

ML200

Guide Specification

This is a suggested guide specification for metal roofing projects where the ML200 panel system is applicable. Questions regarding applicability should be discussed with Union prior to proceeding. This specification is available for downloading in both Microsoft WORD and .pdf format for your ease of use. Revise Title and/or Section numbers to suit project requirements. Brackets [] indicate options to be selected by specifier. Refer to the ML200 Product Data Sheet and to the Union website for additional information.

METAL ROOFING

(SECTION 07610 - CSI 16 Division Format) or
[SECTION 07 41 13 - CSI 50 Division MasterFormat]

PART 1 GENERAL

1.01 DESCRIPTION

- A. Furnish all materials, labor, tools, equipment and services required to install the standing seam metal roofing system.
- B. Roofing Contractor shall coordinate roofing installation with related work required by other associated trades.
- C. Related work includes:
 - 1. Division 05: Metals - Structural Metal Framing, Metal Joists, Metal Decking, Cold-Formed Metal Framing
 - 2. Division 07: Thermal and Moisture Protection – Thermal Protection, Flashing and Sheet Metal, Roof and Wall Specialties and Accessories, Joint Protection

1.02 REFERENCES

- A. SMACNA – “Architectural Sheet Metal Manual”, Sheet Metal and Air Conditioning Contractors National Association, Inc.
- B. LGSI – “Light Gage Structural Steel Framing System Design Handbook”, Light Gage Structural Institute
- C. AISC – “Steel Construction Manual”, American Institute of Steel Construction
- D. AISI – “Cold Formed Steel Design Manual”, American Iron and Steel Institute
- E. ASTM – “American Society for Testing and Materials”:
 - 1. ASTM E-1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference
 - 2. ASTM E-1646 – Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference. This test method supersedes ASTM E-331
 - 3. ASTM E-1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems. This test method supersedes ASTM E-283.
 - 4. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus
 - 5. ASTM D2247 - 02 Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity
 - 6. ASTM D3361 - 01(2006) Standard Practice for Unfiltered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings
 - 7. ASTM D4145 - 83(2002) Standard Test Method for Coating Flexibility of Prepainted Sheet
- F. U.L. – “Underwriters Laboratory”:
 - 1. U.L. 580 Tests for Uplift Resistance of Roof Assemblies
 - 2. U.L. 263 Fire Tests of Building Construction Materials

1.03 SUBMITTALS

- A. General: Provide submittals in accordance with the Conditions of the Contract.
- B. Product Data: Submit product data sheet(s) for specified metal roofing panel products.
- C. Shop Drawings: Submit shop drawings showing roof panel profile(s), gauge(s), layout and system components, including anchorage, trim and accessories.
- D. Samples: Submit two 3” x 5” sample color chips of proposed colors for final selection and verification of finishes, colors and textures.
- E. Quality Assurance: Submit the following:
 - 1. Manufacturer’s Installation Manual

2. Contractor Certification stating installer of products of this section meets specified qualifications.
 3. Manufacturer Certification stating metal roofing system materials comply with specified performance characteristics and physical requirements.
- F. Close Out: Submit the following close-out documentation:
1. Maintenance Data for installed metal roofing system. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
 2. Warranty documents as specified.

1.04 QUALITY ASSURANCE

- A. Applicable Standards:
1. Comply with metal roofing manufacturer's Installation Manual applicable for the specified roofing system
 2. SMACNA: Comply with Sheet Metal and Air Conditioning Contractors National Association's "Architectural Sheet Metal Manual" unless specifically stated otherwise by roofing manufacturer's printed material
 3. AISC: Comply with American Institute of Steel Construction "Steel Construction Manual"
 4. Final Inspection: Upon completion of the roofing installation, provide a final inspection by a technical representative of the roofing manufacturer.
- B. Manufacturer Qualifications: Manufacturer shall have a minimum of five years experience manufacturing metal roofing systems. Manufacturer shall be specialized in the manufacturing of standing seam metal roof panels and shall not act as installer or be owned by the same entity as installer.
- C. Installation Contractor Qualifications: Installation contractor shall be currently authorized by the manufacturer of the metal roofing system and shall meet the following minimum criteria:
1. Maintain a minimum of \$250,000 general liability insurance coverage
 2. Maintain statutory limits of worker's compensation coverage as mandated by law
 3. Employ a full-time project foreman on-site to supervise the installation of the metal roofing system. Foreman shall have a minimum of three years experience installing this type of metal roofing system.
- D. Field Measurements: Installation contractor is to verify actual field measurements/openings prior to fabrication. Coordinate field measurements, fabrication schedule with construction progress to avoid construction delays.
- E. Pre-Construction Meeting: Conduct a pre-construction meeting prior to the start of the roofing installation to finalize outstanding issues, questions or details regarding the installation of the roof. A representative of the building owner, architect, general contractor, roofing contractor and manufacturer shall be in attendance.

1.05 SYSTEM PERFORMANCE REQUIREMENTS

- A. Wind uplift resistance shall meet the following requirements:
1. Metal roof panel system tested in accordance with ASTM E-1592 test procedures with resulting load span tables being provided for the design of the roof.
 2. U.L. 90 wind uplift classification tested in accordance with U.L. 580 test procedure
- B. Fire resistance: Class A fire resistance tested in accordance with U.L. 263 test procedures
- C. Air infiltration: Maximum 0.001 cfm / sq. ft. when tested in accordance with ASTM E1680-95 (2003) at a static pressure of 6.24 psf .
- D. Water penetration: No uncontrolled water penetration when tested in accordance with ASTM E1646-95 (2003) with 5 gallons per hour per sq. ft. spray at a static pressure difference of 12.0 psf.
- E. Roof Panel Finish Performance Qualifications:
1. Salt Spray: 1000 hrs, maximum of 1/16" creep from scribe, no field blisters when testing according to ASTM B117
 2. Humidity resistance: No blistering after 2000 hours testing, in accordance with ASTM D2247
 3. Color change and Chalk resistance: Color change, after removal of surface deposits such as dirt or chalk, maximum 5ΔE Hunter Units. Chalk rating no less than 8 when testing according to ASTM D3361
 4. Flexibility: OT to 3T; no loss of adhesion when testing according to ASTM D4145

1.06 DELIVERY, STORAGE & HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery, Packing, Shipping: Materials are to be delivered in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Unloading: Contractor shall provide suitable equipment to unload materials without damage. Crates are to remain intact during handling and storage until such time materials are to be installed.
- D. Handling: Follow manufacturer recommendations regarding the proper handling of crates. Spreader bars and nylon slings may be used with proper design and precautions.

- E. Storage: Materials are to be stored in an above-ground location that is dry, well-ventilated and sloped if such materials are not to be used immediately. Any moisture formed on the panels is to be wiped dry and allowed to dry completely.
- F. Protection: Stack prefinished material to prevent twisting, bending, abrasion, scratching and denting. Elevate one end of each pallet or skid to allow for moisture runoff.

1.07 WARRANTY

- A. The following metal roofing manufacturer's warranties shall be furnished [select] and shall commence on the Date of Substantial Completion.
 - 1. Galvalume Warranty – Covering the base metal against rupture, structural failure and perforation due to normal atmospheric corrosion exposure for a period of 30 years as stated in the warranty.
 - 2. Paint Warranty – Covering the metal panel finish against cracking, checking, blistering, peeling, flaking, chipping, chalking and fading for a period of 30 years as stated in the warranty.
 - 3. Weathertightness Warranty – Covering the weathertightness performance of the metal roof for a period of [5, 10, 15, or 20] years as stated in the warranty by Union Corrugating Company.
- B. Manufacturer's Standard Warranty is to be executed by an authorized company official and submitted for Owner's acceptance. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.

PART 2 PRODUCTS

2.01 METAL ROOF PANELS

- A. Manufacturer shall be Union Corrugating Company - Fayetteville, NC. No substitutions permitted.
- B. Metal roofing panels shall be Union Corrugating's "ML200" further described:
 - 1. Sidelap seam height shall be 2"
 - 2. Panel width shall be a nominal 16". [12", 14-5/8", and 18-1/4" optional]
 - 3. Panel pan shall be striated [2 pencil ribs and flat profile optional]
 - 4. Sidelap seams shall be field locked with an electric seamer as required by the manufacturer
 - 5. Sidelap seams shall be 90 degrees [180 degree optional]
 - 6. Panels shall be rollformed from 24 gauge Galvalume steel
 - 7. Finish shall be a minimum 70 percent polyvinylidene fluoride (PVDF) commonly referred to as Kynar® resin color coat, applied to the sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
 - 8. Color to be selected from roofing manufacturer's standard colors [custom colors optional]

2.02 METAL ROOF TRIM

- A. Manufacturer shall be Union Corrugating Company - Fayetteville, NC. No substitutions permitted.
- B. Metal roofing flashings and trim shall be formed from 24 gauge steel
- C. Finish shall be a minimum 70 percent polyvinylidene fluoride (PVDF commonly known as Kynar®) resin color coat, applied to sight-exposed face of sheet after pretreatment and priming in accordance with coating manufacturer's recommendations.
- D. Color to be selected from roofing manufacturer's standard colors [custom colors optional]

2.03 METAL ROOF SYSTEM ACCESSORIES

- A. Roof panel clips shall be provided by Union Corrugating to meet project requirements.
- B. Roof panel system accessories including panel closures, sealants, venting material and other materials integral to the roofing manufacturer's weathertight details shall be provided by Union Corrugating Company.
- C. All fasteners shall be long-life fasteners selected from those provided or approved by Union Corrugating Company and shall meet the specified design loads required to secure the applicable components.
- D. Prefabricated curbs, equipment supports and vents shall be provided by Union Corrugating or selected from a list of Union Corrugating Company approved manufacturers.

PART 3 EXECUTION

3.01 MANUFACTURER INSTRUCTIONS

- A. Comply with manufacturer's product data, installation manual and recommendations for substrate verification, preparation requirements and installation.
- B. Do not use or install any materials that have been damaged.
- C. Remove manufacturer's protective film, if any, from surfaces of roofing panels.

3.02 EXISTING CONDITIONS

- A. Roofing contractor shall verify substrate conditions are acceptable for product installation in accordance with manufacturer's instructions.
- B. Roofing contractor shall verify all metal roofing support systems are ready for construction activities of this section, matching those indicated on shop drawings and confirming specified tolerances.

- C. Roofing contractor shall verify rough-in utility locations.
 - D. Roofing contractor shall immediately notify general contractor, architect and/or owner if any such conditions relating to the existing substrate condition or utility locations are unacceptable and shall delay proceeding until corrections are made.
- 3.03 PREPARATION
- A. Roofing contractor shall insure that all surfaces to which metal roofing system components will be attached are clean and dry.
 - B. Roofing contractor shall coordinate metal roofing with other work that may not be supplied by the contractor such as drainage, flashings and trim, substrates, parapets, copings, walls, and other adjoining work to provide a weathertight and noncorrosive installation.
- 3.04 INSTALLATION
- A. Install metal roof in accordance with manufacturer's installation manual, recommendations and shop drawings.
 - B. Install metal roofing system so that it is without waves, warps, buckling, fastener stress, or distortion.
 - C. Install metal roof to allow for expansion and contraction.
 - D. Align metal roofing panels plumb and straight with parallel seams as indicated on shop drawings
 - E. Verify that all joints are sealed with appropriate type sealant in accordance with manufacturer recommendations.
 - F. Provide concealed fasteners in all sidelap joints and in other locations where possible.
 - G. Install trim using concealed fasteners where possible.
 - H. Roofing contractor shall coordinate installation details and attachment of roof curbs, equipment supports or other such ancillary items such that they meet all metal roofing manufacturer requirements.
- 3.05 FIELD QUALITY CONTROL
- A. Provide periodic manufacturer's field service representation consisting of product use recommendations in accordance with manufacturer's instructions.
- 3.06 CLEANING
- A. Remove all metal shavings or filings from panels and flashings at the end of each day
 - B. After the roof has been installed, clean the site by disposing or removing excess debris, crating and materials.
 - C. Repair or replace any installed products that have been damaged other than minor finish damage.
 - D. Touch-up paint obtained from the panel manufacturer shall be used on scratches. If scratches penetrate the coating, a zinc rich primer shall be used prior to using the touch-up paint.
- 3.07 PROTECTION
- A. Protect installed product's finish surfaces from damage during construction.
 - B. Clean or power wash installed products in accordance with manufacturer's instructions prior to Owner's acceptance. This includes removing unsightly caulking with mineral spirits. Rinse residue with clean water.

END OF SECTION

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