

**PART 1 - GENERAL****1.1 RELATED REQUIREMENTS**

- .1 Section 01 74 19 – Waste Management and Disposal.
- .2 Section 06 20 00 – Finish Carpentry.
- .3 Section 07 56 14 – Protected Liquid Elastomeric Roofing Membrane Cold Application System.
- .4 Section 07 92 00 – Joint Sealants.

**1.2 REFERENCE STANDARDS**

- .1 The Aluminum Association Inc. (AAI)
    - .1 AA Aluminum Design Manual 2015 Part VIII Guidelines for Aluminum Sheet Metal Work in Building Construction.
    - .2 AAI DAF45-2003(R2009), Designation System for Aluminum Finishes.
  - .2 American Architectural Manufacturers Association (AAMA)
    - .1 AAMA 611-14 Voluntary Specifications for Anodized Architectural Aluminum.
    - .2 AAMA 621-02 Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Substrates.
    - .3 AAMA 2603-15, Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels.
    - .4 AAMA 2604-13 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.
    - .5 AAMA 2605-13 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
  - .3 American National Standards Institute (ANSI)
    - .1 ANSI/SPRI/FM 4435/ES-1, Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems 2011.
  - .4 ASTM International
    - .1 ASTM A 240/A 240M-16, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
    - .2 ASTM A 606/A 606M-15, Standard Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, with Improved Atmospheric Corrosion Resistance.
    - .3 ASTM A 653/A 653M-15e1, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
    - .4 ASTM A 755/A 755M-16e1 Standard Specification for Steel Sheet, Metallic coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
    - .5 ASTM A 792/A 792M-10(2015), Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
    - .6 ASTM B 32-08(2014), Standard Specification for Solder Metal.
    - .7 ASTM B 209-14 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
    - .8 ASTM D 523-14, Standard Test Method for Specular Gloss.
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- .9 ASTM D 1970/D 1970M-15a Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- .10 ASTM D 4587-11 Standard Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings.
- .11 ASTM F 1667-15 Standard Specification for Driven Fasteners: Nails, Spikes and Staples.
- .5 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
- .6 Canadian Roofing Contractors Association (CRCA)
  - .1 Roofing Specifications Manual 2012.
- .7 Canadian Sheet Steel Building Institute (CSSBI)
  - .1 CSSBI S8-2008 Quality and Performance Specification for Prefinished Sheet Steel Used for Building Products.
  - .2 CSSBI B17-2002 Barrier Series Prefinished Steel Sheet: Product Performance & Applications.
  - .3 CSSBI Sheet Steel Facts #12 2003 Fastener Guide for Sheet Steel Building Products.
- .8 CSA Group
  - .1 CSA A123.3-05(2015), Asphalt Saturated Organic Roofing Felt.
  - .2 CSA A123.22-08(2013) Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- .9 FM Global
  - .1 Property Loss Prevention Data Sheets 1-49 Perimeter Flashing.
- .10 Green Seal Environmental Standards
  - .1 Standard GS-11-2015, Paints, Coatings, Stains, and Sealers.
  - .2 Standard GS-36-2013, Adhesives for Commercial Use.
- .11 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .12 Sheet Metal and Air Conditioning Contractors Association of North America (SMACNA)
  - .1 Architectural Sheet Metal Manual (2012)
  - .2 Residential Sheet Metal Guidelines (2001)

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data:
    - .1 Submit manufacturer's printed product literature including product specifications and technical data sheets for sheet metal flashing fasteners and accessory materials. Include product characteristics, performance criteria, physical size, finish and limitations.
    - .2 Submit two (2) copies WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 35 29.06 - Health and Safety Requirements.
  - .3 Shop Drawings:
    - .1 Submit shop drawings [for all sheet metal fabrications.
    - .2 Indicate sheet thickness, flashing dimensions and fastenings. Include anchorage, expansion joints and other provisions for thermal movement.
    - .3 Submit manufacturer's catalogue cut sheets for manufactured items.
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- .4 Samples:
  - .1 Submit duplicate 50 x 50 mm samples of each type of sheet metal material, finishes and colour.

#### **1.4 PRE-INSTALLATION MEETING**

- .1 Include sheet metal flashing and trim on agenda of pre-installation meetings of affected sections.

#### **1.5 MOCK-UPS**

- .1 Include flashings in mock-ups as specified for work of other affected sections.

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Handle and store flashing materials to prevent creasing, buckling, scratching, or other damage.
- .3 Waste Management and Disposal:
  - .1 Waste Management and Disposal:
    - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .2 Package Waste Management: recover packaging waste for reuse and manufacturer reuse of packaging materials such as pallets, crates, boards and other packaging material, in accordance with Section 01 74 19 – WASTE MANAGEMENT AND DISPOSAL.

#### **1.7 WARRANTY**

- .1 Roofing contractor will issue a written warranty in the owner's name against all labour and material defects for a period of one (1) year from the date of Substantial Completion of work.
- .2 Provide a written manufacturer warranty on prepainted galvanized steel flashings against any defects to the factory applied exterior finish during the warranty period, from the date of Substantial Completion of installation work, against any cracking, flaking or peeling (loss of adhesion). The product is guaranteed for vertical and non-vertical applications, for degree of discoloration and surface chalk-in, and shall be compliant to efficiency criteria. The warranty period specified in general conditions is prolonged by sixty (60) months.

### **PART 2 - PRODUCTS**

#### **2.1 BASE SHEET METAL MATERIALS**

- .1 Provide sheet metal in base metal thickness specified. Where no thickness specified, provide base sheet metal in thickness recommended in SMACNA Architectural Sheet Metal Manual for type of item being fabricated, but not less than the thickness required by the authority having jurisdiction.
  - .2 Zinc coated steel sheet: 24-gauge (0.604 mm thickness, base) for flashings and 20-gauge (0.911 mm thickness, base) for cap flashings, or as indicated in drawings, commercial quality, to ASTM A 653/A 653M, with Z275 designation zinc coating, indicated as galvanized steel in drawings.
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**2.2 PREFINISHED STEEL SHEET**

- .1 Prefinished steel sheet with coating system consisting of base metal pre-treatment, primer, with two (2) silicone modified polyester or polyester topcoats, total sheet thickness 0.9 to 1.1 mils.
  - .1 Category F1S.
  - .2 Colour selected by Architect from standard colours offered by manufacturer. Provide 1 colour for the project.

**2.3 ACCESSORIES**

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Pourable sealer: proprietary two-part polyurethane pourable sealer designed for sealing penetration pockets.
- .3 Loose laid underlay for metal flashing: dry sheathing to CAN/CGSB-51.32.
- .4 Self-adhesive membrane underlay and tie-in membrane for metal flashings: To CSA A123.22 or ASTM D 1970.
- .5 Sealants: in accordance with Section 07 92 00, in colour to match flashing finish colour.
- .6 Cleats and hook strips: of same material, and temper as sheet metal, minimum 50 mm wide
- .7 Nails: of same material as sheet metal, [ring thread] flat head roofing nails of length and thickness suitable for application.
- .8 Screws: of same material as sheet metal, suitable for substrate and material being fastened.
- .9 Flux: rosin, cut hydrochloric acid, or commercial preparation suitable for materials to be soldered.
- .10 Touch-up paint: as recommended by prefinished material manufacturer.

**2.4 FABRICATION**

- .1 Fabricate sheet steel flashings and other sheet steel work as indicated in drawings.
- .2 Form pieces in 2400 mm maximum lengths.
  - .1 Make allowance for expansion at joints.
- .3 Hem exposed edges on underside 12 mm.
  - .1 Mitre and seal corners with sealant.
- .4 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .5 Apply isolation coating to metal surfaces to be embedded in concrete or mortar.

**2.5 METAL FLASHINGS**

- .1 Form flashings, cap flashings, copings and fascias to profiles indicated in drawings, with prepainted galvanized steel sheets.
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## **2.6 REGLETS AND CAP FLASHINGS**

- .1 Form recessed reglets (concealed fasteners) destined to receive flashing. The metal cap flashings of sheet metal to be built-in concrete work for base flashings in accordance to drawing details.
  - .1 Provide slotted fixing holes and steel/plastic washer fasteners.
  - .2 Cover face and ends with plastic tape.

## **PART 3 - EXECUTION**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

### **3.2 INSTALLATION**

- .1 Install sheet metal work in accordance with CRCA FL series details and the AMCQ's indications.
- .2 Use concealed fastenings except where approved by Departmental Representative before installation, that they may be left exposed.
- .3 Provide underlay under sheet metal.
  - .1 Secure in place and lap joints 100 mm.
  - .2 Provide self-adhesive membrane to tie into adjacent assemblies.
- .4 Counterflash bituminous flashings at intersections of roof with vertical surfaces and curbs.
  - .1 Flash joints using standing seams forming tight fit over hook strips, as indicated.
- .5 Lock end joints and caulk with sealant.
- .6 Install surface mounted reglets true and level, and caulk top of reglet with sealant.
- .7 Insert metal flashing into reglets to form weather tight junction.
- .8 Turn top edge of flashing into recessed reglet or mortar joint minimum of 25 mm. Lead wedge flashing securely into joint.
- .9 Caulk flashing at reglet with sealant.
- .10 Install pans, where shown around items projecting through roof membrane.
- .11 Where flashing installed with mechanical fasteners, install fasteners in slots or oversize holes to allow expansion and contraction of flashings.
- .12 Provide isolation coating or impervious self-adhesive membrane to separate aluminum items from concrete and masonry.

### **3.3 CLEANING**

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
  - .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
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- .3 Leave work areas clean, free from grease, finger marks and stains.
- .4 Waste Management and Disposal:
  - .1 Sort waste for re-use and/or recycling in accordance with Section 01 74 19 – Waste Management and Disposal (CRD)

**END OF SECTION**

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