

05 13 13 Steel Roof Deck

The following specification for Vulcraft® steel roof deck contains numbers and titles applicable to MasterFormat® 2012 from the Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC). Electronic versions are available for download from Vulcraft's website (www.vulcraft.com) for qualified design and construction professionals in preparation of site specific construction specifications.

User Note: User notes are not part of the specification. Values in [square brackets] indicate options in which one or more should be selected for the specification.

1. General

- 1.1. Related Documents: Drawings and General Provisions of the Contract Documents, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.
- 1.2. Summary: This section pertains to steel roof deck and accessories as shown on the contract documents, including basic layout, types of deck units, and attachments required.

A. Related Sections:

1. Division 5 Sections: Structural Steel, Steel Joists or Cold-Formed Steel Framing that support the steel roof deck
- B. Requirements for field painting, fireproofing, roof sumps, flashings, drains, collars, gutters, downspouts, insulation and other miscellaneous items are specified elsewhere.

1.3. Performance Requirements

A. Diaphragm Values:

1. The gage, attachment to supports, and PunchLok II® sidelap connections (VSC2) of the deck are designed to provide allowable diaphragm shear and shear stiffness in accordance with the Vulcraft PunchLok II Catalog. Other recognized systems will be acceptable as an equal only if they meet the required diaphragm shear, shear stiffness, and diaphragm shear in combination with the required wind uplift shown on the structural drawings. The proposed sidelap connection shall be hazard-free with no exposed sharp edges that can cut cables or hoses, and shall allow measurement-free visual inspection.

B. Factory Mutual Listing: Provide roof deck units which have been evaluated by Factory Mutual, FM Standard 4451.

User Note: Delete Factory Mutual section when not required for the project. Only include the Factory Mutual section when a Factory Mutual rating for the roof assembly, including the steel roof deck, other related materials such as fasteners, insulation, and roof coverings is required.

1. Provide roof deck units which have been evaluated by Factory Mutual, FM Standard 4451.
2. Provide roof deck units that meet Factory Mutual "Class 1" fire rated construction for the roof assembly.
3. Provide roof deck units and roof deck connections that meet Factory Mutual [Class 1-60][class 1-75][Class 1-90] wind uplift performance for the roof assembly that meet Factory Mutual [Class 1-60][class 1-75][Class 1-90] wind uplift performance.

1.4. Submittals

- A. General: Submit each item in this Article according to the conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of decking specified, including dimensions of individual components, profiles, and finishes.
- C. Shop Drawings showing location of deck units, anchorage details, accessories specified on the contract documents, and other information required for a thorough review.
- D. Product Certificates
 - 1. Steel deck manufacturer's certification that they are a member of the Steel Deck Institute.
 - 2. Steel deck manufacturer's product certification that steel deck meets ANSI/SDI RD-2010.
 - 3. Steel deck product manufacturer's certification that the steel meets or exceeds specified recycled content requirements.

User Note: Only included recycled content certificate if the project requires a minimum recycled content.
- E. Welder Certificates signed by the Contractor certifying that welders comply with requirements specified under "Quality Assurance" Article 1.5. If mechanical fasteners are used, independent test reports or evaluation reports shall be provided by the fastener manufacturer

1.5. Quality Assurance

- A. Codes and Standards: Comply with applicable provisions of the following specifications:
 - 1. AISI S100-12, North American Specification for the Design of Cold-Formed Steel Structural Members
 - 2. AISI S310-13 North American Standard for the Design of Profiled Steel Diaphragm Panels
 - 3. AWS D1.3:2008, Structural Welding Code-Sheet Steel
 - 4. ANSI/SDI RD-2010, Standard for Steel Roof Deck
- B. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved, and, if applicable, has undergone recertification.

1.6. Delivery, Storage, and Handling

- A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage and handling.
- B. If ground storage is needed, the deck bundles must be stored off the ground, with one end elevated to provide drainage. Bundles must be protected against condensation with a ventilated waterproof covering. Bundles must be stacked so there is no danger of tipping, sliding, rolling, shifting or material damage. Bundles must be periodically checked for tightness, and retightened as necessary.
- C. Acoustic Insulation shall be stored in an area protected from weather until installation.

2. Products

2.1. A manufacturer offering deck products to be incorporated into the work must be a member of the Steel Deck Institute.

2.2. Deck Materials:

User Note: The specifier must choose the appropriate section(s) and eliminate those not applicable.

- A. Sheet steel for deck and accessories shall conform to ANSI/SDI RD - 2010, Section 2.1.A, 2.1.B, 2.1C, and 2.1.D.
- B. Galvanized steel deck shall be ASTM A653 SS [Grade 50][Grade 80] with a minimum metallic coating weight of [G30] [G60] [G90]

or

User Note: Cellular steel deck is not available with white primer paint.

- C. Primer coated galvanized steel deck shall be ASTM A653 SS [Grade 50][Grade 80] with a minimum metallic coating weight of [G01] [G30] [G60] [G90] with manufacturer's standard [gray] [white] primer coating.

or

User Note: Cellular steel deck is not available with primer paint on bare steel (ASTM A1008).

- D. Primer coated ASTM A1008 SS (bare steel) [grade 50] [grade 80] primer coated with manufacturer's standard [gray] [white] primer paint.
- E. The deck type and gage (thickness) shall be as shown on the plans.
- F. Whenever possible, the deck shall be multi-span.
- G. Steel shall have a minimum [##]% recycled content.

User Note: Only included if the project requires a minimum recycled content. Contact Vulcraft for current recycled content options.

2.3. Deck Types:

User Note: The specifier must choose the appropriate section(s) and eliminate those not applicable.

- A. 1.5PLB steel roof deck, 36" wide, 1-1/2" deep, gage as specified on the plans
- B. 3.0PLN steel roof deck, 24" wide, 3" deep, gage as specified on the plans
- C. 1.5PLBP cellular steel roof deck, 36" wide, 1-1/2" deep, gage combination as specified on the plans
- D. 3.0PLNP cellular steel roof deck, 24" wide, 3" deep, gage combination as specified on the plans
- E. 1.5PLBA acoustical steel roof deck web perforated with a minimum NRC rating of 0.60, 36" wide, 1-1/2" deep, gage as specified on the plans
- F. 3.0PLNA acoustical steel roof deck web perforated with a minimum NRC rating of 0.65, 24" wide, 3" deep, gage as specified on the plans
- G. 1.5PLBPA cellular acoustical steel roof deck with a minimum NRC rating of 0.70, 36" wide, 1-1/2" deep, gage combination as specified on the plans
- H. 3.0PLNPA cellular acoustical steel roof deck with a minimum NRC rating of 0.70, 24" wide, 3" deep, gage combination as specified on the plans
- I. Substitutions: [Section 01 60 00 – Product Requirements] [Not Permitted]

2.4. Accessories

- A. Sheet steel for accessories shall conform to ANSI/SDI RD - 2010.
 - 1. Sump Pans, Sump Plates, Valley Strips, Eave Strips, Edge Closures, Cell

Closures: Fabricated of metal of same type and finish as deck. Galvanized unpainted steel may be used in lieu of primer painted accessories with primer painted steel deck.

- B. Flute Closures: Closed cell foam rubber profiled to fit deck.

User Note: Delete section for acoustical batts if no acoustical deck is specified.

- C. Acoustical Batt Insulation:

1. Acoustical batts per Section 09 81 00. Acoustical batts, packed into each flute of deck, furnished for non-cellular acoustical deck 1.5PLBA and 3.0PLNA shall be FURNISHED and NOT INSTALLED by the deck manufacturer.
2. Acoustical batts per Section 09 81 00. Acoustical batts, packed into each cell, furnished for 1.5PLBPA and 3.0PLNPA for Acoustical Cellular Deck, shall only be FURNISHED and NOT INSTALLED in the cellular Acoustical Deck by the steel deck manufacturer.

3. Execution

- 3.1. Examine support framing and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance of work of this section. All OSHA rules for erection must be followed.

3.2. Preparation

- A. Place deck in accordance with approved installation drawings.
- B. Locate deck bundles to prevent overloading of support members.

3.3. Installation: General

- A. Install deck panels and accessories according to ANSI/SDI RD – 2010, manufacturer's instructions, and in accordance with approved installation drawings and requirements of this Section.
- B. Place deck panels on structural supports and adjust to final position with ends aligned. Attach firmly to the supports immediately after placement in order to form a safe working platform.
- C. Cut and neatly fit deck units and accessories around openings and other work projecting through or adjacent to the decking.
- D. Bearing: Install deck ends over supports with a minimum end bearing of 1-1/2 inches (38 mm) and 3 inches (76 mm) at interior supports unless otherwise shown on approved installation drawings or manufacturers literature.
- E. Deck End Laps: Where specified on the plans install deck end laps over supports with a minimum end lap of 2 inches (38 mm).
- F. Side Closures: Fasten to supporting structure and deck in accordance with approved installation drawings.
- G. Ridge and valley plates, flat plates at changes of deck direction and sump pans, shall be fastened to the deck in accordance with approved installation drawings.
- H. Reinforce steel deck openings per contract documents and approved shop drawings.
- I. Trades that subsequently cut unscheduled openings through the deck are responsible for reinforcing the openings.

3.4. Attachment: Roof Deck

- A. Fasten deck and accessories in accordance with requirements of ANSI/SDI RD –

2010 and manufacturer's recommendations.

B. Fasten deck in accordance with the attachment schedule in the approved installation drawings

C. Fasten deck to steel support members at ends and intermediate supports with:

User Note: Delete fastening systems to support members that are not as specified on the plans for the project.

1. 3/4" visible diameter arc spot welds or 3/8" wide by 1" long arc seam welds in accordance with AISI S100.

or

2. Hilti fasteners power actuated fasteners

or

3. Pneutek fasteners power actuated fasteners.

or

4. SDI Recognized #12 or #14 self-drilling, self-tapping screws.

3.5. Fasten deck sidelaps with the Vulcraft PunchLok II® tool to create interlocking VSC2 connection at spacing designated on the approved installation drawings.

4. Field Quality Assurance

4.1. Welding: Inspect welds according to AWS D1.3

4.2. Power actuated fasteners: Inspect in accordance with manufacturer's recommendations

4.3. Vulcraft PunchLok II System: Inspection according to Vulcraft PunchLok II User Guide.

4.4. Repairs: Before placement of roof insulation and roof covering, the deck shall be inspected for tears, dents or other damage that may prevent the deck from acting as a structural roof base. The need for repair of damaged deck shall be determined by the Architect or Engineer of Record based on structural performance, unless aesthetics have been specifically addressed in the contract documents

5. Construction Guidelines

5.1. Do not use deck units as a working platform or storage area until units are in position and permanently attached to the structure.

5.2. Construction loads must not exceed load carrying capacity of the deck.

END OF SECTION