SECTION 07 10 03
DAMPPROOFING AND WATERPROOFING
Design Standard

PART 1 GENERAL

1.1 WATERPROOFING

Below-Grade Waterproofing in the Water Table (Hydrostatic Condition) – Thermoplastic Sheet Waterproofing With Active Polymer Core

A. Waterproofing shall be Cetco Coreflex 60, Elvaloy KEE based thermoplastic membrane reinforced with a 5.0 oz. Weft inserted knit polyester fabric integrally bonded to an active polymer core (APC).

1. Thickness: 60 mils nominal

2. No known equal.

B. Related Sections: County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability.

C. Perform groundwater analysis and report results to Manufacturer, Architect, and Owner's Representative.

1. Note to Designer: Perform groundwater analysis during Schematic Design or Design Development phase.

D. Membrane shall be attached to lagging at property line installations and attached to building foundation wall at layback installations. Mechanically attach at top of wall/lagging only and weld. Ensure there are no exposed punctures through membrane at completion.

E. Foundation Wall: Lagging where required for property line installation method shall be shotcrete or wood lagging.

1. Fins, ridges, ponding ridges and other protrusions should be level and smooth with monolithic concrete surface. For wood lagging, fill with 20 psi coam.

F. Horizontal Slab: Waterproofing shall be installed over a 3 inch fiber-reinforced mud/rat slab on prepared soil or as otherwise directed by the geotechnical engineer. Substrate to be smooth prior to installation of waterproofing.

G. Manufacturer's standard protection layer shall be installed over waterproofing in backfill applications.

H. Termination bars shall be manufacturer's approved, predrilled aluminum or stainless steel termination bars, approximately 1 by 1/8 inch thick; with anchors. Formed steel shall be pre-punched with holes every 6 inches on center to allow various fastener spacing options.

I. Waterstops in cast in place concrete shall be installed at all cold joints. Two waterstops shall be installed in cold joints of shotcrete applications and one waterstop at each shotcrete lift joint.

J. Penetration flashing shall be field fabricated boots fabricated tight to penetration.

K. Penetrations in walls within the water table shall utilize Link-Seal EPDM modular seal assembly manufactured by PSI-Thunderline/Link-Seal.

L. Warranty shall be manufacturer's fifteen (15) year hydroshield warranty, without monetary limitation, in which manufacturer agrees to repair leaks.

M. Flashing shall be installed in such a manner so as to prevent moisture entering the wall.

N. Waterproofing membrane shall be installed in accordance with manufacturer's recommendations.

O. Apply base sheet horizontally.

P. 3rd Party Certified Inspector shall probe 100% of welds.

Q. Use adhesives and sealants approved by waterproofing manufacturer.

1.2 DAMPROOFING

A. Spray applied solvent dampproofing shall be Spray-Mastic by W.R. Meadows; asbestos-free, non-fibered asphalt compound that meets the U.S. EPA Architectural Coatings Rule requirements for VOC content.

B. Approved Equals:

1. Henry.

2. Karnak.

C. Related Sections: County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability.

D. Brush applied solvent dampproofing shall be Semi-Mastic by W.R. Meadows; asbestos-free, fibered, asphalt compound that meets the U.S. EPA Architectural Coatings Rule requirements for VOC content.

E. Trowel applied solvent dampproofing should be Trowel-Mastic by W.R. Meadows. Heavy bodied, asbestos-free fibered, asphalt compound that meets the U.S. EPA Architectural Coatings Rule requirements for VOC content.

F. Waterproofing Protection Course: Protection Course by W.R. Meadows.

G. Asphalt-Coated Glass Fabric: Manufacturer's recommended.

H. Apply dampproofing to minimum 125 wet mil thickness.

I. Application method may be spray applied, brush applied or trowel applied.

J. Where dampproofing footings and foundation walls, apply from finished-grade line to top of footing; extend over top of footing and down a minimum of 6 inches over outside face of footing.

K. Extend dampproofing 12 inches onto intersecting walls and footings, but do not extend onto surfaces exposed to view at Project completion.

L. Install flashings and corner protection stripping at internal and external corners, changes in plane, construction joints, cracks, and where shown as "reinforced," by embedding an 8-inch wide strip of asphalt-coated glass fabric in a heavy coat of dampproofing. Dampproofing coat for embedding fabric is in addition to other coats required.

M. Install dampproofing in accordance with Manufacturer's written recommendations.

1.3 PLANTER AND PLAZA WATERPROOFING – HOT FLUID-APPLIED RUBBERIZED ASPHALT WATERPROOFING

A. Waterproofing shall be Cetco Strataseal HR, Single component; 100 percent solids; hot fluid-applied, fully reinforced rubberized asphalt.

1. Protection course shall be manufacturer's RAP 200.

B. Approved Equals:

1. American Hydrotech

2. Carlisle CCW

C. County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability.

D. Design four-way slope of a minimum of one-fourth unit vertical in 12 units horizontal (2-percent slope.)

E. Include manufacturer's recommended root barrier for horizontal and vertical surfaces at planters.

F. Waterproofing shall be fluid-applied to substrates. Apply by roll, brush, or squeegee.

G. Manufacturer's standard drainage panel and protection board shall be installed over waterproofing.

H. Termination bars shall be manufacturer's standard, predrilled aluminum or stainless steel termination bars, approximately 1 by 1/8 inch thick; with anchors. Formed steel shall be pre-punched with holes every6 inches on center to allow various fastener spacing options.

I. Penetration flashing shall be applied tight to penetration.

J. Provide "float" finish for substrate. Prime substrates in accordance with manufacturer's recommendations.

K. Prior to application of hot rubber, conduct pull test to ensure concrete moisture level is acceptable.

L. Water test each installation area in accordance with manufacturer's requirements. After the waterproofing membrane has cooled, water test each installed area by flooding with water to a minimum depth of 2 inches for a period of 48 hours to check the integrity of the membrane installation. Water test prior to application of drain mat.

M. Design Note: Designer should consider vector mapping requirement.

N. Warranty shall be manufacturer's fifteen (15) year warranty in which manufacturer agrees to repair or replace waterproofing and sheet flashings that do not comply with requirements or that fail to remain watertight within specified warranty period. Overburden removal is the responsibility of the District.

O. Flashing shall be installed in such a manner so as to prevent moisture entering the wall.

P. Waterproofing shall be installed in accordance with manufacturer's recommendations.

1.4 PEDESTRIAN TRAFFIC COATINGS ON WOOD DECK

A. Traffic coating shall be Excellent Coatings, Inc., Excel-Coat F/S

1. Color and patterns as selected by the architect.

B. Approved Equals

1. Pli-Dek Systems Inc.

2. Westcoat Specialty Coating Systems

C. Related Sections: County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability

D. Pedestrian Traffic Coating shall have a "Class A" one-hour fire rating over a combustible wood substrate. (ICBO #4804)

E. Decks shall have a design slope of a minimum of one-fourth unit vertical in 12 units horizontal (2-percent slope.)

F. Pedestrian traffic coating assembly shall be installed over cementitious underlayment and shall include all components tested for the fire rated assembly.

1. Expanded Metal Lath: 2.5 expanded metal lath, hot-dipped galvanized.

2. Underlayment: Excel-Crete Additive.

3. Primer: Excel-Coat Primer 120 or PC-155

4. Base Coat: Excel-Coat #1 Base Coat

5. Fiberglass Mat, 0.75 oz., random chop

6. Texture Coat: Excel-Coat #200 Texture Coat

7. Top Coat: Excel-Coat #300 Top Coat

G. Deck drainage shall comply with the California Plumbing Code.

H. Pedestrian traffic coating shall be installed in accordance with manufacturer's published instructions

I. Integrated Sheet Metal: G90 bonderized hot dip galvanized steel.

J. Penetration flashing shall be applied tight to penetration.

K. Flashing shall be installed in such a manner so as to prevent moisture entering the wall and deck through joints, through moisture-permeable materials and at intersections walls and other penetrations through the deck plane.

1. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than No. 24 galvanized sheet (G-90 minimum.)

a. Finishes shall be field painted.

L. Where wall cladding abuts deck areas provide reglet in counterflashing systems.

M. Water test each installed area by flooding with water to a minimum depth of 2 inches for a period of 48 hours to check the integrity of the installation.

N. Warranty shall be on manufacturer's standard or customized form in which manufacturer agrees to repair or replace traffic coating system that fails in materials within ten (5+5) years

1.5 PEDESTRIAN TRAFFIC COATINGS ON CONCRETE DECK

A. Traffic coating shall be seamless, high-solids-content, cold liquid-applied, elastomeric, waterproofing membrane system with integral wearing surface for concrete substrate; according to ASTM C 957 by Gaco Western LLC.

1. Color and patterns as selected by the architect.

B. Approved Equals:

1. Lymtal International Inc.

2. Pacific Polymers

C. Decks shall have a design slope of a minimum of one-fourth unit vertical in 12 units horizontal (2-percent slope.)

D. Pedestrian traffic coating assembly shall be installed over prepared concrete substrate.

1. Primer/Sealer: gacoflex U-5677

2. Primer: gacoflex E-5320

3. Wear and Base Coats: gacoflex UB-64

4. Topcoat: gacoflex UA-60

5. Reinforcing Strip: gacoflex 66B

6. Aggregate: Manufacturer’s crushed walnut shells

E. Deck drainage shall comply with the California Plumbing Code.

F. Pedestrian traffic coating shall be installed in accordance with manufacturer’s published instructions.

G. Integrated Sheet Metal: G90 bonderized hot dip galvanized steel.

H. Concrete shall have hardened sufficiently to prevent excess fine material from working to the surface prior to finishing. Concrete substrates shall have a slightly sand-textured surface. The end result shall be neither slick nor burnished, nor rough with fins, sharp projections, voids or rock pockets.

I. Penetration flashing shall be applied tight to penetration.

J. Flashing shall be installed in such a manner so as to prevent moisture entering the wall and deck through joints, through moisture-permeable materials and at intersections walls and other penetrations through the deck plane.

1. Where flashing is of metal, the metal shall be corrosion resistant with a thickness of not less than No. 24 galvanized sheet (G-90 minimum.)

a. Finishes shall be field painted.

K. Where wall cladding abuts deck areas provide reglet in counterflashing systems.

L. Water test each installed area by flooding with water to a minimum depth of 2 inches for a period of 48 hours to check the integrity of the installation.

M. Warranty shall be on manufacturer's standard or customized form in which manufacturer agrees to repair or replace traffic coating system that fails in materials within ten (10) years.

PART 2 EXTERIORS WALLS

2.1 CEMENT PLASTERING

A. Exterior Portland cement plaster shall be 3-coat with a nominal thickness of 7/8 inch, with painted finish on metal lath over weather-resistive barrier.

1. Plaster shall be 2-coat over concrete and masonry substrates with a nominal thickness of 1/2 inch over unit masonry and 3/8 inch over cast-in-place or pre-cast concrete.

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C. Plaster shall be pre-blended portland cement plaster (fibered and sanded), factory proportioned, fiber reinforced portland cement plaster for trowel or pump application, field mixed with water.

D. Obtain components for cement plaster assembly from same manufacturer or approved by cement plaster manufacturer. Each component of cement plaster assembly shall be by single manufacturer and shall not vary on the Project.

E. Water for mixing shall be potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

F. Lath over wood structure shall be galvanized woven-wire lath in compliance with ASTM C 1032; self-furring, with stiffener wire backing.

1. Wood Studs: Fasteners shall be galvanized furring nails by Flannery, Inc.

G. Lath over metal structure shall be woven wire paper-backed metal lath in compliance with ASTM C 1032;

1. Fasteners shall be self-furring, self-tapping galvanized furring screws by Flannery, Inc.; in lengths required to achieve penetration through joined materials of not fewer than three exposed threads.

H. Weather barrier shall be Raindrop 3D by Kingspan.

1. Air Barrier Design Option: Tape seams of weather barrier with manufacturer's recommended seam tape to provide type II air barrier.

2. Approved Weather Barrier Equal: Tyvek Commercial Wrap; Dupont

I. Self-adhering flashing for integrating weather resistive barrier to wall penetrations, openings, and flashings shall be greenguard Butyl flashing.

1. Provide 20 mil at openings including window and door openings.

2. Manufacturer approved sealant.

J. Lath as plaster base shall be installed in accordance with ASTM C1063.

K. Exterior Portland cement plaster shall be installed in accordance with ASTM C926.

L. Metal accessories shall be G90 hot-dip galvanized 26 gauge and installed in accordance with ASTM C1063.

1. Vertical Control Joints: One-piece double "J" type; with perforated flanges and removable protective tape on plaster face of control joint.

2. Horizontal Control Joints: One-piece double "V" type; with perforated flanges and removable protective tape on plaster face of control joint.

3. Two-Piece Expansion Joints: Fabricated from zinc-coated (galvanized) steel; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4-to-5/8-inch wide.

4. Drip screeds shall be fabricated without weep holes. Drip screeds shall be minimum 4 inches above earth or 2 inches above paved areas.

M. Install control joints in specific locations approved by District for visual effect as follows:

1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:

a. Vertical Surfaces: 144 sq. Ft. (13.4 sq. M).

b. Horizontal and other Nonvertical Surfaces: 100 sq. Ft. (9.3 sq. M).

2. At distances between control joints of not greater than 18 feet (5.5 m) on center.

3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.

4. Where control joints occur in surface of construction directly behind plaster.

5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

N. Moist Curing: Fog as frequently as required during the moist cure period to prevent loss of moisture from the stucco. Avoid eroding the stucco surface with excess moisture.

O. Warranty: Submit a written warranty, executed by the manufacturer, agreeing to repair or replace cement plaster assembly that fail within five (5) years. Failures include, but are not limited to, water penetration through the finish.

1. Architect to verify that specified plaster systems come with warranty above.

P. Weather Resistive Barrier Manufacturer Warranty: Manufacturer will pay the cost of materials and labor to correct problems found to be caused solely by the failure of the manufacturer's product to perform to manufacturer's published specification for a period of ten (10) years.

2.2 FORMED METAL WALL SYSTEMS

A. Formed wall panel systems shall be factory-formed aluminum metal panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners in side laps. Include accessories required for weathertight installation.

1. Manufacturer: Morin; a Kingspan Group company.

2. Approved Equals: Swiss Pearl, AEP Span.

3. Thickness: 0.040 GA.

4. Color and profile as selected by the architect.

5. Exterior Finish: 3-coat fluoropolymer.

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C. Architect/Designer to consider rainscreen system design to increase drainage and allow substrate to dry more quickly.

D. Architect/Designer to present metal panel product recommendation to District.

E. Manufacturer's system shall allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects.

F. Air/Water Criteria:

1. Air Infiltration - When tested in accordance with ASTM E 283, air infiltration at 6.24 lb/ft2 must not exceed 0.06 ft3/min. Per ft² of wall area.

2. No water infiltration shall occur in any system under a differential static pressure of 12.0 lb/ft2 after 15 minutes of exposure in accordance with ASTM E 331.

G. Structural performance shall comply with the California Building Code.

H. Concealed panel sealants shall be butyl. Use butyl tape and gunnable butyl as recommended by the manufacturer.

I. Exposed sealants shall be silicone as manufactured by Dow Corning or Momentive Performance Materials, Inc. Complying with ASTM C920.

J. Panel fasteners shall be self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide sealing washers for fasteners.

K. Weather barrier shall be Raindrop 3D by Kingspan.

1. Air Barrier Design Option: Tape seams of weather barrier with manufacturer's recommended seam tape to provide type II air barrier.

L. Self-adhering flashing for integrating weather resistive barrier to wall penetrations, openings, and flashings shall be greenguard Butyl flashing.

1. Provide 20 mil at openings including window and door openings.

2. Manufacturer approved sealant.

M. Provide components approved by roof panel manufacturer and as required for a complete metal wall panel assembly including trim, corner units, clips, flashings, fillers, closure strips, and similar items. Match material and finish of metal wall panels.

N. Panel installation shall comply with manufacturer's tolerance requirements.

O. Manufacturer's warranty shall be on manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship two (2) years.

P. Manufacturer's special warranty on panel finishes shall be on manufacturer's standard form in which manufacturer agrees to repair finish or replace metal wall panels that show evidence of deterioration of factory-applied finishes within twenty (20) years.

2.3 WATER REPELLANTS

A. Water repellents for concrete, brick and concrete masonry unit (CMU) walls shall be PROSOCO Siloxane WB Concentrate; silane/siloxane-blend, penetrating water repellent; clear, silane and siloxane blend.

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C. For anti-graffiti applications specify Blok-Guard & Graffiti Control in lieu of Siloxane WB Concentrate. If anti-graffiti coating is to be applied on first story only, apply to a break in plane or architectural reveal.

D. Provide and test mockup using the Rilem tube test in accordance with the manufacturer's requirements. Test prior to installation of water repellents.

E. Test ph of substrate prior to application of water repellent. Comply with manufacturer's requirments.

F. Water repellent shall be applied in two coats without puddles beyond saturation.

G. Field Tests: Test applied water repellents using the Rilem tube test in accordance with the manufacturer's requirements.

1. Test at duration required by the manufacturer for the specified warranty.

2. Test minimum once per phase of construction.

3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.

4. Notify Architect seven days in advance of dates and times when test will be performed.

5. Arrange for tests to take place with water repellent manufacturer's technical representative present.

6. If test results do not comply with manufacturer's requirements, apply water repellent in accordance with manufacturer's requirements until test results are acceptable to manufacturer and Architect.

H. Manufacturer's warranty shall be on Manufacturer's standard form in which water repellent manufacturer agrees to furnish water repellents to repair or replace those that do not comply with performance and other requirements specified in this Section within five (5) years

2.4 JOINT SEALANTS AS WEATHERSEALS

A. Exterior joint sealants as weatherseals shall be silicone, silyl-terminated polyether or traffic-grade urethane and shall be nonsag in accordance with ASTM C920.

B. Silicone sealants shall be Dow 795, Dow 790 or Dow 756SMS. Dow 790 is low-modulus for applications where higher joint movement is anticipated. Dow 756SMS is for applications where masonry is a substrate.

1. Momentive Silpruf SCS2000 and LM SCS 2700 and NB SCS9000 are considered equal to the Dow products indicated above. Momentive LM SCS 2700 is low-modulus for applications where higher joint movement is anticipated. Momentive NB (no bleed) SCS9000 is for applications where masonry is a substrate.

2. Silicone sealant shall be Type S, Use NT, Grade NS in accordance with ASTM C920

3. Specify silicone sealant for applications that will not be painted.

C. Silyl-terminated polyether sealant shall be Masterseal NP 150 by BASF, Type S, Use NT, Grade NS in accordance with ASTM C920.

1. Specify silyl-terminated polyether sealant on exterior surfaces to be painted.

D. Traffic grade sealant shall be two-component Sikaflex-2c NS, Type M, Use T, Grade NS in accordance with ASTM C920.

1. Specify traffic-grade sealant in horizontal surfaces designed for traffic.

E. Related Sections: County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability.

F. Comply with manufacturer's published literature for appropriate sealant for anticipated joint movement.

G. Cylindrical sealant backings shall be ASTM C 1330, Type C (closed-cell material with a surface skin) or Type B (bicellular material with a surface skin), as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

1. Open cell backer rod is permitted in double layer joitn sealant applications only. Indicate open cell backer rod as the exterior joint sealant, as opposed to the primary weatherseal.

H. Bond breaker tape shall be polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

I. Primer shall be material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

J. Samples of materials that will contact or affect joint sealants shall be submitted for testing. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

1. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

2. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

K. Substrates shall be primed, installed and painted in accordance with manufacturer's published literature.

L. Installation shall be in compliance with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

M. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

2. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.

N. Warranty shall be on manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within twenty (20) years for silicone sealants and ten (10 years for silyl-terminated polyether and traffic-grade urethane sealants.

2.5 MISCELLANEOUS SHEET METAL

A. Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Finish Warranty Period: 20 years from date of Substantial Completion.

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C. Install systems to allow movement of components without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subjected to 100-year seasonal temperature ranges.

D. Install specialized, custom fabricated, sheet metal saddles for waterproof performance at terminations and transitions of construction components such as multi-plane intersects, and:

1. Where indicated.

2. Where constructed conditions will not provide watertight performance without saddles.

E. Contractor shall inspect transitions and terminations to make Project watertight.

F. Metallic- (Kynar-) Coated Steel Sheet:

1. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.

2. Location: Copings and where indicated.

3. Color: As selected by Owner from manufacturer's full range.

G. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process.

1. Finish: Smooth, flat and bonderized for painting.

2. Locations: For use with all sheet metal, unless otherwise indicated.

3. Prime all surfaces of bonderized metal.

4. Paint: Provide pretreatment, primer and two coats 100 percent acrylic paint by Kelly Moore or approved equal.

a. Pretreatment: Jasco Prep-n-Prime

b. Primer: #5725 DTM Acrylic Primer Finish

c. 100% Acrylic, Low Sheen: #1245 Acry-Plex Low Sheen, 2.0 mils

d. 100% Acrylic, Low Sheen: #1245 Acry-Plex Low Sheen, 2.0 mils

H. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304, dead soft, fully annealed; 2D (dull, cold rolled) finish.

1. Locations: For use with sill pan flashing, flashings at grade, and where indicated.

I. Lead sheet for use in flashing shall be minimum 4 lb. Soft lead.

J. High temperature self-adhering flashing, polyethylene faced: Grace Ultra; W.R. Grace Construction Products.

K. Annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item. Nails to be secured into wood shall be annular threaded.

1. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Type 304 stainless steel.

a. Provide Type 304 stainless steel fasteners where fastening through pressure treated wood.

2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet Metal to Zinc-Coated (Galvanized) Steel Sheet Metal Components: No.10, hot-dip galvanized sheet metal screws equipped with sealing washers.

3. Fasteners for Stainless Steel Sheet: Type 304 stainless steel.

4. Fasteners for Stainless-Steel Sheet Metal to Stainless-Steel Sheet Metal Components: No.10, stainless steel sheet metal screws equipped with sealing washers.

5. Fastener Length: Fasteners shall be sized to penetrate substrate not less than 1-1/4 inches or not less than 3/4 inch through wood substrates.

L. Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.

1. Sheet metal components requiring fabrication must have shop drawings submitted and approved prior to fabrication and delivery to the project site. Materials delivered to the project site without the required Architect's approval shall be immediately removed from the site and not incorporated into the completed Work.

2. Obtain field measurements for accurate fit before shop fabrication.

3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.

4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.

5. Solder sheet metal prior to application of finish.

2.6 WATER VAPOR EMISSIONS CONTROL SYSTEMS

A. Provide Koester Vap I 2000 Zero VOC; Koester American Corp or equal.

B. Related Sections: County Community College District is strongly committed to promoting sustainability throughout their campus projects. Section 01 81 13 Sustainability of the Design Standard provides guidelines and recommendations for implementing sustainability strategies. Where relevant, specific sustainability criteria is noted in this section; however, each project team should review and cross reference that front section while developing the specific project and its documentation. Each discipline shall confirm that specific performance and manufacturer information provided in the specification section is in alignment with code requirements, LEED criteria, and any other goals for sustainability.

C. Concrete Substrate Requirements: Structural concrete must be reinforced and exhibit a minimum 3500 psi compressive strength. The newly placed concrete substrate must cure a minimum of 28 days prior to commencement of work. Curing compounds containing waxes, oils, silicones or other resins that may inhibit adhesion of the flooring system should not be used.

D. Before installation of flooring systems over the interior concrete slabs, anhydrous calcium chloride testing ASTM F 1869 and RH Probe Tests ASTM F 2170 shall be performed by the Independent Inspector.

E. Initial Test: Surfaces to receive system shall be tested in accordance with ASTM F 1869 by an experienced firm to determine its suitability to receive a water vapor reductions system. Provide results to manufacturer to ensure system will reduce water vapor to specified levels. Complete additional steps manufacturer may require in order to provide specified warranty.

F. Independent Inspector shall allow for as much time as is reasonable for the concrete slab to dry before installing anhydrous calcium chloride tests and RH Probe Tests. All mastics, glues, and contaminants shall be removed to provide a clean, sound, concrete substrate prior to installing anhydrous calcium chloride tests as per ASTM F 1869.

G. Water vapor reduction system must allow installation as early as 7 days after concrete placement.

H. Final Testing: Provide ASTM F1869 test to determine if the level of water vapor transmission is reduced to a maximum of 3lbs/24hrs per 1000/sf after installing in accordance with water vapor emission control system manufacturer's installation requirements. Contact Owner and manufacturer's representative if water vapor transmission level greater than specified level is measured.

I. Adhesion Testing: Test the concrete substrate using a device conforming to ASTM D 4541 using a 50 mm diameter loading fixture (dolly) adhered with the specified catalyzed primer. Ensure that a minimum adhesion value of 220 psi is obtained before application of the flooring system. If multiple areas or substrates are involved in the scope of work, evaluate each to determine suitability. Maintain testing/evaluation records.

J. Manufacturer's Warranty: Manufacturer's standard warranty in which manufacturer agrees to furnish replacement material for that which does not comply with requirements or that fails to remain watertight within specified warranty period.

1. Warranty Period: 15 years from date of Substantial Completion

END OF SECTION