



Steel Joists and Joist Girders

- Fully updated to SJI 43rd Edition Standard Specifications
- Load and weight tables for K, LH, DLH-Series and Joist Girders
- Economical Design Guide load tables for lowest cost joist selection



NEW MILLENNIUM
BUILDING SYSTEMS

Flexible to the Finish



Pages identified with the New Millennium Building Systems Logo as shown above, have been produced by NMBS to assist specifiers and consumers in the application of New Millennium Building Systems' Joist and Joist Girder products.



Pages identified with the Steel Joist Institute Logo as shown above, have been reproduced from the Steel Joist Institute, 43rd Edition, Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders. Refer to the Steel Joist Institute website at www.steeljoist.org for the entire ANSI approved document.

Table of Contents

Introduction to Products and Services	2
General Joist Information	7
SJI Bridging Tables	
Standard Joist Details	
Sloped Seat Requirements	
Standard and Special Joist Profiles	
Duct Opening Sizes	
Standard Bridging Details	
OSHA Highlights	
Standard Joist Girder Details and Notes	
Load Zone Joists	
Bill of Materials Instructions	
Bill of Materials	
Economical Design Guide	26
LRFD and ASD Design Advantages	
Definition of Span	
Economical Load Tables	
Top Chord Extensions, K-Series	67
Joist Substitutes and Outriggers, K-Series	70
KCS Joists	74
Joist LRFD Load Tables	78
K-Series	
LH-Series	
DLH-Series	
Joist ASD Load Tables	91
K-Series	
LH-Series	
DLH-Series	
Weight Tables for Load/Load LH-Series Joists	104
Design Guide Weight Table for Joist Girders	116
SJI Standard Specifications	127
K-Series	
LH-Series and DLH-Series	
Joist Girders	
SJI Code of Standard Practice for Joists and Joist Girders ...	197
Sections 1-8	
Glossary	
Fire Resistance Ratings	229
OSHA Safety Standards for Steel Erection	239

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.

Together, let's build a better steel experience.

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

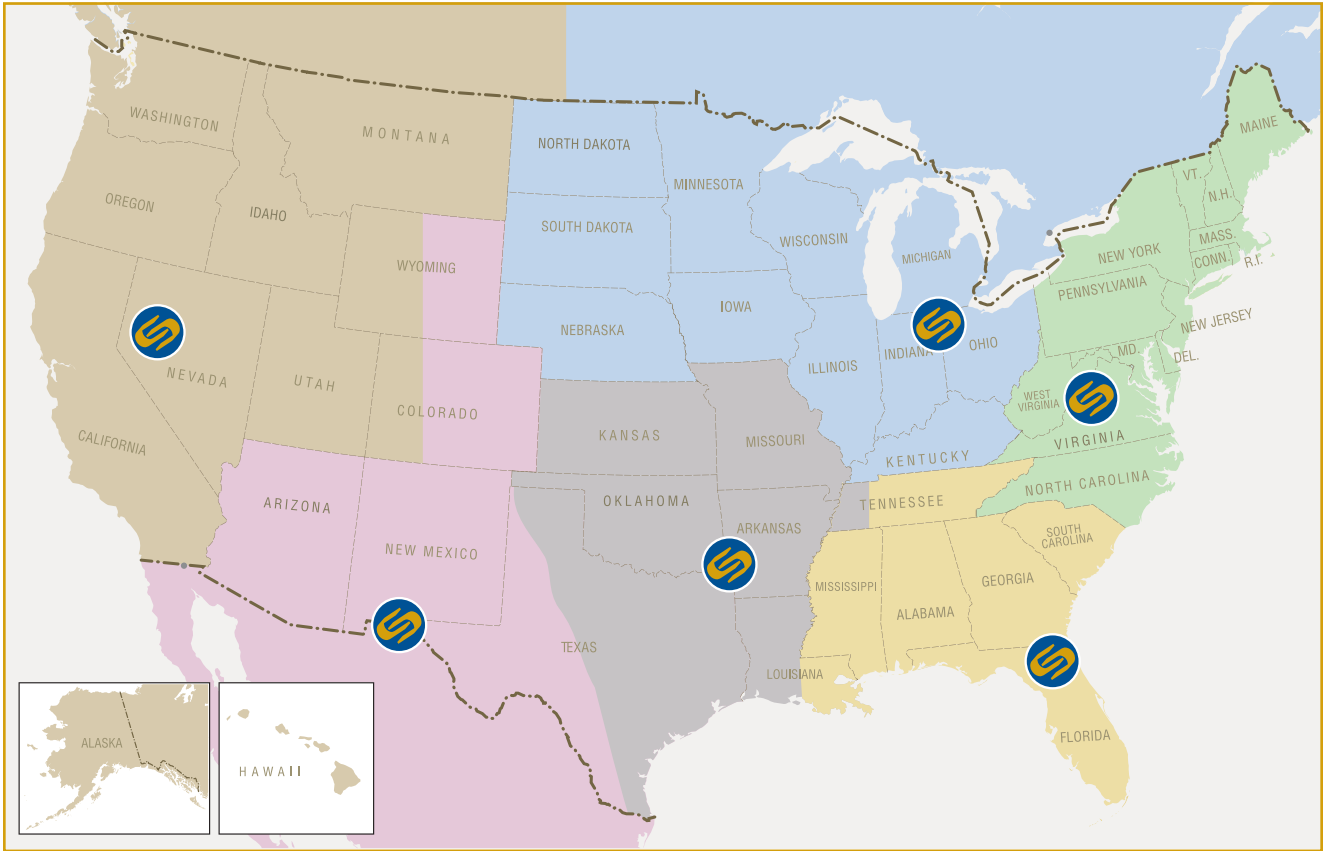
New Millennium is a Steel Joist Institute (SJI) member company, fully certified to manufacture K, LH and DLH-Series Steel Joists, and Joist Girders. New Millennium is also a Steel Deck Institute (SDI) member company, fully certified to manufacture roof deck, form deck, and composite floor deck.

- New Millennium products meet FM and UL requirements.
- Welders are certified in accordance with AWS D1.1 and D1.3.
- The Indiana facility meets 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), CWB (pending), IAS (pending).



Nationwide Support

New Millennium is your nationwide resource for design, manufacturing, and delivery of structural steel joists, and steel roof and floor decking.



MANUFACTURING LOCATIONS:

Indiana Facility	Florida Facility	Virginia Facility	Arkansas Facility	Nevada Facility	Mexico Facility
6115 County Road 42 Butler, IN 46721 Phone: (260) 868-6000 Fax: (260) 868-6001	1992 NW Bascom Norris Drive Lake City, FL 32055 Phone: (386) 466-1300 Fax: (386) 466-1301	100 Diuguids Lane Post Office Box 3400 Salem, VA 24153 Phone: (540) 389-0211 Fax: (540) 389-0378	3565 Highway 32 North Hope, AR 71801 Phone: (870) 722-4100 Fax: (870) 722-4245	8200 Woolery Way Fallon, NV 89406 Phone: (775) 867-2130 Fax: (775) 867-2169	Carr. Panamericana 9920 Col. Puente Alto C.P. 32695 Ciudad Juarez Chihuahua Mexico Phone: (915) 298-5050 Fax: (915) 298-4040

To quickly identify the sales representative that services your area, log on to www.newmill.com/contactus.html



Industry-leading 3D BIM design • State-of-the-art manufacturing • Nationwide delivery and support • Steel joists and metal decking



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

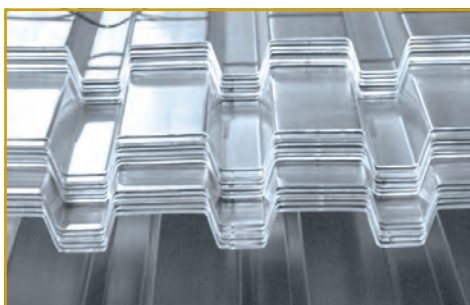
Flex-Joist™ tension controlled steel joist design results in a joist that characteristically displays both higher strength levels and large inelastic deformations prior to collapse. The result is a roof or floor framing system with improved strength, an improved reliability index, and improved sensory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

Flex-Joist™ tension-controlled steel joist design is ideally suited to electronic monitoring of deflection and/or strain for early warning of high loads, if desired. This can allow time for building evacuation, load removal, and/or shoring to prevent collapse. Although electronic monitoring is not provided by NMBS, we can help coordinate requirements with your electronic monitoring supplier.



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 steel joists and Joist Girders: 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.



TABLE 2.7-2
K, LH & DLH - SERIES JOISTS
MAXIMUM JOIST SPACING FOR DIAGONAL BRIDGING
 See Table 2.7-3 for minimum joist space for diagonal bridging only.

Joist Depth	BRIDGING ANGLE SIZE* – (Equal Leg Angles)							
	1 x 7/64 r = .20"	1 1/4 x 7/64 r = .25"	1 1/2 x 7/64 r = .30"	1 3/4 x 7/64 r = .35"	2 x 1/8 r = .40"	2 1/2 x 5/32 r = .50"	3 x 3/16 r = .60"	3 1/2 x 1/4 r = .70"
12	6' - 7"	8' - 3"	9' - 11"	11' - 7"	13' - 3"	16' - 7"	19' - 11"	23' - 3"
14	6' - 6"	8' - 3"	9' - 11"	11' - 7"	13' - 3"	16' - 7"	19' - 11"	23' - 3"
16	6' - 6"	8' - 2"	9' - 10"	11' - 7"	13' - 3"	16' - 7"	19' - 11"	23' - 3"
18	6' - 6"	8' - 2"	9' - 10"	11' - 6"	13' - 3"	16' - 7"	19' - 11"	23' - 3"
20	6' - 5"	8' - 2"	9' - 10"	11' - 6"	13' - 2"	16' - 7"	19' - 11"	23' - 3"
22	6' - 4"	8' - 1"	9' - 10"	11' - 6"	13' - 2"	16' - 6"	19' - 11"	23' - 3"
24	6' - 4"	8' - 1"	9' - 9"	11' - 5"	13' - 2"	16' - 6"	19' - 10"	23' - 3"
26	6' - 3"	8' - 0"	9' - 9"	11' - 5"	13' - 1"	16' - 6"	19' - 10"	23' - 2"
28	6' - 3"	8' - 0"	9' - 8"	11' - 5"	13' - 1"	16' - 6"	19' - 10"	23' - 2"
30	6' - 2"	7' - 11"	9' - 8"	11' - 4"	13' - 1"	16' - 5"	19' - 10"	23' - 2"
32	6' - 1"	7' - 10"	9' - 7"	11' - 4"	13' - 0"	16' - 5"	19' - 9"	23' - 2"
36	5' - 11"	7' - 9"	9' - 6"	11' - 3"	12' - 11"	16' - 4"	19' - 9"	23' - 1"
40	5' - 9"	7' - 7"	9' - 5"	11' - 2"	12' - 10"	16' - 4"	19' - 8"	23' - 1"
44	5' - 6"	7' - 5"	9' - 3"	11' - 0"	12' - 9"	16' - 3"	19' - 7"	23' - 0"
48	5' - 4"	7' - 3"	9' - 2"	10' - 11"	12' - 8"	16' - 2"	19' - 7"	22' - 11"
52	5' - 0"	7' - 1"	9' - 0"	10' - 10"	12' - 7"	16' - 1"	19' - 6"	22' - 11"
56	4' - 9"	6' - 10"	8' - 10"	10' - 8"	12' - 5"	16' - 0"	19' - 5"	22' - 10"
60	4' - 4"	6' - 8"	8' - 7"	10' - 6"	12' - 4"	15' - 10"	19' - 4"	22' - 9"
64		6' - 4"	8' - 5"	10' - 4"	12' - 2"	15' - 9"	19' - 3"	22' - 8"
68		6' - 1"	8' - 2"	10' - 2"	12' - 0"	15' - 8"	19' - 2"	22' - 7"
72		5' - 9"	8' - 0"	10' - 0"	11' - 10"	15' - 6"	19' - 1"	22' - 6"
80		5' - 0"	7' - 5"	9' - 6"	11' - 6"	15' - 3"	18' - 10"	22' - 4"
88			6' - 9"	9' - 0"	11' - 1"	14' - 11"	18' - 7"	22' - 1"
96			6' - 0"	8' - 5"	10' - 8"	14' - 7"	18' - 4"	21' - 11"
104				7' - 9"	10' - 1"	14' - 2"	18' - 0"	21' - 8"
112				7' - 0"	9' - 6"	13' - 9"	17' - 8"	21' - 4"
120					8' - 9"	13' - 4"	17' - 3"	21' - 1"

* Interpolation below minimum values shown is not allowed.

BRIDGING SELECTION TABLE FOR KCS JOISTS			
Joist Designation	Bridging Table Section #	Joist Designation	Bridging Table Section #
10KCS1	1	20KCS5	10
10KCS2	1	22KCS2	6
10KCS3	1	22KCS3	9
12KCS1	3	22KCS4	11
12KCS2	5	22KCS5	11
12KCS3	5	24KCS2	6
14KCS1	4	24KCS3	9
14KCS2	6	24KCS4	12
14KCS3	6	24KCS5	12
16KCS2	6	26KCS2	6
16KCS3	9	26KCS3	9
16KCS4	9	26KCS4	12
16KCS5	9	26KCS5	12
18KCS2	6	28KCS2	6
18KCS3	9	28KCS3	9
18KCS4	10	28KCS4	12
18KCS5	10	28KCS5	12
20KCS2	6	30KCS3	9
20KCS3	9	30KCS4	12
20KCS4	10	30KCS5	12



SJI Bridging Tables

**TABLE 5.4-1
NUMBER OF ROWS OF TOP CHORD BRIDGING - K-Series****

Refer to K-Series Load Table and Specification Section 6 for required bolted diagonal bridging. Distances are Joist Span lengths in feet - See "Definition of Span" on page 27.

Section #*	Joist Depth	One Row	Two Rows	Three Rows	Four Rows
1	All	Up thru 17	Over 17 thru 26	Over 26 thru 28	
2	All	Up thru 21	Over 21 thru 30	Over 30 thru 32	
3	All	Up thru 18	Over 18 thru 26	Over 26 thru 40	
4	All	Up thru 20	Over 20 thru 30	Over 30 thru 41	Over 41 thru 48
5	12K thru 24K	Up thru 20	Over 20 thru 30	Over 30 thru 42	Over 42 thru 48
	26K	Up thru 28	Over 28 thru 41	Over 41 thru 52	
6	14K thru 24K	Up thru 20	Over 20 thru 31	Over 31 thru 42	Over 42 thru 48
	26K and 28K	Up thru 28	Over 28 thru 41	Over 41 thru 54	Over 54 thru 56
7	16K thru 24K	Up thru 23	Over 23 thru 34	Over 34 thru 48	
	26K thru 30K	Up thru 29	Over 29 thru 44	Over 44 thru 60	
8	24K	Up thru 25	Over 25 thru 39	Over 39 thru 48	
	26K thru 30K	Up thru 29	Over 29 thru 44	Over 44 thru 60	
9	16K thru 24K	Up thru 22	Over 22 thru 34	Over 34 thru 48	
	26K thru 30K	Up thru 29	Over 29 thru 44	Over 44 thru 60	
10	18K thru 24K	Up thru 22	Over 22 thru 38	Over 38 thru 48	
	26K thru 30K	Up thru 29	Over 29 thru 48	Over 48 thru 60	
11	22K	Up thru 24	Over 24 thru 39	Over 39 thru 44	
	30K	Up thru 34	Over 34 thru 49	Over 49 thru 60	
12	24K	Up thru 25	Over 25 thru 43	Over 43 thru 48	
	26K thru 30K	Up thru 29	Over 29 thru 47	Over 47 thru 60	

* Refer to last digit(s) of standard SJI joist designation.

** See Section 5.11 for additional bridging required for uplift design.

**OSHA TABLES A and B
ERECTION BRIDGING**

Joist	Span	Joist	Span
12K1	23' - 0"	30K9	45' - 0"
14K1	27' - 0"	30K10	50' - 0"
16K2	29' - 0"	30K11	52' - 0"
16K3	30' - 0"	30K12	54' - 0"
16K4	32' - 0"	18KCS2	35' - 0"
16K5	32' - 0"	20KCS2	36' - 0"
18K3	31' - 0"	20KCS3	39' - 0"
18K4	32' - 0"	22KCS2	36' - 0"
18K5	33' - 0"	22KCS3	40' - 0"
18K6	35' - 0"	24KCS2	39' - 0"
20K3	32' - 0"	24KCS3	44' - 0"
20K4	34' - 0"	26KCS2	39' - 0"
20K5	34' - 0"	26KCS3	44' - 0"
20K6	36' - 0"	28KCS2	40' - 0"
20K7	39' - 0"	28KCS3	45' - 0"
20K9	39' - 0"	28KCS4	53' - 0"
22K4	34' - 0"	28KCS5	53' - 0"
22K5	35' - 0"	30KCS3	45' - 0"
22K6	36' - 0"	30KCS4	54' - 0"
22K7	40' - 0"	30KCS5	54' - 0"
22K9	40' - 0"	18LH02	33' - 0"
24K4	36' - 0"	20LH02	33' - 0"
24K5	38' - 0"	20LH03	38' - 0"
24K6	39' - 0"	24LH03	35' - 0"
24K7	43' - 0"	24LH04	39' - 0"
24K8	43' - 0"	24LH05	40' - 0"
24K9	44' - 0"	24LH06	45' - 0"
26K5	38' - 0"	28LH05	42' - 0"
26K6	39' - 0"	28LH06	46' - 0"
26K7	43' - 0"	28LH07	54' - 0"
26K8	44' - 0"	28LH08	54' - 0"
26K9	44' - 0"	32LH06	47' - 0"
26K10	49' - 0"	32LH07	47' - 0"
28K6	40' - 0"	32LH08	55' - 0"
28K7	43' - 0"	36LH07	47' - 0"
28K8	44' - 0"	36LH08	47' - 0"
28K9	45' - 0"	36LH09	57' - 0"
28K10	49' - 0"	40LH08	47' - 0"
28K12	53' - 0"	40LH09	47' - 0"
30K7	44' - 0"	44LH09	52' - 0"
30K8	45' - 0"		

Joists not listed above do not require OSHA erection bridging through spans per SJI Specifications 5.2 and 104.2 or 60'-0".

**TABLE 2.7-3
LH & DLH - SERIES JOISTS
HORIZONTAL PLUS DIAGONAL BRIDGING REQUIREMENTS**

Joist Depth	Minimum Joist Space for Diagonal Only Bridging (0.70 x Joist Depth)	Horizontal and Diagonal Bridging Minimum Angle Size Required*
52	3' - 0"	L 1 x 1 x 7/64
56	3' - 3"	L 1 x 1 x 7/64
60	3' - 6"	L 1 x 1 x 7/64
64	3' - 8"	L 1 1/4 x 1 1/4 x 7/64
68	3' - 11"	L 1 1/4 x 1 1/4 x 7/64
72	4' - 2"	L 1 1/4 x 1 1/4 x 7/64
80	4' - 8"	L 1 1/4 x 1 1/4 x 7/64
88	5' - 1"	L 1 1/2 x 1 1/2 x 7/64
96	5' - 7"	L 1 1/2 x 1 1/2 x 7/64
104	6' - 0"	L 1 3/4 x 1 3/4 x 7/64
112	6' - 6"	L 1 3/4 x 1 3/4 x 7/64
120	7' - 0"	L 2 x 2 x 1/8

* When joist span is greater than 60'-0" and joist space is less than space shown (0.70 x Joist Depth), bolted horizontal bridging is required in addition to bolted diagonal bridging.

**TABLE 2.7-4
BOLT SIZES WHICH MEET BOLTED BRIDGING CONNECTION REQUIREMENTS**

Joist Series	Section Number*	Bolt Diameter and Grade
K	ALL	3/8" A307
LH/DLH	2 thru 12	3/8" A307
LH/DLH	13 thru 17	1/2" A307
DLH	18 thru 20	5/8" A307
DLH	21 and 22	5/8" A325
DLH	23 thru 25	3/4" A325

* Refer to last digit(s) of standard SJI joist designation.

Note: Washers shall be used with slotted or over-sized holes. Bolts shall be tightened to a minimum snug tight condition.



**TABLE 2.7-1a
K - SERIES JOISTS
MAXIMUM JOIST SPACING FOR HORIZONTAL BRIDGING**

Section Number*	Bridging Force P _{br} (lbs.)	BRIDGING ANGLE SIZE** – (Equal Leg Angles)					
		1 x 7/64 r = .20"	1-1/4 x 7/64 r = .25"	1-1/2 x 7/64 r = .30"	1-3/4 x 7/64 r = .35"	2 x 1/8 r = .40"	2-1/2 x 5/32 r = .50"
1 thru 8	340	5' - 0"	6' - 3"	7' - 6"	8' - 7"	10' - 0"	12' - 6"
9 and 10	450	4' - 4"	6' - 1"	7' - 6"	8' - 7"	10' - 0"	12' - 6"
11 and 12	560	3' - 11"	5' - 6"	7' - 3"	8' - 7"	10' - 0"	12' - 6"

* Refer to last digit(s) of standard SJI joist designation.

** Connection to joist must resist 700 pounds.

**TABLE 2.7-1b
LH - SERIES JOISTS
MAXIMUM JOIST SPACING FOR HORIZONTAL BRIDGING
SPANS OVER 60 ft. REQUIRE BOLTED DIAGONAL BRIDGING**

Section Number*	Bridging Force P _{br} (lbs.)	BRIDGING ANGLE SIZE** – (Equal Leg Angles)					
		1 x 7/64 r = .20"	1 1/4 x 7/64 r = .25"	1 1/2 x 7/64 r = .30"	1 3/4 x 7/64 r = .35"	2 x 1/8 r = .40"	2 1/2 x 5/32 r = .50"
02 and 03	400	4' - 7"	6' - 3"	7' - 6"	8' - 9"	10' - 0"	12' - 6"
04 and 05	550	3' - 11"	5' - 6"	7' - 4"	8' - 9"	10' - 0"	12' - 6"
06 thru 08	750		4' - 9"	6' - 3"	7' - 11"	10' - 0"	12' - 6"
09	850		4' - 5"	5' - 10"	7' - 5"	9' - 9"	12' - 6"
10	900		4' - 4"	5' - 8"	7' - 3"	9' - 5"	12' - 6"
11	950		4' - 2"	5' - 7"	7' - 0"	9' - 2"	12' - 6"
12	1100		3' - 11"	5' - 2"	6' - 8"	8' - 6"	12' - 6"
13	1200		3' - 9"	4' - 11"	6' - 3"	8' - 2"	12' - 6"
14	1300			4' - 9"	6' - 0"	7' - 10"	12' - 4"
15	1450			4' - 6"	5' - 8"	7' - 5"	11' - 8"
16 and 17	1850			4' - 0"	5' - 0"	6' - 7"	10' - 4"
18 thru 20	2000			3' - 10"	4' - 10"	6' - 4"	9' - 11"
21 and 22	2500				4' - 4"	5' - 8"	8' - 10"
23 and 24	3100				3' - 10"	5' - 1"	7' - 11"
25	3500					4' - 9"	7' - 6"

* Refer to last two digits of joist designation.

** Connection to joist must resist force listed in Table 104.5-1.

TABLE 104.5-1

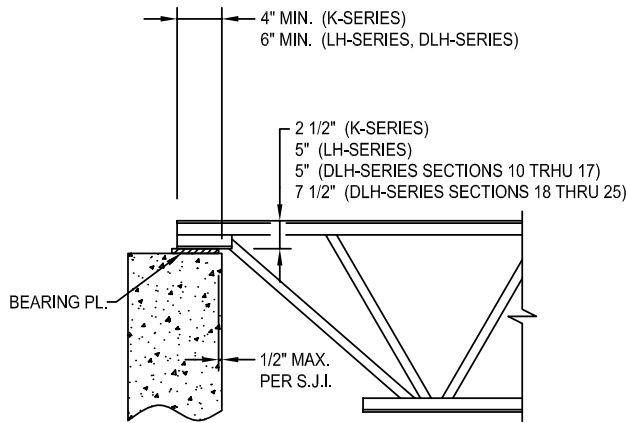
LH, DLH Section Number*	Maximum Spacing of Lines of Top Chord Bridging
02 and 03	10' - 0"
04 and 05	11' - 0"
06 thru 08	13' - 0" up to 39' - 0", then 15' - 0"
09	13' - 0" up to 39' - 0", then 16' - 0"
10	14' - 0" up to 42' - 0", then 18' - 0"
11	15' - 0" up to 45' - 0", then 18' - 0"
12	17' - 0" up to 51' - 0", then 18' - 6"
13	18' - 0" up to 54' - 0", then 21' - 0"
14	19' - 0" up to 57' - 0", then 21' - 6"
15	21' - 0" up to 63' - 0", then 24' - 6"
16 and 17	22' - 0" up to 66' - 0", then 25' - 0"
18 thru 20	26' - 0"
21 and 22	30' - 0"
23 and 24	30' - 0"
25	30' - 0"

Number of lines of bridging is based on joist span dimensions.

* Refer to last two digits of standard SJI joist designation.

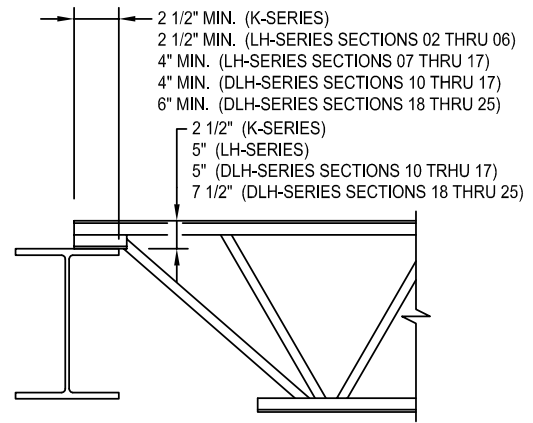


Standard Joist Details

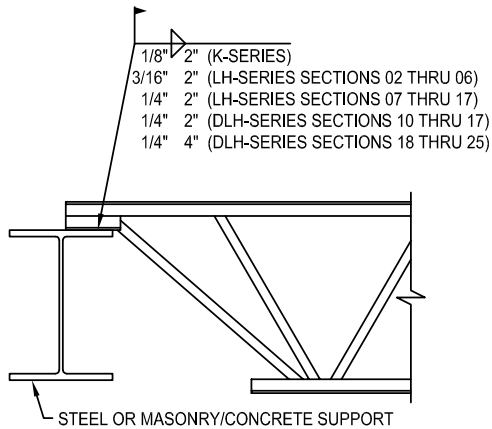


SEE SECTIONS 5.3(a) & 104.4(a) FOR INCREASED BEARING SEAT DEPTH REQUIREMENTS WHEN BEARING PLATE LOCATION EXCEEDS 1/2".

END BEARING AT MASONRY/CONCRETE

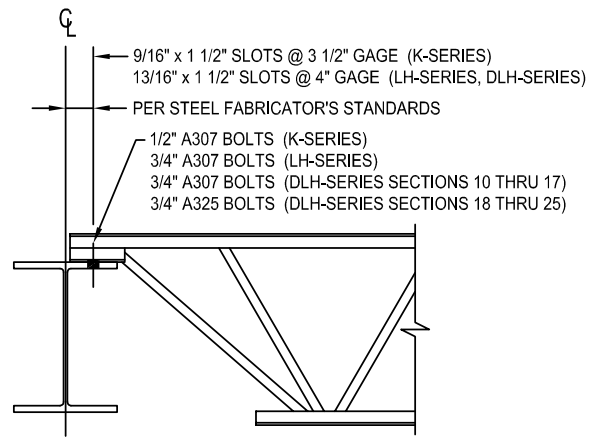


END BEARING AT STEEL



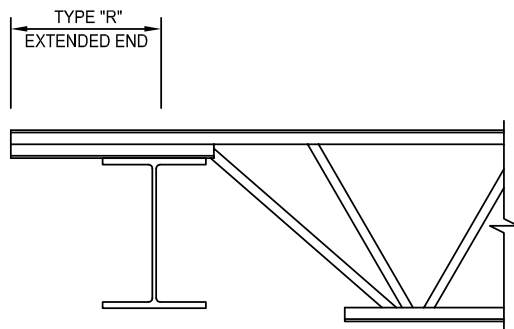
WELDS SHOWN ARE MINIMUMS PER S.J.I. SEE PAGE 218, SECTION 6.1(b), CODE OF STANDARD PRACTICE.

BEARING SEAT ATTACHMENT



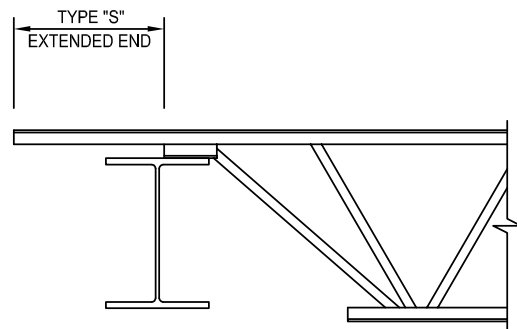
FINAL CONNECTION IS TO BE WELDED OR AS DESIGNATED BY THE SPECIFYING PROFESSIONAL.

BOLTED END CONNECTION



EXTENDED ENDS WILL BE DESIGNED FOR THE JOIST UNIFORM LOAD IF NOT OTHERWISE SPECIFIED.

TYPE "R" EXTENDED END

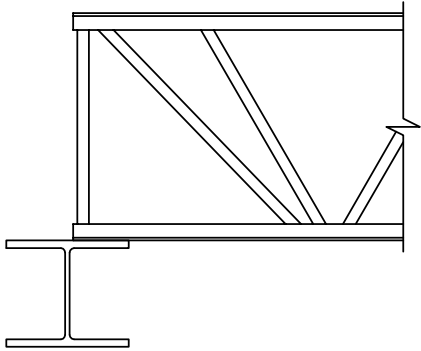


EXTENDED ENDS WILL BE DESIGNED FOR THE JOIST UNIFORM LOAD IF NOT OTHERWISE SPECIFIED.

TYPE "S" EXTENDED END

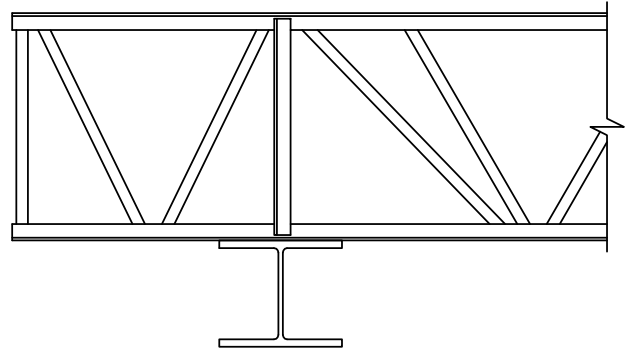


Standard Joist Details



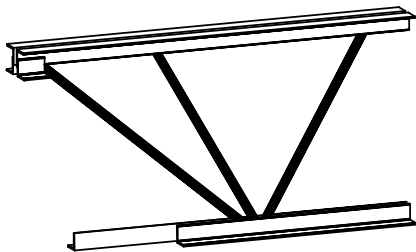
NOTE: A ROW OF DIAGONAL BRIDGING IS REQUIRED NEAR THE SUPPORT, SEE SJI SPECIFICATION SECTIONS 5.4(f) AND 104.5(g). ERECT JOISTS WITH CAMBER UPWARD.

SQUARE END

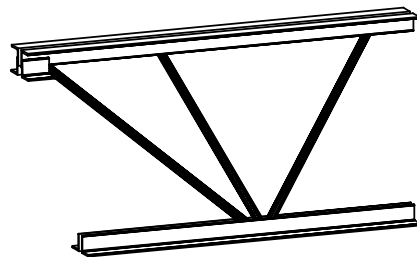


NOTE: A ROW OF DIAGONAL BRIDGING IS REQUIRED NEAR THE SUPPORT, SEE SJI SPECIFICATION SECTIONS 5.4(f) AND 104.5(g). ERECT JOISTS WITH CAMBER UPWARD.

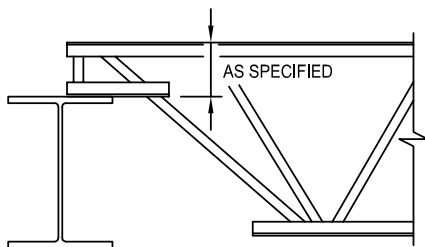
SQUARE END CANTILEVER



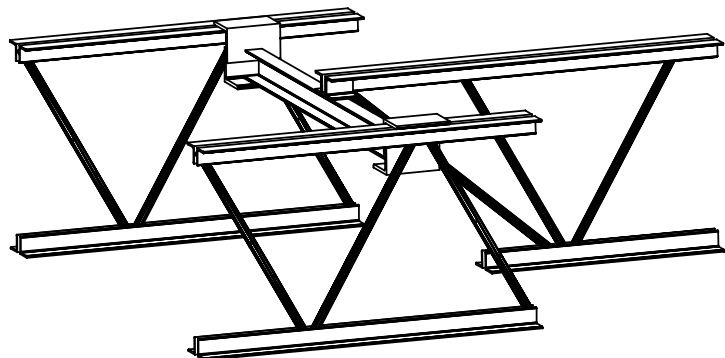
CEILING EXTENSION



BOTTOM CHORD EXTENSION



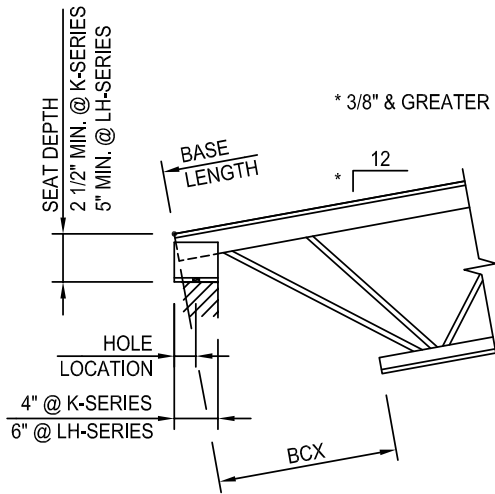
DEEP BEARING SEAT



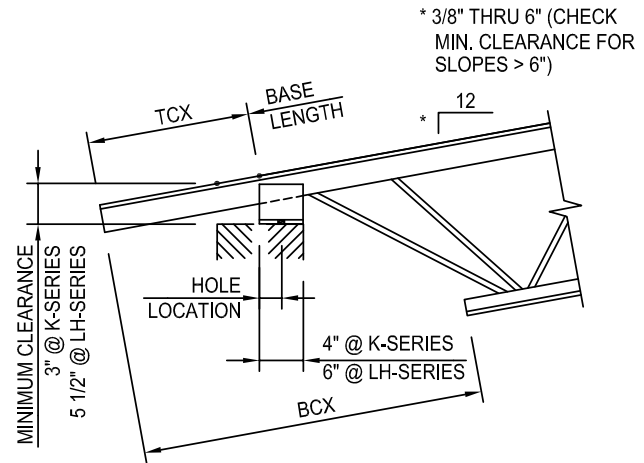
NOTE: NMBS JOIST HEADER FOR SUPPORT OF K-SERIES AND KCS-SERIES JOISTS ONLY. HEADERS FOR SUPPORT OF LH-SERIES AND DLH-SERIES JOISTS BY OTHERS.

JOIST HEADER

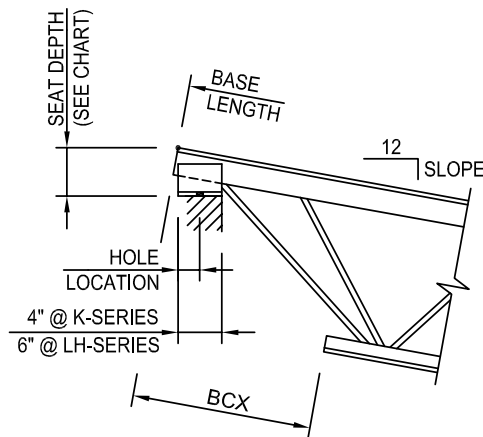
Sloped Seat Requirements



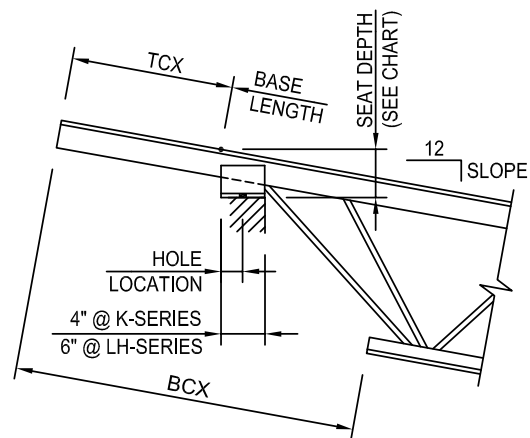
LOW END WITHOUT TCX



LOW END WITH TCX



HIGH END WITHOUT TCX



HIGH END WITH TCX

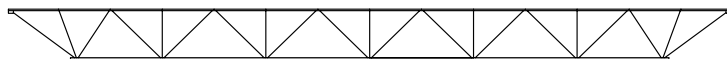
Notes:

1. Sloped seats are not required for slopes less than 3/8":12" (on standard length seats).
2. Contact NMBS for high end seat depth requirements when slope exceeds 6":12".
3. Minimum seat depths indicated were determined using TCX depths of 2 1/2" for K-Series and 5" for LH-Series. When design requires a deeper TCX, minimum seat depths will increase accordingly. See the TOP CHORD EXTENSION LOAD TABLES (R and S TYPE) on pages 68 and 69 for section properties of 2 1/2" deep K-Series TCX depths.
4. See chart below for minimum seat depth requirements for high end bearing conditions.

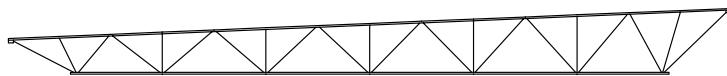
SLOPE: 12"		3/8"	1/2"	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	4 1/2"	5"	5 1/2"	6"
MIN. SEAT DEPTH	K-SERIES	3"	3 1/4"	3 1/4"	3 1/2"	3 3/4"	4"	4 1/4"	4 1/4"	4 1/2"	4 3/4"	5"	5 1/4"	5 1/2"
	LH-SERIES	5 3/4"	5 3/4"	6"	6 1/4"	6 1/2"	6 3/4"	7 1/4"	7 1/2"	7 3/4"	8 1/4"	8 1/2"	8 3/4"	9 1/4"



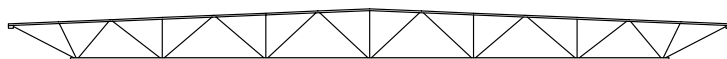
Standard and Special Joist Profiles



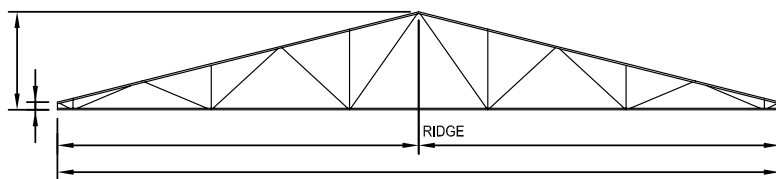
PARALLEL CHORD



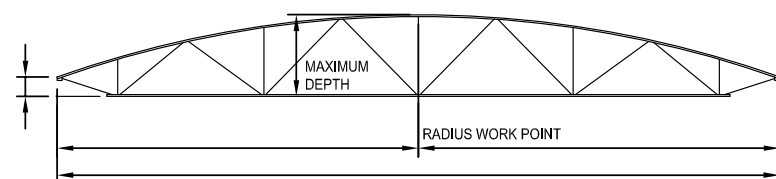
SINGLE PITCHED TOP CHORD



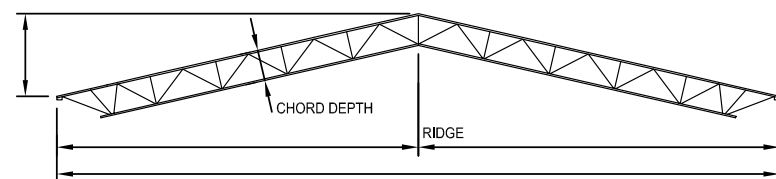
DOUBLE PITCHED TOP CHORD



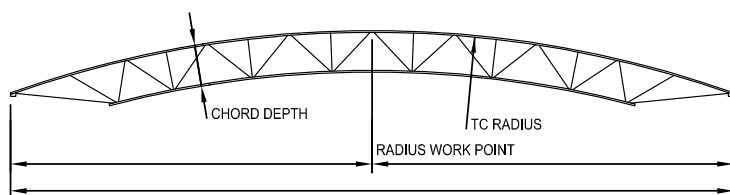
GABLE



BOWSTRING



SCISSOR



ARCH

STANDARD PROFILES

All standard profile joists are available with either under-slung or square ends.

The depth indicated in joist designation is determined by the depth of single pitched joists at the center of span and at ridge center line of double pitched joists. When top chord slope exceeds 1/2:12, total and live top chord uniform loads must be provided.

All standard profile joists with top chord pitch greater than 1/2:12 will be provided with no camber unless otherwise specified in contract documents.

SPECIAL PROFILES

Special profiles shown are also available. Special profile joists are available with either under-slung or square ends. Contract documents must include all dimensions as indicated along with all loading requirements.

All special profile joists will be furnished with no camber unless specified otherwise in contract documents. Scissor and Arch joists may induce horizontal forces to the supporting structure. Anchorage conditions and drift limitations should be considered by the specifying professional.

For more information download or request the New Millennium Building Systems Special Profile Catalog on our web site at www.newmill.com.

Duct Opening Sizes

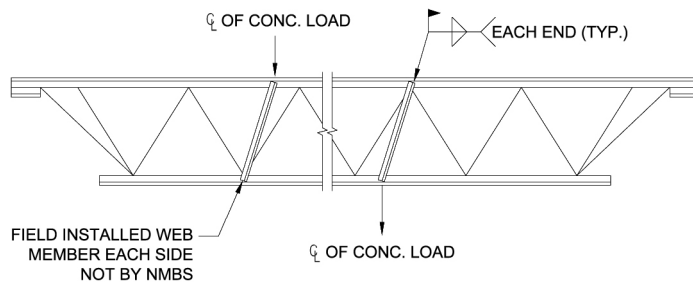
APPROXIMATE DUCT OPENING SIZES

K-SERIES JOIST DEPTH (in.)	DUCT SIZE (in.)		
	ROUND	SQUARE	RECTANGULAR
10	6	4 x 4	4 x 7
12	7	5 x 5	4 x 8
14	8	6 x 6	4 x 10
16	9	7 x 7	7 x 8
18	10	8 x 8	8 x 10
20	11	9 x 9	7 x 12
22	12	9 x 9	9 x 10
24	14	11 x 11	9 x 16
26	15	12 x 12	12 x 13
28	16	13 x 13	11 x 16
30	17	14 x 14	12 x 16

LH, DLH-SERIES JOIST DEPTH (in.)	DUCT SIZE (in.)		
	ROUND	SQUARE	RECTANGULAR
18	10	8 x 8	6 x 11
20	10	8 x 8	7 x 11
24	13	10 x 10	10 x 11
28	15	12 x 12	11 x 15
32	18	14 x 14	12 x 18
36	21	16 x 16	14 x 21
40	23	18 x 18	15 x 24
44	26	21 x 21	17 x 27
48	29	23 x 23	19 x 30
52	32	25 x 25	22 x 31
56	35	28 x 28	24 x 34
60	38	30 x 30	25 x 38
64	40	32 x 32	26 x 42
68	43	35 x 35	28 x 45
72	46	37 x 37	32 x 45

The duct sizes shown are approximate sizes that are permissible to pass through joists. The structural drawings must indicate all ducts that are required to pass through joists.

FIELD REINFORCEMENT AT CONCENTRATED LOADS



Although standard joists, including KCS-Series, are designed specifically to support uniformly distributed loads applied to the top chord, research conducted by the Steel Joist Institute, using second-order inelastic analysis, has demonstrated that the localized accumulation of uniform design loads of up to 100 pounds within any top or bottom chord panel has a negligible effect on the overall performance of the joist, provided that the load is applied to both chord angles in a manner which does not induce torsion on the chords. Concentrated loads in excess of 100 pounds, or which do not meet the criteria outlined above, must be applied at joist panel points or field installed web members must be utilized as shown in the detail above. NMBS can provide a specially designed joist with the capability to take point loads without the added members if this requirement and the exact location and magnitude of the loads are shown on the structural drawings. Also, NMBS can consider the worst case for both the shear and bending moment for a traveling load with no specific location. When a traveling load is specified, the contract drawings should indicate whether the load is to be applied at the top or bottom chord, and at any panel point, or at any point with the local bending effects considered.

STANDARD CAMBER

TOP CHORD LENGTH	APPROXIMATE CAMBER
20'- 0"	1/4"
30'- 0"	3/8"
40'- 0"	5/8"
50'- 0"	1"
60'- 0"	1 1/2"
70'- 0"	2"
80'- 0"	2 3/4"
90'- 0"	3 1/2"
100'- 0"	4 1/4"

For lengths exceeding 100', a camber equal to Span/300 shall be used.

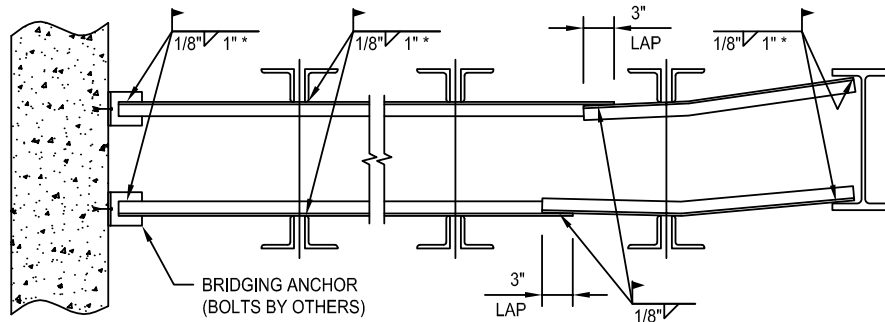
The specifying professional shall give consideration to coordinating camber with adjacent framing.

Special camber can be provided where required, at an additional cost. Non-standard cambers must be indicated in the contract documents.



Standard Bridging Details

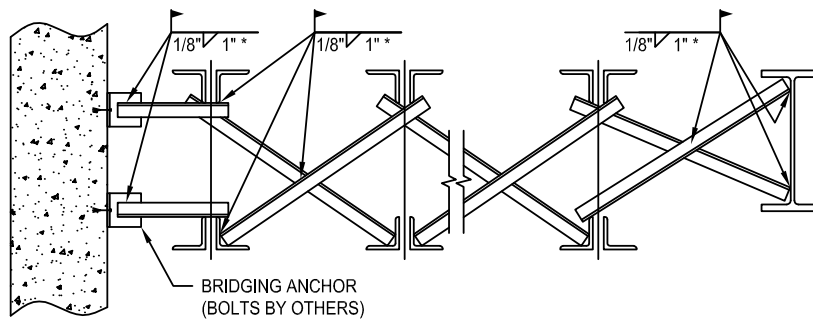
- * 1 1/2" (LH-SERIES SECTIONS 16 & 17)
- 1 1/2" (DLH-SERIES SECTIONS 16 THRU 20)
- 2 1/4" (DLH-SERIES SECTIONS 21 THRU 25)



FIELD CUT HORIZONTAL BRIDGING AS REQUIRED FROM 20'-0" LENGTHS. USE ALL DROP.

WELDED HORIZONTAL BRIDGING

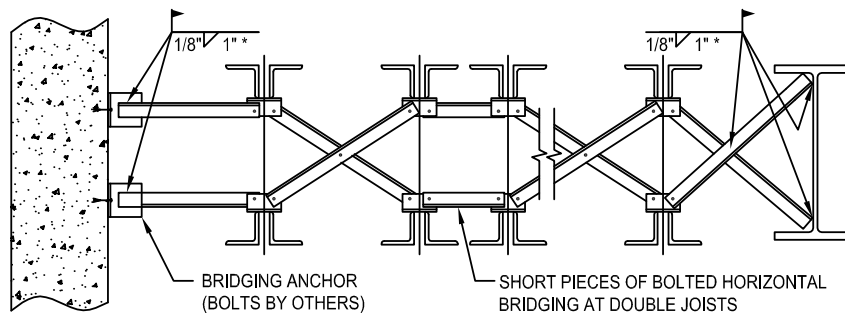
- * 1 1/2" (LH-SERIES SECTIONS 16 & 17)
- 1 1/2" (DLH-SERIES SECTIONS 16 THRU 20)
- 2 1/4" (DLH-SERIES SECTIONS 21 THRU 25)



NMBS RECOMMENDS THE USE OF HORIZONTAL BRIDGING IN THE SPACE ADJACENT TO WALLS TO ALLOW FOR DEFLECTION OF THE JOIST.

WELDED DIAGONAL BRIDGING

- * 1 1/2" (LH-SERIES SECTIONS 16 & 17)
- 1 1/2" (DLH-SERIES SECTIONS 16 THRU 20)
- 2 1/4" (DLH-SERIES SECTIONS 21 THRU 25)



NMBS RECOMMENDS THE USE OF HORIZONTAL BRIDGING IN THE SPACE ADJACENT TO WALLS TO ALLOW FOR DEFLECTION OF THE JOIST.

BOLTED DIAGONAL BRIDGING

OSHA Highlights

NMBS joist products are fabricated to meet the erection requirements of the Occupational Safety and Health Administration (OSHA). Field compliance with OSHA is necessary. This section summarizes the OSHA Safety Standards for Steel Erection, 29 CFR, Open Web Steel Joists 1926.757 requirements governing joist fabrication. Refer to pages 239 through 248 of this publication for the complete OSHA regulation for erecting steel joists.

FIELD-BOLTED JOISTS

Field-bolted bearing connections to steel framing are required where constructability allows, for joists in bays of 40'-0" or more, except where joists are preassembled in panels. Bay is defined as the length from center of steel or from face of wall. Slotted holes are provided in joist seats for this initial connection typically made with ASTM-A307 bolts. The final connection should be welded or as designated by the specifying professional.

COLUMN JOISTS

Joists at columns that are not framed in at least two directions with structural steel, are required to be bolted at the column to provide lateral stability to the column during erection. Joist bottom chords are to be extended at columns onto vertical stabilizer plates to prevent overturning during erection. Hoisting cables are to remain until both ends of joists are field-bolted and bottom chords are restrained by column stabilizer plates.

Where joists do not occur at columns and columns are not framed in at least two directions by structural steel, the joists on both sides of column, are to be field-bolted at both ends where constructability allows. Hoisting cables are to remain until joists are field-bolted and an alternate means of stabilizing joists is installed.

OSHA has adopted an enforcement policy effective indefinitely, for column joists or near column joists spanning 60'-0" or less, as referenced in 1926.757 (a) (3). The policy is as follows: "for all joists at or near

columns that span 60 feet or less, employers will be considered to be in compliance with 1926.757 (a) (3) if they erect these joists either by: (1) installing bridging or otherwise stabilizing the joist prior to releasing the hoisting cable, or (2) releasing the hoisting cable without having a worker on the joists".

NMBS will place a DANGER tag as shown below, on these column joists and near column joists to inform erectors of the OSHA requirements.



DANGER

A FALL CAUSING SERIOUS INJURY OR DEATH MAY RESULT FROM FAILURE TO FOLLOW ALL SAFETY PRECAUTIONS

- Joists **HAVE NOT** been designed for stability or to support your weight without bridging installed.
- **DO NOT WALK, STAND, OR ALLOW LOADS** on joists until adequately stabilized.
- **ALWAYS USE FALL PROTECTION** when a fall hazard is present and **FOLLOW ALL OSHA SAFETY REGULATIONS!**
- Joists at or near columns **ARE NOT** designed to satisfy OSHA 29 CFR 1926.757 (a)(3).
- **ALWAYS STABILIZE** joists **BEFORE RELEASING HOISTING CABLES** using approved erection methods.

Column joists and near column joists spanning more than 60'-0" shall be set in tandem with all bridging installed and field-bolted at both ends where constructability allows, prior to releasing hoisting cables.



ERECTION STABILITY BRIDGING

Where the span of the joist is equal to or greater than the span shown in Tables A and B, at right, the following shall apply: a row of bolted diagonal erection stability bridging shall be installed near the mid-span of the joist and anchored prior to releasing hoisting cables. Joists not listed in Tables A and B, do not require erection stability bridging. The spans indicated in Tables A and B, are defined as follows: from center of steel support or from 4" onto supporting wall for K-Series joists and 6" onto supporting wall for LH and DLH-Series joists.

Where the span of the joist is over 60'-0" through 100'-0" the following shall apply: all rows of bridging shall be bolted diagonal bridging, two rows of bolted diagonal erection stability bridging shall be installed near the third points of the joist and anchored prior to releasing hoisting cables.

Where the span of the joist is over 100'-0" the following shall apply: all rows of bridging shall be bolted diagonal erection stability bridging installed and anchored prior to releasing hoisting cables.

OSHA TABLES A and B ERECTION BRIDGING			
Joist	Span	Joist	Span
12K1	23' - 0"	30K9	45' - 0"
14K1	27' - 0"	30K10	50' - 0"
16K2	29' - 0"	30K11	52' - 0"
16K3	30' - 0"	30K12	54' - 0"
16K4	32' - 0"	18KCS2	35' - 0"
16K5	32' - 0"	20KCS2	36' - 0"
18K3	31' - 0"	20KCS3	39' - 0"
18K4	32' - 0"	22KCS2	36' - 0"
18K5	33' - 0"	22KCS3	40' - 0"
18K6	35' - 0"	24KCS2	39' - 0"
20K3	32' - 0"	24KCS3	44' - 0"
20K4	34' - 0"	26KCS2	39' - 0"
20K5	34' - 0"	26KCS3	44' - 0"
20K6	36' - 0"	28KCS2	40' - 0"
20K7	39' - 0"	28KCS3	45' - 0"
20K9	39' - 0"	28KCS4	53' - 0"
22K4	34' - 0"	28KCS5	53' - 0"
22K5	35' - 0"	30KCS3	45' - 0"
22K6	36' - 0"	30KCS4	54' - 0"
22K7	40' - 0"	30KCS5	54' - 0"
22K9	40' - 0"	18LH02	33' - 0"
24K4	36' - 0"	20LH02	33' - 0"
24K5	38' - 0"	20LH03	38' - 0"
24K6	39' - 0"	24LH03	35' - 0"
24K7	43' - 0"	24LH04	39' - 0"
24K8	43' - 0"	24LH05	40' - 0"
24K9	44' - 0"	24LH06	45' - 0"
26K5	38' - 0"	28LH05	42' - 0"
26K6	39' - 0"	28LH06	46' - 0"
26K7	43' - 0"	28LH07	54' - 0"
26K8	44' - 0"	28LH08	54' - 0"
26K9	44' - 0"	32LH06	47' - 0"
26K10	49' - 0"	32LH07	47' - 0"
28K6	40' - 0"	32LH08	55' - 0"
28K7	43' - 0"	36LH07	47' - 0"
28K8	44' - 0"	36LH08	47' - 0"
28K9	45' - 0"	36LH09	57' - 0"
28K10	49' - 0"	40LH08	47' - 0"
28K12	53' - 0"	40LH09	47' - 0"
30K7	44' - 0"	44LH09	52' - 0"
30K8	45' - 0"		

Joists not listed above do not require OSHA erection bridging through spans per SJI Specifications 5.2 and 104.2 or 60'-0".



Standard Joist Girder Details and Notes

JOISTS GIRDERS USED AS PART OF A RIGID MOMENT FRAME

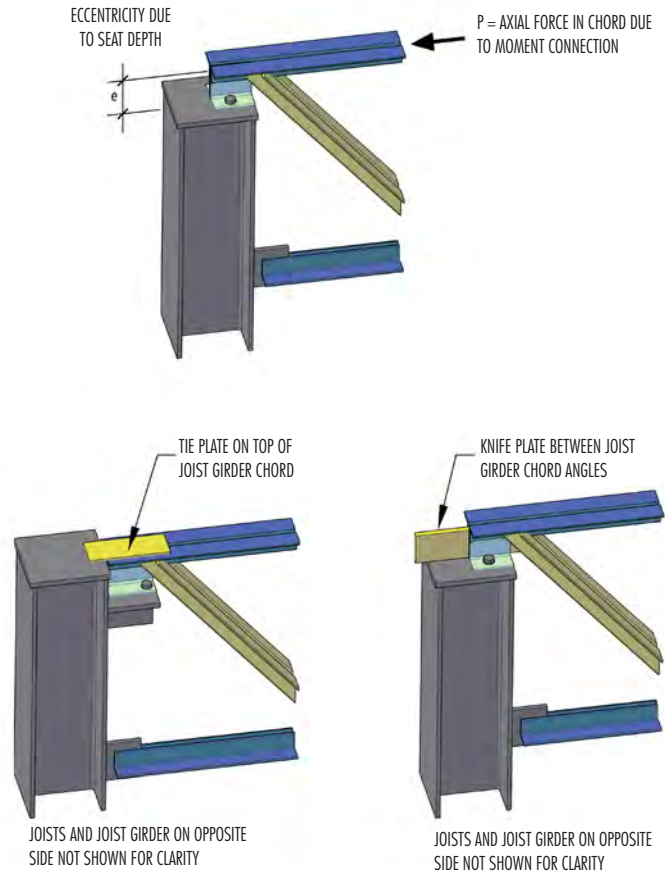
The design of rigid moment frames using Joist Girders is very similar to that of wide-flange beams. End fixity is achieved by restraining the rotation at the ends of the Joist Girders. As with wide-flange beams, there are several methods of achieving this fixity, and for each approach specific design, fabrication, and erection concerns must be considered. With close coordination between the specifying professional and New Millennium Building Systems, material savings may be achieved without increasing fabrication or erection cost. In some cases, it is possible to attain savings in several phases of the project.

Advantages of using Joist Girders as part of a lateral load resistant frame include material efficiencies and a more evenly distributed diaphragm load path, as well as decreased erection cost. Material efficiencies may be achieved utilizing Joist Girder chords in continuity moments as well as lateral frame moments. By collecting the diaphragm loads at each frame line, the diaphragm shear requirements and attachment may be reduced, as compared to using braced frames or shear walls at only a few locations.

TECHNICAL ISSUES

At the top chord, the connection can be problematic since a standard anchorage condition, in which the seat is welded to the column cap plate, develops an eccentric moment in the top-chord of the Joist Girders. When this eccentric moment becomes large, it may govern the size of the Joist Girder top chord, or result in expensive chord reinforcement. The best way to minimize the effects of this moment is to either design the seat and weldment of the joist and Joist Girder seat angles to the cap plate as an extension of the column; with sufficient strength and stiffness to absorb eccentric moment from the anchorage point to the top-chord, or to install a mechanism to tie the Joist Girder top chords together, thereby eliminating the eccentricity all-together. The following details illustrate this load path eccentricity issue, as well as some common methods used to achieve a more direct load path.

RIGID FRAME CONNECTION DETAILS



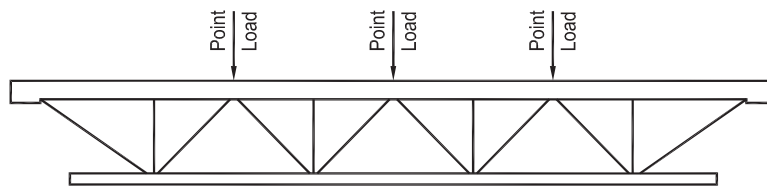
FURTHER REFERENCES

There is a wealth of information available regarding the use of joists and Joist Girders in rigid frames. Please visit www.newmill.com for more information.

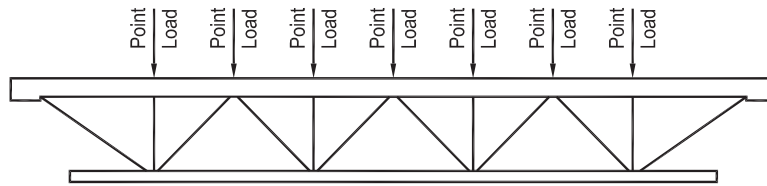
Also see: Steel Joist Institute *Technical Digest 11, Design of Lateral Load Resisting Frames Using Steel Joists and Joist Girders*



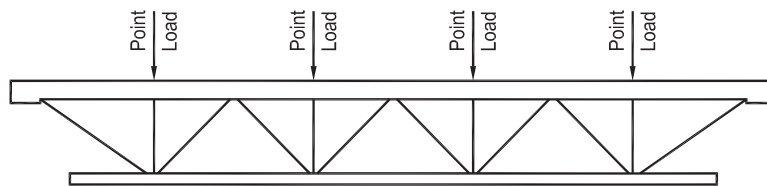
Standard Joist Girder Details and Notes



CONFIGURATION DESIGNATED AS "G"



CONFIGURATION DESIGNATED AS "BG"



CONFIGURATION DESIGNATED AS "VG"

Note: Web configuration may vary from that shown. Contact NMBS if exact layout must be known.

The tables below may be used to solve for the approximate top chord width and the number of bottom chord braces for Joist Girders. Use the formulas below to solve for the TCA and the BCA. After calculating the TCA and BCA, determine the approximate TC Width and the number of bottom chord braces by checking across in the same row under the appropriate column.

For **even** joist spaces on the Joist Girder:

$$TCA = .03 \times P \times S \times N^2 / D$$

$$BCA = .026 \times P \times S \times N^2 / D$$

For **odd** joist spaces on the Joist Girder:

$$TCA = .03 \times P \times S \times (N^2 - 1) / D$$

$$BCA = .026 \times P \times S \times (N^2 - 1) / D$$

Where:

P = panel point load (kips) **S** = joist spacing (ft.) **N** = number of joist spaces **D** = Joist Girder depth (in.)

TCA	APPROXIMATE TC WIDTH (in.)
<= 1.02	6.125
1.03 - 1.19	6.125
1.20 - 1.78	7.125
1.79 - 2.29	8.125
2.30 - 3.75	9.125
3.76 - 4.75	11.125
4.76 - 8.44	13.125
> 8.44	Contact NMBS

BCA	JOIST GIRDER SPAN (ft.)		
	NO BC BRACES	ONE BC BRACE AT MIDSPAN	TWO BC BRACES AT THIRD POINTS
<= 1.02	0 to 25'-8"	> 25'-8" to 51'-4"	> 51'-4" to 77'
1.03 - 1.19	0 to 29'-8"	> 29'-8" to 59'-4"	> 59'-4" to 89'
1.20 - 1.78	0 to 33'-7"	> 33'-7" to 67'-2"	> 67'-2" to 100'-9"
1.79 - 2.29	0 to 37'-9"	> 37'-9" to 75'-5"	> 75'-5" to 113'-2"
2.30 - 3.75	0 to 42'-0"	> 42'-0" to 84'-1"	> 84'-1" to 126'-2"
3.76 - 4.75	0 to 50'-2"	> 50'-2" to 100'-4"	> 100'-4" to 150'-6"
4.76 - 8.44	0 to 58'-3"	> 58'-3" to 116'-6"	> 116'-6" to 174'-9"
> 8.44	Contact NMBS		

Example:

Assume that the Joist Girder size is a 48G8N9.5K x 40' in length. $TCA = .03 \times 9.5 \times 5 \times 8^2 / 48 = 1.90$, 1.90 falls in the 4th row and the ~ TC Width = 8.125". $BCA = .026 \times 9.5 \times 5 \times 8^2 / 48 = 1.65$, 1.65 falls in the 3rd row and since the length is 40', the number of bottom chord braces required = one at the midspan. Note: Additional braces may be required by design. For critical dimensions, the top chord width needs to be verified by NMBS.

Load Zone Joists

EFFICIENT ALTERNATIVE TO KCS JOIST

When the approximate locations of concentrated loads are known, the designer has the opportunity to design a more efficient joist. These joists can be designed to support concentrated loads residing in specific areas defined as "load zones." With boundaries of zones defined and the corresponding concentrated load specified, the Joist Manufacturer can design a more efficient joist.

1. Load zone joists can be designed in accordance with either K or LH Series Specifications.
2. Shear and moment envelopes are developed for all load cases within the zones and the joists are designed accordingly, including any stress reversal which may occur.
3. The designer may specify as many loads and corresponding "load zones" as needed. The fewer zones specified, the more efficient the joist will be.
4. Joist chords and web members will be designed to adequately support all specified load combinations. If a concentrated load does not occur at a panel point, then a field installed web member must be placed from a panel point to the point of concentrated load. Alternatively, some portion of the load may be specified as a bending load that may be located between panel points. This option eliminates the requirement for a field installed web member, at the expense of a larger chord size.
5. Joist chords will be checked so that bridging utilized for adjacent joists will be adequate for the "load zone" joists.
6. How to specify "load zone" joists: In the figure shown on the right is a typical framing plan. There are two load zones indicated with hatched lines. The Zone A boundary covers an area 2'-0" from the left side to 12'-0" from the left side over three joists. The Zone B boundary covers an area beginning 10'-0" from the left side to 17'-0" from the left side over 6 joists. Zone A will have a 1000 pound concentrated load which may occur anywhere within the zone. Zone B will have a 2000 pound concentrated load occurring anywhere within the zone. The joists not

affected by the concentrated loads are designated as 26K200/100. The first three joists from the top of the plan are affected by Zones A and B and will be labeled as: 26KZ200/100 (A, B). When using LH Series Specifications, the joists would be labeled as 26LHZ200/100 (A, B). The next three joists are affected by only Zone B. They will be labeled as: 26KZ200/100 (B). In near proximity with the corresponding framing plan the load zone information should be listed as follows:

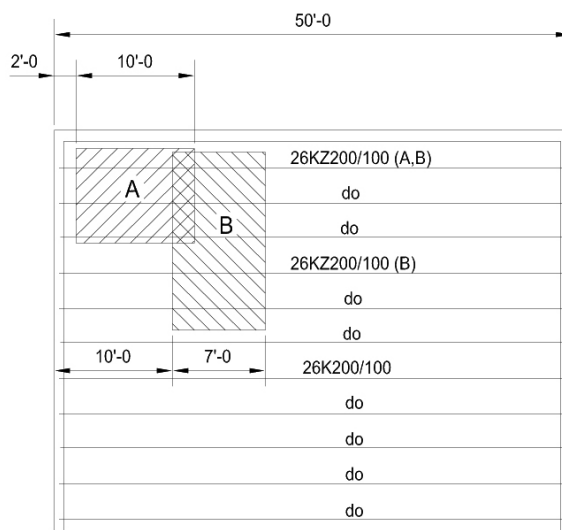
Zone A - 1000 lb. 2' to 12'

Zone B - 2000 lb. 10' to 17'

Note that the dimensions are from one end of the framing plan. Actual dimensions may be placed on the framing plan as shown below.

7. Compare the weight of the 26KZ200/100 (A, B) joist to a KCS joist selected to carry the same loads: Determining the shear and moment envelopes we find that ($M_{max} = 1077$ in. kips and the Max. Shear = 7324 lbs.) the KCS selection would be a 26KCS4 (see KCS table on page 77). The KCS joist weighs 16.5 lbs. per foot. The load zone joist design shows that the 26KZ200/100 (A, B) weighs 12.4 lbs. per foot. Multiplying the weight per foot difference (16.5 minus 12.4 equals 4.1) times the length of the joist (50 feet) reveals that the load zone joist would weigh 204 lbs. less than the KCS joist.

Note: If using LRFD, be sure to specify it as such and state whether the specified loads are factored or unfactored.



Visit our website to download Joist and Deck Bill of Materials and instructions

Everything you need can be found at: www.newmill.com/downloads/downloads_bill_of_materials.html

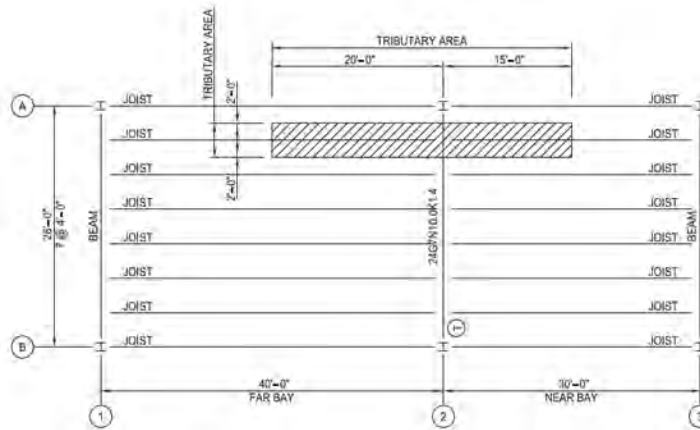
CALCULATING JOIST GIRDER UPLIFT

Joist Girder uplift is calculated by determining the amount of roof area (tributary area) supported by each Joist Girder panel point. It is applied in the form of a Kip load at each joist bearing location. To calculate Joist Girder uplift, use the formula and example supplied below. Net uplift equals 10 psf.

$$((1/2 \text{ Near Bay} + 1/2 \text{ Far Bay}) \times \text{Uplift in PSF} \times \text{Largest Joist Space}) / 1000$$

Example: $((20' + 15') \times 10 \times 4') / 1000 = 1.4 \text{ Kips}$

Joist Girder uplift should be included at the end of the Joist Girder designation - 24G7N10.0K1.4



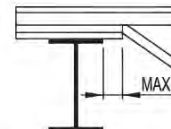
JOIST GIRDER SEAT TYPE

Standard Joist Girder seat type is "R"-Type (Full Depth) unless specified otherwise via special note.

OSHA HOLES

If OSHA holes are required for joist bearing on a Joist Girder, then specify which side requires holes. In the example shown below, a pair of holes will be provided at 3'-11 3/4" (A), from base length at the left end, and then at every 4'-0" (N) intermediate panel location on far side as denoted by placing an "F" in the OH column. Unless otherwise noted, top chord holes are provided in the standard configuration listed next to the diagram on the Joist Girder bill.

A	N		B	OH	TCL	TCR	JST. GA.	BOLT (X/16)	NOTE #
	NO.	LENGTH							
3- 11 3/4	5	4- 0	3- 11 3/4	F	1 1/2	1 1/2	3 1/2	3	



MINIMUM BEARING

Achieving minimum bearing (as per SJI) on lists provided by the customer, is the responsibility of the customer. The maximum portion of the seat that may hang off of the inside edge of the support, and still allow the member to achieve minimum bearing, is as follows: 1 1/2" for K-Series joists, 2" for LH, DLH-Series joists, and 2" for Joist Girders. These are the maximum values allowed by SJI and require special design consideration for masonry bearing conditions. Please refer to SJI specifications provided in the appropriate sections of this New Millennium catalog.

SALES FAX
 (260) 868-6002
 BUTLER, IN
 (775) 867-2139
 FALLON, NV
 (870) 722-4262
 HOPE, AR
 (915) 298-4040
 JUAREZ, MX
 (386) 466-1302
 LAKE CITY, FL
 (540) 389-0378
 SALEMI, VA



DATE: _____

SALES FAX
 (260) 868-6002
 BUTLER, IN
 (775) 867-2139
 FALLON, NV
 (870) 722-4262
 HOPE, AR
 (915) 298-4040
 JUAREZ, MX
 (386) 466-1302
 LAKE CITY, FL
 (540) 389-0378
 SALEMI, VA

GIRDER BILL OF MATERIAL

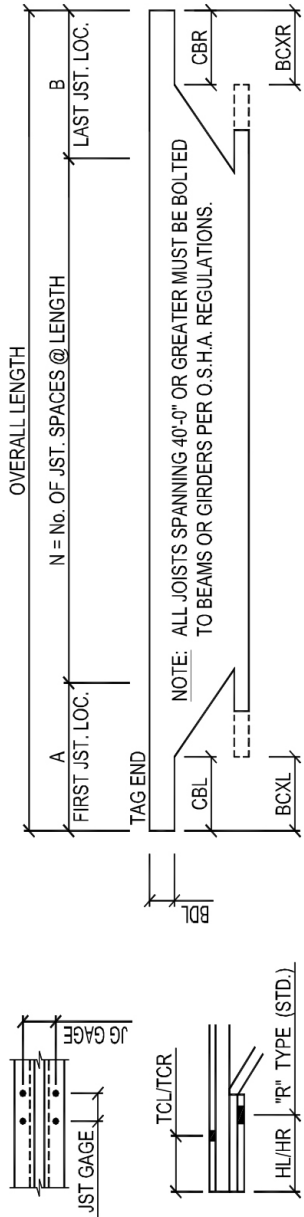
JOB NAME: _____ PAINT: _____ SHEET: _____ of _____

LOCATION: _____ NIMS JOB#: _____

_____ CUST. JOB #: _____

_____ DETAILER: _____

_____ CHECKER: _____



QTY. (THIS SHT.) 0

GIRDER MARK	QTY.	GIRDER SIZE	OVERALL LENGTH	CBL	CBR	SEAT DEPTH		BCXL	BCXR	PUNCHED SEATS		A	NO.	N LENGTH	B	O H	TCL	TCR	JST. GA.	BOLT (X/16)	NOTE #	
						BDL	BDR			HL	HR											

SALES FAX
BUTLER, IN (260) 868-6002
FALLON, NV (775) 867-2139
HOPE, AR (870) 722-4262
JUAREZ, MX (915) 298-4040
LAKE CITY, FL (386) 466-1302
SALEM, VA (540) 389-0378

DATE: _____

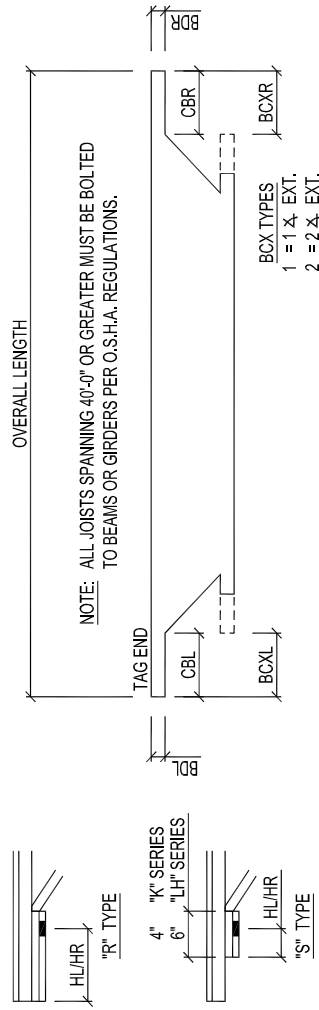


JOIST BILL OF MATERIAL

PAINT: _____ SHEET: _____ of _____

JOB NAME: _____ CUST. JOB #: _____ NMBS JOB #: _____
 LOCATION: _____ DETAILER: _____ CHECKER: _____

NET UPLIFT = _____ P.L.F.



STANDARD UNLESS NOTED OTHERWISE ON BILL
 "K" SERIES "LH" & "DLH" SERIES
 BDL, BDR * = 2 1/2" 5"
 CBL, CBR = 4" 6"
 SLOTS = 9/16" x 1 1/2" 1 3/16" x 1 1/2"
 GAGE * = 3 1/2" 4"
 BCXL, BCXR = NONE NONE
 QTY. (THIS SHT.)
 K: 0
 LH: 0
 JS: 0
 HDR: 0

NOTE: IF 1 3/16" x 1 1/2" SLOTS ARE REQD. FOR "K" SERIES JOISTS, GAGE = 4".
 * BEARING DEPTH = 7 1/2" FOR "DLH" 18 THRU 25
 CHECK WITH NMBS FOR APPROPRIATE BOLT GAGE

JOIST MARK	QTY.	JOIST SIZE	OVERALL LENGTH	CBL		CBR		SEAT DEPTH		BCXL		BCXR		PUNCHED SEATS			NOTES OR NOTE #
				LENGTH	TYPE	LENGTH	TYPE	BDL	BDR	LENGTH	TYPE	LENGTH	TYPE	HL	HR	GA.	



NEW MILLENNIUM
BUILDING SYSTEMS
WWW.NEWMILL.COM

SALES FAX
BUTLER, IN (260) 868-6002
FALLON, NV (775) 867-2139
HOPE, AR (870) 722-4262
JUAREZ, MX (915) 298-4040
LAKECITY, FL (386) 466-1302
SALEM, VA (540) 389-0378

DATE: _____
SHEET: _____ of _____
PAINT: _____

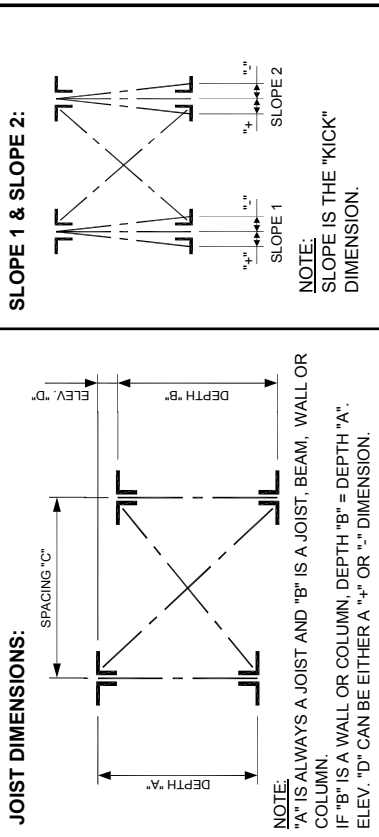
JOB NAME:	CUST. JOB #:	NMBS JOB #:
LOCATION:	DETAILER:	CHECKER:

BRIDGING TYPES:

H = WELDED HORIZONTAL (SUPPLIED IN 20'-0" PCS)
 W = WELDED DIAGONAL
 B = BOLTED HORIZONTAL
 X = BOLTED DIAGONAL

NOTE: JOIST DIMENSIONS AND SLOPE INFORMATION MUST BE PROVIDED FOR BRIDGING TYPES W, B & X

NOTE: BOLT DIAMETER 3/8", 1/2" OR 5/8", MUST BE PROVIDED FOR BRIDGING TYPES B & X



BRIDGING MARK	QUANTITY	ANGLE SIZE	BRIDGING TYPE	BOLT DIAMETER	"A"=JOIST MARK AND DEPTH	"B"=JOIST MARK AND DEPTH	SPACING "C"	ELEV. "D"	SLOPE 1	SLOPE 2