



Steel Roof and Floor Decking

- Roof Deck
- Form Deck
- Composite Deck
- Diaphragm Design
- Steel Deck Institute Code of Standard Practice



NEW MILLENNIUM
BUILDING SYSTEMS

Flexible to the Finish



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Pages identified with the Steel Deck Institute Logo as shown above, have been reproduced from the Steel Deck Institute, SDI COSP-2012 Code of Standard Practice. Refer to the Steel Deck Institute website at www.sdi.org for other available publications.

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* Scan the QR-code or visit www.newmill.com/digital-tools for tools to create diaphragm shear strength tables for roof decks using power-actuated fasteners as well as to create complete diaphragm shear strength tables for floor decks.



LIABILITY STATEMENT

The data published in this catalog has been developed using recognized engineering principles and is intended for general information only. Although the data shown is believed to be accurate, New Millennium Building Systems does not assume any liability or obligation of any kind or nature arising from or related to the data provided herein and/or its use. Applicability of the products and the accuracy of the data should be assessed by a licensed professional engineer or architect to determine the suitability for the intended application.

New Millennium's competitive advantage is flexibility

As our customers nationwide have discovered, we engineer winning relationships, success stories that continue to build America.

Our uniquely flexible engineering and manufacturing business model enables us to take the project owner's point of view: delivering higher total-project performance, for less total-project cost. You can count on us for the experience, products, services, and nationwide locations that will build your business...



- Value engineered total-project cost management
- Flexible approach to steel joist and metal decking supply
- Experienced developers of special profile steel joists
- Leading, most experienced providers of BIM/IPD joist projects
- Nationwide locations for local supply and support

QUALITY ASSURANCE

New Millennium is a Steel Joist Institute (SJI) member company, fully certified to manufacture K, LH and DLH-Series Steel Joists, and Joist Girders. New Millennium is also a Steel Deck Institute (SDI) member company, fully certified to manufacture roof deck, form deck, and composite floor deck.

- New Millennium products meet FM and UL requirements.
- The Indiana, Virginia, Florida, Tennessee, Arkansas, and Arizona facilities are ICC certified.
- Welders are certified in accordance with AWS D1.1 and D1.3.
- The Indiana, Nevada and Virginia facilities meet CSA Standard W47.1 in Division 2 for open web joists.
- The Indiana facility is certified in accordance with the requirements of the current IBC/Michigan Building Code, Chapter 17, Section 1705, Paragraph 2.2.
- The Florida facility is certified in accordance with the requirements of the Miami-Dade County, Florida Building Code, Article IV, Chapter 8.
- The Arkansas and Florida facilities are certified in accordance with the Houston, Texas Building Code, section 1704.2.2.
- The Nevada and Mexico facilities are certified in accordance with the requirements of Clark County, LA City (pending)



More than steel joists and deck...

We're building a better steel experience

New Millennium is your nationwide resource for the broadest range of custom-engineered structural steel building systems. Bring us in early on your project to achieve the architectural vision, while holding the line on structural execution and related project costs. We offer leading BIM-based joist and deck design, backed by dynamic manufacturing and availability.



Steel Joists and Deck
ROOFING AND FLOORING SYSTEMS



Architectural Deck
CEILING AND CLADDING SYSTEMS



Versa-Floor™
LONG-SPAN COMPOSITE SYSTEMS



Bridge Dek®
STEEL AND CONCRETE BRIDGE SYSTEMS

Product Flexibility

Assure the winning success of your project, with our full range of structural steel roofing and flooring systems development.

For faster and easier specification, start with our convenient web-based or mobile app design tools. See page 6 of this catalog or visit www.newmill.com/digital-tools



STANDARD STEEL JOISTS

Joist products include K, LH and DLH Series joists and joist girders, and CJ Series joists (Composite Joist). Joists can be furnished as a single-piece up to 15 feet deep and up to 125 feet long, depending on location and shipping restrictions. All are produced in accordance with the specifications of the Steel Joist Institute.



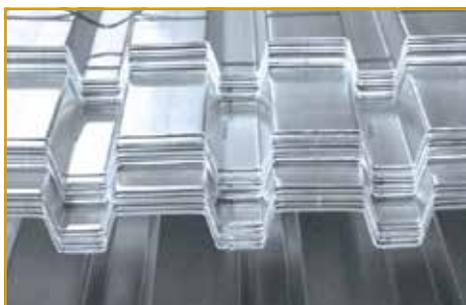
FLEX-JOIST™ TENSION-CONTROLLED STEEL JOIST DESIGN

Flex-Joist™ tension controlled steel joist design results in a joist that characteristically displays both higher strength levels and large inelastic deformations prior to collapse. The result is a roof or floor framing system with improved strength, an improved reliability index, and improved sensory alert to overload prior to collapse.



SPECIAL PROFILE STEEL JOISTS

Unique roofline designs are now practical and economical using special profile steel joists, due to our development of engineering specifications enabling over 40,000 special profile steel joist design possibilities. We manufacture a complete range of special profile steel joist products, including bowstring, arched, scissor, double-pitched, and single-pitched steel joists.

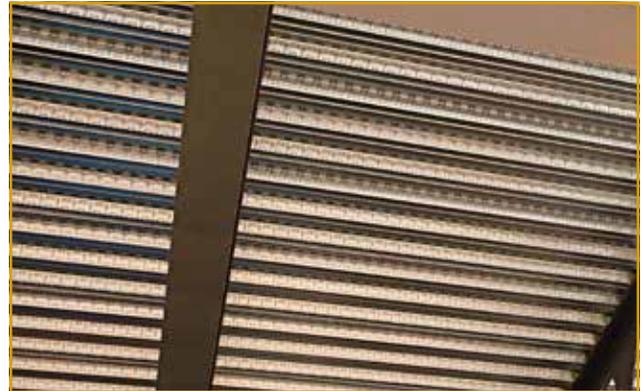


METAL DECKING

Roof and floor metal deck options include B deck, N deck, form deck and composite deck. Engineered to the application, our decking systems are certified to address performance requirements related to such factors as wind uplift, fire resistance and noise reduction.



Elevate the long-term success of your business with our proactive approach to your project needs.



ARCHITECTURAL SOLUTIONS

Bring us in early on the project to achieve the architectural vision, while holding the line on structural execution and related project costs. We can show you new design solutions made possible by our leading development of over 40,000 new engineering specifications in the discipline of special profile steel joist design.

ENGINEERED COST REDUCTIONS

We remove a chain reaction of project costs, starting with reduced steel tonnage and ending with lower on-site labor costs for handling, lifting and erection. Our approach to cost-accountable engineering can shorten project timelines and prevent delayed occupancy or lost retail revenues.

BIM DESIGN COLLABORATION

We participate in BIM based projects using our new Dynamic Joist[®] digital design component. The component is available as a free, downloadable add-on for Tekla Structures. Additional components are in development at New Millennium to support our many product lines and for use with other digital software provider formats.

DYNAMIC MANUFACTURING & DELIVERY

Our dynamic manufacturing can adjust to any project timeline or changing erection site needs, including staged and just-in-time deliveries. Just tell us what you need and when you need it.

Digital Specification Tools

Discover the easiest way to specify metal decking: www.newmill.com/digital-tools

- **Easier and faster specification**
- **Helpful cost-saving guidelines and options**
- **Mobile app for on-the-go convenience**
- **Complete range of digital design tools:**
 - Standard steel joists and steel Joist Girders
 - Special profile steel joists
 - Steel roof and floor decking



3D BIM-BASED DESIGN

Our Dynamic Joist® component is the leading choice for BIM-based steel joist 3D design.

New Millennium pioneered IPD (integrated project delivery) with steel joists by making BIM-based process management a reality. Since early 2010, Dynamic Joist has enhanced design collaboration in real-world projects throughout North America.

Available as a FREE download on our website. Get yours today!

WEB-BASED AND MOBILE SPECIFICATION TOOLS

Whether you're in the office or out in the field, New Millennium has you covered. Introducing the industry's first complete set of digital specification tools. To further simplify and accelerate the steel package design process, New Millennium has packed the power of our specification catalogs into advanced web and mobile applications.

Built upon our expertise in steel joist and metal deck engineering, and backed by our database of load and weight tables, this toolset will prove to be your handy go-to resource. You will find everything you need... from standard steel joists and girders, to our industry-leading special profile steel joist designs, to a wide range of roof, form, and composite floor decking.

Our commitment to building a better steel experience is focused on you. Log on to our website and start using these tools today.



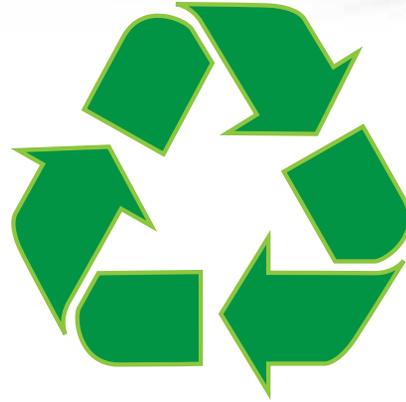
LEED (Leadership in Energy & Environmental Design)

New Millennium is a member of the US Green Building Council, the governing body of LEED, the most widely recognized and used green building program around the globe.

New Millennium monitors changes in the LEED rating system as well as other environmental rating systems and can provide documentation on recycled content and regional material information depending on project location.

Current LEED information can be found under the DOWNLOADS tab on our website at www.newmill.com.

* Scan the QR-code at the right for a quick link to our detailed LEED information page, including downloadable PDFs regarding our current recycled content.



SPECIAL PROFILE DECKS

Please contact your nearest New Millennium sales representative or visit our website at www.newmill.com for more information regarding all of your special profile deck needs. New Millennium can acquire any specialty deck profile specified on your projects coupled with our standard deck products for a no-hassle single-source deck supplier from quoting through delivery.

CELLULAR DECKS

Cellular decks are fabricated with a flat bottom plate with or without perforations for sound absorption, attached to a wide range of top profiles and profile depths. The bottom plate provides an aesthetically pleasing flat surface for use in finished exposed applications. These decks are suitable for use in non-composite and composite floor slab designs as well as roof applications.

LONG SPAN DECKS

Deep profile long span decks are available for use where larger support spacing is desired. These decks are available with or without perforations for sound absorption and as cellular or non-cellular profiles.

DOVETAIL DECKS

Dovetail (reentrant) decks provide an aesthetically pleasing surface for use in finished exposed applications with the capability of spanning longer distances. These decks are available for use in composite floor slab designs as well as roof applications. Roof decks are available with or without perforations for sound absorption.

Installation & Storage Guidelines

DECK INSTALLATION

Steel decks shall be installed by qualified and experienced workers in accordance with the project's Contract Documents, New Millennium's erection layout plans stamped "Field Use" and the Steel Deck Institute Manual of Construction with Steel Deck (MOC2). The erection start locations should be carefully selected for proper deck orientation and edge of roof or floor slab location and in accordance with the suggested starting point shown on the erection layout plans. A snapped chalk line should be used at reasonable intervals to maintain proper rib alignment and cover widths of the deck panels. Floor deck ribs should maintain alignment when possible to achieve continuous concrete ribs across abutting sheet ends thus eliminating the need to close off open ends of ribs. Minimum bearing of deck ends on supports shall be 1½" for all decks except 2" deep floor decks require 2" and 3" deep floor decks require 2½". End laps (when required) of sheets shall be a minimum of 2" and shall occur over supports.

To form a working platform, immediately fasten deck panels to the supports. In accordance with OSHA Regulation 29CFR Section 1926.754(e)(2), run deck panels continuously over openings when possible, unless otherwise noted on Structural Drawings. Openings through the deck shown on erection layout drawings, as well as skewed areas, shall be cut in the field by the deck erector. Openings required through the deck that are not shown on the erection layout drawings shall also be cut in the field and reinforced if necessary in accordance with Steel Deck Institute MOC2.

Do not exceed load carrying capacity of steel decks with construction loads and equipment. All placed deck sheets must be anchored to supports before the end of the working day. Un-banded bundles of deck must be secured to prevent individual sheets from being blown off the structure.

ATTACHMENT

Attachment of steel deck to supports can be accomplished using welds, self-drilling screws, powder-actuated fasteners or pneumatically driven fasteners. No substitution of fastener type or pattern should be made without the approval of the design professional. All connections are to be made from the top of the deck down through the bottom flange of the ribs. Fastening at supports shall be at all edge ribs with additional fasteners spaced at an average of 12" [8" for N deck] on center but not more than 18". Side laps of individual sheets are to be fastened together between supports at a maximum spacing of 36" on center for spans over 5'-0". Spans of 5'-0" or less do not require side lap fasteners unless required by the Contract Documents. Fasten side laps at 12" on center at cantilevers.

When method of attachment is welding, care shall be exercised when selecting electrodes to provide positive attachment and to prevent high amperage blow holes. Weld steel deck to supports in accordance with ANSI/AWS D1.3 using arc-spot (puddle) welds or elongated welds having an equal perimeter. Fillet welds (when used) shall be 1½" long. Weld metal shall penetrate all layers of deck material at end laps and side joints and have good fusion to the supporting members; care shall be exercised to assure minimum required effective weld diameter is achieved. Weld washers of 16 gage with 3/8" diameter holes are required for welding deck lighter than 22 gage to supports. The welder strikes an arc, burns a hole through the sheet and builds a plug weld from the support into the washer. Weld washers are not recommended for attaching side laps except at supports. In metals having a thickness of 0.028" (22 gage) or greater, arc-spot welds of good quality are more efficiently obtained without the use of weld washers.

SITE STORAGE

Site storage of deck not promptly erected shall comply with the directive set forth by the Steel Deck Institute in White Paper No. JS titled "Jobsite Storage Requirements for Steel Deck" which states: "Steel deck shall be stored off the ground with one end elevated to provide drainage, and shall be protected from the elements with a waterproof covering, ventilated to avoid condensation". The Commentary to the Steel Deck Institute COSP-2012 Section C-2.1.1, found in the back of this publication and the Steel Deck Institute White Paper No. JS illustrate the importance of proper site storage since the adoption of the Voluntary Lubricant Compliance Program (VLCP) developed for OSHA by the Steel Coalition, which calls for the removal of lubricants to minimize the slipping hazard during construction. The fabrication process used by New Millennium complies with the recommendations included in the VLCP.



