SECTION 07 31 13
ASPHALT SHINGLES

SPEC WRITER NOTE:
1. Delete text between // // not applicable to project. Edit remaining text to suit project.
2. For projects in locations where January daily average temperature is -4 degrees C (25 degrees F) or less, design roof slopes at 1/3 (4 inches per foot) minimum slope and specify underlayment installation.
3. This guide specification does not include requirements for the following:
a. Deck treatment for re-roofing work (either with old roofing to remain in place or with old roofing to be removed).
b. Mansard construction slopes 5/3 (21 inches per foot) or steeper slope.

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Fiberglass asphalt shingles over underlayment nailed to roof sheathing.

1.2 RELATED WORK

SPEC WRITER NOTE: Update and retain references only when specified elsewhere in this section.

A. Section 07 60 00, FLASHING AND SHEET METAL: Counterflashing and Flashing of Roof Projections.

B. Section 07 71 00, ROOF SPECIALTIES: Roof Hatches (Scuttles) and Roof Vents.

C. Section 09 06 00, SCHEDULE FOR FINISHES: Shingle Color.

1.3 APPLICABLE PUBLICATIONS

A. Comply with references to extent specified in this section.

B. ASTM International (ASTM):

D226/D226M-17.....Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

D1970/D1970M-19.....Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

D3018/D3018M-11(2017)...Class A Asphalt Shingles Surfaced with Mineral Granules.

D3161/D3161M-20.....Wind Resistance of Steep Slope Roofing Products (Fan-Induced Method).

D3462/D3462M-19.....Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.

F1667-18a.....Driven Fasteners: Nails, Spikes, and Staples.

C. UL LLC (UL):

790(Edition 8).....Fire Tests of Roof Coverings.

1.4 SUBMITTALS

A. Submittal Procedures: Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Manufacturer's Literature and Data:

1. Description of each product.
2. Installation instructions.
3. Warranty.

C. Samples: Shingles: Full size each type, color and texture.

D. Sustainable Construction Submittals:

SPEC WRITER NOTE: Retain sustainable construction submittals appropriate to product.

1. Solar Reflectance Index (SRI) for asphalt shingles.

1.5 DELIVERY

A. Deliver products in manufacturer's original sealed packaging.

B. Mark packaging, legibly. Indicate manufacturer's name or brand, type, color, production run number, manufacture date, and the label of Underwriters Laboratories.

C. Before installation, return or dispose of products within distorted, damaged, or opened packaging.

1.6 STORAGE AND HANDLING

A. Store shingles according to manufacturer's instructions. Store roll goods on end in upright position.

B. Protect products from damage during handling and construction operations.

C. Keep materials dry, covered completely and protected from weather.

1.7 WARRANTY

SPEC WRITER NOTE: Always retain construction warranty. FAR includes

Contractor's one year labor and material warranty.

A. Construction Warranty: FAR clause 52.246-21, "Warranty of Construction."

SPEC WRITER NOTE: Specify extended manufacturer's warranties for materials only.

B. Manufacturer's Warranty: Warrant asphalt shingles against material and manufacturing defects.

SPEC WRITER NOTE: Specify customarily available warranty period for specified products.

1. Material Warranty Period: // 25 // 30 // 35 // 40 // 50 // years.
2. Wind-Speed Warranty Period: Resist wind speeds up to // 97 km/h (60 mph) // 113 km/h (70 mph) // 130 km/h (80 mph) // 160 km/h (100 mph) // 180 km/h (110 mph) // 210 km/h (130 mph) // 217 km/h (135 mph) // for // 5 // 15 // years.
3. Algae-Resistance Warranty Period: No discoloration for // 5 // 10 // 15 // 20 // years.

PART 2 - PRODUCTS

2.1 PRODUCTS - GENERAL

A. Basis of Design: Section 09 06 00, SCHEDULE FOR FINISHES.

B. Provide each product from one manufacturer.

1. Provide each product exposed to view from one production run.

C. Sustainable Construction Requirements:

SPEC WRITER NOTE:
1. Specify products containing greatest recycled content practicable to maximize material recovery. See EPA Comprehensive Procurement Guidelines (CPG) for guidance about individual products and available recycled content. Section 01 81 13 sets overall project recycled content requirements.
2. EPA CPG reports 50 - 100 percent post-consumer recycled content

available in fiber (felt) for fiber composite roofing.

1. Asphalt Shingle Recycled Content: // _____ // percent post-consumer recycled content, minimum.

SPEC WRITER NOTE: Including SRI 29 limits shingle availability and color. Manufacturers require exposures greater than 5 inches to meet SRI 29. Coordinate shingle selection and exposure specified in Part 3.

2. Solar Reflectance Index: 29, minimum.

2.2 ASPHALT SHINGLES

A. Asphalt Shingles: Fiberglass reinforced, laminated type, square butt.

1. ASTM D3462/D3462M and ASTM D3018/D3018M, Type I, self-sealing.

SPEC WRITER NOTE: Select "Class D or F" for locations with Maximum Basic Wind Speed of 100 MPH or less. Select "Class F" for locations with greater Maximum Basic Wind Speed.

2. ASTM D3161/D3161M, // Class D or F // Class F // wind-resistant.

3. UL 790 Class A fire resistance.

4. Minimum Weight: 10.3 kg/square meter (210 lbs./100 square feet).

2.3 ROOFING NAILS

A. ASTM F1667, Type I, Style 20, galvanized steel, deformed shanks, heads 10 mm to 11 mm (3/8 inch to 7/16 inch) diameter.

1. Nails for Shingles: 32 mm (1-1/4 inches) long.

2. Nails for Felt: 19 mm (3/4 inch) long.

2.4 ROOFING UNDERLAYMENT

A. Organic Felt: ASTM D226/D226M, Type l.

B. Self-Adhering Modified Bituminous Underlayment: ASTMD1970/D1970M.

2.5 METAL FLASHING

A. Provide metal roof flashings, including apron flashings, step flashings, valley flashings, drip edges, and vent pipe flashings specified in Section 07 60 00, FLASHING AND SHEET METAL.

SPEC WRITER NOTE: Retain article below if ridge vents are required.

2.6 RIDGE VENTS

A. Ridge Vents: Manufacturer's standard ridge vent for use under asphalt shingles.

1. Provide ridge vents with internal filters, internal baffles, or external baffles, for weather protection.
2. Free Area: Minimum 25400 square mm per m (12 square inches per foot).

SPEC WRITER NOTE: Retain article below if snow guards are required.

2.7 SNOW GUARDS

A. Snow Guards: Stainless steel or aluminum individual snow guards designed for use with asphalt shingles.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine and verify substrate suitability for roofing installation.

1. Verify roof substrates are sound, within manufacturer's tolerances, and free from defects which would interfere with roofing installation.
2. Verify roof accessories, vent pipes and other projections through roof are in place and roof flashing is installed, or ready for installation, before installing shingles.

B. Protect existing construction and completed work from damage.

3.2 INSTALLATION - GENERAL

A. Install products according to manufacturer's instructions and approved submittal drawings.

1. When manufacturer's instructions deviate from specifications, submit proposed resolution for Contracting Officer's Representative consideration.

3.3 METAL DRIP EDGE INSTALLATION

A. At eaves and rakes, install stainless steel drip edges specified in Section 07 60 00, FLASHING AND SHEET METAL.

1. Eaves: Install metal drip edge before underlayment.
2. Rakes: Install metal drip edge after underlayment.

B. Secure metal drip edges with compatible nails spaced maximum 250 mm (10 inches) on center along inner edges.

3.4 FLASHING INSTALLATION

A. Install metal flashings specified in Section 07 60 00, FLASHING AND SHEET METAL at intersections of roofs, adjoining walls, or projections through deck such as chimneys and vent stacks.

B. Install metal valley flashing shown and as specified under Section 07 60 00, FLASHING AND SHEET METAL.

1. Secure valley flashing according to shingle manufacturer's instructions.
2. Expose flashing in open portion of valley 125 mm (5 inches) minimum, and lap shingles over flashing 125 mm (5 inches) minimum.

3.5 UNDERLAYMENT INSTALLATION

A. Install self-adhering sheet underlayment, working from low point to high point. Lap sides 90 mm (3-1/2 inches) minimum, and lap ends 150 mm (6 inches) minimum. Install at the following locations:

1. Eaves and Rakes: From edge of eave and rake to 600 mm (24 inches) minimum beyond inside face of exterior wall.
   a. Lap underlayment over eave metal drip edge.
2. Valleys, Hips and Roof Slope Transitions: Centered over change in slope, and extended 450 mm (18 inches) minimum on both sides.
3. Ridges: Centered on ridge, and extended 900 mm (36 inches) minimum on both sides. // Do not cover ridge vent opening. //
4. Sidewalls and Projections through Roof: Extended 450 mm (18 inches) from projection, and extended up projection 100 mm (4 inches) minimum.
5. Firmly roll underlayment to ensure adhesion to roof deck and metal flashings.

B. Install organic felt underlayment on roof deck not covered by self-adhering sheet underlayment, with 100 mm (4 inches) minimum end laps, 50 mm (2 inches) minimum head laps, and 300 mm (12 inches) minimum ridge laps. Nail felt 125 mm (5 inches) on centers along laps.

3.6 ROOF ACCESSORY INSTALLATION

A. Install // roof hatches (scuttles), // and roof vents, // specified in Section 07 71 00, ROOF SPECIALTIES before installing shingles.

B. Install skylights specified in Section 08 63 00, METAL-FRAMED SKYLIGHTS before installing shingles.

C. Lap underlayment and asphalt shingles over upslope base flanges of roof accessory flashings.

D. Install underlayment and asphalt shingles over side slope base flanges of roof accessory flashings.

E. Install downslope base flanges of roof accessories over asphalt shingles.

3.7 ASPHALT SHINGLE INSTALLATION

A. Install shingles aligned parallel to roof eave, nailed to roof sheathing.

SPEC WRITER NOTE: Coordinate exposure with SRI rated shingles.

1. Exposure: 125 mm (5 inches) maximum.
2. Head lap: 50 mm (2 inches) minimum.

B. Install asphalt-shingle starter strip with tabs removed, and overhanging lower edge of roof 13 mm (1/2 inch).

C. Valleys: // Open // Closed //.

SPEC WRITER NOTE: Retain article below if ridge vents are required.

3.8 RIDGE VENT INSTALLATION

A. Install ridge vents over shingles.

SPEC WRITER NOTE: Coordinate ridge vent location and extent with drawings.

1. Extent: Continuous along ridges extending to within <distance> of rakes.

3.9 // HIP // AND // RIDGE // SHINGLE INSTALLATION

A. Bend each shingle lengthwise down center to provide equal exposure on both sides of // hip // and // ridge //.

1. Begin ridge installation at leeward end of ridge. Cover ridge vents with shingles. // Do not cover ridge vent openings with ridge shingles. //
2. Begin hip installation at eave.

B. Install shingles with maximum 125 mm (5 inches) exposure.

C. Secure each shingle with one nail on both sides of // hip // and // ridge, // 215 mm (8-1/2 inches) back from exposed end and one inch up from edge.

SPEC WRITER NOTE: Retain article below if snow guards are required.

3.10 SNOW GUARD INSTALLATION

A. Install snow guards in layout recommended by manufacturer.

1. Fasten snow guards with fasteners concealed by shingles.

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