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033500 CONCRETE SEALERS

A. Applied finishes for interior exposed concrete floors.
   1. Campus Standard: Acrylic sealer on all exposed, finished concrete

B. Hardener, Sealer Dustproofer:
   1. Liquid, penetrating, abrasion resistant compound, capable of curing, sealing, dustproofing, and densifying new concrete.
   2. Colorless, non-yellowing liquid formulated for foot and vehicular traffic areas.
   3. Resists tire marking.
   4. Does not alter slip resistance of concrete.
   5. VOC content: Zero.
   6. Acceptable Products:
      a. Ashford Formula, Curecrete Chemical Co., Inc.
      b. Seal Hard, L&M Construction Chemicals, Inc.
      c. Liqui-Hard, W.R. Meadows.

END OF SECTION

033524 POLISHED CONCRETE FLOORS

A. Polished and stained concrete finishing for interior concrete floors.

B. Provide mock-up for system approval.

C. Polished Concrete Chemical Densifier Compounds:
   1. High performance chemical densifier manufactured specifically for application over polished concrete.
   2. Acceptable Products:
      a. Formula One Polished Concrete System, L.M. Scofield, Los Angeles, CA.
      b. FGS/Permashine, L&M Construction Chemicals, Inc., Omaha, NE.
      c. Certi-Shine, Vexcon Chemicals, Inc., Philadelphia, PA
      d. Perfect Polish.

D. Penetrating Concrete Stain:
   1. Provide stained floors where scheduled.
   2. Chemical reactive stain recommended by polished concrete manufacturer as being compatible with polished concrete chemical densifier.
   3. Color: As selected by Architect.

E. Grinding:
   1. Grind and smooth concrete with diamond impregnated abrasive discs fitted to large, heavy floor grinding and polishing machines. Use dry or wet method as approved by manufacturer for selected system.
   2. Produce ground finish surface to match approved field sample.
   3. Rough Grinding:
      a. Grind concrete with #30 or #40 or finer diamond plates.
      b. Follow initial grind with #80 or finer grit stones.
   4. Grouting:
      a. Cleanse with clean water and rinse thoroughly.
      b. Remove excess rinse water and allow to dry.
      c. Steel trowel cement paste to fill voids completely.
      d. Allow grout to cure.
   5. Final Grinding:
      a. Polish with progressively finer grit stones to achieve finish below and matching approved sample.
      b. Cleanse with clean water and rinse thoroughly.
      c. Remove excess rinse water and allow to dry.

F. Final Polished Concrete Floor Finish:
   1. Class A – Cream Finish: Polish portland cement paste resulting in little or no aggregate exposure.
   2. Class B – Fine Aggregate (Salt and Pepper) Finish: Remove not more than 1/16 inch of concrete surface by grinding and polishing resulting in majority of exposure displaying fine aggregate with no, or small amount of, medium aggregate at random locations.
   3. Class C – Medium Aggregate Finish: Remove not more than 1/8 inch of concrete surface by grinding and polishing resulting in majority of exposure displaying medium aggregate with no, or small amount of, large aggregate at random locations.
   4. Class D – Large Aggregate Finish: Remove not more than 1/4 inch of concrete surface by grinding and polishing resulting in majority of exposure displaying large aggregate with no, or small amount of, fine aggregate at random locations.
   5. Level 1 – Low Gloss Appearance:
      a. Procedure: Not less than 4 step process with full refinement of each diamond pad up to 400 grit resin bonded pad with one application of densifier.
      b. Gloss Reading: Not less than 40 according to ASTM E430 before polish guard application.
   6. Level 2 – Medium Gloss Appearance:
      a. Procedure: Not less than 5 step process with full refinement of each diamond pad up to 800 grit resin bonded pad with one application of densifier.

b. Gloss Reading: Not less than 55 according to ASTM E430 before polish guard application.

7. Level 3 – High Gloss Appearance:
   a. Procedure: Not less than 6 steps with full refinement of each diamond pad up to 1500 grit resin bonded pad with one application of densifier.
   b. Gloss Reading: Not less than 60 according to ASTM E430 before polish guard application.
8. Level 4 – Very High Gloss Appearance:
   a. Procedure: Not less than 7 steps with full refinement of each diamond pad up to 3000 grit resin bonded pad with one application of densifier.
   b. Gloss Reading: Not less than 70 according to ASTM E430 before polish guard application.

G. Penetrating Concrete Stain:
1. Apply stain in number of coats and at rate indicated by manufacturer to obtain penetration and full coverage.
2. Do not allow flooding of surface or multi-coat overlapping.
3. Do not dilute or alter material as packaged.
4. Provide tint and opacity to match sample.
5. Apply sealer over stained concrete surface.

H. Sealer/Densifier: Apply 2 coats of sealer/densifier to harden exposed cement paste on top 1/16 to 1/8 inch of floor resulting in hardened floor with satin shine.

END OF SECTION

034900 GLASS FIBER REINFORCED CONCRETE (GFRC)

A. Work Includes: Glass fiber reinforced concrete window surrounds, eaves, trim and similar exterior detailing.
   1. Option these elements may be precast.

B. Acceptable Manufacturers:
   1. Casting Designs, Inc. (CDI), Fort Worth, TX.
   2. Clark-Pacific, West Sacramento, CA.
   3. Formglas Inc., San Jose, CA.
   4. Moonlight Molds, Gardena, CA.
   5. Plastrglas, Inc., Omaha, NE.

END OF SECTION

035400 CAST UNDERLAYMENT

A. Section Includes: Leveling of concrete floors for application of large format porcelain tile.

B. Cementitious Underlayment: Non-shrinking, self-leveling, cement based mix, containing no gypsum, for use over concrete substrates.
   1. Subfloor Adhesive VOC: Less than 50 g/L,

C. Thickness: Featheredge up to 1 inch.

D. Compressive Strength: 3000 PSI minimum at 28 days.

E. Bonding Agent/Crack Fillers: Type recommended by underlayment manufacturer for use over substrate encountered.

F. Acceptable Interior Self-Leveling Cement Based Products and Manufacturers:
   1. Ardex K-15, Ardex, Inc.
   2. Ultraplan 1 Plus, Mapei.
   3. 86 Self-Leveling, Laticrete.
   4. Super Flo Top, Euclid Chemical Company.

G. Subfloor Adhesives shall meet or exceed the VOC and chemical component limits of SCAQMD Rule 1168 and Cal-GREEN Table 5.504.4.1 Adhesive VOC Limit requirements.

END OF SECTION

055000 METAL FABRICATIONS

A. Miscellaneous Items: ASTM A36.

B. Rolled Steel Bars, Plates, and Shapes: ASTM A6/A6M

C. Steel Tubing: Cold-formed, ASTM A500.

D. Structural Steel Sheet: Hot-rolled, ASTM A1011/A1011M, Class 1; of grade required for design loading.

E. Galvanized Structural Steel Sheet: ASTM A653/A653M, Quality SQ, of Grade required for design loading. Coating designation; G90.

F. Cold-Rolled Steel Sheet, Commercial Quality: ASTM A1008.

G. Steel Pipe: ASTM A53; type and grade (if applicable) as selected by fabricator and as required for design loading; black finish unless otherwise indicated.

H. Pipe Bollards: Galvanized steel pipe filled with concrete with formed dome top.

I. Metal Bar Gratings: Provide grid galvanized steel gratings at intake and exhaust vents. Depth determined by span.

J. Lateral Supports for Storefronts:
   1. Structural steel angles, sized for spans and wind loads, to support storefronts to structures.
   2. Securely fasten angles to storefront and structure.

K. Overhead Door Supports: Provide weld plates, anchor plates, anchor bolts, angle iron clips, and related items required by overhead coiling door manufacturer for installation of overhead doors equipment.
   1. Fabricate in accordance with dimensions indicated and requirements of overhead door manufacturer.
   2. Provide angle iron, steel channels, steel tube end support posts, guide support framing and equipment framing.
   3. Fabricate and anchor members to structure to meet requirements and loads of overhead door manufacturer.

L. Toilet Partition Supports:
   1. 3” x 3” x 1/4” steel angle for support of ceiling hung toilet partitions with diagonal struts.
   2. Locate supports as required by toilet partition manufacturer and suspend from structure above by means of 1/2 inch diameter rods spaced on 24 inch centers; stagger so that rods do not interfere with bolts supporting toilet partitions.
   3. Drill holes and provide threaded rod as required by partition manufacturer.

M. Operable Partition Supports:
   1. Provide steel supports as required by folding partition manufacturer.
   2. Continuous steel shapes and beams of sizes indicated with attached bearing plates, anchors, and braces as indicated.
   3. Drill holes and provide threaded rod as required by partition manufacturer.
   4. Locate holes where indicated on operable partition Shop Drawings.
   5. Locate supports as required by manufacturer to suspend partitions from structure above without sags or undue deflection affection operation of partitions.

N. Vanities and Countertops: Provide framing to support countertops.

O. Elevators:
   1. Hoist Beam:
      a. Provide elevator equipment hoist beams required for elevator installation.
      b. Finish: None.
   2. Sill Support: Provide threshold support
   3. Guide Rails: Provide intermediate guide rail supports sized and spaced as required by code and elevator manufacturer for guide rails spanning more than 14 feet between supports.
   4. Sump Grating:
      a. Manufacturer is responsible for designing system, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.

b. Material: Galvanized Steel.

P. Cast Stair Nosings: Grooved concrete at exterior locations.

Q. Miscellaneous Items: ASTM A36:

R. Steel lintels, shelf angles and clip angles, including curtain wall clip angles.

S. Structural steel C-shaped channel door frames for roll-up service doors.

T. Galvanized steel angle corner guards for columns, walls and loading dock edge subject to vehicular impact.

U. Provide galvanized steel for all steel items exposed to exterior and built into exterior walls.

V. Fasteners: Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.
1. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A.
2. Eyebolts: ASTM A 489.
3. Machine Screws: ASME B18.6.3.
4. Lag Bolts: ASME B18.2.1.
5. Wood Screws: Flat head, ASME B18.6.1.
6. Plain Washers: Round, ASME B18.22.1.
7. Lock Washers: Helical, spring type, ASME B18.21.1.
8. Masonry Anchorage Devices: Expansion shields.
9. Toggle Bolts: Tumble-wing type, class and style as required.

W. Furnish bent or custom fabricated bolts, plates, anchors, hangers, dowels and miscellaneous steel and iron shapes required for framing, supporting, anchoring or securing fixtures, accessories, and furnishings.

1.2 FINISH

A. Galvanize exterior steel items.

B. Use acid-etch primer for all field paint applications on galvanized and aluminum assemblies.

END OF SECTION

055100 METAL STAIRS

A. Design Requirements:
   1. Fabricator is responsible for designing system including necessary modifications to meet specified requirements and maintain visual design concepts.
   2. Employ registered professional engineer, licensed to practice structural engineering in jurisdiction where Project is located, to engineer each component of stair system.
   3. Drawings are diagrammatic and are intended to establish basic dimension of units, sight lines, and profiles of units.
   4. Make modifications only to meet field conditions and ensure fitting of components.
   5. Obtain Architect's approval of modifications and for connections to building elements at locations other than indicated on Drawings.
   6. Provide concealed fastening wherever possible.
   7. Attachment Considerations: Account for site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening and fracturing connection between units and building structure or between components themselves.

B. Metal Stairs:
   1. Exit Stairs: Pressed steel pan type stairs for concrete fill, including necessary related items.
   2. Live Load on Stairs and Platforms: 100 PSF at treads and platforms and 300 pounds on area of 4 SQ IN at center of tread.
   3. Galvanize exterior stairs.

C. Treads and Nosings:
   1. Exterior: Grooved concrete treads and ramps
   2. Interior: Cast-in-pace

D. Metal Pan Risers, Subtreads, and Subplatforms: Shape metal pans for risers and subtreads to conform to configuration shown. Provide thicknesses of structural steel sheet for metal pans indicated but not less than that required to support total design loading.
   1. Form metal pans of hot-rolled or cold-rolled carbon steel sheet, unless otherwise indicated.
   2. Attach risers and subtreads to stringers by means of brackets made of steel angles or bars. Weld brackets to stringers and attach metal pans to brackets by welding.
   3. Provide subplatforms of configuration and construction indicated, or if not indicated, of same metal as risers and subtreads and in thicknesses required to support design loading. Attach subplatform to platform framing members with welds.

END OF SECTION

055133 LADDERS

A. Type: Vertical steel ladders consisting of the following components:
   1. Side Rails: 3/8 inch by 2-1/2 inches flat steel bars with eased edges.
      a. Side-Step Ladders and Ladders with Top Terminating at Hatch: Space side rails 18 inches apart.
      b. Through Ladders (Step through ladder at top termination): Space side rails 24 inches apart.
   2. Rungs: 3/4 inch minimum round steel bars spaced 12 inches maximum on center, punched through the stringers and plug welded.
   3. Provide non-slip surface on top of each rung, either by coating the rung with aluminum oxide granules set in epoxy resin adhesive, or by using manufactured rung filled with aluminum oxide grout.
   4. Angle Supports: Support ladders by steel angles bolted to walls and floors to provide minimum of 7 inches from face of wall to centerline of rungs; 4-1/2 inches from face of wall to centerline of rungs at elevator pits. Locate at 5 feet on center and within 16 inches of top and bottom.
   5. Safety Handrails: Extend rails 48 inches above top rung and anchor to structure, if adjacent structure does not extend above top rung, gooseneck extended rails back to structure.
   6. Provide steel bar grating platform for stepping over roof parapets.
   7. Security Gate: Provide hinged lockable security mesh to prevent unauthorized use. Coordinate locking mechanism with Section 087100.
   8. Provide OSHA complying fall arrest safety and security system for ladders more than 24 feet in uninterrupted height.
      a. Fall arrest system locks within inches when fall occurs.
      b. Meet OSHA and ANSI requirements.
      c. Provide fall protection from one manufacturer's tested system of components and connecting subsystems.
   9. Cages: Provide steel bar cages enclosing ladders more than 20 feet in unbroken length or where required by code. Fabricate from structural steel flat bars, assembled by welding or riveting. Unless otherwise indicated, provide 5/16 inch by 4 inches top and bottom hoops and intermediate hoops spaced not more than 20 feet on center; 5/16 inch by 2 inch hoops at 4 feet on center between the 4 inch wide hoops; and 5/16 inch by 2 inches vertical bars, secured to each hoop. Space vertical bars approximately 9 inches OC. Fasten assembled safety cage to ladder rails and adjacent construction.

B. Ship's Ladders: Complete with handrails, anchors and accessories.

C. Construction (Steel):
   1. Stringers: Fabricate from structural steel channels conforming to ASTM A36/A36M.
   2. Treads: Fabricate from steel grating with checkered nosings as follows:
      a. Size: 1-1/4 inches by 3/16 inch bearing bars spaced at 1-3/16 inch centers and 5/8 inch by 3/16 inch cross bars spaced at 4 inches centers, plain wearing surface, welded construction, ASTM A36 steel.
      b. Manufacturer: Steel X-Bar Tread by IKG Industries, Clark, NJ. or 19W4 by Seidelhuber Metal Products, Inc., Hayward, CA.
   3. Handrails: Fabricate from 1-1/4 inches I.D. steel pipe, confirming to ASTM A53.
   4. Connections: Welded and ground smooth for finishing.

END OF SECTION

057000 DECORATIVE METAL

A. Section Includes:
   1. Perforated Panels Stainless steel.
   2. Architecturally exposed structural steel

B. General:
   1. Provide architecturally exposed metals free from surface blemishes in finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.
   2. Provide architectural grade steel where exposed to view.

C. Aluminum:
   1. Extruded Bar and Shape: ASTM B221, 6063-T6
   2. Extruded Pipe and Tube: ASTM B429, 6063-T6
   3. Sheet: ASTM B209, 3003 or 5005, thickness as needed for Lobby beam covers.
   4. Castings: B26/B26M Alloy 514.0.

D. Perforated Panels:
   1. 18 ga. thick sheet steel with 1/4 inch diameter perforations by 0.650 staggered.
   2. Provide Kynar 500 finish in color selected by Architect.
   3. Provide concealed fasteners and clips for Lobby ceiling.

E. Stainless Steel:
   1. Pipe: ASTM A312/A312M, Grade TP304
   2. Sheets: ASTM A240, UNS Number S30200 or S30400.
   3. Fasteners: Stainless steel

F. Steel and Iron: Provide steel and iron in form indicated complying with following requirements:
   1. Steel Plate, Shapes, and Bars: ASTM A36.
   2. Steel Tubing: Cold-formed, ASTM A500.
   3. Structural Steel Sheet: Hot-rolled, ASTM A1011/A1011M, Class 1; of grade required for design loading.
   4. Cold-Rolled Steel Sheet, Commercial Quality: ASTM A1008/A1008M.
   5. Gray Iron Castings: ASTM A48, Class 30.
   6. Malleable Iron Castings: ASTM A47, grade as recommended by fabricator for type of use indicated.

G. Architecturally Exposed Structural Steel (AESS)
   1. Fabricate architecturally exposed structural steel (AESS) members in accordance with AISC S302. Hot-dip galvanize after fabrication at exterior locations.
   2. Fabricate canopies to designs indicated from structural channels, shapes, bars, and tubes to sizes and profiles indicated. Fabricate by bending, forging, coping, mitering, and welding.
   3. Welding: Interconnect members with full-length, full-penetration welds, unless otherwise indicated. Use welding method that is appropriate for metal and finish indicated and that develops full strength of members joined. Finish exposed welds and surfaces smooth, flush, and blended to match adjoining surfaces.
   4. Brackets, Fittings, and Anchors: Provide brackets, fittings, and anchors to connect canopies to structure and other work, unless otherwise indicated. Coordinate anchorage devices with supporting structure.

END OF SECTION

057300 DECORATIVE METAL RAILINGS

A. Design Requirements:
   1. Fabricator is responsible for designing railing system, including anchorage to structural system and necessary modifications to meet specified requirements and maintain visual design concepts.

B. Manufactured Ornamental Handrails and Railings:
   1. Design Requirements: Capable of withstanding following loads applied as indicated.
      a. Concentrated load of 200 pounds applied at any point in any direction.
      b. Uniform load of 50 PLF applied in any direction.
      c. Concentrated and uniform loads above need not be applied simultaneously.

C. Glass Railing Systems
   1. 1/2 inch clear tempered glass supports with 2 inch diameter stainless steel rail cap in No. 7 polished finish.
   2. Provide laminated glass for curved sections.
   3. Provide concealed extruded aluminum base [with polished stainless steel cover plates].
   4. Acceptable Manufacturers:
      a. Allied Bronze Corp.
      b. Blumcraft of Pittsburgh.
      c. Clearail, Ampat/Midwest Corp.
      d. Livers Bronze Co.
      e. Zephyr Metal Craft, Inc.

D. Steel:
   1. Steel: Maximize use of recycled steel with minimum of 30 percent.
   2. Tubing: ASTM A500 or A501
   3. Plates, shapes and bars: ASTM A36.
   4. Gray iron castings: ASTM A48, Class 30.
   5. Malleable iron castings: ASTM A47, Grade as recommended by fabricator for type of use indicated.

E. Aluminum:
   1. Extruded Bar and Shape: ASTM B221, 6063-T6.
   2. Extruded Pipe and Tube: ASTM B429, 6063-T6.
   3. Castings: B26 Alloy 514.0.
   4. Handrail Connectors: Julius Blum and Co., Inc., Carlstadt, NJ.

F. Glass:
   1. Type: Tempered Safety Glass.
   2. Standard: ASTM C1048, Kind FT, Condition A, Type I.
   3. Color: Clear-Class 1.
   4. Thickness: 1/2 inch.

G. Glazed Railing at Feature Stairs:
   1. Provide concealed extruded aluminum base with polished stainless steel cover plates.

H. Stainless Steel:
   1. Pipe: ASTM A312, Grade TP304.
   2. Tubing: ASTM A554, Grade MT 304.
   3. Castings: ASTM A743, Grade CF-8 or CF-20.
   4. Shapes: ASTM A276, UNS Number S30200 or S30400.
   5. Sheets: ASTM A240, UNS Number S30200 or S30400.
   6. Fasteners and Accessories: Stainless steel Type 304 [316].

I. Ornamental Steel Railings: Finish per Section 099600 High Performance Coatings.

END OF SECTION

061000 ROUGH CARPENTRY

A. Work Included: Wood nailers, structural and non-structural wood framing, blocking, furring, curbs, anchors, and accessories.

B. Solid Sawn Lumber: PS-20 and applicable rules writing agencies; surface four sides (S4S):
   1. General Non-Structural Framing: Stud grade, any species.
   2. Wood Blocking: Utility grade, any species.
   3. Wood Joist and Rafter Framing; Joists and Rafters for Built-Up Beams: No. 1 grade Douglas Fir-Larch, select structural grade Douglas Fir-Larch (North), or No. 1 grade Southern Pine.
   4. Wood Studs Studs for Built-Up Columns; Columns Less than 5 Inches Thick: Stud grade; Douglas Fir-Larch, Douglas Fir-Larch (North); Spruce-Pine-Fir, or Southern Pine.
   5. Columns/Posts Greater than 5 Inches Thick: No. 1 grade posts and timbers Douglas Fir-Larch, No. 1 grade posts and timbers Douglas Fir-Larch (North), or No. 1SR 5 by 5 inches and larger Southern Pine.

C. Plywood: PS-1 or APA PRP-108.
   1. Equipment Panel Boards:
      a. Rated Sheathing.
      b. Exposure 1.
      c. Grade: A-C, void free.
      d. Thickness: 23/32 inches minimum.

D. Fasteners: Provide fasteners in sizes, spacings, and locations to suit applications.

E. Wood Treatments:
   1. Preservative Pressure Treatment: AWPA C2 for solid sawn lumber, decking, and timber; AWPA C9 for plywood.
   2. Fire Retardant Pressure Treatment: AWPA C20 for lumber; AWPA C27 for plywood; maximum flame spread/smoke development rating of 25/25 (FR-S Rating).

END OF SECTION

061643 GYPSUM SHEATHING

A. Glass Fiber Faced Gypsum Sheathing:
   1. Locations: Exterior walls of metal framing.
   2. ASTM C1177.
   3. Thickness: 5/8 inch.
   4. Type X for fire-rated assemblies and locations where indicated; regular type at other assemblies.
   5. Flame spread and smoke developed, when tested in accordance with ASTM E84: 0.
   6. Acceptable Products and Manufacturers:
      a. G-P Dens-Glass Gold Exterior Sheathing, Georgia-Pacific Corporation, Atlanta, GA.
      b. e2XP Extended Exposure Sheathing, National Gypsum, Charlotte, NC.
      c. Securock Glass-Mat Sheathing, USG, Chicago, IL.
      d. GreenGlass, Temple-Inland, Diboll, TX.

B. Fluid Applied Air Barrier: Refer to Section 072700.

END OF SECTION

062000 FINISH CARPENTRY

A. Comply with applicable provisions of *North American Architectural Woodwork Standards* (NAAWS), Latest Edition.

B. Fabrication and Installation Standards: Fabricate and install in accordance with NAAWS as listed below.
   1. Lumber grades: NAAWS Section 3.
   2. Standing and running trim: NAAWS Section 6.
   3. Stairwork and Rails: NAAWS Section 7.
   4. Installation: NAAWS Appendix B – 12 Installation.

C. Lumber: Lumber sizes indicated are nominal unless detailed by specific dimensions of actual size. Minimum material thickness is 3/4 inch actual, unless noted or shown otherwise.
   1. Provide materials that comply with requirements of AWS woodworking standard for each type woodwork and quality grade indicated.
   2. Products surfaced four sides, unless noted otherwise.
   3. Interior Wood Trim
      a. Softwood Lumber: White, ponderosa, or yellow pine.
      b. Hardwood Lumber: Yellow poplar [Red oak] [White oak] [White birch].
         1) Grain: Plain sawn [Quarter sawn] [Rift sawn] [Mixed].
   4. General: Provide from an FSC certified source.

D. Plywood Panels:
   1. Interior Softwood Plywood: Interior, grade A-D [A-A] [Medium density overlay, one [both] face].
      a. Species: Douglas fir [Southern yellow pine].
      b. Thickness: 23/32 inch thickness unless noted or detailed otherwise.
   2. Hardwood Plywood:
      a. Core Material: Fir veneer.
      b. Face Veneer: To be selected.

E. Medium Density Fiberboard: ANSI A208.2, Classification M-3.
   1. Base and Trim:
      a. Size: As indicated on drawings.
      b. Finish: Field Painted.

F. Fabricate and install in accordance with AWS Premium grade.

END OF SECTION

064000 ARCHITECTURAL WOODWORK

A. Comply with applicable provisions of *North American Architectural Woodwork Standards* (NAAWS), Latest Edition.

B. Warranty: Provide warranty with provisions for repairing or replacing, at no additional cost to Owner, architectural woodwork items that exhibit defects in material or workmanship for two years.

C. Wood Lumber Species: To be selected.
   1. Products surfaced four sides, unless noted otherwise.

D. Wood Veneer Species: To be selected.

E. Medium Density Fiberboard (MDF): ASTM D1037 and ANSI A208.2, Classification M-3.
   1. Formaldehyde free material.
   2. Fire retardant treated.
   3. Density: Minimum of 48 PCF.
   4. Thickness:
      a. Panel structural components: Minimum 3/4 inch thick.
      b. Back Panels, Drawer Components, and Drawer Bottoms: Minimum 1/2 inch thick.
      c. Fixed Shelves, Dividers, Mounting Stretchers: Minimum 3/4 inch thick.
      d. Semi-exposed Adjustable Shelves in Cabinets under 36 inches Wide: Minimum 3/4 inch thick.
      e. Shelves in Cabinets 36 inches Wide or Greater: Minimum 1 inch thick.
   5. Acceptable Product: Medite II, Medite Corporation, Medford, OR.
   6. Provide cores from rapidly renewable source.

F. High Pressure Decorative Laminate (HPDL):
   1. HPDL Type 1: General purpose.
      a. Core: Standard.

G. Finish: NAAWS System 5 Conversion Varnish:
   1. Degree of Sheen: Medium rubbed.

H. Fabricate and install in accordance with NAAWS Premium grade.

I. Wood Cabinets: NAAWS Section 10.
   1. NAAWS Construction: Flush overlay

J. Countertops: AWS Section 11.
   1. Provide with 2 inch deep face edge to match countertop unless indicated otherwise.
   2. Provide loose 4 inch splashes to match countertop unless indicated otherwise.
   3. Tops with sinks: Provide core of exterior grade plywood (M-2 or M-3 exterior glue) or phenolic resin particleboard Type 2-M-2 or 2-M-3.
   4. Solid Polymer Top: Refer to Section 123663.

K. Interior Standing and Running Wood Trim: NAAWS Section 6, Standing and Running Trim.

END OF SECTION

064116 PLASTIC LAMINATE CLAD WOOD CABINETS

A. NAAWS/AWI Quality Standard: Premium Grade

B. Wall mounted cabinets: Able to withstand minimum cabinet-to-wall connection load of not less than 60 pounds per linear foot.

C. Woodwork Institute (WI) Certification:
   1. Millwork, casework and cabinetwork shall be manufactured in accordance with standards established in the North American Architectural Woodwork Standards, Latest Edition, published jointly by the Woodwork Institute and the Architectural Woodwork Manufacturer's Association of Canada, in grade or grades herein specified or as shown on Drawings.
   2. Before delivery to jobsite, woodwork supplier shall submit Woodwork Institute Certified Compliance Program labels and certificates indicating millwork products being supplied and certifying that products fully meet the requirements of Grade or Grades specified.
   3. Each elevation of casework, each laminated plastic top, and each solid surface top shall bear Woodwork Institute Certified Compliance Label that will be semi-concealed after fabrication.
   4. At completion of installation, woodwork installer shall provide Woodwork Institute Certified Compliance Certificate indicating the products installed, and Certifying that the installation of these products fully meets the requirements of the Grade or Grades specified.
   5. All fees charged by the Woodwork Institute for their Certified Compliance program are responsibility of millwork manufacturer and/or installer and shall be included in their bid.
   6. The foregoing shall not be construed to limit power and authority of Owner to reject any millwork which does not in Owner's opinion meet with any one or more of the specifications of this Contract.

D. High Pressure Decorative Laminate:
   1. Quality Standard: Comply with NEMA LD-3.
   2. Acceptable Products and Manufacturers:
      a. Formica, Formica Corporation, Cincinnati, OH.
      b. Nevamar, International Paper Decorative Products, Odenton, MD.
      c. Pionite, Pioneer Plastics Corporation, Auburn, ME.
      d. Wilsonart, Wilsonart International, Inc., Temple, TX.

E. Solid Surfacing Material: Countertops.

F. Plastic Laminate Backing Sheets: High Pressure laminate of paper, without decorative finish, 0.020 inch thick.

G. Melamine:
   1. Composition: High Pressure laminate of paper, with decorative finish, 0.020 inch thick.
   2. Color: White unless otherwise indicated on Drawings.

H. Wood Base at Toe Kick: Solid hardwood such as Poplar, covered with laminate.

I. Softwood Lumber: Comply with PS 20.
   1. Maximum Moisture Content: 6 percent.
   2. Species: Douglas fir, hemlock, Ponderosa pine, or Sugar pine.

J. Particleboard:
   1. Comply with ANSI A208.1, phenolic resin particleboard.
   2. No added urea formaldehyde.
   3. General Purpose: Type 1-M-1.
   4. Water Resistant: Type 2-M-2 or 2-M-3.

K. Medium Density Fiberboard (MDF): ASTM D1037 and ANSI A208.2, Classification M-3.
   1. Formaldehyde free material.
   2. Fire retardant treated, Class I or Class A rating.
   3. Density: Minimum of 48 PCF.
   4. Thickness:
      a. Panel structural components: Minimum 3/4 inch thick.
      b. Back Panels, Drawer Components, and Drawer Bottoms: Minimum 1/2 inch thick.
      c. Fixed Shelves, Dividers, Mounting Stretchers: Minimum 3/4 inch thick.

d. Semi-exposed Adjustable Shelves in Cabinets under 36 inches Wide: Minimum 3/4 inch thick.
e. Shelves in Cabinets 36 inches Wide or Greater: Minimum 1 inch thick.

5. Acceptable Product: Medite FR, Medite Corporation, Medford, OR.

L. Hardware: Operable parts for all accessible casework shall comply with CBC Section 11B-309.

END OF SECTION

068200 GLASS FIBER REINFORCED PLASTIC

A. Glass Fiber Reinforced Plastic Wall and Ceiling Covering:
   1. Provide USDA approved, quick cleaning, impact-resistant, moisture resistant glass fiber reinforced plastic (FRP) panels complete with mating clips and batten strips.
   2. Material: Chopped fiberglass roving and polyester resin producing hard, durable sanitary surface.
   3. Finish: Embossed.
   4. Thickness: 0.090 inch.
   5. Fire Rating: Class C or Class A Flame Spread.
   6. Color: As selected by Architect from manufacturer's full color line.
   7. Acceptable Products:
      a. InPro
      b. Kemlite Company, Inc., Channahon, IL.
      c. Nudo Products, Inc., Springfield, IL.

END OF SECTION

071300 SHEET WATERPROOFING

A. Special Warranty: Provide warranty with attachments for full replacement value of completed installation signed by manufacturer, applicator and Contractor warranting against water infiltration and defects of materials and workmanship for period of two [five] years.

B. Sheet Waterproofing: Materials: Rubberized asphaltic sheet laminated to a polypropylene film, 60 mil minimum total thickness.
   1. Acceptable Products and Manufacturers:
      a. Bituthene 4000 Waterproofing System, Grace Construction Products, Cambridge, MA.
      b. MEL-ROL or MEL-GARD, W. R. Meadows, Inc., Elgin, IL.
      c. CCW MiraDRI 860, Carlisle Coatings and Waterproofing, Wylie, TX.
      d. Blueskin WP 200, Henry Company, Huntington Park, CA.
      e. Polyguard No. 650 Membrane, Ployguard Products, Inc.
   2. Locations:
      a. Vertical surfaces of two sided formed foundation walls.
      b. Horizontal surfaces of plaza decks with occupied space below.
      c. Planters.
      d. Sandwich slabs.
      e. Elevator pits.

C. Protection Board:
   1. Asphaltic, preformed sheet or board, 1/8 inch thick.
      a. Acceptable Products:
         1) Bituthene Asphaltic Hardboard, WR Grace and Co.
         2) Sealtight Protection Course PC-2, WR Meadows, Inc.
   2. Fan-Fold Protection Board (Vertical Applications): Extruded polystyrene sandwiched between non-perforated film laminates designed for use in commercial foundation waterproofing applications; 15 PSI compressive strength.
      a. Thickness: 1/4 inch.
      b. Acceptable Products:
         1) GreenGuard-PB4 Protection Board, PacTiv Building Products Company.
         2) Dow Protection Board III, The Dow Chemical Company.
         3) UCI Underlayment Board, Owens Corning Foamular.
      c.

END OF SECTION

072100 THERMAL INSULATION

A. Batt (Blanket) Insulation:
   1. Fiberglass Batt Insulation - Vapor Retarder: Glass fiber composition with integral fire retardant foil reinforced kraft laminate vapor retarder.
      a. Classification: ASTM C665, Type III, Class A.
      b. Fire Rating: ASTM E84, Flame spread 25 or less and smoke development 450 or less.
      c. Thermal Resistance ("R" values) as indicated.
   2. Fiberglass Batt Insulation - Unfaced: Glass fiber composition, friction fit type, unfaced.
      a. Classification: ASTM C665, Type I.
      b. Fire Rating: ASTM E84, Flame spread 25 or less and smoke development 450 or less.
      c. Thermal resistance ("R" values) as indicated.

B. Board Insulation:
   1. Extruded Polystyrene Board Insulation: Square edges.
      a. Thickness or thermal resistance ("R" value) as indicated.
      b. Classification: ASTM C578, Type IV
      c. Fire Rating: ASTM E84, 1 inch thick test material, flame spread 10 or less, smoke development 200 or less.
      d. Acceptable Products:
         1) GreenGuard by Kingspan.
         2) Styrofoam by DuPont.
         3) Foamular by Owens-Corning.
      e. Locations: Foundation insulation.

C. Curtain Wall Insulation: Inorganic glass or mineral fiber semi-rigid board insulation.
   1. Factory faced with fire retardant reinforced foil laminate on one face.
   2. Thermal resistance ("R" values) as indicated.
   3. Classification: ASTM C612, Class 1 or 2.
   4. Fire Rating: ASTM E84, flame spread 25 or less, smoke development 50 or less.
   5. Acceptable Products:
      a. FBX Curtainwall Insulation, Fibrex Co.
      b. Insul-Shield, Building Insulation, Johns Manville International, Inc.
      c. CW225, Owens-Corning Fiberglas Corp.
      d. Paroc Curtain Wall insulation, Partek Insulations, Inc.
      e. Thermafiber, USG Interiors, Inc.
   6. Location: Applied to curtain wall spandrel glass.

END OF SECTION

072600 VAPOR RETARDERS

A. Class A Vapor Retarder (15 mil):
   1. Virgin waterproof polyolefin film; recycled materials not allowed.
   2. Comply with ASTM E1745, Class A minimum.
   3. Tensile Strength: 84 pound/inch minimum, ASTM E154, Section 9.
   4. Water Vapor Transmission Rate (WVTR): ASTM E96, Procedure A; 0.009 perms maximum.
   5. Puncture Resistance: 2400 grams minimum, ASTM D1709, Method B
   6. Acceptable Product:
      a. Stego Wrap15 mil Class A, Stego Industries, LLC, San Juan Capistrano, CA.
      b. Rufco Vapor Block 15, Raven Industries, Sioux Falls, SD.
      c. Vapor-Mat 15-mil, WR Meadows.
      d. Moistop Ultra A, Fortifiber Corporation, Los Angeles, CA.
      e. Griffolyn 15 mil Green, Reef Industries, Inc., Houston, TX.
   7. Locations: Under slabs-on-grade.

END OF SECTION

072700 AIR BARRIERS

A. Section includes spray on air barrier for use over exterior wall sheathing substrates and transition material between dissimilar substrates.

B. Provide a liquid applied, vapor permeable air barrier system constructed to perform as a continuous air barrier, and as a liquid water drainage plane flashed to discharge to the exterior any incidental condensation or water penetration. Membrane shall accommodate movements of building materials by providing expansion and control joints as required, with accessory air seal materials at such locations, changes in substrate and perimeter conditions.
   1. It shall be capable of withstanding positive and negative combined design wind, fan and stack pressures on the envelope without damage or displacement, and shall transfer the load to the structure. It shall not displace adjacent materials under full load." "The air barrier shall be joined in an airtight and flexible manner to the air barrier material of adjacent systems, allowing for the relative movement of systems due to thermal and moisture variations and creep. Connection shall be made between:
      a. Foundation and walls.
      b. Walls and windows or doors.
      c. Different wall systems.
      d. Wall and roof.
      e. Wall and roof over unconditioned space.
      f. Walls, floor and roof across construction, control and expansion joints.
      g. Walls, floors and roof to utility, pipe and duct penetrations. "
   2. Air Barrier Penetrations: All penetrations of the air barrier and paths of air infiltration / exfiltration shall be made air-tight.
   3. Comply with Air Barrier Association of America's (ABAA's) definition of a tested system.

C. Fluid Applied Vapor Permeable Air Barriers:
   1. One component, rubberized (elastomeric), fluid applied material.
   2. Color: Manufacturer's standard.
   3. Compatible with extruded polystyrene insulation adhesive in cavity wall construction.
   4. Performance Characteristics:
      a. Solids by Weight: 50 percent minimum.
      b. Water Vapor Permeance: 11 perms minimum, ASTM E96.
      c. Elongation: ASTM D412, 150 percent minimum.
      d. Peel Strength: ASTM C836 or ASTM C836, 10 lbf/inch minimum.
   5. Air Permeability:
      a. 1.6 PSF air pressure: 0.00010 CFM/sq. ft.
      b. 5.2 PSF air pressure: 0.00014 CFM/sq. ft.
      c. 6.3 PSF air pressure: 0.00015 CFM/sq. ft.
   6. Nail Sealability (ASTM 1970): Pass
   7. VOC Content: Less than 100 g/L.
   8. Basis of Design Product:
      a. Air-Bloc 31MR, Henry Company.
      b. Air-Shield LMP, WR Meadows.
      c. Perm-A-Barrier VP, WR Grace.
      d. Location: Use as an air barrier on concrete, masonry, and gypsum sheathing substrates.

D. Use coatings with VOC limits of less than 100 g/L to comply with Cal-GREEN Table 5.504.4.3 for VOC Content Limits for Architectural Coatings.

E. Transition Membrane:
   1. Self-adhering membrane consisting of an SBS rubberized asphalt compound, integrally laminated to polyethylene film.
   2. Thickness: 40 mils.
   3. Performance Characteristics:
      a. Tensile Strength: ASTM D412 modified, 500 psi.
      b. Minimum Puncture Resistance: ASTM E154, 40 lbf.
      c. Elongation: ASTM D412, 200 percent.

4. Compatible with spray applied air/vapor barrier.
5. Transition Primer: As recommended by manufacturer for compatibility with transition membrane.
6. Basis of Design Product: Blueskin SA, Henry Co., Huntington Park, CA.

F. Through-wall Flashing Membrane and Damp Proof Course (Self-Adhering):
1. SBS modified bitumen, self-adhering sheet membrane complete with a cross-laminated polyethylene film, having the following physical properties:
   a. Thickness: 0.0394" (40 mils).
   b. Film Thickness: 9.0 mils
   c. Tear Resistance: 13 lbs. MD to ASTM D1004;
   d. Tensile Strength (film): 5000 psi ASTM D882
   e. Puncture Resistance: 40 lbf to ASTM E154;
   f. Low temperature flexibility: -22°F to CGSB 37-GP-56M;
2. Basis of Design Product: Blueskin TWF, Henry Company, Huntington Park, CA.
   a. Metal Faced Window and Door Penetration Membrane:
3. Substrate compatible for airtight sealant between air barrier and door or window frame.
4. Foilskin® as manufactured by Henry, an SBS modified bitumen, self-adhering type, integrally laminated to a glass scrim reinforced aluminum foil film, and having the following physical properties:
   a. Thickness: 60 mils min.
   b. Air leakage: 0.0001 CFM/ft^2 @ 1.6 lbs/ft^2 to ASTM E283;
   c. Vapor permeance: 0.05 perms to ASTM E96;
   d. Low temperature flexibility: Pass @ -22°F to CGSB 37-GP-56M;
   e. Elongation: 200% min. to ASTM D412;
   f. Metal Faced Window and Door Penetration Membrane:
5. Substrate compatible for airtight sealant between air barrier and door or window frame.
6. HE200AM Metal Clad as manufactured by Henry, a self-adhesive composite membrane of rubberized asphalt and dual-layers of high strength polyethylene with surface layer of metallic aluminum film having the following physical properties:
   a. Aluminum surfacing offers ideal substrate for adhesion of construction sealants
   b. UV and weather resistance due to metallic aluminum surfacing
   c. Excellent adhesion to primed surfaces
   d. Compatible with other Henry BES components
   e. Flexible for ease of penetration detailing
   f. 100% solids - No VOC's
7. Transition Tape for joining Air Barrier to PVC Roofing: EternaBond MicroSealant tape.
8. Primers: As required by air barrier system manufacturer for optimum adhesion of barrier and membranes to Project substrates.
9. Use primers, sealers and undercoaters with VOC limits of less than 100 g/L to comply with Cal-GREEN Table 5.504.4.3 for VOC Content Limits for Architectural Coatings.

END OF SECTION

073200 ROOF TILES

A. Acceptable Manufacturers:
   1. Clay Tile:
      a. Gladding McBean and Company.
      b. International Roofing Products, Inc.
      c. Ludowici RoofTile, Inc.
      d. Maruhachi Ceramics of America, Inc.
      e. US Tile Company.
   2. Tile Fasteners:
      a. Newport Fastener.
      b. The Wire Works, Inc.

B. Felt Underlayment: No. 30, unperforated organic felt, complying with ASTM D226, Type II, [(36 inches)] wide. Provide multiple layers as recommended by roof tile manufacturer for application required.

ND OF SECTION

074113 METAL ROOF PANELS

A. Metal Roof Panels:
   1. Structural Quality Galvanized Steel Sheet:
      a. Hot-dip galvanized steel sheet, ASTM A653, Quality SQ, Grade 33 minimum, G90 coating.
      b. Smooth finish.
      c. Minimum 24 gage.
   2. Flashing, Gutters, Trim, Closure Pieces, Caps, and Accessories: Same material, gage, and where exposed, of same finish as metal panels, brake formed to required profiles.
   3. Finish: Kynar 500 or Hylar 5000, 70 percent minimum fluorocarbon resin.
   4. Color: As selected by Architect from manufacturers full color range.

B. Fasteners and Clips:
   1. Clips:
      a. Manufacturer's standard concealed type, UL-rated clip used to obtain wind uplift test results.
      b. Galvanized or stainless steel finish.
      c. Fabricate clips to allow thermal movement of roof panels while preventing roof panel
   2. Fasteners:
      a. Provide fasteners used to obtain wind uplift test results.
      b. Corrosion resistant type as used for structural tests for concealed applications.
      c. 300 - Series stainless steel with soft neoprene washers and exposed screw head color matched to roof panel where exposed. Use exposed fasteners only where absolutely necessary to attach trim. Exposed fasteners are not allowed for roof panels.

C. Sealants and Gaskets: Manufacturer's standard type suitable for use with installation of metal roofing; non-staining; non-skinning, non-shrinking and non-sagging; ultra-violet and ozone resistant for exterior applications; color to match exposed metal.

D. Water Barrier: Cold applied, self-adhering membrane composed of a high density, cross laminated polyethylene film coated on one side with a layer of butyl rubber or high temperature asphalt adhesive. Provide primer when recommended by water barrier manufacturer.
   1. Minimum Thickness: 30 mil.
   2. Tensile Strength: ASTM D412 (Die C Modified); 250 psi.
   3. Membrane Elongation: ASTM D412 (Die C Modified); 250%
   4. Permeance (Max): ASTM E96; 0.05 Perms.
   5. Acceptable Products:
      a. Blueskin PE 200 HT, Henry, Huntington Park, CA.
      b. Ultra, W.R. Grace Company, Cambridge, MA.
      c. CCW MiraDRI WIP 300 High Temperature, Carlisle Coatings and Waterproofing, Wylie, TX.

E. Rigid Board Insulation:
   1. ASTM C1289, Class 1, Type II polyisocyanurate rigid board.
   2. LTTR R value of 5.57 per inch thickness at 75 degrees F mean temperature regardless of manufacturer's published data complying with PIMA Quality Mark Certification.
   3. Total R-value of 38 (6.3 inches).
   4. Minimum 2.0 PCF density.
   5. Both faces finished with non-asphaltic fiberglass facer.

END OF SECTION

075200 MODIFIED BITUMINOUS MEMBRANE ROOFING

A. Campus Standards:
   1. Repairs and Minor Modifications at Existing: Match existing.
   2. New Construction: Siplast, or Soprema modified bitumen. No exceptions.
   3. Provide light colored, highly reflective thermoplastic PVC roof membrane, as directed by Campus for new roofing. Refer to Section 075419 for Sika Sarnafil.
   4. Warranty: 20 years

B. Rigid Roof Insulation: Roof insulation shall be UL and FM approved. Insulation shall be approved in writing by the insulation manufacturer for intended use and for use with the specified roof assembly.
   1. Gypsum Sheathing Panel: A panel composed of a gypsum based, non-structural water resistant core material integrally bonded with fiberglass mats on both sides having a nominal thickness of 5/8 inch. The panel surface shall be factory primed with a non-asphaltic primer. Acceptable types are as follows:
      a. > DensDeck Prime Gypsum Roof Board, by Georgia Pacific Corporation; Atlanta, GA

C. Plaza Deck Waterproofing Membrane Assembly: A plaza deck waterproofing membrane assembly consisting of 2 plies of a prefabricated, reinforced, homogeneous Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane, applied over a prepared substrate. The assembly shall possess waterproofing capability, such that a phased application, with only the modified bitumen base ply in place, can be achieved for prolonged periods of time without detriment to the watertight integrity of the entire waterproofing system. The modified bitumen finish ply shall be fully adhered to the modified bitumen base ply. Each sheet of the assembly shall meet the following physical requirements as a minimum.
   1. > Siplast Paradiene 20 TG / Teranap Plaza Deck Waterproofing System
      a. Modified Bitumen Base and Stripping Ply
         1) Thickness (avg): 114 mils (2.9 mm) (ASTM D 5147)
         2) Thickness (min): 110 mils (2.8 mm) (ASTM D 5147)
         3) Weight (min per 100 ft² of coverage): 76 lb (3.7 kg/m²)
         4) Maximum filler content in elastomeric blend: 35% by weight
         5) Low temperature flexibility @ -15° F (-26° C) - PASS (ASTM D 5147)
         6) Peak Load (avg) @ 73°F (23°C): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
         7) Peak Load (avg) @ 0°F (-18°C): 75 lbf/inch (13.2 kN/m) (ASTM D 5147)
         8) Ultimate Elongation (avg.) @ 73°F (23°C): 50% (ASTM D 5147)
         9) Dimensional Stability (max): 0.1% (ASTM D 5147)
         10) Compound Stability (min): 250°F (121°C) (ASTM D 5147)
         11) Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
         12) Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria
   2. > Siplast Paradiene 20 - torchable grade
      a. Modified Bitumen Finish Ply
         1) Thickness (avg): 157 mils (4.0 mm) (ASTM D 5147)
         2) Thickness (min): 154 mils (3.9 mm) (ASTM D 5147)
         3) Weight (min per 100 ft² of coverage): 107 lb (5.2 kg/m²)
         4) Maximum filler content in elastomeric blend: 35% by weight
         5) Low temperature flexibility @ -15° F (-26° C) - PASS (ASTM D 5147)
         6) Peak Load (avg) @ 73°F (23°C): 60 lbf/inch (10.5 kN/m) (ASTM D 5147)
         7) Peak Load (avg) @ 0°F (-18°C): 95 lbf/inch (16.6 kN/m) (ASTM D 5147)
         8) Elongation @ 5% Maximum Load (avg.) @ 73°F (23°C): 95% (ASTM D 5147)
         9) Dimensional Stability (max): <0.1% (ASTM D 5147)
         10) High Temperature Stability (min): 250°F (121°C) (ASTM D 5147)
         11) Reinforcement - non-woven polyester geotextile
         12) Surfacing – silica parting agent
   3. > Siplast Teranap 1M Sand

D. Flashing Membrane Assembly: A flashing membrane assembly consisting of a liquid applied, flexible, monolithic membrane formed by the combination of PMMA-based resin and fleece fabric. The stripping ply and flashing reinforcing sheet shall consist of a prefabricated, reinforced, homogeneous Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane. The reinforcement mat in the SBS ply shall be impregnated/saturated and coated each side with an SBS modified bitumen blend. The cross sectional area of the SBS sheet material shall contain no oxidized or non-SBS modified bitumen. The back of the modified bitumen base ply shall be coated with factory applied polymer modified asphalt self-adhesive coating covered with a removable film. The top surface of the modified bitumen ply sheet shall be coated with a white acrylic coating to enhance resin bond and to minimize surface temperatures.

1. > Siplast Parapro 123 fluid applied PMMA membrane, flashing system
   a. Resin for Flashing Applications: A flexible, PMMA-based resin combined with a thixotropic agent for use in combination with non-woven, 110 g/m², needle-punched polyester fabric reinforcement to form a monolithic, reinforced flashing membrane.
2. > Parapro Flashing Resin by Siplast; Irving, TX
   a. Fleece for Flashing Reinforcement: A non-woven, 110 g/m², needle-punched polyester fabric reinforcement as supplied by the membrane system manufacturer.
3. > Pro Fleece by Siplast; Irving, TX

END OF SECTION

075419 POLYVINYL CHLORIDE ROOFING

A. Section Includes: Welded seam single ply roofing over rigid roof insulation.

B. Design Requirements: Conform to NRCA - Roofing and Waterproofing Manual, except where more stringent requirements are indicated.

C. Performance Requirements:
   1. Provide a system of components which will meet FM wind uplift rating of FM1A-90 in accordance with Loss Prevention Data Sheets and Building Materials Approval Guide.
   2. Provide roofing system to comply with ANSI/SPRI *Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems* and ANSI/SPRI *Standard Field Test Procedure for Determining The Withdrawal Resistance of Roofing Fasteners*.

D. Fire Resistance Requirements:
   1. Class A.
   2. Test method: ASTM E108 and UL 790.

E. Fully Adhered Membrane on Concrete Deck.
   1. Furnish and install completed welded seam single ply sheet roofing assembly consisting of following layers indicated from top down:
      a. Fully adhered welded seam membrane.
      b. Fully adhered Densdeck roof board, 1/4 inch thick
      c. Two layers of Polyisocyanurate roof insulation.
      d. Adhere insulation and roof board in low-rise foam.
      e. Vapor retarder.
      f. Structural concrete deck.

F. Provide no dollar limit (NDL) warranty and Non-Prorated for full replacement cost of completed installation signed by manufacturer guaranteeing against water infiltration and defects of materials and workmanship for period of 20 years from date of Substantial Completion. Warranty shall not exclude ponding water and no time limited shall be assigned for any such ponding water during the warranty period

G. Reinforced Thermoplastic (PVC) Membranes:
   1. Thickness: 0.060 inch (60 mils) minimum, exclusive of fleece backing.
   2. Seams: Hot-air weldable.
   3. Non-wicking fiberglass or polyester reinforced membrane.
   4. Color: White to obtain EPA Energy Star rating for low sloped roofs.
   5. White Membrane Solar Reflectance Values:
      a. Energy Star: U.S. Environmental Protection Agency certification, 78 percent or better, ASTM E903.
      b. Emissivity: 0.90 or better when tested per ASTM E408 and ASTM C1371.
      c. Solar Reflective Index (SRI) ASTM E1980 -- 100.
   6. Products and Manufacturers:
      a. Basis of Design: G410 – SA, Sika Sarnafil Roofing Systems or equal.
      b. No “Private Label” or third party membrane manufacturers will be approved as substitutes

H. Polyisocyanurate Insulation Materials:
   1. Polyisocyanurate Insulation:
      a. Type: ASTM C1289, Class 1, Type II, Grade 2 (20 psi) complying with Green Guard Gold Certification.
      b. Zero ozone depletion potential (ODP) from blowing agent.
      c. Long Term Thermal Resistance (LTTR) R-value based on ASTM C1303: 5.7 per inch, regardless of published values complying with PIMA Quality Mark Certification.
      d. Thickness: R=40 average in multiple layers with joints offset.
      e. Facers: Both faces finished with fiberglass mat facers.
      f. Manufacturer: Approved by membrane manufacturer.
   2. Roof Cover Board: 1/4 inch Dens-Deck Prime, orequal.
   3. Provide tapered polyisocyanurate insulation boards where crickets are shown or as required at edge strips and crickets for proper drainage.

I. Base Flashing, Reglet, Stack Flashing, and Patching Materials:
   1. Manufacturer's standard system compatible with and matching color of roof membrane.
   2. Metal Clad Flashing: PVC clad sheet metal; SarnaClad or equal.
   3. All flashing materials approved by manufacturer and covered by warranty.

J. Sealants, Adhesives, and Primers: As required by membrane manufacturer.
   1. Provide single ply roof membrane adhesives complying with Cal-GREEN Table 5.504.4.1 - Adhesive VOC Limits (250 g/L max).
   2. Provide single ply roof membrane sealants complying with Cal-GREEN Table 5.504.4.2 - Sealant VOC Limits (450 g/L).
   3. Provide primers complying with Cal-GREEN Table 5.504.4.3 - VOC Content Limits for Architectural Coatings.

K. Insulation Adhesive or Fasteners:
   1. Adhesive: Dual component, low-rise polyurethane foam adhesive, used to adhere insulation panels to the substrate as well to other insulation panels. Sarnacol 2163 by Sika Corporation-Roofing, Insta-Stik Professional Roofing Adhesive by Dow Chemical Corporation; Joliet, IL or equal as approved by roofing manufacturer and covered under warranty.

L. Vapor Barrier: Sarnavap SA self-adhered vapor retarder or equal as required by membrane manufacturer.

M. Roof Board: Glass Fiber Faced Gypsum, ASTM C1177; Type X; FM approved; silicone treated core with filled, heat-cured coating on one side.
   1. 4 feet by 8 feet.
   2. Thickness:
      a. 1/4 inch roof cover board for application over roof insulation as indicated.
      b. 5/8 inch Type X for use over metal deck.
      c. Provide 5/8 inch thickness Dens-Deck Prime for parapet wall studs with fully adhered membrane on parapet.
   3. Flame spread: 0.
   4. Acceptable Product: Dens-Deck Prime Roof Board, Georgia-Pacific Corporation, or equal.

N. Flexible PVC Walkway Mats:
   1. Heavily textured and profiled, rolled-out walkway protection mat.
   2. Used for walkway and protection from membrane from mechanical abuse.
   3. Thickness: 96 mil thick flexible PVC.
   4. Heat welded.

END OF SECTION

076000 FLASHING AND SHEET METAL

A. Sheet Metal Flashing and Trim:
   1. Galvanized Steel Sheet: Zinc coating, hot dip galvanized, flattened sheets, chemically treated. Minimum 24 gauge.
      a. Finish: Mill phosphatized; Fluorocarbon coating also acceptable.

B. Fabrication:
   1. Items: Flashing, gutters, downspouts, coping, fascia/gravel stop, scuppers, and conductor heads. Use continuous soldering.
   2. Standard: Sheet Metal and Air Conditioning Contractor's National Association, Inc., (SMACNA): Architectural Sheet Metal Manual.

B. Reglets:
   1. General:
      a. Units of type and profile as indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces.
      b. Compatible with flashing and roofing materials.
   2. Surface-Mounted:
      a. Manufactured surface applied reglet with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
      b. Acceptable Product: Equivalent to Type SM, Fry Reglet Corporation.
   3. Cement Plaster:
      a. Manufactured for use in cement plaster applications with upstanding leg concealed behind plaster and projection to act as screed for direct application of plaster.
      b. Acceptable Product: Equivalent to Type STX or Type ST Stucco Reglet (depending on substrate conditions), Fry Reglet Corporation.
   4. Manufacturers:
      a. Fry Reglet Corporation.
      b. W. P. Hickman Company.
      c. Keystone Flashing Company.

C. Flashing and Counter Flashing:
   1. Fabricate as indicated on Drawings and in accordance with SMACNA Architectural Sheet Metal Manual, Chapter 4.
   2. Hem exposed flashings on underside 1/2 inch; miter and seam corners.
   3. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
   4. Fabricate flashings to allow toe to extend minimum 2 inches over wall surfaces.

D. Coping:
   1. As indicated on Drawings and in accordance with SMACNA Figure 3-4A.
   2. Thickness to suit spans and imposed loads with corner seams factory mitered and soldered; fabricate with 2'-0" returns.

END OF SECTION

076220 COPPER GUTTERS AND DOWNSPOUTS

A. Section Includes shop and field formed copper roofing accessories and trim, such as:
   1. Downspouts and conductor heads.
   2. Miscellaneous accessories such as downspout strainers and gutter covers.

B. Copper: ASTM B370; temper H00 (cold-rolled) except where temper 060 is required for forming;
   1. Hung Gutters and Downspouts: 16 oz. per sq. ft. (0.0216-inch thick) (0.55 mm) except as otherwise indicated.
   2. Built-in Gutters: 20 oz. per sq. ft. (0.0270-inch thick) (0.69 mm) unless otherwise indicated.

C. Gutter Cover Guards: 20-gage bronze mesh or fabricated units, with selvaged edges and noncorrosive fasteners. Select materials for compatibility with gutters and downspouts.

D. Bronze wire ball downspout strainer meeting CDA details.

E. Through Wall Scupper: As indicated on Drawings and in accordance with CDA "Copper in Architecture Handbook".
   1. Fabricate scuppers of dimensions required with closure flange trim to exterior, 4 inches (100 mm) wide wall flanges to interior, and base extending 4 inches (100 mm) beyond cant or tapered strip into field of roof.
   2. Fasten gravel guard angles to base of scupper.

F. Conductor Head: As indicated on Drawings and in accordance with CDA "Copper in Architecture Handbook". Coordinate with Section 076220 for connection to downspout.

G. Prefabricated Concrete Splash Block: Manufacturer’s standard precast concrete.

END OF SECTION

077233 ROOF HATCHES AND VENTS

A. Automatic Acoustic Smoke Vent Hatch
   1. Basis of Design: Bilco, Type ACDSV-Acoustical Smoke Vent with remote operation.
   2. Comply with UL 793 and UL 790 Class A (burning brand test).
   3. Performance characteristics:
      a. Vent(s) shall be UL listed.
      b. Covers shall be reinforced to support a minimum live load of 40 psf (195 kg/m2) with a maximum deflection of 1/150th of the span or 90 psf (439 kg/m2) wind uplift.
      c. Corrosion resistant gas springs shall open the vent covers simultaneously when latch is manually released or when heat breaks the UL listed fusible link. Opening shall be in a controlled manner to avoid damage to surrounding roof surfaces.
      d. Entire roof fire vent shall be weathertight with fully welded corner joints on cover and curb.
      e. Latch mechanisms shall hold the covers in the closed position without overstressing the fusible link and withstand 90 psf (439 kg/m2) wind uplift forces acting on the cover.
      f. Latch operation: When heat parts the UL listed fusible link, the latch shall release instantaneously, allowing vent covers to open. The latch shall be designed for easy resetting, after a fire or test, so that the covers cannot be latched closed unless the mechanism has been reset properly. Manufacturer shall provide instructions for resetting the latch with each unit.
      g. Sound Transmission Rating: Vent(s) shall carry STC-50 and OITC 46 sound ratings.
      h. ISO 140-18 Rainfall Sound Rating – 37.5 db.
   4. Covers: Shall be 14-gauge (1.9mm) paint bond G-90 galvanized steel with a 5-3/4” (146mm) beaded flange with formed reinforcing members.
   5. Gasket: Dual EPDM gaskets shall be permanently adhered to the underside of the covers.
   6. Cover insulation: Shall be mineral wool of 4" (102mm) in thickness, fully covered and protected by a 12-gauge (2.75mm) paint bond G-90 galvanized steel liner.
   7. Curb: Shall be 12" (305mm) in height and of 10-gauge (3.5mm) paint bond G-90 galvanized steel with a fixed center channel. Curb shall be formed with a 6-7/8” (175mm) flange with 7/16" (11mm) holes provided for securing to roof deck. Curb shall be equipped with integral metal capflashing of 14-gauge (1.9mm) paint bond G-90 galvanized steel and feature the Bil-Clip® flashing system, including stamped tabs, 6" (153mm) on center, to be bent inward to hold single-ply roofing membrane securely in place.
   8. Curb insulation: Shall be 4" (102mm) mineral wool insulation, fully enclosed by a 10-gauge (3.5mm) paint bond G-90 galvanized steel liner.
   9. Lifting mechanisms: Corrosion resistant gas springs open covers automatically against a 10 lb/ft2 (49Kg/m2) snow/wind load. Gas springs shall have built in dampers to assure a controlled rate of opening and automatically lock the covers in the full open position. A release mechanism shall be provided to allow the covers to be closed.
   10. Latch mechanism: Shall be the BILCO Thermolatch® II positive hold/release mechanism with a separate latching point for each cover controlled by a single UL listed 165°F (74°C) fusible link. Fusible link shall be curb mounted on a non-hinged end to allow the latching mechanism to be easily reset from the roof level.
   11. Hardware: Corrosion resistant gas springs and hot dip galvanized steel stop cables. All other hardware is zinc plated/chromate sealed.
   12. Finish: Factory finish shall be alkyd base red oxide primer.

B. Roof Hatch
   1. Basis of Design: Bilco Type S Roof Hatch
   2. Description:
      a. Access Hatch, Single Leaf, Nominal Size: 36” W x 30” L. Length denotes hinge side.
      b. Structural quality galvanized steel or aluminum construction acceptable
      c. Structural quality galvanized steel:
         1) Curb: 14 gage minimum thickness.
         2) Cover: 14 gage minimum thickness.
      d. Aluminum:
         1) Curb and cover: 11 gage minimum thickness.

2) Liner: 11 gage minimum thickness.

e. Liner Insulation: 1 inch thick fiberglass, fully covered and protected by a metal liner.

f. Curb Insulation: 1 inch fiber board.

g. Access Hatch Hardware: Manufacturer's standard hinges, positive snap latch with turn handles inside and out, padlock hasp interior and exterior, automatic hold-open device with vinyl covered grip handle, and neoprene draft seal.

h. Lifting mechanisms: Manufacturer shall provide compression spring operators enclosed in telescopic tubes to provide, smooth, easy, and controlled cover operation throughout the entire arc of opening and closing. The upper tube shall be the outer tube to prevent accumulation of moisture, grit, and debris inside the lower tube assembly. The lower tube shall interlock with a flanged support shoe [for aluminum construction: welded to the curb assembly; for steel construction: through bolted to the curb assembly].

3. Curb:
   1) 12 inch high minimum with 3-1/2 inch flange equipped with clearances holes for securing to deck.
   2) Equip with integral metal cap flashing, same gage as curb.
   3) Fully cover and protect cover insulation with metal liner.
   4) Fabricate with top of curb level and bottom to accommodate roof slope.
   b. Construct cover with 3 inch beaded flange, welded.
   c. Fabrication:
      1) Fabricate free of visual distortions and defects.
      2) Weld corners and joints.
      3) Provide for removal of condensation occurring within components or assembly.
      4) Fit components for weathertight assembly.
   d. Finishes:
      1) Aluminum: Manufacturer's standard acrylic lacquered protective coating over mill finish.
      2) Steel: Manufacturer's standard shop applied prime coat.
      3) Hardware: Cadmium or zinc plated steel.
   e. Signage: Provide permanent signage with minimum 1 inch high letters at top surface and underside surface of hatch covers to read: KEEP HATCH CLOSED WHEN NOT IN USE. Comply with CABO/ANSI A117.1 requirements.
4. Safety Rail:
   a. Provide manufacturer's OSHA compliant (CFR 1910.23) fall protection safety rail system that surrounds hatch and is connected directly to hatch. Do not compromise hatch operation or weathertight integrity.
   b. No attachment to roof is allowed.
   c. Meet railing safety requirements of authorities having jurisdiction.
   d. Fabricate posts and railing from hot-dipped galvanized steel or fiber reinforced polymer.
5. Safety Post:
   a. Provide telescoping tubular safety post fabricated from hot-dipped galvanized steel.
   b. Acceptable product: Bilco LadderUP Safety Post Model LU-2.

END OF SECTION

078100 APPLIED FIREPROOFING

A. Sprayed Fireproofing: Factory formulated mixture of asbestos-free cementitious materials with aggregates. Materials that must be hardened by a topcoat are not acceptable.
   1. Acceptable Cementitious Products and Manufacturers:
      a. Pyrolite 15, Carboline, St. Louis, MO.
      b. Monokote MK-6, Construction Products Division of W. R. Grace and Co., Cambridge, MA.
      c. Cafco 300, Isolatek International, Netcong, NJ.
   2. Factory formulated mixture of asbestos-free cementitious materials with aggregates [or mineral fibers with inorganic binders].
      a. Density: ASTM E605, 15 pcf minimum.
      b. Deflection: ASTM E759, no cracks, spalling, and delamination from surface to which fireproofing is applied.
      c. Bond Impact: ASTM E760, no cracks, spalling, and delamination from surface to which fireproofing is applied.
      d. Adhesion: ASTM E736, 390 psf minimum.
      e. Air Erosion: ASTM E859, 0.000 gm/square foot maximum.
      f. Compressive Strength: ASTM E761, 2,450 psf minimum.
      g. Corrosion of Steel: ASTM E937, no evidence of corrosion.
      h. Surface Burning Characteristics: ASTM E84, flame spread of 0, smoke development of 0.

B. Testing: Perform thickness and density tests on installed fireproofing in accordance with ASTM E605.

END OF SECTION

078123 INTUMESCENT FIREPROOFING

A. Acceptable Products and Manufacturers:
   1. Intumescent Mastic Fireproofing: Water based high build intumescent coating for exposed steel at interior locations.
      a. Acceptable Products and Manufacturers, Interior Applications:
         1) Albi Clad TF, Albi Manufacturing, Division of StanChem, Inc., East Berlin, CT.
         2) A/D Firefilm III, AD Fire Protection Systems, Inc., Division of Carboline, St. Louis, MO.
         3) Nullifire, Tremco.
         4) Cafco Spray Film WB-3, Isolatek International, Stanhope, NJ.
         5) Accepted Substitute in accordance with Section 012500.

B. Thin-Film Intumescent Fire-Resistive Material: Factory-mixed water based coating system, spray applied as thin-film coating, as single-component system consisting of intumescent coating. Provide top-coat if required by manufacturer.
   1. Hardness: Durometer Shore D, 65-70 minimum.
   2. Impact Resistance: ASTM D2794, 152 in.- lb (direct) minimum.
   3. Abrasion Resistance; ASTM D4060 at 1,000 cycles:
   4. Surface Burning Characteristics; ASTM E84:
      a. Flame Spread: 25 maximum.
      b. Smoke Development: 50 maximum.
   5. Rating: As indicated on Drawings.
   6. Thickness: Based on fire rating.
   7. Water based or acrylic based (Interior).

C. Provide manufacturer's approved finish coating in color selected by Architect for exposed surfaces.

END OF SECTION

078400 FIRESTOPPING

A. Comply with UL Fire Resistance Directory, authority having jurisdiction, and applicable codes for:
   1. Materials, fabrication, and installation of firestops.
   2. Fire containment.
   3. Fire resistant construction joints.

B. Section Includes:
   1. Firestop devices and systems tested in accordance with ASTM E814 (ANSI/UL 1479) and listed in UL Fire Resistance Directory.
   2. Fire resistant construction joints.
   3. Dynamic partition head details.
   4. Edge of slab and curtain wall conditions.
   5. Penetrations through fire-rated floors, walls, and shafts.
   6. Duct and damper firestops.
   7. Intumescent wraps and pads at receptacle boxes and recessed items within fire rated walls.

C. Select adhesives, primers and sealants meeting Cal-GREEN requirements.
   1. Adhesives shall meet or exceed the VOC and chemical component limits of Cal-GREEN Table 5.504.4.1 Adhesive VOC Limit requirements.
   2. Sealants and Sealant Primers shall meet or exceed the VOC and chemical component limits of Cal-GREEN Table 5.504.4.2 Sealant VOC Limit requirements.

D. Select appropriate systems with UL ratings for conditions encountered, obtain approval from authorities having jurisdiction, and place identification label at each location indication materials, rating, and UL assembly number.

E. Acceptable Manufacturers:
   1. Hilti, Tulsa, OK.
   2. 3M Fire Protection Products, St. Paul, MN.
   3. Specified Technologies Inc., Sommerville, NJ.

END OF SECTION

079200 JOINT SEALANTS

A. Acrylic Latex: ASTM C834; non-sag; non-staining; non-bleeding.
   1. Use location: Interior non-moving joints.
   2. Color: Paint grade.

B. Silicone - General Purpose: ASTM C920; Type S; Grade NS; Class 25; Uses NT, G, A, O.
   1. Low modulus, neutral curing, non-staining, non-bleeding silicone sealant.
   2. Joint movement range without cohesive/adhesive failure: Plus 50 percent to minus 50 percent of joint width.
   3. Color: Selected by Architect from manufacturer's full color range.
   4. Use Location: Interior and exterior joints subject to movement between 25 percent and 50 percent of joint width.

C. Silicone—Sanitary: ASTM C920; Type S; Grade NS; Class 25; Uses NT, M, G, A, O.
   1. Color: Selected by Architect from manufacturer's full color range.
   2. Comply with US Food and Drug Administration Regulation 21CFR-177-6000.
   3. Use Location: Interior Sanitary Joints; Joints at Plumbing Fixtures.

D. Urethane—Traffic-Bearing (Designation U-TB): ASTM C920; Type M; Grade P or NS; Class 12-1/2; Uses T, M, O.
   1. Shore A Hardness: 40 minimum, ASTM C661.
   2. Color: Selected by Architect from manufacturer's full color range.
   3. Use Location: Pavement joints.

E. Provide necessary sealant backing bond breaker rods and tape, and elastomeric tubing joint fillers.

END OF SECTION

079513 EXPANSION JOINT COVER ASSEMBLIES

A. Section Includes: Exterior wall and roof assemblies.

B. Design Requirements:
   1. Provide concealed fastening wherever possible.
   2. Expansion joint void is not allowed to be used as raceway or penetration location for electrical, plumbing, mechanical, or any other item.

C. Performance Requirements:
   1. Permit unrestrained movement of joint without disengagement of cover.
   2. Provide seal assembly for joint width and expansion dimensions.
   3. Provide units to accommodate joints size, variations in adjacent surfaces, and dynamic movement without material degradation or fatigue when tested in accordance with ASTM E1399.

D. Fire Resistance Requirements:
   1. Test fire rated cover assemblies or fire-rated barrier component of joint cover assembly at maximum joint width with field splice in accordance with ASTM E119 or E814,NFPA 251.
   2. Classify by Underwriters Laboratories, Warnock Hersey, or other fire testing agency acceptable to authority having jurisdiction.
   3. Fire rating not less than rating of adjacent construction.
   4. Flame spread index of 25 or less, when tested in accordance with ASTM E84.
   5. Smoke generated index of 0 to 450, when tested in accordance with ASTM E84.

E. Structural Requirements:
   1. Minimum allowable uniform load of floor cover plate 200 psf
   2. Maximum cover plate deflection of 1/240 maximum expected opening when fully loaded.

F. Bellows Roof Expansion Joint Covers:
   1. Flexible bellows mechanically fastened to metal nailing flanges.
   2. Style: One L-Shaped curb flange and one straight flange for mounting on curb flange and wall.
   3. Flange metal: 26 gage commercial quality galvanized steel.
   4. Bellows: Manufacturer's standard neoprene, EPDM, or chlorosulfonated polyethylene laminated with closed cell foam.
   5. Size to accommodate nominal joint width indicated on Drawings.
   6. Accommodate movement in three dimensions plus torsion.
   7. Provide factory-formed configurations, corners, intersections, and transitions.
   8. Provide watertight transition to wall joints.

G. Accessories
   1. Primer, adhesives, joint/lap cement, splice strips and bituminous coatings: Types and composition recommended by manufacturer of expansion joint assemblies.
   2. Fasteners: Large headed nails of type and size recommended by manufacturer of expansion joint assemblies, compatible with metal flanges.

H. Metal Roof Expansion Joint Covers:
   1. Aluminum expansion joint with aluminum cover plates.
   2. Provide splice plates at cover plate joints.
   3. Moisture Barrier: Manufacturer's standard neoprene, EPDM, or chlorosulfonated polyethylene to capture and safely drain water infiltration.
   4. Size to accommodate nominal joint width of 1 [2] inches.
   5. Accommodate movement in three dimensions plus torsion.
   6. Provide factory-formed configurations, corners, intersections, and transitions.
   7. Acceptable Products:
      a. Roof to Roof:
         1) Type FR, Balco.
         2) Model SRJ, Construction Specialties C/S Group.
         3) RFL, Watson Bowman/Harris.
         4) RX-R, MM Systems.
      b. Roof to Wall:
         1) Type LPR, Balco.

2) Model SRJW, Construction Specialties C/S Group.
3) RFL/C, Watson Bowman/Harris.
4) RX-W, MM Systems.

8. Provide with continuous clamp mechanically fastened to be secured and engaged against roofing membrane.
9. Finish: Kynar 500 to in custom color to be determined.

I. Accessories
1. Aluminum flashing as part of counterflashing system.
2. Subsurface moisture barrier with internal drain tubes.
3. Fasteners: Screws and bolts of type and size recommended by manufacturer of expansion joint assemblies, compatible with metal flanges.

J. Exterior Wall Joint Covers - Elastomeric Seismic Joint Cover:
1. Description:
a. Nominal Joint Width: Refer to Structural Drawings.
b. Joint Movement Range Across Nominal Joint Width: Minus 50 percent to plus 50 percent.
c. Accommodate movement in three axial directions plus torsion.
d. Provide with inner elastomeric seal (moisture barrier).
e. Provide with mounting brackets for attaching outer and inner elastomeric seals to side faces of joint.
f. Elastomeric Material: Santoprene or silicone.
g. Elastomeric Cover Color: As selected by Architect from manufacturers full range of colors.
h. Outer Elastomeric Seal Profile: Flat with expansion folds.
i. Inner Elastomeric Seal (Moisture Barrier) Profile: Ribbed.
j. Form elastomeric seals to fit mounting brackets.
k. Provide pantograph support frame or self-centering support bar behind inner and outer seals to prevent sagging of seals as required to accommodate joint size.
2. Basis of Design: SF Series, Construction Specialties.

END OF SECTION

081100 METAL DOORS AND FRAMES

A. Steel Doors and Frames: Meet or exceed ANSI/SDI 250.8 and HMMA 861, full flush design and doors with lites.

B. Performance Requirements:
   1. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction for fire-protection ratings indicated on Drawings, based on testing at positive pressure according to NFPA 252 or UL 10C.
   2. Smoke- and Draft-Control Door Assemblies :Ceco Door, Curries, Co. Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing according to UL 1784 and installed in compliance with NFPA 105.
   3. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
   4. Fire-Rated, Borrowed-Lite Assemblies: Assemblies complying with NFPA 80 and listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire protection ratings indicated, based on testing according to NFPA 257 or UL 9.
   5. Thermally Rated Door Assemblies: Provide door assemblies with U-factor of not more than 0.40 deg Btu/F x h x sq. ft. when tested according to ASTM C518.
   6. Interior Standard Steel Doors and Frames: a. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, as specified.

C. Manufacturers:
   1. Ceco Door; ASSA ABLOY.
   2. Curries Company; ASSA ABLOY.
   3. Steelcraft; an Allegion brand

D. Flush Doors:
   1. Interior: ANSI/SDI Level 2 and Physical Performance Level B, Heavy Duty, Model 1 (1-3/4 inch thick, 18 gage or 0.042 inch thick face sheets, Full Flush Design)
   2. Exterior: ANSI/SDI Level 3 and Physical Performance Level A, Extra Heavy Duty, Model 1 1-3/4 inch thick; 16 gage or 0.053 inch thick face sheets.]
   3. Core:
      a. Interior: Resin impregnated kraft paper honeycomb.
      b. Exterior: Manufacturer's standard insulated core.
      c. Fire rated Assemblies: Mineral fiber board.

E. Frames:
   1. Provide frames based on door grade and model in accordance with ANSI/SDI 250.8 and HHMA 820. Minimum 16 gauge interior, 14 gauge exterior
   2. Welded construction required; knocked-down not acceptable.
   3. Fully face weld exposed joints, including stops. Grind weld smooth with adjacent surfaces.
   4. Grout exterior frames, no exceptions.

F. Galvanized / Galvannealed Steel (Exterior Locations):
   1. Sheet: ASTM A653, A60 or G60 coating designation, zinc coated by hot-dip process, commercial quality, stretcher-leveled, mill phosphatized. WCGS not permitted.
   2. Anchors and Accessories: ASTM A591, minimum Class B coating, zinc coated by electro-deposition, commercial quality, mill phosphatized.

G. Borrowed Lites (Relites):
   1. Install in hollow metal frames with glazing beads.
   2. Dry glaze with glazing tapes.
   3. Coordinate dimensions for glazing rabbets with requirements of Section 088000.

H. Hardware Preparation:
   1. ANSI A115 Series and SDI 107, except for hardware locations.
   2. Comply with ANSI/SDI 250.8 and SDI 107 for thickness of hardware reinforcing.

I. Fire Rated Assemblies: Fabricate assemblies as tested and approved by UL or other nationally recognized testing agency acceptable to authorities having jurisdiction.
   1. Comply with NFPA 80.
   2. Tested in accordance with ASTM E2074, NFPA 252, or UL 10B.
   3. Identify each assembly with factory applied label indicating applicable fire rating.
   4. Assemblies at Stair Enclosures: Maximum temperature rise not to exceed 450 degrees F above ambient temperature at end of 30 minute fire exposure test.

END OF SECTION

081400 WOOD DOORS

A. General: Comply with WDMA I.S.1, "Industry Standard for Wood Flush Doors published by Wood Door.
   1. Solid core construction.
   2. Door Thickness: 1-3/4 inch thick.

B. Medium Density Overlay: Manufacturer's standard thermo-setting resin-impregnated fiber overlay.

C. Structural Composite Lumber/Structural Laminated Core (SCL): Solid lumber or laminated structural wood core.
   1. Agrifiber Wheatcore construction.
   2. Free of synthetic formaldehyde resins, independent laboratory certified.
   3. 85% rapidly renewable resource by volume.
   4. Stable, engineered core to eliminate cracking, warping, and splitting.

D. Particleboard Core:
   1. Quality: ANSI A208.1, Grade 1-LD-2.
   2. Density for 5-ply doors: 32 lbs/ft3.

E. Comply with Cal-GREEN Table 5.504.4.5 - Formaldehyde Limits for composite wood and agri-fiber products.

F. Vision Panel Molding:
   1. Non-rated Doors: Hardwood, species to match face veneer.
   2. Fire Rated Doors: Hardwood molding with mitered corners, equipped with metal clips or veneer on proprietary noncombustible material, species to match face veneer.
      a. Molding and Accessories: Labeled and listed by UL or other testing agency acceptable to authorities having jurisdiction.
   3. Fire Rated Doors: Cold rolled steel, 20 gage minimum thickness.

G. Finish: AWS System 5 Conversion Varnish:
   1. Degree of Sheen: Medium rubbed.

H. Field Finish: Refer to Section 099000.

END OF SECTION

083100 ACCESS DOORS AND PANELS

A. Provide access panels at junction boxes, valves, telephone and data equipment, fire alarm and other devices above non-accessible ceilings and in walls.

B. Acceptable Manufacturers:
   1. Bauco Access Panel Solutions Inc.
   2. J. L. Industries, Bloomington, MN.
   3. Karp Associates, Inc., Maspeth, NY.
   4. Milcor Incorporated, Lima, OH.
   5. Nystrom Products Company, Minneapolis, MN.
   6. The Williams Brothers Corporation of America, Front Royal, VA

C. Steel Assemblies: Fabricate of sheet steel complying with ASTM A1008. Primed, field finish to match adjacent wall surface.

D. Stainless Steel Assemblies: Fabricate of sheet stainless steel complying with ASTM A167, Type 304 with No. 4 finish for tiled walls and locations within toilet rooms, showers and other areas of high humidity.

E. Frames:
   1. Fabricate with casing bead welded to perimeter of frame for assemblies installed in gypsum board surfaces.
   2. Fabricate with exposed flange of nominal 1 inch wide around perimeter for assemblies installed in following construction:
      a. Exposed masonry or concrete.
      b. Ceramic tile.
      c. Suspended ceiling, acoustical tile.

F. Locking Devices: Provide key controlled locking device for each assembly. Key all locks alike, unless directed otherwise. Furnish 6 keys.

END OF SECTION

083323 OVERHEAD COILING DOORS

A. Overhead Coiling Doors: Provide with endlocks, windlocks, curtain guides, roller shaft counterbalance mechanism, hood, weatherstripping seals, and automatic closing for fire rated assemblies.
   1. Curtains:
      a. Slats: Formed interlocking flat [curved] sections, nominal 3 inch height, fabricated of galvanized sheet steel, continuous length for full width without splices.
      b. Sheet Metal Thickness: As recommended by manufacturer for size of opening and engineered to withstand design wind loads.
   2. Bottom of Curtain: Reinforced with back to back galvanized steel angles and equipped with neoprene weather seal for constant contact with floor in closed position.
   3. Locking Device: Equip with slide bolt locking mechanism on inside of bottom bar designed for securing with padlock, or wall mounted device designed for securing chain with padlock; padlocks by Owner.
   4. Operator: Chain Electric motor with automatic reversing control and auxiliary chain control.
   5. Finish: Manufacturer's standard primer.

B. Coiling Counter Doors: Provide end locks, bottom bar, sill, Roller Shaft Counterbalance Assembly, Hood, Weatherstripping,
   1. Curtains:
      a. Slats: Interlocking extruded aluminum sections.
      b. Thickness: 0.055 inch extruded aluminum.
      c. Slat Size: Approximately 1-1/2 by 1/2 inch, flat.
   2. Locking: Locking from inside; padlock on slide bolts.
   3. Operator: Manual push up.
   4. Provide smoke gaskets, fusible link, on fire rated doors.

END OF SECTION

083470 OVERSIZE SOUND DOOR ASSEMBLIES

A. Section Includes:
   1. Oversize STC / fire rated swinging doors of hollow metal construction and related hardware.

B. Structural Performance: Provide swinging doors capable of withstanding the effects of gravity loads and the specified wind loads without evidencing permanent deformation of door components.
   1. Maximum deflection under full design load shall be 1/120 of the span.

C. Regulatory Requirements: Comply with local, state, and federal laws and other mandatory requirements. Be responsible to ensure an installation which is in compliance with such laws and regulations and all changes or alterations required by the authorized inspector or the authority having jurisdiction to be made without increase of subcontract price.

D. Basis of Design Product and Manufacturer:
   1. Clark Doors

E. Other Acceptable Manufacturers: Upon submittal of product information, the following manufacturer's may be acceptable provided they meet the performance requirements specified:
   1. International Door, Inc. (734) 459-3000.
   2. Jamison Door Company (301) 733-3100
   3. Noise Barriers LLC (847) 843-0500
   4. Protective Door Industries (708) 331-2515

F. Materials:
   1. Cold-Rolled Steel: ASTM A1008, commercial quality, Class 1, stretcher-leveled, matte finish.
   2. Hot-Rolled Steel: ASTM A1011, commercial quality, pickled, and oiled.
   3. Anchor Bolts, Fasteners, and Screws: Manufacturer's standard type, except cadmium or zinc plated finish. Stainless steel also acceptable.
   4. Primer: Manufacturer's standard rust inhibitive primer, air-dried or baked, compatible with finish painting specified in Section 099000.

G. STC Rating: 51

H. Fire Rating: 90 minute

I. All hardware shall be heavy duty, industrial type, including all bolts and fittings for the hardware as follows:
   1. Acoustic seals: Heavy duty fabric reinforced bulb compression seals.
   2. Jamb Hinges: Doors shall be complete with shop applied heavy duty type jamb hinges gusseted along both edges. Each hinge shall be supported on anti-friction bearings. Hinges shall be bolted on door panels. Grease fittings shall be provided on all hinges for greasing hinge pintles.
   3. Hinge Pintles: Jam hinges shall have continuous minimum 7/8-inch diameter steel pintle the full height of the opening.
   4. Door Pulls: Each door panel shall be provided with a heavy duty pull handle.
   5. Cremone Bolts: Each door panel shall be provided with a cremone bolt assembly, operable from floor level by a lever. A dust proof keeper shall be provided in the floor slab.
   6. Panic Hardware: Include on man door as required by Code.
   7. Key locking (latch) on exterior side.

J. Hardware Reinforcement:
   1. Frames: Minimum of 3/16" thick for strikes and 3/16" gauge for closers.
   2. Doors: Minimum ¾-inch gauge for lock boxes and closers
   3. Hinges welded to full length folded panel section providing rigid structure of minimum ¼-inch and ¾-inch width fixing.

END OF SECTION

083473 SOUND RATED DOOR AND FRAME ASSEMBLIES

A. Acceptable Manufacturers:
   1. Noise Barriers, LLC, Schaumburg, IL 847-843-0500 www.noisebarriers.com/doors/
   2. Wenger Corporation, Owatonna, MN 507-455-4100 http://www.wengercorp.com/sound-isolation/acoustical-doors.php
   3. Clark Door, Carlisle, United Kingdom +44 (0)1228 522321 http://www.clarkdoor.com/
   4. IAC Acoustics, North Aurora, IL 630-270-1790 http://www.iacacoustics.com/acoustic-doors.shtml

B. Steel Doors:
   1. Sound rated door thickness shall be as listed on the Door Schedule or as required to achieve the specified STC rating.
   2. Face gauges, internal sound retardant core, stiffening, and perimeter door edge construction shall be as required to achieve specified acoustical performance. Visible seams on door faces are not permitted.
   3. Face sheets shall be joined at vertical edges by continuous welding extending full door height. Grind, fill, and dress welds to provide smooth surface. Visible seams on vertical edges are not permitted.

C. Frames:
   1. Frames shall be 14 gauge minimum welded units furnished “split” in two (2) pieces, inside and outside, that are mitered and welded together allowing for easy installation into either existing or new construction openings. Knock-down frames are not acceptable.
   2. Corner joints shall have all contact edges closed tight, with trim faces mitered and continuously welded. The use of gussets will not be permitted.
   3. Provide suitable anchors to properly install frames in partition types as shown on architect’s drawings.

D. Door Hardware:
   1. The door manufacturer is responsible for supplying and installing all hardware.
   2. Hinges shall be cam-lift type provided in conjunction with fixed adjustable door bottom seals. Surface strap or butt hinges, as well as automatic door bottoms, are not acceptable.
   3. Hinge, lock, and head of the door shall close against positive neoprene compression and / or magnetic seals mounted in the door frame and / or leaf, as required to meet specified acoustical performance.
   4. Where a double leaf door is specified, an overlapping astragal seal shall be provided for the full height of the door, as required to meet the specified acoustical performance. Provide door coordinator as necessary.
   5. All hardware shall meet ADA and security requirements as required.

E. Vision Lights:
   1. Factory install double-glazed windows in dimensions per the door schedule. All glazing shall be installed by skilled workmen at the manufacturer’s facility.
   2. Windows shall be designed and installed without degrading acoustic rating of door.

END OF SECTION

084113 ALUMINUM FRAMED ENTRANCES AND STOREFRONTS

A. Section Includes:
   1. Entrance and storefront systems, complete with reinforcing, sill extrusions, fasteners, anchors, and attachment devices.
   2. Aluminum doors complete with hardware.
   3. Accessories necessary to complete work.

B. Acceptable Entrance and Storefront Manufacturers:
   1. Arcadia, Inc., Vernon, CA.
   2. EFCO Corporation, Monett, MO.
   3. Kawneer Company, Inc., Norcross, GA.
   4. Oldcastle Building Envelope, Santa Monica, CA.
   5. Or equal.

C. Storefront and Entrance Framing Systems: Thermally broken

D. Entrance Doors:
   1. Standard medium stile with manufacturer's standard features except provide 10 inch high bottom rail.

E. Finish: 70% Fluoropolymer (PVDF) Coating.

END OF SECTION

085113 ALUMINUM WINDOWS

A. General: In addition to requirements shown or specified comply with sightlines and profiles ndicated on contract documents.

B. Window Replacement Requirements:
   1. Work Included: Provide labor, materials and equipment necessary to complete the work of the Replacement Window Contract, and without limiting the generality thereof include:
   2. Removal of existing sash, fixed glazing, frames and other accessories as required by the proposed replacement system.
   3. Removal of other existing work as required for the proper installation and operation of the new units.
   4. Removal from site and legal disposal of all removed materials, debris, packaging, banding and all other surplus materials and equipment.
   5. Provide new factory glazed, thermally broken, aluminum windows, types as specified herein, together with necessary mullions, panning, trim, expanders, operating hardware, installation hardware and all other accessories as required.
   6. Insulated panels and frames as required in selected transoms and other locations.
   7. Treated wood blocking, fillers and nailers as required for secure installation. Bidders shall survey conditions of existing sills and jambs prior to bidding. Contractor shall be responsible for providing new blocking for portions of same that are deteriorated.
   8. Fiberglass insulation between window frames and adjacent construction.
   9. Sealing of all joints within each window assembly.
   10. Sealing of entire exterior perimeter of window units after installation.
   11. Field observations and measurements of existing openings and conditions.
   12. Furnishing and delivering of extra materials as specified.

C. New Construction:
   1. Coordinate with the Architect and the general contractor that the opening dimensions will be maintained in accordance with the documents.
   2. It is the responsibility of the sub-contractor to allow proper clearance for the type of installation in accordance with the manufacturer's standard procedures.

D. Design Requirements:
   1. Manufacturer/subcontractor is responsible for designing system, including installation instructions and necessary modifications to meet specified requirements and maintain visual design concepts.
   2. Requirements shown by details are intended to establish basic dimension of unit, sight lines and profiles of members.
   3. Provide assemblies free from rattles, wind whistles and noise due to thermal and structural movement and wind pressure.
   4. Installation instructions are to take into account specified site peculiarities and expansion and contraction movements so there is no possibility of loosening, weakening or fracturing connection between units and building structure or between units themselves.
   5. Provide for expansion and contraction due to structural movement without detriment to appearance or performance.
   6. Evacuate water without infiltration to interior from exterior face of wall, water entering joints, and condensation occurring within windows, by drain holes and gutters of adequate size or other acceptable method.
   7. Provide concealed fastening wherever possible.

E. Performance Requirements: Requirements for aluminum windows, terminology and standards of performance, and fabrication and workmanship are those specified and recommended in AAMA/WDMA/CSA 101/I.S.2/A440-08 and applicable general recommendations published by AAMA. Conform to more stringent of specified AAMA standards and following:
   1. Performance Class and Grade: AW-PG100
   2. Air Infiltration Test: Not exceed 0.10 cubic feet per minute per square foot of vent area when tested at a pressure of 6.24 psf. Perform tests in accordance with ASTM E 283 with the sash in a closed and locked position.

3. Water Resistance Test: Subject window unit to a water resistance test in accordance with ASTM E 331 and E547 with no water passing the interior face of the window frame and no leakage as defined in the test method. Mount the glazed unit in its vertical position continuously supported around the perimeter and the sash placed in the fully closed and locked position. When a static pressure of 12 pounds per square foot has been stabilized, apply five gallons of water per square foot of window area to the exterior face of the unit for a period of 15 minutes.
4. Uniform Load Deflection Test: ASTM E 330 at 100 pounds per square foot: No member deflection more than 1/175 of its span. Maintain test load for a period of 10 seconds resulting in no glass breakage, permanent damage of fasteners, hardware parts, support arms, actuating mechanisms or any other damage causing the window to be inoperable.
5. Uniform Load Structural Test: Apply a minimum exterior and interior uniform load of 150 pounds per square foot to the entire outside surface of the test unit. Maintain this test load for a period of 10 seconds. Results: No glass breakage, permanent damage of fasteners, hardware parts, support arms, actuating mechanisms, or any other damage causing the window to be inoperable. And no permanent deformation of any frame or vent member in excess of 0.4 percent of its span.
6. Life Cycle Test: Per AAMA 101 and AAMA 910, provide proof that the product meets the criteria including passing air and water tests at the conclusion of the cycle tests.
7. “U” Factor: Perform computer simulation in accordance with NFRC 100-2004 on a 600 mm (24”) x 1500 mm (60”) maximum size window resulting in a whole window U-Factor of no more than 0.44 using soft coat low-E insulating glass, argon and a warm edge spacer.
8. Solar Heat Gain Coefficient: Perform computer simulation in accordance with NFRC 200-2004 on a 600 mm (24”) x 1500 mm (60”) maximum size window resulting in a whole window SHGC of no more than 0.29 using soft coat low-E insulating glass, argon and a warm edge spacer.
9. Condensation Resistance Factor (CRF): Per AAMA 1503, the CRF shall not be less than 63 using soft coat low-E insulating glass, argon and a warm edge spacer.
10. Testing: Where manufacturer's standard window units comply with requirements and have been tested in accordance with specified AAMA/WDMA/CSA 101/I.S.2/A440-11 and NFRC tests, provide certification by AAMA certified independent laboratory showing compliance with such tests. Submit copy of the test report signed by the independent laboratory.

END OF SECTION

085115 CONTROL BOOTH WINDOWS

A. Acceptable Manufacturers:
   1. Wausau Window and Wall Systems, Wausau, WI (877) 678-2983
   2. Mon-Ray, Inc. De-Vac, Minneapolis, MN (800) 544-3646
   3. Peerless Products, Inc. Fort Scott, KS (866) 420-4000

B. Single glazed acoustical windows shall be factory glazed and sealed. Window system shall include: glass, aluminum framing and trim, sound deadening treatments, desiccants and all accessory items as shown on the drawings and required for a complete installation, including caulking and anchorage to adjacent construction.

C. Control room windows shall be horizontal sliding and fixed units as shown on the drawings with a minimum acoustical laboratory rating of STC-32. Sliding lites shall operate in weatherstripped tracks. All perimeter, intermediate and center stile interfaces shall be sealed with pile or neoprene weatherstripping.

D. Glass and Airspace:
   1. The control room window glass shall be 1/4" thick laminated, clear, tempered, float /glass of Type I, Class1, Quality q3 and kind FT. The glass shall be 1/4-inch thick and fabricated as a laminated assembly, consisting of two sheets of clear float glass, 1/8-inch thick, bond laminated with a 0.030" thick polyvinyl butyral interlayer by manufacturer's standard heat-plus-pressure process with dirt, air pockets and foreign substances strictly excluded. The glass shall be coated with a multiple layer, metal oxide interference system on both sides. Residual reflection when viewed at 90° shall be less than 1%. Edges shall be flame polished and beveled. The glass shall be Schott Amiran non-reflecting, low-iron content display glass or better.

E. Frames:
   1. Frame for STC-32 unit shall be identical to that of the acoustically tested unit. Frame shall be free of defects impairing strength and durability. Approximate frame depth to be 4.25”.
   2. Finish shall be selected by the Architect.

END OF SECTION

085673 SOUND CONTROL WINDOWS

A. Section Includes:
   1. Field assembled, fixed acoustical view window assemblies.
   2. Glass and glazing accessories.
   3. Accessories necessary to complete Work.

B. Fixed Acoustical Windows: Double glazed assembly separated by an airspace; depth as shown in the drawings. Fabricate window assembly on site from the components specified herein. Because the window is not manufactured or tested as a unit, there shall be no acoustical rating.

C. Acoustical Glazing
   1. Acoustical glazing shall be laminated glass, consisting of a 0.015, 0.03 or 0.06 inch thick (as called out in the drawings) polycarbonate or Lucite sheet laminated between two plys of glass. Laminate configuration and overall thickness shall be as called out in the drawings.
   2. Acceptable Manufacturer: Viracon, Inc. Owatonna, MN 800-533-2080 www.viracon.com/_or approved equal.

D. Acoustical Liner
   1. Glass or mineral fiber material enclosed in perforated metal.
   2. Install liner around the entire periphery of the window frame's air space between panes. Liner shall be made up as shown in the drawings.

E. Perforated Metal: 22 gage galvanized steel with 1/8" diameter holes on 1/4" staggered centers. Acceptable Manufacturers:
   1. Diamond Manufacturing Company, Gardena, CA 213-321-2500 www.diamondman.com/
   2. Harrington and King Perforating Co., Chicago, IL 312-626-1800 www.hkperf.com/
   3. McNichols Co., Tampa, FL. 800-237-3820 www.mcnichols.com

F. Sound Absorptive Material: Fiberglass or mineral fiber with a density of 1-1/2 lb/ft^3.
   1. Thickness: 1-inch thick.
   2. Unfaced and supplied in semi-rigid batts or rolls.
   3. Flame spread and smoke developed index not to exceed 25, per ASTM E-84. Material shall be non-combustible per ASTM E136.

G. Glazing Frame
   1. Frame for glazing shall be made up from steel or aluminum angles or channels as shown in the drawings. It shall be pre-drilled 8" o.c. or 12" o.c. maximum as noted to allow fastening to main window cutout which has wood lining already fixed in place.

H. Extruded Neoprene “U” Channel
   1. Extruded neoprene “U” Channel shall be used to contain glazing of specified width as called out in the drawings. Channel shall be applied continuously along the perimeter of the frame. Where joints occur, the edges shall be tightly butted in a slightly compressed condition. Corner joints shall be mitered. Adhesive to bond the channel to the frame shall be as recommended by the channel supplier.

I. Neoprene “H” Gasket
   1. Structural neoprene gaskets shall be made from material that meets the requirements of ASTM C-542-65T. They shall be fabricated into complete units by the manufacturer., using an injection molding process. A seal between the gasket and the glazing shall be effected by the use of a locking strip which shall have a hardness (Shore A) 10 points greater than the gasket body.
   2. Gasket sizes shall be based on carefully measured frame dimensions, (as described above) the accuracy of which are the contractor's responsibility. These dimensions shall be submitted to the manufacturer prior to the fabrication of the gasket.
   3. The installing contractor shall inspect all frames before beginning work and shall notify the General Contractor in writing of any defects or conditions which might preclude satisfactory installation. Installation shall not proceed until such defects have been satisfactorily corrected. Glazing gaskets shall be installed in strict accordance with manufacturer's installation procedures.

END OF SECTION

088000 GLAZING

A. Performance Requirements
   1. General: Installed glazing systems shall withstand normal thermal movement, wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
   2. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazing.
   3. Structural Performance: Glazing shall withstand the conditions itemized in Section 4 preceding.
   4. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
   5. Thermal and Optical Performance Properties: Provide glass with performance properties specified as indicated in manufacturer's published test data, based on procedures indicated below:
      a. For monolithic-glass lites, properties are based on units with lites 6 mm thick.
      b. For laminated-glass lites, properties are based on products of construction indicated.
      c. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite. f. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
   6. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
   7. Visible Reflectance: Center-of-glazing values, according to NFRC 300. 7.

B. Glass Products - General
   1. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
      a. GANA Publications: "Laminated Glazing Reference Manual" and "Glazing Manual."
      b. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
   2. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness and safety glazing standard with which glass complies.
   3. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
   4. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.
      a. Minimum Glass Thickness for Exterior Lites: 6 mm.
      b. Thickness of Tinted Glass: Provide same thickness for each tint color indicated throughout Project.
   5. Strength: Where annealed float glass is indicated, provide annealed float glass, heat strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

C. Float Glass: ASTM C1036, Type I, Class 1, 1/4 inch thick, single glazed clear glass.

D. Tempered Glass: ASTM C1048, Kind FT, 1/4 inch thick, tongless, clear glass.

E. Heat-Strengthened Glass: ASTM C1048, Kind HS, 1/4 inch thick, tongless, clear glass.

F. Heat-Absorbing Glass: ASTM C1036, Type I, Class 2, quality q3, 1/4 inch thick, single glazed clear glass.

G. Low-E Glass: Glazing select, float, ASTM C1036, Type I, Class 1 clear, Quality q3.
   1. Type: Annealed Heat-strengthened, ASTM C1048, Kind HS, heat strengthened. Tempered, ASTM C1048, Kind FT fully tempered where required by Code.
   2. 1/4 inch thick, clear.
   3. Coating: No. 2, inner surface.
   4. Performance: Solarban 60

H. Laminated Glass: Glazing select, float, ASTM C1172. Use materials that have a proven record of no tendency to bubble, discolor or lose physical and mechanical properties after fabrication and installation.
   1. Construction: Laminate glass with polyvinyl butyral interlayer to comply with interlayer manufacturer's written instructions.
   2. Interlayer Thickness: Provide thickness not less than that indicated and as needed to comply with requirements.
   3. Interlayer Color: Clear unless otherwise indicated.

I. Insulating Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E2190.
   1. Sealing System: Dual seal, with manufacturer's standard primary and secondary sealants.
   2. Perimeter Spacer: Manufacturer's standard spacer material and construction.
   3. Desiccant: Molecular sieve or silica gel, or a blend of both.

J. Glazing Accessories:
   1. Setting Blocks, Spacer Shims, Edge Blocks: Preformed silicone.
   2. Glazing Sealant for Exterior Glazing: Silicone or polyurethane; one-part, primerless, ASTM C920, Type S, Grade NS, Class 25, Use NT, G, A, M, and O.
   3. Use glazing tapes for interior glazing.

END OF SECTION

088300 MIRRORS

A. Mirrors, Unframed.

B. Unframed Mirror Glass: ASTM C1036, Type I transparent flat, Class 1 clear, Quality q2 mirror.
   1. Type: Annealed.
   2. Provide mirrors, free from objectionable wave, with safety glass backing complying with CFR Part 1201, Category II and ANSI Z97.1 glazing standards for mirrors extending to within 18 inches of floor and other similar hazardous locations.
   3. Thickness: 1/4 inch.
   4. Edges: Square and polished
   5. Reflective Coating: Manufacturer's standard silver coating followed by electrolytic deposited copper coating and separate coat of protective paint.
   6. Fasten with mirror adhesive or metal moldings as detailed.

092400 PORTLAND CEMENT PLASTERING (STUCCO)

A. Section Includes:
   1. Portland cement plaster (stucco) on metal lath plaster base.
   2. Integral color.
   3. Finish Texture: Smooth or textured to replicate the board formed concrete.

B. Reference Standards
   1. California Building Code, 2019.
   2. American Society of Testing and Materials.
      a. C206 - Finishing Hydrated Lime.
      b. C897 - Aggregate for Job-Mixed Portland Cement-Based Plasters.
      c. C926 - Application of Portland Cement-Based Plaster.
      d. C954 - Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs.
      e. C1002 - Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases.
      f. C1063 - Installation of Lathing and Furring for Portland Cement-Based Plaster.
      g. C1329 - Plastic (Stucco) Cement
   3. 2008 ACI 524 R - Guide to Portland Cement-Based Plaster, American Concrete Institute.
   4. 2003 Portland Cement Plaster/Stucco Manual, EB049.05, Portland Cement Association.

C. Self-adhered Sheet Air Barrier: Section 072700.

D. Air Barrier Repair Sealant: Seal holes and small punctures with Dow 758 sealant.

E. Slip Sheet Layer: 60 Minute, Grade D building paper conforming to D-779.

F. Welded-wire fabric lath for wood and metal framed vertical surfaces:
   1. ASTM C933; 1/4 in. self-furring, galvanized wielded wire fabric lath
      a. 2 in. x 2 in., 16 ga.
   2. Acceptable Manufacturers:
      a. Structalath No. 17 SFCR Twin Trac, Structa Wire Corp., 1.14 lbs/sq yd.

G. Cement plaster shall be pre-packaged or pre-mixed prior to delivery to site.

H. Portland Cement: ASTM C150, Type I, II or III, or air-entrained equivalents as required.

I. Hydrated Lime: ASTM C206, Type S.

J. Aggregates:
   1. ASTM C897.
   2. Gradation of base coats:

	Cumulative Weight	
Retained on	Percent	Retained
Standard Sieve	**Minimum**	**Maximum**
No. 4	-	0
No. 8	0	10
No. 16	10	40
No. 30	30	65
No. 50	70	90
No. 100	95	100
No. 200	97	100

K. Finish coat: Uniformly graded, passing 30 mesh screen, or other gradation as required to match accepted sample.

END OF SECTION

092900 GYPSUM BOARD

A. General:
   1. Framing Installation: Install in accordance with ASTM C754 and ASTM C840.
   2. Gypsum Board Installation: Comply with more stringent requirements of GA 216, ASTM C840, and manufacturer's requirements.
   3. Fire-Rated Assemblies: Comply with GA 600.
   4. Adhesives and sealants shall meet or exceed the VOC and chemical component limits of SCAQMD Rule 1168, Cal-GREEN Table 5.504.4.1 Adhesive VOC Limit, and Cal-GREEN Table 5.504.4.2 Sealant VOC Limit requirements.

B. Framing: Non-load-bearing roll formed galvanized steel.
   1. Minimum 20 gage studs at 16 inch centers maximum for interior walls and partitions to facilitate attachment of wall mounted equipment. Use heavier gauges for walls over 10 feet in height.
   2. Studs, Runners, And Furring Channels: ASTM C645.
   3. Galvanized Coating: ASTM A653, G40 thickness; rolled channels used in ceilings may be finished with manufacturer's standard rust inhibitive paint.
   4. Wall Studs: Channel-shaped design with punched web, manufacturer's standard return flange lip.
   5. Shaftwall Studs: "CH", "CT", "E", and "I" shaped studs.
   6. Furring Channels: Hat-shape, 7/8 inch high, 26 gage uncoated metal thickness.
   7. Resilient Furring Channels: 1/2 inch high, 26 gage uncoated metal thickness single perforated metal leg design or expanded metal double leg design furring, capable of reducing sound vibration transmission.
   8. Ceiling Framing - Channel and Cross Furring System: ASTM C754.
   9. Ceiling Framing - Proprietary Direct Hung Suspension System: At Contractor's option, provide factory fabricated, proprietary system in lieu of channel and cross furring framing system.
   10. Interlocking Cold-Rolled Sheet Steel Grid: ASTM C635, "Heavy Duty" structural classification.
   11. Provide fire rated systems at fire-rated assemblies.
   12. Extend studs to structure above, typical, unless directed otherwise

C. Gypsum Board: ASTM C1396.
   1. Maximize use of recycled or synthetic gypsum with minimum of 10 percent.
   2. Type X or manufacturer's proprietary fire rated core for fire rated and shaftwall assemblies and locations where indicated; regular type at other assemblies.
   3. Maximum available lengths to minimize end-to-end butt joints, square cut ends, tapered edge.

D. Impact Resistant Gypsum Board: ASTM C1396.
   1. Comply with ASTM C36. Provide laminate clad backing if necessary to increase impact resistance to 260 ft-lbs. minimum. Thickness: 5/8 inch, except where indicated otherwise. Acceptable Products:
      a. Hi-Impact XP Gypsum Board, National Gypsum Company.
      b. Very High Impact Resistant Gypsum Board, United States Gypsum Company.

E. Moisture- and Mold-Resistant Type: With moisture- and mold-resistant core and surfaces.
   1. Comply with ASTM C1396.
   2. Core: Mold and moisture resistant gypsum core, Type X.
   3. Surface paper: 100% recycled content moisture/mold/mildew resistant paper on front, back, and long edges.
   4. Maximum available lengths to minimize end-to-end butt joints, square cut ends, tapered edge.
   5. Locations: Locker Rooms and Bathrooms.
   6. Mold/Mildew Resistance: 10 when tested in accordance with ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

7. Product and Manufacturer:
    a. XP Wallboard, National Gypsum Company.
    b. Proroc® Moisture And Mold Resistant With M2tech, Certainteed

F. Acoustical Sound Dampening Wall and Ceiling Board: Two layers of heavy paper faced, high density gypsum board separated by a viscoelastic polymer layer and capable of achieving STC rating of 50 or more in typical stud wall assemblies as calculate din accordance with ASTM E413 and when tested in accordance with ASTM E90.
    1. Thickness: ½ inch.
    2. Long Edges: Tapered.
    3. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
    4. Products: National Gypsum Company; Gold Bond SoundBreak XP Gypsum Board, or equal.

G. Gypsum Shaftwall Liner Panels: ASTM C1396.
    1. Type X or manufacturer's proprietary fire rated core.
    2. Maximum available lengths to minimize end joints; beveled edge.
    3. 1 inch thickness.

H. Cementitious Backing Board:
    1. Cementitious composition with glass fiber reinforcement.
    2. Comply with ANSI A118.9.
    3. Thickness: 5/8 inch.
    4. Required as tile back-up where indicated on Drawings.
    5. Location: Showers
    6. Product and Manufacturer:
        a. Durock Cement Board, United States Gypsum Company, Chicago, IL.

I. Joint Compound: ASTM C475, board manufacturer's standard ready-mixed, low-VOC joint compounds with no detectable amounts of crystalline silica based on NIOSH Method 7500.

J. Metal Trim: ASTM C1047, Zinc alloy or galvanized steel ; zinc alloy required for application in shower areas, exterior soffits, and locker rooms.

K. Acoustical Insulation: ASTM C665, Type I; Mineral or glass fiber, friction fit, without integral vapor barrier membrane.

L. Acoustical Sealant: ASTM C834.

M. Levels of Finish:
    1. Comply with GA-214.
        a. Level 1: Not permitted other than plenum and concealed areas.
        b. Level 2: Surface Appearance: Surface shall be fee of excess joint compound. Tool marks and ridges will be acceptable. Used at concealed areas and construction not indicated to be Levels 3, 4, or 5.
        c. Level 3: Surface Appearance: Joints compound shall be smooth and free of tool marks and ridges.
            1) Use at locations such as storage, service rooms, riser closets, electrical rooms and equipment rooms.
        d. Level 4: Surface Appearance: Smooth and free of tool marks and ridges.
            1) Use at locations with light textures and flat paint finishes or under medium weight fabric-backed patterned low sheen wallcoverings
            2) Use at locations under fabric-backed wall coverings through which substrate variations would not be noticeable.
            3) Used typically at walls with flat paint finishes.
        e. Level 5: Surface Appearance: Smooth and free of tool marks and ridges.
            1) Use at public areas such as lobbies, restrooms, stairways or other areas to receive painted finish.
            2) Use at walls used as projection screens, provide continuous, smooth, uniform and virtually flawless finish for application of marker/projection screen wall covering.
            3) Use typically at ceilings.
        f. Smooth finish may be used in specific areas if approved by College.

END OF SECTION

093000 TILING

A. Exterior Tiling: Accent Trim

B. Interior Tiling: Floors and walls per finish selections.

C. Adhesives shall meet or exceed the VOC and chemical component limits of Cal-GREEN Table 5.504.4.1 Adhesive VOC Limit requirements.

D. Sealants shall meet or exceed the VOC and chemical component limits of Cal-GREEN Table 5.504.4.2 Sealant VOC Limit requirements.

E. Floor Tile Slip Resistance: Comply with ANSI A137.1, 2012 edition Dynamic Coefficient of Friction AcuTest of 0.42 wet as tested with BOT-3000 Universal Walkway Tester.

F. Tile and Coved Base:
   1. Manufacturer: Crossville
   2. Floor Tile: 2" x 2" Mosaic
   3. Ceramic Wall Tile: White, 4" x 12" Field; accent color/pattern as selected by Architect

G. Use liquid sealant on unglazed and grout ceramic tile in toilet rooms. Strip off existing finishes, then apply 2 coats of City Seal and 1 coat of Innovation wax.

H. Use Epoxy grout for tile installation for walls and floors.
   1. Manufacturer: Custom Building Products
   2. Wall Color: Bright White.
   3. Floor Color: Charcoal

I. Thresholds: Honed marble, Georgia White.

J. Dryset and Polymer Additive: Two component system; factory prepared, high bond strength dryset mortar and liquid polymer additive; ANSI A118.4.
   1. Acceptable Products:
      a. Hydroment Tile Mate and Flex-A-Lastic 447 Flexible Mortar Admixture, Bostik Construction Products.
      b. Laticrete 4237 Mortar Admix with Laticrete 211 Crete Filler, Laticrete International.
      c. Kerabond and Keralastic, Mapei Corporation.
      d. PCI Premium Thin-Set Mortar and Lastoflex DL, PCI-USA, ChemRex, Inc.

K. Epoxy Grout:
   1. Multi-component, factory prepared, 100 percent epoxy resin and hardener with sand or mineral filler material.
   2. Comply with ANSI A118.3.
   3. Color: As selected from manufacturer's full color line.
   4. Acceptable Products:
      a. Latapoxy 2000 Grout or SpectraLock Pro, Laticrete International.
      b. Kerapoxy, Mapei Corporation, Garland, TX.
      c. CEG Commercial Epoxy Grout, Custom Building Products, Seal Beach, CA.
      d. .

L. Elastomeric Waterproofing Membrane:
   1. Description: Manufacturer's proprietary elastomeric compound formulated for use as heavy-duty, reinforced waterproof membrane for tile floors.
   2. Meet or exceed ANSI A118.10.
   3. Acceptable Products:
      a. Custom 9240 Waterproofing and Anti-Fracture Membrane, Custom Building Products, Seal Beach, CA.
      b. Laticrete 9235, Laticrete International, Bethany, CT.
      c. Mapelastic 315, Mapei Corporation, Elk Grove Village, IL.

M. Trim and Accessories – Non-Ceramic: Brushed stainless steel, style and dimensions to suit application for setting using tile mortar of adhesive. Schluter Systems.

END OF SECTION

095100 ACOUSTICAL CEILINGS

A. Structural Performance Requirements: Design and install systems to comply with code requires for suspended acoustical ceilings in seismic zones. Include:
   1. Requirements for California under IBC Seismic Categories D,E,F.
   2. Use Heavy Duty Grid.
   3. Minimum 19 mm [(3/4 inch)] clearance from grid end to wall
   4. Minimum 50 mm [(2 inch)] perimeter molding
   5. Grid must be attached on two adjacent walls, no attachment on other two walls
   6. Perimeter T ends tied together at perimeters (Spacer/Stabilizer bar) on tees that are not attached to perimeter molding
   7. Partition attachment bracing is required to be independent from ceiling splay bracing
   8. Seismic separation joint required for areas > 2500 sq. ft. (or full height partitions)
   9. Rigid bracing required for ceiling elevation changes.

B. Acoustical Ceilings:
   1. Non-directional fissured pattern.
   2. Grid: Heavy duty
   3. Color: White.
   4. Surface Finish: Factory-applied washable vinyl latex paint.
   5. Basis of Design: As selected by Architect.

C. Exposed Suspension Grid: ASTM C635, heavy duty; interlocking components designed to resist seismic lateral pullout.
   1. Grid Materials: Cold-rolled steel with galvanized coating.
   2. Grid Finish: White baked-on enamel.

D. Accessories:
   1. Include hangers, edge moldings and supports for light fixtures and mechanical outlets occurring in acoustical ceilings.
   2. Provide specialty edge trim where ceiling meets vertical surfaces.

E. Center fire sprinkler heads and other penetrations in panels in both directions.

END OF SECTION

095134 DECORATIVE METAL CEILING AND WALL SURFACES

A. This Section includes the following:
   1. Acoustically transparent decorative mesh applied at ceiling and walls as a factory fabricated system of panels.
   2. Expanded metal mesh at locations indicated on Drawings.

B. Basis of Design Manufacturer: WS Tyler, Rhombus
   1. Other Acceptable Manufacturers:
      a. WS Tyler
      b. GKD
      c. Cambridge Architectural

C. Factory Assembled Metal Mesh Acoustical Ceiling and Wall Panels
   1. Construction: Mesh panels will be fully factory pre-tensioned mesh clad panels with continuous formed and folded mesh return edges along all panel perimeter edges. All panel perimeter edges to have concealed factory welded structural steel attachment angle frames sized and sequenced to accommodate the varying panel indexing requirements as detailed.
   2. Felt Gaskets: 3M Single-Coated Vinyl Foam Tape Series 4516 / 1/8" thick – Color Black. Install between the mesh panel frame and all attachment surfaces.
   3. Factory Fabricated Panel Modules: Sizes and frame shapes as indicated on drawings.
   4. Device Cutouts: Mesh panels that are scheduled to receive recessed device penetrations for light fixtures, sprinklers will require factory cuts and additional concealed structural members sized to prevent surface distortion and vibration.
   5. Metal Reveal Infills: Factory formed from .040" aluminum and painted to match mesh panels.
   6. Fire Rating; Class A
   7. Frame Finish: Refer to Finish List, Section 090000.

D. Internal Concealed Structural Panel Frames
   1. Construction: Each mesh panel to have full surround structural carbon steel angle perimeter frame. Factory weld all corners to form a continuous rigid structure. Each mesh frame assembly will require one intermediate structural cross member fabricated to match the perimeter frame members.
   2. Mesh Attachment: Pre-tension and weld formed mesh wire skin to structural frames. Weld frequency to be 2" o/c.
   3. Finish: Structural Panel Frame: High performance coating to match mesh.
   4. Panel Attachment and Removal: Each mesh panel will be removable to the building structure using the integral concealed steel panel frame. Mechanical fasteners accessed through the mesh face will secure mesh panel assembly to the existing structure.

E. Attachment:
   1. Continuous Zee track attachment channel indexing integral formed panel ends. Secure zee track to wall with ridged backers and direct attached to structural wall studs. Do not support panel assembly off drywall.

F. System shall be designed and fabricated for field adjustment to achieve taut installation.

G. Standard for Metal Suspension Systems: Provide manufacturer's standard of types, structural classifications, and finishes indicated that comply with applicable ASTM C635 requirements.

H. Attachment Devices:
   1. General: Size devices for 5 times loads imposed by complete system.
   2. Wire for Carriers, Hangers, and Ties: ASTM A 641, Class 1, zinc coating, soft temper, pre-stretched.
      a. As recommended by manufacturer and as required to comply with structural classification.
      b. Wire hangers: ASTM A641, not less than 12 gage, galvanized carbon steel wire, soft temper, pre-stretched.
   3. Main Runners: Formed from the following metal:
      a. Galvanized Steel Sheet: ASTM A653, (commercial quality or lockforming quality), Coating Designation G90.
      b. Structural Classification: Heavy-duty system.

I. Factory Finish: High performance coating, applied after fabrication, in color selected by Architect.

END OF SECTION

095420 CEMENTITIOUS WOOD FIBER PANELS

A. Acoustical wood fiber systems, including the following:
   1. Tectum Bevel/Bevel Direct Attachment Panels:
      a. Material: Aspen wood fibers bonded with inorganic hydraulic cement.
      b. Thickness:
         1) 1 inch above Lobby ceiling system and ceilings of corridors either side of the auditorium between skylights.
         2) 2 inch thick at Scene shop.
      c. Ceiling Mounting Style (1-inch thick): C-40 – laid on 1-1/2-inch furring strips at 24 inches on center; provide all fasteners, furring strips and cotton insulation panels for a complete single source installation.
      d. Ceiling Mounting System (2-inch): C-40.85 - Direct applied to 1-1/2-inch furring strips at 24 inches on center; provide all fasteners, furring strips for a complete single source installation.

END OF SECTION

096413 FLOATING WOOD FLOOR SYSTEMS

A. Design Requirements:
   1. Provide concealed fastening wherever possible.
   2. Floating wood flooring system isolated from adjacent construction.
   3. Attachment considerations shall take into account site peculiarities and expansion and contraction movements so there is not possibility of loosening, weakening, buckling, or fracturing connection between wood flooring and substrate.

B. Sound and vibration isolated floating floor.
   1. (2) Layer 3/4" plywood
   2. 2x4 wood sleepers (1 1/2") 16" oc with 5/8" counter bore holes
   3. 2" double deflection isolators - 16" o.c. glued to structural
   4. Perimeter Isolation Board
   5. Sound batt in voids
   6. Separation sheet: Minimum 30 lb construction felt

C. Sound and vibration isolated floating floor.
   1. 1 layer 3/4" T&G flooring
   2. 1 Layer 3/4" plywood
   3. 2x4 wood sleepers (1 1/2") 16" oc with 5/8" counter bore holes
   4. 2" double deflection isolators - 16" o.c. glued to structural
   5. Perimeter Isolation Board
   6. Sound batt in voids
   7. Separation sheet: Minimum 30 lb construction felt

D. Wood Floor System Scene Shop
   1. (2) Layer 3/4" plywood
   2. 2x4 wood sleepers (1 1/2") 16" oc

E. Acoustical Insulation – Sound Absorptive Material for Floating Floors.
   1. Fiberglass or mineral fiber with a density of 1-1/2 lb/ft^3. Thickness shall be as called out on the drawings. It shall be unfaced and supplied in semi-rigid board form. Flame spread and smoke developed index not to exceed 25, per ASTM E-84. Material shall be non-combustible per ASTM E136.
   2. Material to be laid between vibration isolation supports in floating floor constructions.
   3. The following are acceptable, subject to the above:
      a. Industrial Insulation Type 701 unfaced, from Owens Corning Fiberglas Corporation, Toledo, OH. (800) 438-7465
      b. Insul-Shield 150 from Johns Manville, Denver, CO. (800) 654-3103
      c. Insulation Board from Knauf Fiber Glass GmbH, Shelbyville, IN. (317) 398-4434

F. Perimeter Isolation Board: Type AFG-10 (Mason Industries, Inc.) or equal.

G. Wall Base:
   1. 3/16" x 3" x 3" painted steel base.
   2. Color: Black.

H. Resilient Pads: As scheduled.

I. Plywood Subfloors:
   1. Plywood Subflooring: APA Rated Sheathing Sturd-I-Floor.
      a. Thickness: As indicated on Drawing Details.
      b. Exterior Exposure.
      c. Grade: A-C.
      d. Edges: Tongue and grooved.

END OF SECTION

096500 RESILIENT FLOORING

A. Linoleum Sheet and Tile:
   1. Sheet: ASTM F2034, Type I
   2. Tile: ASTM F2195.
   3. Homogeneous sheet linoleum of primarily natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendered onto natural jute backing.
   4. Pattern and color extends throughout total thickness of material.
   5. Form: Minimum 79 inch wide rolls, lengths as required to accommodate required installation with minimum seams.
   6. Backing: Jute.
   7. Heat Welding Rod: As selected by Architect.
   8. Basis of Design Manufacturer and Color: Refer to Section 090000 Finish List.

B. Rubber Tile:
   1. ASTM F1344; Class I—Homogeneous Rubber Tile: Type IB and Grade 2.
   2. Surface: Hammered.
   3. Pre-applied adhesive.
   4. Basis of Design Manufacturer and Color: Refer to Section 090000 Finish List.

C. Stair Treads with Integrated Riser:
   1. Style: Full width and depth of tread with square nosing.
   2. Surface Pattern: Hammered.
   3. Basis of Design: Refer to Section 090000 Finish List.

D. VCT Vinyl Tile: Premium or BioBased tile
   1. Homogeneous, with color extending throughout thickness, and:
   2. Minimum Requirements: Comply with ASTM F 1066, of Class corresponding to type specified.
   3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
   4. Coefficient of Friction: 0.6 minimum per ASTM D2047.
   5. Size: As indicated on Drawings.
   6. Thickness: 0.125 inch.
   7. Indoor Air Quality Certified to SCS-EC10.2-2007:
      a. FloorScore Registration #SCS-FS-01337.
   8. Basis of Design Manufacturer and Color: Refer to Section 090000 Finish Materials and Room Finish Schedule on Drawings.

E. Static Dissipative Vinyl Composition Floor Tile:
   1. ASTM F1066, Class 2, through pattern.
   2. Size: 12 by 12
   3. Gauge: 1/8 inch.
   4. Fire-Test-Response Characteristics:
      a. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E648.
      b. Smoke Developed: 450 or less.
   5. Electrical Resistance: ESD-S7.1; ASTM F150. Point to Point and Point to ground 25,000 – 1,000,000 Ohms.
   6. Static Decay:
      a. Flooring in combination with footwear (ESD shoes) and a person (5000 volts to zero): 0.5 seconds average.
      b. Federal Test 101C, Method 4046 (5000 volts to zero): <0.01 seconds.
   7. Basis of Design Manufacturer and Color: Refer to Section 090000 Finish Materials and Room Finish Schedule on Drawings.

F. Resilient Base:
   1. Description:
      a. ASTM F1861.
         1) Type: TS (Rubber).

2) Style: Straight, toe-less type for carpet areas; set-on type with standard toe for other areas.

b. Thickness and Height: As scheduled.

c. Provide in roll form to accommodate installation with minimum seaming.

d. Corners: Field fabricated.

2. Basis of Design Manufacturer, Size, and Color: Refer to Section 090000 Finish List and Room Finish Schedule on Drawings.

G. Primers and Adhesives:

1. Waterproof.
2. Materials required by resilient product manufacturer for particular product and substrate moisture content and condition.
3. Removable adhesive with antimicrobial additive; approved by resilient product manufacturer.
4. Use primers that comply with Cal-GREEN Table 5.504.4.3 for VOC Content Limits for Architectural Coatings.
   a. Adhesives shall meet or exceed the VOC and chemical component limits of Cal-GREEN Table 5.504.4.1 Adhesive VOC Limit requirements.
   b. Sealants shall meet or exceed the VOC and chemical component limits of Cal-GREEN Table 5.504.4.2 Sealant VOC Limit requirements.

H. Bond and Moisture Tests:

1. Perform in accordance with flooring manufacturer's requirements to determine suitability of concrete subfloor for receiving resilient flooring with regard to moisture content and curing compounds.
2. Test concrete slabs in accordance with ASTM F710 to ensure moisture content is 3 percent or less.
3. Test with calcium chloride in accordance with ASTM F1869 to ensure vapor transmission rate less than 4 pounds per 1000 sq. ft.
4. Submit report to Owner. If subfloor's moisture vapor permeance is in excess of flooring manufacturer's limits for issuing warranty, prepare slab and apply vapor retarder underlayment system acceptable to manufacturer, or use manufacturer's adhesive for application on substrates containing excessive moisture.

END OF SECTION

096623 RESINOUS MATRIX TERRAZZO FLOORING

A. Section Includes: 3/8 inch thick epoxy terrazzo (**TERR**).

B. General: In addition to requirements shown or specified, comply with applicable provisions of National Terrazzo and Mosaic Association for design, materials, fabrication and installation of component parts.

C. Performance Requirements - Epoxy Resin:
   1. Hardness: Shore "D" Durometer Hardness of 60-85, ASTM D2240.
   2. Tensile strength: 3000 psi minimum, ASTM D638, test rate of 0.2 inches per minute using C die described in ASTM D412.
   3. Compressive strength: 10,000 psi minimum, ASTM D695, specimen B, cylinder.
   4. Chemical resistance: When tested in accordance with ASTM D1308, 7 day immersion, following substances shall have no deleterious effect: mineral oil, isopropanol, ethanol, 10 percent hydrochloric acid, 30 percent sulfuric acid, 5 percent acetic acid, 0.025 percent detergent, 1 percent soap solution, 10 percent sodium hydroxide and distilled water.

D. Performance Requirements - Epoxy Terrazzo consisting of resin mixed in accordance with manufacturer's recommendations and blended with marble aggregate, ground and grouted with epoxy resin, and cured for 7 days shall meet following minimum requirements:
   1. Flammability: Self-extinguishing, Class A, extent of burning 0.25 inch maximum, ASTM D635.
   2. Thermal Coefficient of Linear Expansion: 0.0025 inch/inch per degree F maximum with temperature range between -12 and 140 degrees F, ASTM D696.
   3. Bond Strength: 200 psi minimum tensile strength with 100 percent concrete failure when tested in accordance with Field Test Method for surface soundness and adhesion as described in ACI Committee No. 403 Bulletin Title No. 59-43.
   4. Coefficient of Friction (Slip Resistance): 0.60 minimum without sealer for leather soles in dry state.

E. Epoxy: Packaged, two component resin and hardener, non-volatile, thermosetting, mineral filler and color pigment specially formulated for use in epoxy terrazzo flooring meeting Specification and NTMA requirements.

F. Surface Aggregate:
   1. Material: Crushed stones, mixture of No. 1 and No. 2 size aggregate, and pigmented powder in accordance with NTMA formulations specifically selected for uniform coloration.
   2. Hardness: Ha 10 minimum, ASTM C241.
   3. Absorption: Not to exceed 0.75 percent in 24 hours.
   4. Furnish chips free from deleterious or foreign matter.
   5. Dust Content: Less than 1 percent by weight.
   6. Label bags legibly with name and size of chip.

G. Finishing Grout: Resin or other compound with filler and pigments, as recommended by epoxy manufacturer.

H. Epoxy Primer: Flexible, crack-suppressing, waterproof membrane/primer manufactured by epoxy terrazzo manufacturer to prevent telegraphing of cracks in concrete through face of terrazzo.
   1. Use primers that comply with Cal-GREEN Table 5.504.4.3 for VOC Content Limits for Architectural Coatings.
   2. Adhesives shall comply with VOC and chemical component limits of Cal-GREEN Table 5.504.4.1 Adhesive VOC Limit requirements.
   3. Sealants shall comply with VOC and chemical component limits of Cal-GREEN Table 5.504.4.2 Sealant VOC Limit requirements.

I. Flexible Crack Suppression Membrane:
   1. Epoxy flexible membrane with fiberglass scrim.
   2. Acceptable Product: General Polymers, 3552 EPO-FLEX Flexible Epoxy Membrane or similar membrane compatible with proposed system.

J. Stop and Divider Strips: L type, white alloy of zinc, depth as required

K. Stop and Strip Adhesive: Setting materials as recommended by manufacturer for this use.

L. Anchoring Device: Configuration or attachment to produce secure system of anchoring strips to floors.

M. Subfloor Filler: Type as recommended by epoxy manufacturer.

N. Terrazzo Cleaner: pH factor between 7 and 10, free from crystallizing salts or water soluble alkaline salts, acid free, silicate free, biodegradable and phosphate free.

O. Sealer:
   1. Colorless, non-yellowing, clear penetrating liquid type to completely seal matrix surface.
   2. Not detrimental to terrazzo components.
   3. Produce slip-resistant surface.
   4. pH factor between 7 and 10.
   5. Flashpoint: 80 degrees F minimum, ASTM D56.
   6. Sealers: Comply with Cal-GREEN Table 5.504.4.3 for VOC Content Limits for Architectural Coatings.

P. Bond and Moisture Tests:
   1. Perform in accordance with flooring manufacturer's requirements to determine suitability of concrete subfloor for receiving resilient flooring with regard to moisture content and curing compounds.
   2. Test concrete slabs in accordance with ASTM F710 to ensure moisture content is 3 percent or less.
   3. Test with calcium chloride in accordance with ASTM F1869 to ensure vapor transmission rate less than 4 pounds per 1000 sq. ft.
   4. Submit report to Owner. If subfloor's moisture vapor permeance is in excess of flooring manufacturer's limits for issuing warranty, prepare slab and apply vapor retarder underlayment system acceptable to manufacturer, or use manufacturer's adhesive for application on substrates containing excessive moisture.

END OF SECTION

096800 CARPETING

A. Furnish carpet capable of providing following performance characteristics:
   1. Static propensity:
      a. Test: AATCC 134.
      b. Result: 3.5 kV maximum at 20 percent RH and 70 degrees F using step and scuff tests with neolite and leather soles.
      c. Prior to performing test, ensure carpet has been cleaned of applied surface finishes.
   2. Colorfastness to Light:
      a. Test: AATCC 16E with Xenon arc light source.
      b. Results: Minimum rating of 4.0 on AATCC gray scale after 60 hours of continuous exposure.
      c. Test specified carpet and color.
   3. Tuft Bind:
      a. Test: ASTM D1335.
      b. Results: 20 lbf minimum.
   4. Antimicrobial:
      a. Test: AATCC 174.
      b. Results: Part II, minimum 90 percent reduction of Gram positive and negative bacteria. Part III, no growth on fiber and backing.

B. Regulatory Requirements:
   1. Ensure flammable components comply with applicable portions of local, state, and federal codes, laws, and ordinances for toxicity, flame spread and smoke developed indices.
   2. Fire Resistance Ratings: Provide carpet and underlayment which complies with following requirements as determined by independent testing laboratory acceptable to authorities having jurisdiction:
      a. Methenamine Pill Test: DOC FF 1-70, Pass.
   3. Accessibility:
      a. Carpet Construction: Maximum total pile height/thickness 1/2 inch.
      b. Comply with CBC 11B-302.2.
   4. Comply with local regulations controlling use of volatile organic compounds for installation products.

C. Carpeting: Broadloom and tiling.
   1. Provide carpet tiling in classrooms, typical.
   2. Use only Tandus flooring, Shaw or Patcraft carpet with Powerbond or similar backing, colors and patterns as approved, recyclable types.

D. Bond and Moisture Tests:
   1. Perform in accordance with flooring manufacturer's requirements to determine suitability of concrete subfloor for receiving carpet flooring with regard to moisture content and curing compounds.
   2. Test concrete slabs in accordance with ASTM E1907 to ensure moisture content is 3 percent or less.
   3. Test with calcium chloride in accordance with ASTM F1869 to ensure vapor transmission rate less than 4 pounds per 1000 sq. ft.
   4. Submit report to Owner. If subfloor's moisture vapor permeance is in excess of flooring manufacturer's limits for issuing warranty, prepare slab and apply vapor retarder underlayment system acceptable to manufacturer, or use manufacturer's adhesive for application on substrates containing excessive moisture.

E. Do not begin flooring work until concrete substrate has cured for minimum of 90 days.

END OF SECTION

098100 ACOUSTICAL INSULATION

A. Sound Absorptive Material for Acoustical Ceilings and Penetrations.
   1. Sound absorptive material for above acoustical ceilings and for around penetrations in walls and floor/ceiling assemblies shall be fiberglass or mineral fiber with a density of 1-1/2 lb/ft^3. Thickness shall be as called out on the drawings. It shall be unfaced and supplied in semi-rigid board form. Flame spread and smoke developed index not to exceed 25, per ASTM E-84. Material shall be non-combustible per ASTM E136. Where large penetrations occur in fire-rated constructions, the use of semi-rigid fire-rated mineral wool safing may be required.
   2. Material to be laid directly on upper side of sound control ceiling, specified in Section 092900. For use in sealing penetrations of acoustically-rated partitions, pack material completely in space between penetrating object and partition, leaving no voids or spaces.
   3. The following are acceptable, subject to the above:
      a. Industrial Insulation Type 701 Unfaced, from Owens Corning Fiberglas Corporation, Toledo, OH. (800) 438-7465
      b. Insul-Shield 150 from Johns Manville, Denver, CO. (800) 654-3103
      c. Insulation Board from Knauf Fiber Glass GmbH, Shelbyville, IN. (317) 398-4434

B. Acoustical Insulation – Black Fiberglass Board Duct Liner at ceilings.
   1. Thickness: Refer to Drawings for thickness.
   2. Fiberglass board shall be fiberglass insulation with a scrim surface acrylic coating without manufacturer's markings. This coating shall be damage resistant, not tearing or abrading easily. Fiberglass board shall be 3 lb/ft^3 minimum density meeting the requirements of NFPA 90-A. Fiberglass board and adhesives shall comply with ASTM E-84 and shall have a maximum flame spread rating of 25 and smoke rating of 50.
   3. Through color black is preferred; mask or otherwise cover field cut edges to match facing.
   4. Fiberglass board shall conform to ASTM C 423 standard "Sound Absorption" and have the following minimum sound absorption coefficients when tested in accordance with ASTM C423 and E795 procedures mounting type "A":
      a. NRC 0.80 at 2-inches thick;
      b. NRC 1.00 at 4-inches thick.
   5. The following are acceptable, subject to the above:
      a. Select Sound Black Acoustic Board from Owens Corning Fiberglas Corporation, Toledo, OH.
      b. AcoustaBoard Black or CertaPro AcoustaBoard Black from CertainTeed, Valley Forge, PA.
      c. INC C-700 from Industrial Noise Control, North Aurora, IL.

C. Acoustical Insulation – Safing Insulation.
   1. Safing insulation should be 4-5 lb/ft^3 density unfaced semi-rigid fiberglass or mineral wool material. Thickness as called out on the drawings or as required to fully pack voids. Safing insulation should be dimensionally stable and should not slump within cavity. Safing insulation should be inorganic, rot, mildew and vermin proof and should not corrode steel, copper and aluminum. Flame spread and smoke developed index not to exceed 25 and 50 respectively per ASTM E-84.
   2. Use at wall penetrations and tops of walls to fill cavity in metal deck specifically adjacent to acoustical insulations and areas requiring acoustic conditions.
   3. The following are acceptable, subject to the above:
      a. Thermafiber Safing Insulation or Mineral Wool from Owens Corning Fiberglas Corporation, Toledo, OH. (800) 438-7465
      b. Pyro Fiber Safing from Johns Manville Mechanical Insulation Division, Denver, CO. (800) 654-3103

D. Insulation Impaling Fasteners:
   1. Impaling pins consisting of metal spindle with perforated base plate for adhesive application.
   2. Spun aluminum friction fit retainer caps.
   3. Select length to suit insulation thickness so insulation is depressed same thickness for visual uniformity.

4. Adhesive: As recommended by impaling pin manufacturer for project substrates and insulation thickness.
5. Retainer Caps:
    a. RC 150 washers and “Dome Cap Washer” matching Architect’s sample by AGM (Western Welding Systems; 1.800.287.9873).
    b. Dome Cap, Gemco.
    c. Paint caps and washers flat black unless otherwise indicated.

E. Approved Mechanical Fasteners:
1. Gemco Type IH-A from Goodloe E. Moore, Danville, IL 800-331-1164 www.gemcoinsulation.com
2. Eckoustic-Klip from Eckel Industries, Cambridge, MA 617-491-3221 www.eckel.ca/
3. INC Stick-Pin from Industrial Noise Control, Addison, IL 312-620-1998 www.industrialnoisecontrol.com/

END OF SECTION

099000 PAINTING AND COATING

A. Manufacturers: Dunn Edwards or Sherwin Williams.

B. Paint Maximum Product Emissions Limits: Top coat and primer interior paints must meet or not exceed the VOC (Volatile Organic Compounds) limits of the current requirements of Green Seal Standards GS-11 - Paints in the building, and Cal-GREEN Table 5.504.4.3 for VOC Content Limits for Architectural Coatings.

C. Cal-GREEN Requirements for typical paint coatings:
   1. Primers, Sealers, and Undercoaters: 100 grams per liter of product minus water
   2. Flats: 50 grams per liter of product minus water
   3. Non-flats: 100 grams per liter of product minus water
   4. Non-flat High Gloss: 150 grams per liter of product minus water

D. Colors: Refer to Materials Legend.

E. Sheen:
   1. For interior paint systems, provide eggshell finish for gypsum board drywall; semi-gloss finish for CMU, wood, galvanized aluminum and steel; flat finish for concrete and plaster.
   2. For exterior paint system, provide flat finish for concrete and plaster, CMU; semi-gloss finish for wood siding and trim, galvanized aluminum and steel.

F. Exterior Surfaces:
   1. Concrete Walls, Portland Cement Plaster:
      a. 1 coat alkali resistant primer.
      b. 2 coats latex house paint
   2. Concrete Masonry Units:
      a. 1 coat cementitious block filler.
      b. 2coats latex house paint.
   3. Concrete Floors:
      a. 1 coat primer; porch and floor enamel (reduced as directed)
      b. 2 coats porch and floor enamel.
   4. Non-Ferrous Metals And Zinc-Coated (Galvanized) Steel:
      a. Etching metal primer pretreatment.
      b. 1 coat galvanized primer.
      c. 2 coats industrial acrylic.
   5. Ferrous Metals - Uncoated:
      a. 1coat alkyd-phenolic primer.
      b. 2 coats industrial acrylic.
   6. Ferrous Metals - Previously Coated:
      a. Touch-up existing with compatible primer.
      b. 2 coats industrial acrylic.

G. Interior Surfaces: Use zero VOC paints for interior surfaces.
   1. Concrete Walls, Portland Cement Plaster.
      a. 1 coat latex primer.
      b. 2 coats latex paint.
   2. Concrete Masonry Units:
      a. 1 coat cementitious block filler.
      b. 2 coats latex paint.
   3. Interior Concrete Floors:
      a. 1 coat alkali resistant primer.
      b. 2 coats medium-oil alkyd enamel.
   4. Non-Ferrous Metals And Zinc-Coated (Galvanized) Steel:
      a. 1 coat galvanized primer.
      b. 2 coats latex enamel.
   5. Ferrous Metals - Uncoated:
      a. 1 coat ethyl silicate zinc primer.
      b. 2 coats latex enamel.
   6. Ferrous Metals - Previously Coated:

a. Touch-up existing with compatible primer.
b. 2 coats latex enamel.

7. Gypsum Board Ceiling:
   a. 1 coat latex primer.
   b. 2 coats flat latex paint.
8. Wood (Opaque Latex Paint Finish):
   a. 1 coat alkyd undercoat.
   b. 2 coats interior latex paint.
9. Wood (Clear Polyurethane Finish):
   a. Non-masking penetrating stain.
   b. Sanding sealer reduced 1:6.
   c. Paste wood filler.
   d. Sanding sealer, sanded.
   e. 3 coats polyurethane finish.

END OF SECTION

099600 HIGH-PERFORMANCE COATINGS

A. Paints and Coatings must meet or exceed the VOC and chemical component limits of Green Seal requirements.

B. Interior Service Areas; CMU and Concrete:
   1. 2 coats, catalyzed epoxy.
   2. 1 coat, acrylic polyurethane

C. Interior Concrete; CMU, and Gypsum Board:
   1. Manufacturer's recommended primer.
   2. 2 coats, water based epoxy.

D. Interior Sanitary Areas; CMU and Concrete:
   1. Manufacturer's block filler.
   2. 2 coats, catalyzed epoxy.

E. Textured Interior/Exterior Coating:
   1. 2 coats, epoxy masonry coating.
   2. Sand [Smooth] texture.

F. Interior Metal:
   1. Manufacturer's standard primer.
   2. 2 coats, acrylic polyurethane

G. Exterior Metal:
   1. 1 coat organic zinc primer.
   2. 1 coat epoxy primer.
   3. 2 coats, acrylic polyurethane.

END OF SECTION

101000 VISUAL DISPLAY SURFACES

A. Porcelain Steel Markerboard:
   1. Face Sheet: Porcelain finish on 24 gage enameling sheet steel.
   2. Core: 5/8-inch thick
   3. Backing Sheet: 0.015 inch aluminum foil.
   4. Color: white.

B. Tackable Surfaces: Self-sealing surfacing over Homosote or similar backing on gypsum board walls.

C. Cork Tackboards:
   1. Face Panel: Cork, 1/4 inch thick solid color throughout with burlap backing laminated to backing panel.
   2. Backing Panel for Installation in Frames: 1/4 inch thick hardboard or 3/8 inch fiberboard.
   3. Backing Sheet: 0.015 inch aluminum foil.

END OF SECTION

101400 SIGNS

A. Interior Signs:
   1. Acrylic Plastic: Cut and machine corners to size and shape indicated.
      a. Provide layout, lettering, graphics, and colors in accordance with proof sheets.
   2. Cabinet Signs: Fabricate panels from sheet aluminum. Provide coped corners, continuous heli-arc-welds and smooth exposed faces.
      a. Cut graphics in face panel; back with 3/16 inch acrylic sheet plastic.

B. Code Required Signs:

C. Barrier Free Signage: Comply with CBC Section 11B-703 Signs for following:
   1. Braille: Use Contracted Grade 2 Braille whenever Braille symbols are specifically required. Dots shall be 1/10 inch on center within each cell with 2/10 inch space between cells. Dots shall be raised 1/40 inch above background. Refer to CBC Section 1117B.5.2.11B-703.5.1.

D. Sign Schedule: Provide signage as required by codes and accessibility regulations and requirements. These include, but are not limited to:
   1. Illuminated Exit Signs: Refer to Division 26.
   2. Fire Doors
   3. Room Capacity
   4. Elevator Signs
   5. Stairway Identification
   6. Accessibility signs (ADA Accessibility 28 CFR 35 Requirements including Braille) including toilet facilities, and doors to exitways..
   7. Elevator Lobbies:
      a. “IN CASE OF FIRE, USE STAIRWAY. DO NOT USE ELEVATORS.” Include floor plan showing stair locations.
      b. One required on each floor at each elevator group.
   8. Toilet Rooms:
      a. MEN and WOMEN.
      b. Sizes as selected.
   9. Stairs: Provide sign identifying each stair door location
   10. Room Signage: Provide as required by ADA accessibility requirements and code. Include Room Name and Room Number on each sign. Match campus standard.

END OF SECTION

102113 METAL TOILET COMPARTMENTS

A. Regulatory Requirements: Comply with USAF and ANSI A117.1 requirements to accommodate barrier free design or local code if more stringent requirement is applicable.

B. Floor mounted overhead braced stainless steel partitions with anti-grip headrail.
   1. Basis of Design: Bradley Corporation, 400 Sentinel Overhead Braced with a 5WL textured finish (Colored finish)

C. Core: Manufacturer's standard honeycomb sound deadening assembly.

D. Brackets: Stainless steel with satin finish, aluminum with anodized finish, brass with chrome plated finish, or die cast zamac alloy with chrome plated finish.

E. Hardware:
   1. Construction and Finish: Manufacturer's standard design of stainless steel with satin finish.
   2. Hinges: Cut out insert design or surface mounted, gravity or spring-action cam, adjustable to hold door open at any angle up to 90 degrees, set to hold door open 15 degrees when not occupied.
   3. Latch: Concealed bolt or surface mounted, equipped with accessible slide bolt, combination strike/keeper with rubber bumper, and emergency operation feature mounted at 30 to 44 inches above floor. Twist type not acceptable.
   4. Coat Hook/Bumper: Combination unit with hook and rubber tipped bumper at in-swinging doors. Independent units with coat hook on interior and rubber tipped bumper on exterior side of door at outswinging doors mounted at 14 inches below top of door.
   5. Pull: At accessible stalls, surface mounted U-shaped design on both sides of outswinging doors, mounted at 30-44 inches above floor. Knob type not acceptable.

F. Pilaster Shoes: Stainless steel, 0.0313 inch minimum.

G. Anchorage Devices:
   1. Exposed Fasteners: Manufacturer's standard stainless steel or chrome plated brass, theft-resistant type screw head and nuts.
   2. Concealed Fasteners: Stainless steel.

H. Head Rail Bracing: Extruded aluminum, anti-grip style with cast socket type wall brackets, clear anodized finish.

END OF SECTION

102213 WIRE MESH PARTITIONS

A. Wire Mesh Partitions:
   1. Fabric: 1-1/2 inches diamond mesh, 10 gage crimped steel wire.
   2. Vertical Frames: 1-1/4 by 5/8 inches cold-rolled "C" section channels.
   3. Horizontal Frames: 1 by 1/2 by 1/8 inch cold-rolled channels.
   4. Doors: Provide 3'-0" by 7'-0" hinged doors with hardware.

END OF SECTION

102600 WALL AND DOOR PROTECTION

A. Corner Guard:
   1. Surface Mounted Vinyl With Retainer: Resilient vinyl cover over continuous extruded aluminum retainer, surface applied.
      a. Size: 3 by 3 inches by full height.
   2. Surface Mounted Metal: Surface applied with surface fasteners or adhesive.
      a. Material: Stainless steel.
      b. Size: 3-1/2 by 3-1/2 inches by full height.
      c. Thickness: 16 gage.

END OF SECTION

102813 TOILET ACCESSORIES

A. Regulatory Requirements: Comply with Authorities Having Jurisdiction and Americans with Disabilities Act (ADA) including ADA Accessibility Guidelines to accommodate barrier free design.

B. Toilet Accessories:
   1. Coordinate toilet paper, paper towel and soap dispensers as well as trash receptacles with Campus supplies.
   2. Paper Towel dispenser and Waste Receptacle, semi recessed: Maintex Slim Jim, 23 gallon grey (2677191)
   3. Toilet Tissue Dispenser, twin jumbo roll, surface mount: LoCor Manual Jumbo Bath Tissue Dispenser or Bobrick equivalent. (see 400) (D67031 for Stainless steel; D67033 for Black)
   4. Toilet seat cover, surface mount
   5. Sanitary napkin disposal, surface mount
   6. Sanitary napkin/tampon vendor, semi recessed: Evogen Dual Feminine Hygiene Dispenser #EV1SS
   7. OFCI Soap Dispenser: Deb ProLine Curve 1000 1 L Dispenser – Black (#120301)
   8. Hand towel dispenser: Scott Essential Towel Dispenser (Mfg Item #46253, Maintex SKU 3546253)

END OF SECTION

104400 FIRE PROTECTION SPECIALTIES

A. Acceptable Manufacturers, Fire Extinguisher Cabinets:
   1. JL Industries, Bloomington, MN.
   2. Larsen's Manufacturing Co., Minneapolis, MN.
   3. Potter Roemer, Santa Ana, CA.
   4. Accepted Substitute in accordance with Section 01630.

B. Fire Extinguisher Type 4A:60B:C: Multi-purpose Dry Chemical Type (Siliconized Mono Ammonium Phosphate) with Pressure Gage.
   1. Capacity: 10.0 pounds.
   2. UL Rating: 4A-60B:C.
   3. Acceptable Product: MP10, Larsen's.

C. Fire Extinguisher Cabinet: Formed sheet metal 20 gage or 0.040 inch.
   1. Recessed type.
   2. Size to accommodate fire extinguisher and accessories.

D. Cabinet Components:
   1. Trim: Flat face, primed painted steel.
   2. Door: Prime painted steel.
      a. Thickness: 20 gage or 0.040 inch minimum, reinforced for flatness and rigidity.
      b. Latch: Lever handle with cam latch.
      c. Door Style: Vertical view panel.
      d. Glass: 1/8 inch thick tempered glass.
   3. Mounting Hardware: Appropriate to cabinet.
   4. Graphic Identification: Individual, die-cut, press-on letters.

E. Fire Extinguisher Brackets: Similar to Larsen's B series or Potter-Roemer 3900 full length wall brackets, size as required for cylinder used.

F. Form body of cabinet with tight inside corners and seams.
   1. Predrill holes for anchorage.
   2. Form perimeter trim and door stiles by welding, filling, and grinding smooth.
   3. Hinge doors for 180 degree opening with continuous piano hinge. Provide lever handle with cam latch.
   4. Glaze doors using manufacturers' standard methods.

END OF SECTION

123664 QUARTZ COUNTERTOPS

A. Quartz Countertop Composition: 93 percent crushed quartz aggregate combined with resins and pigments and fabricated into slabs using a vacuum vibro-compaction process.

B. Identification: Label material with batch number and imprint on back with manufacturer's identifying mark.

END OF SECTION

124813 ENTRANCE FLOOR MATS AND FRAMES

A. Materials:
   1. Extruded Aluminum: ASTM B221; alloy and temper as recommended by manufacturer for strength, corrosion resistance, and application of specified finish.
   2. Carpet Inserts: Fusion-bonded level cut pile nylon carpet; DuPont Antron III filament; 1/4 inch pile height; 28 ounce/square yard yarn weight minimum.

B. Floor Mats and Frames: Surface mounted aluminum floor mats with carpet inserts

A. Frames:
   1. Fabricate manufacturer's standard frame profiles to fit size and style of mat for permanent installation.
   2. Fabricate manufacturer's standard frame profiles to fit size and style of mat for permanent installation in shallow, level bottom recess in subfloor.
   3. Fabricate frame members in single lengths or, where dimensions exceed maximum available lengths, provide minimum number of pieces possible with hairline joints equally spaced, and with pieces spliced together by means of straight connecting pins.
   4. Cope or miter and rigidly connect frame corners and intersections with stainless steel fasteners or by welding.

END OF SECTION

142400 HYDRAULIC ELEVATORS

A. Passenger Elevators:
   1. Capacity: 3500 pounds.
   2. Speed: 350 FPM.
   3. Entrance Door Operation: Side opening.
   4. Entrance Size: 3'-6" by 7'-0".
   5. Finishes:
      a. Cab Finishes: Per design, to be determined.
      b. Door Panels: Stainless steel No. 4 satin finish unless otherwise selected.
      c. Hoistway Entrances: Stainless steel No. 4 satin finish unless otherwise selected.
   6. Accessories:
      a. Illuminated signal buttons, stainless steel finish.
      b. Hall lanterns with audio and visual signal.
      c. Digital readout car position indicator.
      d. Provide elevator accessories for meeting requirements for handicapped use.
      e. Firefighter's service.
      f. Automatic elevator recall.
      g. Emergency service. Firefighter selection of one elevator.
   7. Operation: Simplex Selective Collective.

END OF SECTION

144200 WHEELCHAIR LIFTS

A. Vertical Wheelchair Lifts.
   1. Regulatory requirement: Comply with ASME/ANSI A17.1 and local regulations.
   2. Description:
      a. Capacity: 450 pounds
      b. Rated speed: 15 – 25 FPM
      c. Vertical Travel Distance: Refer to Drawings.
   3. Components: Pre-engineered lift systems.
      a. Finishes: Enameled steel.
      b. Controls: Solid state controls, key-operated.
      c. Structure: Self-supporting.

END OF DIVISION 14