

A New Code of Standard Practice for Steel Deck

Creating quality in steel deck construction using familiar practices.

By Thomas Sputo, Ph. D., P. E., S. E.

The Steel Deck Institute (SDI) has recently published a new 2023 Edition of the SDI *Code of Standard Practice for Steel Deck*. This edition is unique because it is a completely revised edition, and this is the first version developed as a consensus standard under ANSI guidelines. The SDI *Code of Standard Practice for Steel Deck*, ANSI/SDI COSP-2023, is an American National Standard that codifies generally accepted industry practices for designing, selling, purchasing, manufacturing, and installing steel deck.

The evolution of the SDI Code of Standard Practice (the Code) has followed the path of other SDI Standards. The SDI has published a Code of Standard Practice for over 50 years. The SDI wrote these earlier editions internally without input or approval from other interests. These earlier Codes were written to be fair to the affected parties but were not reviewed or approved by an outside body.

The SDI has been an ANSI Accredited Standards Developer since 2004, and the first editions of design Standards for Roof Deck (RD), Non-Composite (NC), and Composite (C) decks were published in 2006. These 2006 design Standards were an evolution of long-standing SDI specifications provided to the design industry for use in project construction specifications. These design Standards were updated and revised in 2010/11 and 2017 and consolidated into a single *Standard for Steel Deck* (ANSI/SDI SD-2022) in 2022.

Other SDI Standards which supplement the Design Standards are the *Standard for Quality Control and Quality Assurance* (ANSI/SDI QA/QC), written and approved as an American National Standard in 2011, with revisions in 2017 and 2022, and the *Test Standard for Composite Steel Deck-Slabs* (ANSI/SDI T-CD), also in 2011 with revisions in 2017 and 2022.

Starting with the 2010/2011 Standards revision cycle, the SDI has sought to align and coordinate provisions of its standards with those of other standards developers. One of my personal “operating procedures” is “Plagiarism is the sincerest form of flattery.” While I say this tongue-in-cheek and always ask permission to use others’ work, the basic thought process is to seek unity between similar processes. Why not take advantage of the similarity when two standards require the same process or a process that only differs where the specific material or process is required?

When it came time to consider revising the 2017 SDI *Code of Standard Practice for Steel Deck* to coordinate with the 2022 Standards, the SDI made three significant decisions. First, the next edition would use substantially the same organizational format as the AISC 303 *Code of Standard Practice for Steel Buildings and Bridges*; second, to the greatest extent possible, the SDI Code would use

the same practices as the AISC Code with modifications as required to consider the differences between fabricated structural steel and steel deck. And third, the SDI would develop the Standard as a consensus standard under ANSI rules, similar to how the AISC Code is also an American National Standard (ANS).

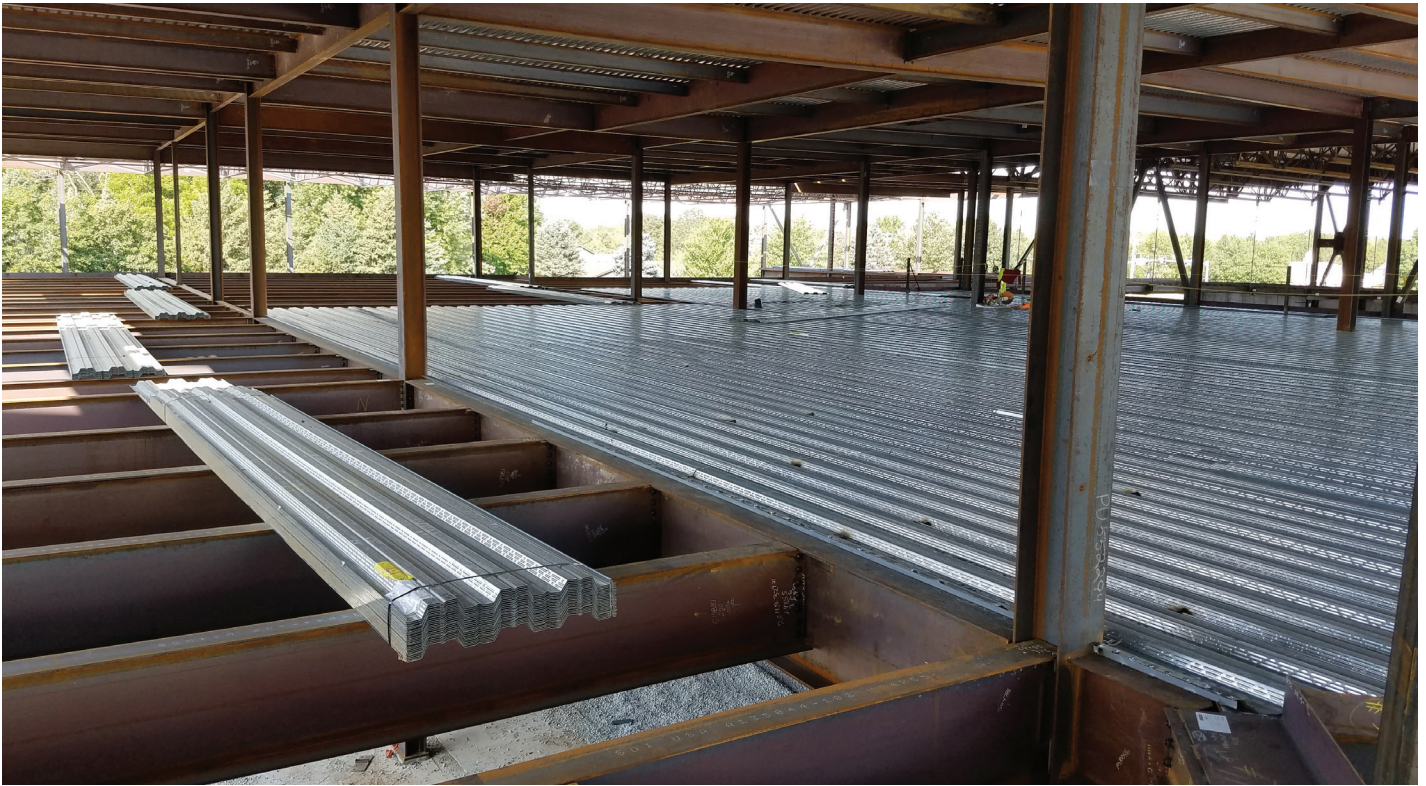
The decision to pursue making the SDI Code an ANS was not made lightly. Doing this required the SDI to give up approving changes to the submitted document. At the end of the consensus process, the SDI had only two options: to accept the Code as approved by the consensus body in total or not to accept the Code. The SDI Board acknowledged the advantages of having the Code being a consensus document, reviewed, improved, and approved by a broad-based, balanced body of experts representing manufacturers, constructors, deck installers, engineers in private practice, and those from allied industries. The advantage of having the Code become a consensus document will be a wider acceptance of the Code within the design and construction communities.

The scope of the Code, as written in Section 1, is as follows:

“In the absence of specific instructions to the contrary in the *Contract documents* or the *Sales contract*, the trade practices that are defined in the Steel Deck Institute *Code of Standard Practice for Steel Deck* (herein referred to as the *Code*) shall govern the design, sale, purchase, manufacture, and installation of *steel deck*. This *Code* shall govern



Deck stored on site prior to installation.



Floor deck bundles properly staged for installation.

where *building codes*, *Owner's Designated Representative for Design's plans*, and *specifications* or contracts are incomplete or unclear. There shall be no conflict between this *Code* and any legal building regulation; it shall only supplement and amplify such laws. Unless specific provisions to the contrary are made in a contract for the purchase and/or installation of *steel deck*, this *Code* is understood to govern the interpretation of such a contract.”

This will look familiar to those familiar with the AISC Code because it is the same as the AISC language, modified to apply to steel deck construction.

The SDI Code uses the same basic terminology as AISC 303 for terms such as *Owner's Designated Representative for Design and Inspector*. However, some terms, such as *erection documents*, are modified to *installation documents* to reflect general industry practice.

The definitions section of the Code is critical because it defines many steel deck industry terms that are particular to steel deck construction and are not used in either the AISC Code or the AISC *Specification for Structural Steel Buildings*.

Erected or Installed?

There are differences in terminology between structural steel and steel deck.

1. Structural steel is “fabricated” from a manufactured product (e.g., rolled steel shapes.), whereas steel deck is “manufactured” from coils of sheet steel.
2. Structural steel is “erected,” whereas steel deck is “installed.”

Therefore, the SDI uses the terms *manufactured* and *installed* within the Code and its documents.

And the Code uses the term *Production Documents* instead of

fabrication or *shop documents*.

Production Documents: Digital models, drawings, diagrams, or schedules depicting the steel deck and accessories produced for the specific project.

The production documents are what are minimally needed to manufacture the deck. They may consist only of a tabular schedule that lists the deck profile, thickness (gage), finish, steel grade, and deck panel lengths to be produced. This differs significantly from the detailed fabrication drawings needed to produce fabricated structural steel.

The General Provisions and Scope

Section 1 of the SDI Code is substantially the same as AISC 303, with terms modified to reflect steel deck construction. Defined terms that are specific to deck construction are added. Subsections are added to address shear connectors installed through the steel deck, fireproofing, temporary shoring for floor deck receiving concrete, and deck support. Another subsection addressing manufacturer standard materials and details is included to address variations between deck products supplied by various manufacturers.

What are Deck and Accessories?

Section 2 uses the same format as the AISC Code, which lists the materials which are considered to be steel deck or steel deck accessories supplied as part of the steel deck package and those items which are excluded unless otherwise added to the sales contract between the seller and the purchaser. This should reduce disagreements about what should be included or not included in the steel deck package.

Selling and Buying Steel Deck

The sale and purchase of steel deck has regional differences. In some locations, the manufacturer may sell deck to the structural steel fabricator, who includes deck in their package. In other regions, the manufacturer may sell deck to a broker who then sells deck to a structural steel fabricator, the Owner's Designated Representative for Construction (ODRC) (as defined by both the SDI and AISC Codes), or the Owner directly. There are a lot more options available for deck than for fabricated steel. Therefore, the Code defines these entities specifically.

Buyer: The entity that purchases the steel deck from the seller. This is usually the steel fabricator, general contractor, the construction manager, or similar authority at the job site.

Manufacturer: The entity engaged in the production (manufacture) of steel deck from sheet steel.

Seller: The entity engaged in the sale of steel deck to the buyer. The seller in most instances is also the manufacturer, but it may be another entity, such as a broker.

The seller could be the deck manufacturer, a broker, or sometimes a service center. Likewise, the buyer of deck can be one of several entities.

The Approval Process and RFIs

This is where the SDI Code should seem familiar. The SDI Code has adopted the approval process details of the AISC Code. It makes sense that the structural engineer and the ODRC should be comfortable using the same process for these steel products. The SDI adopts the same definitions for Documents, Drawings, and Models as AISC.

This is the first time SDI has specifically included digital documents, including models, within the SDI Code. Digital documents are the same as AISC's usage, which should help coordinate between the steel frame and deck.

The SDI Code adopts the same process for RFI processing as AISC as an example of sincere flattery. Why reinvent the wheel when someone else has a perfectly good wheel we can copy?

Primer, Primer Paint, or Shop Coating

Words have meanings, and sometimes a commonly used word may be misapplied, either by lack of knowledge or occasionally by those with malicious intentions.

The SDI does not endorse the use of the words "primer" or "primer paint" in its documents but instead uses the term "shop coating," which is defined as a temporary coating intended to protect the steel deck under normal atmospheric conditions for a limited period of time. It is not intended to be a permanent coating, nor to prevent rust when improperly stored on the job site, and is not guaranteed to be compatible with any specific finish paint. Some individuals have twisted the word "primer" to infer "Prime Quality" and expect unrealistic coating performance.

Additionally, the Code explains that the manufacturer is not expected to repair abrasions or nicks to the shop coat. It is also unnecessary to repair the coating or galvanizing at welds unless exposed to a corrosive environment or otherwise required by the contract documents.

By the way, if you want a finish paint coat to be applied to the steel deck, it should be field applied by the painting contractor, and leave the manufacturer, seller, and erector out of this!



Floor deck ready for concrete placement.

Some Concrete Information That You Can Use

Concrete is placed on non-composite (form) deck and composite deck. Because this is an integral part of steel deck floors, the SDI Code includes a Section 11 that applies to concrete design and placement on steel deck. This section sets the responsibility for the design of the concrete with the Owner's Designated Representative for Design (ODRD), usually the structural engineer, and the responsibility for the means and methods for placing the concrete on the ODRC. This standard practice reflects the proper assignment of risk to the entity best able to control the risk. Once deck leaves the manufacturer and the deck is installed, neither the seller, manufacturer, nor installer is in a position to affect the concrete placement.

The requirement to clear the deck of debris before concrete placement includes a user note referencing the ANSI/SDI SD Standard that permits broken stud ferrules to remain on the deck surface.

Summary

This article is a very brief summary of the basis of the new SDI Code and some of the differences from the AISC Code that was used as inspiration for the new SDI Code.

The SDI *Code of Standard Practice for Steel Deck* (ANSI/SDI COSP-2023) is available for free download from the SDI website at www.sdi.org. You are encouraged to download and read the Code and to incorporate the Code within your construction specifications!■

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