G. Exposed Welds. Welds that will be exposed to view, after building is completed, shall be neatly dressed off smooth, flush with the parent metal.

H. Holes for other work:

1. Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on the approved Shop Drawings.

2. Provide threaded nuts welded to framing, and other specialty items as shown, to receive other work.

3. Cut, drill, or punch holes perpendicular to metal surfaces.

4. Do not flame cut holes or enlarge holes by burning.

5. Drill holes in bearing plates.

2.03 SHOP PAINTING

A. General:

1. Shop paint structural steel work, except those members or portions of members to be embedded in concrete or mortar.

2. Paint embedded steel that is partially exposed on the exposed portions, and the initial 2" of embedded areas only.

3. Do not paint surfaces that are to be welded or high-strength bolted with friction type connections.

4. Apply two coats of paint to surfaces that are inaccessible after assembly or erection. Change color of the second coat to distinguish it from the first.

B. Surface preparation:

1. After inspection and before shipping, clean steel work to be painted.

2. Remove loose rust, loose mill scale, and spatter, slag, and flux deposits.

3. Clean steel in accordance with Steel Structures Painting Council SP-3k, "Power Tool Cleaning."

C. Painting:

1. Immediately after surface preparation, apply structural steel primer paint in accordance with the manufacturer's recommendations and at a rate to provide a uniform dry film thickness.

2. Use painting methods that will result in full coverage of joints, corners, edges, and exposed surfaces.

2.04 GALVANIZING

A. All steel and ferrous metal items located on the exterior of the building, or otherwise specifically shown or noted on drawings to be galvanized, shall be galvanized by the hot-dip process, conforming to ASTM A123-68a. All required hot-dip galvanizing shall be done after fabrication, in the largest sections possible. Items too large for available dip tanks shall be sprayed, by approved methods, with molten zinc to coating thickness of .003" to .004".

B. Weight of the zinc coating per square foot of actual surface shall average not less than 2.0 ounces and no individual specimen shall show less than 1.8 ounces. The thickness of the zinc coating shall be the normal coating to be obtained by immersion in a bath of molten zinc at a temperature of not more than 865 degrees F., and allowed to remain until the temperature of the work being galvanized becomes the same as the bath.

C. All shop galvanized metal work necessitating field soldering or welding which in any manner removes original galvanizing shall be restored by field cold galvanizing with "Galvaloy," "Galvicon," or "Drygalv."

D. After fabrication, work indicated on the Drawings to be galvanized shall be thoroughly cleaned in a pressure spray of hot alkali solution to remove all oil, grease and dirt, and then rinsed in hot water. Work shall then be hot-dip galvanized. Finish work shall be free from twist, bow, warp and excess spelter.

E. Spelter: The slab zinc (spelter) used shall conform to the standard specification for slab zinc of the American Society for Testing Materials.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

A. All work shall be executed and finished in accordance with approved shop drawings, and to conform to the best practice required to produce the highest-grade construction. Workmanship shall be equal to the best practice in modern structural shops. Portions of work exposed to view shall be finished neatly. Welds shall be neat and uniform.

B. Construction. Type I and Type II, in accordance with Section 1 of the AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings".

C. Substitution of sections or modifications of details, or both, shall not be made without written approval of the Architect.

D. Furnish and deliver anchor bolts, inserts, plates and other incidental items of structural steel required to be built into concrete with instructions or templates for their installation, to respective trades at the proper time to avoid delay in work.

E. Report any errors in shop fabrication or deformation resulting from handling and transportation that prevent proper assembly and fitting of parts immediately to Architect and obtain approval of method of correction. Approved corrections shall be made at no additional cost to the Owner.

3.03 ERECTION

A. Comply with AISC specifications and "Code of Standard Practice," except as may be modified herein.

B. Anchor bolts:

1. Provide anchor bolts and other connectors required for securing structural steel to foundations and other in-place work.

2. Provide templates and other devices necessary for pre-setting bolts and anchors to accurate locations.

C. Bases and bearing plates: Shop weld to columns and members attached to concrete.

D. Splicing:

1. Splice members only where indicated unless, with the Architect's approval, splices not indicated would result in lower costs due to reduced shipping expense.

2. For splices not indicated, submit structural calculations prepared and signed by a structural engineer licensed to practice where the fabricator is located.

E. Gas cutting:

1. Do not use gas-cutting torches for correcting fabricating errors in the structural framing.

2. Cutting will be permitted only in secondary members as acceptable to the Architect.

3. When gas cutting is permitted, finish the gas cut section to a sheared appearance acceptable to the Architect.

F. Surveys:

1. Establish permanent benchmarks necessary for accurate erection of structural steel.

2. Check elevations of concrete surfaces, and locations of anchor bolts and similar items, before erection proceeds.

G. Temporary shoring and bracing:

1. Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads.

2. Provide temporary guy lines to achieve proper alignments of the structure as erection proceeds.

3. Remove temporary connections and members when permanent members are in place and the final connections have been made.

H. Setting bases and bearing plates:

1. Clean concrete bearing surfaces free from bond-reducing materials, and then roughen to improve bond to the surface by either sandblasting or waterblasting.

2. Clean the bottom surface of base and bearing plates.

3. Set loose and attached base plates and bearing plates for structural members in wedges or other adjusting devices.

4. Tighten anchor bolts after the supported members have been positioned and plumbed.

5. Do not remove wedges or shim but, if protruding, cut off flush with the edge of the base or bearing plate prior to packing with grout.

6. Pack grout solidly between bearing surfaces and bases or plates to assure that no voids remain.

7. Finish exposed surfaces, protect installed materials, and allow to cure in strict compliance with the manufacturer's recommendations as approved by the Architect.

I. Field Assembly:

1. Set structural frames accurately to the lines and elevations indicated.

2. Align and adjust members forming part of a complete frame or structure before fastening permanently.

3. Clean the bearing surface, and other surfaces that will be in permanent contact, before assembly.

4. Adjust as required to compensate for discrepancies in elevation and alignment.

5. Level and plumb individual members of the structure within specified AISC tolerances.

6. Establish required leveling and plumbing measurements on the mean operating temperature of the structure, making allowance for the difference between temperature at time of erection and the mean temperature at which the structure will be when completed and in service.

7. Comply with AISC specifications for bearing, adequacy of temporary connections, alignment, and the removal of paint on surfaces adjacent to welds.

8. Bolted connections shown on the Drawings, except as specified otherwise, are for unfinished bolts. Holes for same shall be punched or drilled 1/16 inch larger than the diameter of the bolt, except as called for otherwise on the drawings.

9. Bolting of end under connections and girder splices shall be with turned bolts in reamed holes or with torqued high-strength bolts.

3.04 TESTING AND INSPECTING (Conform to California Code Amendments, Current Edition)

A. Testing:

1. The Owner's selected testing laboratory will pick up specimens and make required tests.

2. Cost of procuring test specimens at locations more than 50 miles from the job site will be paid by the Owner and back-charged to the Contractor.

3. Costs of tests of identified stock will be paid by the Owner; except that if a test fails to comply with the specified requirements, the cost of testing will be paid by the Owner and back-charged to the Contractor.

4. Costs of tests of unidentified stock will be paid by the Owner and back-charged to the Contractor.

B. Test specimens:

1. Test specimens shall be furnished by the steel fabricator, and shall be taken under the direction of the Owner's selected testing laboratory.

2. Each specimen shall be machined by the Owner's selected testing laboratory to dimensions required by ASTM A370.

3. Cost of procuring, making, and machining test specimens shall be considered test costs as defined above.

4. Provide continuous field inspection for all in field welds and tightening of high strength bolts.

C. Identification and tests:

1. Structural steel identified by heat or melt numbers, and accompanied by mill analysis and test reports, does not require additional testing.

2. If structural steel cannot be identified, or if its source is questionable, not less than one tension test and one bend test will be made for each five tons or fractional part thereof.

D. Inspecting:

1. A complete four-sided inspection of steel will be made when required by the Architect.

2. Cost of inspecting will be paid by the Owner subject to the same provisions made above for tests.

3. If, after fabrication and inspection, the work of this Section is found to be defective and to require reinspection, cost of such reinspection will be paid by the Owner and back-charged to the Contractor.

4. Provide labor, equipment, and facilities needed to move and handle the materials to be inspected.

E. Welding inspection:

1. Unless otherwise specified, perform welding under observation of a qualified inspector from a testing laboratory approved by the Architect.

2. Inspect every layer of weld for quality, penetration, and conformity with design requirements.

3. Require the welding inspector to submit a signed report to the Architect, verifying that:

   a. The welding is adequate and was performed in conformity with the specified requirements; and

   b. Adequate methods have been used to determine the quality of the welding.

4. The welding inspector may use gamma ray, magnaflux, trepanning, or any other aid to visual inspection considered necessary to assure adequacy of welding, or may use ultrasonic testing performed in accordance with pertinent requirements of governmental agencies having jurisdiction.

5. The Owner will pay cost of welding inspection. The Contractor shall pay any reinspections required due to improper installation.

F. Access:

1. Provide access for the testing agencies and inspectors to places where structural steel work is being fabricated or produced, so that required testing and inspecting may be accomplished.

G. Erection inspecting:

1. The Owner's testing and inspecting agency will visually inspect field welded connections, will perform such additional tests and inspections of field work as are required by the Architect, and will prepare test reports for the Architect's review.

2. The testing agency will conduct and interpret the tests, and will state in each report whether the inspected work complies with the requirements, specifically stating all deviations therefrom.

H. Corrections:

1. Correct deficiencies in structural steel work which inspections and test reports indicate to be not in compliance with the specified requirements.

2. Perform additional tests required to reconfirm non-compliance of the original work and to show compliance of corrected work, all at no additional cost to the Owner.

3.05 FIELD PAINTING

A. General:

1. Prepare surfaces in a manner appropriate to the condition, and as approved by the Architect.

2. Clean spots and surfaces where primer coats have been removed, damaged, or burned off, and clean field bolts and other field connections not concealed in the finished work.

3. Remove dirt, oil, and grease.

4. Apply a spot coat of the approved primer.

5. Do not apply paint to wet, damp, oil, or improperly prepared surfaces.

B. Notify the Architect when the work of this Section is ready to receive field painting.

1. Secure inspection and approval by the Architect prior to field painting.

2. Using spray or brush, as recommended by the manufacturer of the approved paint material, fill all joints and corners and cover the surfaces with a smooth unbroken film of at least 1.5 dry mils thickness.

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

SECTION 05410

METAL STUD FRAMING

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 SCOPE OF WORK

This section includes structural and non-structural cold-formed metal framing and furring systems as indicated and specified.

1.03 REFERENCES

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

1. A 653 – General Requirements for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

2. C 955 – Load Bearing (Transverse and Axial) Steels Studs, Runners (Track) and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.

3. C 1007 – Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.

B. American Welding Society (AWS).

1. D1.1 – Structural Welding Code.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product Data: Submit framing manufacturer's literature, including a current I.C.B.O. Research Committee Report, showing tabulation of structural properties, load capacities, dimensions, metal gages and the type of coating for all framing and furring members. Submit powder driven fastener manufacturer's current I.C.B.O. Research Committee Report.

C. Shop Drawings: Include plans, elevations, and details for wall and ceiling framing systems and special assemblies where the design is not indicated. Show: profiles, gage, cross sections and spacing of framing members; sizes, connections including welding procedures and electrodes, attachments, reinforcing, anchorage, size and type of fasteners, and accessories required for proper installation.

D. Submit certification from manufacturer of steel framing material that all products have been rolled from new steel sheet material.

1.06 QUALITY ASSURANCE

A. Welder Qualifications: AWS Certified.

B. Regulatory Requirements: Support framing for fire resistive walls and ceilings shall conform to "Fire Resistive Standards" of the latest adopted edition of the Uniform Building Code and shall be listed in the current UL "Fire Resistance Directory".

1.07 DELIVERY, STORAGE, AND HANDLING

Deliver materials to the project site and store them in adequately ventilated dry locations. If it is necessary to store materials outside, stack them off the ground on a platform and fully protect them from the weather.

PART 2 -- PRODUCTS

2.01 MANUFACTURER'S

Load Bearing Metal Stud System: One of the following or equal:

1. Dietrich.
2. LA Metal
3. Metal Stud Forming Corp.
4. Western Metal Lath Company.

2.02 MATERIALS

A. Steel:

1. ASTM A 653, Grade 33.
2. Yield Strength; Minimum yield strength of 33,000 PSI.
3. Galvanized to G60 in accordance with ASTM A 653.

B. Screws, Track to Stud, Stud to Stud: Self-drilling, self-tapping, hot-dip galvanized.

C. Screws, Track to Wood: Hot-dip galvanized, long enough for minimum 1-inch penetration into wood.

D. Nails, Track to Wood: Hot-dip galvanized, long enough for minimum 1-1/2 inch penetration into wood.

E. Bolts, Nuts and Washers: As specified in Section 05500, hot-dip galvanized.

F. Anchorage Devices: Powder Activated Fasteners.

G. Welding Materials: AWS D1.1.

H. Primer: As specified in Section 09900.

2.03 FABRICATION

A. Fabricate studs, runners, bracing, and bridging in accordance with ASTM C 955.

B. Studs: Minimum 20 gauge steel sheet, 3-5/8 inches wide, unless otherwise indicated on the Drawings.

C. Track: Minimum 20 gauge steel sheet, channel shaped, minimum 1-3/8 inch flanged same width as studs, for tight fit, unless otherwise indicated on the Drawings.

D. Backing for fixtures: Minimum 16 gauge steel sheet, 3-5/8 inches wide, unless otherwise indicated on the Drawings.

E. Plates, Gussets, Clips: Steel and steel sheet, thickness suitable for conditions, manufacturer's standard shapes.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 NON-STRUCTURAL WALL FRAMING

A. Erect load bearing metal stud system in accordance with ASTM C 1007.

B. Framing may be prefabricated into panels before erection. Brace panels to prevent racking. Lift panels so as to prevent local distortion of members.

C. Make provision for erection stresses. Provide temporary alignment and bracing. Align runners accurately at the floor and ceiling. Where partitions abut underside of steel or concrete construction, install runner and bent plate as detailed. Restrain lateral movement of the runners with bent plated channels.

D. Cut framing members to fit squarely against abutting members. Hold Members firmly in position until fastened.

E. Attach tracks to the floor and ceiling construction at maximum 2 inches for track ends and at maximum 24 inches on center. Fasten track to concrete with powder actuated fasteners or concrete stub nails, to steel with bolts or welds, and to wood with screws or nails. Butt-weld or splice track butt joints in accordance with AWS D1.1.

F. Use 1 piece, full-length studs without splices between tracks.

G. At curved walls, unless otherwise recommended by stud manufacturer, notch runners and form to indicated radius. Reinforce notched flanges with continuous, one inch by 25 gauge straps, clinched to runners around curve and to extend 4 inches beyond curve, where space permits. Space studs not to exceed 8 inches on center. Anchor each stud to strap reinforcing with screws.

H. Seat studs squarely in upper and lower tracks with study flanges abutting track webs. Securely attach studs to tracks. Fasten non-load bearing studs to provide for deflection. Space studs at maximum 16 inches on center, maximum 2 inches from abutting walls, and at each side of openings, unless otherwise indicated on the Drawings.

I. Connect studs to racks with screws or welds in accordance with manufacturer's instructions. Secure both stud flanges at door and window jambs, and partition intersections and corners to track flanges. Weld members that form trusses in accordance with AWS D1.1. Do not tie members with wire.

J. Framing at Doors: Unless otherwise indicated, provide no lighter than 16 gauge studs at each side of all doors or there openings through partitions. Over metal doorframes, place a cut-to-length section of runner with a web-flange bent at each end and fasten to adjacent vertical studs with 2 screws in each flange. Position a cut-to-length stud at the location of vertical joints over doorframe header extending to the top of the wall. Install a horizontal stiffener channel above each door extending to engage first stud beyond each jamb and attach channel to each stud.

K. Use minimum 3 studs at corner and minimum 2 studs at jambs of openings.

L. Frame both sides of expansion and control joints with separate studs. Do not bridge the joint with components of stud system.

M. Install cripple studs above and below openings at same spacing as full-length stud spacing.

N. Attach cross studs or furring channels to studs for attachment of fixtures behind lavatory basins, toilet and bathroom accessories, grab bars and other items anchored to partitions or walls.

O. Install framing between studs for attachment of electrical boxes and other mechanical and electrical items.

P. Touch-up field welds and scratched surfaces with primer.

3.03 SUSPENDED CEILING FRAMING

A. Space number 9 hanger wires at 36 inches on center to carry 1-1/2 inch runner channels spaced 48 inches apart. Tie wires securely around channels, using at least 2 turns and attach securely to concrete or steel framing above.

B. Install 1-1/2 inch runner channels and adjust so that furring is in true and accurately level planes. Lap runner channels at least 12 inches at splices and securely tied together with number 18 wire, double wrapped 2 inches from each end of splice. Main runners and cross runners shall not be let into nor shall contact abutting partitions. Locate main runners within 6 inches of walls to support ends of cross furring.

C. Space cross furring channels or "hat" sections, as applicable, 16 inches on center (maximum) and in accordance with Uniform Building Code requirements. Saddle-tie cross furring and hat section toe each runner channel with not less than 2 strands of number 16 tie wire 1 inch from ends of splice.

D. Suspensions under Ducts and at Special Conditions: For hangers spaced from 48 inches on center to 66 inches on center (maximum), use number 6 wire hanger and 2 inch channel runners.

3.04 CLEAN-UP

On completion of work, remove all excess material, equipment, debris and cuttings; dispose of away from premises. Leave work in clean condition.

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

SECTION 05500

METAL FABRICATIONS

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 SCOPE OF WORK

Shop fabricated ferrous metal items, galvanized and prime painted.

1.03 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.04 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

C. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.

D. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures.

1.05 FIELD MEASUREMENTS

Verify that field measurements are as indicated on Drawings and Shop Drawings.

PART 2 -- PRODUCTS

2.01 MATERIALS

A. Steel Sections: ASTM A36.

B. Steel Tubing: ASTM A500, 46 KSI.

C. Plates: ASTM A283.

D. Pipe: ASTM A53, Grade B.

E. Bolts, Nuts, and Washers: ASTM A307 or as indicated.

F. Welding Materials: AWS D1.1; type required for materials being welded.

G. Shop and Touch-Up Primer for Steel: SSPC 15, Type 1, red oxide.

H. Touch-Up Primer for Galvanized Surfaces: Zinc rich type.

I. Exposed Mechanical Fastenings: Flush countersunk screws or bolts.

J. Miscellaneous Items: Miscellaneous metal items and their related components are not necessarily individually described. The most important and those requiring detail description are specified. Miscellaneous items not described shall be furnished and installed in accordance with the intent of the Drawings and Standard Specifications as required to complete the work.

2.02 FABRICATION

A. Standard commercial products, conforming to requirements of Drawings and Standard Specifications may be used subject to approval of Architect. Bolt with proper size bolts. Nuts shall be drawn tight and end threads upset. Screws and bolts shall be standard and washers provided where necessary.

B. Build anchors and other connecting members required to concrete into concrete as work progresses to avoid unnecessary cutting and drilling.

C. Fit and shop assemble in largest practical sections, for delivery to site.

D. Fabricate items with joints tightly fitted and secured.

E. Continuously seal joined members by intermittent welds and plastic filler or as indicated on Drawings.

F. Execute all work using skilled metal workers only. Use only certified welders. Do only such work at the site as cannot reasonably be performed in the shop. Make cuts, bends, punching and drilling accurate, neat and properly located. Leave exposed surfaces free of fabrication marks. Make members true to length to allow assembly without fillers.

G. Do all welding per AWS Standard Specifications. Apply "Galvaweld" or equal to any surfaces welded after galvanizing.

H. Furnish all necessary templates and patterns required by other trades. Supervise and be responsible for proper location and installation of built-in terms. Deliver any items of this Section required to be embedded in concrete, or built into partitions and other locations to respective Contractors. Provide holes and connections for work of other trades and make necessary connections.

I. When possible, fit and shop assemble, ready for erection, with shop and field connections riveted, welded or attached with screws, countersunk and finished flush where exposed.

J. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

K. Exposed Mechanical Fastenings: Flush countersunk screws or bolts, unobtrusively located, consistent with design of component, except where specifically noted otherwise.

L. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

M. Galvanize any ferrous metal exposed to exterior unless otherwise specified. All units galvanized shall be fabricated into the largest practicable sections before galvanizing.

2.03 FINISHES

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Do not prime surfaces in direct contact with concrete, or where field welding is required.

C. Prime paint items with one coat.

D. Galvanized items to minimum 1.25-ounce/square foot zinc coating in accordance with ASTM A386.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply items required to be cast into concrete or embedded in masonry with setting templates, to appropriate sections.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Allow for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components indicated on Drawings and Shop Drawings.

D. Perform field welding in accordance with AWS D1.1.

E. Obtain Architect approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed, galvanized except surfaces to be in contact with concrete.

G. Anchor firmly into position.

3.04 CLEAN-UP

On completion of work, remove all excess material, equipment, debris and cuttings; dispose of away from premises. Leave work in clean condition.

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

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SECTION 06410

WIC CERTIFIED CABINET WORK

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 DESCRIPTION

Work Included:

1. Provide factory-finished cabinets, and similar items where shown on the drawings, as specified herein, and as needed for a complete and proper installation.
2. All cabinet work complete with all accessories, fittings and hardware.
3. Preparations of cabinets to receive sinks, electric outlets, etc., as required and shown on the Drawings.
4. Shelf brackets and shelves.
5. Countertops.

1.03 QUALITY ASSURANCE

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

B. In addition to complying with all pertinent codes and regulations of governmental agencies having jurisdiction, comply with the following for the grade or grades specified:

C. Identification of components:

1. On a concealed but accessible surface of each item of the work of this Section, where accepted by the Architect, plainly stamp the identifying number or numbers shown on the Drawings for that item.
2. On a concealed but accessible surface of each removable part of each item of the work of this Section, where accepted by the Architect, plainly stamp an identifying number or numbers for that item to aid in rapid and efficient identification and reinstallation of removable parts.

D. Certification:

1. The cabinetwork manufacturer shall certify on his letterhead that he holds a current license from the Woodwork Institute of California, to manufacture WIC cabinetwork. He shall list his license number and submit this certificate with his shop drawing submittal, to the Architect.
2. Before delivery to the job site, the fabricator shall issue a WIC Certified Compliance Certificate to the Architect, certifying that the Plastic Covered Casework products he will furnish for this project fully meet all requirements of "Premium Grade", as modified herein. Each unit of casework shall bear the WIC Certified Compliance Stamp indicating "Premium Grade" and all Countertop Work shall bear the "Custom Grade" stamp.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of proposed to be provided under this Section;

2. Shop Drawings in sufficient detail to show fabrication, installation, anchorage, and interface of the work of this Section with the work of adjacent trades;

a. Identify cabinets, fixtures, moldings, and other items in accordance with the system used on the Drawings;

b. Show overall dimensions, and call specific attention to all dimensions and conditions that vary from those shown on the Drawings.

3. Shop drawings shall indicate list of materials and hardware, sizes, sections, elevations, and details of construction and assembly as required by Section 1, Manual of Millwork "Millwork Shop Drawings Woodwork Institute of California, (Current Edition)."

4. The WIC Certified Compliance Grade Stamp shall be affixed to the casework shop drawings, certifying that the casework will be manufactured in accordance with WIC Premium Grade.

C. Samples:

1. Accompanying the Shop Drawings, submit samples of all items of finish hardware, metal work, trim, glasswork, plastic overlays, and similar items proposed to be provided under this Section.

2. After the Architect has selected general colors and types of finish, prepare and submit samples of the selected finishes on species of the actual cabinet and fixture material.

3. Revise and resubmit the samples as needed to secure the Architect's acceptance prior to fabrication of casework.

1.06 PRODUCT HANDLING

A. Comply with pertinent provisions of Division 1 and WIC Manual of Millwork, Technical Bulletin 419-R "Recommended Care and Storage of Architectural Millwork."

B. Provide additional protection as needed to assure that the work of this Section remains undamaged during fabrication, installation, and the time between completion of installation and actual acceptance of the total Work.

C. Do not deliver cabinets and fixture materials or products to the job site until concrete and plaster installations are completed and dry, not until the building interior has attained a relative humidity of 50% to 55% at 70 degrees F.

PART 2 -- PRODUCTS

2.01 TYPE AND MANUFACTURE

Cabinets shall be manufactured in accordance with WIC Manual of Millwork, Section 15 - Premium Grade, modified as indicated on the drawings and herein specified. All units shall be

factory built and factory finished. Provide Style A - frameless, Type I construction unless otherwise noted.

2.02 CASEWORK DEFINITIONS

A. Exposed Portions:

1. All surfaces visible when doors and drawers are closed.
2. Underside of bottoms of cabinets over 4'-0" above finished floor.
3. Cabinet tops under 6'-0" above finished floor.
4. Visible front edges of web frames, ends, divisions, tops, shelves, and hanging stiles.
5. Visible surfaces in open cabinets or behind glass.
6. Interior faces of hinged doors.

B. Semi-Exposed Portions:

1. Shelves, except in open cabinets.
2. Divisions, except in open cabinets.
3. Interior face of ends, backs, and bottoms, except in open cabinets.
4. Drawer sides, sub-fronts, backs, and bottoms.
5. The underside of bottoms of cabinets between 2'-6" and 4'-0" above the finished floor.
6. All rooms designated as storage, janitor, or utility.
7. Knee spaces.

C. Concealed Portions:

1. Toe space unless otherwise specified.
2. Sleepers.
3. Web frames, stretchers, and solid sub-tops.
4. Security panels.
5. Underside of bottoms of cabinets less than 2'-0" above the finished floor.
6. Flat tops of cabinets 6'-0" or more above the finished floor.
7. The three non-visible edges of adjustable shelves.
8. The faces of cabinet ends of adjoining units that butt together.

2.03 MATERIALS, FINISH AND CONSTRUCTION

A. Exposed Portions:

1. Material for exposed portions shall be faced with decorative high pressure laminated plastic.

   a. Plastic laminate shall be Standard Grade, satin finish, thermoplastic laminate surfacing, .050" thick, meeting the requirements of NEMA LD 3-85. Backing sheets shall be .020" thick conforming to the requirements of NEMA LD, latest edition. Use post-forming grade where required by the drawing details, minimum thickness .042" +/- .004".

   b. Color and pattern as indicated on the Drawings.

c. If color and pattern is not indicated, then Architect will select as part of the review of Shop Drawings. In this case, acceptable manufacturers include Wilsonart, Laminart, Formica, and Nevamar. Architect reserves the right to select more than one color and pattern for use on any one cabinet.

B. Semi-exposed Portions:

1. Material for semi-exposed portions, except interior faces of hinged doors, shall be high-pressure laminate cabinet liner meeting the requirements of NEMA LD-3-85.

2. The interior faces of hinged doors shall be faced with 0.032" minimum thickness high pressure laminated plastic conforming to NEMA LD-3.

C. Concealed Portions:

1. Material for concealed portions may be sound, dry solid stock, plywood or particleboard, except where otherwise specified herein.

D. Visible Edges:

1. All visible edges, exposed or semi-exposed, of ends, tops, bottoms, shelves, webs, stretchers, divisions, doors and drawer fronts shall be bound with butyl or tenite plastic T-molding secured by a 3/8" serrated leg glued in place with water-resistant glue or edged with .050" thick high pressure laminated plastic matching adjacent color.

E. Laminate Core Material shall be particleboard meeting the requirements of ANSI A 208.1-87, Table 1 - Grade 1-M-3.

F. Adhesive shall be Type II, water resistant.

2.04 DOORS

A. All doors, including cabinet doors, shall be flush overlay type completely covering all cabinet face frames. Door cores shall be particleboard with 0.050" thick high-pressure laminated plastic on exposed face of door, net thickness to be 0.735". Edge bands shall be .050" thick high pressure laminated plastic matching adjacent surfaces or T-molding in color selected by the Architect. All exposed plastic shall be laminated to core by cold press only, in accordance with manufacturer's recommendations. Cabinet doors shall have 0.032" high-pressure laminated plastic on the inside face.

B. Doors under 48" in height shall have a minimum of two hinges. Doors 48" to 84" high shall have a minimum of three hinges, and over 84" shall have a minimum of four hinges.

2.05 DRAWERS

A. Drawer sides, backs, and sub-fronts shall be multiple dovetail or doweled construction and made of 0.50" minimum thickness hardwood or high-pressure laminate cabinet liner with particleboard core.

B. Drawer bottoms shall be 1/4" enameled hardboard rabbeted into sides, front and back, and glued and blocked into rigid position. Drawers shall be supported upon metal side guides with nylon rollers. Provision shall be made to stop the drawer in both "in" and "out" positions without dependence on the drawer front. Metal drawer slides shall have a capacity of 75 pounds except that large drawers and file drawers shall be equipped with minimum 100-pound capacity full extension slides. Drawers shall operate smoothly without excessive play.

C. Drawer fronts shall be flush overlay type completely covering all cabinet face frames. Cores shall be particleboard with 0.050" thick high pressure laminated plastic on exposed face of drawer front, net thickness to be 0.735". All exposed plastic shall be laminated to

the core by cold press method only, in accordance with the manufacturer's recommendations. Backing sheet on the inside face shall be 0.032" minimum thickness. Edge bands shall be .050" thick high pressure laminated plastic adjacent surfaces or T-molding in color selected by the Architect. Maximum clearances of 3/32" shall be maintained between adjacent drawer fronts and doors. Secure drawer fronts to drawer with No. 8 x 1" screws.

D. Provide security panels above locked drawers.

2.06 TOPS AND BOTTOMS

A. Tops and bottoms shall be particleboard or plywood with 0.050" high pressure laminated plastic on exposed portions or cabinet liner on semi-exposed portions; net thickness shall be 0.735".

B. Plywood bottoms of upper cabinets with spans 4'-0" or over in length between vertical members of the cabinet body shall be a minimum of 1" in thickness. Particleboard bottoms of upper cabinets with spans 3'-6" or over in length between vertical members of the cabinet body shall be a minimum of 1" in thickness.

2.07 ENDS AND DIVISIONS

A. Cabinet ends and divisions shall be particleboard or plywood as detailed on the Drawings with 0.050" thick high pressure laminated plastic on exposed faces or high pressure laminate cabinet liner on semi-exposed portions; net thickness shall be 0.735". Visible edges shall be T-molding edge banding or .050" high pressure laminated plastic.

B. Cabinet ends shall be lock-jointed, securely glued, and blind nailed or screwed to the tops, web frames, and bottoms at not to exceed 4" on center. Doweled construction is acceptable.

2.08 WEB FRAMES AND STRETCHERS

A. Web frames and stretchers shall be a minimum of 0.735" in thickness and 2-1/2" in width, and shall be solid stock or plywood. A solid piece of plywood or particleboard a minimum of 0.735" in thickness, the full length and depth of the cabinet opening may be used in lieu of a web frame or stretchers.

B. Web frames shall be furnished under countertops; or a continuous stretcher front and rear may be furnished in lieu of the frame, and shall be attached by means of a dado, tenon or metal angle bracket. A continuous stretcher at the front shall be furnished at the approximate mid-height of all drawer cabinets over 2'-6" in drawer opening height and shall be attached by means of a dado, tenon or metal angle bracket.

2.09 BACKS

A. Semi-exposed backs shall be 1/4" thick plywood or tempered and sealed hardboard with high-pressure laminate cabinet liner. Exposed backs shall be 1/2" thick plywood with 0.050" high-pressure laminated plastic.

B. Color shall match adjacent semi-exposed or exposed portions as applicable.

C. Backs shall be securely nailed, doweled or dadoed to the case body, divisions, or fixed shelves.

2.010 SHELVES

A. Shelves shall be plywood or particleboard with 0.050" thick high pressure laminated plastic when shelves are exposed and high-pressure laminate cabinet liner when shelves are semi-exposed. Minimum net thickness shall be 0.735". Exposed edges shall be bound with T-molding or 0.050" high pressure laminated plastic.

B. Closet shelving and exposed shelving shall have 0.050" thick high pressure laminated applied to top and bottom surfaces with front edge bound in .050" thick high pressure laminated plastic or T-Molding.

C. General shelving as in Janitor's closets and storage areas shall have .032" thick high-pressure cabinet liner applied to top and bottom surfaces and exposed edges.

D. Adjustable shelves with unsupported spans in excess of 3'-6" between vertical members of the case body for plywood, and in excess of 3'-0" for particleboard, shall be a minimum of 1" in thickness; and shall be mounted on surface or recessed metal shelf standards with clips adjustable at 1/2" center.

E. Fixed shelves with unsupported spans of 4'-0" or over between vertical members of the case body for plywood, and 3'-6" or over for particleboard, shall be a minimum of 1" in thickness; and shall be mounted on aluminum clips 1" x 1" x 1-1/2" at each corner.

2.011 CABINET BASES AND SLEEPERS

Cabinet bases may be constructed with either separate or integral bases. All bases and sleepers shall be 0.735" solid stock. Sleepers shall be provided at a maximum of 3'-0" on center.

2.012 ANCHOR STRIPS

A. Anchor strips of solid stock or plywood shall be a minimum of 1/2" in thickness and a minimum of 2-1/2" in width, and shall be provided at the wall side of the cabinet back on both top and bottom of wall hung cabinets and at top only of base cabinets unless otherwise shown on the Drawings.

B. Cabinets over 5'-0" in height shall have an intermediate anchor strip.

2.013 PLASTIC LAMINATE COUNTERTOPS

A. Sink cabinet countertops of high-pressure laminated plastic shall be pressure bonded to waterproof 0.735" plywood as recommended by NEMA Standards. Plywood shall be faced with a close grain hardwood to minimize telegraphing of core. Countertops that do not join sink counters may be 0.735" plywood or 0.735" particleboard.

B. Backsplash work, including end returns, shall be made with high pressure laminated plastic and self-edged in color and patterns selected by Architect. Plastic laminate shall be minimum 0.050" thick for flat surfaces and backsplash. In addition to top surfaces and edges, apply .05" plastic laminate to the underside of countertops exposed at exterior areas of casework.

C. The underside of countertops with particleboard cores shall have a .020" thick backing sheet securely glued to the core with identical adhesive and under identical circumstances as the face sheet conforming to NEMA LD, latest edition.

D. Adhesives used to secure plastic laminate to particleboard backing shall be ureaformaldehyde cold setting or phenol resin with a catalytic agent to be set under a pressure of 30 lbs. psi with cold press method.

E. Back cut all joints to 89.75 degrees to insure flush fit at junction to top where plastic sheets meet joints. Joints shall be secured either by a series of 1/8" x 3/4" cold rolled steel strips 3" o.c. through entire joint or by wedge type fasteners. No joints shall be made through sink openings or other openings where water is to be used. Where no splash occurs, scribe back or edge of countertop to wall. Where backsplashes occur, they shall be square butt joined with the countertop.

F. Accurately cut openings in countertops to receive sinks. Sinks shall be installed under Plumbing Section.

G. Stainless steel "T" shaped "Clamp-down" type sink rings shall be furnished and installed under Plumbing Section. Contractor shall make necessary provisions for installation thereof and coordinate this part of work with others as required.

2.014 HARDWARE

All hardware shall be jig fitted at the factory by trained craftsmen only. Provide U.S. 26D Dull Chrome finish - unless specified otherwise on the Drawings.

1. Hinges - National Lock #B 851 - 3 on doors over 42" high; 2 on doors under 42" high.
2. Pulls - National NA 928-26D extruded anodized clear aluminum (3-3/4" long by 1-1/4" high by 3/4" deep) or accepted equal.
3. Catches - Amerlock #T-9798-AW three-plate magnetic catch manufactured by Amerlock Corporation, or accepted equal.
4. Elbow Catches - Amerlock #3675 on companion doors where locks are specified.
5. Door Locks - National C8102.6 - master keyed to other casework.
6. Drawer Locks - National C8108 - master keyed to other casework.
7. Drawer Guides - Light & Medium Duty: Accuride 7434. Heavy Duty: Accuride 4034.
8. Shelf Standards - Knape & Vogt #233 mounted with four Knape & Vogt #237 clips for each shelf, or accepted equal.
9. Shelf Bracket - Simpson Strong-tie No. SBV or accepted equal.
10. Mirrors - 1/4" plate 10" x 12" silvered for unframed teachers wardrobe mirror, double strength B grade for doors.
11. Hang Rod at Wardrobes - 1-1/4" o.d. x .042 wall aluminum tubing, clear, anodized.
12. Hang Rod Flanges - Ronther Reiss #R44-55.
13. Television Swivel Base - Ball Son Co., #1005-00-00. Phone: (213) 589-5151.
14. Hang Rod and Hooks - 1" o.d. tubular steel hanger pole, chrome finish with hang rod flanges. Hooks to be Raymond Engineering, Inc., Model #924: black, double prong nylon.

2.015 MISCELLANEOUS MATERIALS

Adhesives:

1. For woodwork and millwork, use water resistant and mold resistant adhesive complying with Fed Spec MM-A-125, type II.
2. For plastic laminates, use phenol, resorcinol, or melamine base, complying with Fed Spec MM-A-181, in type, grade and class best suited for the intended use.

2.016 FABRICATION – GENERAL

A. All units shall be completely fabricated and finished in the factory, except as otherwise specified or indicated for modified units. All doors and all hardware shall be jig fitted and ready for site installation.

B. Joinery:

1. All cabinet members shall be securely fastened together.
2. All joints shall be securely glued.

3. All exposed and semi-exposed joints shall be tight and true.

4. The use of finish nails is allowed only where they will not show through a plastic face.

5. Construction joinery shall be dadoes, lock joints, rabbets or doweled joints.

C. Edges of exposed portions:

1. Blind or stop dadoes are required. When lock joints are used they shall not run through the edge band.

D. Scribe members:

1. Provide sufficient additional material to permit scribing to walls, floors, and related work.

2. Provide adequate allowance for shrinkage occurring after installation.

E. Framing and blocking:

1. Assemble with bolted and screwed connections only, securing to structural backing with cinch anchors, expansion screws, or toggle bolts as necessary.

F. Cut and fit the work of this Section as necessary to receive, clear, engage or support other parts of the Work, and as needed for interface with electrical, plumbing, and other units.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 PREPARATION FOR INSTALLATION

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Make necessary measurements in the field to assure proper fit of shop fabricated items.

C. Prior to start of installation, verify that the work of other trades is sufficiently complete to properly permit this installation to proceed.

3.03 INSTALLATION

A. Install the work of this Section in accordance with the accepted Shop Drawings and Section 26, WIC "Manual of Millwork", using factory trained craftsmen.

1. Scribe units to wall, floor, and other surfaces as appropriate, with not more than 1/32" clear between the cabinet or fixture and the abutting permanent surface, and with no change of clearance in excess of 0.01" in any 4".

2. Set each unit square, level, plumb, and aligned within a tolerance of one on 1000 vertically and horizontally, and within 1/4' of the designated location for free-standing work.

B. Coordinate the time and installation with availability of other trades to make required utility connections.

1. Provide access panels as needed for connection and maintenance of utilities.

2. Prepare tops to receive sink frames, plumbing trim, electrical outlets, etc., provided under other Sections. Obtain necessary templates from related trades.

C. Test each plumbing and electrical item through at least five operating cycles, and adjust as needed to achieve optimum operation.

D. Upon completion of installation, thoroughly clean each item by use of only such cleaning materials as are recommended by the manufacturer of the item being cleaned.

E. Touch-up scratches and abrasions to be completely invisible to the unaided eye from a distance of five feet.

F. All casework shall be anchored to the building in conformance with requirements of the Office of the State Architect. Casework shall be anchored to walls to withstand a horizontal load in any direction equal to 50% of the weight of the casework and contents (a minimum of 50 pounds per square foot of horizontal projection per shelf).

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

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SECTION 06600

PLASTIC SURFACING MATERIALS

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 DESCRIPTION

Provide factory-finished Surface Materials, and similar items where shown on the drawings, as specified herein, and as needed for a complete and proper installation. Work may include, but is not limited to:

1. Standard Decorative Laminates.
2. Solid Surfacing.
3. Marker Board Laminate.

1.03 REFERENCES

A. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.

B. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

C. ISO 4586-2 - High Pressure Decorative Laminates; International Organization for Standardization.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

A. Samples:

1. Selection Samples: Submit actual samples of surfacing materials to illustrate full range of colors, patterns, and finishes available.
2. Verification Samples: Submit two samples, each 12 inches square, illustrating each selected surfacing material in specified color, pattern, and finish.

B. Manufacturer's Instructions:

1. Submit manufacturer's printed installation instructions for each product.
2. Submit manufacturer's Safety Data Sheets (M.S.D.S.) for each adhesive.

PART 2 -- PRODUCTS

2.01 MANUFACTURERS

Acceptable Products: Wilsonart International, Dupont Corian, Avonite, LG Hi-Macs.

2.02 STANDARD DECORATIVE LAMINATES

A. Acceptable Products: Wilsonart Laminate, Formica, Pionite, Nevamar.

B. Product Description: Decorative surface papers, impregnated with melamine resins, bonded under heat and pressure to kraft papers impregnated with phenolic resins.

C. Standard Decorative Laminate – General Purpose Type: having the following physical characteristics:

1. Sheet thickness: 0.048-inch (1.219 mm) plus/minus 0.005-inch (0.127 mm).

2. Exceeding performance requirements of NEMA LD 3-1995 Grade HGS.

3. Surface burning characteristics in accordance with ASTM E 84; unbonded: Flame spread 55; Smoke developed 30.

4. Patterns and Finishes: Selected from manufacturer's full range of available selections, as selected and approved by Architect.

2.03 SOLID SURFACING MATERIAL

A. Acceptable Product: Wilsonart Gibraltar Solid Surfacing, Type 051, or approved equal.

B. Product Description: Homogenous sheet material composed of acrylic resins, fire-retardant filler materials, and coloring agents.

1. Nominal sheet thickness: 0.50 inch (13 mm).

2. Surface burning characteristics in accordance with ASTM E 84: Flame spread less than 25; Smoke developed less than 25.

3. Liquid Absorption, ISO 4586-2, for 1/2-inch material thickness: 0.4 percent after 2 hours boiling water.

C. Izod Impact, ASTM D 256, Method A: 0.2 foot pounds per inch.

1. Tensile Modulus, ASTM D 638 Nominal: 1.7 million pounds per square inch.

2. Thermal Expansion, ASTM D 696: 0.000019-inch per inch per degree F, maximum.

3. Hardness, ASTM D 2583, Barcol Impressor: 59.

4. Flexural Modulus, ASTM D 790: 1.6 million pounds per square inch.

5. Deflection Temperature under load, ASTM D 648: 90 degrees C.

6. Stain Resistance: ANSI Z124.6 modified, Method 3.4: No effect.

7. Boiling Water Resistance, NEMA LD 3-1995, Method 3.5: No effect.

8. High Temperature Resistance: NEMA LD 3-1995, Method 3.6: No effect.

9. Radiant Heat Resistance: NEMA LD 3-1995, Method 3.10: No effect.

10. Light Resistance: NEMA LD 3-1995, Method 3.3: No effect.

11. Ball Impact Resistance, NEMA LD 3-1995, Method 3.8, one half pound ball, unsupported: 125 inches.

12. Specific Gravity: 0.977 ounces per cubic inch (1.69 grams per cubic centimeter).

13. Approximate weight: 4.2 pounds per square foot (20.5 kg/square m).

14. Weatherability: ASTM D 2565: Pass.

15. Fungus Resistance, ASTM G 21: Pass.

16. Bacterial Resistance, ASTM G 22: Pass.

17. Pittsburgh Protocol Toxicity: 66.9 grams.

18. Patterns and Finishes: Selected from manufacturer's full range of available selections, selected and approved by Architect.

19. Impact Resistance NEMA LD3-1995 (1/2 lb. Ball) SSV bonded to substrate*** Method 3.08 modified. 125" (No Failure)

20. Tensile Toughness ASTM D 638. 21 (in. – lb./in. ^{3})

21. Tensile Modulus ASTM D 638 Nominal. 1.7 x 10^{-5} lb./in.^{3}

22. Density 1.60 gram/cm^3

23. Approximate weight 4.2 lbs./ft^2

24. Pittsburgh Protocol Toxicity = 30 grams range

2.04 MARKER BOARD LAMINATES

A. Acceptable Product: Wilsonart Marker Board Laminate.

B. Product Description: Overlay saturated with melamine resins and decorative surface papers, impregnated with melamine resins, bonded under heat and pressure to kraft papers impregnated with phenolic resins.

C. Marker Board Laminate - Horizontal Grade Type: Type 136.

1. Sheet thickness: 0.050-inch plus/minus 0.005-inch (1.27 plus/minus 0.127 mm).

2. Exceeding performance requirements of NEMA LD 3-1995 Grade HGS.

3. Surface burning characteristics in accordance with ASTM E 84; unbonded: Flame spread 40; Smoke developed 115.

D. Marker Board Laminate - Vertical Grade Type: Type 336.

1. Sheet thickness: 0.030-inch plus/minus 0.003-inch (0.762 plus/minus 0.076 mm).

2. Exceeding performance requirements of NEMA LD 3-1995 Grade VGP.

3. Surface burning characteristics in accordance with ASTM E 84; unbonded: Flame spread 40; Smoke developed 70.

4. Colors: Selected from manufacturer's full range of available selections, as selected and approved by Architect.

E. Marker Board Laminate - Fire-Rated Type: Type 636.

1. Sheet thickness: 0.050-inch plus/minus 0.005-inch (1.27 plus/minus 0.127 mm).

2. Exceeding performance requirements of NEMA LD 3-1995 Grade HGF.

3. Surface burning characteristics in accordance with ASTM E 84; unbonded: Flame spread 25; Smoke developed 110.

4. Color: Selected from manufacturer's full range of available selections, as selected and approved by Architect.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. .Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

Surface preparation: Precondition surfacing materials and surfaces to receive surfacing materials in accordance with manufacturer's printed installation instructions.

3.03 APPLICATION

Install materials in accordance with manufacturer's printed instructions.

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

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SECTION 07210

THERMAL INSULATION

PART 1 -- GENERAL

1.01 SUMMARY

Division 0, Contract requirements and Division 1, General Conditions apply to this section.

1.02 SCOPE OF WORK

A. Furnish and install Thermal Insulation indicated on the Drawings and as specified herein.

B. The principal items of work include:

1. Thermal Insulation within roof.
2. Thermal Insulation within exterior walls.
3. Thermal Insulation within interior walls.

1.03 QUALITY ASSURANCE

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

B. Upon completion of this portion of the Work, complete and post a certificate of insulation compliance in accordance with pertinent requirements of governmental agencies having jurisdiction.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items to be provided under this Section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.06 GUARANTEE

Contractor Guarantee: Contractor guarantees the work covered by this specification against all defects in material and workmanship for a period of not less than two (2) years from the date the Owner records Notice of Completion.

PART 2 -- PRODUCTS

2.01 MATERIALS

A. Provide thermal insulation as indicated on Drawings. All insulation shall be inorganic glass fiber insulation. Insulation shall comply with ASTM Testing Standards. Fire Hazard

Classification, Flame Spread Index, Smoke Developed Index, Combustibility, and Fire Endurance Ratings as required by Code.

B. Insulation shall be as manufactured by Certain-Teed, Johns-Manville, Owens-Corning, or Architect approved equal.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Verify adjacent materials are dry and ready to receive installation.

B. Verify mechanical and electrical services within walls have been installed and tested.

3.03 INSPECTION

A. Before any installation is started, determine that the other work is suitable to receive insulation.

B. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

C. Remove or protect against projections in construction framing that may damage or prevent proper insulation.

3.04 INSTALLATION

A. All work shall be performed by licensed applicators, shall comply with the recommendations of the manufacturer and the National Association of Insulation Manufacturers.

B. Install insulation with factory applied membrane facing warm side of building spaces. Lap ends and side flanges of membrane over and between framing numbers. Secure in place. Tape seal butt ends and lapped side flanges. Tape seal tears or cuts in membrane.

C. Trim insulation neatly to fit spaces. Use batts free of damage. Install batt insulation, in wall spaces without gaps or voids.

D. Install Insulation in all indicated walls from floor to underside of roof. Secure insulation with 19-gage wire or 1" wide, 20 gage steel strips. Architect shall approve all insulation details, including methods of fastening, before commencement of the work.

3.05 CLEAN UP AND DISPOSAL

At frequent intervals during and again upon completion of work, remove from building and working premises tools and equipment, surplus materials, all rubbish and debris of whatever nature not caused by other trades, and leave the work in a clean, orderly and acceptable condition approved by the Architect.

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

SECTION 07500

MEMBRANE ROOFING

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

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

1. Built-up mineral surface cap sheet roofing.
2. Base flashings and cants, including perimeter gutter felts.
3. Supervising installation of sheet metal in connection with roofing.

1.03 QUALITY CONTROL

A. Field Conditions: Insure that roofing applicator inspects the deck, related work and adjacent surfaces. Report to the Architect all conditions that prevent proper execution of this work.

B. Certification: Applicator shall submit a certification that manufacturer approves him and that the work has been installed in accordance with specifications and manufacturer's inspection.

C. Test Cuts: Architect may make 4" x 36" test cuts -- not to exceed one cut for each 2000 s.f. This contractor shall repair all such cuts at no extra charge to the Owner.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items to be provided under this Section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

1.06 DELIVERY AND STORAGE

A. Delivery: Deliver all materials in their original containers with seals unbroken and manufacturer's label and product identification clearly legible on each package.

B. Storage: Store materials at site under cover. Maintain materials in dry condition until ready for use.

1.07 GUARANTEE

A. Provide a (10) Ten-year Warranty.

B. Contractor shall provide a written guarantee for all work against defects in materials and workmanship as required in the "General Conditions" prior to final payment.

C. In addition, the roofing contractor shall obtain Manufacturer's approval for guarantee for this project prior to beginning the application. The contractor shall furnish to the Owner the schedule of charges and guarantee coverage prior to beginning work.

PART 2 -- PRODUCTS

2.01 MATERIALS:

A. Roofing shall be a mineral-surface fiberglass built-up roof. Specification number based upon Johns-Manville specification and warranty as indicated on the Roof Plan.

B. Acceptable Alternate Manufacturers:

1. GAF

2. Others: Submit for approval by Architect prior to submitting Bid.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Verify that deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains, valleys or eaves.

E. Verify that roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, and that cant strips and reglets are in place.

F. Beginning of installation means acceptance of conditions.

3.02 GENERAL INSTALLATION

All roofing shall be installed in strict adherence to the Johns - Manville recommended procedure. Installer must be a Johns - Manville "approved roofer".

3.03 CLEANING

A. Remove bituminous markings from finished surfaces.

B. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces for cleaning, advise and conform to their documented instructions.

C. Repair or replace defaced or disfigured finishes caused by work of this Section.

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

SECTION 07550

STANDING SEAM METAL ROOFING

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

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

1. Pre-finished, prefabricated standing seam roof system.
2. All related perimeter trim and flashings.
3. Any and all required clips, fasteners, closures, underlayments, and sealants, necessary to meet design criteria and ensure a weather-tight installation.
4. Coordination with installation of roofing substructure.
5. Coordination with installation of sheet metal.

1.03 SYSTEM REQUIREMENTS

A. Design Requirements:

1. Provide UL rated roofing system that has been tested in accordance with UL 580 test procedure.
2. Provide factory pre-formed panel system that has been pre-tested and certified by manufacturer to comply with all the specified requirements under installed conditions.

B. Structural Requirements:

1. Engineer panels for structural properties in accordance with the latest edition of American Iron and Steel Institute "Cold Formed Steel Design Manual".
2. Provide confirmation of positive and negative buckling moments and uplift capacity determined by full-scale tests in accordance with ASTM E72-80 (Chamber Method).
3. Provide UL 90 Uplift testing reports, stating that the standing seam system has been tested over solid 5/8" minimum thickness plywood substrate.
4. The system must allow for panel movement due to thermal linear expansion.

C. Regulatory Requirements:

Comply with the requirements of all applicable building codes and other agencies having jurisdiction for wind uplift rating of standing seam roofs.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items to be provided under this Section.

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

3. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

C. Shop Drawings

1. Provide small-scale drawings indicating layout of panels on entire roof.

2. Provide large-scale drawings of all edge conditions, joints, custom profiles, supports, anchorages, transitions and the like.

D. Submit samples of panel in color to be used on the project. Panel portions shall include part of seam and ridge.

1.06 QUALITY ASSURANCE

A. Applicator shall possess all required licenses for work in this jurisdiction and have five years experience in installing standing seam metal roofs. Applicator shall supply a written two (2) year warranty covering all repairs required to maintain the roof and flashings in watertight conditions.

B. Manufacturer shall supply a twenty-year warranty on finish per ASTM D 2244-68 and ASTM D659-74.

1.07 DELIVERY AND STORAGE

A. Protect products and accessories from damage and discoloration during transit and at the site. Store sheets in a dry area to prevent condensation. Store flat and under cover until ready for use.

B. Deliver all materials in original packaging, identified with seals unbroken.

C. Do not overload roof structure with stored materials. Do not permit material storage or traffic on completed roof surfaces.

1.08 GUARANTEE

A. Roofing Contractor shall guarantee all work against defects in materials and workmanship for a period of two (2) years as required in the General Conditions prior to final payment.

B. In addition, the Finish shall have a twenty (20) year warranty against fading, chalking, peeling, cracking, chipping or delaminating.

PART 2 -- PRODUCTS

2.01 STANDING SEAM METAL ROOF

A. Manufacturer:

1. Acceptable products include TBC SS-200 Structural Standing Seam UL 90 panels by TBC/Tomen.

2. Submit for approval by Architect prior to submitting Bid.

B. Product:

1. Furnish: size(s), color(s), pattern(s) and shape(s) as indicated on the drawings.

2. Provide standard accessory shapes as required and as accepted by Architect.

3. Use appropriate trim shapes to conform to drawings.

C. Materials.

1. Metal roofing panels are to be manufactured from pre-finished Galvalume sheet consisting of 55% aluminum, 1.6% silicon and the balance in zinc per ASTM A792.

2. Panels are to be a minimum of 24-gauge and manufactured in 20" widths with 3/4" legs. Provide full-lengthened panels from ridge to eave.

3. Seam covers are to be 24-gauge material 1-1/2" high and located on 20" on center.

4. Provide a continuous, factory installed, high grade, sealant located at the upper inside edge of the seam cover.

5. Provide related flashings and trim to match roof finish. Any exposed trim to have an uninterrupted vertical face 6" in width and 22-gauge thickness.

6. Rake, Ridge and eave trim: provide trims compatible with the roofing system and manufacturer's recommended attachments.

7. Hold down / panel clips as required for UL listing for 12-gauge Galvanized Steel with 22-gage stainless steel tabs.

8. Zee closures and sealants as required for weathertight insulation. Roofer shall be responsible for all materials and installation required to provide a complete guaranteed system.

2.02 FINISH

A. Fluoropolymer Coating: Full-strength 70% Kynar 500 coating baked on to form dry film thickness of 1.0-mil over a 0.3-mil baked-on epoxy primer, coated by a licensed applicator.

B. Finish is to be premium color unless noted otherwise on the Roof Plan or Exterior Elevations.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Verify that deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains, valleys or eaves.

E. Verify that roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, and that cant strips and reglets are in place.

F. Beginning of installation means acceptance of conditions.

3.02 GENERAL INSTALLATION

A. Provide one layer of #30 felt with horizontal overlaps and end laps staggered between rows. Lay parallel to ridge line with 4" horizontal laps and 12" vertical laps. Mechanically attach to substrate at 12" o.c.

B. Comply with manufacturer's instructions for assembly, installation and erection as applicable to this project's conditions and supporting substrate, in order to achieve weather-tight installation. Install with accordance to approved Shop Drawings. Panel seams shall

interlock without use of field seaming machines. Compression ribs or button punching will not be allowed. Exposed fasteners in roofing panels will not be allowed.

C. Isolate materials at any point of contact with dissimilar metals by back coating metal with protective paint or applying tape between metals. Facilitate drainage to minimize possibility of galvanic action.

D. Installers shall use rubber sole shoes while working on the metal roof. Always protect the panel surface.

E. Fully seat adjacent panels to achieve continuous engagement of standing seam joint. Make end cuts and install sealant and flashings to achieve weathertight installation per manufacturer's recommendations.

F. Replace any materials that have been damaged or have deteriorated beyond successful repair per the Architect's review.

3.03 CLEANING

A. Remove temporary coverings and strippable films if any as each panel is installed.

B. Clean exposed surfaces of work promptly after completion of installation. Remove all metal clippings and filings carefully to avoid damage to the finish.

C. Protect work as required to ensure roofing will be without damage at the time of final completion.

D. Replace damaged work that cannot be restored to original condition.

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

SECTION 07600

FLASHING AND SHEET METAL

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

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

1. All metal wall flashings, related flashing, coping and caps.
2. Flashing at curbed openings, and other miscellaneous areas where indicated on the drawings.
3. Flashing flanges for roof drains and overflows.
4. Flashing at parapet walls that receive roofing membrane.
5. Flashing and metal covers at mechanical equipment platforms.
6. Gutters and downspouts.
7. Shop and field priming, shop painting, galvanizing, screening, caulking, anchors and anchor straps, clips, etc.
8. Shop drawings of all sheet metal work including expansion joints.

1.03 QUALITY ASSURANCE

A. Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces.

B. Report to the Architect all conditions that prevent proper execution of this work.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Shop Drawings: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit: all information required for fabrication, finishing and installation of this work in complete details.

1.06 GUARANTEE

Contractor Guarantee: Contractor guarantees the work covered by this specification against all defects in material and workmanship for a period of not less than two (2) years from the date the Owner records Notice of Completion.

PART 2 -- PRODUCTS

2.01 MATERIALS

A. Galvanized Sheet Metal: Conform to ASTM A525, thickness indicated or specified, but not less than 24-gauge. Zinc coating shall weigh not less than 1-1/2 ounces, or more than 1-1/2 ounces per square foot of surface covered.

B. Solder: Standard Grade-A brand of 50:50 Alloy Lead-Tin, complying with ASTM B32. Name of manufacturer and grade designation shall be cast or die-marked on each bar.

C. Solder Flux: Raw muratic acid for galvanized metal and zinc; resin for tin, lead, and tinned copper; and non-corrosive soldering salts for uncoated copper.

D. Sheet Metal Fasteners: Rivets, nails, sheet metal screws, self-tapping screws, and stove bolts, of the type and size best adapted to the condition of use. Provide fasteners of the type specified or indicated.

1. Use: galvanized steel, cadmium-plated steel or 300 Series alloy stainless steel.

2. Pop rivets may be used for metal-to-metal connections when future disassembly is not required. Open-end type may be used for all applications except where watertight connections are required, in which case, use closed end type.

E. Caulking Compound: Provide as specified under Section 07900. Apply as recommended by the manufacturer; caulking compound of proper consistencies for gun and knife application as necessary.

F. Shop Prime Coat: Rust-Oleum Corporation. Apply #3202 to 1/2 mil wet coating thickness, #3268 to 1-mil dry coating thickness or provide primer as specified under Section 09900.

G. Shop Color Coat: Pre-coat in shop with coating of color to match adjoining surfaces.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 FABRICATION AND ASSEMBLY

A. Workmanship: Fabricate and finish metal work in a first class manner in accordance with best trade practices with all joints and corners accurately machined, filed and fitted, and rigidly framed together and connected. Carefully match components to produce perfect continuity of line and design. Make joints and connections in exterior face metal watertight, using approved scaling materials and methods of assembly. Fit faces of metal in contact with hairline joints, except as otherwise indicated or required for expansion or fitting. Conceal fastenings, unless otherwise indicated. Conceal required reinforcements within the finished assembly.

B. Expansion and Contraction: Form and fabricate work to adequately provide for thermal expansion and contraction and building movement in the completed work, without over-stressing the materials, breaking connections, or producing wrinkles and distortion in finished surfaces. Finish sheet metal work water and weathertight throughout.

C. Attachment Clips: Where subject to thermal expansion and contraction, attach members with clips to permit movement without damage to the installation, or provide slotted or over-size holes with washers where appearance is not critical, as approved by the Architect.

D. Lock Seams: Make lock seam work flat and true to line; sweat full of solder except where installed to permit expansion and contraction. Lap flat lock seams, and lap seams where soldered, according to pitch but in no case less than 4". Make seams in direction of flow. Fill expansion joints with sealant. Plane surfaces shall be free of buckles. Provide reinforcement as necessary. Cleat and fasten substantially on approximately eight-inch centers. All cap flashing and gutter seams to be flat lock seams.

E. Soldering: Thoroughly clean and tin material prior to soldering. Solder with heavy coppers of blunt design, properly tinned before use. For flat seam work they shall not weight less than ten pounds per pair, and for other work not less than size pounds per pair. Solder slowly with well-heated coppers, heating the seams thoroughly and completely filling them with solder. Finish surfaces neatly, full flowing and smooth. Wash acid flux thoroughly with a soda solution after soldering and completely remove soldering flux on exposed surfaces.

F. Welding: Conform to the requirements of AWS "Standard Code for Arc and Gas Welding". Perform welding in a manner resulting in strong, durable, tight, flush, smooth, and clean joints. Weld sheet steel to produce full and complete fusion welds without inducing locked-in stresses in the metal or surface distortions. Welding on exposed surfaces shall be ground smooth and flush and finished to match adjacent surfaces.

G. Caulking: Where indicated, caulk joints in sheet metal work and between sheet metal work and adjacent construction with polysulfide sealing compound. Apply in accordance with Caulking and Sealants Section.

H. Coping: Shall be attached to top of parapets in strict conformance with the latest written specifications of the Sheet Metal Industry Fund of Los Angeles, and as indicated on the drawings.

I. All sheet metal work shall be examined carefully the Contractor, Owner and Architect and if necessary, tested. The Contractor shall make all repairs to damaged items as a result of this testing, leaving them in a condition satisfactory to the Architect.

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

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SECTION 07840

FIRE STOPPING

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 DESCRIPTION

A. Work included: Provide firestopping where indicated on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. It is the intent of this section of the specifications to establish a single, competent source to be responsible for providing all labor, materials, products, equipment and services, to supply and install the firestopping and smoke seal work for the entire project, at the following locations, as indicated on the drawings:

1. Openings in fire rated walls, floors and roofs both empty and those containing penetrations such as cables, conduits, cable trays, pipes, ducts and similar penetrating items.
2. Gaps between fire-rated floor slabs and exterior curtain walls.
3. Gaps between fire-rated walls and exterior curtain walls.
4. Gaps located within expansion joints.
5. Gaps between the tops of fire rated walls and underside of fire rated floor or roof assemblies.
6. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
7. Openings at each floor level in fire rated shafts or stairwells.

1.03 RELATED WORK

A. Openings through Floors and Walls:

1. Fire Rated: Metal sleeves for fire rated openings through floors and walls shall be provided under applicable mechanical and electrical specification sections.
2. Non-Rated: Non-rated openings through floors and walls shall be sealed under applicable mechanical and electrical specification sections.

B. Firestopping and smoke seals within mechanical (i.e. inside ducts, dampers) and electrical assemblies shall be sealed under applicable mechanical and electrical specifications sections and only in accordance with the equipment or device manufacturers' installation instructions. Firestopping and smoke seals around outside of such mechanical and electrical assemblies, where they penetrate fire rated separations, are the responsibility of this section.

1.04 REFERENCE STANDARDS/DOCUMENTS

A. ASTM E814 - Test Method of Fire tests of Through Penetration Firestops.

B. ANSI/UL 1479 - Fire Tests Of Through-Penetration Firestops

C. ANSI/UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems

D. UL: Fire Resistance Directory, Volume 2.

E. ITS: Directory of Listed Products.

F. Factory Mutual, Approvals Guide

1.05 SYSTEM DESCRIPTION

A. Firestopping Materials: Provide firestopping system(s) of sufficient thickness, width and density to provide and maintain a fire resistance rating, as indicated on drawings and in accordance with [UL], [WH], or [FM] design numbers.

B. Provide a seal completely filling all annular spaces to prevent the passage of flame, smoke and gases through the opening in the fire separation in which it is installed.

C. Material Compatibility: Provide materials which are compatible with all materials used in the system including materials used in or on penetrating items as well as all construction materials used in conjunction or contiguous with the system.

D. Accessories: Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire resistance rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials
2. Temporary forming materials
3. Substrate primers
4. Collars
5. Steel sleeves

1.06 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.07 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Manufacturer's Data: Submit manufacturer's specifications, installation instructions and product data for each material required. Include [UL], [WH], or [FM] tested systems or designs to show compliance with the Contract Documents.

C. Shop Drawings: Submit shop drawings showing typical installation details including reinforcement, anchorage, fastenings and method of installation for each type of firestopping condition.

D. Samples: If requested, submit samples of each type of firestopping systems, smoke seals and accessories. Indicate location where material/system shall be utilized.

1.08 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing products of this Section with minimum ten (10) years documented experience, and having a quality management system that is registered as conforming to the requirements of ISO9001.

B. Applicator: Company having a minimum of three (3) years experience in the installation of materials specified herein on projects comparable to this project. The firm shall have the written authorization of the firestopping material manufacturer (s).

1.09 REGULATORY REQUIREMENTS

A. Conform to applicable local Building Codes for fire resistance ratings.

B. Provide materials, accessories and application procedures which have been listed by [UL], [WH], [FM] or [tested by a nationally recognized independent testing agency] in accordance with [ASTM E814],.[ANSI/UL 1479], or [ANSI/UL 2079] to achieve the required fire protection rating(s).

1.10 ENVIRONMENTAL REQUIREMENTS

A. Do not proceed with the installation of firestopping materials when temperatures or weather conditions exceed the manufacturer's recommended limitations for installation.

B. Ventilate solvent based and moisture-cure firestopping per firestopping manufacturer's instructions by natural means or, where this is inadequate, by forced air circulation.

1.11 DELIVERY, STORAGE AND HANDLING

Deliver materials to Site in manufacturer's sealed and labelled containers intact. Handle and store materials in accordance with manufacturer's instructions.

1.12 PROJECT/SITE CONDITIONS

Comply with manufacturer's recommended requirements for temperature, relative humidity and substrate moisture content during application and curing of materials.

1.13 SEQUENCING AND SCHEDULING

Do not install firestopping system(s) until Work within opening has been completed. Coordinate with other applicable Sections. Schedule work of other trades so that firestopping applications can be inspected prior to being covered by subsequent construction.

PART 2 -- PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Provide firestopping silicone sealants, water-based sealants, intumescent sealant, mortars, or firestop devices from the following manufacturer:

A/D Fire Protection Systems Inc. or Architect approved equal.

2.02 MATERIALS

A. Provide a complete system of asbestos-free firestop systems capable of maintaining an effective barrier against flame, smoke and gases in compliance with requirements of [ASTM E814], [ANSI/UL 1479], or [ANSI/UL 2079] and listed by [UL], [WH], or [FM] and in addition are approved by jurisdictional authorities and the Consultant.

B. A/D FIRE BARRIER Silicone Sealants: For use in: openings with penetrating items subject to high movement; multiple penetration systems; for combustible pipes up to 2-in. diameter; in control joints; in curtain wall joints; expansion joints; floor/wall joints; wall/wall joints; head of wall joints; and as a sealant for smoke barrier construction.

C. A/D FIRE BARRIER Intumescent Caulk: For general use as a firestop sealant with: insulated pipes; pipes; electrical cables and conduit; ducts.

D. A/D FIRE BARRIER Seal and Seal NS: Water based firestop sealants for use with: control joints; head of wall joints; floor/wall joints; wall/wall joints; multiple penetration systems; plumbing; mechanical; electrical; and where sprayed sealant application is required or desired.

E. A/D FIRE BARRIER Mortar: For use in: large openings; static non-moving penetrations such as cable trays; for multiple penetration systems; electrical and communication bundles; conduits; non-combustible sleeves; and insulated pipes.

F. A/D FIRE BARRIER Collars: For use in openings with single combustible pipe penetrations greater than 2-in. diameter.

G. A/D FIRE BARRIER Pillows: For use in openings with: cable tray; multiple cable penetrations; where retrofitting of penetrating items is anticipated, and as a temporary fire stop system.

H. Fire stop system ratings: Comply with applicable Building Code requirements for locations and ratings.

2.03 ACCESSORIES

A. Damming and backup materials, supports and anchoring devices: Non-combustible, to manufacturer's recommendations and in accordance with the tested system being installed as acceptable to jurisdictional authorities.

B. Primers: As required by firestopping manufacturer and compatible with selected system and contiguous materials.

C. Water: Potable.

D. Firestopping for vertical (wall) applications: Non-sag caulk or spray grade sealants, Mortar, Collars or Pillows.

E. Firestopping for horizontal (floor) applications: Non-sag caulk or self-levelling or spray grade sealants, Mortar, Collars or Pillows.

F. Firestopping for overhead applications: Non-sag caulk or spray grade sealants or Mortar.

G. Tape: Pressure sensitive masking tape as recommended by the firestopping manufacturer.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

B. Examine substrates, openings, voids, adjoining construction and conditions under which the Work is to be installed. Confirm compatibility of surfaces scheduled to receive firestopping.

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

D. Verify that penetrating elements are securely fixed and properly located with the proper space allowance between penetrations and surfaces of openings.

E. Do not proceed with Work until unsatisfactory conditions are corrected.

F. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Surfaces to receive firestopping shall be free of dirt, dust, grease, oil, rust, loose materials, form release agents, frost, moisture or any other matter which would impair the bond of firestopping material to the substrate of penetrating item(s).

B. Prime substrates in accordance with manufacturer's written instructions or recommendations. Confine primers to areas of bond; do not allow spillage or migration onto exposed surfaces.

C. Do not apply firestopping and smoke seals to surfaces previously painted or treated with sealers, curing compounds, water repellent or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.

D. Ensure that anchoring devices, back-up materials, clips, sleeves, supports and other related materials used in the actual fire tests are provided.

E. Mask where necessary to prevent firestopping materials from contacting adjoining surfaces that will remain exposed upon completion of Work. Remove tape as soon as it is possible to do so without disturbing firestopping seal with substrates.

F. Installation is not to proceed until submittals have been completed.

3.03 INSTALLATION

A. Manufacturer's Instructions: Comply with [UL], [WH] or [FM] Listings and manufacturer's instructions for the type of material and condition of opening in each case. Consult with the manufacturer's technical representative to determine proper procedure for conditions not fully covered by printed instructions. Record in writing any oral instructions received, with copy to manufacturer.

B. Install firestopping with sufficient pressure to properly fill and seal openings to ensure an effective smoke seal. Tool or trowel exposed surfaces. Remove excess firestopping material promptly as the Work progresses and upon completion.

C. Damming: Provide leak-proof dams as required to seal openings and contain liquid sealants, putty or mortar until cured. Install damming in accordance with manufacturer's instructions.

D. Damming Boards: Install forming/damming materials and other accessories of type required to support fill materials during their application and in the position needed to produce the shapes and depths required to achieve fire ratings of through-penetration fire stop systems.

1. Combustible Type: For temporary dams only. Remove after firestopping material has cured.

2. Non-Combustible Type: For temporary or permanent dams. Provide non-combustible type wherever damming material cannot be removed after applying firestopping materials.

E. Void Filler: Use materials recommended by the firestopping manufacturer to seal gaps created by non-combustible type damming boards and to seal around cables, conduits, pipes and where void filler material becomes part of the fire rated assembly.

F. Sealant: Install damming material or mineral wool as required. Apply sealant so air voids are not present and sealant is in full contact with penetrating items. Tool sealant to ensure substrate contact. Remove excess sealant in accordance with manufacturer's recommendations.

G. Mortar: Install damming material as required. Mix mortar in strict accordance with manufacturers instructions. Pump, trowel or hand pack mortar through openings to minimum thickness as recommended by manufacturer and as listed by [UL], [WH] or [FM], to achieve required fire rating.

H. Firestopping Mineral Wool: Install firestopping by compressing material to the minimum required by [UL], [WH] or [FM] listing. Apply firestopping in sufficient thickness, depth and density so as to achieve the required fire resistance rating. Use impaling clips to support and secure firestopping where required by tested system.

3.04 FIELD QUALITY CONTROL

A. Notify Consultant when completed installations are ready for inspection prior to concealing or enclosing an area containing firestopping materials.

B. Arrange for inspections by the Owners independent inspection and testing company, appointed and paid for by Owner.

C. Following field inspections, provide all repair as required to ensure compliance with the Contract Documents.

3.05 CLEANING AND PROTECTION

A. Upon completion of this work, remove all materials, equipment and debris from the site.

B. Leave work area and adjacent surfaces in a condition acceptable to the Consultant.

C. Leave installed work with sufficient protection to enable it to remain untouched until project turnover.

END OF SECTION

SECTION 07900

CAULKING AND SEALANTS

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 DESCRIPTION

Work included: Throughout the work, seal and caulk joints where shown on the Drawings and elsewhere as required to provide a positive barrier against passage of moisture and passage of air.

1.03 QUALITY ASSURANCE

A. Conform to Sealant and Waterproofers Institute requirements for materials and installation.

B. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

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

D. Warranty: Provide written warranty for all caulking and sealants against all defects of material or application for a period of five (5) years after date of acceptance. All failures that may occur within this period due to defective application or materials shall, upon written notification of such failures, be repaired or replaced with proper materials and labor as accepted by the Architect, at no additional cost to the Owner.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. List of items that will be provided under this Section.

2. Manufacturer's Data: catalog cuts, dimensioned drawings, and other data needed to prove compliance with the specified requirements.

3. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.06 WARRANTY

A. The guarantee specified herein shall include warranties against leakage, hardening, cracking, crumbling, melting, running, shrinking or staining adjacent surfaces.

B. Contractor Guarantee: Contractor guarantees the work covered by this specification against all defects in material and workmanship for a period of not less than five (5) years from the date of Substantial Completion.

PART 2 -- PRODUCTS

2.01 SEALANTS

A. Except as specifically otherwise accepted by the Architect, use only the types of sealants described as follows:

1. One component polyurethane sealant, moisture curing, low modulus, FS TT-S-0023OC, Type II, Class A, ASTM-C-920, Class 25, for vertical and horizontal joints in connection with all building materials. Do not use in traffic areas. Minimum ¼" joint; maximum 1-1/4" x 3/8"d.

   a. Dymonic by Tremco

   b. Sonolastic NP1 by Sonneborn

2. One-part silicone sealant, moisture curing, low modulus, FS TT-S-0023OC, Type II, Class A, FS TT-S-001543A, Class A, for vertical and horizontal joints in connection with aluminum, glass and concrete materials which require greater movement capabilities. Do not use in traffic areas. Minimum joint ¼" x 3/16"d; maximum1" x ½"d.

   a. Spectrum 1 by Tremco

   b. Omniseal by Sonneborn

   c. Dow Corning 790

3. One-part silicone sealant, medium modulus, neutral cure, FS S-0023OC, Type II, Class A, FS TT-S-001543A, Type II, Class A, ASTM C920, Class 25, for vertical and horizontal joints in connection with non-porous surfaces such as aluminum, glass, tile, laminated plastic and concrete. Do not use in traffic areas.

   a. Spectrum 2 by Tremco

   b. Omni Plus by Sonneborn

   c. Dow Corning 795

   d. Construction 1200 by GE

4. Multi-Component polyurethane sealant, FS TT-S-00227E, Type I, Class A, ASTM C920 for horizontal joints in traffic areas. Minimum 3/8" wide, depth to be 3/8" to ½" - use primer.

   a. THC-900/901 by Tremco

   b. Chem. Caulk 950 by Bostick

5. One-part translucent silicone sealant, low modulus, moisture curing, FS TT-S-0023OC, Type II, Class A, FS TT-S-001543A, Type II, Class A, for vertical joints in connection with butt glazing.

   a. 895 Silicone by Pecora

   b. Silglaze N by GE

6. One-part mildew resistant silicone sealant meeting requirements of FDA Regulation 21 CFR 177.2600, for vertical and horizontal joints in connection with non-porous applications as sealing around bathroom fixtures, shower-tub enclosures, sinks and urinals.

   a. Dow Corning 786

   b. Sanitary 1700 by GE

7. One-part siliconized acrylic latex polymer caulk, ASTM C834-76, for interior horizontal and vertical joints in connection with window and door buck perimeters, interior wall surfaces, etc.

   a. AC-20 by Pecora

   b. Acrylic Latex by Tremco

8. Roof Penetrations: Use asphalt mastic conforming to ASTM D491.

9. For other services, provide products especially formulated for the proposed use and accepted in advance by the Architect.

B. Colors:

1. The Architect will select Colors for each sealant installation to match adjacent finishes from a standard color list normally available from the specified manufacturers.

2. Should a matching standard color not be available from the accepted manufacturer except at additional charge, the Contractor shall provide such colors at no additional cost to the Owner.

3. In concealed installations, and in partially or fully exposed installations where so accepted by the Architect, use standard gray or black sealant.

2.02 PRIMERS

Use only those primers that are: non-staining, have been tested for durability on the surfaces to be sealed, and are specifically recommended for this installation by the manufacturer of the sealant used.

2.03 BACKUP MATERIALS

A. Use only those backup materials that are specifically recommended for this installation by the manufacturer of the sealant used, which are non-absorbent, and which are non-staining.

B. Acceptable types include:

1. Closed-cell resilient urethane or polyvinyl chloride foam;

2. Closed-cell polyethylene foam;

3. Closed-cell sponge of vinyl or rubber;

4. Polychloroprene tubes or beads;

5. Polyisobutylene extrusions;

6. Oil-less dry jute.

C. Preformed support strips for ceramic tile control joint and expansion joint work: Use polyisobutylene or polychloroprene rubber.

2.04 BOND-PREVENTATIVE MATERIALS

Use only one of the following as best suited for the application, and as recommended by the manufacturer of the sealant used:

1. Polyethylene tape, pressure-sensitive adhesive, with the adhesive required only to hold tape to the construction materials as indicated;

2. Aluminum foil complying with MIL-A-148E;

3. Wax paper complying with Fed. Spec. UU-P-270.

2.05 JOINT PACKING

Shall be installed in all joints to receive sealant. Material shall be a resilient type such as closed cell PVC foam or as recommended by the manufacturer. Oakum or other types of absorptive materials shall not be used as packing material.

2.06 OTHER MATERIALS

A. For masking around joints, provide masking tape complying with Fed. Spec. UU-T-106c.

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

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Concrete and ceramic tile surfaces:

1. Install only on surfaces that are dry, sound, and well brushed, wiping free from dust.

2. At open joints, remove dust by mechanically blown compressed air if so required.

3. Use solvent to remove oil and grease, wiping the surfaces with clean rags.

4. Where surfaces have been treated, remove the surface treatment by sandblasting or wire brushing.

5. Remove laitance and mortar from joint cavities.

6. Where backstop is required, insert the approved backup material into the joint cavity to the depth needed.

B. Steel surfaces:

1. Steel surfaces in contact with sealant:

a. Sandblast as required to achieve acceptable surface for bonding.

b. If sandblasting is not practical, or would damage adjacent finish, scrape the metal or wire brush to remove mill scale.

c. Use solvent to remove oil and grease, wiping the surfaces with clean rags.

2. Remove protective coatings on steel by sandblasting or by using a solvent that leaves no residue.

C. Aluminum surfaces:

1. Remove temporary protective coatings, dirt, oil, and grease.

2. When masking tape is used for protective cover, remove the tape just prior to applying the sealant.

3. Use only such solvents to remove protective coatings as are recommended for that

purpose by the manufacturer of the aluminum work, and which are non-staining.

3.03 INSTALLATION OF BACKUP MATERIAL

A. Use only the backup material recommended by the manufacturer of the sealant used, and accepted by the Architect for the particular installation, compressing the backup material 25% to 50% to achieve a positive and secure fit.

B. When using backup of tub or rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose or rod backup stock.

C. Interior and exterior joints where no backing has been provided or which is in excess of 3/4" deep shall be packed by this subcontractor with fiberglass or a suitable joint filler to reduce the depth to 1/2" maximum. Maximum movement: the width of the joint shall be at least four times its maximum movement.

3.04 PRIMING

A. Use only the primer recommended by the manufacturer of the sealant, and accepted by the Architect for the particular installation, applying in strict accordance with the manufacturer's recommendations as accepted by the Architect.

B. The priming of joints shall be by brush to reach all surfaces to which compound will be applied. Primer shall be provided on masonry, concrete and wood surfaces as recommended by sealant manufacturer. Primer shall not be applied to surfaces that will be exposed after caulking is completed.

3.05 BOND-BREAKER INSTALLATION

Provide an approved bond-breaker where recommended by the manufacturer of the sealant, and where directed by the Architect, adhering strictly to the installation recommendations as accepted by the Architect.

3.06 INSTALLATION OF SEALANTS

A. Prior to start of installation in each joint, verify the joint type according to details on the Drawings, or as otherwise directed by the Architect, and verify that the required proportion of width of joint to depth of joint has been secured.

B. Equipment:

1. Apply sealant under pressure with power-actuated or hand gun, or by other appropriate means.

2. Use guns with nozzle of proper size, and providing sufficient pressure to completely fill the joints as designed.

C. Thoroughly and complete mask joints where the appearance of sealant on adjacent surfaces would be objectionable.

D. Install the sealant in strict accordance with the manufacturer's recommendations as accepted by the Architect, thoroughly filling joints to the recommended depth.

E. Tool joints to the profile shown on the Drawings, or as otherwise required if such profiles are not shown on the Drawings.

F. Cleaning up:

1. Remove masking tape immediately after joints have been tooled.

2. Clean adjacent surfaces free from sealant as the installation progresses, using solvent or cleaning agent recommended by the manufacturer of the sealant used.

3. The excess material shall be cleaned from the surfaces adjacent to the joint,

following the caulking operation and the top of the compound deposit shall be left with a smooth even finish. No material is permitted on the exposed face of aluminum sections.

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

SECTION 08100

METAL DOORS AND FRAMES

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 DESCRIPTION

Work included: Provide metal doors and metal door frames which are not specifically described in other Sections of these Specifications, where shown on the Drawings, as specified herein, and as needed for a complete and proper installation. All the requirements of the Contract Documents apply to this Section.

1.03 QUALITY ASSURANCE

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

B. Unless specifically otherwise accepted by the Architect, provide all products of this Section from a single manufacturer.

C. In addition to complying with pertinent codes and regulations of governmental agencies having jurisdiction, comply with:

1. SDI Grade II for Heavy Duty metal doors (Steel Door Institute).

2. HMMA Standard CHM-1-74 (Hollow Metal Manufacturers Association).

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. List of items that will be provided under this Section.

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

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

4. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

PART 2 -- PRODUCTS

2.01 MATERIALS

Doors and Frames shall be made of commercial quality, level cold rolled steel conforming to ASTM A-366, Latest Edition, and free of scale, pitting, or other surface defects. Face sheets and frames of exterior doors shall be zinc coated.

2.02 METAL DOORS

A. Type and design: Provide full-flush polystyrene insulated design, in dimensions and types shown on the Drawings, labeled or non-labeled as indicated on the Door Schedule in the Drawings, in 16 gage for interior doors and 16 gage for exterior doors, properly reinforced. SDI-111A shall be used as the standard for all frame details.

B. Finish: Pre-clean and shop prime each door with rust inhibitive primer for finish painting which will be performed at the job site under Section 09900 of these Specifications. Cleaning shall include a phosphate treatment for paint adhesion and all exposed surfaces shall have a rust inhibiting primer.

C. Acceptable products:

1. Steel Craft Type L Series typically. Type B where security door called out on Drawings, gage of door to be increased to 14.

2. Republic, DB Series typically. Security doors called out on plans to be increased to 14-gauge.

3. Equal products of other manufacturers when accepted in advance by the Architect.

D. Clearances: Provide single swing doors with not more than 1/8" clearance at jambs and heads, not more than ¼" clearance at meeting edges of pairs of doors (1/8" on fire doors) and not more than ¾" clearance at the bottom. Provide door bottom per hardware specifications. All clearance dimensions are nominal and subject to a tolerance of + 1/32". Lock edges of the door shall be designed to provide proper operating clearance conforming to dimensions noted above.

2.03 METAL FRAMES

A. Type and design: Provide frames of the types and dimensions shown on the Drawings, labeled or non-labeled as indicated on the Schedule and Types in the Drawings, in 16 gage for interior and exterior frames, properly reinforced. SDI-111A shall be used as the standard for all frame details.

B. Finish: Pre-clean and shop prime each door with rust inhibitive primer for finish painting which will be performed at the job site under Section 09900 of these Specifications. Cleaning shall include a phosphate treatment for paint adhesion and all exposed surfaces shall have a rust inhibiting primer.

C. Acceptable manufacturers: See Paragraph 2.02-C above.

D. Welded Frames. Secure headers and jambs at the corners either by internal welding of faces or by welded splice plates. Also secure joints at jambs and headers at the rabbet either by tack welding on the inside of the profile or by mechanical interlock. Form neat line joints at faces of frames at junction of head and jamb.

E. Frame Anchors:

1. Wall Conditions. Provide frames with a minimum of three anchors per jamb as required for the adjoining wall construction. Provide anchors of not less than 18 gage steel or 3/16" diameter wire adjustable.

2. Floor Anchors. Provide all frames with minimum 18 gage anchors for attachment to the floor.

2.04 DOOR LOUVERS

A. Fire-Rated Louver: Each fire-rated louver shall have the listing mark of Underwriter's Laboratories Inc. affixed to louver assembly.

All louvers in fire-rated doors shall be Model FLDL-UL, 16 gage cold rolled steel with stainless steel operating springs, as manufactured by Anemostat Products, Carson, California, or equal products of other manufacturers when accepted in advance by the Architect. Louvers shall be sight-proof per SDI-111C.

B. Fixed-Blade Louver

1. All fixed blade louvers shall be Model FDLS, 18 gage cold rolled steel with mitered and welded frames and countersunk mounting holes, as manufactured by Anemostat Products, or equal products of other manufacturers when accepted in advance by the Architect. Louvers shall be sight-proof per SDI-111C.

2. Provide insect screen where louver occurs in exterior door.

C. Finish

Finish shall be factory painted in color selected by the Architect.

2.05 FINISH HARDWARE

Secure templates from the finish hardware supplier, and accurately install, or make provision for, all finish hardware at the factory.

2.06 INSULATION

Provide polystyrene foam insulation core typically and at all 12" high horizontal mullions and sills. Insulation shall have a minimum R factor of 7.7.

2.07 GLAZING

Non-removable glazing stops shall occur on the outside of exterior doors and the secure side of interior doors. Glazing beads on the inside of glass and louver panels shall be removable. Miter of butt join beads at corners. Glazing beads may be either screw-on or snap-on type. Glazing systems shall be a minimum of 20-gage steel or .040" aluminum.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 FABRICATION

A. Doors:

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

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

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

4. Vertical edges of single acting swing doors shall be beveled 1/8" in 2".

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

   a. Hinge: 7-gauge

   b. Lock, flush bolts, concealed holders, and for all surface-mounted hardware: 12-gauge.

6. Allow 1/8" clearance between doors and frame at top rail and at lock and hinge stiles. At floors allow 1/2" clearance. At thresholds and curbs allow 1/4" clearance unless otherwise detailed.

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

B. Frames:

1. All door and louver frames shall be strong and rigid, neat in appearance, square, true and free of defects, warp and buckle. Molded members shall be clean cut, straight and of uniform profile and back-bends shall be as detailed.

2. Corner joints shall have all contact edges closed tight, with trim faces and stops mitered and continuously welded. All welds shall be ground, filled and dressed smooth to make them invisible and provide a smooth flush surface.

3. Hardware reinforcement shall be same as specified for door, with hinge and pivot reinforcement 1-1/2" x 10" minimum size.

4. Unit frames for installation in stud partitions shall be provided with steel anchors of suitable design for welding to steel studs. Anchors shall be not less than 16-gauge and shall be securely welded inside each jamb. Anchors are to be spaced at 24" on center.

5. Provide floor anchor of 14-gauge steel securely welded inside each jamb with two holes provided for floor anchorage.

6. Dust cover boxes of not less than 26-gauge shall be provided at all hardware mortises on frames to be set in masonry or drywall partitions. All frames shall be provided with a steel spreader attached to the feet of both jambs to serve as a brace during shipping and handling.

C. Finish: Finish shall consist of the following items:

1. Thoroughly clean all metal of rust, oil, and grease after fabrication.

2. Bonderize all metal with bonderite solution.

3. Baked-on coat of primer after bonderizing.

4. Additional coat of primer prior to shipping.

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

3.03 FIELD MEASUREMENTS

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

3.04 INSTALLATION

Placing frames:

1. Where practicable, place frames prior to construction of enclosing walls and ceilings.
2. Set frames accurately into position, plumbed, aligned and braced securely until permanent anchors are set.
3. After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
4. At in-place wood stud construction, set frames and secure to adjacent construction with #12 self-tapping flathead wood screws and zee clips.
5. At in-place metal stud construction, set frames and weld anchorage devices to adjacent construction.
6. When installed in prepared openings in concrete construction, provide sealant between frame and concrete in accordance with provisions of Section 07900 of these Specifications.

3.05 ADJUST AND CLEAN

A. Final adjustments:

1. Check and readjust operating finish hardware items in hollow metal work just prior to final inspection.
2. Leave work in complete and proper operating condition.
3. Remove defective work and replace with work complying with the specified requirements.

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

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

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SECTION 08200

WOOD DOORS AND FRAMES

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

All of the requirements of the Contract Document apply to this Section. Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to comply with the Contract Documents, as follows:

1. Solid and Hollow Core wood doors: fire-rated and non-rated per schedule.
2. Shop Drawings.
3. Samples.

1.03 QUALITY ASSURANCE

A. Provide a written guarantee in approved form that all defective materials or workmanship reported within a period of two (2) years after final acceptance will be promptly repaired or replaced to the Owner's satisfaction. Cover the following items specifically.

1. Delamination in any degree.
2. Warp or twist of 1/4" or more.
3. Telegraphing of core unit through face veneer to cause surface variation of 1/100" in any 3" span.
4. Any defect that may affect performance or appearance.

B. Provide materials and workmanship conforming to the Wood Work Institute of California. Provide "Certified Compliance" grade stamp on every doors - Premium grade. Shop Drawings shall bear the WIC Certified Compliance Label on the first page of each set of Drawings.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. List of items that will be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Shop Drawings showing details of each frame type, elevations of door designs, details of openings, and details of construction, installation, and anchorage.
4. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

5. Samples, approximately 4" x 4" in size, of each of the proposed door face materials.

1.06 PRODUCT HANDLING

A. Delivery:

1. Deliver doors to site after plaster and cement are dry, and after the building has reached average prevailing relative humidity for its locality.

2. Deliver doors in manufacturer's original containers, clearly marked with manufacturer's name, brand name, size, thickness, and identifying symbol on its cover.

B. Storage:

1. Stack flat on 2" x 4" lumber, laid 12" from ends and across center.

2. Under bottom door and over top of stack, provide plywood or corrugated cardboard to protect door surfaces.

3. Store doors in area where there will be no great variations in heat, dryness, and humidity.

C. Lift and carry doors into position. Do not drag doors across one another.

PART 2 -- PRODUCTS

2.01 DOORS:

A. See Door Schedule for Types

B. Solid Core Doors:

1. 1-3/4" thick stave lumber core. Mineral core for 60 to 90 minute rated doors. Core complied with commercial std. LS-236.

2. Top and edge bands: Match face veneer.

3. BTM band: Hard or soft wood.

4. Glue: Use CS 35 Type II for bonding core, use Type 1 (fully waterproof) for all other work. Exterior doors to have only Type 1 adhesives used.

5. Finish:

a. Stain Finish: plain-sliced veneer with book-matched grain for transparent finish for interior doors only. See drawings for veneer and stain type. Use red oak veneer with a transparent finish if none is indicated on the drawings.

b. Paint Finish: medium density hardboard overlay for smooth paint finish. See Drawing for paint type or types.

C. Hollow Core Doors:

1. Cellular core include lock blocks, top and bottom rails.

2. Edge bands: match face veneer.

3. Face veneer: rotary cut red oak veneer matched grain for transparent finish.

4. Glue: Use CS35 Type II for bonding core, use Type I for all other work.

D. Solid Wood Stile and Rail Doors:

1. Top rail and stiles shall be minimum of 4-1/2" thickness with 9-1/2" minimum bottom rail on interior doors: exterior doors shall have 5-3/8" overall width with an 11-3/8" minimum bottom rail.

2. Doors shall be assembled with mortise and tenon or doweled joints. All adhesives shall be Type I exterior glue.

3. Glazing shall be safety glazing bedded in sealant squeezed out on both sides and secured in place with wood glazing beads or gasket.

4. Hardwood doors shall be veneered with rotary cut red oak and shall have all exposed edges veneered with matched grain.

E. Plastic Laminated Wood Doors:

1. Interior construction shall be the same as for Solid Core Wood Door.

2. On both faces except for Solid Wood Stile and Rail Doors, provide 1/8" thick "Dor-Surf", No. 117, manufactured by Wilsonart Division of Ralph Wilson Plastics, or an Architect approved equal:

a. See Drawings for colors and patterns.

b. If none are indicated, Architect will select from standard colors and patterns of the accepted manufacturer as a part of the Submittals.

3. On both vertical edges, provide matching laminated plastic.

4. On tops and bottoms of doors, provide a positive sealer applied after completion of machining and fitting.

5. Where transoms occur above doors, provide same type, design thickness, construction and label as door. Bottom edge of transom shall also receive matching laminated plastic finish.

F. Manufacturers:

1. Solid Core and Hollow Core Doors:

a. Weyerhaeuser (800) 869-3667

b. Or Architect approved equal.

2. Solid Wood doors

a. Sun-Dor-Co (316) 284-0044

b. Or Architect approved equal.

3. Fire-Rated Doors and Frames

a. Shall be a U. L. rated assembly.

2.02 DOOR LOUVER

A. Fire Rated Louver

1. All louvers in fire rated doors shall be Model FLDL-UL, 16 gage cold rolled steel with stainless steel operating springs, as manufactured by Anemostat Products, Carson, California. (213) 775-7441.

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

B. Fixed Blade Louver

1. All fixed blade louvers shall be: Model CHDL-2F, 18-gauge cold rolled steel with mitered and welded frames and countersunk mounting holes, as manufactured by Anemostat Products.

2. Provide insect screen where louver occurs in exterior door.

C. Finish

1. Finish shall be factory painted in color selected by the Architect.

2.03 VISION FRAME

A. Fire Rated Doors:

1. Vision frames for fire rated doors shall be FGS-75 with veneer to match door finish and 3/16" clear Firelite as manufactured by Anemostat Products, Carson, California in accordance with the standards set forth by NFPA-80 and bear the listing mark of Underwriter's Laboratories, Inc. or approved equal.

2. Provide sizes and designs shown on the Drawings.

B. Unlabeled Doors: Provide Model FGS-75 or 38, as applicable, as manufactured by Anemostat Products in sizes and designs shown on the Drawings.

C. All vision frames shall be constructed of 18-gage cold rolled steel and shall have mitered and welded corners with countersunk mounting holes.

D. Finish: Finish shall be factory painted in color selected by the Architect.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Verify dimensions and surfaces are ready to receive work of this Section.

B. Beginning of work signifies acceptance of surface by installer.

3.03 INSTALLATION

A. Fitting and machining doors:

1. Using measurements obtained in the field from installed frames, machine the doors at the factory to fit the prescribed frames with proper clearance at top, bottom, and vertical edges.

2. Adjust for smooth and balanced door movement. Replace or re-hang doors which are hinge-bound and do not swing or operate freely.

3. Install in accordance with ANSI/AWMA requirements.

B. Install frames level and plumb - shim as required.

C. Receive and retain custody of finish hardware furnished under Section 08700, if included, of these Specifications for the work of this Section and in accordance with ANSI/AWMA requirements.

3.04 ADJUST AND CLEAN

Upon completion of the installation, inspect each component.

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

2. Make necessary adjustments.

3. Touch-up as necessary to make surface blemishes permanently invisible to the unaided eye.

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

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SECTION 08500

ALUMINUM WINDOWS

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

All the requirements of the Contract Documents apply to this section.

1.03 QUALITY ASSURANCE

A. Air Infiltration: With one set of sash closed and in a locked position, air infiltration shall not exceed.15 cfm per foot of sash perimeter with the sash in the closed and locked position under a static pressure drop of 1.56 psf (equivalent to 25 mph wind velocity) when tested in accordance with ASTM-E283.

B. Water Resistance Test: With one set of sash in a closed and locked position the windows shall be subjected to a water resistance test in accordance with ASTM-E-331. When a static pressure differential of 10 pounds per square foot is stabilized, apply a water spray per the standard. No water shall pass interior face of window frame.

C. Thermal Performance ("U" Value): When tested in accordance with AAMA-1503.1 the Conductive thermal transmission shall not exceed Class U60.

D. Condensation Resistance Factor (CRF): When tested in accordance with AAMA-1502.7 on an exact size window of 6'-0" x 4'-0", the CRF shall not be less than 50.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

C. Before proceeding with the manufacturing of the windows, the window contractor shall submit complete shop drawings showing installation details for Architect's approval. These drawings shall also show elevations of windows, full-sized details of all sections of windows, collateral materials, details of anchorage and hardware. Supplemental data shall contain calculations of moments of inertia on frames and mullion connections plus instructions for storage, handling and erection of windows.

D. Submit current certified test reports to verify performance according to section 1.03.

1.06 WARRANTY

A. The manufacturer shall guarantee his work against material defects in manufacture for a period of two (2) years. If a defect is found and brought to the attention of the manufacturer, the defect will be corrected at no cost to the owner for a period of two (2) years.

B. The manufacturer shall provide the Architect, upon request, a financial statement indicating net worth. Inability to show sufficient financial capacity to fully execute any warranty requirements in the judgment of the Architect and his consultants is grounds for rejecting a proposed supplier for material required in this Section.

PART 2 -- PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

All aluminum fixed windows shall be:

1. Kawneer 8425T-fx.
2. Milco Series W-21T
3. Vista wall

2.02 MATERIALS

A. All principle frame, sash, or ventilator window sections shall be of special extruded aluminum shapes produced from Architectural Grade homogenized aluminum primary billet.

B. Material: Frame, sash and screen members shall be aluminum alloy 6063-T5 or T6 per job requirements. All extrusions shall have a minimum nominal wall thickness of .062".

C. Exterior Panning Trim: Shall be extruded aluminum alloy 6063-T6 with a minimum thickness of .078" in primary walls and a minimum of .062" in the sealing flange. Panning shall be designed to seal against the exterior window frame at the head and jambs and extend under the windowsill to form a water barrier. Exterior panning trim shall be secured at corners with screws into integral screw ports and all corner joints back sealed before erection. A sealant tape shall be applied in the sealing flange before the window is installed in the panning. No sealant between window and panning is to be exposed.

D. Thermal Barrier: The thermal barrier shall be a tongue and groove fit with both halves of the frame securely locking them though not inhibiting the expansion and contraction of either part. The frame thermal barrier shall be no less than 1/4" wide. A bead of sealant compatible with the thermo-barrier material shall be applied to the complete frame perimeter to insure that water does not enter the wall cavity. Thermal barrier material shall meet or exceed ASTM Spec. D-638.

E. Screens: Screens shall be available for all windows and shall consist of 18 x 16 mesh aluminum wire (or as specified) secured to tubular extruded aluminum frames with reusable vinyl spline. Screen frame shall have a minimum dimension of 5/16" x 1-1/4". Half screens shall be removable to inside without pushing to outside of building.

F. Weather-stripping: Sash shall be double weather-stripped at head, jamb and sill using woven pile type with central fin so their is no metal to metal contact between frame and operating sash. Vinyl weather-stripping will not be accepted.

G. Glazing: Horizontal rolling sash shall be factory glazed with adapters for 1" insulated glass as per Section 08800 Glass and Glazing. Glass shall be glazed with a reusable vinyl channel. Sash corner screws to be removable for glazing.

2.03 FABRICATION

A. Construction-Frames: The frame shall be a minimum of 4-1/4" deep. Frames shall be constructed of continuous extrusions, square cut at corners and precision machined. Window frame shall consist of two separate units having a continuous non-conductive rigid vinyl thermal barrier between them, which shall be a tongue and groove fit with each half securely locking both units together. Corners fastened with minimum of four stainless steel screws. Sills shall be tubular and weeped to prevent the accumulation of moisture or debris in the sill. The weepage system shall allow drainage of all water from all cavities in sill and shall be clear through from the outside to inside. Sill section shall also have provisions for anchorage without bridging the thermal barrier.

B. Construction-Sash: All sash members shall be hollow tubular extrusions to resist twist and deflection. Inner and outer sash shall have the same section modulus. Sash members

shall be square cut and milled to allow telescoped joints at each corner for maximum strength and weather tightness. All sashes shall operate on rollers. All screws, axles and pins shall be stainless steel. All sashes shall be removable from inside, without tools, for cleaning.

2.04 FINISH

Exposed surfaces of all aluminum windows and trim shall have an Architectural Class I (0.7 mil minimum thickness) coating. Provide custom color finish as indicated on the drawings or as follows, selected by Architect as a part of the submittal:

1. Class I:

   a. For etched or clear anodized: (215-R1) AA-M10C22A41.

   b. For bronze or black: (215-R1) AA-M10C22A44 (ANOLOK 500).

2. DURANAR finish coating for extruded aluminum and aluminum sheet shall be a factory applied, oven baked finish based on KYNAR 500 (polyvinylidene fluoride - PVF) as supplied by PPG Industries or equal. The DURANAR finish coatings cannot be field applied. Application of the DURANAR finish based on KYNAR 500 shall be performed under specifications issued by PPG and by an applicator specifically approved by PPG. Said applicator shall provide written notification of approval by PPG prior to application of the DURANAR finish. The DURANAR coating system shall be applied to properly cleaned and pretreated aluminum. The pretreatment shall meet ASTM D-1730-67, Type B, Method 5 or Method 7. Processing shall conform to ASTM B-449-67 (1972) Section 5. Conversion coating weight shall be between 30-100 milligrams per square foot. DURANAR shall meet the requirements of AAMA Specifications 605.1-1975. The primer coat shall be an inhibitive PPG primer with dry film thickness average .2 mils to .3 mils. The DURANAR color coat shall have a minimum dry film thickness of 1.0-mil. The total minimum dry film thickness of the DURANAR System shall be 1.2 mils. Recessed, unexposed areas such as inside corners and channels are to be visually covered to the extent possible.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

B. Check openings for correct size and irregularities.

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

D. Do not proceed until unsatisfactory conditions are corrected.

E. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

A. Windows, mullions and trim shall be installed by experienced workmen in exact accordance with the manufacturer's instructions and approved shop drawings.

B. After installation, metal surfaces of windows and trim shall be cleaned of all mortar, plaster, paint and other contaminants.

C. The Contractor shall be responsible for protection of the work from damage by other trades and final cleaning.

3.03 SEALANTS

A. Seal joints between windows and surrounding construction.

B. Joints and surfaces to receive sealants shall be clean, free from loose material, free of efflorescence or mortar leaking and dry. Sealants shall not be applied when temperature is below manufacturer's recommendations.

C. Clean joints and surfaces before sealing or priming in conformance with manufacturer's instructions.

D. Prime joints in conformance with material manufacturer's instructions.

E. Provide joint backing in all joints where a suitable back stops to receive sealant is otherwise not available.

1. Pack joints with joint backing to provide depth of 1/2 the width but not less than 1/4" not more than 1/2" unless recommended otherwise by the manufacturer.

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

SECTION 08800

GLAZING

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

All of the requirements of the Contract Documents apply to this Section.

1.03 REFERENCES

A. SIGMA No. 64-7-2 -- Specification for Sealed Insulating Glass Units.

B. FGMA -- Glazing Manual, Glazing Sealing Systems Manual.

1.04 QUALITY ASSURANCE

Conform to Flat Glass Marketing Association (FGMA) for glazing installation methods.

1.05 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.06 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Provide structural, physical and environmental characteristics, size limitations, and special handling or installation requirements.

C. Provide data on glazing sealant. Identify colors available.

D. Submit two samples, illustrating glass unit and coloration.

1.07 GUARANTEE

A. Contractor shall guarantee the work covered by this specification against all defects in material and workmanship for a period of not less than two (2) years.

B. Include coverage of sealed glass units from seal failure, interpane dusting or misting, and replacement.

PART 2 -- PRODUCTS

2.01 ACCEPTABLE GLASS MANUFACTURERS

A. Insulated, Laminated, and Spandrel Glass: PPG Industries, Inc.

B. Security Glazing: Nippon Electric Glass Company (800) 426-0279.

C. Clear Fire-Rated Window Glazing: Pyrobel by Interedge (877) 376-3343.

D. Clear Fire-Rated Door/Sidelight Glazing: PyroEdge or Pyrobel by Interedge (877) 376-3343.

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

A. General: Exposed "tong" marks are not acceptable.

B. Interior Tempered Glass: Clear, Tempered ¼" thick. Grade B (tempered), Style I (uncoated), Type I (float or plate).

C. Insulated Glass Units: Double pane ¼" units with edge seal; interpane ½" space purged with dry hermetic air; total unit thickness of 1 inch. Tempered as required by Code and indicated on drawings. Tinting as indicated on Window Schedule - tinted on inside of outer layer only. PPG Solarban 60 (2) or (3) or equal low e coating. Performance values based on tinted product selected.

D. Interior Wired Glass: 1/4" clear wire glass.

E. Interior laminated glazing - one way: Two pieces of 1/8" clear float glass, tempered as required by code, laminated with .030 in. polyvinyl butyl plastic interlayer conforming to 16CFR 1201 Category II for one-way glazing.

F. Security Glazing: 11/16" thick, glazing assembly consisting of two outer lights of 1/8" clear chemically strengthened glass with a core of two 1/8" polycarbonate sheets laminated with four inter-layers of .50 inch thick urethane.

G. Ballistic Glazing:

15/16" thick glazing assembly certified for level-A ballistics consisting of two outer lights of 1/8" clear chemically strengthened glass with a core of two 1/8" and 1/4" polycarbonate sheets laminated with four inter-layers of .50-inch thick urethane.

H. Clear Fire Glazing: Model as required for required Fire-Rated Assembly.

2.03 GLAZING COMPOUNDS

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

B. Butyl Sealant: Single component; Shore-A hardness of 10-20; black color; non-skinning.

C. Acrylic Sealant: Single component, solvent curing, cured Shore hardness, non-bleeding.

D. Silicone Sealant: Single component, non-bleeding, non-staining; Capable of water immersion without loss of properties.

2.04 GLAZING ACCESSORIES

A. Setting Blocks: Neoprene; 80-90 Shore A durometer hardness; 4 inch minimum long x 1/4 inch thick.

B. Spacer Shims: Neoprene; 40-50 Shore A durometer hardness; 4 inch long on 18 inch centers for wet-glazed systems.

C. Glazing Clips: Manufacturer's standard type.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

B. Coordinate work with other trades as needed to assure that proper substrate are provided to receive work of this Section.

C. Verify surfaces of glazing channels or recesses are clean, square in plane, free of obstructions, and ready for work of this Section.

D. Verify weep holes in exterior frame are provided.

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

F. Do not proceed until unsatisfactory conditions are corrected.

G. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Clean contact surfaces with solvent and wipe dry.

B. Seal porous glazing channels or recesses.

3.03 EXTERIOR WET METHOD (SEALANT AND SEALANT)

A. Place setting blocks at 1/4 points and install glass pane.

B. Install removable stops with pane centered in space by inserting spacer shims both sides at 18-inch intervals, 1/4 inch below sightline.

C. Fill gap between pane and stops with sealant to depth equal to bite of frame on pane, but not more than 3/8 inch below sightline.

D. Apply sealant to uniform line, flush with sightline. Tool or wipe sealant surface with solvent for smooth appearance. Security Glazing to be sealed with security sealant as recommended by manufacturer.

E. Drain or weep the sill of each opening to the outdoors at three points using 3/8-inch diameter weep holes or the equivalent.

3.04 INTERIOR COMBINATION METHOD (TAPE AND SEALANT)

A. Cut glazing tape to length and install against permanent stops, project 1/16 inch above sightline.

B. Place setting blocks at 1/4 points.

C. Rest glass on setting blocks and push against tape to ensure full contact at perimeter of pane.

D. Install: removable stops, spacer shims between glass, and applied stops at 18-inch intervals 1/4 inch below sightline.

E. Fill gap between pane and applied stop with sealant to depth equal to bite of frame on pane to uniform and level line.

F. Trim protruding tape edge.

3.05 INTERIOR WET METHOD (COMPOUND AND COMPOUND)

A. Install glass resting on setting blocks. Install applied stop and center pane by use of spacer shims at 18-inch centers, kept 1/4 inch below sightline.

B. Locate and secure glass pane using glaziers' clips.

C. Fill gaps between pane and stops with glazing compound until flush with sightline.

3.06 CLEANING

A. After installation, mark pane with an "X" by using plastic tape or removable paste.

B. Remove glazing materials from finish surfaces.

C. Remove labels after work is completed.

D. Clean glass with solvent and normal wash. Final cleaning and polishing shall be done prior to final inspection.

E. Remove and replace broken, scratched, chipped or otherwise defective glass with new materials and leave the entire installation in a neat, clean, and acceptable condition.

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

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SECTION 09200

LATH AND PLASTER

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

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

1.03 REFERENCE STANDARDS

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

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Submit Product Data and color samples and manufacturers application data.

C. Make (2) samples, at least one-foot square, of selected specified plaster system.

1.06 QUALITY ASSURANCE

A. In all Work under this Section, coordinate with all other trades whose work connects with, is affected or concealed by lathing and plastering. Before proceeding, make certain all required inspections have been made. Do all cutting and patching required to accommodate the work of other trades.

B. Inspect surfaces to receive lath and plaster before starting Work and do not start until surfaces are acceptable. Starting Work under this Section implies acceptance of surfaces.

1.07 DELIVERY AND STORAGE

Deliver all manufactured materials in original packages bearing manufacturer's name and brand. Use only one brand of each material throughout job. Store materials in dry areas.

PART 2 -- PRODUCTS

2.01 LATH

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

2.02 ACCESSORIES

A. Corner Bead: #1X Type, Keene or equal, expanded metal flanges integral with nose bead of solid metal, galvanized.

B. Corner Lath: As specified for expanded metal, three (3) inch legs bent to a 105-degree corner, - "Cornemaster #30" by Keene, or equal.

C. Casing Beads: #66 Type, Western, or equal, expanded metal flange, galvanized, depth as required by plaster thickness, weighing approximately 200# per 1000 lineal feet for 3/4-inch and 7/8-inch types.

D. Expansion Joints: #15 by Keene or equal. Cut lath passing under expansion joints. Install where indicated on Drawings, with the following minimum conditions:

1. No length should be greater than 18 feet in either direction
2. No panel shall exceed a maximum of 144 square-feet for vertical applications.
3. No panel shall exceed a maximum of 100 square-feet for horizontal, curved or angular sections.
4. No length-to-width ratio should exceed 2.5 to 1 in any given panel.

E. Bonding Agent: As recommended for application over smooth monolithic concrete shells. Concrete shells shall be cleaned with bonding agent applied prior to plastering interior.

F. Wire: Soft, annealed, galvanized steel, 8-gauge for hangers, 16-gauge for channel ties and 18-gauge for lath ties.

G. Nails: Concrete nails, case hardened steel, 3/4 inch long.

H. Weep Screed: by Keene or equal. 1-1/4" ground, galvanized.

I. Building Paper: 15#, asphalt impregnated.

J. Miscellaneous Items: Furnish all miscellaneous components not specified herein but shown on the Drawings and any other items required to complete the installation.

K. Water: Clean and free of deleterious matter.

2.03 PORTLAND CEMENT PLASTER

A. Portland Cement: Conforming to ASTM C-150, Type 1.

B. Sand for Cement Plaster: Conforming to ASA A42.2.

C. Hydrated Lime: Conforming to ASTM C-206, Type S.

D. Quick Lime: Conforming to ASTM C-5.

E. Exterior Cement Plaster:

1. Scratch Coat: One part Portland Cement, four (4) parts sand and hydrated lime equal to 25% volume of cement.
2. Brown Coat: One part Portland Cement, five parts sand and hydrated lime equal to 25% of the volume of cement.
3. Finish Coat: Portland Cement-Lime: one part standard Portland Cement, not more than 1/2 part dry hydrated lime (or an equivalent amount of lime putty) and not more than one part #20 mesh, and one part #16 mesh silica sand. Submit finish sample(s) for Architect's approval.
4. Thickness: 7/8 inch thick, measured from back of lath.
5. Finish coat to contain integral color. Submit samples to Architect for approval based upon colors indicated on Drawings.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 GENERAL

A. Coordinate work with other trades as needed to assure that proper substrate are provided to receive work of this Section.

B. Provide ventilation to properly dry plaster during and subsequent to application. In glazed areas, accomplish by keeping windows open sufficiently to provide air circulation; in enclosed areas lacing normal ventilation, mechanically remove moisture-laden air.

3.03 LATHING

A. Apply lath with long dimension at right angles to supports; lap side and ends as recommended by manufacturer. Stagger vertical laps. Make no vertical joints at any corner; bend lath around all corners, internal and external.

B. Attach lath to studs by fasteners at spacings required by local building codes. All attachments to be corrosion resistant.

C. Install all accessories to plumb, true and level lines, and backing plates as located by the trade furnishing these items.

D. Install beads, corner laths, control joints, reglets, screeds, and like items, using single lengths wherever possible. Provide corner beads at all exterior corners shown, mitering or coping as required, and fastening at six (6) inches o.c., both sides. Provide casing beads wherever interior plaster angles are shown and wherever one or both abutting surfaces are metal lathed, except corner laths are not required where metal lath is continuous around corner at junctions of walls, or where ceiling lath turns down a wall. Tie outer edges only to adjoining lath at six (6) inches o.c. or stub nail to any concrete. Install access panels supplied by other trades.

E. Start installation at bottom of wall, working up and from right to left. Apply lath with long dimension at right angles to supports; lap sides and ends as recommended by manufacturer. Stagger vertical laps. Make no vertical joints at any corner; bend lath around all corners, internal and external.

F. Attach lath to metal and/or wood studs by means of tie wire and nails respectively at spacings as required by Local Building Codes. All attachments shall be corrosion resistant.

G. Install corner beads at all external corners. Use single length except where standard length is not sufficient. Miter or cope as required; fasten with tie wire at six (6) inches o.c., both sides.

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

3.04 PLASTERING

A. Do not apply plaster below 55 degrees F temperature. Apply no plaster to frosty surfaces. Dampen any surfaces on which suction must be reduced with fog-spray. Maintain all screeds plumb and true.

B. Except when had mixing small batches is approved, use approved mechanical mixers. Clean mixers, mixing boxes and tools after mixing each batch. Thoroughly mix with water until uniform in color and consistency. Retempering not permitted. Discard plaster, which has begun to stiffen. Mix in strict accordance with manufacturer's printed directions.

C. Except in the case of specifically formulated plasters, which require only water added job site, proportion by volume as specified.

D. Scratch coat: Apply with sufficient material and pressure to shove material through metal lath and form a good key; 3/8 inch minimum thickness, score in horizontal direction with metal scorer with clipped teeth to provide good mechanical key for second coat. Dampen concrete and concrete block surfaces to reduce suction prior to application.

E. Brown coat: Apply not sooner than 48 hours after application of scratch coat; properly dampen scratch coat; apply sufficient pressure to force plaster into scratches and build out to within 1/8 inch to screeds; for, float and darby to true, plumb surfaces and corners; leave rough for finish coat.

F. Curing: Keep Brown coat moist for at least 48 hours; commence moistening as soon as plaster has hardened sufficiently so to prevent injury; apply water in a fine fog spray; avoid soaking; curing shall proceed over holidays, Saturdays and Sundays if necessary. If atmospheric conditions are hot and dry, curing time shall be extended as necessary at no additional cost to Owner. Allow plaster base coats to cure for a minimum of fourteen (14) days before applying finish coat.

G. Finish coats Apply to partially dry base coat, or to a thoroughly dry base coat that has been evenly wetted by brushing or spraying; avoid use of excessive water. Trowel all finish surfaces of plaster to perfectly true and even surface without scratches, ridges, voids, cracks, etc. Fill fissures or breaks in brown coat and existing plaster before application of finish coat. Make coats uniform in thickness with average thickness about 1/8 inch; minimum thickness anywhere: 1/16 inch.

3.05 CLEANING AND PATCHING

A. A clean floor of droppings immediately after each coat is applied. At any exterior locations, remove droppings or splashes from all concrete, masonry or other finish surfaces.

B. Patch after all other Work, except painting, has been completed. Cut out damaged or broken plaster to straight lines with clean, sharp edges. Cut out cracks to width of at least one (1) inch. Fill areas to be patched with base materials, and then give a finish coat of same material as adjoining plaster. Patched areas shall match adjoining work in finish and texture. Joining shall be flush and smooth so joints between patch and existing plaster are not noticeable.

C. At completion of Work, remove excess plaster from beads, screeds, etc., and leave Work clean and ready for painting. Promptly remove plaster, rubbish, surplus material, scaffolding and other equipment from job site. Leave areas broom clean.

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

SECTION 09250

GYPSUM BOARD SYSTEMS

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

All of the requirements of the Contract Documents apply to this Section.

1.03 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.04 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. List of items to be provided under this Section.

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

3. Manufacturer's recommended installation procedures which, when accepted by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

C. Mock-ups:

1. At an area on the site where accepted by the Architect, provide mock-up panels as follows:

a. Make each mock-up panel approximately 4'-0" high and 4'-0" long.

b. Provide one mock-up panel for each variation of panels.

c. The mock-up panels may be part of the Work, and may be incorporated into the finished Work, when so accepted in advance by the Architect.

2. If the mock-up panels are not permitted to be part of the finished Work, completely demolish and remove them from the job site upon completion and acceptance of the other work of this Section.

1.05 DELIVERY AND STORAGE

Deliver all manufactured materials in original packages bearing manufacturer's name and brand. Use only one brand of each material throughout job. Store materials off ground and cover against weather. Remove any damaged materials from the site.

1.06 QUALITY ASSURANCE

A. Comply with all applicable requirements of "American Standard Specifications for the Application and Finishing of Gypsum Wallboard", by the America Standards Association, except where more stringent requirements are called for herein, in local Codes or by manufacturer of wallboard. Do all cutting and patching required to accommodate work of other trades.

B. Maintain temperature of drywalled spaces in range of 55 to 90 degrees F until building is entirely closed and ventilated to eliminate excessive moisture.

C. All work herein requires coordination with trades who's Work connects with, is affected or concealed by drywall. Before proceeding with drywall Work, make certain all required inspections have been made.

D. Inspect surfaces to receive drywall before starting Work and do not start until surfaces are acceptable. Starting Work under this Section implies acceptance of surfaces.

PART 2 -- PRODUCTS

2.01 WALLBOARD MATERIALS

A. Gypsum Board: Conforming to ASTM C-36: 5/8" thick, maximum permissible length, ends square cut, tapered and beveled edges.

B. Fire resistive gypsum board: Type X at all interior conditions: 5/8 inch thick x 4 feet wide. Use moisture resistant type X where used in interior wet conditions (ASTM C79).

C. Moisture-resistant Gypsum Board, conform to ASTM C630, 5/8" thick, maximum permissible length.

D. Exterior Cement Board: Concrete glass-fiber reinforced, ½" thick prefabricated panel, consisting of aggregate and Portland cement reinforced with vinyl coated woven glass fiber mesh embedded in both surfaces. Durock Tile Backer Board by USG or approved equal.

2.02 WALLBOARD ACCESSORIES

A. Trim and Edging: 26 gauge, electro-galvanized steel, with knurled surfaces for bedding cement. Provide angle corner pieces with 1-1/4 inch legs at all external corners and channel type metal trim pieces as detailed at all gypsum board edges meeting dissimilar materials. 136#/1000 l.f.

B. Screws: KW self-tapping sheet metal screws, blued steel, counter sunk Phillips heads, of lengths as required to accommodate thickness of drywall construction, for metal framing attachments.

C. Expansion joints: Conspec Systems, Inc. model FWF and FWFC as applicable in field locations. Extruded clear aluminum with continuous gasket.

D. Adhesive: Manufacturer's recommended adhesive for drywall/masonry condition.

2.03 FINISHES

A. Typical walls and/or ceilings to be painted are to receive a medium stipple (orange peel) textured finish as approved by the Architect. Texture to be applied mechanically by this subcontractor.

B. Sand textured walls shall have white play or plaster sand added into the mud prior to application. The application shall be troweled to simulate a smooth plaster finish.

C. A sample of 4' x 4' is to be prepared of each texture for the Architect's approval prior to application.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

A. If framing members are out to alignment, bowed or warped, correct to make true surfaces before application of gypsum board. Make finish walls or ceilings plumb and level without ridges, bows or warps.

B. Apply boards with long dimension perpendicular to framing members with all abutting ends and edges over supports. Neatly fit and stagger all end joints. Make joints occur on different studs at opposite sides of partition. Cut and fit neatly around all outlets and switches. Space fasteners 8 inches o.c. along vertical edges, and 12 inches o.c. of midpoints, 3/8 inch from edge of board. Fasten boards to backings specified (unless noted as shear walls).

C. Erection technique shall result in plumb and straight surfaces with no waves or buckles, free of unevenness at joints.

D. Joints wider than 1/8 inch will be cause for rejection of board surface by Architect.

E. Provide all backing, furring, stripping, or blocking indicated or required for installation and attachment of Work of all other trades. Cut and frame all openings required by other trades. Structural members shall not be cut, notched or drilled except as shown or noted on Drawings.

3.03 TAPING AND FINISHING

A. Mix joint and finishing compounds per manufacturer's directions.

B. Center tape over joint and embed in uniform layer of joint compound of sufficient width and depth to provide firm and complete bond. Apply skim coat while embedding tape.

C. Treat angles with reinforcing tape folded to conform to adjacent surfaces and straight true angles.

D. Allow compound to thoroughly dry for at least 24 hours.

E. Over joint compound and tape, apply coat of finishing compound. Spread evenly and feather out beyond edge of board. After first finishing coat is thoroughly dry (at least 24 hours), cover with second coat with edges feathered out slightly beyond preceding coat.

F. Give all dimples at fastener heads and all marred spots on surface of board one coat joint compound and two coats finishing compound, applied as each coat is applied to joints.

G. Install metal corner reinforcement at all external corners. Conceal flanges of metal reinforcement with at least two coats compound. When completed, compound shall extend approximately 8 inches to 10 inches on each side of metal nosing.

H. After each application of joint or finishing compound has dried, lightly sand all joints. Leave all board and treated areas uniformly smooth and ready for texturing and painting.

3.04 SCHEDULE

A. Provide fire-rated gypsum board at all firewalls and shafts as indicated on Drawings and required by code.

B. Provide water resistant gypsum board at all bermed walls, plumbing walls - full height, and walls to receive tile finish.

3.05 CLEAN UP

A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum wallboard scraps and dust and to prevent tracking gypsum and joint finishing compound onto floor surfaces.

B. At completion of each segment of installation in a room or space, promptly pick up and remove from the working area all scrap, debris and surplus material of the Section.

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

SECTION 09300

TILEWORK

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 DESCRIPTION

Furnish materials and perform labor required to execute this work as indicated on the drawings, as specified and as necessary to comply with the Contract Documents, including, but not limited to ceramic floor, base and wall tile and installation of stone tiles for floor. All the requirements of the Contract Documents apply to this Section.

1.03 QUALITY ASSURANCE

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

B. Comply with recommendations of the Ceramic Tile Institute and the Tile Council of America.

C. Field Conditions: Verify drawing dimensions with actual field conditions. Inspect related work and adjacent surfaces. Meet with Owner and Architect prior to start of installation to review all requirements. Report to the Architect all conditions, which prevent proper execution of this work.

D. Environmental Conditions:

1. Maintain temperature at 50 degrees F. minimum during tilework and for seven (7) days after completion. Do not apply to frozen surfaces.

2. Vent temporary heaters to outside to avoid carbon dioxide damage to new tilework.

3. Provide adequate lighting for work and walking on newly tiled floors.

4. Use kneeling boards for work and walking on newly tiled floors.

5. Provide shade for all tile, materials and work area on exterior applications as required to prevent rapid evaporation caused by excessive heat.

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A, In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. List of items to be provided under this Section.

2. Manufacturer's Specifications, catalog cuts, and other data needed to prove compliance with the specified requirements of tile, sealants, grout, trim, fasteners, adhesives and sealers.

3. Samples of each type, class, and color of ceramic tile required, not less than 12"

square, mounted on plywood or hardboard backing, and grouted as specified. Sample shall include border pattern.

1.06 PRODUCT HANDLING

Blend all tile at factory and again on site to achieve an even color throughout to the Architect's approval.

1.07 CLOSE-OUT

A. Provide maintenance instructions and product for one cleaning of project subsequent to closeout.

B. Furnish written guarantee covering workmanship and materials for one (1) year after acceptance of the buildings.

PART 2 -- PRODUCTS

2.01 CERAMIC TILE

A. Provide ceramic tile and accessories complying with Tile Council of America Specifications 137.1, in colors and patterns selected by the Architect from standard colors and patterns of the accepted manufacturers.

B. Material:

1. Furnish: size(s), color(s), pattern(s) and shape(s) as indicated on the drawings.

2. Provide standard accessory shapes as required and as accepted by Architect.

3. Use appropriate trim shapes to conform to drawings.

4. Metal trims shall have a clear anodized finish – protected as to resist discoloration from adhesives and grouts.

C. Floor Tile: Provide coefficient of friction not less than 0.60 when tested in accordance with ASTM F489, ASTM F609, and the National Bureau of Standards Technical Note 895 at floor tile.

D. Extra Stock: Supply 2% of each type of tile used in clean marked cartons for Owner.

2.02 SETTING MATERIALS

A. Comply with pertinent recommendations contained in the Tile Council of America "Handbook for Ceramic Tile Installation".

B. Dry set mortar:

1. Provide a commercially prepared mixture of Portland Cement, sand, and additives imparting water retentivity, for use as a leveling / bond coat for setting interior tile floors and all exterior mortar beds.

2. Comply with ANSI A118.1, except where specifically indicated on the Drawings or directed in advance by the Architect, provide conductive dry-set mortar complying with ANSI A118.2.

3. Provide acrylic latex additive formulated for use with dry set mortar.

4. Acceptable products:

a. S-759 Thin Set Mortar for floors, S-763 Thin Set for Walls and S-800 Setting Acrylic Latex Additive, as manufactured by Summitville Tiles, Inc.,

Summitville, Ohio 43962.

b. Equal products of other manufacturers when accepted in advance by the Architect.

C. Organic Adhesive: TCA A136.1 Type 1, AO 1700 or approved equal; thin set bond for walls.

D. Epoxy Adhesive: TCA AO 4000 AAR-11, ANSI 118.3 Epoxy resign and epoxy hardener

E. Special tile setting mortars will be considered by the Architect when complete technical data is submitted in advance.

F. Mortar system for thin set bond type for interior floors. Typical in all potentially wet areas such as restrooms.

2.03 GROUT

A. Comply with pertinent recommendations contained in the Tile Council of America "Handbook for Ceramic Tile Installation" in colors selected by the Architect from standard colors available from the accepted manufacturers.

B. Latex Portland Cement Grout:

1. Provide a commercially prepared mixture of Portland cement and latex additives producing water-retentivity, and suitable for grouting all walls and floors subject to ordinary use.

2. Provide a product licensed by the Tile Council of America, and bearing that license symbol.

3. Acceptable products:

a. "S-700 Sanded Joint Filler" with "S-775 Grouting Acrylic Latex Additive", as manufactured by Summitville Tiles, Inc.

b. Equal products of other manufacturers when accepted in advance by the Architect.

C. Expansion Joint: Colors to be selected by Architect.

1. Provide expansion joint backing material as closed cell polyethylene foam weighing not less than 2.7 lbs. Per cubic foot and in dimension approximately 20% thicker than the width of the expansion joint in which used.

2. Expansion joints in floors shall be a two component polyurethane sealant with Shore-A hardness between 35-45. Use at perimeter of all stone flooring especially when adjoining other tilework.

D. At joints between floors and walls and at perimeter of metal doorframes, provide one-part silicone material.

2.04 PROTECTIVE MATERIALS

A. Neutral cleaner such as Hillyard Super Shine-All.

B. Grout release agents such as Klein Company Standard Grout Guard.

C. Sealer: Overall the finished work of this Section, provide a sealer, cleaner or water repellent coating and apply in strict accordance with the Manufacturer's recommendations.

D. Heavy-duty non-staining construction paper with compatible tape for securing it.

2.05 FLOORING TRANSITIONS

Manufacturer(s), Type(s), Location(s), Finishes(s), as indicated on drawings.

2.06 OTHER MATERIALS

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

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Coordinate work with other trades as needed to assure that proper substrate are provided to receive work of this Section.

B. Acceptability of Surfaces:

1. Before tiling, confirm variations of surface to be tiled fall within maximum variations shown below:

		Walls	Floors
1.	Cement Mortar Bed	1/4" in 8'	1/4" in 10'
2.	Epoxy Adhesive	1/8" in 8'	1/8" in 10"
3.	Organic Adhesive	1/8" in 8'	1/8" in 8"

2. Report all unacceptable surfaces to the Architect and do not tile such surfaces until they are leveled enough to meet above requirements. Leveling cost is included in this section.

3. Remove all adhesives for substrate for clean floor. Before tiling, be certain surfaces to be tiled are free from coating, curing membranes, oil, grease, wax, and dust. Scarify concrete substrate, which is hard steel trowel finished or pores filled with curing compound or other adhesive.

4. Verify that grounds anchors, plugs, recess frames, bucks, electrical work, mechanical work and similar items in or behind the tile have been installed before proceeding with the installation of the mortar bed or tile.

3.03 INSTALLATION

A. General:

1. Comply with ANSI A108.1, A108.5, A108.6 and A108.10 and the "Handbook for Ceramic Tile installation" of the Tile Council of America, except as otherwise directed by the Architect or specified herein.

2. Maintain minimum temperature limits and installation practices recommended by materials manufacturers.

B. Layout:

1. Determine locations of all movement joints before starting tilework.

2. Layout tile work and center tile fields both direction in each space or on each wall

area.

3. Lay out all tilework so as to minimize cuts less than one-half tile in size.

4. Locate cuts in both walls and floors so as to be least conspicuous.

5. Provide uniform joint width.

6. Align all floor joints to give straight uniform grout lines, parallel with walls, base and trim.

7. Lay tile in grid pattern unless otherwise indicated on the Drawings or directed by the Architect.

8. Align the joints when adjoining tiles on floor, base, trim, and walls are the same size.

C. Install the work of this Section in accordance with the following Handbook procedure:

1. Floors interior -- No. F115 at porcelain / stone floors.

2. Floors exterior – No. F101.

3. Walls -- No. W242.

D. Limits of tile:

1. Extend tile into recesses and under equipment and fixtures to form a complete covering without interruptions. Omit behind full width mirrors above counter lavatories to allow smooth setting of mirror.

2. Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.

E. Provide expansion and control joints where shown on the Drawings, and where otherwise recommended by the "Handbook for Ceramic Tile Installation" of the Tile Council of America, sealing in accordance with Section 07900 of these Specifications, but not less than:

1. 24'-0" to 36'-0" in each direction on interior.

2. 12'-0" to 16'-0" in each direction on exterior.

3. At all perimeter walls, building expansion joints and where tile abuts restraining surfaces such as walls, curbs, dissimilar floors, pipes, columns or where changes in backing materials occur.

4. Extend joints completely through the tile, mortar, mortar bed and reinforcing.

F. Install metal edge strips at all openings where floor tile abuts dissimilar materials and a threshold has not been called out. Grout solid all thresholds indicated adjacent to tilework.

G. Workmanship:

1. Supply first class workmanship in all tilework.

2. Use all products in strict accordance with recommendations and directions of manufacturer.

3. Proportion all mixes in accordance with latest ANSI Standard Specifications.

4. Be sure all tilework is free of grout film upon completion, conforming to ANSI A 108.5 sub-section A-4.3.4.7.

H. Provide tile surfaces clean and free from cracked, broken, chipped, unbonded, and otherwise defective units.

I. Provide required protection of tile surfaces to prevent damage and wear prior to acceptance of the Work by the Owner.

3.04 GROUTING

A. Allow tile to set for a minimum of 48 hours prior to grouting. Remove all spacers, ropes, glue and foreign material prior to grouting.

B. Follow grout manufacturer's recommendations as to grouting procedures and precautions.

1. Force maximum amount of grout into joints in accordance with pertinent recommendations in ANSI 108.10.

2. Fill-in joints of cushion edged tile to depth of cushion; fill square edged tile flush with surface.

3. Provide hard finished grout which is smooth and without voids, pinholes or low spots.

C. Remove all grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.

D. Use recommended sealant for perimeter grouting of stone tile to allow for movement of field.

E. Cleaning:

1. Upon completion of placing and grouting, clean the work of this Section in accordance with recommendations of the manufacturers of the materials used.

2. Protect metal surfaces, cast iron, and vitreous items from effects of acid cleaning.

3. Flush surfaces with clean water before and after cleaning.

4. Cure the joints by keeping damp until hardened, during which time all traffic is kept off newly tiled floor areas.

5. Protect grouted floors from drying out for at least three days with a layer of bituminous building paper lapped 4" and sealed against escape of moisture. Keep traffic off floor during this curing period.

3.05 PROTECTION

A. Apply sealer over all finished surfaces of work of this Section. Use in strict accordance with manufacturer's printed instructions.

B. Protection from Construction Dirt:

1. Apply to all clean, completed tile walls and floors a protective coat of neutral cleaner solution, 1 part cleaner to 1 part water.

2. In addition, cover all tile floors with heavy-duty, non-staining construction paper, masked in place.

3. Just before final acceptance of tilework, remove paper and rinse protective coat of neutral cleaner from all tile surfaces.

C. Protection from Traffic:

1. Prohibit all foot and wheel traffic from using newly tiled floors for at least 3 days, preferably 7 days.

2. Place large flat boards in walkways and wheel-ways for 7 days where use of newly tiled floors with cement type grout is unavoidable.

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

SECTION 09510

ACOUSTICAL CEILING SYSTEMS

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

Supply and install all Acoustical Ceiling Work as shown on Drawings and as specified herein. All the requirements of the Contract Documents apply to this Section.

1.03 SUBSTITUTIONS

Substitutions will be considered per Article of the General Conditions, Project Manual Section 00700.

1.04 SUBMITTALS

A. In accordance with Article 5 of the General Conditions, Project Manual Section 00700.

B. Submit complete layout of all systems including attachments, intersections of members and edge conditions.

C. Samples: submit 2 samples of each type of unit specified herein.

1.05 QUALITY ASSURANCE

A. Have applicators approved by manufacturer of material or system being installed.

B. Work hereunder requires coordination with trades who's Work connects with, is affected, or concealed by acoustical units. Before proceeding with Work, make certain all required inspections have been made.

C. Examine sub-surfaces to receive Work. Commencement of Work will be construed as acceptance of all sub-surfaces.

D. Comply with all applicable requirements of Acoustical Materials Association, Bulletin "Architectural Acoustical Materials".

1.06 DELIVERY AND STORAGE

Deliver all manufactured materials in original containers bearing manufacturer's name and brand. Use only one brand for each type of unit throughout job. Store materials within building in locations directed.

PART 2 -- PRODUCTS

2.01 GRID

A. Ceiling Suspension Materials: Comply with ASTM C635, as applicable to the type of suspension system required for the type of ceiling units indicated. Coordinate with other work supported by or penetrating through the ceilings.

B. Manufacturer, Type, Location, and Pattern: as indicated on the drawings.

C. Edge Mouldings: Manufacturer's standard channel moulding for edges and penetrations of ceiling, with a single flange of moulding exposed, white baked enamel finish, unless otherwise indicated.

2.02 ACOUSTICAL TILE

Manufacturer, Type, Location, and Pattern: as indicated on the drawings.

2.03 EXTRA STOCK

Order additional 3% of each type of acoustical unit specified, for maintenance use, at no additional cost to Owner. (One box minimum.)

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Beginning of installation means acceptance of conditions.

3.02 INSTALLATION

A. Provide all materials and accessories for complete installation per Drawings and manufacturer's printed instructions and recommendations.

B. Install units to sub-surfaces from setout points and to pattern shown on Drawings. Verify location of Work of other trades so their items occur within a whole unit or at joints as shown.

C. Install units in place fitting snugly. Provide spacers or hold-down clips where shown or required.

D. After installation, clean any soiled surfaces. Replace any damaged units at no additional cost to the Owner.

E. Arrange acoustical units in the manner shown by reflected ceiling plans. Consult with Architect pertaining to any adjustments.

3.03 SUPPORT SYSTEMS FOR SUSPENDED CEILING

A. General: Ceilings shall not support material or building components other than grills, insulation batts or light fixtures. Duct work, plumbing and like work shall have its own support system and shall not use the ceiling system or suspension wires.

B. Vertical Support System: Suspension wires shall be a minimum of 12-gauge galvanized wire attached to the main runner at 4 ft. maximum spacing in both directions. Each wire shall be anchored to the structure above with a device capable of supporting a minimum of 75 pounds. Wires supporting fixtures shall be capable of supporting four times the fixture weight. Suspension wires shall not hang more than 1 in 6 out of plumb unless counter sloping wires are provided. Wires shall not attach to or bond around interfering material such as ductwork. Trapeze or equivalent devices shall be used where obstructions interfere with direct suspension.

C. Horizontal Support System: The lateral support system for ceilings shall be shown in detail shop Drawings. Provisions shall be made for possible deferential movement between ceilings and sidewalls. Terminal ends of each main and each cross runner shall be wire supported; wall trim angles shall not provide primary support for runners. Lateral support of ceilings shall not be provided by the angle trim and runner shall not be riveted to wall trim.

D. Light Fixture Support: All recessed or drop-in light fixtures shall be supported directly from the fixture housing to the structure above with a minimum of two 12 gauge wires; leveling

and positioning of fixture may be provided by the ceiling grid. Fixture support wires may be slightly loose to allow fixture to seat in heavy-duty grid system only.

E. Secure wire hangers by looping and wire tying either directly to structures or to inserts, eye-screws or other devices which are secure and appropriate for the substrate, and which will not deteriorate or fail with age or elevated temperatures.

3.04 CLEANING AND PROTECTION

A. Clean exposed surfaces of acoustical ceilings, including trim, edge mouldings and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

B. The installer shall advise the Contractor of required protection for the acoustical ceilings, including temperature and humidity limitations and dust control, so that the Work will be without damage and deterioration at the time of acceptance by the Owner.

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

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SECTION 09650

RESILIENT FLOORING

PART 1 -- GENERAL

1.01 SUMMARY

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

1.02 SCOPE OF WORK

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

1. Resilient tile flooring.
2. Floor substrate surface.
3. Rubber base.

1.03 REGULATORY REQUIREMENTS

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

1.04 SUBSTITUTIONS

Substitutions will be considered per Article 5 of the General Conditions, Project Manual Section 00700.

1.05 SUBMITTALS

A. Provide product data on specified products, describing physical and performance characteristics.

B. Submit two samples, illustrating color and pattern for each floor material or base, substituted for those indicated in the Drawings.

C. Submit manufacturer's installation instructions. When approved by the Architect, will become the basis for accepting or rejecting actual installation procedure used on the Work.

1.06 OPERATION AND MAINTENANCE DATA

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

1.07 ENVIRONMENTAL REQUIREMENTS

A. Store materials for three days prior to installation in area of installation to achieve temperature stability.

B. Maintain ambient temperature required by adhesive manufacturer three days prior to, during, and 24 hours after installation of materials.

1.08 EXTRA MATERIALS

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

PART 2 -- PRODUCTS

2.01 VINYL COMPOSITION TILE

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

2.02 SHEET VINYL

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

2.03 BASE MATERIALS

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

2.04 ACCESSORIES

A. Subfloor Filler: Latex cement underlayment as recommended by flooring material manufacturer.

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

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

D. Welding rod: Use same manufacturer as flooring manufacturer and install per manufacturer's instructions. Colors to be selected from standard colors. All flooring in medical procedure rooms and in restrooms shall be heat welded.

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

2.05 FLOORING TRANSITIONS

Manufacturer(s), Type(s), Location(s), Finishes(s), as indicated on drawings.

PART 3 -- EXECUTION

3.01 EXAMINATION

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

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

C. Do not proceed until unsatisfactory conditions are corrected.

D. Verify that surfaces are smooth and flat with maximum variation of 1/8 inch in 10 ft. and are ready to receive work.

E. Verify concrete floors are dry to the maximum moisture content of 2.5% (two and one half percent); and exhibit negative alkalinity, carbonization, or dusting. Provide test results to indicate that the substrate meets moisture requirements prior to starting work. Higher moisture content will be as accepted by manufacturer in their written warranty.

F. Beginning of installation means acceptance of conditions.

3.02 PREPARATION

A. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with sub-floor filler.

B. Apply, trowel, and float filler to leave smooth, flat, hard surface.

C. Prohibit traffic from area until filler is cured.

D. Vacuum clean substrate.

E. Maintain the temperature of the space to receive the flooring and the materials to be installed at a minimum of 65 degrees F and maximum of 100 degrees F for at least 48 hours prior to, during, and 48 hours after installation. Maintain a minimum temperature of 55 degrees F thereafter.

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

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions, conventional full-spread system.

B. Spread only enough adhesive to permit installation of materials before initial set.

C. Set flooring in place; press with heavy roller to attain full adhesion.

D. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.

E. Install edge strips at unprotected or exposed edges, and where flooring terminates.

F. Scribe flooring to walls, columns, permanent cabinets, floor outlets, and other appurtenances to produce tight joints.

3.04 INSTALLATION -- BASE MATERIAL

A. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints.

B. Miter internal corners. At external corners, "V" cut back of base strip to 2/3 of thickness and fold.

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

D. Scribe and fit to doorframes and other interruptions.

3.05 PROTECTION

Prohibit traffic on floor finish for 48 hours after installation.

3.06 CLEANING

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

B. Clean, seal, and wax floor and base surfaces in accordance with manufacturer's instructions.

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

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