

SECTION 073113 - ASPHALT SHINGLES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Flashing related to roofing.

1.2 RELATED REQUIREMENTS

- A. Section 061001 - Rough Carpentry - Architecture: Roof sheathing.
- B. Section 072100 - Thermal Insulation: Nailable rigid insulation.
- C. Section 076200 - Sheet Metal Flashing and Trim: Thru-wall flashing.
- D. Section 077123 - Manufactured Gutters and Downspouts.

1.3 REFERENCE STANDARDS

- A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- B. ASTM D3161/D3161M - Standard Test Method for Wind Resistance of Steep Slope Roofing Products (Fan-Induced Method).
- C. ASTM D3462/D3462M - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
- D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
- E. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
- F. ASTM F1667/F1667M - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples.
- G. NRCA (RM) - The NRCA Roofing Manual.
- H. UL (DIR) - Online Certifications Directory.

1.4 SUBMITTALS

- A. See Section 013300 - Submittal Procedures for submittal procedures.
- B. Product Data: Provide data indicating material characteristics, performance criteria, and limitations.

- C. Shop Drawings: For metal flashings, indicate specially configured metal flashings, jointing methods and locations, fastening methods and locations, and installation details.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- E. Warranty Documentation: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 016000 - Product Requirements for additional provisions.
 - 2. Extra Shingles: 100 sq ft of each type and color.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacture of roofing systems similar to those required for this project, with not less than 5 years of documented experience.

1.6 MOCK-UPS

- A. Provide mock-up of 200 sq ft, including underlayment, shingles, eave protection membrane, and associated flashings.
- B. Locate as directed by Architect.
- C. Mock-up may remain as part of work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store materials with labels intact in manufacturer's unopened packaging until ready for installation.
- B. Store materials under dry and waterproof cover, well ventilated, and elevated above grade on a flat surface.
- C. Protect materials from harmful environmental elements, construction dust, direct sunlight, and other potentially detrimental conditions.
- D. When storing roofing materials on roofing system ensure no damage occurs to supporting members and other materials.

1.8 FIELD CONDITIONS

- A. Do not install shingles, eave protection membrane or underlayment when surface, ambient air, or wind chill temperatures are below 45 degrees F.

1.9 QUALITY ASSURANCE

- A. Roofing system must be installed by a Contractor certified by the roofing manufacturer.

1.10 WARRANTY

- A. Provide 25 year manufacturer's warranty for coverage against black streaks caused by algae.

- B. Provide 15 -year manufacturer's warranty for wind damage.
- C. Lifetime warranty that includes materials and labor for 50-year period commencing on Date of Substantial Completion and materials only thereafter.
- D. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Asphalt Shingles:
 - 1. Basis of Design: Owens Corning Corporation; TruDefinition Duration Flex: www.owenscorning.com/en-us.
 - 2. CertainTeed; Landmark PRO Solaris: www.certainteed.com.
 - 3. GAF; Timberline HDZ RS Shingles: www.gaf.com.
 - 4. Tamko Building Products, LLC; Heritage Series: www.tamko.com
 - 5. Substitutions: See Section 016000 - Product Requirements.
- B. Algae Resistant Asphalt Shingles:

2.2 ASPHALT SHINGLES

- A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3462M.
 - 1. Fire Resistance: Class A, complying with ASTM E108.
 - 2. Wind Resistance: Class F, when tested in accordance with ASTM D3161/D3161M.
 - 3. Fire or Wind Resistance Criteria: Provide UL (DIR) listed and labeled products.
 - 4. Warranted Wind Speed: Not greater than 110 mph.
 - 5. Algae resistant.
 - 6. Self-sealing type.
 - 7. Style: Staggered edge butt.
 - 8. Color: Match existing.

2.3 SHEET MATERIALS

- A. Underlayment: Self-adhering butyl-rubber sheet complying with ASTM D1970/D1970M; strippable release film.
 - 1. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
 - 2. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
 - 3. Obtain underlayment from the same manufacturer as the asphalt shingles.
 - 4. Products:
 - a. Basis of Design: Owens Corning Corporation; WeatherLock Flex: www.owenscorning.com/en-us.
 - b. CertainTeed: www.certainteed.com.
 - c. GAF: www.gaf.com.
 - d. Tamko Building Products, LLC: www.tamko.com

2.4 FLASHING

- A. Metal Flashings: Provide sheet metal eave edge, ridge, ridge vents, open valley flashing, and other flashing as indicated.
 - 1. Form flashings to protect roofing materials from physical damage and shed water.
 - 2. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
 - 3. Hem exposed edges of flashings minimum 1/4 inch on underside.

2.5 ACCESSORIES

- A. Roofing Nails: Standard round wire shingle type, galvanized steel or stainless steel, minimum 3/8-inch head diameter, 12-gauge, 0.109-inch nail shank diameter, 1-1/2 inches long and complying with ASTM F1667/F1667M.
- B. Asphalt Roof Cement: ASTM D4586/D4586M, asbestos-free.
- C. Bituminous Paint: Acid and alkali resistant type; black color.
- D. Lap Cement: Fibrated cutback asphalt type, recommended for use in application of underlayment, free of toxic solvents.
- E. Plastic Ridge Vents: Extruded plastic with vent openings do not permit direct water or weather entry; flanged to receive shingles.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify existing conditions prior to starting this work.
- B. Verify roof deck is of sufficient thickness to accept fasteners.
- C. Verify 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.

3.2 PREPARATION

- A. Seal roof deck joints wider than 1/16 inch as recommended by shingle manufacturer.
- B. At areas where eave protection membrane is to be adhered to substrate, fill knot holes and surface cracks with latex filler.
- C. Broom clean deck surfaces before installing underlayment or eave protection.
- D. Protect surrounding areas and adjacent surfaces from damage during execution of this work.
- E. Install eave edge flashings tight with fascia boards, weather lap joints 2 inches and seal with roof cement, and secure flange with nails spaced 6 inches on center.

3.3 INSTALLATION

- A. Eave Protection Underlayment:
1. Install eave protection membrane from eave edge to minimum 48 inches up-slope beyond interior face of exterior wall.
 2. Apply 4-inch wide band of plastic cement over deck flange of eave edge flashings and embed an 18-inch wide strip of eave protection membrane. Place starter strip with eave edge flush with face of flashings, secure in place, and lap ends minimum 6 inches.
 3. Apply lap cement at rate of approximately 1.25 gal/100 sq ft over starter strip.
 4. Starting from lower edge of starter strip, lay additional 36-inch wide strips in lap cement to produce a 2-ply membrane. Weather lap plies minimum 19 inches and nail in place; lap ends minimum 6 inches and stagger end joints of each consecutive ply.
- B. Underlayment:
1. Roof Slopes Up to 4:12: Install two layers of underlayment over area not protected by eave protection, with ends and edges weather lapped minimum 4 inches; stagger end laps of each consecutive layer and nail in place.
 2. Weather lap and seal watertight with plastic cement any items projecting through or mounted on roof.
- C. Metal Flashing:
1. Install flashings in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
 2. Weather lap joints minimum 2 inches and seal weather tight with plastic cement.
 3. Secure in place with nails at 6 inches on center, and conceal fastenings.
 4. Items Projecting Through or Mounted on Roofing: Flash and seal weather tight with plastic cement.
- D. Shingles:
1. Install shingles in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
 - a. Fasten individual shingles using two nails per shingle, or as required by manufacturer and local building code, whichever is greater.
 - b. Fasten strip shingles using four nails per strip, or as required by manufacturer and local building code, whichever is greater.
 2. Place shingles in straight coursing pattern with 5-inch weather exposure to produce double thickness over full roof area, and provide double course of shingles at eaves.
 3. Project first course of shingles 3/4 inch beyond fascia boards.
 4. Extend shingles 1/2 inch beyond face of gable edge fascia boards.
 5. Cap hips with individual shingles, maintaining 5-inch weather exposure, and place to avoid exposed nails.
 6. After installation, place one daub of plastic cement 1-inch diameter under each individual shingle tab exposed to weather to prevent lifting.
 7. Coordinate installation of roof mounted components or work projecting through roof with weathertight placement of counterflashings.
 8. Complete installation to provide weathertight service.

3.4 CLEANING

- A. See Section 017700 - Closeout Procedures for additional requirements.

- B. Clean exposed work upon completion of installation; remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to finish.

3.5 PROTECTION

- A. Do not permit traffic over finished roof surface; protect roofing until completion of project.
- B. Touch-up, repair, or replace damaged asphalt shingles or accessories before Date of Substantial Completion.

END OF SECTION 073113