

Part 1 General

1.1 REFERENCES

- .1 ASTM International
 - .1 ASTM A167-, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A240/A240M-, Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - .3 ASTM A653/A653M-, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .4 ASTM A792/A792M-, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process.
 - .5 ASTM B32-, Standard Specification for Solder Metal.
 - .6 ASTM B370, Standard Specification for Copper Sheet and Strip for Building Construction.
 - .7 ASTM D523-, Standard Test Method for Specular Gloss.
 - .8 ASTM D822-, Standard Practice for Filtered Open-Flame Carbon-Arc Exposures of Paint and Related Coatings.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-37.5-, Cutback Asphalt Plastic Cement.
 - .2 CAN/CGSB-37.29-, Rubber-Asphalt Sealing Compound.
 - .3 CAN/CGSB-51.32-, Sheathing, Membrane, Breather Type.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for sheet metal roofing and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit an electronic copy of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by a professional engineer registered or licensed in Province of Québec, Canada.
- .4 Samples:
 - .1 Submit duplicate 300 x 300 mm samples of each sheet metal material.

1.3 QUALITY ASSURANCE

- .1 Mock-ups:

- .1 Submit mock-ups in accordance with Section 01 45 00 - Quality Control.
- .2 Fabricate 300 x 300 mm sample roofing panel using identical project materials and methods to include typical seam.
- .3 Mock-up will be used:
 - .1 To judge workmanship, substrate preparation, operation of equipment and material application.
- .4 Locate where directed.
- .5 Allow 24 hours for inspection of mock-up by Departmental Representative before proceeding with sheet metal flashing work.
- .6 When accepted, mock-up will demonstrate minimum standard of quality required for this Work.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Store and protect sheet metal roofing from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

When materials or products are prescribed by their trademark, see the Instructions to Bidders to find out the procedure concerning the request for approval of materials or substitutes.

2.1 PREFINISHED STEEL SHEET

- .1 Prefinished steel with factory applied polyvinylidene fluoride.
 - .1 Colour selected by Departmental Representative from manufacturer's standard range.
 - .2 Coating thickness: 22 micrometres minimum.
 - .3 Resistance to accelerated weathering for chalk rating of 8, colour fade 5 units or less and erosion rate less than 20 % to ASTM D822 as follows:
 - .1 Outdoor exposure period 2500 hours minimum;
 - .2 Humidity resistance exposure period 5000 hours minimum.

2.2 ACCESSORIES

- .1 Isolation coating: alkali resistant bituminous paint.
- .2 Plastic cement: to CAN/CGSB-37.5.
- .3 Waterproof membrane:
 - .1 Self-adhesive, coated with SBS modified bitumen and resistant to high temperature.
 - .2 Acceptable products:
 - .1 SOPREMA LASTOBOND SHIELD HT;
 - .2 BAKOR BLUESKIN PE 200 HT;
 - .3 GRACE ULTRA;
 - .4 Substitute materials or products: approved by addendum in accordance with the Instructions to Bidders.
- .4 Sealant: Asbestos-free sealant, compatible with systems materials, recommended by system manufacturer.
- .5 Cleats: of same material, and temper as sheet metal: 50 mm minimum wide.
 - .1 Thickness same as sheet metal being secured.
- .6 Fasteners: concealed.
- .7 Washers: of same material as sheet metal, 1 mm thick with rubber packings.
- .8 Touch-up paint: as recommended by sheet metal roofing manufacturer.

2.3 FABRICATION

- .1 Make allowances for expansion at joints.
- .2 Hem exposed edges on underside 12 mm, mitre and seal.
- .3 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.
- .4 Apply minimum 0.2 mm dry film thickness coat of plastic cement to both faces of dissimilar metals in contact.
- .5 Protect metals against oxidization by backpainting with isolation coating where indicated.
- .6 Tin edges of copper sheets to be soldered for width of 40 mm both sides with solder.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for sheet metal roofing installation in accordance with manufacturer's written instructions.
 - .1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

- .2 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 INSTALLATION

- .1 Use concealed fastenings except where approved in writing by Departmental Representative before installation.
- .2 Include underlay under sheet metal roofing.
 - .1 Secure in place and lap joints 100 mm minimum.
- .3 Apply slip sheet over underlay to prevent bonding.
 - .1 Secure with anchorage and lap joints 50 mm minimum in direction of waterflow.
- .4 Install sheet metal roof panels using cleats spaced at 406 mm maximum on centre.
- .5 Secure cleats with 2 fasteners each and cover with cleat tabs.
- .6 Align transverse seams in adjacent panels.
- .7 Flash roof penetrations with material matching roof panels, and make watertight.
- .8 Form seams in direction of water-flow and make watertight.
- .9 Perform soldering with well heated coppers, heat seam thoroughly and sweat solder through its full width.
- .10 Clean and flux metals before soldering.
- .11 Follow sheet metal manufacturer's recommendations for soldering procedures.
- .12 As work progresses, neutralize excess flux with 5% to 10% washing soda solution, and thoroughly rinse. Leave work clean and free of stains.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by sheet metal roofing installation.

END OF SECTION