

## **PART 1 – GENERAL**

### **1.1 RELATED WORK**

- .1 Division 1: General Requirements.
- .2 Section 05 12 23: Structural Steel for Buildings.

### **1.2 REFERENCE STANDARDS**

- .1 American Society for Training and Materials (ASTM International)
  - .1 ASTM A653-13, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dip Process.
  - .2 ASTM A924-14, Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process.
  - .3 ASTM B633-11 Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Primer
- .3 Canadian Standards Association (CSA International)
  - .1 CSA S16-14, Design of Steel Structures
  - .2 CAN/CSA-S136-12, North American Specification for the Design of Cold Formed Steel Structural Members
  - .3 CSA W47.1-09 (R2014), Certification of Companies for Fusion Welding of Steel
  - .4 CSA W59-13, Welded Steel Construction, (Metal Arc Welding)
- .4 Canadian Sheet Steel Building Institute (CSSBI)
  - .1 CSSBI 10M-08, Standard for Steel Roof Deck
  - .2 CSSBI 12M-08, Standard for Composite Steel Deck
- .5 Steel decking work to Canadian Sheet Steel Building Institute Standards for Steel Roof Deck except where specified otherwise.
- .6 Design, fabrication and erection to CSA S16 and CAN/CSA-S136.
- .7 Welding to CSA W59 except where specified otherwise.

### **1.3 DESIGN CRITERIA**

- .1 Structural design of steel decking shall be in accordance with the requirements of Canadian Sheet Steel Building Institute Standards for Floor and Roof Decking. Loads shown on the drawings are specified loads.
- .2 Steel decking shall safely carry indicated dead and live loads without exceeding maximum working stress of 144 MPa.
- .3 Deflection under live load only shall not exceed 1/360th of span.

- .4 Refer to the drawings for depths and minimum gauges.

## **1.4 SHOP DRAWINGS**

- .1 Submit shop drawings in accordance with Division 1.
- .2 Clearly indicate decking plan, profile, dimensions, core thickness, anchorage, spans, supports, projections, openings, and reinforcement details and accessories.
- .3 Shop drawings shall clearly indicate the roof slopes, high points and low points and the deck shall be properly detailed, designed and fabricated to consider roof slopes.
- .4 Each shop drawing shall bear the stamp and signature of a qualified professional Engineer registered or licensed to practice lawfully in the Province of Nova Scotia.
- .5 Indicate details of temporary shoring of steel deck such as location, time and duration of placement and removal of shoring.
- .6 All shop drawings and material lists are to contain a blank area measuring 70 mm high by 100 mm long located near the bottom right hand corner of the drawing or page. This area is to be reserved for the Departmental Representative's review stamp.

## **PART 2 – PRODUCTS**

### **2.1 MATERIALS**

- .1 Metal: to ASTM A653 galvanized steel sheet to ASTM A924, Grade A structural quality. Maximum working stress 144 MPa. Zinc thickness to Z275
- .2 Pre-moulded closures: closed cell foam rubber, profiled to deck corrugations, 25 mm thick.
- .3 Use of scrap metal, end and side pieces, etc., is not permitted.
- .4 Cover plates, cell closures and flashing: galvanized steel sheet with minimum steel core thickness of 1.22 mm.
- .5 Closures to external walls: pre-moulded type.
- .6 Primer: zinc rich, ready mix primer to CGSB-1.181, VOC compliant.
- .7 Screws to connect roof deck units together at overlapping sidelaps to be No. 12 Hilti S-SLC 02M HWH or approved equal.

### **2.2 TYPES OF DECKING**

- .1 Roof deck: 1.52 mm minimum core thickness, 38 mm deep profile, non-cellular, overlapping side laps with flutes on 152 mm centers, maximum distance between upper flanges to be 67 mm.

- .2 All deck units shall have overlapping sidelaps for the proper lateral distribution of vertical loads and in order that all units may be tied together as a diaphragm to resist and transfer lateral forces acting on the structure.

## **PART 3 – EXECUTION**

### **3.1 ERECTION**

- .1 Erection of the steel deck shall be performed by the erection forces of the manufacturer or his approved agents and to his instructions.
- .2 Steel deck shall be placed on the supporting steel framework and adjusted to final position before being permanently fastened. Each unit shall be brought to proper bearing.
- .3 All deck shall be fastened to the supporting steel framework with 20 mm diameter fusion welds except that powder actuated fasteners shall be used in areas where deck is being connected to steel with special paint or steel that has been hot dipped galvanized.
- .4 All welding shall be done by competent, experienced welding mechanics. All welds shall be given a protective coat of approved paint primer, promptly upon completion.
- .5 All powder actuated fasteners shall be installed by a trained operator as per the manufacturer's instructions using the appropriate tools. Fasteners shall be driven into the base material so that the two metal washers are tight together, pressing the deck sheet firmly against the base material, but not cutting into the deck material.
- .6 All steel deck shall be connected as follows, except where noted otherwise.
- .7 Roof deck units shall be connected to supporting members at 150 mm centers in each direction. Roof deck shall also be connected at each intermediate deck support (IDS) with 2 welds/fasteners and at other locations shown on the drawings and noted in the specifications.
- .8 Roof deck units shall be lapped at ends not less than 100 mm.
- .9 All sidelaps of roof deck shall be connected at 300 mm centers with #12 screws.
- .10 Deck shall be fabricated and installed so that it fits the roof slopes indicated on the drawings.
- .11 All deck to span 3 spans minimum unless detailed otherwise.
- .12 Contractor is responsible for additional temporary/permanent support of metal decking, metal edge forms, etc. as required to keep material in proper position during construction.

### **3.2 COORDINATION**

- .1 Coordinate the extent of metal deck with the architectural drawings and verify requirements of other trades for dimensioning and detailing of roof and floor openings.

**END OF SECTION**