

DIVISION 7
THERMAL AND MOISTURE PROTECTION

SECTION 07100: WATERPROOFING STANDARDS

I. GENERAL

- A. Guarantee 1. Provide a guarantee on Contractor's letterhead as described in General Requirements, Division 1, for a period of *at least* five years from date of completion at no cost to the Owner, that the installation will remain watertight.
- B. Leak Test 1. After waterproofing system is applied and below grade drain pipe behind retaining walls is installed, test all below-grade waterproofing systems with a 24-hour flood test to assure that no leaks occur.

II. MATERIALS

- A. Install approved or compatible waterproofing system strictly according to manufacturer's printed directions and recommendations; provide written clarification from the specific manufacturer's representative when any particular condition warrants a special design or substitution of materials.

III. EXECUTION (not used)

SECTION 07190: MOISTURE BARRIER STANDARDS

I. GENERAL

A. Warranty

1. Warranty that moisture barrier will resist penetration of water at wood siding and plaster.
2. Repair moisture barrier and pay for or replace damaged materials or surfaces.
3. Warranty Period: *Five years, format as described in General Requirements, Division One.*

II. MATERIALS

A. Building Felt:

1. Asphalt saturated organic felt, conforming to ASTM D226, Type I, commonly referred to as 15#. ("fifteen pound").
2. Fasteners: Standard staples, hot dipped zinc coated steel.

B. Building flashing paper: standard asphaltic coated, moisture-resistant paper.

C. Building wraps, such as Raven "Rufco Wrap", Dupont "Tyvek", or approved equals, shall be specified and applied according to manufacturer's recommendations and shall be thoroughly detailed so as to maintain shingle effect of moisture resistant elements at exterior wall penetrations.

D. All plastic and lap cement to be free of toxic solvents and applied as necessary to flashings and underlayment.

E. Related sheet metal flashing as necessary to install with building felt underlayment; see Section 07600.

III. EXECUTION

A. Install flashings as recommended by Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "Sheet Metal Manual" in coordination with underlayment.

1. Weatherlap joints minimum 4" and seal with plastic cement; secure in place with nails.
2. Fastenings: Concealed in completed installation.

B. Moisture Barrier Installation:

Provide two plies felt horizontally in shingle fashion at siding, plaster, roofing, flashings, and wall openings; weatherlap joints minimum 4" and seal with plastic cement.

1. Securely staple felt in place, stagger joints between layers; lap ends minimum 6"; stagger end joints.
2. Apply additional layer of building flashing paper extending a minimum 18" at internal and external building corners; weatherlap ends minimum 6", staple in place.
3. Apply lap cement at rate of approximately 1-1/4 gallons per square on felt starter strip.

4. Weatherlap items projecting through siding and seal with plastic cement.
 5. Tears or punctures in building felt shall be repaired or replaced to the satisfaction of the Architect.
- C. Install flashing paper in 9" wide strip, folded in 90 degree angle, at all window and exterior door openings as follows:
1. At head of openings, folded paper shall form inverted "U" covering head and portion of jamb; lap building underlayment over flashing paper.
 2. At jamb and sill lap folded paper over building felt.
 3. Fold and lap flashing paper to prevent water from migrating behind building felt.
 4. Staple flashing paper in place.

SECTION 07300: SHINGLES AND ROOFING TILES STANDARDS

I. GENERAL

A. Warranty:

1. Provide for correcting failure of roofing system to resist penetration of water and damage from wind for a period of two years.
2. Provide for replacing any roofing due to deficient materials for a period of 20 years, per Section 01700.

B. *Valleys in composition shingle roofs:*

1. *Shall be of metal, not woven shingles.*
2. *See 07600, Flashing and Sheet Metal Standards.*

II. MATERIALS

A. Shingles:

1. Fiberglass and asphalt composition roofing shingles conforming to ASTM D3462 and ASTM D3018, Type I. All shingles to be Class A Fire and Wind Resistant Labels, 240# / square minimum weight.

B. Plastic Cement:

1. Asphaltic type with mineral fiber component, free of toxic solvent, FS SS-C-153.

III. EXECUTION

- A. Install shingles over a single ply of 15# underlayment (per Section 07190) and over solid sheathing.

SECTION 07460: SIDING STANDARDS

I. GENERAL (not used)

II. MATERIALS

A. Wood Shingles:

1. Western red cedar labeled "Certigrade" #1 face grade, chemically treated for fire resistance, 5/8" butt thickness, 16" length. Install in strict accordance with "Certigrade Handbook of Red Cedar Shingles".

III. EXECUTION

A. Wood Shingle Treatment:

1. Natural finish shingles are not to be sealed for the first year after installation to allow the shingles to leach out natural oils.
2. 1-2 years after installation, clean shingles with Flood Co. "Dekswood", or equal, then apply Flood Co. "CWF", or equal. (*second manufacturer shall always be named*) This cleaning operation is meant for renovations and additions to existing shingle wall-surfaced buildings on campus.

B. Wood Siding:

1. Pay particular attention to joints at wood siding. Scarf joints or use T&G joint to control warpage at joints.
2. Back-prime as per Section 09900, all wood siding, including plywood, at non-exposed side in order to minimize warpage.
3. Caulk carefully at all siding/trim junctions, allowing for future shrinkage.
4. Detail all interior and exterior corners with siding/trim to be watertight. Coordinate carefully with underlayment and flashing installation to achieve a watertight system.
5. Seal or paint bottom edge of exposed siding close to grade to prevent future delamination due to drip action off edge.

SECTION 07500: MEMBRANE ROOFING STANDARDS

I. GENERAL

A. *Modified Bituminous Sheet Roofing:*

1. *See Reference Specification Section 07535 (Music Facility), available from Project Manager*
2. *Provide a warranty for correcting failure of the roofing system to resist penetration of water for a period of fifteen years. Format as required by General Requirements, Division One.*

B. *Built-Up Roofing*

1. *See Reference Specification Section 07510, available from Project Manager*
2. *Provide a warranty for correcting failure of the roofing system to resist penetration of water for a period of twenty years. Format as required by General Requirements, Division One.*

C. *Fully Adhered Elastomeric Sheet Roofing*

1. *Not to be used for areas of possible pedestrian traffic.*
2. *See Reference Specification Section 07522 (Nat Sci Alts, #2513), available from Project Manager*
3. *Provide a warranty for correcting failure of the roofing system to resist penetration of water for a period of fifteen years. Format as required by General Requirements, Division One.*

SECTION 07600: FLASHING AND SHEET METAL STANDARDS

I. GENERAL

A. Warranty:

1. Warranty shall provide for correcting failure of metal flashing system to resist penetration of water.
2. Warranty Period: Two years, per Section 01700.

II. MATERIALS

A. Flashings and Sheet Metal: Galvanized steel, ASTM A525; minimum 24 gauge with minimum 1.25 oz/ft(2) galvanized coating.

1. Accessories: Provide strainers, outlet tubes, baffles, hangers and gutter ends as required for a complete system and complying with SMACNA Manual. *Provide stainless steel gutter screens.*
2. Provide heavier gauge metal where recommended by SMACNA Manual for size of component.
 - a. Gutters and Downspouts: Minimum 22 gauge; provide minimum 3" x 4" downspouts to prevent clogging of gutters with leaves and debris.
3. Mill phosphatized where indicated to be field painted.
4. Pre-manufactured Reglets: Type for two piece flashing system: match sheet metal type, gauge and finish.
 - a. Fry Reglet Corp./Springlok System.
 - b. MM Systems Corp./Snap-Tite System.
 - c. Or equal.

B. Provide 18 gauge flashing at locations accessible to building occupants to prevent damage and vandalism. Flashing at the top of parapets of wing walls shall be secured with metal clips, not nailed through.

C. Flashing joints to have min. 4" overlap with weld / solder or mechanical fastening with sealant.

D. No touching of dissimilar metals will be allowed.

E. Provide "z" flashing at heads of all exterior doors in addition to building paper flashing.

F. *Provide bituminous or acid resistant epoxy coating at gutter interiors.*

III. EXECUTION

A. Fabricate sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.

B. Form sections in maximum 10'-0" lengths; make allowance for expansion at joints. Provide expansion joints concealed within the system.

- C. Provide a clean-out opening at downspouts at grade (a screened opening or a 6" minimum gap) to allow for debris removal before entering an underground drainage system (when provided).
- D. Hem exposed edges on underside 1/2".
- E. Backpaint flashings with heavy-bodied bituminous paint where in contact with cementitious materials or dissimilar metals.
- F. Form pitch pans watertight, with minimum 4" upstand and 4" flanges; form pans minimum 6" wider than item passing through roof membrane.
- G. Form umbrella flashings with minimum 2" overhang, to shed water away from pitch pans.
- H. Counter-flash mechanical and electrical items projecting through roof.
- I. Install sealants where required to prevent direct weather penetration.
- J. Apply sealing compound at junction of metal flashing and felt flashing.
- K. Hold downspouts in position, clear of wall, by hangers spaced not more than 6'-0" on center; securely fasten hangers to wall without damage to wall surface.
 - 1. Lap joints 4" minimum in direction of water flow.
 - 2. Coat interior of gutters with bituminous *or epoxy type paint*.
- L. Exercise care when cutting materials on site, to ensure cuttings do not remain on finished surfaces. Sharp or protruding edges are not acceptable.