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SECTION 073113 - ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes:
 - 1. Composite asphalt shingles.
 - 2. Ridge vents.
 - 3. Felt underlayment.
 - 4. Self-adhering sheet underlayment.
- B. Refer to Section 061600 "Sheathing" for substrates for asphalt shingles.
- C. Refer to Section 076200 "Sheet Metal Flashing and Trim." for roof penetration flashings, counterflashings, and flashings.

1.2 SUBMITTALS

- A. Product data for each type of product specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Fire-Test-Response Classification: Where products with a fire-test-response classification are specified, provide asphalt shingles identical to those tested according to ASTM E 108 or UL 790 and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify each bundle of asphalt shingles with appropriate markings indicating fire-test-response classification of applicable testing and inspecting agency.
- C. Wind-Resistance-Test Characteristics: Where wind-resistant asphalt shingles are indicated, provide products identical to those tested according to ASTM D 3161 or UL 997 and passed. Identify each bundle of asphalt shingles with appropriate markings of applicable testing and inspecting agency.
- D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockups for asphalt shingles including related roofing materials.
 - a. Size: 48 inches (1200 mm) long by 48 inches (1200 mm) wide.
 - b. Mock-up can be part of the Work as selected by Architect.**
 - 2. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.4 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installing asphalt shingles only when existing and forecasted weather conditions will permit work to be performed according to manufacturers' recommendations and warranty requirements, and when substrate is completely dry.

1.5 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to,

and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

- B. Special Warranty: Submit a written warranty signed by manufacturer agreeing to repair or replace asphalt shingles that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of asphalt shingles beyond normal weathering.
 - 1. Warranty Period: Manufacturer's standard but not less than 30 years after date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ASPHALT SHINGLES

- A. Three-Dimensional, Fiberglass, Laminated Strip Shingles: Mineral-surfaced, self-sealing, laminated, multi-ply overlay construction, fiberglass-based, strip asphalt shingles, complying with both ASTM D 3018, Type I, and ASTM D 3462. Provide shingles with a Class A fire-test-response classification that pass the wind-resistance-test requirements of ASTM D 3161.
- B. Hip and Ridge Shingles: Manufacturer's standard, factory-precut units to match asphalt shingles.
- C. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Atlas Roofing Corporation.
 - 2. CertainTeed Corporation.
 - 3. Elk Premium Building Products, Inc.; an ElkCorp company.
 - 4. GAF Materials Corporation.
 - 5. IKO.
 - 6. Owens Corning.
 - 7. TAMKO Roofing Products, Inc.
- D. Colors, Blends, and Patterns: Provide Architect's selections from manufacturer's full range of colors, textures, and patterns for asphalt shingles of type indicated.
 - 1. **Provide samples to match existing for Architect's approval before installation.**

2.1 RIDGE VENTS

- A. Rigid Ridge Vent: Manufacturer's standard, rigid section high-density polypropylene or other UV-stabilized plastic ridge vent with nonwoven geotextile filter strips and external deflector baffles; for use under ridge shingles.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Air Vent, Inc.; a Gibraltar Industries company.
 - b. Cor-A-Vent, Inc.
 - c. GAF Materials Corporation.
 - d. Owens Corning.
 - e. Trimline Building Products.
 - 2. Characteristics:
 - a. Minimum Net Free Area: Architect select or as indicated in the Architectural Drawings.
 - b. Width: Architect select.
 - c. Thickness: Architect select.

2.2 UNDERLAYMENT MATERIALS

- A. Waterproof Underlayment:
 - 1. WinterGuard; CertainTeed Corporation.
 - 2. Bituthene Ice and Water Shield; Grace: W.R. Grace & Co. (basis of design).

3. Polyken 640 Underlayment Membrane; Polyken Technologies; Kendall Co. Division.
 4. Moisture Guard; Tamko Asphalt Products, Inc.
- B. Felt: ASTM D 226 or ASTM D 4869, Type I (15 lb.), asphalt-saturated organic felts, nonperforated.
- C. Self-Adhering, High-Temperature Sheet: 30 to 40 mils (0.76 to 1.0 mm) thick minimum, consisting of slip-resisting, polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D 1970.
 2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
 3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include the following:
 - a. Carlisle Coatings & Waterproofing Inc., Div. of Carlisle Companies Inc.; CCW WIP 300HT.
 - b. Grace Construction Products; a unit of Grace, W. R. & Co.; Ultra. (basis of design).
 - c. Henry Company; Blueskin PE200 HT.
 - d. Metal-Fab Manufacturing, LLC; MetShield.
 - e. Owens Corning; WeatherLock Metal High Temperature Underlayment.
- D. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.
- E. Nails: Aluminum or hot-dip galvanized steel, 0.120-inch- (3-mm-) diameter barbed shank, sharp-pointed, conventional roofing nails with a minimum 3/8-inch- (9.5-mm-) diameter head and of sufficient length to penetrate 3/4 inch (19 mm) into solid decking or at least 1/8 inch (3 mm) through plywood sheathing.
1. Where nails are in contact with flashing, prevent galvanic action by providing nails made from the same metal as that of the flashing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrate for compliance with requirements for substrates, installation tolerances, and other conditions affecting performance of asphalt shingles. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with noncorrosive roofing nails.
- B. Coordinate installation with flashings and other adjoining work to ensure proper sequencing. Do not install roofing materials until all vent stacks and other penetrations through roof sheathing have been installed and are securely fastened against movement.

3.3 UNDERLAYMENT INSTALLATION

- A. General: Comply with underlayment manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.
- B. Double-Layer Felt Underlayment: Install on roof deck parallel with and starting at the eaves. Install a 19-inch- (485-mm-) wide starter course at eaves and completely cover with full-width second course. Install succeeding courses lapping previous courses 19 inches (485 mm) in shingle fashion. Lap ends a minimum of 6 inches (150 mm). Stagger end laps between succeeding courses at least 72 inches (1830 mm). Fasten with roofing nails.

1. Apply a continuous layer of asphalt roofing cement over starter course and on felt underlayment surface to be concealed by succeeding courses as each felt course is installed. Apply over entire roof.
 2. Install felt underlayment on roof sheathing not covered by self-adhering sheet underlayment. Lap edges over self-adhering sheet underlayment not less than 3 inches (75 mm) in direction to shed water.
 3. Terminate felt underlayment extended up not less than 4 inches (100 mm) against sidewalls, curbs, chimneys, and other roof projections.
 4. Install fasteners at no more than 36 inch (900 mm) o.c.
- C. Self-Adhering Sheet Underlayment: Install, wrinkle free, on roof deck. Comply with low-temperature installation restrictions of underlayment manufacturer if applicable. Install at locations indicated below, lapped in direction to shed water. Lap sides not less than 3-1/2 inches (89 mm). Lap ends not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Roll laps with roller. Cover underlayment within seven days.
1. Install 3' out from all eaves and valleys and at locations indicated on Drawings.

3.4 METAL FLASHING INSTALLATION

- A. General: Install metal flashings and other sheet metal to comply with requirements in Division 7 Section "Sheet Metal Flashing and Trim."
1. Install metal flashings according to recommendations in ARMA's "Residential Asphalt Roofing Manual" and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."

3.5 ASPHALT SHINGLE INSTALLATION

- A. General: Install asphalt shingles according to manufacturer's written instructions, recommendations in ARMA's "Residential Asphalt Roofing Manual," and asphalt shingle recommendations in NRCA's "The NRCA Roofing and Waterproofing Manual."
- B. Mineral-Surfaced Open Valleys: Comply with ARMA and NRCA recommendations. Center an 18-inch- (450-mm-) wide strip of mineral-surfaced asphalt roll roofing in valley, mineral-surfaced side down; shingle lapped at least 12 inches (300 mm); and sealed with plastic asphalt cement. Secure with only enough nails to hold in place. Center a second strip of 36-inch- (900-mm-) wide, mineral-surfaced asphalt roll roofing in valley, mineral-surfaced side up. Lap, seal, and nail the same as the first strip.
- C. Flashing: Install metal flashing and trim as indicated and according to details and recommendations of the "Asphalt Roofing" section of "The NRCA Steep Roofing Manual" and ARMA's "Residential Asphalt Roofing Manual."
- D. Install asphalt shingles, beginning at roof's lower edge, with a starter strip of roll roofing or inverted asphalt shingles with tabs removed. Fasten asphalt shingles in the desired weather exposure pattern; use number of fasteners per shingle as recommended by manufacturer. Use vertical and horizontal chalk lines to ensure straight coursing.
1. Cut and fit asphalt shingles at valleys, ridges, and edges to provide maximum weather protection. Provide same weather exposure at ridges as specified for roof. Lap asphalt shingles at ridges to shed water away from direction of prevailing wind.
 2. Use fasteners at ridges of sufficient length to penetrate sheathing as specified.
 3. When ambient temperature during installation is below 50 deg F (10 deg C), seal asphalt shingles with asphalt roofing cement spots.
- E. Ridge Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.

- F. Hip Cap Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.
 - 1. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

END OF SECTION 073113