



Changes for steel decks

The Steel Deck Institute has updated publications that will affect roof system designers

by Mark S. Graham

The Steel Deck Institute has revised and updated two publications applicable to steel roof decks. If you design and/or specify steel roof decks, you should be aware of the updated information.

Roof deck design manual

In June 2022, SDI published *Roof Deck Design, Second Edition*. It updates, expands upon and replaces the first edition of the manual, which was published in 2012.

SDI indicates the manual is the steel deck industry's primary manual addressing steel roof deck design. It was developed to conform to ANSI/SDI RD-2017, "Standard for Steel Roof Deck," and complies with the requirements of the 2018 and 2021 editions of The International Building Code.[®] Review of the manual's second edition reveals a number of changes, which follow.

Wide rib decks, commonly referred to as Type B decks, and deep rib decks, commonly referred to as Type N decks, are primarily discussed and included in the manual's load tables. Load tables for narrow rib (Type A), intermediate rib (Type F), long span, cellular and acoustic roof decks, which were included in the manual's first edition,



have been removed from the second edition. SDI indicates specific steel deck manufacturers can be consulted for load tables applicable to the roof deck profiles removed from the second edition.

Section 2.14 provides new information addressing steel roof deck design for mechanically attached single-ply membrane roof systems. SDI indicates when loaded for wind uplift, mechanically attached single-ply membrane roof systems can increase the bending moment on steel roof decks by several hundred percent compared with uniformly applied uplift loading, such

as that with adhered membrane roof systems. SDI's Technical Note 7, "Mechanical Attachment of Single-ply Membranes to Steel Roof Deck: Implications for Steel Deck Design," can be referred to for additional information.

Section 4.6 updates the reference to quality control and quality-assurance guidelines for steel deck application to ANSI/SDI QC/QA-2017, "Standard for Quality Control and Quality Assurance for Installation of Steel Deck."

In Section 5, the load tables have been revised to be based on a minimum yield strength of 40 ksi and minimum tensile strength of 50 ksi for steel roof decks. The manual's first edition assumed a yield strength of 33 ksi and tensile strength of 45 ksi. As a result, steel decks' allowable loads are increased in the second edition. The extent

of the increases varies based on the specific load and allowable deflection conditions.

Section 6 provides examples of representative design calculations for steel roof decks. A new example calculation, Example 14, addresses a structural design for a mechanically attached single-ply membrane roof system on a steel roof deck. The calculations address analysis of deck loading in a roof's Zone 1 field, Zone 2 perimeter with membrane attachment perpendicular to deck span, Zone 2 perimeter with membrane attachment parallel to span and Zone 3 corners.

ANSI/SDI SD-2022

SDI published ANSI/SDI SD-2022, "Standard for Steel Deck," in late 2021. It replaces and combines SDI's previous individual standards for composite steel deck-slabs, noncomposite steel floor decks and steel roof decks into a single standard.

The previous edition of ANSI/SDI RD-2017 was published in 2017.

ANSI/SDI SD-2022 has been submitted to the International Code Council® to replace ANSI/SDI RD-2017 in IBC 2024.

“Designers and specifiers of steel roof decks should be aware of updates and changes incorporated in SDI's new publication”

Closing thoughts

Designers and specifiers of steel roof decks should be aware of updates and changes incorporated in SDI's new publications. ANSI/SDI RD-2017 and ANSI/SDI SD-2022 can be downloaded free under the Resources tab on SDI's website, sdi.org. SDI's roof deck

design manual also can be purchased on SDI's website.

The design and analysis of steel roof decks is beyond the capabilities of most roofing contractors and, as a result, I encourage roofing contractors not to make representations either express or implied about the structural capacity, wind-uplift resistance, corrosion resistance or suitability for use of steel roof decks.

Additional information about steel roof decks is provided in Chapter 2-Roof Decks of *The NRCA Roofing Manual: Membrane Roof Systems—2019*. 🌐📖

For an article related to this topic, see "Consider the deck," January 2020 issue.

MARK S. GRAHAM is NRCA's vice president of technical services.

 @MarkGrahamNRCA

DID YOU KNOW?

Specific language intended to limit contractors' liability for steel roof decks is provided as Item 15-Roof Deck Conditions in NRCA's *Contract Provisions, Volume III*, which is available free to NRCA members at nrca.net.

Technology can help attract, retain workers

As the construction industry continues to face a labor shortage, developing and retaining talent is crucial. Technology can play an important role in retention and satisfaction when implemented with employees in mind, according to forconstructionpros.com.

A survey from TRUCE Software, Lisle, Ill., asked workers how employers can use technology to enhance employees' experiences.

Thirty-one percent of respondents said enforcing work/life boundaries is the best way employers can attract, retain and empower employees, and 21% said offering the latest technology is the best way to do so.

Respondents also largely view technology at work favorably; half believe work-related technology will help them be more productive at work in 2022, and more than one-third believe it will allow more flexibility. A 2021 TRUCE Software study specific to workforce mobility found 60% of respondents believe mobile devices make them more productive on the job.

However, technology at work also brings challenges. Respondents expressed a desire for more policies to protect work/life balance, and about 25% said having to always be connected was their biggest concern with work technology.

Study reveals construction owners will drive digitization

Dodge Construction Network, in partnership with Trimble Inc., Sunnyvale, Calif., recently released a Dodge SmartMarket Brief based on a comprehensive study of construction owners, architects, engineers and contractors, according to construction.com. The study and resulting report evaluate the use and benefits of digital workflows in the construction industry.

The report reveals the degree to which owners have embraced digital workflows for multiple design and construction processes and suggests owners' influence will drive greater use of these tools in the industry.

An owner's design and construction process requires data to be shared with internal stakeholders, external project teams and supply chain participants during the project. Traditionally, individual parties use their own software systems or rely on manual rekeying of data into spreadsheets and other documents, which can be inefficient.

Key findings from the report include:

- Owners are more deeply engaged with digital workflows than other project team members; 54% of owners have integrated software solutions or are using a single, connected construction management solution.
- Owners realize the need to improve the flow of communication and data between themselves and other project team members; 59% of owners report frequent breakdowns in communication between themselves and project team members, and 45% are satisfied with their connectivity with external companies.
- Sixty-six percent of owners using digital workflows say the workflows frequently result in better decision making on projects because they can be used to trace the root causes of delays and errors.
- More than two-thirds of owners contractually require contractors to use some digital documentation and practices.
- Sixty percent of owners report they have digital workflows for at least half their project data between departments within their organization. However, only 28% report a similar level of digital data exchange with external companies.

"Owners have the greatest influence on the project team," says Steve Jones, senior director of industry insights at Dodge Construction Network. "If they decide digital workflows will improve projects, the rest of the industry will embrace them, as well. This study reveals owners are already deeply into their own digital transformation, and we expect to see wider use soon of these tools."





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