SECTION 07 31 13
ASPHALT SHINGLE ROOFING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including Instructions to Bidders and General Conditions, and Division 1 Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

A. Asphalt-fiberglass roofing shingles
B. Leak barrier and roof deck protection
C. Metal flashing associated with shingle roofing

1.3 SUMMARY

A. The work under this Section includes the supply and installation of roof shingles, underlayments, and accessories.

1.4 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry: Framing and roof sheathing.
B. Section 07 62 00 - Flashing and Sheet Metal
C. Section 07 71 23 - Manufactured Gutters and Leaders
D. Section 07 92 00 - Joint Sealants

1.5 REFERENCES

A. American Society for Testing and Materials (ASTM) - Annual Book of ASTM Standards
   1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
   2. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate
   3. ASTM B 370 - Standard Specification for Copper Sheet and Strip for Building Construction
   4. ASTM D 3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules
   5. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)
   6. ASTM D 3462 – Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules
   7. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
   8. ASTM D 7158 - Standard Test Method for Wind-Resistance of Sealed Asphalt Shingles (Uplift Force/Uplift Resistance Method)

B. ASTM E 903 – Standard Test Method for Solar Absorptance, Reflectance, and Transmission of Materials Using Integrating Spheres.
C. ASTM E 903 – Standard Test Method for Solar Absorptance, Reflectance, and Transmission of Materials Using Integrating Spheres
D. Underwriters Laboratories (UL) - Roofing Systems and Materials Guide (TFWZ.R21)
   1. UL 790 - Tests for Fire Resistance of Roof Covering Materials
   2. UL 997 - Wind Resistance of Prepared Roof Covering Materials
   3. UL 2218 – Impact Resistance of Prepared Roof Coverings Materials

E. Asphalt Roofing Manufacturers Association (ARMA)

F. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.
G. National Roofing Contractors Association (NRCA)

1.6 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.7 SUBMITTALS

A. Product Data: Submit technical product data, installation instructions and recommendations from shingle manufacturer, including data that materials comply with requirements.
B. Samples: Submit full range of samples for color and texture selection.
C. Maintenance Stock: 2% of each type/color/texture shingle used in the work.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier, and ventilation, by a single manufacturer.
B. Installer Qualifications: Installer must be approved by the roofing manufacturer for installation of all roofing products to be installed under this section.

1.9 REGULATORY REQUIREMENTS

A. Provide a roofing system achieving an Underwriters Laboratories (UL) Class A fire classification.
B. Install all roofing products in accordance with all federal, State, and local building codes.
C. All work shall be performed in a manner consistent with current OSHA guidelines.

1.10 PREINSTALLATION MEETING

A. A pre-installation meeting is required prior to installation of the roofing system.
B. Attendees: Meeting's mandatory attendees shall include the General Contractor, certified roofing contractor, manufacturer's representative, and the project Architect.
C. Topics: Certified Contractor and manufacturer's representative shall review all pertinent requirements for the project, including but not limited to, scheduling, weather considerations, project duration, and requirements for the specified warranty.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Store all products in manufacturer's unopened, labeled packaging until they are ready for installation.
B. Store products in a covered, ventilated area, at temperature not more than 110 degrees F (43 degrees do not store in direct sunlight.
C. Store bundles on a flat surface. Maximum stacking height shall not exceed Manufacturers. recommendations. Store all rolls on end.
D. Store and dispose of solvent-based materials in accordance with all federal, state and local regulations.

1.12 WEATHER CONDITIONS

A. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with Manufacturer's recommendations.
B. Follow Manufacturer's Canadian cold weather installation procedures for installations from September 1st to April 1st.

1.13 WARRANTY

A. Provide, to the Owner, the manufacturer's warranty. The wind exclusion shall not be less than the wind uplift and windspeed rating specified.
B. Material defects Warranty shall provide 100% coverage for materials and labor for the first 20 years, then prorated thereafter.
C. Workmanship (installation) Errors: Warranty shall provide 100% coverage for workmanship errors for the first 20 years.
D. Shingles shall be warranted against algae discoloration for 10 years minimum.
E. Installer must register and pay for the warranty.
F. Installer shall be certified by the shingle Manufacturer, if required to obtain the warranty.
G. Contractor shall register and pay for the roofing warranty and shall be responsible to arrange for all required manufacturer's inspections.
H. Refer to Section 01 41 00 for additional warranty requirements.

1.14 MANUFACTURER'S SERVICES

A. Contractor shall schedule at start-up, at least one interim inspection and final inspection with the Manufacturer's Technical Representative.

PART 2 – PRODUCTS

2.1 SHINGLES

A. Lifetime self-sealing, granule surfaced, asphalt shingle with a strong fiberglass reinforced micro weave core and stain guard protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules. Architectural laminate styling to provide a wood shake appearance with a 5 5/8-inch exposure with high definition color blend and enhanced shadow effect. UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1, Class F (110 mph wind test); ASTM D 3018, Type 1; ASTM D 3462; AC438; CSA A123.5-98; Dade County Approved, Florida Building Code Approved, Texas Dept. of Insurance Approved, ICC Report Approval. Roof shingle assembly shall be warranted to a minimum 133 MPH windspeed (3-second gust).

2.2 RIDGE SHINGLES

A. High profile self-sealing hip and ridge cap shingle matching the color of selected roof shingle.

2.3 STARTER STRIP

A. Self-sealing starter shingle designed for premium roof shingles.

2.4 LEAK BARRIER

A. Self-adhering, self-sealing, bituminous leak barrier surfaced with fine, skid-resistant granules. Approved by UL, Dade County, ICC, State of Florida and Texas Department of Insurance.

2.5 SHINGLE UNDERLAYMENT

A. Premium, water repellant, breather type non-asphaltic underlayment. UV stabilized polypropylene construction. Meets or exceeds ASTM D226 and D4869. Approved by Dade Country, Florida Building Code, and ICC.

2.6 ROOFING CEMENT

A. Asphalt Plastic Roofing Cement meeting the requirements of ASTM D 4586, Type I or II
B. Roof Cement: ASTM D 4586, 203 Plastic Roof Cement
C. Roof Cement: ASTM D 4586, 204 Wet/Dry Roof Cement

2.7 NAILS

A. Nails: Series 300 stainless steel, Aluminum, or hot-dip galvanized (ASTM A641) steel 11 or 12-gage sharp pointed conventional roofing nails with barbed shanks, minimum 3/8" diameter head, and of sufficient length to penetrate minimum 3/4" into solid decking or to penetrate through plywood sheathing a minimum of 1/8". Use only stainless-steel nails where nailing penetrates metal flashings.

2.8 COIL NAILS

A. Type 304 or 316 Stainless Steel only due to proximity to stored salt.

2.9 METAL FLASHING

A. Flashing material associated with asphalt shingle roofing is specified in Section 07 62 00.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until the roof deck has been properly prepared.
B. If roof deck preparation is the responsibility of another installer, notify the Architect or building Owner of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Verify that the deck is dry, sound, clean and smooth. It shall be free of any depressions, waves, and projections. Cover with sheet metal, all holes over 1 inch in diameter, cracks over 1/2 inch in width, loose knots and excessively resinous areas.
B. Clean deck surfaces thoroughly prior to installation of eave protection membrane and underlayment.

3.3 INSTALLATION OF UNDERLAYMENTS

A. General: Install using methods recommended by the roofing manufacturer, in accordance with International Building Codes.
B. Eaves:
    1. Install eave edge metal flashing tight with fascia boards; lap joints 2 inches and seal with plastic cement; nail at the top of the flange.
    2. Install leak barrier up the slope from eave edge to at least 24 inches beyond the interior side of exterior walls. Lap ends 6 inches and bond.

C. Hips and Ridges:
    1. Install leak barrier along entire lengths. If ridge vents are to be installed, position the leak barrier so that the ridge slots will not be covered.

D. Roof Deck:
    1. Install two layers of underlayment horizontally over the entire area shingle style over lapping not protected by leak barrier at the eaves. Install sheets horizontally so water sheds and nail in place.
    2. Lap horizontal edges at least 19 inches and at least 19 inches over eave protection membrane.
    3. Lap ends at least 4 inches. Stagger end laps of each layer at least 36 inches.