

SECTION 07 3114
ASPHALT SHINGLES - LOW COST

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Associated metal flashings and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- B. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2015a.
- C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2012)e1.
- D. ASTM D4869/D4869M - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing; 2015.
- E. NRCA MS104 - The NRCA Steep Roofing Manual; National Roofing Contractors Association; 2001, Fifth Edition, with interim updates.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual; Sheet Metal and Air Conditioning Contractors' National Association; 2012.

1.03 SUBMITTALS

- A. Product Data: Provide data indicating material characteristics.
- B. Samples: Submit two samples of each shingle color indicating color range and finish texture/pattern; for color selection.
- C. Manufacturer's Installation Instructions: Indicate installation criteria and procedures.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. ~~Extra Shingles: 50 sq ft (____ sq m) of each type and color.~~

1.04 QUALITY ASSURANCE

- A. Perform Work in accordance with the recommendations of NRCA Steep Roofing Manual.

1.05 FIELD CONDITIONS

- A. Do not install shingles or eave protection membrane when surface temperatures are below 45 degrees F (7 degrees C).

1.06 WARRANTY

- A. Material Warranty: Provide shingle manufacturer's standard limited warranty agreeing to replace material that shows manufacturing defects within 25 after installation, (prorated after 5 years), 10 year replacement for algae cleaning period, 10 year discoloration period.
- B. System Warranty: Provide manufacturer's system warranty agreeing to repair or replace roofing that leaks or is damaged due to wind (60 MPH max) or other natural causes.
- C. Installation Warranty: Provide installer's warranty agreeing to repair or replace roofing that leaks or is damaged due to workmanship for a period of 5 years.

PART 2 PRODUCTS

2.01 SHINGLES

- A. Asphalt Shingles MINIMUM SPECIFICATION: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3642M; Class A fire resistance.

1. Basis of Design: GAF Royal Sovereign 3 Tab Shingles or Owens Corning Supreme 3 Tab Shingles.
2. Wind Resistance: Class F, when tested in accordance with ASTM D3161/D3161M
3. Warranted Wind Speed: 60 mph (97 km/h).
4. Self-sealing type.
5. Color: [To be selected from Manufacturer's standard colors available].

2.02 SHEET MATERIALS

- A. Eave Protection Membrane: Asphalt-saturated organic roofing felt, unperforated, complying with ASTM D226/D226M, Type II ("No.30").
- B. Underlayment: Asphalt-saturated organic felt underlayment, complying with ASTM D4869, minimum 13 lb/100 sq ft (635 g/sq m) (Type II).
- C. Flexible Flashing: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil (1 mm) total thickness; with strippable treated release paper and polyethylene sheet top surface.

2.03 ACCESSORIES

- A. Nails: Standard round wire shingle type, of hot-dipped zinc coated steel, 10 wire gage, 0.1019 inch (2.59 mm) shank diameter, 3/8 inch (9.5 mm) head diameter, of sufficient length to penetrate through roof sheathing or 3/4 inch (19 mm) into roof sheathing or decking.
- B. Plastic Cement: ASTM D4586/D4568M, asphalt roof cement.
- C. Ridge Vents: Plastic, extruded with vent openings that do not permit direct water or weather entry; flanged to receive shingles; _____ manufactured by _____.

2.04 METAL FLASHINGS

- A. Metal Flashings: Provide sheet metal eave edge, gable edge, ridge, ridge vents, open valley flashing, chimney flashing, dormer flashing, and other flashing indicated.
 1. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
 2. Hem exposed edges of flashings minimum 1/4 inch (6 mm) on underside.
 3. Coat concealed surfaces of flashings with bituminous paint.
- B. Steel Sheet Metal: Prefinished and galvanized steel sheet, 26 gage, 0.0179 inch (0.45 mm) minimum thickness, G90/Z275 hot-dipped galvanized; PVC coated, _____ color.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions prior to beginning work.
- B. Verify that deck is of sufficient thickness to accept fasteners.
- C. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.
- D. Verify roof openings are correctly framed.
- E. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.02 PREPARATION

- A. Ensure existing roofing is completely removed. Remove all existing roofing, shingles, underlayment, fasteners, and accessories from roof deck.
- B. Inspect existing roof decking for structural damages. Notify Owner of any structural defects or damaged decking. Replace as needed.
- C. Seal roof deck joints wider than 1/16 inch (1.5 mm) as recommended by shingle manufacturer.
- D. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.
- E. Broom clean deck surfaces before installing underlayment or eave protection.

- F. Install eave edge flashings tight with fascia boards. Weather lap joints 2 inches (50 mm) and seal with plastic cement. Secure flange with nails spaced ____ inches (____ mm) on center.

3.03 INSTALLATION - EAVE PROTECTION MEMBRANE

- A. Install eave protection membrane from eave edge to minimum 4 ft (1200 mm) up-slope beyond interior face of exterior wall.
- B. Install eave protection membrane in accordance with manufacturer's instructions.

3.04 INSTALLATION - UNDERLAYMENT

- A. Underlayment At Roof Slopes Up to 4:12 (At Roof Slopes Up to 1:3): Install two layers of underlayment over area not protected by eave protection, with ends and edges weather lapped minimum 4 inches (100 mm). Stagger end laps of each consecutive layer. Nail in place.
- B. Underlayment At Roof Slopes Greater Than 4:12 (At Roof Slopes Greater Than 1:3): Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches (100 mm). Stagger end laps of each consecutive layer. Nail in place. Weather lap minimum 4 inches (100 mm) over eave protection.
- C. Items projecting through or mounted on roof: Weather lap and seal watertight with plastic cement.

3.05 INSTALLATION - VALLEY PROTECTION

- A. Install valley protection in accordance with SMACNA (ASMM), Detail ____.
- B. Install flexible flashing in accordance with manufacturer's instructions.
- C. At Exposed Valleys: Install minimum 36 inches (900 mm) wide roll roofing with mineral surface side up over first layer of protection, centered. Apply a 4 inch (100 mm) wide band of lap cement along each edge of first, press roll roofing into cement, and nail in place minimum 18 inches (450 mm) on center, 1 inch (25 mm) from edges.

3.06 INSTALLATION - METAL FLASHING AND ACCESSORIES

- A. Weather lap joints minimum 2 inches (50 mm) and seal weather tight with plastic cement.
- B. Secure in place with nails at ____ inches (____ mm) on center. Conceal fastenings.
- C. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.

3.07 INSTALLATION - SHINGLES

- A. Install shingles in accordance with manufacturer's instructions.
 - 1. Fasten individual shingles using 2 nails per shingle, or as required by code, whichever is greater.
 - 2. Fasten strip shingles using 4 nails per strip, or as required by code, whichever is greater.
- B. Place shingles in straight coursing pattern with 5 inch (125 mm) weather exposure to produce double thickness over full roof area. Provide double course of shingles at eaves.
- C. Project first course of shingles 3/4 inch (19 mm) beyond fascia boards.
- D. Extend shingles 1/2 inch (13 mm) beyond face of gable edge fascia boards.
- E. Extend shingles on both slopes across valley in a weave pattern and fasten. Extend shingles a minimum of 12 inches (300 mm) beyond valley center line to achieve woven valley, concealing the valley protection.
- F. Cap hips with individual shingles, maintaining 5 inch (125 mm) weather exposure. Place to avoid exposed nails.
- G. After installation, place one daub of plastic cement, one inch (25 mm) diameter under each individual shingle tab exposed to weather, to prevent lifting.
- H. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counterflashings.

- I. Complete installation to provide weather tight service.

END OF SECTION