

ROOFING SECTION 07 41 13

WORTHHOUSE SMART METAL ROOFING

PART 1 GENERAL

1.1 SUMMARY

A. SECTION INCLUDES

1. Metal Tile Roofing Modules.
2. Roof flashing, trim and other accessories required to provide a complete and weathertight roofing system.
3. RELATED SECTIONS
 - a) Division 06 Section 06 10 00 Rough Carpentry.
 - b) Division 06 Section 06 11 00 Wood Framing.
 - c) Division 06 Section 06 15 00 Wood Roof Decking.
 - d) Division 06 Section 06 16 00 Sheathing.
 - e) Division 07 Section 07 60 00 Flashing and Sheet Metal.
 - f) Division 07 Section 07 62 00 Sheet Metal Flashing and Trim.
 - g) Division 07 Section 07 71 00 Roof Specialties.
 - h) Division 07 Section 07 72 00 Roof Accessories.
 - i) Division 07 Section 07 92 00 Joint Sealants.

1.2 REFERENCES

- A. ASTM A123 Standard Specifications for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products (<https://www.astm.org/Standards/A123.htm>).
- B. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process (<https://www.astm.org/Standards/A653.htm>).
- C. UL 580 Standard for Tests for Uplift Resistance of Roof Assemblies, Class 90 Certification (https://standardscatalog.ul.com/standards/en/standard_580_5).
- D. UL 790 (ASTM E 108) Standard for Standard Test Methods for Fire Tests of Roof Coverings, Class A Fire Rating (https://standardscatalog.ul.com/standards/en/standard_790_8).
- E. UL 2218 Standard for Impact Resistance of Prepared Roof Covering Materials, Class 4 Rating Hailstorm Damage (https://standardscatalog.ul.com/standards/en/standard_2218_2).

- F. Florida Product Approval No. FL 21544-R1
- G. Miami Dade Product Approval No. 17-0221.05

1.3 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Construction Conference: Prior to the start of construction the Contractor shall attend a pre-construction conference with representatives of the manufacturer and Engineer/Architect. The conference will serve to acquaint the participants with the requirements under which the construction operation is to proceed, and will inform the Contractor of the obligations imposed on it and its subcontractors in that regard.
- B. Laws and Regulations
 - 1. The Contractor's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the work throughout and they will be deemed to be included in the work the same as though herein written out in full.
 - 2. The Contractor and all its subcontractors shall further comply with applicable building Codes as referenced in the various sections of the specifications and as otherwise required by State and local building departments, rules and regulations.

1.4 SUBMITTALS

- A. Product Data: Manufacturer literature including product specifications, construction details, material descriptions, dimensions of individual components and profiles, finishes, fasteners, accessories, and manufacturers' written installation instructions.
- B. Shop Drawings: To be prepared by metal roof system manufacturer.
 - 1. Submit scaled roof plan showing dimensions, roof slope, profiles, components, accessories, finish colors, gutters and downspouts as applicable.
 - a) Indicate each trim condition.
 - b) Include details of each condition of installation, including the locations and types of fasteners, sealants and accessories. Indicate locations, gauges, shapes, and methods of attachment of all panels, accessories and trim.
 - c) Indicate products, materials and installation methods required for construction activities not supplied by manufacturer of products of this section.
 - d) Indicate locations of field applied sealing foam tape.
 - e) Indicate locations of field worked conditions.
- C. Samples: Submit the following for the owner's and Engineer's/Architect's selection:
 - 1. Color charts and samples consisting of units or sections of units showing full range of colors.

2. Two full size metal panel modules showing textures and patterns available for each type of metal roof panel indicated.

D. Warranties

1. Manufacturing Finish Warranty: Refer to Section 1.9 Warranties for specific requirements.
2. Installation Warranty.

E. Certificates

1. Submit roof panel manufacturer's certification that fasteners, closures, roof panels and finishes meet the specification requirements.

1.5 QUALIFICATION OF CONTRACTORS

- A. Contractors will be properly and currently licensed in the state in which the work shall be performed.
- B. Any person, firm, or other party to whom the contractor proposes to award a subcontract must be acceptable to the owner.
- C. The contractor shall be able to provide documentation describing the following:
 1. Company experience including previous work, years in business, geographic territory, and previous customers.
 2. Company organization including structure, management processes, operational procedures, hiring and training programs, and turnover.
 3. QA/QC program.
 4. Safety program.
 5. Senior management including experience, tenure with the firm, and division of responsibilities.
 6. Current projects and backlog including number, size and location of projects; percent of capacity being utilized; and status and expected completion.
 7. Financial strength.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit data for an Operations and Maintenance Manual, bound in 8-1/2" x 11" text pages. As a minimum this shall include the following:
 1. Building Products, Applied Materials, and Finishes: Include product data, with the catalog number, size, composition, and the color and texture designations. Include information for re-ordering custom manufactured products.

2. **Instruction for Care and Maintenance:** Include manufacturer's instructions for cleaning agents and methods, precautions against detrimental agents and methods, and a recommended schedule for cleaning and maintenance.
3. **Moisture Protection and Weather Exposed Products:** Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
4. **Additional Requirements:** As specified in the individual product specification Sections.

B. **Warranty Documentation:** Submit final warranties as required in this Section.

1.7 QUALITY ASSURANCE

A. Qualifications

1. **Manufacturer Qualifications:** Manufacturer shall have a minimum of ten years experience in the manufacturing of metal roof systems similar to those required for this project. Manufacturer must have a current installer training program.
2. **Installer Qualifications:** Installer ("Roofer") to perform the work of this section, shall have no fewer than 5 years of successful experience with the installation of metal roof systems similar to those required for this project.

B. **Field Measurements:** Take field measurements of the structure(s) or substrates to confirm panel and trim quantities.

C. **Acceptance of Substrate:** The Contractor's installation of any products on a surface or substrate shall constitute full acceptance of the condition of the surface or substrate as sound and appropriate to receive the Contractor's Work. Defective Work resulting from unsound or unacceptable surfaces or substrates shall be repaired at the Contractor's sole expense, including repairs or corrective action required of the surface or substrate.

1.8 DELIVERY, STORAGE AND HANDLING

A. **Delivery and Acceptance Requirements:** Deliver panels to jobsite properly packaged to provide protection against transportation damage.

B. **Storage and Handling Requirements:**

1. Exercise care in unloading, storing and erecting panels to prevent bending and surface damage.
2. Store all material and accessories above ground on well skidded platforms. Store under waterproof covering. Provide proper ventilation to panels to prevent condensation build-up between each panel.
3. Remove from site and replace panels which are damaged or become water-stained during storage and handling.

1.9 WARRANTIES

- A. Obtain, execute and assembly warranties by the responsible subcontractors, suppliers, and manufacturers, within 10 days after the completion of the applicable item of work. Verify that the documents are in the proper form, contain full information, and are notarized. Include in the Operations and Maintenance Manuals within the appropriate material specification section.
- B. Manufacturer's Warranty: The manufacturer shall provide a warranty that shall:
 - 1. Remain free from material and manufacturing defects that may adversely affect the performance of the panels.
 - 2. Resist blow-offs in wind velocities up to 130 miles per hour (Ultimate Wind Speed).
 - 3. Resist cracks, splits or penetration to the panel's steel substrate around the point of impact by hail of less than 1.5" in diameter.
- C. Installation Warranty: The Contractor shall provide a warranty to repair or replace metal roof panels, trim, or accessories that fail due to poor workmanship or faulty installation 2 years commencing on the date of substantial completion. The installation Contractor warrants that materials and equipment furnished will be of good quality and new. The Contractor further warrants that the Work will be free from defects. Work, materials, or equipment not conforming to these requirements may be considered defective.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Worthouse, Inc., 2315 Landmeier Road, Elk Grove Village, IL 60007 (T: 847.621.2470); www.worthouse.com.

2.2 MATERIALS (Profiles)

- A. Modular Metal Roofing: "Supre" resembling traditional concrete or clay roof tiles, and "Ultra" resembling traditional slate roof tiles.
 - 1. Material: Press formed, G-90 Galvanized coated sheet steel (ASTM A123), 26 gauge.
 - 2. Finish: Silicone Polyester Wrinkled Noble Matt Paint. Thickness (Nominal Value) 35 Microns, Composition Front: 10 Microns Primer + 25 Microns Topcoat. Back: 7 Microns Backing Coat. Gloss (Gardner 60 Degree) Maximum 5GU.
 - 3. Color: Colors: Raven Black, Pacific Gray, Sierra Brown, and Canyon Red.
 - 4. Thickness: 26 Gauge, 0.0179 inches.
 - 5. Steel: Structural Steel (SS) Grade 40, G90.
 - 6. G-90 Galvanized coated sheet steel (ASTM A123), 26 gauge.
 - 7. Size: Supre profile 46.85" wide by 28.98" long with an effective surface area of 8.66 sq. ft. Ultra profile 47.09 inches wide by 28.54" long with an effective surface area of 8.59 sq. ft.

8. Exposure: Supre profile shall contain six corrugations for a total coverage width of 45.28". Profile steps shall be 1.5" deep, spaced 13.78" on center long. Each module shall include pre-drilled holes used to join modules together. Ultra profile shall contain six corrugations for a total coverage width of 44.8". Profile steps shall be 1.5" deep, spaced 13.78" on center long. Each module shall include pre-drilled holes used to join modules together.
9. Weight: Supre 8.16 lbs. per piece. Ultra 8.16 lbs. per piece.

2.3 ACCESSORIES

- A. Accessories: Provide sheet metal flashings, trim, caps, and other preformed metal panel accessories, of same material and finish as panels except as otherwise indicated. Provide sealing foam tape as recommended by manufacturer.
- B. Fasteners: Corrosion resistant screws, size and screw type as provided by panel manufacturer for each use, with prefinished hex washer head color coordinated to match panels where fastener is exposed to view.
- C. Pipe Penetration Flashings: Chimney Vent Type – Uninsulated ventilation chimney, UV resistant, dyed polypropylene with UV stabilization, universal base with EPDM rubber that shall fit to wave profile, gradient angle adjustable from 0 to 45 degrees.
- D. Underlayment: Minimum underlayment shall be an ASTM D 226 Type II installed in strict accordance with its product approval and having minimum 4" side laps and 6" end laps. Underlayment shall be fastened with corrosion resistant tin caps and 1¼" annular ring shank nails, spaced 6" on center at all laps and two staggered rows 12" on center in field of the roll.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of Conditions
 1. Inspect roof deck for acceptable surface for panel installation (e.g., moisture, content, soundness of framing, free from objectionable warp, wave, and buckle) before proceeding with installation of pre-formed metal roofing.
 2. Ensure substrate is ready to receive metal roofing. Do not install product until substrate is properly prepared. Report items for correction and do not proceed with metal roof panel system installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Install deck and or substrate boards in accordance with manufacturer's recommendations.
- B. Coordinate Work, with installation of other associated Work, to ensure quality application.
- C. Coordinate Work with installation of associated metal flashings and building walls.
- D. Coordinate Work to minimize foot traffic and construction activity on installed finished surfaces.

- E. Coordinate location of pipe penetrations to allow centering of pipe in panel.

3.3 INSTALLATION

- A. Comply with and install roofing and flashings in accordance with the more stringent requirements of all details shown on manufacturer's approved shop drawings, manufacturer's product data, instructions, installation manuals, and product approvals within specified erection tolerances.
- B. Do not install panels damaged by shipment or handling.
- C. Allow for required panel clearance at penetrations for thermal movement.
- D. Remove roof panel and flashing protective film prior to extended exposure to sunlight, heat and other weather elements.
- E. Install sheet metal flashings according to manufacturer's recommendations, approved shop drawings and in accordance with provisions of Section 07 62 00 Sheet Metal Flashing and Trim.

3.4 CLEANING

- A. Clean exposed surfaces of work promptly after completion of installation.
- B. Clean mud, dirt and construction-related debris from panels before panels are scratched or marred.

3.5 PROTECTION

- A. Protect Work as required to ensure roofing will be without damage at time of final completion.
- B. Do not allow excessive foot traffic over finished surfaces.
- C. Do not track mud, dirt or construction-related debris onto panel surfaces.
- D. Replace damaged Work before final completion.