Notify Owner if such items are encountered and obtain acceptance regarding method of removal and salvage from Owner.

3.4 DISPOSAL OF DEMOLISHED ITEMS

A. Remove from building all debris, rubbish and other materials resulting from demolition operations. Transport and legally dispose off-site.
   1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws and ordinances concerning removal, handling and protection against exposure or environmental pollution.
   2. Burning of removed material is not permitted.

3.5 CLEANUP AND REPAIR

A. General: Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave areas broom clean.
   1. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to commencing operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricating and setting reinforcing steel and accessories for cast-in-place concrete.

B. Related Sections:

1. Section 03 10 00, Concrete Formwork
2. Section 03 30 00, Cast-in-Place Concrete

1.02 REFERENCES

A. ACI 315 - Details and Detailing of Concrete Reinforcing.

B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary.

C. ASTM A615 - Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

D. ASTM A706 - Specification for Low-Alloy Steel Deformed Bars for Concrete Reinforcement.

E. AWS D1.4 - Structural Welding Code for Reinforcing Steel.

F. CRSI - Concrete Reinforcing Steel Institute Manual of Practice.

G. Chapter 19, 2010 California Building Code.

1.03 SUBMITTALS

A. Shop Drawings, indicating bar sizes, spacings, locations and quantities of reinforcing steel bending and cutting schedules and supporting and spacing devices.

B. Submit Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.

C. Submit Mill Test Reports: showing structural strength, destructive and non-destructive test analysis and identification.

1.04 QUALITY ASSURANCE

A. Provide Testing Laboratory with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.

B. Comply with the requirements of Division 01 General Requirements.

1.05 COORDINATION

A. Coordinate with placement of formwork, formed openings and other Work.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615, deformed billet steel bars, in grades as follows, and conforming to CBC-19, Section 1903A.

1. For No.4 and larger bars, use 60 ksi yield grade.
2. For ties and stirrups, and No. 3 and smaller bars, use 40 ksi yield grade.
3. For welded bars, use ASTM A706 60 ksi yield grade.

B. Welded Wire Reinforcement: Plain type, ASTM A185; in flat sheets; uncoated finish, 6 x 6 - W4.0 x W4.0 unless otherwise noted on drawings.

C. Welding Electrodes: Low Hydrogen grade E70XX for Grade 40, E90XX for Grade 60.

2.02 ACCESSORY MATERIALS

A. Tie Wire: Minimum 16 gauge black annealed type.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions.

C. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel type; size and shape as required.

D. Concrete Blocks: Approximately 3 inches dimension each side.

2.03 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice and ACI 315 and ACI 318. Wherever possible, make bends to shape in fabricator's shop.

1. Bars reduced in section will not be accepted.
2. Bars with kinks are unacceptable.
3. Bars shall not be heated to facilitate bending or for any other purpose.
4. Bars with bends not indicated on drawings will not be accepted. Perform no forming in a manner which will damage bars.
5. Rebending of bars prohibited.

B. Weld reinforcement in accordance with AWS D1.4.

C. Locate reinforcing splices not indicated on Drawings at point of minimum stress.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position. Install concrete blocks to support reinforcement over grade. Rocks not permitted.

B. Do not displace or damage vapor barrier where vapor barrier is specified or indicated on drawings.

C. Accommodate placement of formed openings.

D. Prior to placing, thoroughly clean reinforcement of all rust, dirt, dust, oil or any other material deleterious to bonding of concrete.

E. Accurately place and securely tie reinforcement at all intersections and splices with black annealed wire and securely hold in position during placing of concrete by means of precast concrete block supports. Point wire tie ends away from the form. Unless otherwise indicated, the number, type, and spacing of supports shall conform to the ACI 315.

F. During placing of structural concrete slabs, provide a full-time reinforcing steel placer to repair and replace reinforcing to its proper location. Provide additional chairs of the proper size available to place under bars displaced during the concrete pouring operation.

G. Dowels for Walls: Securely tie in place prior to placing of concrete. Do not place dowels in concrete after pour.

H. Conform to Section 1907, California Building Code for concrete cover over reinforcement.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SUMMARY:

A. Section Includes: Cast-in-place concrete for the following:

1. Foundations and footings
2. Grade beams
3. Building slabs-on-grade
4. Fill for steel deck
5. Floor and roof slabs
6. Equipment pads and bases
7. Fill for steel pan stairs

1.02 REFERENCES:

A. Refer to Section 01 4200 for information concerning availability and use of references.

ACI 318 - Building Code Requirements for Reinforced Concrete

ASTM C 33 - Concrete Aggregates

ASTM C 94 - Ready-Mixed Concrete

ASTM C 114 - Chemical Analysis of Hydraulic Cement

ASTM C 156 - Water Retention by Concrete Curing Materials

ASTM C 171 - Sheet Materials for Curing Concrete

ASTM C 227 - Potential Alkali Reactivity of Cement-Aggregate Combinations (Mortar-Bar Method)

ASTM C 260 - Air-Entraining Admixtures for Concrete

ASTM C 309 - Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C 330 - Lightweight Aggregates for Structural Concrete

ASTM C 494 - Chemical Admixtures for Concrete

ASTM C 567 - Unit Weight of Structural Concrete

ASTM C 618 - Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete

ASTM C 1017-92 - Chemical Admixtures for Use in Producing Flowing Concrete

ASTM C 1107 - Packaged Dry, Hydraulic-Cement Grout (Nonshrink)

ASTM C 1116 - Fiber-Reinforced Concrete and Shotcrete

ASTM D 1751 - Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)

ASTM D 4397 - Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

1.03 SUBMITTALS:

A. Product Data:

1. Submit certificates of compliance for portland cement.

2. Submit manufacturer's technical literature for admixtures, curing compounds, expansion joint filler, sealer and chemical hardener.

B. Submittal procedures and quantities are specified in Section 01 33 00.

1.04 QUALITY ASSURANCE:

A. Regulatory Requirements: Except as modified by the requirements specified herein or the details indicated, concrete construction shall conform to California Building Code, Chapter 19A.

PART 2 PRODUCTS

2.01 MATERIALS:

A. Portland Cement:

1. Cement shall conform to ASTM C-150, Type II. The cement used in the work shall correspond to that on which the selection of concrete proportions was based.

2. Where aggregates contain reactive substances, low alkali cement shall be used in all concrete. Low alkali cement shall not contain more than 0.6 percent total alkali when calculated as sodium oxide as determined by the method given in ASTM C 114.

B. Pozzolan: ASTM C 618, Type F or C. Limit use of pozzolan to not more than 15 percent of cement content by weight.

C. Regular Weight Concrete Aggregates: ASTM C33. Use ASTM C 227 to determine alkali reactivity of the aggregates as specified therein, the alkali reactivity shall be "innocuous" as determined by ASTM C 289.

1. Fine Aggregate: Washed clean, uniformly screen graded, and containing not more than 2 percent by weight of deleterious materials such as shale, schist, alkali, clay lumps, earth, loam, mica or similar materials. Uniformly grade fine aggregate from fine to coarse.

2. Coarse Aggregate: Clean, hard, crushed rock or washed gravel, free from organic materials or soft or friable materials, containing not more than 2 percent by weight of shale or cherty material and not more than 15 percent by weight of elongated fragments.

D. Lightweight Concrete Aggregates: ASTM C 330.

E. Admixtures: Type that increases workability and reduces water demand of concrete, but will not increase shrinkage. Admixture shall be subject to acceptance by the Architect and Division of the State Architect as to type and amount used. Admixtures shall contain not more than one percent chloride ions.

1. Water Reducing Admixture: ASTM C 494, Type A. Acceptable products include, but are not limited to, the following:

   Cormix, Inc.; PSI N
   Euclid Chemical Co.; Eucon WR 75
   W.R. Grace & Co.; WRDA
   Master Builders, Inc.; Pozzolith Normal
   Sika Corp.; Plastocrete 161

2. Air-Entraining Agent: ASTM C 260. Acceptable products include, but are not limited to, the following:

   Cormix, Inc.; Air-Tite
   Euclid Chemical Co.; Air-Mix
   W.R. Grace & Co.; Darex AEA
   Master Builders, Inc.; MB-VR
   Sika Corp.; AER

F. Water Used in Mixing Concrete: Potable, clean and free from deleterious amounts of acid, alkalis, organic or other materials.

G. Curing Membrane: Nonstaining paper meeting the requirements of ASTM C 171, or 6 mil thick polyethylene film.

H. Curing Compound: Types as follows subject to the limitations specified elsewhere in this Section:

1. Non-film Forming Type: Clear, water-based solution that penetrates below the concrete surface to react with free lime to seal, harden and dust proof concrete surfaces. When tested in accordance with ASTM C 156, compound shall restrict the loss of water to not more than 0.55 kg per square meter. Acceptable products include, but are not limited to, the following:

   Burke Corp.; Res-X Silicate
   Dayton-Superior; Day-Chem Sil-Cure (J13)
   Euclid Chemical Co.; Cure & Hard
   W. R. Meadows; Cure Hard
   Nox-Crete, Inc.; Bro-Cure
   Sonneborn Building Products; Sonosil

I. Vapor Barrier

1. 10 mil polyethylene meeting the requirements of ASTM D 4397.

2. Kraft paper, glass reinforming fibers and layers of polyethylene laminated under heat and pressure to form a single layer sheet complying with FS UU-B-790, Type I, Grade A, Style 4; or waterproof paper, regular, conforming to ASTM C 171, consisting of two sheets of kraft paper cemented together with bituminous material in which are embedded cords or strands of fiber running in both directions not more than 1- 1/4 inch apart. Acceptable product includes, but is not limited to, the following:

   Fortafiber Corp.; "Moistop"

3. Vapor barrier shall be a premolded seven ply membrane consisting of a reinforced core and carrier sheet with fortified bitumen layers, protective weathercoating, and plastic antistick sheet. Membrane shall have a water vapor transmission rate of 0.00 grains per sq. ft. per hour when tested in accordance with ASTM E 96, Method B. Vapor barrier shall be as follows or equal approved in accordance with Section 01 60 00:

   W. R. Meadows, Inc.; "Sealtight Vapor Seal with Plasmatic Core"

J. Sand for Use With Vapor Barrier Under Concrete: Washed fine aggregate meeting the requirements of ASTM C 33.

K. Abrasive Aggregate: Factory graded and packaged fused aluminum oxide grits or crushed emery containing not less than 40 percent aluminum oxide and not less than 25 percent ferric oxide. Material shall be rust-proof, nonglazing and unaffected by freezing, moisture and cleaning materials.

L. Leveling Compound: Cementitious, single component, non-shrink, self-leveling underlayment for concrete floors. Compound shall be as follows or equal approved in accordance with Section 01 60 00:

   Ardex; V-800
   Burke Corp.; Flo-Tru
   Dayton-Superior; LeveLayer II
   Euclid Chemical Co.; Flo-Top
   Symons Corp.; Floor Top
   Sonneborn Building Products; Sonoflow

M. Drilled Anchors: Anchors shall be as follows or equal approved in accordance with Section 01 6300:

   Hilti Kwik-Bolt KB-TZ (ICC Report No. ESR-1917)

2.02 MIXES:

A. Concrete Proportions and Properties:

1. Minimum Concrete Strengths at 28 Days: As indicated on the structural drawings or 2500 psi, minimum, at 28 days where not indicated.

2. Maximum Slumps: 3-1/2 inches for toppings on metal deck, 4 inches for slabs, footings and other horizontal members, 5 inches for walls, columns and other vertical members.

3. Maximum Size Aggregate: In no case shall the maximum aggregate size used exceed one fifth of a member's thickness, one third of the depth of slabs, nor three fourths of the minimum clear spacing between individual reinforcing bars or bundles of bars. In columns and piers it shall not exceed 2/3 of the clear distance between reinforcement. In addition, it shall never exceed the size indicated for the following:

   (a) Slabs 6" and less in thickness: 1 inch.

   (b) Walls less than 8" in thickness: 1 inch.

   (c) Toppings over Steel Pan Stair Systems, Precast Tees, and Metal Deck: 3/8 inch.

   (d) Other members: 1-1/2 inch.

4. Lightweight Structural Concrete: Maximum air-dry density as indicated. Use lightweight coarse aggregates. When the density requirements can be attained by the full or partial use of natural fine aggregates, such fine aggregate shall be used. Limit shrinkage to 0.03 percent at 28 days.

5. Admixtures: Admixtures shall be added in accordance with the manufacturer's instruction.

   (a) Use water reducing admixture in concrete mix for all concrete.

   (b) Air entraining admixture may be used, at the Contractor's option, to improve workability of low slump concrete mixes.

   (c) Integrally Colored Concrete: Add color admixture at rate required to achieve color selected, where integrally colored concrete is indicated or specified.

B. Mixing:

1. Use ready mixed concrete, mixed and transported in accordance with ASTM C 94.

2. Retempering: Mix concrete only in quantities for immediate use. Discard concrete which has set, do not retemper.

3. Indiscriminate addition of water to increase slump is prohibited. When concrete arrives at the project with slump below that suitable for placing, water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. Incorporate the water by additional mixing equal to at least half of the total mixing required. Accompany addition of water above that permitted by the limitation of water-cement ratio by a quantity of cement sufficient to maintain the proper water-cement ratio. Obtain approval.

4. Integrally Colored Concrete: Before placing colored admixture in the mixer, clean the drum thoroughly, and add approximately 40 gallons of mix water and a portion of the aggregate.

5. In the event concrete is mixed at a central batching plant, the delivery shall be arranged so that intervals between batches are kept at a minimum, and in any event not more than 30 minutes. Trucks shall be in first class condition and kept in constant rotation during delivery. No water shall be added during transit or at the job without specific instructions from the civil engineer responsible for the mix design. Concrete shall be placed within 90 minutes after addition of water and admixtures.

2.03 SOURCE QUALITY CONTROL:

A. General: Submit mill tests and manufacturer's certification of compliance with ASTM Specifications to the Inspector in lieu of testing of cement and aggregate analysis.

B. Mix Designs:

1. Mix designs shall be made by the Testing Laboratory of record under the supervision of a California Registered Civil Engineer, who shall determine mix proportions to fulfill the specified requirements for strength, aggregate size and workability of concrete, and such designs shall be used in proportioning all structural concrete. Mix designs shall bear the signature and seal of the California Registered Engineer. Two copies of the mix designs shall be filed with the Architect for record purposes only, not for review or approval.

2. Make mix designs in accordance with ACI 318 and CBC Section 1905A.

3. Cover and clear distances between reinforcing bars shown on the drawings shall be considered in determining the aggregate size for mix designs, which may result in an aggregate size smaller than the maximum aggregate size stipulated elsewhere in this specification.

4. A list specifying the intended usage of each mix design shall be clearly shown as part of the designs.

PART 3 EXECUTION

3.01 CONVEYING AND PLACING CONCRETE:

A. Notify the Inspector at least 5 working days in advance of the placing of any concrete.

B. Soil bottoms for footings and slabs shall be inspected by the Geotechnical Engineer before placing concrete.

C. Before placing concrete, forms shall be thoroughly inspected. Remove wood chips, dirt, etc; take out temporary bracing and cleats; box openings for pipes, etc; secure forms in their correct position and make tight; and secure reinforcement, anchors, and embedded items in their proper places. Anchor bolts, dowels, and inserts shall be secured in place at least 24 hours prior to placement of concrete. Concrete which may be on the forms or reinforcement, and which is set and dry, shall be cleaned off and the forms and steel washed off before proceeding. Remove water and all foreign matter from forms and excavations.

D. Subgrade Preparation: Before concrete floor slabs on grade are poured, place vapor barrier over prepared subgrade, lapping all joints not less than 4 inches. Seal all joints and punctures in vapor barriers with pressure sensitive tape. Cover vapor barrier with a 6 inch thick layer of dry open-graded gravel (3/4" max size).

E. Surface Preparation: Before new concrete is deposited against hardened concrete, and before masonry is placed on concrete, remove all incrustation and laitance from forms, reinforcing, and surface of hardened concrete. If the surface mortar and laitance of the first concrete pour has not been completely removed by water blasting, the hardened concrete surface shall receive a

sandblast treatment exposing the coarse aggregate, to 1/4 inch amplitude. Surfaces which are to receive drypack shall also be prepared as herein specified.

F. Handling and Depositing:

1. Concreting, once started, shall be carried on as a continuous operation until the section of approved size and shape is completed.

2. Handle concrete as rapidly as practicable from the mixer to the place of final deposit by methods which prevent the separation or loss of ingredients. Deposit concrete as neatly as practicable, in its final position to avoid rehandling or flowing. Do not use vibrators to move concrete.

3. Concrete shall not be dropped freely where reinforcing will cause segregation, nor shall it be dropped freely more than 4 feet. Concrete shall be deposited to maintain a plastic surface approximately horizontal.

4. Do not deposit concrete that has partially hardened in the work. Concrete shall not be retempered nor used after having stood 15 minutes after leaving the truck or mixer.

G. Vibrating and Compacting:

1. Thoroughly consolidate all concrete and compact by suitable means during the operation of placing and depositing. Thoroughly work all concrete around reinforcement, embedded items, and into the corners of the forms. Concrete against forms shall be thoroughly vibrated. Use internal vibrators under experienced supervision and keep out of contact with reinforcement and wood forms.

2. Vibrate close to the forms but do not continue at one spot to the extent that large areas of grout are formed or the heavier aggregates are caused to settle. Take care not to disturb concrete which has taken its initial set.

H. Flatwork:

1. Set edge forms and intermediate screed strips accurately to produce the designed elevations and contours in the finished surface, and sufficiently strong to support vibrating bridge screeds or roller pipe screeds if the nature of the finish specified requires the use of such equipment. Align concrete surface to the contours of screed strips by the use of strike-off templates or approved compacting type screeds.

2. When the formwork is cambered, set screeds to a like camber to maintain the proper concrete thickness.

3. Locate and detail joints in slabs on grade as indicated.

4. Thoroughly consolidate concrete slabs. Use internal vibration along the bulkheads of slabs on grade. Obtain consolidation of slabs and floors with vibrating bridge screeds, roller pipe screeds, or other approved means. Concrete to be consolidated shall be as dry as practical and the surfaces thereof shall not be manipulated before the finishing operations.

3.02 CONSTRUCTION JOINTS:

A. Construction joints shall be made and located as indicated and detailed on the drawings.

3.03 TEMPERATURE REQUIREMENTS:

A. Cold Weather Requirements:

1. Concrete shall not be mixed or placed when the temperature is below 40 degrees F or when conditions indicate that the temperature will fall below 40 degrees F within 72 hours.

2. Concrete temperature shall be maintained, when deposited at not less than 60 degrees F. In cold weather, the reinforcement, forms, and ground which concrete will contact must be completely free of frost.

3. The concrete and formwork must be kept at a temperature of not less than 50 degrees F for not less than 72 hours after placing.

B. Hot Weather Requirements: The maximum placing temperature of the concrete, when deposited, shall not exceed 90 degrees F without the use of special procedures. If the weather causes the placing temperature to exceed 90 degrees F, the mix shall be cooled by wetting the aggregate or other appropriate method as directed by the Architect.

3.04 REPAIR OF SURFACE DEFECTS:

A. Any concrete which is not formed as shown on the drawings, or for any reason is out of alignment, or is not true, or is not plumb or level, or is not in plane, or shows a defective surface, or is otherwise not in true and continuous form or is structurally defective, shall be considered as not conforming with the intent of this specification.

B. Contractor shall remove such concrete from the job and replace with new concrete, at no extra cost to the District. Removal shall be accomplished by saw cutting around the defective area at the nearest construction joint.

C. Patching Appearance Defects:

1. Inspection: After removing entire formwork assemblies, inspect concrete surfaces and patch tie holes, pour joints, voids, stone pockets, and such other defective areas as are permitted by Architect to be patched.

2. Procedure: Where necessary, chip away defective areas to depth of not less than 1 inch with edges perpendicular to surface, with no feather edges. Wet area to be patched and a space at least 6 inches wide entirely surrounding it, to prevent absorption of water from patching mortar. Place grout of equal parts portland cement and sand with sufficient water to produce a brushing consistency. Brush well into surface then follow immediately with patching mortar.

3. Use patching mortar of same material and of approximately same proportions as used for concrete, except omit coarse aggregate, and do not mix richer than 1 part cement to 3 parts sand. Use as little mixing water as is consistent with requirements of handling and placing.

4. Compact mortar into place and screed off so as to leave patch slightly higher than surrounding surface. Then leave patch undisturbed for a period of 1 to 2 hours to permit initial shrinkage before being finally finished. Finish the patch in such a manner as to match

adjoining surface, after striking off the patch with a straightedge spanning the patch and held parallel to direction of form marks.

3.05 CONCRETE FINISHES FOR FORMED SURFACES:

A. Class A Finishes: Provide sacked, rubbed, and abrasive blasted finishes where specifically indicated on the Drawings.

1. Sack Rubbed Finish: Remove fins, rough spots, stains and hardened mortar by carefully rubbing with a fine abrasive stone to a smooth even surface. Remove excess form sealer by carefully scrubbing surface with 5 to 10 percent solution of muriatic acid. Fill holes or irregular surfaces. Apply a slurry proportioned one part cement to 1-1/2 parts sand, passing a No. 16 sieve, by damp loose volume, mixed with sufficient water to form a grout having the consistency of thick paint. Before applying slurry to surfaces, dampen concrete sufficiently to prevent water absorption. Spread slurry over surfaces with a clean sponge rubber float to completely fill holes and imperfections. Float surface vigorously, and while slurry is still plastic remove excess grout. Allow to dry then rub with burlap to completely remove dry grout so that no visible grout film remains. Complete the entire cleaning operation for any area the day it is started.

2. Smooth Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than the cement paste drawn from the concrete by the rubbing process.

B. Class B Finish: Provide for exposed concrete surfaces where specifically indicated on the Drawings. Completely remove all fins and patch all tie holes and defects. Provide smooth form as-cast finish with texture as imparted by the form materials specified in Section 03 1000 for this class of finish. Surface irregularities in the finished concrete surface shall not exceed the limits specified for Class B finish in ACI 347R, Table 3.4.

C. Class C Finish: Provide for all exposed concrete surfaces except where Class A or B finish is indicated on the Drawings. Completely remove all fins and patch all tie holes and defects. Provide smooth form as-cast finish with texture as imparted by the form materials specified in Section 03 1000 for this class of finish. Irregularities in the finished concrete surface shall not exceed the limits specified for Class C finish in ACI 347R, Table 3.4.

D. Class D Finish: Provide for all concealed concrete surfaces. Chip or rub off fins exceeding 1/4 inch in height. Patch all tie holes and defects. Provide rough form as-cast finish as imparted by the form materials specified in Section 03 1000 for this class of finish. Irregularities in the finished concrete surface shall not exceed the limits specified for Class D finish in ACI 347R, Table 3.4.

3.06 FINISHES FOR FLATWORK:

A. Floated Finish: Provide floated finish for subfloors for ceramic and quarry tile. After concrete has been placed, struck off, consolidated and leveled, do not work concrete further until ready for floating. Begin floating when water sheen has disappeared, or when mix has stiffened sufficiently to permit proper operation of a power-driven float. Consolidate surface with power-driven floats of impact type. Hand float with wood or cork-faced floats in locations inaccessible to power-driven machine. Recheck trueness of surface at this stage with a 10 foot straight-edge applied at not less than two different angles. Cut down high spots and fill low spots during this procedure to

produce planes checking true under the straightedge in all directions, with tolerances not exceeding 1/8 inch in 10 feet. Refloat slab immediately to a uniform, smooth, granular texture.

1. Tolerances for floors indicated to receive thin set ceramic tile applications shall not exceed 1/8 inch in 12 feet.

2. Tolerances for all other floors shall not exceed 1/4 inch in 12 feet.

3. Finish floors that do not meet specified tolerances shall be leveled to within the specified tolerances using a leveling compound.

B. Troweled Finish: Provide troweled finish for interior concrete finish floors and subfloors for resilient flooring and carpet. Finish surface with impact power floats, as specified above where applicable, then with power trowels, and finally with hand trowels. Perform first troweling after power floating with a power trowel to produce a smooth surface which is relatively free of defects but which may still contain some trowel marks. Perform additional trowelings by hand after surface has hardened sufficiently. Perform final troweling when a ringing sound is produced as trowel is moved over surface. Thoroughly consolidate surface by hand troweling operations. Finished surface shall be free of trowel marks and shall be uniform in texture and appearance. On surfaces intended to support floor covering, remove by grinding, defects of sufficient magnitude to show through floor covering. Particular care shall be taken to finish troweling around the edges of the slabs so finish surface edges shall be at same elevations as the rest of the top surface of the slab.

C. Edge and Joint Finish: Use standard tools to produce rounded edge corners and intermediate line scoring.

D. Concrete Sealer: Provide a coefficient of friction of at least 0.6 per ASTM 1028. All concrete floors not indicated in the schedule to receive other finish shall receive two coats of sealer specified herein. Spray-apply in perpendicular directions. First coat shall be applied as a curing compound. Apply final coat just prior to occupation of buildings. Before applying final coat, remove dirt, dust, oil, grease, asphalt and other foreign matter.

3.07 PROTECTION AND CURING:

A. General: Protect freshly deposited concrete from premature drying and excessively hot or cold temperatures, and maintain without drying at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete.

B. Initial Curing: Initial curing shall immediately follow the finishing operation. Keep concrete continuously moist at least overnight. Use one of the following materials or methods:

1. Continuous sprinkling or fogging.

2. Absorptive mat or fabric kept continuously wet.

3. Sand kept continuously wet.

4. Curing Compounds: Apply compounds in accordance with the recommendations of the manufacturer.

(a) On floors indicated to receive sealer, apply curing sealer.

(b) Where possible, do not use curing compounds on surfaces indicated to receive ceramic tile, bonded terrazzo, cementitious floor toppings, liquid or trowel applied flooring, adhesively applied resilient flooring or carpet, paint, anti-graffiti coatings, or similar products required to be adhered to the concrete surface. Where necessary, apply non-film forming compound, or dissipating resin compound. If dissipating resin type compound is used, concrete surfaces shall be tested to ensure complete dissipation before application of bonded materials. If residual compound is found, the residual compound shall be removed by sandblasting, bead blasting, or chemical scrubbing.

(c) On Surfaces indicated to receive a Class A or B finish, use clear, non-yellowing compound.

(d) On integrally colored concrete and dry shake colored toppings use pigmented curing compound.

(e) On all other concrete surfaces, use dissipating resin compound.

C. Cure surfaces to receive resilient flooring and ceramic tile by covering with waterproof paper coverings.

D. Final Curing: Immediately following the initial curing and before the concrete has dried, accomplish additional curing by one of the following materials or methods:

1. Continuing the method used in initial curing.

2. Waterproof paper covering.

3. Other moisture-retaining coverings as approved.

E. Duration of Curing: Continue the final curing until the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with the concrete is below 50 degrees F has totaled 7 days. If high early strength of concrete has been used, continue the final curing for a total of 3 days. Rapid drying at the end of the curing period shall be prevented.

F. Formed Surfaces: Keep steel forms heated by the sun and all wood forms in contact with the concrete during the final curing period wet. If forms are to be removed during the curing period, immediately employ one of the above curing materials or methods. Continue such curing for the remainder of the curing period.

G. Protection from Mechanical Injury: During the curing period, protect the concrete from damaging mechanical disturbances; particularly load stresses, heavy shock, and excessive vibration. Protect finished concrete surfaces from damage caused by construction equipment, materials, or methods, and by rain or running water. Self-supporting structures shall not be loaded in such a way as to overstress the concrete.

3.08 EXPANSION AND CONSTRUCTION JOINTS:

A. Expansion Joints: Tool adjacent concrete edges to a 1/8 inch radius. After a minimum of 28 days after slabs have been placed and finished, fill tops of expansion joints with backer rod and

sealant Type B as specified in Section 07 9005. Finish sealant to 1/8 inch below surface of slabs. No traffic shall be permitted to travel over sealed joints until sealer is thoroughly dry.

B. Construction Joints: When construction joints are necessary they shall be made and located as indicated.

3.09 DEFECTIVE WORK:

A. Defective concrete work shall be removed and replaced at Contractor's expense.

3.10 FIELD QUALITY CONTROL

A. Level of floors: Continuously monitor concrete placing to maintain level floor by use of an instrument level, transit, or laser.

B. Special inspection: Construction structural concrete exceeding 2,500 psi compressive strength under continuous inspection of special inspector. Obtain inspection and approval of forms and reinforcing as required by the special inspector before placing structural concrete.

C. Testing of Concrete: Conform to CBC 2007, Section 1905A. Testing Laboratory shall perform following tests. Samples for testing shall be obtained in accordance with ASTM C172, and shall be taken from as close to point of placement as possible.

1. Compressive Strength Tests: Cast one set of three or more cylinders from each day's placing and each 50 cubic yards, or fraction thereof, or not less than once for each 2,000 square feet of surface area for slabs and walls, of each strength of structural concrete. Date cylinders, assign record number, and tag showing the location from which sample was taken. Also record slump test result of sample. Do not make more than two series of tests from any one location or batch of concrete.
2. Test Cylinders: Samples will be made in accordance with ASTM C172. Cast cylinders according to ASTM C31; 24 hours later, store cylinders under moist curing condition at about 70 degrees Fahrenheit. Test according to ASTM C39 at 7 and 28 day ages. The remaining cylinder shall be kept in reserve in case tests are unsatisfactory.
3. Control Test Cylinders: Cast a set of two or more cylinders for each day's placing of concrete for slabs supported on shoring. Place test cylinders on slabs represented by cylinders and cure the same as slabs. Test cylinders to determine proper times for removal of shores and reshoring. A strength test shall be the average of the compressive strengths of 2 cylinders made from the same sample of concrete and tested at 28 days.

D. Core Tests: If test show the compressive strength of any concrete falls below the required minimum, additional testing of concrete which unsatisfactory tests represent may be required. Make core tests according to ASTM C42. Fill core holes with drypack concrete of strength required for concrete. Contractor shall bear cost of tests for below-strength concrete even if such tests indicate concrete has attained required minimum compressive strength, and all costs for required corrections.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel and aluminum items.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Placement of metal fabrications in concrete.

B. Section 09 90 00 - Painting and Coating: Paint finish.

1.03 REFERENCE STANDARDS

A. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.

B. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2007.

C. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.

D. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.

E. ASTM A 283/A 283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003 (Reapproved 2007).

F. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength; 2007b.

G. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.

H. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2006 and Errata.

I. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).

J. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

K. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Requirements, for submittal procedures.

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.
   1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

A. Design, fabricate and install metal fabrications in accordance with AISC guidelines.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A 36/A 36M, ASTM A992.

B. Plates: ASTM A 283, ASTM A572.

C. Pipe: ASTM A 500, Grade B, black finish.

D. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

E. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

F. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 MATERIALS - ALUMINUM

A. Extruded Aluminum: ASTM B 221 (ASTM B 221M), 6063 alloy, T6 temper.

B. Sheet Aluminum: ASTM B 209 (ASTM B 209M), 5052 alloy, H32 or H22 temper.

C. Bolts, Nuts, and Washers: Stainless steel.

D. Welding Materials: AWS D1.2/D1.2M; type required for materials being welded.

2.03 FABRICATION

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

B. Fabricate items with joints tightly fitted and secured.

C. 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.

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

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

2.04 FABRICATED ITEMS

A. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.

2.05 FINISHES - STEEL

A. Prime paint all steel items.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

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

D. Prime Painting: One coat.

E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A 123/A 123M requirements.

F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A 123/A 123M requirements.

2.06 FABRICATION TOLERANCES

A. Squareness: 1/8 inch (3 mm) maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch (1.5 mm).

C. Maximum Misalignment of Adjacent Members: 1/16 inch (1.5 mm).

D. Maximum Bow: 1/8 inch (3 mm) in 48 inches (1.2 m).

E. Maximum Deviation From Plane: 1/16 inch (1.5 mm) in 48 inches (1.2 m).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

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

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

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

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

C. Perform field welding in accordance with AWS D1.1/D1.1M.

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

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

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch (6 mm).

C. Maximum Out-of-Position: 1/4 inch (6 mm).

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. This Section includes the following:

1. Wood framing, shims, nailers, and blocking.
2. Plywood equipment backing panels.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section 06 20 00 "Finish Carpentry" for nonstructural carpentry items exposed to view and not specified in another Section.

1.03 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Section 01 33 00.

B. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:

1. Preservative Treatment by Pressure Process: AWPA C2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).
2. Preservatives shall be arsenic- and chromium-free, copper-based wood preservatives, as applicable.
3. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
4. For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.
5. For fire-retardant-treated wood products, include certification by treating plant that treated materials comply with specified standard and other requirements as well as data relative to bending strength, stiffness, and fastener-holding capacities of treated materials.

C. Material test reports from a qualified independent testing agency indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with performance requirements indicated.

D. Warranty of chemical treatment manufacturer for each type of treatment.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces.

PART 2 - PRODUCTS

2.01 LUMBER, GENERAL

A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.

B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:

1. NELMA - Northeastern Lumber Manufacturers Association.
2. NLGA - National Lumber Grades Authority (Canadian).
3. RIS - Redwood Inspection Service.
4. SPIB - Southern Pine Inspection Bureau.
5. WCLIB - West Coast Lumber Inspection Bureau.
6. WWPA - Western Wood Products Association.

C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

2.02 WOOD-PRESERVATIVE-TREATED MATERIALS

A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 (lumber) and AWPA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.

1. Do not use chemicals containing chromium or arsenic.
2. For exposed items indicated to receive stained finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.

B. Pressure treat aboveground items with waterborne preservatives to a minimum retention of 0.25 lb/cu. ft. After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

C. Pressure treat wood members in contact with ground or freshwater with waterborne preservatives to a minimum retention of 0.40 lb/cu. ft.

2.03 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

C. Moisture Content: 19 percent maximum for lumber items that are not specified to receive wood preservative treatment.

D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWPA of any species.

2.04 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture. Equal products from other manufacturers shall be acceptable as outlined in the provisions of Division 01 requirements.

1. Where miscellaneous carpentry is exposed to weather, in ground contact, in area of high relative humidity, and/or especially in coastal zones with high salt air conditions, provide fasteners and other components ofType 304 stainless steel only.

B. Nails, Wire, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: NES-272.

D. Wood Screws: ASME B18.6.1.

E. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated or required, flat washers.

2.05 FIRE-TREATED PLYWOOD BACKING PANELS

A. Comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

C. Fit carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

E. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.

F. Coordinate all installation components integral to roofing systems and exterior sheet metal flashings, including the shop drawings, to provide for a complete and compatible installation for all final assemblies.

3.02 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

A. Install where shown and where required for screeding or attaching other work. Cut and shape to required size. Coordinate locations with other work involved.

B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

3.03 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 06 40 00

WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Specially fabricated cabinet units.

B. Countertops. Refer also to Section 12 36 00 for solid surfacing.

C. Cabinet hardware.

D. Factory finishing.

E. Preparation for installing utilities.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry: Support framing, grounds, and concealed blocking.

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 1999.

B. ANSI A208.2 - American National Standard for Medium Density Fiberboard for Interior Use; 2002.

C. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

D. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2003 (ANSI/BHMA A156.9).

E. NEMA LD 3 - High-Pressure Decorative Laminates; National Electrical Manufacturers Association; 2005.

F. WI (MAN) - Manual of Millwork; Woodwork Institute 11th edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 01 33 00 – Submittal Procedures

B. Shop Drawings: Indicate materials, component profiles and elevations, assembly methods, joint details, fastening methods, accessory listings, hardware location and schedule of finishes.

C. Product Data: Provide data for hardware accessories.

D. Samples: Submit actual samples of architectural cabinet construction, minimum 12 inches square, illustrating proposed cabinet, countertop, and shelf unit substrate and finish.

E. Samples: Submit actual sample items of proposed pulls, hinges, shelf standards, and locksets, demonstrating hardware design, quality, and finish.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Custom quality, unless other quality is indicated for specific items.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of documented experience.

C. Quality Certification: Provide inspection and quality certification of completed custom cabinets in accordance with AWI/AWMAC Quality Certification Program.

1.07 MOCK-UP

A. Provide mock-up of typical base cabinet, wall cabinet, and countertop, including hardware, finishes, and plumbing accessories.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect units from moisture damage.

1.09 FIELD CONDITIONS

A. During and after installation of custom cabinets, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. ISEC, Inc.

B. K&Z Cabinets

C. Stolo Cabinets

D. Substitutions: See Section 01 63 00 - Product Requirements.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

2.03 PANEL MATERIALS

A. Particleboard: ANSI A208.1; medium density industrial type as specified in AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, composed of wood chips bonded with interior grade adhesive under heat and pressure; sanded faces; thickness as shown on the drawings; use for components indicated on drawings.

B. Medium Density Fiberboard (MDF): ANSI A208.2; type as specified in AWI/AWMAC Architectural Woodwork Quality Standards Illustrated; composed of wood fibers pressure bonded with moisture resistant adhesive to suit application; sanded faces; thickness as shown on the drawings.

2.04 LAMINATE MATERIALS

A. Manufacturers:
   1. Formica Corporation; www.formica.com.
   2. Wilsonart International, Inc; www.wilsonart.com.

3. Substitutions: See Section 01 63 00 - Product Requirements.

B. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications.

2.05 COUNTERTOPS

A. Plastic Laminate Countertops: Medium density fiberboard substrate covered with HPDL, conventionally fabricated and self-edge banded.

B. Provide solid surfacing on countertops where indicated on the drawings. See also Sec. 12 36 00.

2.06 ACCESSORIES

A. Adhesive: Type recommended by fabricator to suit application.

B. Plastic Edge Banding: Extruded PVC, convex shaped; smooth finish; self locking serrated tongue; of width to match component thickness, color as selected from manufacturer's standards.
   1. Use at all exposed plywood edges.
   2. Use at all exposed shelf edges.

C. Fasteners: Size and type to suit application.

D. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized or chrome-plated finish in concealed locations and stainless steel, or chrome-plated finish in exposed locations.

E. Concealed Joint Fasteners: Threaded steel.

F. Grommets: Standard plastic, painted metal, or rubber grommets for cut-outs, in color to match adjacent surface.

2.07 HARDWARE

A. Hardware: BHMA A156.9, types as recommended by fabricator for quality grade specified.

B. Adjustable Shelf Supports: Standard side-mounted system using recessed metal shelf standards or multiple holes for pin supports and coordinated self rests, polished chrome finish, for nominal 1 inch spacing adjustments.

C. Drawer and Door Pulls: "U" shaped wire pull, steel with chrome finish, 4 inch centers.

D. Cabinet Locks: Keyed cylinder, two keys per lock, master keyed, steel with chrome finish.

E. Catches: Magnetic.

F. Drawer Slides:
   1. Type: Standard extension.
   2. Static Load Capacity: Commercial grade.
   3. Mounting: Side mounted.
   4. Stops: Integral type.
   5. Manufacturers:
      a. Accuride International, Inc; www.accuride.com.
      b. Knape & Vogt Manufacturing Company; www.knapeandvogt.com.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

G. Hinges: European style concealed self-closing type, steel with polished finish.
   1. Manufacturers:
      a. Grass America Inc; www.grassusa.com.

b. Hardware Resources; www.hardwareresources.com.
c. Julius Blum, Inc; www.blum.com.
d. Substitutions: See Section 01 63 00 - Substitution Requirements.

2.08 FABRICATION

A. Cabinet Style: Flush overlay.

B. Cabinet Doors and Drawer Fronts: Flush style.

C. Drawer Construction Technique: Dovetail joints.

D. Assembly: Shop assemble cabinets for delivery to site in units easily handled and to permit passage through building openings.

E. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

F. Fitting: When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide matching trim for scribing and site cutting.

G. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline; secure with concealed fasteners. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
1. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.

H. Mechanically fasten back splash to countertops with steel brackets at 16 inches on center.

I. Provide cutouts for plumbing fixtures. Verify locations of cutouts from on-site dimensions. Seal cut edges.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

B. Verify location and sizes of utility rough-in associated with work of this section.

3.02 INSTALLATION

A. Set and secure custom cabinets in place, assuring that they are rigid, plumb, and level.

B. Carefully scribe casework abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim for this purpose.

C. Secure cabinets to floor using appropriate angles and anchorages. Refer to details.

3.03 ADJUSTING

A. Adjust installed work.

B. Adjust moving or operating parts to function smoothly and correctly.

3.04 CLEANING

A. Clean casework, counters, shelves, hardware, fittings, and fixtures.

END OF SECTION

SECTION 07 21 00

BUILDING INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Batt insulation in wall and ceiling construction.

1.02 RELATED REQUIREMENTS

A. Section 05 40 00 - Cold-Formed Metal Framing: Supporting construction for batt insulation.

B. Section 07 90 05 – Joint Sealant.

C. Section 09 21 16 - Gypsum Board Assemblies

1.03 REFERENCE STANDARDS

A. ASTM C 665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2006.

B. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.

C. ASTM E 136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace At 750 Degrees C; 2004.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.05 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Insulation:
   1. Manville Corp.
   2. Certain Teed Corp.
   3. Substitutions: See Section 01 63 00 - Product Requirements.

2.02 APPLICATIONS

A. Insulation in Metal Framed Walls: Batt insulation with integral vapor retarder.

2.03 BATT INSULATION MATERIALS

A. Batt Insulation: ASTM C 665; preformed batt; friction fit, conforming to the following:
   1. Material: Glass or mineral fiber.
   2. Flame Spread Index: 25 or less, when tested in accordance with ASTM E 84.
   3. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E 84.
   4. Combustibility: Non-combustible, when tested in accordance with ASTM E 136, except for facing, if any.
   5. Formaldehyde Content: Zero.
   6. Thermal Resistance: R of 19 (61/4"). Exterior walls and ceilings where shown.
   7. R-11 (3 1/2") at acoustical walls
   8. Facing: Kraft facing.

2.04 ACCESSORIES

A. Tape: Bright aluminum self-adhering type, mesh reinforced, 2 inch (50 mm) wide.

B. Nails or Staples: Steel wire; electroplated, or galvanized; type and size to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BATT INSTALLATION

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

B. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Staple or nail facing flanges in place at maximum 6 inches (150 mm) on center.

F. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

G. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over member face.

H. Tape seal tears or cuts in vapor retarder.

3.03 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 07 81 00

APPLIED FIREPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fireproofing of interior structural steel.

1.02 RELATED REQUIREMENTS

A. Section 01 70 00 – Project Closeout.

B. Section 07 84 00 - Firestopping.

1.03 REFERENCE STANDARDS

A. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2008.

B. ASTM E 605 - Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members; 1993 (Reapproved 2006).

C. ASTM E 736 - Standard Test Method For Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members; 2000 (Reapproved 2006).

D. ASTM E 760 - Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members; 1992 (Reapproved 2005).

E. ASTM E 761 - Standard Test Method for Compressive Strength of Sprayed Fire-Resistive Material Applied to Structural Members; 1992 (Reapproved 2005).

F. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittals Procedures.

B. Product Data: Provide data indicating product characteristics.

C. Test Reports: Reports from reputable independent testing agencies for proposed products, indicating compliance with specified criteria, conducted under conditions similar to those on project, for:
   1. Bond Strength.
   2. Bond Impact.
   3. Compressive Strength.
   4. Fire tests using substrate materials similar those on project.

D. Manufacturer's Installation Instructions: Indicate special procedures.

E. Manufacturer's Certificate: Certify that sprayed-on fireproofing products meet or exceed requirements of contract documents.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section, with minimum 5 years of experience.

1.07 (Not Used)

1.08 FIELD CONDITIONS

A. Do not apply spray fireproofing when temperature of substrate material and surrounding air is below 40 degrees F (4 degrees C).

B. Provide ventilation in areas to receive fireproofing during application and 24 hours afterward, to dry applied material.

C. Provide temporary enclosure to prevent spray from contaminating air.

1.09 WARRANTY

A. See Section 01 78 13 – Warranties and Guarantees for additional requirements

B. Correct defective Work within a five year period after Date of Substantial Completion.
   1. Include coverage for fireproofing to remain free from cracking, checking, dusting, flaking, spalling, separation, and blistering.
   2. Reinstall or repair failures that occur within warranty period.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Sprayed-On Fireproofing:
   1. Carboline Company; www.carboline.com.
   2. Grace Construction www.na.graceconstruction.com.
   3. Isolatek International Inc; www.isolatek.com.
   4. Substitutions: See Section 01 63 00 - Product Requirements.

2.02 MATERIALS

A. Low Density Sprayed Fire-Resistive Material: Factory mixed, cementitious material blended for uniform texture with vermiculite or lightweight synthetic aggregate, and conforming to the following requirements:
   1. Bond Strength: ASTM E 736, 200 psf (9.6 kPa) when set and dry.
   2. Bond Impact: ASTM E 760, no cracking, flaking or delamination.
   3. Dry Density: ASTM E 605, minimum average density of 14 lb/cu ft (225 kg/cu m), with minimum individual density of any test sample of 13 lb/cu ft (210 kg/cu m).
   4. Compressive Strength: ASTM E 761, minimum 7.0 psi (50 kPa).
   5. Surface Burning Characteristics: Maximum flame spread of 0 and maximum smoke developed of 0, when tested in accordance with ASTM E 84.

2.03 ACCESSORIES

A. Primer Adhesive: Of type recommended by fireproofing manufacturer.

B. Water: Clean, potable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive fireproofing.

B. Verify that clips, hangers, supports, sleeves, and other items required to penetrate fireproofing

are in place.

C. Verify that ducts, piping, equipment, or other items that would interfere with application of fireproofing have not been installed.

D. Verify that voids and cracks in substrate have been filled. Verify that projections have been removed where fireproofing will be exposed to view as a finish material.

3.02 PREPARATION

A. Perform tests as recommended by fireproofing manufacturer in situations where adhesion of fireproofing to substrate is in question.

B. Remove incompatible materials that could affect bond by scraping, brushing, scrubbing, or sandblasting.

C. Prepare substrates to receive fireproofing in strict accordance with instructions of fireproofing manufacturer.

D. Apply fireproofing manufacturer's recommended bonding agent on primed steel.

E. Protect surfaces not scheduled for fireproofing and equipment from damage by overspray, fall-out, and dusting.

F. Close off and seal duct work in areas where fireproofing is being applied.

3.03 APPLICATION

A. Apply primer adhesive in accordance with manufacturer's instructions.

B. Apply fireproofing in sufficient thickness to achieve required ratings, with as many passes as necessary to cover with monolithic blanket of uniform density and texture.

3.04 FIELD QUALITY CONTROL

A. Inspect the installed fireproofing after application and curing for integrity, prior to its concealment. Ensure that actual thicknesses, densities, and bond strengths meet requirements for specified ratings.

B. Re-inspect the installed fireproofing for integrity of fire protection, after installation of subsequent Work.

3.05 CLEANING

A. Remove excess material, overspray, droppings, and debris.

B. Remove fireproofing from materials and surfaces not required to be fireproofed.

END OF SECTION

SECTION 07 84 00

FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping systems.

B. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

A. Section 01 70 00 - Project Closeout Requirements: Cutting and patching.

B. Section 07 81 00 - Applied Fireproofing.

C. Section 09 21 16 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

1.03 REFERENCE STANDARDS

A. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2008a.

B. ASTM E 814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2006.

C. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.

D. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.

E. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

F. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.

C. Product Data: Provide data on product characteristics, performance ratings, and limitations.

1.05 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
   1. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section and:
   1. Licensed by authority having jurisdiction.

1.06 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 FIRESTOPPING SYSTEMS

A. Firestopping: Any material meeting requirements.
   1. Fire Ratings: Use any system listed by UL and tested in accordance with ASTM E 814 that has F Rating equal to fire rating of penetrated assembly and T Rating Equal to F Rating and that meets all other specified requirements.

2.02 MATERIALS

A. Firestopping Sealants: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.

B. Foam Firestoppping: Single component silicone foam compound; conforming to the following:
   1. Manufacturers:
      a. 3M Fire Protection Products; www.3m.com/firestop.
      b. Hilti, Inc; www.us.hilti.com.
      c. Substitutions: See Section 01 63 00 - Product Requirements.

C. Fibered Compound Firestopping: Formulated compound mixed with incombustible non-asbestos fibers; conforming to the following:
   1. Manufacturers:
      a. USG; www.usg.com.
      b. Thermafiber; www.thermafiber.com
      c. Substitutions: See Section 01 63 00 - Product Requirements.

D. Fiber Firestopping: Mineral fiber insulation used in conjunction with elastomeric surface sealer forming airtight bond to opening; conforming to the following:
   1. Manufacturers:
      a. USG; www.usg.com
      b. Thermafiber; www.thermafiber.com
      a. Substitutions: See Section 01 63 00 - Product Requirements.

E. Firestop Devices - Wrap Type: Mechanical device with incombustible filler and sheet stainless steel jacket, intended to be installed after penetrating item has been installed; conforming to the following:

F. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

3.03 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authority having jurisdiction.

END OF SECTION

SECTION 07 90 05

JOINT SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sealants and joint backing.

1.02 RELATED REQUIREMENTS

A. Section 08 12 17 -- Prefinished Steel Door Frames

B. Section 08 43 13 – Aluminum Framed Storefront

C. Section 08 81 00 -- Glazing: Glazing sealants and accessories.

D. Section 09 21 16 -- Gypsum Board Assemblies: Acoustic sealant.

1.03 REFERENCE STANDARDS

A. ASTM C 834 - Standard Specification for Latex Sealants; 2005.

B. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications; 2002.

C. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants; 2005.

D. ASTM C 1193 - Standard Guide for Use of Joint Sealants; 2005a.

E. ASTM D 1056 - Standard Specification for Flexible Cellular Materials--Sponge or Expanded Rubber; 2007.

F. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with other sections referencing this section.

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Product Data: Provide data indicating sealant chemical characteristics.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the work of this section with minimum five years experience.

1.07 FIELD CONDITIONS

A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.08 WARRANTY

A. See Section 01 78 13 – Warranties, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories which fail to achieve airtight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Silicone Sealants:
   1. Bostik Inc; www.bostik-us.com.
   2. Pecora Corporation; www.pecora.com.
   3. Tremco;
   4. Substitutions: See Section 01 63 00 - Product Requirements.

B. Polyurethane Sealants:
   1. Bostik Inc; www.bostik-us.com.
   2. Pecora Corporation; www.pecora.com.
   3. Tremco;
   4. Substitutions: See Section 01 63 00 - Product Requirements.

C. Acrylic Sealants:
   1. Tremco Global Sealants; www.tremcosealants.com.
   2. Pecora Corp.
   3. Substitutions: See Section 01 63 00 - Product Requirements.

D. Butyl Sealants:
   1. Bostik Inc; www.bostik-us.com.
   2. Pecora Corporation; www.pecora.com.
   3. Tremco;
   4. Substitutions: See Section 01 63 00 - Product Requirements.

E. Acrylic Emulsion Latex Sealants:
   1. Bostik Inc; www.bostik-us.com.
   2. Pecora Corporation; www.pecora.com.
   3. Tremco;
   4. Substitutions: See Section 01 63 00 - Product Requirements.

F. Preformed Compressible Foam Sealers:
   1. Substitutions: See Section 01 63 00 - Product Requirements.

2.02 SEALANTS

A. Sealants and Primers - General: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No.1168.

B. Type B - General Purpose Exterior Sealant: Polyurethane; ASTM C 920, Grade NS, Class 25, Uses M, G, and A; multi- component.
   1. Color: Standard colors matching finished surfaces.
   2. Applications: Use for:
      a. Control, expansion, and soft joints in masonry.
      b. Joints between concrete and other materials.
      c. Joints between metal frames and other materials.
      d. Other exterior joints for which no other sealant is indicated.

C. Type E - General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C 834, Type OP,

Grade NS single component, paintable.
1. Color: Standard colors matching finished surfaces.
2. Applications: Use for:
   a. Interior wall and ceiling control joints.
   b. Joints between door and window frames and wall surfaces.
   c. Other interior joints for which no other type of sealant is indicated.

D. Type C - Plumbing Fixture/Tile Sealant: White silicone; ASTM C 920, Uses I, M and A; single component, mildew resistant.
1. Applications: Use for:
   a. Joints between plumbing fixtures and floor and wall surfaces.
   b. Joints between toiletroom countertops and wall surfaces.

E. Type D - Acoustical Sealant: Butyl or acrylic sealant; ASTM C 920, Grade NS, Class 12-1/2, Uses M and A; single component, solvent release curing, non-skinning.
1. Applications: Use for concealed locations only:
   a. Sealant bead between top stud runner and structure and between bottom stud track and floor.
   b. Junction boxes and gypsum board.
   c. Under thresholds

F. Type A - Silicone Sealant: ASTM C 920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, non-acid curing, non-sagging, non-staining, fungus resistant, non-bleeding.
1. Color: Standard colors matching finished surfaces.
2. Applications: Use for:
   a. Exterior door, entrance and window frames.
   b. Vertical joints in concrete and masonry flashing.

2.03 ACCESSORIES

A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width;

D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

B. Verify that joint backing and release tapes are compatible with sealant.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean and prime joints in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C 1193.

D. Protect elements surrounding the work of this section from damage or disfigurement.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of

surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C 1193.

C. Perform acoustical sealant application work in accordance with ASTM C 919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Install bond breaker where joint backing is not used.

F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.

G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.

H. Tool joints concave.

3.04 PROTECTION

A. Protect sealants until cured.

END OF SECTION

SECTION 08 12 17

PREFINISHED STEEL DOOR AND WINDOW FRAMES

Part 1 - GENERAL

1.01 Work Included

A. The work under this section shall include the furnishing of all items shown on the drawings and as specified, including but not limited to, the following:

1. Knocked down, site assembled pre-finished steel door frames.

2. Knocked down, site assembled sidelight, borrowed light, transom, and fullbound access door frames.

3. Pocket trim jambs and casings.

1.02 Related Sections

A. Section 01 31 00 – Project Coordination

B. Section 01 63 00 – Product Substitution Procedures

C. Section 01 33 00 – Submittal Procedures

D. Section 08 14 16 – Flush Wood Doors

E. Section 08 71 00 – Door Hardware

F. Section 08 80 00 - Glazing

1.03 References

A. ASTM A1008M – Standard for cold rolled steel material

B. CBC 7-2-97, CBC 7-4-97 Positive Pressure Fire Test Certification.

C. UL 10B Fire test of Door Assemblies and UL10C Standard for Positive Pressure Fire Tests of Door Assemblies

D. NFPA 80 - Fire Doors and Windows (Latest Edition)

E. NFPA-101 - Life Safety Codes (Latest Edition)

F. ASTM D2197 - Standard Test Method for Adhesion of Organic Coatings by Scrape Adhesion.

G. ASTM D2247 - Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.

H. ASTM D2794 - Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).

I. ASTM D3361 - Standard Practice for Unfiltered Open-Flame Carbon-Arc exposures of Paint and Related Coatings.

J. ASTM B117 – Standard test for salt spray testing

1.04 Submittals

A. Section 01 33 00: Submittal procedures.

B. Product Data: Indicate frame material, gage, configuration and finishes.

C. Shop Drawings: See section 08 06 00. Indicate frame elevations, details of frame anchorage, reinforcements required, rough opening requirements, location of hardware embosses, and finishes. Detail each floor of the building separately.

D. Samples: Submit two standard frame samples, illustrating factory finished frame colors.

E. Manufacturer's Installation Instructions: Provide installation instructions for all products under this section.

F. Manufacturer's Certificate of Warranty: (See Section 01 78 13) Provide manufacturer's standard warranty certificate stating material is warranted for a period of one year from date of building occupancy

1.05 Quality Assurance

A. Quality Standards

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

B. Fire Rated Frame Construction

1. Conform to ASTM E152, NFPA 252, UL 10B and 10C.

C. Installed Frame Assembly: Conform to NFPA 80

1. Use only installers familiar with installation of pre-finished opening systems and applied casing frame installation

1.06 Delivery, Storage and Handling

A. Section 01 60 00: Transport, handle, store, and protect products in a dry area off the ground.

B. Accept frames on site in manufacturer's box packaging with identification labels intact. Inspect for damage.

C. Do not open individual boxes until installation is to begin.

Part 2 - PRODUCTS

2.01 Acceptable Manufacturers

A. Timely Industries, A Division of SDS Industries, Inc., 10241 Norris Avenue, Pacoima, CA, 91331-2292; Phone toll free: 800-247-6242; Fax: 818-492-3530. Web site: www.timelyframes.com.

B. Frames: Provide all interior frames for project from same manufacturer. Provide exterior frames as shown on plans.

C. Substitutions: Refer to Section 01 63 00 – Product Requirements.

2.02 Frames

A. Frame Material: Cold rolled steel, for interior frames in normal atmospheric exposures.

B. Frame Material: Electro galvanized steel for all frames used in the following locations:

1. Exterior Locations

2. Public and Private Restrooms

3. Coastal locations for both interior and exterior applications exposed to salt air or salt spray within 10 miles of any ocean or salt water lake

C. Frame Throat Opening: As shown on plan details to suit finished wall thickness.

D. Fire rated frames and Office Entry frames to be CK series with kerf formed into frame profile with factory installed, pre-mitered smoke/sound control gasket

E. Frame Profile - Unequal Rabbet profile, standard with manufacturer

1. "S" Series, 0.9 mm (20 gage) thick, interior office spaces
2. "C" Series, 1.2 mm (18 gage) thick, other areas, non standard jamb depths
3. "CK" Series, 1.2 mm (18 gage) thick, with kerf for door seal/gasket

F. Side Light Frames: 1.2 mm (18 gage) Verify glass dimensions for fire rated sidelights and borrowed lights

G. Casings

1. Provide steel or aluminum casings formed to be applied to heat treated clips on frame face after frame is anchored to wall

2. Standard Steel - TA-8 with 6 mm (1/4 inch) reveal, on steel, stainless steel, and/or brass frames. Fit factory assembled units with MiterGard corner alignment clips.

3. Aluminum with reveal - TA-23 with a 6 mm (1/4 inch) reveal with manufacturer's standard TA-24 corner alignment clips

2.03 Frame Reinforcement and Accessories

A. Provide reinforcements shipped loose to project site for hardware application

1. TA-10 - Regular arm closers, casing mounted coordinators

2. TA-12 - Parallel arm closers, Rim Exit device strikes, other stop mounted surface hardware

3. TA-47 – For CK frame, Parallel arm closers, Rim Exit device strikes, other stop mounted surface hardware

4. TA-25 - Double acting spring hinges, continuous hinges, other surface mounted hardware on door rabbet or cased opening frame

5. Provide hinge reinforcement (TA-11) of 14 gage steel pierced to create depth of thread for hinge screws equal to or exceeding 7 gage steel.

B. Weatherstrip/Smoke Gasket: TA-46 (QDS500) 90 minute rated gasket for kerfed frames. All pieces factory mitered to assure perfect corner alignment. Color as selected from standard colors.

C. Silencers: TA-5 vinyl, 2 per frame, clear stick-on type. Silencers not required on Kerfed frames or frames scheduled to receive stop mounted gasket or weatherstrip.

D. Glass Stops: TA-14 removable rolled steel, shape, butted ends. Pre-punch and countersink for flat head tek screws.

E. Adjustable strikes: Emboss frames for TA-1 strike for cylindrical lock. Provide TA-1 strike in finish compatible with hardware finish. (ANSI 2 ¾" T strike supplied with cylindrical lock cannot be used with standard frame because of unique strike location and screw piercing method).

F. Prepare frames for ASA 4-7/8" strikes where required. Provide minimum ¼" depth of threads in factory tapped screw holes.

G. Installation fasteners

1. Interior Frames: #6 Drywall type length sufficient to penetrate studs or structure at least ½".

2. Exterior Frames: Drywall type, corrosion resistant coating, same as G.1 above.

2.04 Fabrication

A. Openings for single swing, pair, borrowed light and sidelight frames to be pre-cut, notched and fabricated at the manufacturer's facility. For fire rated and exterior openings, provide kerf at stop for installation of smoke gasket or weatherstrip.

B. Provide minimum 14 gage hinge reinforcement plate tapped for machine screws supplied with hinges. Hinge plate to be mechanically attached to hinge emboss on frame.

C. Casing Clips: Fabricate frames with factory applied, heat treated clips to ensure no deflection in the clip upon application or removal of casing. Attachment clips may not be of same material as frame.

D. Provide notches, tabs and/or stops for positive alignment of frame parts at all corners.

E. Mullions to be notched as required to provide tight joints.

F. Provide manufacturer's standard mullion brackets for positive connection of frame and mullion parts.

G. Provide manufacturer's standard steel glass stop pre-cut to exact length. Fire rated glazed openings to have hole for installation screw within 2" of each end of stop piece.

H. Provide insert channel full width of borrowed lights installed on finish floor. Provide full width head channel for ceiling height units.

I. Provide adequate structural support (by others) for ceiling insert channel for ceiling height frames.

J. Transom bars to be fixed type with compatible profiles to jamb and head.

K. Attach approved mylar label to each fire-rated frame indicating fire rating details.

L. Factory install TA-46 smoke gasket on all pre-finished, CK series frames. Install with factory mitered corners to ensure adequate seal and pleasing appearance.

2.05 Finishing

A. Frame Units: Pre-finished with factory applied impact resistant, polyester baked enamel finish or optional electrostatic applied water based paint system.

B. Frames for high humidity areas to be electro galvanized prior to pre-finishing. See 2.02.B for specific locations.

C. Casing Finishes

1. Steel: Prefinished with factory applied impact resistant, polyester baked enamel finish.

2. Aluminum: Prefinished with factory applied impact resistant, polyester baked enamel finish or Clear anodized for Alumatone (SC108) paint finished frames.

D. Colors: As selected from standard colors.

Part 3 – EXECUTION

3.01 Examination

A. Verify acceptability of existing conditions before starting work.

B. Verify that opening sizes and wall thicknesses are within specified tolerances. Verify that all finished walls are in plane to ensure proper door alignment.

3.02 Installation

A. Install frames in accordance with manufacturer's requirements.

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

C. Install Pre-finished frames near end of the project after wall painting and wall coverings are applied.

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

E. Coordinate installation of glass and glazing in glazed units.

F. Coordinate installation of frames with installation of hardware specified in Section 08 71 00 and doors in Section 08 14 16.

G. Touch-up blemishes on finished frames with factory prepared touch up paint.

END OF SECTION

SECTION 08 14 16

FLUSH WOOD DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Flush wood doors; flush configuration; fire rated, non-rated, and acoustical.

1.02 RELATED REQUIREMENTS

A. Section 06 20 00 - Finish Carpentry.

B. Section 08 12 17 - Prefinished Steel Door Frames.

C. Section 08 71 00 - Door Hardware.

D. Section 08 80 00 - Glazing.

E. Section 09 90 00 - Painting and Coating: Site finishing of doors.

1.03 REFERENCE STANDARDS

A. AWI/AWMAC (QSI) - Architectural Woodwork Quality Standards Illustrated; Architectural Woodwork Institute and Architectural Woodwork Manufacturers Association of Canada; 2005, 8th Ed., Version 2.0.

B. ICC (IBC) - International Building Code; 2006.

C. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.

D. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association; 2007.

E. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

F. WDMA I.S.1-A - Architectural Wood Flush Doors; Window and Door Manufacturers Association; 2004.

1.04 SUBMITTALS

A. See Section 01 33 00 -Submittal Procedures.

B. Product Data: Indicate door core materials and construction; veneer species, type and characteristics.

C. Specimen warranty.

D. Shop Drawings: Illustrate door opening criteria, elevations, sizes, types, swings, undercuts required, special beveling, special blocking for hardware, factory machining criteria, factory finishing criteria, identify cutouts for glazing.

E. Samples: Submit two samples of door veneer, 4 x 4 inch in size illustrating wood grain, stain color, and sheen.

F. Warranty, executed in Riverside Community College District's name.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of documented experience.

B. Installed Fire Rated Door Assembly: Conform to NFPA 80 for fire rated class as indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package, deliver and store doors in accordance with specified quality standard.

B. Accept doors on site in manufacturer's packaging. Inspect for damage.

C. Protect doors with resilient packaging sealed with heat shrunk plastic. Do not store in damp or wet areas; or in areas where sunlight might bleach veneer. Seal top and bottom edges with tinted sealer if stored more than one week. Break seal on site to permit ventilation.

1.07 WARRANTY

A. See Section 01 78 13 for additional warranty requirements.

B. Interior Doors: Provide manufacturer's warranty for the life of the installation.

C. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. High Pressure Decorative Laminate Faced Doors:
1. Ampco Products, Inc; www.ampco.com.
2. Poncraft Door Co; www.poncraft.com.
3. VT Industries, Inc; www.vtindustries.com.
4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 DOORS AND PANELS

A. All Doors: See drawings for locations and additional requirements.
1. Quality Level: Premium Grade, in accordance with AWI/AWMAC Architectural Woodwork Quality Standards Illustrated, Section 1300.
2. Laminate Faced Doors: High-pressure decorative laminates complying with NEMA LD 3; 5-ply. Faces are bonded to core using a hot press.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; flush construction.
1. Provide solid core doors at all locations.
2. Fire Rated Doors: Tested to ratings indicated on drawings in accordance with International Building Code ("positive pressure"); UL or WH (ITS) labeled without any visible seals when door is open.
3. Laminate Faced Doors: As selected by Architect from laminate manufacturer's full range of products.

2.03 DOOR AND PANEL CORES

A. Non-Rated Solid Core and 20 Minute Rated Doors: Type particleboard core (PC), plies and faces as indicated above.

B. Fire Rated Doors: Mineral core, Type FD, plies and faces as indicated above; with core blocking as required to provide adequate anchorage of hardware without through-bolting.

C. Sound Retardant Doors: Equivalent to Type PC construction with core as required to achieve rating specified; plies and faces as indicated above.

2.04 DOOR FACINGS

A. Wood Veneer Facing for Transparent Finish: Species as specified above, veneer grade as specified by quality standard, plain sliced, book veneer match, running assembly match; unless otherwise indicated.
   1. Vertical Edges: Same species as face veneer.
   2. Pairs: Pair match each pair; set match pairs within 10 feet of each other when doors are closed.

B. Facing Adhesive: Type I - waterproof.

2.05 ACCESSORIES

A. Metal Louvers: Specified in Section 08 9100.

B. Glazing Stops: Wood, of same species as door facing, butted corners; prepared for countersink style tamper proof screws.

C. Astragals for Fire Rated Double Doors: Steel, T shaped, overlapping and recessed at face edge, specifically for double doors.

2.06 DOOR CONSTRUCTION

A. Fabricate doors in accordance with door quality standard specified.

B. Cores Constructed with Stiles and Rails:
   1. Provide solid blocks at lock edge for hardware reinforcement.

C. Factory machine doors for hardware other than surface-mounted hardware, in accordance with hardware requirements and dimensions.

D. Factory fit doors for frame opening dimensions identified on shop drawings, with edge clearances in accordance with specified quality standard.
   1. Exception: Doors to be field finished.

E. Provide edge clearances in accordance with AWI Quality Standards Illustrated Section 1700.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Do not install doors in frame openings that are not plumb or are out-of-tolerance for size or alignment.

3.02 INSTALLATION

A. Install doors in accordance with manufacturer's instructions and specified quality standard.
   1. Install fire-rated doors in accordance with NFPA 80 requirements.

B. Factory-Finished Doors: Do not field cut or trim; if fit or clearance is not correct, replace door.

C. Use machine tools to cut or drill for hardware.

D. Coordinate installation of doors with installation of frames and hardware.

E. Coordinate installation of glazing.

3.03 TOLERANCES

A. Conform to specified quality standard for fit and clearance tolerances.

B. Conform to specified quality standard for maximum diagonal distortion.

3.04 ADJUSTING

A. Adjust doors for smooth and balanced door movement.

B. Adjust closers for full closure.

3.05 SCHEDULE - See Drawings

END OF SECTION

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Door Hardware, including electric hardware.
2. Storefront and entrance door hardware.
3. Power supplies for electric hardware.
4. Wiring diagrams for electric hardware.

B. Related Sections:

1. Section 06 20 00 - Finish Carpentry: Finish Hardware Installation
2. Section 07 90 05 - Joint Sealers – exterior thresholds
3. Section 08 12 17 - Prefinished Steel Door Frames
4. Section 08 14 16 - Wood Doors

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Card Access control system.
2. Windows.
3. Cabinets, including open wall shelving and locks.
4. Signs, except where scheduled.
5. Toilet accessories, including grab bars.
6. Installation.
7. Rough hardware.
8. Conduit, junction boxes & wiring.
9. Folding partitions, except cylinders where detailed.
10. Sliding aluminum doors, except cylinders where detailed.
11. Access doors and panels, except cylinders where detailed.
12. Corner Guards.

1.2 REFERENCES:

Use date of standard in effect as of Bid date.

A. American National Standards Institute – ANSI 156.18 – Materials and Finishes.

B. BHMA – Builders Hardware Manufacturers Association

C. DHI – Door and Hardware Institute

D. NFPA – National Fire Protection Association

1. NFPA 80 – Fire Doors and Windows
2. NFPA 105 – Smoke and Draft Control Door Assemblies
3. NFPA 252 – Fire Tests of Door Assemblies

E. UL – Underwriters Laboratories

1. UL10C – Positive Pressure Fire Tests of Door Assemblies.
2. UL 305 – Panic Hardware

F. WHI – Warnock Hersey Incorporated

G. 2010 State of California Building Code

H. Local applicable codes

I. SDI – Steel Door Institute

J. WI – Woodwork Institute

K. AWI – Architectural Woodwork Institute

L. NAAMM – National Association of Architectural Metal Manufacturers

1.3 SUBMITTALS & SUBSTITUTIONS

A. SUBMITTALS: Submit six copies of schedule per Section 01330. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:

1. Type, style, function, size, quantity and finish of hardware items.
2. Use BHMA Finish codes per ANSI A156.18.
3. Name, part number and manufacturer of each item.
4. Fastenings and other pertinent information.
5. Description of door location using space names and numbers as published in the drawings.
6. Explanation of abbreviations, symbols, and codes contained in schedule.
7. Mounting locations for hardware.

8. Door and frame sizes, handing, materials, fire-rating and degrees of swing.
9. List of manufacturers used and their nearest representative with address and phone number.
10. Catalog cuts.
11. Wiring Diagrams.
12. Manufacturer's technical data and installation instructions for electronic hardware.
13. Date of jobsite visit.

B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.

C. Deviations: Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.

D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.

E. Substitutions per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.

F. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE:

A. Qualifications:

1. Hardware supplier: direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.
    a) Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.

B. Hardware: Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Fire-Rated Openings: NFPA 80 compliant. Hardware UL10C / California State Fire Marshal Standard 12-7-4 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.

1. Note: scheduled resilient seals may exceed selected door manufacturer's requirements.

2. See 2.6.E for added information regarding resilient and intumescent seals.

E. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.

F. Pre-Installation Meetings: Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation. Include manufacturers' representatives of locks, panic hardware and door closers in the meetings. Convene prior to commencement of related work.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Delivery: coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores: secured delivery direct to Owner's representative.

B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

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

1.6 PROJECT CONDITIONS AND COORDINATION:

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.

B. Coordination: Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information:

1. Location of embedded and attached items to concrete.

2. Location of wall-mounted hardware, including wall stops.

3. Location of finish floor materials and floor-mounted hardware.
4. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
5. Manufacturer templates to door and frame fabricators.

C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation. Do not order hardware until the submittal has been reviewed by the frame and door suppliers for compatibility with their products.

D. Prior to submittal, carefully inspect existing conditions at each opening to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, and sill condition material. If conflict or incompatibility between the specified/scheduled hardware and existing conditions, submit request for direction from Architect. Include date of jobsite visit in the submittal.

1. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

1.7 WARRANTY:

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' written warranties:

1.	Locksets:	Three years
2.	Extra Heavy Duty Cylindrical Lock:	Seven Years
3.	Exit Devices:	Three years mechanical One year electrical
4.	Closers:	Ten years mechanical Two years electrical
5.	Hinges:	One year
6.	Other Hardware	Two years

1.8 COMMISSIONING:

A. Conduct these tests prior to request for certificate of substantial completion:

1. With installer present, test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
2. With installer, access control contractor and electrical contractor present, test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.

3. With installer and electrical contractor present, test hardware interfaced with fire/life-safety system for proper operation and release.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. Listed acceptable alternate manufacturers: submit for review products with equivalent function and features of scheduled products.

ITEM:	MANUFACTURER:	ACCEPTABLE SUB:
Hinges	(IVE) Ives	Bommer
Continuous Hinges	(IVE) Ives	Zero
Key System	(SCH) Schlage	District Standard
Locks	(SCH) Schlage	District Standard
Exit Devices	(VON) Von Duprin	District Standard
Closers	(LCN) LCN	District Standard
Auto Flush Bolts	(IVE) Ives	DCI
Coordinators	(IVE) Ives	DCI
Silencers	(IVE) Ives	Hiawatha
Push & Pull Plates	(IVE) Ives	Hiawatha
Kickplates	(IVE) Ives	Hiawatha
Stops & Holders	(IVE) Ives	Hiawatha
Overhead Stops	(GLY) Glynn-Johnson	None available
Thresholds	(NGP) NGP	Zero
Seals & Bottoms	(NGP) NGP	Zero

2.2 HINGING METHODS:

A. Drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.

B. Conform to manufacturer's published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.

C. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.

1. Outswinging exterior doors: non-ferrous with non-removable (NRP) pins and security studs.

2. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.

2.3 LOCKSETS, LATCHSETS, DEADBOLTS:

A. Mortise Locksets and Latch sets: as scheduled.

1. Chassis: cold-rolled steel, handing field-changeable without disassembly.

2. Latch bolts: 3/4 inch throw stainless steel anti-friction type.

3. Lever Trim: through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.

a) Spindles: security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.

4. Furnish solid cylinder collars with wave springs. Wall of collar to cover rim of mortise cylinder.

5. Thumb turns: accessible design not requiring pinching or twisting motions to operate.

6. Deadbolts: stainless steel 1-inch throw.

7. Electric operation: Manufacturer-installed continuous duty solenoid.

8. Strikes: 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.

9. Scheduled Lock Series and Design: Schlage L series, 17A design. Verify existing design at site and provide the matching lever design.

10. Certifications:

a) ANSI A156.13, 1994, Grade 1 Operational, Grade 1 Security.

b) ANSI/ASTM F476-84 Grade 31 UL Listed.

2.4 EXIT DEVICES / PANIC HARDWARE

A. General features:

1. Independent lab-tested 1,000,000 cycles.
2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
3. 0.75-inch throw deadlocking latchbolts.
4. End caps: impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.
5. No exposed screws to show through glass doors.
6. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
7. Releasable in normal operation with 15-lb. maximum operating force per California State Fire Marshal Standard 12-10-3, and with 32 lb. maximum pressure under 250-lb. load to the door.
8. Exterior doors scheduled with XP-series devices: Static load force resistance of at least 2000 pounds.
9. Where devices span over door lite frame and the face of the selected lite manufacturer's frame is raised from the face of the door, furnish panic hardware manufacturer's fitted shims or glass-bead kits at no additional cost to the project.
10. Comply with CBC Section 1003.3.1.9.

B. Specific features:

1. Non-Fire Rated Devices: cylinder dogging.
2. Lever Trim: breakaway type, forged brass or bronze escutcheon min .130" thickness, compression spring drive, match lockset lever design.
3. Rod and latch guards with sloped full-width kickplates for doors fitted with surface vertical rod devices with bottom latches.
4. Fire-Labeled Devices: UL label indicating "Fire Exit Hardware". Vertical rod devices less bottom rod (LBR) unless otherwise scheduled.
5. Electrically Operated Devices: Single manufacturer source for electric latch retraction devices, electrically controlled trim, power transfers, power supplies, monitoring switches and controls.

2.5 CLOSERS

A. Surface Closers: [4041XP]

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.

2. ISO 2000 certified. Units stamped with date-of-manufacture code.
3. Independent lab-tested 10,000,000 cycles.
4. Non-sized, non-handed, and adjustable. Place closer inside building, stairs, and rooms.
5. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
6. Adjustable to open with not more than 5.0lbs pressure to open at exterior doors and 5.0lbs at interior doors. As allowed per California Building Code, Section 1133B.2.5, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15lbs.
7. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
8. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
9. Exterior door closers: tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
10. Exterior doors: seasonal adjustments not required for temperatures from 120 degrees F to -30 degrees F, furnish checking fluid data on request.
11. Non-flaming fluid, will not fuel door or floor covering fires.
12. Pressure Relief Valves (PRV) not permitted.

2.6 OTHER HARDWARE

A. Automatic Flush Bolts: Low operating force design.

B. Overhead Stops: Non-plastic mechanisms and finished metal end caps. Field-changeable hold-open, friction and stop-only functions.

C. Kick Plates: Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.

D. Door Stops: Provide stops to protect walls, casework or other hardware.

1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.
2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum: 90deg stop / 95deg deadstop. Note degree of opening in submittal.

E. Seals: Finished to match adjacent frame color. Resilient seal material: polyurethane, polypropylene, nylon brush, silicone rubber or solid high-grade neoprene as scheduled. Do not furnish vinyl seal material. UL label applied to seals on rated doors. Substitute products: certify that the products equal or exceed specified material's thickness and durability.

1. Proposed substitutions: submit for approval.
2. Solid neoprene: MIL Spec. R6855-CL III, Grade 40.
3. Non-corroding fasteners at in-swinging exterior doors.
4. Sound control openings: Use components tested as a system using nationally accepted standards by independent laboratories. Ensure that the door leafs have the necessary sealed-in-place STC ratings. Fasten applied seals over bead of sealant.
5. Fire-rated Doors, Resilient Seals: UL10C / UBC Standard 7-2 compliant. Coordinate with selected door manufacturers' and selected frame manufacturers' requirements. Where rigid housed resilient seals are scheduled in this section and the selected door manufacturer only requires an adhesive-mounted resilient seal, furnish rigid housed seal at minimum, or both the rigid housed seal plus the adhesive applied seal. Adhesive applied seals alone are deemed insufficient for this project where rigid housed seals are scheduled.
6. Fire-rated Doors, Intumescent Seals: Furnished by selected door manufacturer. Furnish fire-labeled opening assembly complete and in full compliance with UL10C / UBC Standard 7-2. Where required, intumescent seals vary in requirement by door type and door manufacture -- careful coordination required

F. Automatic door bottoms: low operating force units. Doors with automatic door bottoms plus head and jamb seals cannot require more than two pounds operating force to open when closer is disconnected.

G. Thresholds: As scheduled and per details. Comply with CBC Section 1133B.2.4.1. Substitute products: certify that the products equal or exceed specified material's thickness. Proposed substitutions: submit for approval.

1. Exteriors: Seal perimeter to exclude water and vermin. Use sealant complying with requirements in Division 7 "Thermal and Moisture Protection". Non-ferrous 1/4inch fasteners and lead expansion shield anchors, or Red-Head #SFS-1420 (or approved equivalent) Flat Head Sleeve Anchors (SS/FHSL).

2. Fire-rated openings, 90min or less duration: use thresholds to interrupt floor covering material under the door where that material has a critical radiant flux value less than 0.22 watts per square centimeter, per NFPA 253. Use threshold unit as scheduled. If none scheduled, request direction from Architect.
3. Fire-rated openings, 3hour duration: Thresholds, where scheduled, to extend full jamb depth.
4. Acoustic openings: Set units in full bed of Division-7-compliant, leave no air space between threshold and substrate.
5. Plastic plugs with wood or sheet metal screws are not an acceptable substitute for specified fastening methods.
6. Fasteners: Generally, exposed screws to be Phillips or Robertson drive. Pinned TORX drive at high security areas. Flat head sleeve anchors (FHSL) may be slotted drive. Sheet metal and wood screws: full-thread. Sleeve nuts: full length to prevent door compression.

H. Exposed Through-Bolts: Do not use SNB, grommet nuts, sleeve nuts or other such clamping type fasteners, intent is for minimal exposed hardware. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

I. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.

2.7 FINISH:

A. Generally BHMA 626 Satin Chromium.

1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.

B. Door closers: factory powder coated to match other hardware, unless otherwise noted.

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

2.8 KEYING REQUIREMENTS:

A. Key System: Schlage Everest D family utility-patented keyway or Classic Restricted keyway , interchangeable core. Utility patent protection to extend at least until 2014. Key blanks available only from factory-direct sources, not available from after-market key blank manufacturers. For estimate use factory GMK charge. Initiate and conduct meeting(s) with Owner to determine system keyway(s), keybow styles, structure and degree of geographic exclusivity. Furnish Owner's written approval of the system. Keys

1. New factory registered master key system.
2. Construction keying: furnish temporary keyed-alike cores. Remove at substantial completion and install permanent cylinders/cores in Owner's presence. Demonstrate that construction key no longer operates.
3. Furnish 10 construction keys.
4. Furnish 2 construction control keys.

B. Key Cylinders: furnish utility patented, 6-pin solid brass construction.

C. Cylinder cores: furnish keyed at factory of lock manufacturer where permanent records are maintained. Locks and cylinders same manufacturer.

D. Permanent keys: use secured shipment direct from point of origination to Owner.

1. For estimate: 3 keys per change combination, 5 master keys per group, 5 grand-master keys, 3 control keys.
2. For estimate: VKC stamping plus "Do Not Duplicate".

E. Bitting List: use secured shipment direct from point of origination to Owner upon completion.

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS:

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

3.2 PREPARATION:

A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation.

B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.

1. Notify Architect of code conflicts before ordering material.

2. Locate levers, key cylinders, t-turn pieces, touchbars and other operable portions of latching hardware between 30 inches to 44 inches above the finished floor, per CBC Section 1133B.2.5.1.

3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

C. Overhead stops: before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

3.3 INSTALLATION

A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.

1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.

2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.

3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.

4. Replace fasteners damaged by power-driven tools.

B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.

C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.

D. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.

E. Drill pilot holes for fasteners in wood doors and/or frames. Centerpunch hole locations before using self-drilling type screws to prevent skating. Replace screws that are not centered in their holes.

F. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

3.4. ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods: repair or replace to Owner's satisfaction.
2. Adjust doors to fully latch with no more than 1 pound of pressure.
3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
4. Adjust door closers per 1.9 this section.

B. Inspection: Use hardware supplier's consultant or consultant's agent. Include supplier's report with closeout documents.

C. Final inspection: Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following:

1. Re-adjust hardware.
2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
3. Identify items that have deteriorated or failed.
4. Submit written report identifying problems

3.5 DEMONSTRATION:

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

3.6 PROTECTION/CLEANING:

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.

B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

3.7 SCHEDULE OF FINISH HARDWARE

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

B. No hardware shall be ordered until Finished Hardware has been reviewed and approved by Architect's hardware consultant.

C. Provide Factory order numbers for all products supplied on this project as part of close out documents for Owner's warranty records.

D. Verify and match the existing lock design as approve by the County of Riverside.

E. Miscellaneous Material:

SpeXtra: 71221

Hardware Group No. 01

For use on mark/door #(s):
005 006 013 023

Provide each PR door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
5	EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1	EA	ELECTRIC HINGE	3CB1 4.5 X 4.5 TW8	652	IVE
1	EA	EU STOREROOM LOCK	L9080TEU 17A	626	SCH
1	EA	COORDINATOR	COR X FL	628	IVE
2	EA	MOUNTING BRACKET	MB	689	IVE
2	EA	SURFACE CLOSER	4040XP EDA	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
2	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP
1	EA	POWER SUPPLY	PS904 900-4RL	LGR	SCE
1	EA	NOTE	CREDENTIAL READER BY SECURITY CONTRACTOR		

Hardware Group No. 02

For use on mark/door #(s):
001 004

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	3CB1 4.5 X 4.5 NRP	652	IVE
1	EA	OFFICE/ENTRY LOCK	L9050T 17A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP

Hardware Group No. 03

For use on mark/door #(s):
003

Provide each PR door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
6	EA	HINGE	3CB1 4.5 X 4.5 NRP	652	IVE
1	SET	CONST LATCHING BOLT	FB61P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	CLASSROOM LOCK	L9070T 17A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
2	EA	OH STOP & HOLDER	450H	630	GLY
2	EA	WALL STOP	WS401CCV	626	IVE
1	EA	ASTRAGAL	158NA	CL	NGP

Hardware Group No. 05

For use on mark/door #(s):
009 010 011 012

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	3CB1 4.5 X 4.5 NRP	652	IVE
1	EA	FIRE EXIT HARDWARE	98-L-F-2SI-996-06-SNB	626	VON
2	EA	RIM CYLINDER	20-057-ICX	626	SCH
2	EA	FSIC CORE	23-030	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP

Hardware Group No. 06

For use on mark/door #(s):
002 014

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1	EA	OFFICE/ENTRY LOCK	L9050T 17A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP

Hardware Group No. 07

For use on mark/door #(s):
007 015 016 018 021

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	HINGE	3CB1 4.5 X 4.5 NRP	652	IVE
1	EA	ELECTRIC HINGE	3CB1 4.5 X 4.5 TW8	652	IVE
1	EA	EU STOREROOM LOCK	L9080TEU 17A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	SURFACE CLOSER	4040XP EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP
	EA	NOTE	CREDENTIAL READER BY SECURITY CONTRACTOR		

Hardware Group No. 08

For use on mark/door #(s):
008

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	L9070T 17A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	SURFACE CLOSER	4040XPT (180 DEGREE SWING)	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP

Hardware Group No. 09

For use on mark/door #(s):
017 019 020

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
2	EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1	EA	ELECTRIC HINGE	3CB1 4.5 X 4.5 TW8	652	IVE
1	EA	EU STOREROOM LOCK	L9080TEU 17A	626	SCH
1	EA	FSIC CORE	23-030	626	SCH
1	EA	SURFACE CLOSER	4040XPT (180 DEGREE SWING)	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP
1	EA	POWER SUPPLY	PS904 900-4RL	LGR	SCE
	EA	NOTE	CREDENTIAL READER BY SECURITY CONTRACTOR		

Hardware Group No. 10

For use on mark/door #(s):
022

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	3CB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM SECURITY	L9071T 17A	626	SCH
2	EA	FSIC CORE	23-030	626	SCH
1	EA	WALL STOP	WS401CCV	626	IVE
1	SET	SEALS	5050B	BRN	NGP

END OF SECTION

SECTION 08 81 00

GLAZING

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide glass, glazing, and glazing accessories, complete.

A. Related sections include:

1. Section 08 12 17 - Prefinished Steel Door Frames.

1.02 QUALITY ASSURANCE:

A. Quality Standards: In addition to Code, glass installations shall comply with ANSI Z97.1, as applicable, and Federal Safety Standard 16 CFR 1201.

B. Glass Manufacturers' Usage Recommendations: Furnish each manufacturer's written analysis of glass usage for the exterior glass installations regarding adverse shading conditions and other problems that may occur as a result of the building geometry and glass exposures, with recommended solutions. If no such problems are anticipated by a glass manufacturer, the pertinent written analysis shall so state.

C. Safety Glazing: Provide safety glazing at all openings subject to human impact per CBC.

1.03 SUBMITTALS: Refer to Section 01 33 00 for procedures.

A. Samples and Product Data: Obtain color instructions from the Architect prior to submission. Submit the following:

1. Samples of various glasses called for on the drawings, 9" square with smooth edges.
2. Each glass manufacturer's detailed recommendations and instructions for preparation of glazed openings and installation of glass. With the instructions, submit glass manufacturer's written recommendations for setting blocks and shims, jamb blocks and shims, wedge glazing gaskets, and fixed glazing gaskets to be used for installation of the manufacturer's glasses; include type and placement for each item.
3. Glazing channels or gaskets, 12" long.
4. Manufacturer's technical data for glazing gaskets, weathering gaskets, tapes, separators, setting and side blocks, and other glass setting material showing conformance with requirements specified, including warranties, coordinated with glass manufacturer's recommendations and instructions.
5. Samples of cured glazing sealants in designated colors, with technical Product Data.
6. Wall mirrors, 12" square with manufacturer's data for mirror, stainless steel J-moldings, primer and adhesive, and warranty.

B. Full-Size Samples: Install full-size samples of glasses specified below, installed in the frames forming a part of the Work. Locations shall be designated by the Architect. Glass showing defects, including excessive distortion, which detract from artistic effect, appearance, and design concept of the building, in the Architect's opinion, shall be removed and acceptable glass

installed at no extra cost to the Owner. Approved sample installations establish the standard of quality required for glass installations of the same kinds and types. Full-size samples are required for:

1. Each type of tempered glass.
2. Insulating glass units, to include translucent and spandrel units.

C. Certificates: Submit from manufacturer stating the quality, thickness, and type of all unlabeled glass delivered to the site for field cutting.

D. Submit material cost data for all materials required to construct the Work in place. The cost data should be as marked up to the General Contractor. If the Work is self performed, the material cost shall reflect the actual cost of material without mark up.

1.04 JOB CONDITIONS: Protect glazing until completion and final acceptance of the Work. Repair or replace damaged or defective glazing to original specified condition, at no extra cost to the Owner. Damaged or defective glazing includes glass that cannot be properly cleaned.

1.05 WARRANTY: Warranty exterior glass installations against loosening, air or water leakage, glass pop-outs, deterioration, and all other defects for 5 years from the date of final acceptance by the owner.

A. Glazing Channels and Gaskets: Warranty for 5 years against all defective material or deterioration including, without limitation, shrinkage causing loss of seal and physical failure due to exposure to sun, ozone, elements, smog and other air pollution, and commercial glass cleaners.

B. Insulating Glass Units: Warranty against loss of hermetic seal or other defect for 10 years from date of final acceptance by the owner of the facility.

C. Unframed Wall Mirrors: Warranty against silver spoilage for 10 years from the date of final acceptance.

PART 2 - PRODUCTS

2.01 GLASS MATERIALS: Glass of domestic manufacture, conforming to ASTM C1036 and ASTM C1048, except total distortion tolerances of ASTM C1048 do not govern over requirements in this Section, and to ANSI Z97.1, by Viracon, PPG Industries, Inc., Libby-Owens-Ford or approved equal. Label all factory cut panes and do not remove labels until directed. Do not cut unlabeled glass delivered to site as material for field cutting until glass is approved by Architect.

A. Plate Glass: Clear Type I, Class 1, quality q3 float, 1/2" thick unless otherwise indicated or specified, heat strengthened unless tempered glass is indicated or required.

B. Heat Strengthened and Tempered Glass: Heat strengthen or temper the above glasses as shown, required by Code, or required to meet wind load or performance requirements. Handle and size glass according to manufacturer's instructions. On each sheet of tempered vision glass, provide an inconspicuous visible label fused to glass and placed in lower corner, identifying tempered glass. Provide fireman's tempered glass label where shown or required by local Fire Department. Furnish clear, tinted plate glass, or reflective glass as indicated, specified, or required.

1. Process: Perform heat strengthening and tempering by the horizontal roller gas hearth process only. Process that produce tong or gripper marks are not acceptable.

2. Glass Heat Soak Tests: Subject all tempered glass to a heat soak test in the manufacturer's plant. Glass surface temperature and duration of the test shall be sufficient to produce the highest probability of breakage for lights containing inclusions, but not less than 554 deg F for 6 hours. Submit written record of heat soak test to Architect. Record shall indicate test conditions, date of test, number and size of lights tested per load, spacing of lights in oven, time glass was in the heat soak furnace, and test results (i.e. number of lights which broke). Heat soak tests are subject to inspection by Architect.

C. Intent: Tempered glasses are an important part of the artistic effect of the building design, and shall conform to the standard of quality established by the approved full-size Sample installations.

2.02 GLASS SETTING MATERIALS:

A. Glazing Channels and Gaskets: Extruded neoprene conforming to AAMA SG-1, meeting 5 year warranty requirements, approved colors, sponge units of 40 +/- 5 Durometer Shore A, designed for 20% to 35% compression; dense units of 70 +/- 5 Durometer Shore A for hollow profiles and 60 +/- 5 for solid profiles. Vulcanize gasket corners, both sponge and dense. Provide units designed to produce glass edge pressure of 4 pounds minimum and 10 pounds maximum per linear inch.

B. Blocks and Spacers: Setting blocks of solid neoprene or silicone rubber having 85 +/- 5 Durometer Shore A, block length equal to 0.1" per square foot of glass area but minimum 4" length with length increased as required to eliminate point loading, width not less than width of glazing pocket less 1/8", profiled and secured not to slip during installation and not to obstruct proper drainage of glazing cavity. Provide shims of same material, hardness, width, and length as setting blocks. Provide neoprene or silicone rubber side blocks of 55 +/- 5 Durometer Shore A.

C. Glazing Sealants: For use at glazing perimeters, acceptable sealants are GE Silglaze 2400, GE Silpruf, GE 1200 Silicone, and Dow Corning 795 or 995. For other joints select appropriate sealant for joint size, movement, and substrate; acceptable sealants include GE 1200 Silicone or Silpruf, or Dow Corning 795 and 995, or, where approved, 790. Polybutylene, oleoresinous, asphalt, and oil base sealants are not allowed for any use. Provide sealants of approved colors.

PART 3 - EXECUTION

3.01 GLAZING: Employ skilled and experienced glaziers. Set glass airtight and true with glazing channels or gaskets according to the "Glazing Manual" of Flat Glass Marketing Association, glass manufacturer's instructions, and as required herein to obtain weatherproof and waterproof installations. Conform glass edge clearances, and face and edge laps (bite), to Code and requirements herein. Set glass in rabbets with glazing blocks and spacers so glass does not contact frame and to preclude looseness and rattling. Use glass with straight smooth-finished edges free of cracks, chips, swiping, seaming, stress foci, or any other defects on surfaces or edges for all glass installations.

A. Setting Blocks: Unless otherwise recommended by glass manufacturer or in the FGMA "Glazing Manual" for type of glass installation, provide setting blocks of the correct size located at the

bottom quarter points of each glass pane, and side blocks in both jambs in upper half of panes retained by metal caps.

B. Glazing Gaskets and Channels: Compress at least 15% by stops and at least 5% lengthwise to prevent corner pullout, but do not exceed allowable compressive forces on glass.

C. Glazing Sealant: Ensure sealant installations form a continuous airtight and watertight seal for entire perimeter of each glass pane. For glass secured by metal frames or stops on two or more edges, hold glazing gaskets or channels back at least 1/8" from the sight lines and fill the voids with glazing sealant finished flush with stops, sealant installed on interior side of glass.

D. Exposed Glass Edges or Butt Glazing: Provide glass with the exposed edges ground straight, smooth, and slightly rounded where edges remain exposed or are butt glazed with sealant. Where sealant is indicated at interior installations, set joints close but not in contact and fill with glazing sealant of approved color, free of bubbles or voids and tool slightly concave. Immediately remove smears from glass.

E. Insulating Glass Units: Conform tolerances, edge clearances, frame laps, and setting of blocks and spacers to manufacturer's published requirements with spacing and sizes of blocks adequate to prevent improper point loadings. Place units with glazing gaskets or channels compressed at least 5% lengthwise during setting. Cut gasket legs down at least 1/8" below sight lines and fill the void with a clear silicone sealant having minimum 1/8" sealant-to-glass contact with sealant finished flush with stops. Do not block weep holes in supporting frame members.

F. Mirrors: Clean backings, apply primer, and allow to dry. Verify organic coating on the backs of mirrors is compatible with the adhesive; if not, apply the mirror adhesive manufacturer's recommended backing paint and allow to dry. Conform to the adhesive manufacturer's instructions and apply adhesive in spots that, when compressed, will cover not less than 60% of the mirror area. Allow 3/16" space between mirror back and substrate. If mirror is cut from a larger mirror sheet, apply backing paint on cut backing edge. Brace installed mirrors in place until adhesive is fully set.

3.02 COMPLETION: Conform to Section 01 74 00. Do not use any harsh or abrasive cleaning agents, caustics, or acids for cleaning. Wash and polish vision glass both sides and leave glass free of soiling, streaks and labels. Wash and polish mirrors.

END OF SECTION

SECTION 09 21 16

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Performance criteria for gypsum board assemblies.

B. Metal stud wall framing.

C. Gypsum sheathing.

D. Gypsum wallboard.

E. Joint treatment and accessories.

F. Gypsum board ceilings

1.02 RELATED REQUIREMENTS

A. Section 07 21 00 - Building Insulation.

B. Section 07 90 05 - Joint Sealers: Acoustic sealant.

C. Section 09 22 16 - Non-Structural Metal Framing.

1.03 REFERENCE STANDARDS

A. ASTM C 475/C 475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2002 (Reapproved 2007).

B. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members; 2007.

C. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2007.

D. ASTM C 840 - Standard Specification for Application and Finishing of Gypsum Board; 2007.

E. ASTM C 954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2007.

F. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.

G. ASTM C 1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2005.

H. ASTM C 1177/C 1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2006.

I. ASTM C 1278/C 1278M - Standard Specification for Fiber-Reinforced Gypsum Panel; 2007a.

J. ASTM C 1280 - Standard Specification for Application of Gypsum Sheathing; 2007.

K. ASTM C 1396/C 1396M - Standard Specification for Gypsum Board; 2006a.

L. ASTM C 1629/C 1629 - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels; 2006.

M. ASTM C 1658/C 1658M - Standard Specification for Glass Mat Gypsum Panels; 2006.

N. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2000 (Reapproved 2005).

O. ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction; 2005.

P. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2004.

Q. ASTM E 413 - Classification for Rating Sound Insulation; 2004.

R. GA-216 - Application and Finishing of Gypsum Board; Gypsum Association; 2007.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Product Data: Provide data on gypsum board, accessories, and joint finishing system.

C. Test Reports: For all stud framing products that do not comply with ASTM C 645 or C 754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

D. Samples: Submit two samples of gypsum board finished with proposed texture application, 12 by 12 inches (300 by 300 mm) in size, illustrating finish color and texture.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 10 years of experience.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C 840 and GA-216.

B. Interior Partitions: Provide completed assemblies with the following characteristics:
   1. Acoustic Attenuation: STC of 45-49 calculated in accordance with ASTM E 413, based on tests conducted in accordance with ASTM E 90.

2.02 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. CertainTeed Corporation: www.certainteed.com.
   2. Georgia-Pacific Gypsum LLC: www.gp.com/gypsum.
   3. National Gypsum Company: www.nationalgypsum.com.
   4. USG Corporation: www.usg.com.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Wallboard: Paper-faced gypsum wallboard as defined in ASTM C 1396/C 1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. Glass-mat-faced gypsum panels as defined in ASTM C 1658/C 1658M, suitable for paint finish, of the same core type and thickness may be substituted for paper-faced board.
   3. Mold Resistance: Score of 10, when tested in accordance with ASTM D 3273.
      a. Mold-resistant board is required whenever board is being installed before the building is enclosed and conditioned.

4. Thickness:
   a. Vertical Surfaces: 5/8 inch (16 mm).
   b. Ceilings: 5/8 inch (16 mm).
   c. Multi-Layer Assemblies: Thicknesses as indicated on drawings.

C. Impact-Rated Wallboard: Tested to Level 3 soft-body and hard-body impact in accordance with ASTM C 1629.
   1. Application: All Corridors.
   2. Mold Resistance: Score of 10, when tested in accordance with ASTM D 3273.
   3. Paper-Faced Type: Gypsum wallboard as defined in ASTM C 1396/C 1396M.
   4. Unfaced Type: Interior fiber-reinforced gypsum panels as defined in ASTM C 1278/C 1278M.
   5. Type: Fire-resistance rated Type X, UL or WH listed.
   6. Thickness: 5/8 inch (16 mm).
   7. Edges: Tapered.
   8. Products:
      a. National Gypsum Company; Gold Bond Hi-Impact Brand XP Wallboard.
      b. USG Corporation; Fiberock Brand Panels--VHI Abuse-Resistant.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

D. Backing Board For Non-Wet Areas: Water-resistant gypsum backing board as defined in ASTM C 1396/C 1396M; sizes to minimum joints in place; ends square cut.
   1. Application: Vertical surfaces behind thinset tile, except in wet areas.
   2. Type: Regular and Type X, in locations indicated.
   3. Type X Thickness: 5/8 inch (16 mm).
   4. Regular Board Thickness: 1/2 inch (13 mm).
   5. Edges: Tapered.
   6. Products:
      a. American Gypsum; M-Bloc.
      b. CertainTeed Corporation; ProRoc Brand Moisture Resistant Gypsum Board ("Greenboard").
      c. Georgia-Pacific Gypsum LLC; ToughRock Moisture-Guard Gypsum Board ("Greenboard").
      d. National Gypsum Company; Gold Bond Brand XP Gypsum Board.
      e. USG Corporation; Sheetrock Brand Mold Tough Gypsum Panels.
      f. Substitutions: See Section 01 60 00 - Product Requirements.

2.03 ACCESSORIES

A. Building Insulation: As specified in Section 07 21 00.

B. Acoustic Sealant: As specified in Section 07 90 05.

C. Finishing Accessories: ASTM C 1047, galvanized steel or rolled zinc, unless otherwise indicated.
   1. Types: As detailed or required for finished appearance.
   2. Special Shapes: In addition to conventional cornerbead and control joints, provide U-bead at exposed panel edges.

D. Joint Materials: ASTM C 475 and as recommended by gypsum board manufacturer for project conditions.

E. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

F. Screws for Attachment to Steel Members Less Than 0.03 inch (0.7 mm) In Thickness, to Wood Members, and to Gypsum Board: ASTM C 1002; self-piercing tapping type; cadmium-plated for

exterior locations.

G. Screws for Attachment to Steel Members From 0.033 to 0.112 inch (0.8 to 2.8 mm) in Thickness: ASTM C 954; steel drill screws for application of gypsum board to loadbearing steel studs.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C 754.

B. Studs: Space studs as indicated.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.
   2. Partitions Terminating at Ceiling: Attach ceiling runner securely to to ceiling framing in accordance with details.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.

3.04 BOARD INSTALLATION

A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Fire-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

C. Exterior Sheathing: Comply with ASTM C 1280. Install sheathing vertically, with edges butted tight and ends occurring over firm bearing.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials and as indicated.

3.06 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C 840, as follows:

   1. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   2. Level 3: Walls to receive textured wall finish.
   3. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
   4. Level 1: Fire rated wall areas above finished ceilings, whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).
2. Taping, filling and sanding is not required at base layer of double layer applications.

C. Where Level 5 finish is indicated, spray-apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

END OF SECTION

SECTION 09 22 16

NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal partition, ceiling, and soffit framing.

1.02 RELATED REQUIREMENTS

A. Section 07 21 00 - Building Insulation

B. Section 09 21 16 - Gypsum Board Assemblies: Metal studs for gypsum board partition framing.

1.03 REFERENCE STANDARDS

A. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members; 2007.

B. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2007.

C. ASTM C 1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007.

D. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Shop Drawings:
   1. Indicate prefabricated work, component details, stud layout, framed openings, anchorage to structure, acoustic details, type and location of fasteners, accessories, and items of other related work.
   2. Describe method for securing studs to tracks, splicing, and for blocking and reinforcement of framing connections.

C. Product Data: Provide data describing framing member materials and finish, product criteria, load charts, and limitations.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with a minimum of ten years experience.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Framing, Connectors, and Accessories:
   1. Dietrich Metal Framing; www.dietrichindustries.com.
   2. Clark Western; www.clarkwestern.com.
   3. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 FRAMING MATERIALS

A. Fire Rated Assemblies: Comply with applicable code and as indicated on drawings.

B. Non-Loadbearing Framing System Components: ASTM C 645; galvanized sheet steel, of size and properties necessary to comply with ASTM C 754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
   1. Studs: C shaped with flat or formed webs.
   2. Runners: U shaped, sized to match studs.
   3. Ceiling Channels: C shaped.
   4. Furring: Hat-shaped sections, minimum depth of 7/8 inch.

C. Partition Head to Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.

D. Tracks and Runners: Same material and thickness as studs, bent leg retainer notched to receive studs with provision for crimp locking to stud.

E. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C 754.

F. Fasteners: ASTM C 1002 self-piercing tapping screws.

G. Sheet Metal Backing: 0.036 inch thick, galvanized.

H. Anchorage Devices: Power actuated.

I. Acoustic Insulation: As specified in Section 07 21 00.

J. Acoustic Sealant: As specified in Section 07 90 05.

K. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

2.03 FABRICATION

A. Fabricate assemblies of framed sections to sizes and profiles required.

B. Fit, reinforce, and brace framing members to suit design requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

3.02 INSTALLATION OF STUD FRAMING

A. Comply with requirements of ASTM C 754.

B. Extend partition framing to structure where indicated and to ceiling in other locations.

C. Partitions Terminating at Ceiling: Attach ceiling runner securely to structure as detailed.

D. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs as indicated.

E. Align and secure top and bottom runners at 24 inches on center.

F. Fit runners under and above openings; secure intermediate studs to same spacing as wall studs.

G. Align stud web openings horizontally.

H. Secure studs to tracks using crimping method. Do not weld.

I. Fabricate corners using a minimum of three studs.

J. Double stud at wall openings, door and window jambs, not more than 2 inches from each side of openings.

K. Coordinate installation of bucks, anchors, and blocking with electrical, mechanical, and other work to be placed within or behind stud framing.

3.03 CEILING AND SOFFIT FRAMING

A. Install furring after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.

B. Install furring independent of walls, columns, and above-ceiling work.

C. Securely anchor hangers to structural members or embed in structural slab. Space hangers as required to limit deflection to criteria indicated. Use rigid hangers at exterior soffits.

D. Space main carrying channels at maximum 72 inch on center, and not more than 6 inches from wall surfaces. Lap splice securely.

E. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.

F. Place furring channels perpendicular to carrying channels, not more than 2 inches from perimeter walls, and rigidly secure. Lap splices securely.

3.04 TOLERANCES

A. Maximum Variation From True Position: 1/8 inch in 10 feet.

B. Maximum Variation From Plumb: 1/8 inch in 10 feet.

END OF SECTION

SECTION 09 51 00

ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Suspended metal grid ceiling system.

B. Acoustical units.

1.02 RELATED REQUIREMENTS

A. Section 07 21 00 - Building Insulation

B. Section 07 90 05 - Joint Sealers

C. Section 23 37 00 - Air Outlets and Inlets: Air diffusion devices in ceiling.

D. Section 26 51 00 - Interior Lighting: Light fixtures in ceiling system.

1.03 REFERENCE STANDARDS

A. ASTM C 635 - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2004.

B. ASTM C 636/C 636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels; 2006.

C. ASTM E 580/E 580M - Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint; 2006.

D. ASTM E 1264 - Standard Classification for Acoustical Ceiling Products; 1998 (Reapproved 2005).

E. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Sequence work to ensure acoustical ceilings are not installed until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Do not install acoustical units until after interior wet work is dry.

1.05 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Shop Drawings: Indicate grid layout and related dimensioning.

C. Samples: Submit two full size samples illustrating material and finish of acoustical units.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.

1.06 QUALITY ASSURANCE

A. Suspension System Manufacturer Qualifications: Company specializing in manufacturing the

products specified in this section with minimum ten years documented experience.

1.07 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F, and maximum humidity of 40 percent prior to, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 ACOUSTICAL UNITS

A. Manufacturers:
   1. Armstrong World Industries, Inc; www.armstrong.com. Basis of design.
   2. CertainTeed Corporation; www.certainteed.com.
   3. USG; www.usg.com.
   4. Substitutions: See Section 01 63 00 - Product Requirements.

B. Acoustical Units - General: ASTM E 1264, Class A.

C. Acoustical Tile Types 1: Mineral Fiber, ASTM E 1264, Type III, Form 2, with to the following characteristics:
   1. VOC Content: Certified as Low Emission by one of the following :
      a. Low-Emitting Materials per Green Seal Standard 36; www.greenseal.org/certification/standard
      b. ASHRAE Standard 62.1-2004
   2. Size: 24"x48"x3/4".
   3. Light Reflectance: 0.82, determined as specified in ASTM E 1477.
   4. NRC Range: 0.55, determined as specified in ASTM C 423.
   5. Ceiling Attenuation Class (CAC):40, determined as specified in ASTM E 1111.
   6. Edge: Anguled tegular.
   7. Surface Color: White.
   8. Surface Texture: Fine Fissured.
   9. Antimicrobial Protection: Inherent.
   10. Product: Cortega Second Look II-2758.

D. Acoustical Tile Type 2: Mineral Fiber, ASTM E 1264, Type IV, Form 2, with the following characteristics:
   1. VOC Content: Certified as Low Emission by:
      a. Green Seal Standard 36; www.greenseal.org/certification/standard
      b. ASHRAE Standard 62.1-2004
   2. Size: 24"x48"x3/4".
   3. Light Reflectance: 0.80, ASTM E 1477.
   4. NRC Range: N/A.
   5. Ceiling Attenuation Class: 40, ASTM C 1414.
   6. Edge: Square Lay-in.
   7. Surface Color: White.
   8. Surface Texture: Smooth.
   9. Antimicrobial Protection: BioBlock Plus.
   10. Product: Clean Room VL-870.

2.02 SUSPENSION SYSTEM(S)

A. Manufacturers:
   1. Same as for acoustical units.
   2. Substitutions: See Section 01 63 00 - Product Requirements.

B. Suspension Systems - General: ASTM C 635; die cut and interlocking components, with stabilizer bars, clips, splices, perimeter moldings, and hold down clips as required.

C. Exposed Steel Suspension System: Formed steel, commercial quality cold rolled; heavy-duty.
   1. Profile: Tee; 15/16 inch wide face.
   2. Construction: Double web.
   3. Finish: White painted.
   4. Compression Strut: ASTM A513, telescoping design as detailed on drawings, galvanized 3/4 inch diameter 14 gauge rigid steel tubing crimped and attached to structure per details.

2.03 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Perimeter Moldings: Same material and finish as grid.
   1. At Exposed Grid: Provide L-shaped molding for mounting at same elevation as face of grid.

C. Insulation: Specified in Section 07 21 00.

D. Gypsum Board: Fire rated type; 5/8 inch thick, ends and edges square, paper faced.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers will not interfere with other work.

3.02 INSTALLATION - SUSPENSION SYSTEM

A. Install suspension system in accordance with ASTM C 636/C 636M, ASTM E 580/E 580M, and manufacturer's instructions and as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Install after major above-ceiling work is complete. Coordinate the location of hangers with other work.

D. Hang suspension system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.

F. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

G. Support fixture loads using supplementary hangers located within 6 inches of each corner, or support components independently.

H. Do not eccentrically load system or induce rotation of runners.

I. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap and rivet corners.

J. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with fire rated assembly requirements and light fixture ventilation requirements.

3.03 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install units after above-ceiling work is complete.

E. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

F. Cutting Acoustical Units:
   1. Make field cut edges of same profile as factory edges.

G. Where round obstructions occur, provide preformed closures to match perimeter molding.

H. Install hold-down clips on panels within 20 ft of an exterior door.

3.04 TOLERANCES

A. Maximum Variation from Flat and Level Surface: 1/8 inch in 10 feet.

B. Maximum Variation from Plumb of Grid Members Caused by Eccentric Loads: 2 degrees.

END OF SECTION

SECTION 09 58 00

INTEGRATED CEILING ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes:
   1. Acoustical ceiling panels.
   2. Exposed grid suspension system.
   3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

B. Related Sections:
   1. Section 09 21 16 - Gypsum Board Assemblies
   2. Not used
   3. Division 23 Sections - HVAC
   4. Division 26 Sections - Electrical Work

C. Alternates
   1. Prior Approval: Unless otherwise provided for in the Contract documents, proposed product substitutions may be submitted no later than TEN (10) working days prior to the date established for receipt of bids. Acceptability of a proposed substitution is contingent upon the Architect's review of the proposal for acceptability and approved products will be set forth by the Addenda. If included in a Bid are substitute products which have not been approved by Addenda, the specified products shall be provided without additional compensation.
   2. Submittals which do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
   2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
   3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.
   4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
   5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
   6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
   7. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials.
   8. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum.
   9. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems.
   10. ASTM E 1264 Classification for Acoustical Ceiling Products.

11. ASTM E 1477 Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers.
12. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

1.4 SUBMITTALS

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

1.5 QUALITY ASSURANCE

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

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.
D. Store ceiling components in a dry interior location in their cartons prior to installation to avoid damage. Store cartons in a flat, horizontal position. The protectors between the panels should not be removed until installation.
E. Do not store in unconditioned spaces with humidity greater than 55 percent or lower than 25 percent relative humidity and temperatures lower than 50 degrees F or greater than 86 degrees F. (Exception: HumiGuard Max Ceilings) Panels must not be exposed to extreme temperatures, for example, close to a heating source or near a window with direct sunlight.
F. Handle ceiling units carefully to avoid chipped edges or damage to units in any way.
G. Wood veneer ceiling materials should be permitted to reach room temperature and have a stabilized moisture content for a minimum of 72 hours before installation. (Remove plastic wrap to allow panels to climatize).

H. The wood veneer panels should not be installed in spaces where the temperature or humidity conditions vary greatly from the temperatures and conditions that will be normal in the occupied space.
I. As interior finish products, the wood veneer panels are designed for installation in temperature conditions between 50 degrees F and 86 degrees F, in spaces where the building is enclosed and HVAC systems are functioning and will be in continuous operation. Relative humidity should not fall below 25 percent or exceed 55 percent.

1.7 (Not Used)

1.8 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
   1. Acoustical Panels: Sagging and warping
   2. Grid System: Rusting and manufacturer's defects
B. Warranty Period:
   1. Ultima acoustical technical and field panels: Ten (10) years from date of substantial completion.
C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.9 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
   1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
   2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

Part 2-PRODUCTS

2.1 MANUFACTURERS

A. TechZone Ceiling System:

   Armstrong World Industries, Inc., www.armstrong.com . Basis of design.

B. Substitutions: See Section 01 63 00 – Product Requirements.

2.2.0 ACOUSTICAL CEILING UNITS

A. Acoustical Panels Type ACT-1:

   1. Surface Texture: Fine
   2. Composition: Mineral Fiber, 3/4" thickness
   3. Color: White
   4. Sizes for mineral fiber Ultima field panels for 6" technical zone configurations:
      a. 4'6" Configurations (24 inch x 48 inch)

5. Mineral Fiber and Fiberglass Edge Profile: Square Tegular for interface with Prelude XL 15/16" Exposed Tee.

6. Noise Reduction Coefficient (NRC): ASTM C 423; Classified with UL label on product carton, 0.70.
7. Ceiling Attenuation Class (CAC): ASTM C 1414; Classified with UL label on product carton, 35.
8. Flame Spread: ASTM E 1264; Class A (UL)
9. Light Reflectance (LR): ASTM E 1477; White Panel: Light Reflectance: 0.90.
10. Acceptable Product: Ultima, Item #1422 & #1914 as manufactured by Armstrong World Industries.
11. Fiberglass and Mineral Fiber Application Consideration: For 4'0" and 5'0" Configurations only the 9/16" Systems (Suprafine XL, Interlude XL and Silhouette XL 1/4" Reveal 9/16" Bolt Slot) can be used.

B. TechZone Ceiling System

1. Technical Panels: The Technical Zone accommodates recessed fixtures, linear air diffusers, sprinkler heads, and other components.
   a. Ultima Technical Panels, 3/4" thickness
2. Size: 6 inch x 48 inch
3. Color: White
4. Edge detail: Ultima Beveled Tegular
5. Ultima Compatible grid systems: Prelude XL 15/16" Exposed

2.2.1 SUSPENSION SYSTEMS

A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized steel as per ASTM A 653. Main beams and cross tees are double-web steel construction with 15/16 inch type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.
   1. Structural Classification: ASTM C 635, Intermediate Duty.
   2. Ultima Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
   3. Acceptable Product for Ultima: Prelude XL 15/16" Exposed Tee as manufactured by Armstrong World Industries, Inc.

B. Attachment Devices: Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least time three design load, but not less than 12 gauge.

D. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.

E. Accessories for 6" wide technical zone configurations for continuous lighting
   1. TechZone Yoke (TZYK) – required to connect parallel main beams without cross tee; install 4' on-center along continuous linear light technical zone
   2. TechZone Bracing Clip (TZBC) – required to connect cross tees to the man beam of the continuous technical zone when no yoke is present
   3. Cross Tee Adapter Clip (XTAC) – required for WoodWorks installations due to weight of panels
   4. Beam End Retaining Clip (BERC2) - required for WoodWorks installations due to weight of panels. Joins web of main beam or cross tee to wall molding with no visible pop rivets.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.2 PREPARATION

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

3.3 INSTALLATION

A. Install suspension system and panels in accordance with the manufacturer's working drawings, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
B. Suspend main beam from overhead construction with hanger wires spaced 4-0 on center along the length of the main runner. Install hanger wires plumb and straight.
C. Install main beams perpendicular to the 6 inch wide Technical Panels.
D. Woodworks Tegular panels are over 2.5 lbs. per piece and suspension must use XTAC Clip attachments for bracing. Follow manufacturer's recommended instructions.
E. Install wall moldings at intersection of suspended ceiling and vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
F. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
G. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.
B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Installation accessories.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.

B. Section 07 90 05: Joint Sealants

1.03 REFERENCE STANDARDS

A. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2008b.

B. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.

C. ASTM F 1066 - Standard Specification for Vinyl Composition Floor Tile; 2004.

D. ASTM F 1344 - Standard Specification for Rubber Floor Tile; 2004.

E. ASTM F 1861 - Standard Specification for Resilient Wall Base; 2008.

F. ASTM F 2034 - Standard Specification for Sheet Linoleum Floor Covering; 2008.

G. BAAQMD 8-51 - Bay Area Air Quality Management District Regulation 8, Rule 51, Adhesive and Sealant Products; www.baaqmd.gov; 2002.

H. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association; 2006.

I. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.

J. SCS (CPD) - SCS Certified Products; Scientific Certification Systems; current listings at www.scscertified.com.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Indicate seaming plan.

D. Selection Samples: Submit manufacturer's complete set of color samples for Architect's initial selection.

E. Concrete Testing Standard: Submit a copy of ASTM F 710.

F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of sub-floor is acceptable.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Flooring Material: 100 s.f. of rolled material and one additional carton of tile material of each type and color.
   3. Extra Wall Base: 10 linear feet of each type and color.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect roll materials from damage by storing on end.

1.06 FIELD CONDITIONS

A. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

PART 2 PRODUCTS

2.01 TILE FLOORING

A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness, and:
   1. Minimum Requirements: Comply with ASTM F 1066, of Class corresponding to type specified.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   3. Size: 12 x 12 inch.
   4. VOC Content: Certified as Low Emission by one of the following:
      a. SCS Floorscore; www.scscertified.com.
   5. Thickness: 0.125 inch.
   6. Pattern: Refer to the Finish Schedule.
   7. Manufacturers:
      a. Armstrong World Industries, Inc: www.armstrong.com.
      b. Mannington Mills, Inc: www.mannington.com.
      c. Or equal.
      d. Substitutions: See Section 01 63 00 - Product Requirements.

2.02 RESILIENT BASE

A. Resilient Base: ASTM F 1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
   1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   2. Height: 4 inch.
   3. Thickness: 0.125 inch thick.
   4. Finish: Satin.
   5. Color: Refer to the Finish Schedule.
   6. Accessories: Premolded external corners and end stops.
   7. Manufacturers:
      a. Johnsonite, Inc: www.johnsonite.com.
      b. Roppe Corp: www.roppe.com.

c. Or equal.
d. Substitutions: See Section 01 63 00 - Product Requirements.

2.03 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seaming Materials: Waterproof; types recommended by flooring manufacturer.
1. Provide only products having lower volatile organic compound (VOC) content than required by the more stringent of the South Coast Air Quality Management District Rule No.1168 and the Bay Area Air Quality Management District Regulation 8, Rule 51.

C. Moldings, Transition and Edge Strips; rubber.

D. Sealer and Wax: Types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 PREPARATION

A. Prepare sub-floor surfaces as recommended by flooring and adhesive manufacturers.

B. Remove sub-floor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with sub-floor filler to achieve smooth, flat, hard surface.

C. Prohibit traffic until filler is cured.

3.02 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install in accordance with manufacturer's instructions.

C. Spread only enough adhesive to permit installation of materials before initial set.

D. Fit joints tightly.

E. Set flooring in place, press with heavy roller to attain full adhesion.

F. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

G. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.

H. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

3.03 TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless manufacturer's instructions say otherwise.

3.04 RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. Install base on solid backing. Bond tightly to wall and floor surfaces.

3.05 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's instructions.

3.06 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

SECTION 09 68 13

TILE CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Carpet tile, fully adhered.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Restrictions on curing compounds for concrete slabs and floors.

1.03 REFERENCE STANDARDS

A. ASTM D 2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2006.

B. ASTM E 648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2008b.

C. ASTM F 710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2008.

D. CRI 104 - Standard for Installation of Commercial Textile Floorcovering Materials; Carpet and Rug Institute; 2002.

E. CRI (GLA) - Green Label Testing Program - Approved Adhesive Products; Carpet and Rug Institute; Current Edition.

F. CRI (GLP) - Green Label Plus Carpet Testing Program - Approved Products; Carpet and Rug Institute; Current Edition.

G. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; National Fire Protection Association; 2006.

1.04 SUBMITTALS

A. See Section 01 33 00 - Submittal Procedures.

B. Shop Drawings: Indicate layout of joints, color, type, and direction.

C. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation. Provide certification of fire resistance requirements per CBC 2007.

D. Samples: Submit two carpet tiles illustrating color and pattern design for each carpet color selected.

E. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 63 00 - Product Requirements, for additional provisions.
   2. Extra Carpet Tiles: Quantity equal to 5 percent of total installed of each color and pattern installed.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet tile with minimum three years documented experience.

B. Installer Qualifications: Company specializing in installing carpet with minimum 5 years experience.

1.06 FIELD CONDITIONS

A. Store materials in area of installation for minimum period of 24 hours prior to installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Carpet Tile: Refer to the Finish Schedule. Shaw Contract Group as basis of design.
   1. Critical Radiant Flux: Minimum of 0.22 watts/sq cm, when tested in accordance with ASTM E 648 or NFPA 253.
   2. Surface Flammability Ignition: Pass ASTM D 2859 (the "pill test").
   3. Max. Electrostatic Charge: 3 Kv. at 20 percent relative humidity.

B. Substitutions: See Section 01 63 00 – Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive carpet tile.

B. Verify that concrete sub-floor surfaces are dry enough and ready for flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F 710; obtain instructions if test results are not within limits recommended by carpet tile manufacturer and adhesive materials manufacturer.

3.02 INSTALLATION

A. Starting installation constitutes acceptance of sub-floor conditions.

B. Install carpet tile in accordance with manufacturer's instructions and CRI 104.

C. Blend carpet from different cartons to ensure minimal variation in color match.

D. Cut carpet tile clean. Fit carpet tight to intersection with vertical surfaces without gaps.

E. Lay carpet tile in square pattern, with pile direction parallel to next unit, set parallel to building lines.

F. Complete installation of edge strips, concealing exposed edges.

G. Provide glue-down of firm cushion installation that complies with CBC Section 1124B.3.

H. Carpet edges shall have a level loop, textured loop, level-cut, or level-cut/uncut pile texture and maximum pile height of ½" per CBC Section 1124B.3 / ADA standards 4.5.3.

J. Carpet edges shall comply with CBC section 1124B.2.

3.03 CLEANING

A. Remove excess adhesive without damage, from floor, base, and wall surfaces.

B. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 097200

WALL COVERINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Textile wall covering.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each type of wall covering and for each color, pattern, texture, and finish specified, full width by 12-inch long in size.

C. Submittals: See Section 01 33 00 -- Submittal Procedures.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data. Refer Section 01 70 00 – Project Close-out.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Low-Emitting Materials: Wall-covering system shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates according to test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

a. Flame-Spread Index: 25 or less.

b. Smoke-Developed Index: 450 or less.

2. Fire-Growth Contribution: No flashover and heat and smoke release according to NFPA 286.

2.2 TEXTILE WALL COVERING

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Finish Schedule or comparable product by one of the following:

1. Blue Mountain Wallcoverings, Inc.
2. Brewster Wallcovering Company.
3. Carnegie Fabrics.
4. DesignTex Inc.; a Steelcase company.
5. D. L. Couch; Wallcovering Source.
6. Eykon; Wallcovering Source.
7. Fibreworks Corporation.
8. F. Schumacher & Co.
9. Gilford.
10. Hytex Industries, Inc.
11. Innovations in Wallcoverings, Inc.
12. Knoll, Inc.
13. Maharam.
14. MDC Wallcoverings.
15. RJF International Corporation.
16. Source One Wallcovering.
17. Vescom America.
18. Wolf-Gordon.
19. Substitutions: See Section 01 63 00 – Product Substitution Requirements.

C. Description: Provide mildew-resistant, peelable wall coverings in rolls from same production run and that comply with ASTM F 793.

1. Category: II, Decorative with Medium Serviceability.

D. Test Responses:

1. Colorfastness to Wet and Dry Crocking: Passes AATCC 8, Grade 3, minimum.
2. Colorfastness to Light: Passes AATCC 16, Test Option 1 or 3, Grade 4, minimum, at 40 hours.

E. Total Weight: 10.5oz/ly, excluding coatings.

F. Width: 54 inches.

G. Repeat: Random.

H. Applied Backing Material: Acrylic.

I. Stain-Resistant Coating: PFOA-free.

J. Colors, Textures, and Patterns: As selected by Architect from manufacturer's full range.

2.3 ACCESSORIES

A. Adhesive: Mildew-resistant, nonstaining, strippable adhesive, for use with specific wall covering and substrate application indicated and as recommended in writing by wall-covering manufacturer.

1. Adhesive shall have a VOC content of 70g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Primer/Sealer: Mildew resistant, complying with requirements and recommended in writing by primer/sealer and wall-covering manufacturers for intended substrate.

C. Metal Primer: Interior ferrous metal primer complying with and recommended in writing by primer and wall-covering manufacturers for intended substrate.

PART 3 - EXECUTION

3.1 PREPARATION

A. Comply with manufacturer's written instructions for surface preparation.

B. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, mildew, and incompatible primers.

C. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.

1. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
2. Plaster: Allow new plaster to cure. Neutralize areas of high alkalinity. Prime with primer recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
3. Metals: If not factory primed, clean and apply primer recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
4. Gypsum Board: Prime with primer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
5. Painted Surfaces: Treat areas susceptible to pigment bleeding.

D. Check painted surfaces for pigment bleeding. Sand gloss, semigloss, and eggshell finish with fine sandpaper.

E. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

F. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

3.2 WALL-COVERING INSTALLATION

A. Comply with wall-covering manufacturers' written installation instructions applicable to products and applications indicated.

B. Cut wall-covering strips in roll number sequence. Change the roll numbers at partition breaks and corners.

C. Install strips in same order as cut from roll.

D. Install wall covering without lifted or curling edges and without visible shrinkage.

E. Match pattern 72 inches above the finish floor.

F. Install seams vertical and plumb at least 6 inches (150 mm) from outside corners and 3 inches (75 mm) from inside corners unless a change of pattern or color exists at corner. Horizontal seams are not permitted.

G. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without overlaps or gaps between strips.

H. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.

I. Remove excess adhesive at seams, perimeter edges, and adjacent surfaces.

J. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

END OF SECTION

SECTION 097723

FABRIC-WRAPPED PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes shop-fabricated, fabric-wrapped wall panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For fabric-wrapped wall panels. Include mounting devices and details.

C. Samples: For each exposed product and for each color and texture specified.

D. Submittals: See Section 01 33 00 -- Submittal Procedures.

1.3 INFORMATIONAL SUBMITTALS

A. Product certificates.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data. See Section 01 70 00 – Project Close-out.

1.5 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide fabric-wrapped wall panels meeting the following as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Surface-Burning Characteristics: As determined by testing per ASTM E 84.

   a. Flame-Spread Index: 25 or less.
   b. Smoke-Developed Index: 450 or less.

2. Fire Growth Contribution: Meeting acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 286.

B. Preinstallation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 FABRIC-WRAPPED WALL PANELS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated or comparable product by one of the following:

1. Acoustical Panel Systems (APS, Inc.).
2. Acoustical Solutions, Inc.
3. Armstrong World Industries.
4. AVL Systems, Inc.
5. Benton Brothers Solutions, Inc.
6. Brejtfus Theatrical Interiors.
7. Conwed Designscape; an Owens Corning company.
8. Carnegie Fabrics.
9. Decoustics Limited; a CertainTeed Ceilings company.
10. Essi Acoustical Products.
11. Golterman & Sabo.
12. Kinetics Noise Control, Inc.
13. Lamvin, Inc.
14. MBI Products Company, Inc.
15. Panel Solutions, Inc.
16. Perdue Acoustics.
17. Pinta Acoustic, Inc.
18. Proudfoot Company, Inc. (The).
19. Sound Concepts Canada, Inc.
20. Sound Management Group LLC.
21. Tectum Inc.
22. Wall Technology, Inc.; an Owens Corning company.
23. Working Walls, Inc.
24. Substitutions: See Section 01 63 00 – Product Substitution Requirements.

C. General Requirements for Fabric-Wrapped Wall Panels: Panels shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Fabric-Wrapped Wall Panel: Manufacturer's standard panel construction consisting of facing material stretched over front face of edge-framed core and bonded or attached to edges and back of frame.

1. Basis-of-Design Product: Indicated on Drawings.
2. Mounting: Edge mounted with splines secured to substrate.
3. Mounting: Back mounted with manufacturer's standard metal clips or bar hangers, secured to substrate.
4. Core: Mineral-fiber board.

    a. Core-Face Layer: Manufacturer's standard tackable, impact-resistant, high-density board.

5. Core Overlay: Polyester batting manufacturer's standard thickness.
6. Edge Construction: Manufacturer's standard chemically hardened core with no frame.
7. Edge Profile: Eased (small radius).
8. Corner Detail in Elevation: Square with continuous edge profile indicated.
9. Reveals between Panels: Flush reveals.
10. Facing Material: As indicated on Drawings.
11. Nominal Overall Panel Thickness: 3/4 inch (19 mm).

2.2 MATERIALS

A. General:

1. Minimum Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 40 percent.
2. Regional Materials: Fabric-wrapped wall panels shall be manufactured within 500 miles (800 km) of Project site.
3. Certified Wood: Fabricate products with wood-based components produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

B. Core Materials: Manufacturer's standard.
1. Mineral-Fiber Board: Maximum flame-spread and smoke-developed indexes of 25 and 10, respectively.

C. Facing Material: Fabric from same dye lot; color and pattern as indicated on Drawings.

1. Applied Treatments: Acrylic backing, single coat.
2. Lining Material: Manufacturer's standard fabric for each use indicated.

D. Mounting Devices: Concealed on back of panel, recommended by manufacturer to support weight of panel, and as follows:

1. Adhesives: As recommended by fabric-wrapped, wall panel manufacturer and with a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Adhesives: As recommended by fabric-wrapped, wall panel manufacturer and that comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.3 FABRICATION

A. General: Use manufacturer's standard construction except as otherwise indicated; with facing material applied to face, edges, and back border of dimensionally stable core; and with rigid edges to reinforce panel perimeter against warpage and damage.

B. Core-Face Layer and Core Overlay: Evenly stretched over core face and edges and securely attached to core; free from puckers, ripples, wrinkles, or sags.

C. Facing Material and Lining Material: Apply fabric fully covering visible surfaces of panel; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.

1. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches in adjacent panels.

D. Dimensional Tolerances of Finished Panels: Plus or minus 1/16 inch (1.6 mm).

E. EXECUTION

2.4 INSTALLATION

A. Install fabric-wrapped wall panels in locations indicated with vertical surfaces and edges plumb, top edges level and in alignment with other panels, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.

B. Comply with fabric-wrapped, wall panel manufacturer's written instructions for installation of panels using type of mounting devices indicated. Mount panels securely to supporting substrate.

C. Align and level fabric pattern and grain among adjacent panels.

D. Clip loose threads; remove pills and extraneous materials.

E. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION

SECTION 09 90 00

PAINTING

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes the following:
   1. Surface preparation.
   2. Prime coat application.
   3. Finish coat application.
   4. Upon completion of Work under this Contract, all surfaces within the Contract limits and within vision, shall have a painted finish on the interior and exterior except excluded items defined herein. Include all roof mounted mechanical and electrical equipment factory primed or factory finished and in full view.

1.02 WORK NOT INCLUDED

A. Surfaces Not To Be Painted:

   1. Prefinished wall, ceiling and floor coverings.
   2. Items with factory-applied final finish except roof-mounted equipment as defined above.
   3. Concealed ducts, pipes and conduit.
   4. Glass, plastic laminate, ceramic tile, anodized aluminum.
   5. Steel items embedded in concrete.
   6. Surfaces specifically scheduled or noted on the Drawings not to be painted.
   7. Fire-Rated Labels on doors or frames.

1.03 REFERENCES

A. AQMD – Air Quality Management District, Local Regulations.

B. ASTM D4442 – Direct Moisture Content Measurement of Wood and Wood-Base Materials.

C. ASTM D4444 – Use and Calibration of Hand-Held Moisture Meters.

D. CIWMB – California Integrated Waste Management Board

E. EPA – Environmental Protection Agency