

## SECTION 07 31 13

### ASPHALT SHINGLE ROOFING SYSTEMS

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#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Granule surfaced asphalt shingle roofing.
- B. Moisture shedding underlayment, eaves, valley and ridge protection
- C. Associated metal flashing

##### 1.2 RELATED SECTIONS

- A. Section 06 10 00 – Rough Carpentry: Plywood Roof Sheathing
- B. Section 06 15 00 – Wood Decking
- C. Section 07 26 00 – Vapor Retarders
- D. Section 07 13 54 – Sheet Waterproofing.
- E. Section \_\_\_\_\_ -- \_\_\_\_\_: Attic Space Ventilation
- F. Section 07 60 00 – Flashing and Sheet Metal.
- G. Section 08 62 00 – Unit Skylights
- H. Section \_\_\_\_\_ - \_\_\_\_\_: Chimney Flue
- I. Section 07 40 00 – Roofing and Siding Panels: Siding and Roofing
- J. Section 07 72 53 – Snow Guards

##### 1.3 REFERENCES

- A. ASTM A 653/A 653M – Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron-Alloy-Coated (Galvannealed) by the Hot-Dip Process
- B. ASTM B 209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
- C. ASTM B 370 – Standard Specification for Copper Sheet and Strip for Building Construction.

- D. ASTM D 225 – Standard Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules.
- E. ASTM D 226 – Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
- F. ASTM D 1970 – Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials used as Steep Roofing Underlayment for Ice Dam Protection.
- G. ASTM D 3018 – Standard Specification for Class A Shingles Surfaced with Mineral Granules.
- H. ASTM D 3161 – Standard Test Method for Wind Resistance of Asphalt Shingles (Fan-Induced Method).
- I. ASTM D 3462 – Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
- J. ASTM D 4586 – Standard Specification for Asphalt Roof Cement, Asbestos-Free.
- K. ASTM D-4869 – Standard Specification for Asphalt-Saturated Organic Felt Shingle Underlayment Used in Roofing.
- L. ASTM D 6757 – Standard Specification for Inorganic Underlayment for Use with Steep Slope Roofing Products.
- M. ASTM E 108 – Standard Test Methods for Fire Test of Roof Coverings
- N. ASTM G 21 – Determining Resistance of Synthetic Polymers to Fungi

#### 1.4 SUBMITTALS

- A. Submit under provisions of Section 01 30 00.
- B. Product Data: Provide manufacturer's printed product information indicating material characteristics, performance criteria and product limitations.
- C. Manufacturer's Installation Instructions: Provide published instructions that indicate preparation required and installation procedures.
- D. Certificate of Compliance: Provide Certificate of Compliance from an independent laboratory indicating that the asphalt fiberglass shingles made in normal production meet or exceed the requirements of the following:
  - 1. ASTM E 108/UL 790 Class A Fire Resistance
  - 2. ASTM D 3161/UL 997 Wind Resistance.
  - 3. ASTM D 3462

- E. Shop Drawings: Indicate specially configured metal flashing, jointing methods and locations, fastening methods and locations and installation details as required by project conditions indicated.

## 1.5 QUALITY ASSURANCE

- A. Installer Minimum Qualifications: Installer shall be licensed or otherwise authorized by all federal, state and local authorities to install all products specified in this section. Installer shall perform work in accordance with NRCA Roofing and Waterproofing Manual Work shall be acceptable to the synthetic slate roof tile manufacturer.
- B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by architect
  - 2. Do not proceed with remaining work until workmanship, color and pattern are approved by Architect.
  - 3. Rework Mock-Up area as required to produce acceptable work.

C. Pre-Installation Meeting – Conduct a pre-installation meeting at the site prior to commencing work of this section: Require attendance of entities directly concerned with roof installation.

Agenda will include:

- 1. Installation procedures and manufacturer's recommendations
- 2. Safety procedures
- 3. Coordination with installation of other work
- 4. Availability of roofing materials.
- 5. Preparation and approval of substrate and penetrations through roof.
- 6. Other items related to successful execution of work

D. Pre-Installation Meeting: Regulatory Requirements Products must conform with the following:

- 1. International Code Council –
- 2. State of Florida Approval – Report
- 3. Texas Department of Insurance Evaluation –

- E. Maintain one copy of manufacturers application instructions on the project site.
- F. Verify that manufacturer's label contains references to specified ASTM standards

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store Products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials and materials used with solvent based materials, in accordance with requirements of local authorities having jurisdiction.

- C. Deliver shingles to site in manufacturer's unopened labeled bundles. Promptly verify quantities and conditions. Immediately remove damaged products from site.

1.7 PROJECT CONDITIONS

- A. Anticipate and observe environmental conditions (temperature, humidity and moisture) within limits recommended by manufacturer for optimum results. Do not install products under environment conditions outside manufacturer's absolute limits.
- B. Extra Material – Furnish under provision of section 01 70 00
- C. Provide \_\_\_\_\_ square feet (\_\_\_\_\_square m) of extra shingles of each color specified.
- D. Take special care when applying Winterguard Waterproofing Shingle Underlayment and shingles when ambient or wind chill temperature is below 45 degrees F (7 degrees C). Tack WinterGuard in place if it does not adhere immediately to the deck.

1.8 WARRANTY

- A. Manufacturer's Warranty: Furnish shingle manufacturer's warranty for the product listed below:
  - 1. CertainTeed Presidential Shake: Lifetime Limited Warranty
- B. Warranty Supplement: Provide manufacturer's supplemental warranty (CertainTeed's Surestart or Surestart Plus) to cover labor and materials in the event of a material defect for the following period after completion of application of shingles:
  - 1. First Ten Years (All Lifetime Warranty products with exception of Independence)
  - 2. First Seven Years (Symphony Slate Shingles)
  - 3. First Five Years ( All 25 to 50 year Shingles including Independence)
  - 4. First Three Years (CT20 and CT20 AR)
  - 5. No Surestart or Surestart Plus for any shingle applied to inadequately ventilated roof deck.
- C. Extended Warranty Protection (can only be provided by a CertainTeed Credentialed Contractor): Provides NON PRO-RATED SureStart Plus protections and 110 mph wind warranty as follows:
  - 1. 3Star Coverage (20 years) material and labor costs for repair or replacement
  - 2. 4Star Coverage (50 years) material and labor costs for repair or replacement tear off and disposal costs.
  - 3. 5Star Coverage (50 years) material and labor costs for repair or replacement, tear off protection, disposal costs and workmanship defects.
- D. Warranty Transferability Clause: Make available to Owner shingle manufacturer's standard option for transferring warranty to a new owner.
- E. Refer to manufacturer's warranty for adjustments for commercial applications.

- F. Provide Upgraded Wind Warranty from 110 to 130 mph for first 15 years by complying with all manufacturers' conditions and instructions

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

Acceptable Manufacturer: Provide products manufactured by the CertainTeed Corporation. Contact Sales Support Group P.O. Box 860 Valley Forge, PA 19482 Toll Free 800-233-8990

- A. Substitutions: Not permitted
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00

### 2.2 ASPHALT FIBERGLASS SHINGLES

- A. CertainTeed Presidential Shake: Conforming to ASTM D 3018 Type I – Self-Sealing; UL Certification of ASTM D 3462; ASTM D 3161 Class “F” (110-mph)/UL997 Wind Resistance and UL Class A Fire Resistance; glass fiber mat base; ceramically colored/UV resistant mineral surface granules across entire face of shingle, full two layer laminated four tab shingle.
- B. Weight: 355 pounds per square (100 square feet) (17.3 kg/sq m)
- C. Color: \_\_\_\_\_
- D. Color.: As selected by Architect from manufacturer's standards

### 2.3 SHEET MATERIALS

**\*\*Note\*\* Delete paragraph below and installation instructions in Part 3 if climatic conditions are such that ice dam protection is not required.**

A. Eaves Protection: CertainTeed “WinterGuard”;ASTM D1970 sheet barrier of self-adhering rubberized asphalt membrane shingle underlayment having internal reinforcement and “split” back plastic release film; provide material warranty equal in duration to that of shingles being applied.

**\*\*Note\*\* Delete WinterGuard types not required for the building project.**

1. CertainTeed WinterGuard Sand
2. CertainTeed WinterGuard HT
3. CertainTeed WinterGuard Granular

**\*\*Note\*\* Select underlayment form the following three paragraphs, delete those not required. The CertainTeed “Roofers Select” underlayment resists “hygro-expansion,” significantly reducing wrinkling.**

B. Underlayment: CertainTeed “Roofers’ Select”, ASTM D 6757; asphalt-impregnated fiberglass-reinforced organic felt designed for use on roof decks as a water-resistant layer beneath roofing shingles

C. Underlayment: CertainTeed Diamond Deck ASTM D 226 and ASTM D 4869 synthetic polymer-based scrim reinforced underlayment designed for use on roof decks as a water-resistant layer beneath asphalt shingles, wood shingles, and shakes, metal shingles or slate.

D. Underlayment: ASTM D 4869, Asphalt saturated felt.

D. Underlayment: ASTM D 226, Asphalt saturated felt (non-perforated).

F. Waterproofing Underlayment: CertainTeed "WinterGuard"; ASTM D 1970 sheet barrier of self-adhering rubberized asphalt membrane shingle underlayment having internal reinforcement, and "split" back plastic release film; Use in "low slope" areas (below 4:12, but no less than 2:12 pitch); provide material warranty with equal in duration to that of shingles being applied.

**\*\*Note\*\* Delete WinterGuard types not required for the building project.**

1. CertainTeed WinterGuard Sand
2. CertainTeed WinterGuard HT
3. CertainTeed WinterGuard Granular

## 2.4 FLASHING MATERIALS

- A. Sheet Flashing: ASTM A 361/A361M; 26 Gauge (0.45 mm) steel with minimum G115/Z350 galvanized coating
- B. Sheet Flashing: ASTM B 209; 0.025 (0.63mm) thick aluminum, mill finish.
- C. Sheet Flashing: ASTM B 370; cold rolled copper; 16 ounces per square foot (0.55mm), natural finish.
- D. Bituminous Paint: Acid and alkali resistant type; black color.
- E. Tinner's Paint: Color as selected by Architect to coordinate with shingle color.

## 2.5 ACCESSORIES

- A. Nails: Standard round wire type roofing nails, corrosion resistant; hot dipped zinc coated steel, aluminum or chromated steel; minimum 3.8 inch (9.5mm) head diameter; minimum 11 or 12 gage (2.5mm) shank diameter; shank to be sufficient length to penetrate through the roof sheathing or 3/4 inch (19mm) into solid wood, plywood or non-veneer wood decking.
- B. Asphalt Roofing Cement: ASTM D 4586, Type I or II

## 2.6 FLASHING FABRICATION

- A. Form flashing to profiles indicated on Drawings and to protect roofing materials from physical damage and shed water.
- B. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify existing site conditions under provisions of Section 01 70 00.
- B. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surfaces.
- C. Verify deck surfaces are dry and free of ridges, warps or voids.

### 3.2 ROOF DECK PREPARATION

- A. Follow shingle manufacturer's recommendations for acceptable roof deck material
- B. Broom clean deck surfaces under eave protection and underlayment prior to their application

### 3.3 INSTALLATION – EAVE ICE DAM PROTECTION

- A. Place eave edge and gable metal edge flashing tight with fascia boards. Weather-lap joints 2 inches (50mm). Secure flange with nails spaced 8 inches (200 mm) on center.
- B. Apply CertainTeed "WinterGuard" Waterproofing Shingle Underlayment as eave protection in accordance with manufacturer's instructions.  
**\*\*NOTE\*\* Change dimensions below to 48 inches (1220 mm) or greater for low slope roofs or severe climatic conditions.**
- C. Extend eave protection membrane minimum 24 inches (640 mm) up slope beyond interior face of exterior wall.

### 3.4 INSTALLATION – PROTECTIVE UNDERLAYMENT

**\*\*NOTE\*\* Delete first three paragraphs below if all roof slopes are greater than 4:12. Otherwise, select either complete WinterGuard underlayment, Roofers Select, Diamond Deck or D4869 underlayment in combination with eave ice dam protection.**

- A. Roof Slopes between 2:12 and 4:12: Apply one layer of "WinterGuard" over all areas not protected by WinterGuard at eaves, with end and edges weather lapped minimum of 19 inches (480 mm) Stagger end laps each consecutive layer. Nail in place
- B. Roof Slopes between 2:12 and 4:12: Apply two layers of Roofers Select or D4869 underlayment over areas not protected by WinterGuard at eaves, with ends and edges weather-lapped 19 inches (480 mm) .Stagger end laps each consecutive layer. Nail in place.
- C. Roof Slopes between 2:12 and 4:12 – Use of Diamond Deck Synthetic Roofing Underlayment. Follow manufacturer's printed instructions for low slope application of this product. Do not use staples on this product.
- D. Roof Slopes 4:12 or Greater: Install one layer of asphalt felt shingle underlayment perpendicular to slope of roof and lap minimum 4 inches (100 mm) over eave protection.
- E. Weather-lap and seal watertight with asphalt roofing cement items projecting through or mounted on roof. Avoid contact or solvent-based cements with WinterGuard and Diamond Deck

### 3.5 INSTALLATION – VALLEY PROTECTION

- A. For “closed-cut,” “woven,” and “open” valleys, first place one ply of WinterGuard, minimum 36 inches (910 mm) wide, centered over valleys. Lap joints minimum of 6 inches (152 mm) Follow instructions of shingle a waterproofing membrane manufacturer.

### 3.6 INSTALLATION – METAL FLASHING

- A. Weather-lap joints minimum 2 inches (50 mm).
- B. Seal work projecting through or mounted on roof with asphalt roofing cement and make weather tight.

### 3.7 INSTALLATION- ASPHALT SHINGLES

- A. Install shingles in accordance with manufacturer’s instructions for product type and application specified.

### 3.8 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Section 01 45 16.
- B. Visual inspection of the work will be provided by Owner. If conditions are unacceptable, Owner will notify the Architect.

### 3.9 PROTECTION OF FINISHED WORK

- A. Protect finished work under provisions of Section 01 76 00.
- B. Do not permit traffic over finished roof surface.

END OF SECTION