SECTION 07 3113

ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

A. Includes But Not Limited To:
   1. Furnish and install roofing system as described in Contract Documents.

B. Products Installed But Not Supplied Under This Section:
   1. Roof flashing.

C. Related Sections:
   1. Section 07 6310: Roof flashing and drip edge.
   2. Section 07 6321 or 07 6322: Fascia.

1.2 REFERENCES

A. American Society For Testing And Materials:
   1. ASTM D 226-97a, 'Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.'
   2. ASTM D 3018-03, 'Standard Specification for Class 'A' Asphalt Shingles Surfaced with Mineral Granules.'
   3. ASTM D 3462-02, 'Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.'
   4. ASTM D 4586-00, 'Standard Specification for Asphalt Roof Cement, Asbestos-Free.'

1.3 SYSTEM DESCRIPTION

A. Design Requirements: This specification sets minimum standards for materials and workmanship. Manufacturer's warranty requirements or governing building codes shall apply where they impose higher standards.

1.4 SUBMITTALS

A. Product Data:
   1. Manufacturer's literature or cut sheet for each component of system.
   2. Color and style selection.
   3. Manufacturer's installation instructions and details for installation of secondary underlayment at penetrations, dormers, eaves, rakes, etc, to fit environmental conditions at Project.

B. Samples: Full size shingle.

1.5 QUALITY ASSURANCE

A. Pre-Installation Conference: Schedule pre-installation conference after installation of sheathing but before installation of any roofing system component.
1.6 PROJECT CONDITIONS
A. Project Environmental Requirements: Do not install shingles at lower temperatures than allowed by Manufacturer for application.

1.7 SEQUENCING
A. Install valley secondary underlayment, valley primary underlayment, and valley metal after installation of general secondary underlayment, but before installation of general primary underlayment.

1.8 WARRANTY
A. Special Warranty:
  1. Shingle Manufacturer’s special 40-year minimum labor and material warranty written for VMR program, including but not limited to:
     a. First 5 years minimum of warranty will provide for full replacement cost, including tear-off and disposal, for any failure, including material defects and workmanship. Remaining 35 years of warranty will provide for pro-rated replacement cost.
     b. Roofing system will resist blow-offs in winds up to 80 mph for 5 years when installed as specified below.
     c. Roofing system will resist blow-offs in winds up to 110 mph for 5 years when installed as specified below.
     d. Algae resistance for 10 years.
  2. Warrant secondary underlayment at steeple base for 60 days of exposure.

1.9 MAINTENANCE
A. Extra Materials: Provide one square minimum of bundled shingles for Owner's future use.

PART 2 - PRODUCTS

2.1 COMPONENTS
A. Shingles And Underlayment:
  1. Fiberglass mat shingles meeting or exceeding requirements of ASTM D 3018, Type I and UL Class A. Meet requirements of ASTM D 3462 where required by local codes.
     a. Integral algae resistance.
     b. Color as selected by Architect from Manufacturer's full color line.
  2. Category One VMR Products And Manufacturers. See Section 01 6000 for definitions of Categories.
     a. CertainTeed Roofing Products, Valley Forge, PA.
        1) Shingles:
           a) Standard: Landmark 40 / Architect 80.
           b) High Wind: Hatteras / Landmark TL
        2) Hip And Ridge Shingles: Shadow Ridge or Laminate Accessory.
        3) Primary Underlayment Under Shingles: CertainTeed 30 lb felt, Roofers' Select, or UL approved product meeting requirements of ASTM D 226.
        4) Secondary Underlayment Under Shingles: WinterGuard Granular or WinterGuard Sand
     b. GAF Materials Corp, Wayne, NJ.
        1) Shingles:
           a) Standard: Timberline Select 40.
           b) High Wind: Slateline or Timberline Ultra.
        2) Hip And Ridge Shingles: TimberTex or PacificRidge as required by GAF for shingle used.
3) Primary Underlayment Under Shingles: Leatherback ASTM 30 Felt or Shinglemate.
4) Secondary Underlayment Under Shingles: Weatherwatch or Stormguard.

B. Secondary Underlayment at Tower Base:
   1. Category Four Approved Product. See Section 01 6000 for definitions of Categories.
      a. Grace Ice & Water Shield or Grace Ultra by Grace Construction Products, Cambridge, MA

C. Fasteners:
   1. Primary Underlayment:
      a. Corrosion resistant roofing nails with one inch diameter head and 3/4 inch long shank
         minimum.
      1) If shingles applied as underlayment is laid, use metal or plastic head Simplex nails or
         one inch long shingle roofing nails.
      2) If shingles not applied as underlayment is laid, use plastic head only.
   2. Shingles:
      a. Eleven gauge hot-dipped galvanized roofing nails with 3/8 inch 9.5 mm nominal diameter
         head and of sufficient length to penetrate through roof sheathing 1/4 inch 6 mm or 3/4 inch
         19 mm minimum into solid wood decking.
      b. Coil type non-corrosive gun-driven nails of same size as hand-driven nails are acceptable.
      c. Staples not permitted.

D. Asphalt Roofing Cement: Any manufacturer's product meeting requirements of ASTM D 4586 and
   acceptable to Shingle Manufacturer.

PART 3 - EXECUTION

3.1 INSTALLERS

A. Category One VMR Installers. See Section 01 6000 for definitions of Categories.
   1. GAF Materials Corp: (888) 532-5767. www.gaf.com
      a. <Insert Listed Installer>.
      b. <Insert Listed Installer>.
   2. CertainTeed Roofing Products: Data Works (800) 404-9880. www.certainteed.com
      a. <Insert Listed Installer>.
      b. <Insert Listed Installer>.

3.2 EXAMINATION

A. Examine deck to determine if it is satisfactory for installation of roofing system. Conditions include, but
   are not limited to, moisture on deck, protruding deck fasteners, specified gaps between sheathing, and
   other items affecting issuance of roofing warranty. Report unsatisfactory conditions in writing to
   Architect.

3.3 PREPARATION

A. Clean roof sheathing, including removal of dirt and debris, before installation of underlayment.

3.4 INSTALLATION

A. Underlayment:
   1. General:
      a. Do not use permanent underlayment installation as temporary roof. If temporary roof is
         used, remove completely before installation of permanent underlayment.
b. Follow Roofing Manufacturer's recommendations for installation of primary and secondary underlayment, particularly at eaves, rakes, and penetrations, unless specified installation procedures and Drawing details are more stringent.

c. Except for secondary underlayment at steeple base, do not leave underlayment exposed to weather more than 14 days after beginning of underlayment installation. If underlayment is exposed for more than 14 days after beginning of underlayment installation, treat as temporary roof under first paragraph above. If moisture is deposited on exposed underlayment, obtain written approval from Manufacturer's Representative before installing shingles.

2. Secondary:
   a. Under Shingles:
      1) Lap end joints 6 inches 150 mm and side joints 3 inches 75 mm minimum.
      2) Apply continuous 12 inch 300 mm wide strip at edge of eaves and rakes before installing drip edge.
      3) Apply two 36 inch 900 mm wide courses along eaves and rakes as described in Contract Documents with first course overlapping drip edge and 12 inch 300 mm wide previously applied strip.

   b. Steeple Base:
      1) Apply double layer at steeple location. First layer to extend 3 feet 900 mm beyond perimeter of tower base. Second layer to extend 12 inches 300 mm beyond perimeter of tower base.
      2) Cover sides and top of steeple base.

3. Valleys:
   a. Apply three continuous 36 inch 900 mm wide sheets of secondary underlayment in valley lapped so as to provide 102 inch 2 590 mm wide covered area centered over valley.
   b. Install one continuous 36 inch 300 mm wide strip of primary underlayment atop secondary underlayment and centered over valley.
   c. Install formed valley metal over strip of primary underlayment. Nail top of each section and lap 8 inches 200 mm in direction of flow. Seal laps with asphalt roofing cement. Secure edges of valley metal with fasteners spaced at 12 inches 300 mm maximum on center and approximately 1/2 inch 12 mm in from edge of metal.
   d. Install 12 inch 300 mm wide strips of secondary underlayment lapping nailed edge of formed valley metal 3 inches 75 mm.

4. Primary:
   a. Apply 36 inch 900 mm wide courses over complete deck, including areas covered with secondary underlayment unless specified otherwise. Maintain end laps of 8 inches 200 mm and side laps of 19 inches 475 mm. Stop primary underlayment between 3 and 6 inches 75 and 150 mm of inside edge of strip of secondary underlayment installed over edge of formed valley metal.
   b. Nailing:
      1) Secure primary underlayment to deck with roofing nails one inch 25 mm if from edge and 18 inches 450 mm on center.
      2) Do not nail through metal flashing, except drip edge, when installing primary underlayment.

B. Shingles:
   1. Before installing shingles, inspect underlayment and metal installation with Architect and Owner. Correct improperly installed and damaged material before beginning shingle installation.
   2. Cut starter strip shingles on slotted end to 9 inch 225 mm width. Nail to eave granule side up in continuous mastic bed with slot end down-slope and edge overhanging eave 3/8 inch 9 mm so sealing tabs are at edge of eave. Install shingles with maximum exposure recommended by Manufacturer. Lay first course directly over starter strip with ends flush with starter strip at eaves and so joints in starter strip are offset 4 inches 100 mm minimum from joints in first course.
   3. Insure alignment by snapping chalk line at least each fifth course to control horizontal alignment.
   4. Lay shingles so end joints are offset in accordance with Manufacturer's installation procedures.
   5. Except over formed valley metal, use 6 nails in each shingle placed as required by Shingle Manufacturer. Place nails one inch from each end of strip and remainder evenly spaced between. Should any nail fail to penetrate sheathing by 1/4 inch 6 mm minimum, drive additional nail nearby. Adjust nail gun pressure for nailing flush and tight to deck without cutting shingle
surface. Over valley metal, hand seal shingles. Do not drive nails through valley metal. Drive nails perpendicular to shingle surface so nail head is flat against shingle.

6. Run chalk line so valley metal will be exposed 6 inches 150 mm wide at top and diverge 3/32 inch one mm per ft down to eaves. Neatly trim shingles to this line.

7. Install specified hip and ridge shingles in accordance with Shingle Manufacturer's instructions. Run ridge shingles as directed by Architect.

8. Vent pipe sleeve flange minimum width 6 inches 150 mm. Fit shingles under lower edge and over sides and upper edge. Set vent pipe flange in asphalt roofing cement. Embed shingles in asphalt roofing cement where they overlap flange. Apply bead of asphalt roofing cement at junction of vent pipe and vent flashing.

9. Run courses true to line with end joints properly placed. Leave shingles flat without wave and properly placed.

10. Hand-Sealing:
   a. Clip off and seal upper inside corner of each valley shingle to valley with asphalt roofing cement.
   b. If ambient temperature or exposure to sun will not be sufficient to secure adhesive strip to under-lying shingle within one week, hand seal shingles with asphalt roofing cement.

C. Shingles:

1. Before installing shingles, inspect underlayment and metal installation with Architect and Owner. Correct improperly installed and damaged material before beginning shingle installation.

2. Cut high wind shingles in accordance with Manufacturer's instructions, or use approved starter course. Nail to eave granule side up in continuous mastic bed with cut edge down-slope and edge overhanging eave 3/8 inch 9 mm so sealing tabs are at edge of eave. Install shingles with maximum exposure recommended by Manufacturer. Lay first course directly over starter strip with ends flush with starter strip at eaves and so joints in starter strip are offset 4 inches100 mm minimum from joints in first course.

3. Insure alignment by snapping chalk line at least each fifth course to control horizontal alignment.

4. Lay shingles so end joints are offset in accordance with Manufacturer's installation procedures.

5. Except over formed valley metal, use 5 nails in each shingle placed as required by Shingle Manufacturer. Place nail one inch from each end of strip and remainder evenly spaced between. Should any nail fail to penetrate sheathing by 1/4 inch 6 mm minimum, drive additional nail nearby. Adjust nail gun pressure for nailing flush and tight to deck without cutting shingle surface. Over valley metal, hand seal shingles. Do not drive nails through valley metal. Drive nails perpendicular to shingle surface so nail head is flat against shingle.

6. Run chalk line so valley will be 6 inches 150 mm wide at top and diverge 3/32 inch one mm per ft down to eaves. Neatly trim shingles to this line.

7. Install specified hip and ridge shingles in accordance with Shingle Manufacturer's instructions. Run ridge shingles as directed by Architect.

8. Vent pipe sleeve flange minimum width 6 inches 150 mm. Fit shingles under lower edge and over sides and upper edge. Set vent pipe flange in asphalt roofing cement. Embed shingles in asphalt roofing cement where they overlap flange. Apply bead of asphalt roofing cement at junction of vent pipe and vent flashing.

9. Run courses true to line with end joints properly placed. Leave shingles flat without wave and properly placed.

10. Hand-Sealing:
   a. Clip off and seal upper inside corner of each valley shingle to valley with asphalt roofing cement.
   b. If ambient temperature or exposure to sun will not be sufficient to secure adhesive strip to under-lying shingle within one week, hand seal shingles with asphalt roofing cement.

3.5 CLEANING

A. Clean shingles and building of soiling caused by this installation.

B. Leave metals clean and free of defects, stains, and damaged finish. Replace fascia metal that is scratched through finish to base metal.
C. Remove debris resulting from work of this Section from roof and site.

END OF SECTION