

Roof Deck Specification



Division 05 Section 05 31 00 Steel Roof Deck

Part 1 - General

1.1 DESCRIPTION

1. General Requirements

Division 1, General Requirements, is a part of this specification and shall apply as if repeated here.

2. Work Furnished and Included:

1. Steel roof deck.
2. Holes cut in the deck for other trades.
3. Hole and edge reinforcing welded to deck.
4. Closures.
5. Metal Up stands.

3. Related Work Not Included:

1. Bearing plates, shelf angles and other structural steel required to support the steel roof deck.
2. Steel joists.
3. Reinforcing or structural framing of openings in the steel roof deck exceeding 450 mm (18 inches) across the flutes.
4. Clip angles at columns to support the steel roof deck.
5. Shear transfer elements for Shear Diaphragm Design.
6. Field painting including touch-up to the underside of the steel roof deck or the top chords of the flanges of supporting steel members where discolouration due to welding has occurred.
7. Mechanical clips, nails, adhesives or other fasteners for securing insulation, thermal barriers or vapour retarder to the steel roof deck.
8. Wood nailers, cants, vapour retarder, insulation, thermal barrier, water-proofing membrane and ballast.

1.2 STANDARDS

1. Design roof deck in accordance with the latest edition of:

1. C.S.A. S136 North American Specification for the Design of Cold Formed Steel Structural Members.
2. CAN/C.S.A. S16 Limit States Design of Steel Structures.
3. C.S.A. W47.1 Certification of Companies for Fusion Welding of Steel Structures.

4. Canadian Sheet Steel Building Institute (CSSBI) Standard for Steel Roof Deck 10M.
5. National Building Code of Canada.

1.3 DESIGN CRITERIA

1. Design the steel roof deck using Limit States Design
2. Design the steel roof deck to resist
 - live and dead loads as specified and shown on the tender documents
 - net uplift forces as specified and shown on the tender documents
 - diaphragm action lateral loads as specified and shown on the tender documents

(Specifier note: The steel roof deck should NOT be used for the support or attachment of suspended ceiling hangers or materials of other trades).
3. Deflection of the roof deck is not to exceed 1/240th of the span of the specified live loading.
4. Where possible, span deck over four or more structural supports (3 continuous spans).
5. The steel roof deck supporting steel elements shall have a minimum thickness of 2.5 times the thickness of the steel roof deck [but not less than 2.5 mm (0.098 inches)] and a minimum width equal to the depth of the steel roof deck profile [but not less than 38 mm (1.50 inches)].

1.4 SUBMITTALS

1. Submit shop drawings in accordance with Section 01 33 23.

1. Indicate arrangement of steel roof deck including:
 1. Location, type and nominal thickness of deck
 2. Design loads
 3. Uplift pressures
 4. Opening locations and reinforcement
 5. Welding details
 6. Closure plates and flashing location and attachment
 7. Sufficient details to facilitate installation

1.5 HANDLING AND PROTECTION

1. Store steel roof deck in accordance with CSSBI Standard 10M
2. Protect steel roof deck during fabrication, transportation, site storage and erection, in accordance with CSSBI Standards.

Part 2 - Products

2.1 MATERIALS

1. Steel roof deck:

1. Fabricated from ASTM A653M SS Grade 230 galvanized steel, with a zinc coating of {ZF75 Glavanneal}, {Z275 Galvanized}, as designated by ASTM A653M. {Use acoustic deck where indicated on drawings}. (*Specifier note: Prefinished steel is an optional material available for standard or acoustic steel roof deck. This material requires additional handling and mechanical fastening (not welded) techniques during installation.*)
2. Nominal steel core thickness 0.76 mm (0.030 inches) minimum.
3. Provide sections with interlocking side joints.

2. Insulation strips for use with Acoustic Steel roof deck shall be fiberglass of density 17.6 kg/m³ (1.1 lb/ft³).

3. Accessories: Cover plates, cell closures, web stiffeners, edge strips and flashings to be the same material and finish as steel roof deck.

4. Acceptable Product: Vicwest Roof Deck profile [RD938], [RD308], [RD306].

Part 3 - Execution

3.1 GENERAL

1. Examination: Examine work of other trades over which roof deck will be applied for conformity to drawings. Report all discrepancies to consultant before beginning work on the roof system.

2. Certification: The steel deck welders must be certified under C.S.A. W47.1 for fusion of steel roof decks.

3. Protection: Protect steel roof deck during construction in accordance with CSSBI standards.

3.2 INSTALLATION

1. Steel roof deck:

1. Install steel roof deck in accordance with C.S.A. S136 and CSSBI 10M.
2. Install deck free of dirt, scale or foreign matter.
3. Place deck in final position before securing to supporting members, ensuring minimum bearing on the structural support equal to the depth of the steel roof deck profile.
4. Steel roof deck units shall be adequately fastened to structural supports. The maximum spacing of fasteners along bearing supports shall be 400 mm (16 inches) or two flute spacings, whichever is the lesser. Arc spot welds shall have a 20 mm (3/4 inch) nominal top diameter. (Closer spacing may be required for roof decks designed as a shear diaphragm or spanning widely spaced supports).
5. Side laps of adjacent units shall be mechanically fastened at intervals not greater than 900 mm (36 inches). (Closer spacing may be required for roof decks designed as a shear diaphragm).

2. Closures:

1. Install closures in accordance with details indicated on tender drawings and approved shop drawings, to ensure effective closure against weather, thermal and acoustic effects.

3. Openings:

1. Cutting and reinforcing of openings in the steel roof deck shall be done at the time of the installation of the steel roof deck.
2. Openings shall be located and marked on the steel roof deck by the General Contractor.
3. No reinforcement is required for openings smaller than 150 mm (6 inches).
4. Reinforce deck openings with any one dimension between 150 mm (6 inches) and 450 mm (18 inches) as indicated, or as per CSSBI Standard for Steel Roof Deck 10M.
5. Openings in excess of 450 mm (18 inches), and areas of concentrated load, shall receive suitable structural framing. Refer to Structural Steel Section 05 12 00.

3.3 TOUCH-UP AND CLEANING

1. Welds:

1. After deck is secured in place, touch-up welds on the top surface of the steel roof deck with a compatible primer.
2. **Site: Leave deck clean and well prepared for subsequent trades.**