



MARQUIS
– Insulated Metal Roof System –
Section 07612

S-MS-1E

2004-02-03

Note to Specification Writer:

The Marquis Profile produced by VICWEST can be installed as a roofing sheet on a solid surface such as a plywood roof, or as the exterior sheet of an Insulated Metal Roof System, such as the systems outlined below:

*The **Marquis System 1000** combines the use of blanket or metal building insulation over roof purlins.*

*The **Marquis System 2000** combines the use of an L800 Liner sheet, semi-rigid insulation, a structural, thermally responsive support clip system and the Marquis 300, 450 or 600 exterior profile sheet to complete the system.*

*The **Marquis System 3000** combines the use of a Structural liner (VICWEST steel roof deck profiles {RD 938/38}, {RD 308} or {RD 306}), a thermal barrier, an air/vapour barrier, rigid insulation, a structural, thermally responsive support clip system and the Marquis 300, 450 or 600 exterior profile sheet to complete the system.*

This guide specification outlines the Marquis System 3000 Insulated Metal Roof System, its components and installation requirements. Should you require a guide specification for the Marquis System 1000 or 2000, or if you wish to incorporate other variations into your roofing specification, please contact your local VICWEST office.

[Square brackets] require the specifier to insert the appropriate information.

{Braces} indicate optional specification information.

Text written in italics generally indicates notes to the specification writer.

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PART 1 — GENERAL

1.1 DESCRIPTION

- .1 General Requirements:
Division 1, General Requirements, is part of this specification and shall apply as if repeated here.
- .2 Work furnished and included: All labour and materials necessary to fabricate and install the VICWEST Marquis System 3000 Insulated Metal Roof System in accordance with this performance specification including:
 - .1 Structural liner.
Specifier Note: If the steel roof deck is specified separately under Division 5 Section [05311] then the structural liner should be removed from this section and placed in work NOT included. In addition, all further references to the supply and / or installation of the structural liner (steel roof deck) throughout this specification should be removed.
 - .2 Thermal barrier.
 - .3 Air/vapour barrier.
 - .4 Roof panel subgirt support system.
 - .5 Rigid insulation.
 - .6 Exterior metal roofing sheet.
 - .7 Accessories including associated flashings, closures, sealants {and SNAP-CAP battens if required}.
- .3 Related work not included:
 - .1 Structural framing members including purlins, base angles and other elements required to support the Metal Roofing System.
 - .2 Caulking of elements in 1.1.3.1
 - .3 Mechanical equipment and/or ductwork as well as their supporting framing.
 - .4 All flashings, flashing materials, or other sheet metal work not directly associated with the performance of the Metal Roofing System.

1.2 STANDARDS AND DESIGN CRITERIA

- .1 Design roof system in accordance with:
 - .1 CAN/CSA Standard S136 latest edition for the Design of Cold Formed Steel Structural Members.
 - .2 Canadian Sheet Steel Building Institute Standards 10M and 20M.
 - .3 National Building Code of Canada (latest edition).
- .2 Deflection of the roof system is not to exceed $[1/180\text{th}]$ $[1/240\text{th}]$ of the span for the specified live loading.
- .3 Design roof system to accommodate thermal movement of the roof sheet caused by ambient temperature range of [] to [].
- .4 Design roof system to withstand dead loads, snow loads, snow build-up and rain load. Design fastener systems to withstand wind uplift on the roof and sliding forces induced by environmental loads.
- .5 If the roof system is to be designed as a Shear Diaphragm, then the Shear Design loads “Q” and the Flexibility Factors “F” must be shown on the structural drawings.

1.3 QUALITY ASSURANCE AND SUBSTITUTIONS

- .1 Manufacturer and applicator of the Metal Roofing System shall demonstrate at least {five years} {ten years} experience in fabrication and installation of Architectural Metal Roofing projects similar in scope.
- .2 Substitutions of alternate Metal Roofing Systems not specified in this section must meet this performance standard, and will be considered as follows:
 - .1 A written request for approval of a substitution is received at least ten (10) days prior to tender closing.
 - .2 The request includes a complete item-by-item description comparing the proposed substitution to the specified system, together with manufacturer's literature, samples, test data, engineering

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- standards and performance evaluation indicating comparable standards to those specified.
- .3 Approved alternate substitutions must be shown in an addendum issued prior to the tender closing.
 - .3 Tender price must be submitted on the Total Metal Roofing System based on the performance specification.
 - .4 Manufacturer and/or approved applicator must have the single source facility to provide:
 - .1 Total design of the Metal Roofing System.
 - .2 Technical literature on tested Metal Roofing Systems.
 - .3 Engineering and drafting facilities.
 - .4 Fabrication of Metal Roofing System and associated components.
 - .5 Bonding Assurance (if required).
 - .6 Technical representatives.
 - .7 Field installation by approved certified erectors.
 - .8 A warranty / guaranty as specified under section [].
 - .9 {All fabrication / installation drawings must bear the stamp of a professional engineer registered in the province of [].}

1.4 SUBMITTALS

- .1 Submit installation (shop) drawings in accordance with Section [01300].
 - .1 Submit [] copies of installation (shop) drawings for approval to the {General Contractor} {Architect} in accordance with Division [] Section [].
 - .2 No fabrication and or installation shall commence until all shop drawings have been approved.
 - .3 Indicate arrangement of Structural liner (steel roof deck), including thickness, type and welding requirements.
 - .4 Indicate arrangement of prefinished Roof Sheet, including joints, types and locations of supports, fasteners, flashing, gutters, mitres, and all metal components related to the roof installation.
 - .5 For composite roof systems, fully detail: {Structural liner} {Thermal Barrier}, {Membrane Air/Vapour Barrier}, {Insulation}, and {Clip system} as part of the roof system.
 - .6 {Each shop drawing shall be stamped by a professional engineer registered in the province of []}
- .2 {Submit samples of coloured metal roof sheet for review by the consultant, prior to fabrication.}

1.5 HANDLING AND PROTECTION

- .1 Store roofing products in accordance with manufacturer's recommendations.
- .2 Protect prefinished steel during fabrication, transportation, site storage and erection, in accordance with CSSBI Standards.

PART 2 — PRODUCTS

2.1 COMPOSITE ROOF COMPONENTS

- .1 Structural liner: VICWEST steel roof deck profile [], fabricated from ASTM A653M structural quality Grade 230 galvanized steel, having a zinc coating of {ZF75 Galvanneal } {Z275 galvanized} as designated by ASTM A653M. Steel roof deck thickness requirements shall be specified in Section [05311] - Steel Roof Deck and on the architectural / structural drawings.
{Steel roof deck shall be prefinished [],000 Series. Colour to be [QC-]: }
{Acoustic steel roof deck, shall be used in areas indicated on the architectural / structural drawings}.
- .2 Thermal Barrier: Exterior grade gypsum sheathing to CSA A82.27M minimum thickness shall be 12 mm (1/2").
- .3 Air/Vapour Barrier: Membrane shall be {Ice and Water Shield} {Bituthene 3000} by W. R. Grace or an approved type to meet performance specified in Section []
- .4 Insulation: Rigid type {Owens Corning {AF530/703} {AF545/704} {705}} {Fibrex {1240} {1260}} {Roxul}

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{RXL60} {RXL80} of sufficient thickness to provide RSI value of [] and density of [], and designed to transfer gravity loads through the system to the structural liner.

(Specifier Note: Structural capacity for load transfer through the insulation is dependent on the type and density of the insulation. The insulations listed above have various capacities and have been approved for use by VICWEST Engineering. Contact VICWEST for current listing of approved insulations for use in Marquis System 3000 Roof assemblies.)

2.2 PREFINISHED METAL ROOFING SHEET, exposed to exterior:

- .1 Profile: VICWEST Marquis {450}{300}{600} Roofing profile, with interlocking Batten Ribs at {300 mm}, {450 mm}, {600 mm} spacing.
- .2 Profile Material: {Z275 galvanized sheet steel conforming to ASTM A653M Grade 230. having a nominal core thickness [] mm (")} or {AZ150 Galvalume, sheet steel conforming to ASTM A792M Grade 230. having a nominal core thickness [] mm (")}.
- .3 Coating: Prefinished with {Colorite®}, {10 000}, {Barrier}, {Metallic}, {Elite} Series, on {one} {two} side(s).
- .4 Colour shall be [QC-] {Barrier coating thickness shall be [] mils on exterior exposed surface of the finished profile and [] mils on the reverse.}

(Specifier Note: Coating Series and Colour MUST be specified at time of tender due to supplier policy of price by colour).

2.3 FASTENING SYSTEMS

- .1 Roof Panel Support System: Hidden fastener, purpose-made, thermally responsive full height clip system, designed to accommodate full insulation depth and allow for full thermal expansion and contraction of the exterior roof sheet. Clips to be fabricated from a minimum of 1.22 mm (.050") steel, with minimum Z275 galvanized coating.
- .2 Roof Fasteners: As specified by manufacturer, to resist wind uplift and sliding snow forces.
Specifier Note: Due to the various products and configurations under which the Marquis System 3000 may be installed, it is not possible to specify exact fasteners or fastening specifications in this section. It is recommended that for a complete design specification, you consult with VICWEST to ensure all conditions are covered and that the performance requirements are maintained.

2.4 ACCESSORIES

- .1 Flashing: In accordance with Section [07620]. Formed from same materials (thickness and finish) as the Metal Roofing Sheet. Flashings to be custom fabricated to suit architectural details, as required.
- .2 Closures: Foam and metal closures to suit profiles selected, to manufacturer's recommendations.
- .3 Sealants: As recommended by the Metal Roofing System manufacturer.
Specifier Note: Due to the various products and configurations under which the Marquis System 3000 may be installed, it is not possible to specify exact sealant specifications in this section. It is recommended that for a complete design specification, you consult with VICWEST to ensure all conditions are covered and that the performance requirements are maintained.
- .4 Subgirts: If required, subgirts shall be fabricated from a minimum 1.22 mm (.050") thick Z275 Galvanized steel.
- .5 SNAP-CAP Battens (Optional): Provide {50}, {75} mm high SNAP-CAP Batten for full length of the roof panel, complete with clips. Finish and colour to match roof sheet.
Specifier note: for the majority of installations, the SNAP-CAP Battens are not required for anything other than aesthetics. On low sloped applications, the battens are required as part of the structural design capacity of the system.
- .6 Snow Fence (if specified): Snow fence and/or Ice deflectors, shown on the architectural / structural drawings, shall be designed by a professional engineer, registered in the province of [] .

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Specifier Note: The design and location of the Snow Fence must be shown on the plans for the Metal Roofing System. The structural support framing for Snow Fence shall be designed and included as part of the structural steel framework, to resist sliding snow forces, determined by the degree of slope, the length of the slope and the geographical location of the project. For additional information on the design and integration of Snow Fences into the Insulated Metal Roof System, contact your local VICWEST office.

2.5 FABRICATION

- .1 Fabricate Metal Roofing System components to comply with dimensions, profiles, gauges and details as shown on the approved shop drawings, including all companion flashings.
- .2 Fabricate all components of the system in the factory, ready for field installation.
- .3 Provide roof sheet and all accessories in longest practicable length to minimize field lapping.

PART 3 — EXECUTION

3.1 GENERAL

- .1 Examination: Prior to proceeding with any Metal Roofing System installation, the completed installations of preceding trades shall be inspected and any remedial work required shall be reported in writing to the Architect and General Contractor for corrective measures. The installation of the Metal Roofing System shall not begin until all remedial work has been completed and accepted by this trade.

3.2 INSTALLATION

- .1 Structural liner: Install Structural liner in accordance with Section [05311] Steel Deck. Ensure installation is complete before starting roof work.
- .2 Composite Roof Materials:
 - .1 Thermal Barrier: Install exterior grade gypsum board Thermal Barrier perpendicular to flutes of Structural liner. Fasten using manufacturer's recommended fasteners, with spacing to suit wind-loading conditions, and as shown on approved shop drawings.
 - .2 Air/Vapour Barrier: Install membrane Air/Vapour Barrier according to the and to manufacturer's recommendations. Ensure all joints are properly lapped, sealed and tied in with roof and wall air/vapour barriers to ensure airtight construction. Provide a continuous seal around all openings in the insulated metal roof system.
 - .3 Support Clips: Attach Metal Roofing System Support Clips using [insert proper fastener specification here] as shown on approved shop drawings, to suit the substrate, and to resist wind uplift forces.
 - .4 Insulation: Install Insulation in one or two layers, as shown on approved shop drawings. Ensure all joints of insulation are tight and properly fitted around support clips. Insulation should be continuous. If installed in two layers, all side and end joints shall be staggered. Use loose fill Batt type insulation in areas where rigid insulation cannot be fitted.
- .3 Metal Roofing Sheet Installation
 - .1 Install exterior metal roofing sheets on support clips, in strict accordance with manufacturer's proper construction procedure. Ensure metal roofing sheet side-lap is positively locked for full length of roof {fascia}, {soffit}, and proper sheet coverage is maintained. Field cut mitres where required and install a Knee-Cap Batten at the mitre.
 - .2 Install the optional SNAP-CAP Batten, (if specified), using Snap-Cap Batten clips as shown on the approved shop drawings. Mitre Snap-Cap Batten as required.
 - .3 Where indicated on approved shop drawings, secure the end-lap of metal roofing sheets in accordance with the manufacturers specifications and details to provide a weather-tight seal.. Exposed fasteners to match colour of the roof sheet.
 - .4 Install notched and formed closures in accordance with approved shop drawings. Seal against weather penetration, at changes in pitch, and at ridges and eaves, where required.

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.5 Install all companion flashings {gutters}, {ventilators} as shown on approved shop drawings.

3.3 TOUCH-UP AND CLEANING

- .1 Touch up minor paint abrasions with touch-up paint.
- .2 Clean excessive foreign materials from the roof by dry wiping.

PART 4 — GUARANTEE / WARRANTY

4.1 GUARANTEE / WARRANTY

- .1 Upon completion of the Metal Roofing System installation, an industry standard guarantee / warranty shall be provided to the General Contractor for a period of two (2) years in accordance with C.R.C.A. recommendations covering material, roof leaks and installation workmanship.
- .2 All material guarantee / warranty shall be subject to the terms and conditions set forth by the material coil producer.

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