JOIST GIRDERS

INTRODUCTION

On the following pages are specifications and weight tables for Joist Girders, which are open web steel trusses used as primary framing members. They are designed as simple spans supporting equally spaced concentrated loads of a floor or roof system. These concentrated loads are considered to act at the panel points of the Joist Girders.

Joist Girders have been designed to allow for a growing need for longer span primary members, coupled with a need for more efficient steel usage.

These members have been standardized in the Weight Table for depths from 20 inches (508 mm) to 72 inches (1829 mm), and spans to 60 feet (18288 mm). Standardized camber is provided as listed in paragraph 1003.6 of the specifications. Joist Girders are furnished with underslung ends and lower chord extensions. The standard depth at the bearing ends has been established at 6 inches (152 mm) for Joist Girders weighing less than 60 pounds per lineal foot (89 kg/m), and 7½ inches (191 mm) for Joist Girders weighing 60 pounds per lineal foot (89 kg/m) or more. Joist Girders are usually attached to the columns by bolting with two ¾ inch (19 mm) bolts. A loose connection of the lower chord to the column or other support is recommended during erection in order to stabilize the lower chord laterally and to help brace the Joist Girder against possible overturning.

"CAUTION": If a rigid connection of the bottom chord is to be made to the column or other support, it shall be made only after the application of the dead loads. The Joist Girder is then no longer simply supported and the system must be investigated for continuous frame action by the specifying professional. Bearing details of joists on perimeter girders, or interior girders with unbalanced loads, should be designed such that the reactions pass through the center of the Joist Girder.

The Weight Table lists the approximate weight per linear foot (Kilograms per meter) for a Joist Girder supporting the concentrated panel point loads shown. Please note that the weight of the Joist Girder must be included in the panel point load (see the example at Section 1006).

For calculating the approximate deflection or checking for ponding, the following formula may be used in determining the approximate moment of inertia of a Joist Girder.

$I_{JG} = 0.027$ NPLd; where N = number of joist spaces, P = panel point load in kips, L = Joist Girder length in feet), and d = effective depth of the Joist Girder in inches, or

$I_{JG} = .3296$ NPLd; where N = number of joist spaces, P = panel point load in kilonewtons, L = Joist Girder length in millimeters, and d = effective depth of the Joist Girder in millimeters. Contact the Joist Girder manufacturer if a more exact Joist Girder moment of inertia must be known.

STANDARD SPECIFICATIONS
FOR JOIST GIRDERS

Adopted by the Steel Joist Institute November 4, 1985
Revised to May 2, 1994 - Effective September 1, 1994

SECTION 1000.
SCOPE

These specifications cover the design, manufacture and use of Joist Girders.

SECTION 1001.
DEFINITION

The term "Joist Girders", as used herein, refers to open web, load- carrying members utilizing hot-rolled or cold-formed steel, including cold-formed steel whose yield strength* has been attained by cold working.

The design of Joist Girder chord or web sections shall be based on a yield strength of at least 36 ksi (250 MPa) but not greater than 50 ksi (345 MPa) Steel used for Joist Girder chord or web sections shall have a minimum yield strength determined in accordance with one of the procedures specified in Section 1002.2, which is equal to the yield strength assumed in the design. Joist Girders shall be designed in accordance with these specifications to support panel point loadings.

* The term "yield strength" as used herein shall designate the yield level of a material as determined by the applicable method outlined in paragraph 13 - "Yield Strength", or paragraph 12 - "Yield Point", of ASTM A370, "Mechanical Testing of Steel Products", or as specified in Section 1002.2 of this Specification.

SECTION 1002.
MATERIALS

1002.1 STEEL

The steel used in the manufacture of chord and web sections shall conform to one of the following ASTM Specifications of latest adoption:

Standards Specifications and Weight Tables for Joist Girders

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- Structural Steel, ASTM A36/A36M.
- High-Strength Low-Alloy Structural Steel, ASTM A242/A242M.
- High-Strength Carbon-Manganese Steel of Structural Quality, ASTM A529/A529M, Grade 50.
- Hot-Rolled Carbon Steel Sheets and Strip, Structural Quality, ASTM A570/A570M.
- High-Strength Low-Allow Columbium-Vanadium Steel of Structural Quality, ASTM A572/A572M Grades 42, 45, and 50.
- High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 inches (102 mm) thick, ASTM A588/A588M.
- Steel Sheet and Strip, Hot-Rolled and Cold-Rolled, High- Strength, Low-Alloy, with Improved Corrosion Resistance, ASTM A606.
- Steel Sheet and Strip, Hot-Rolled and Cold-Rolled, High-Strength, Low-Alloy, Columbium and/ or Vanadium, ASTM A607, Grades 45 and 50.
- Steel, Cold-Rolled Sheet, Carbon Structural, ASTM A611, Grade D.

or shall be of suitable quality ordered or produced to other than the listed specifications, provided that such material in the state used for final assembly and manufacture is weldable and is proved by tests performed by the producer or manufacturer to have the properties specified in Section 1002.2.

1002.2 MECHANICAL PROPERTIES

The yield strength used as a basis for the design stresses prescribed in Section 1003 shall be at least 36 ksi (250 MPa) but shall be not greater than 50 ksi (345 MPa). Evidence that the steel furnished meets or exceeds the design yield strength shall, if requested, be provided in the form of an affidavit or by witnessed or certified test reports.

For material used without consideration of increase in yield strength resulting from cold forming, the specimens shall be taken from as-rolled material. In the case of material properties of which conform to the requirements of one of the listed specifications, test specimens and procedure shall conform to those of such specifications and to ASTM A370.

In the case of material the mechanical properties of which do not conform to the requirements of one of the listed specifications, the test specimens and procedure shall conform to the applicable requirements of ASTM A370 and the specimens shall exhibit a yield strength equal to or exceeding the design yield strength and an elongation of not less than (a) 20 percent in 2 inches (51 mm) for sheet and strip or (b) 18 percent in 8 inches (203 mm) for plates, shapes and bars with adjustments for thickness for plates, shapes and bars as prescribed in ASTM A36/A36M, A242/A242M, A529/A529M, A572/A572M, and A588/A588M, whichever specification is applicable on the basis of design yield strength.

The number of tests shall be the same as prescribed in ASTM A6 for plates, shapes and bars; and ASTM A570, A570M, A606, A607, and A611 for sheet and strip.

If as-formed strength is utilized, the test reports shall show the results of tests performed on full section specimens in accordance with the provisions of Sections 3.1.1 and 6.3 of the AISI Specifications for the Design of Cold-Formed Steel Structural Members, and shall indicate compliance with these provisions and with the following additional requirements:

1. The yield strength measured in the tests shall equal or exceed the design yield strength.

2. Where tension tests are made for acceptance and control purposes, the tensile strength shall be at least 6 percent greater than the yield strength of the section.

3. Where compression tests are used for acceptance and control purposes, the specimen shall withstand a gross shortening of 2 percent of its original length without cracking. The length of specimen shall not be greater than 20 times its least radius of gyration.

4. If any test specimen fails to pass the requirements of subparagraph 1, 2, or 3 above, as applicable, two retests shall be made of specimens from the same lot. Failure of one of the retest specimens to meet such requirements shall be cause for rejection of the lot represented by the specimens.

1002.3 WELDING ELECTRODES

The following electrodes shall be used for arc welding:

a) For connected members both having a specified minimum yield strength greater than 36 ksi (250 MPa).

AWS A5.1 or A5.5, E70XX
AWS A5.17 F7X EXXX flux electrode combination
AWS A5.18, E70S-X or E7OU-1
AWS A5.20, E70T-X

b) For connected members both having a specified minimum yield strength of 36, ksi (250 MPa) or one having a specified minimum yield strength of 36 ksi (250 MPa) and the other having a specified minimum yield strength greater than 36 ksi (250 MPa).

AWS A5.1, E60XX
AWS A5.17, F6X-EXXX flux electrode combination
AWS A5.20, E60T-X
or any of those listed in Section 1002.3(a).

Other welding methods, providing equivalent strength as demonstrated by tests, may be used.

1002.4 PAINT

The standard shop paint is a primer coat intended to protect the steel for only a short period of exposure in ordinary atmospheric conditions and shall be considered an impermanent and provisional coating.

When specified, the Standard shop paint shall conform to one of the following:

a) Steel Structures Painting Council Specification 15-68T, Type 1 (red oxide).

b) Federal Specification TT-P-636 (red oxide).

c) Or, shall be a shop paint which meets the minimum performance requirements of one of the above listed specifications.

SECTION 1003.
DESIGN AND MANUFACTURE

1003.1 METHOD

Joist Girders shall be designed in accordance with these specifications as simply supported primary members. All loads will be applied through steel joists, and will be equal in magnitude and evenly spaced along joist girder top chord. Where any applicable design feature is not specifically covered herein, the design shall be in accordance with the following specifications of latest adoption:

a) American Institute of Steel Construction Specification for the Design, Fabrication and

Erection of Structural Steel for Buildings (Allowable Stress Design), where the material used consists of plates, shapes or bars.

b) American Iron and Steel Institute Specification for the Design of Cold-Formed Steel Structural Members, for members which are cold-formed from sheet or strip material.

1003.2 UNIT STRESSES

Joist Girders shall have their components so proportioned that the unit stresses in kips per square inch (Mega Pascals) shall not exceed the following, where F_y is the yield strength defined in Section 1002.2:

a) **Tension:**
All Members . . . . $F_t = 0.6F_y$

b) **Compression:**
For Members with ℓ/r less than C_c:

$$F_a = \frac{\left[1 - \dfrac{(\ell/r)^2}{2C_c^2}\right] QF_y}{\dfrac{5}{3} + \dfrac{3}{8}\left[\dfrac{\ell/r}{C_c}\right] - \dfrac{1}{8}\left[\dfrac{\ell/r}{C_c}\right]^3}$$

$$\text{where } C_c = \sqrt{\frac{2\pi^2 E}{QF_y}} \text{ and}$$

where Q is a form factor equal to unity except when the width-thickness ratio of one or more elements of the profile exceeds the limits specified in the AISC Specification, Section B5 (Allowable Stress Design), for hot-rolled sections and in the AISI Specification, Section 3., for cold-formed sections. For members with ℓ/r greater than C_c:

$$F_a = \frac{12\pi^2 E}{23\,(\ell/r)^2}$$

In the above formula ℓ is the length center-to-center of panel points, and r is the corresponding least radius of gyration of the member or any component thereof, both in inches (millimeters) and E is equal to 29,000 ksi (200,000 MPa).

c) **Bending:**
For chords, and for web members other than solid rounds ....$F_b = 0.6F_y$

For web members of solid round cross section ....$F_b = 0.9F_y$

For outstanding legs of top chord angles at points of loading....................$F_b = 0.75F_y$

For bearing plates................................$F_b = 0.75F_y$

d) **Weld Stresses:**
Shear at throat of fillet welds:

Made with E70 series electrodes or F7X-EXXX flux-electrode combinations . . . .21 ksi (145 MPa)
Made with E60 series electrodes or F6X-EXXX flux-electrode combinations . . . . 18 ksi (124 MPa)

Tension or compression on groove or butt welds shall be the same as those specified for the connected material.

1003.3 MAXIMUM SLENDERNESS RATIOS

The slenderness ratio, ℓ/r, where ℓ is the length center-to-center of support points and r is the corresponding least radius of gyration, shall not exceed the following:

Top chord interior panels.......................................90
Top chord end panels..120
Compression members other than top chord 200
Tension members 240

If moment-resistant weld groups are not used at the ends of a crimped, first primary compression web member, then $1.2\,\ell/r_x$ must be used. Where r_x = member radius of gyration in the plane of the joist.

1003.4 MEMBERS

a) **Chords**

The bottom chord shall be designed as an axially loaded tension member. The radius of gyration of the bottom chord about its vertical axis shall be not less than $\ell/240$ where ℓ is the distance between lines of bracing.

The top chord shall be designed as an axially loaded compression member. The radius of gyration of the top chord about the vertical axis shall be not less than Span/575.

The top chord shall be considered as stayed laterally by the steel joists provided positive attachment is made.

b) **Web**

The vertical shears to be used in the design of the web members shall be determined from full loading but such vertical shear shall be not less than 25 percent of the end reaction.

Interior vertical web members used in modified Warren type web systems that do not support the direct loads through steel joists shall be designed to resist 2 percent of the top chord axial force.

Tension members shall be designed to resist, in compression, at least 25 percent of their axial force.

c) **Fillers and Ties**

Chord and web members in compression, composed of two components, shall have fillers, ties or welds spaced so that the ℓ/r ratio for each component shall not exceed the ℓ/r ratio of the whole member. Chord and web members in tension, composed of two components, shall have fillers, ties or welds spaced so that the ℓ/r ratio of each component shall not exceed 240. The least r shall be used in computing the ℓ/r ratio of a component.

d) **Eccentricity**

Members connected at a joint shall have their center of gravity lines meet at a point, if practical. Eccentricity on either side of the centroid of chord members may be neglected when it does not exceed the distance between the centroid and the back of the chord. Otherwise, provision shall be made for the stresses due to eccentricity. Ends of Joist Girders shall be proportioned to resist bending produced by eccentricity at the support. In those cases where a single angle compression member is attached to the outside of the stem of a tee or double angle chord, due consideration shall be given to eccentricity.

e) **Extended Ends**

Extended top chords or full depth cantilever ends require the special attention of the specifying professional.

The magnitude and location of the design loads to be supported, the deflection requirements, and the proper bracing shall be clearly indicated on the structural drawings.

1003.5 CONNECTIONS

a) **Methods**

Joint connections and splices shall be made by attaching the members to one another by arc or resistance welding or other approved method.

1) Welded Connections

(a) Selected welds shall be inspected visually by the manufacturer. Prior to this inspection, weld slag shall be removed.

(b) Cracks are not acceptable and shall be removed.

(c) Thorough fusion shall exist between layers of weld metal and between weld metal and base metal for the required design length of the weld; such fusion shall be verified by visual inspection.

(d) Unfilled weld craters shall not be included in the design length of the weld.

(e) Undercut shall not exceed $\frac{1}{16}$ inch (2 mm) for welds oriented parallel to the principal stress.

(f) The sum of surface (piping) porosity diameters shall not exceed $\frac{1}{16}$ inch (2 mm) in any 1 inch (25 mm) of design weld length.

(g) Weld spatter that does not interfere with paint coverage is acceptable.

2. Welding Program

Manufacturers shall have a program for establishing weld procedures and operator qualification, and for weld sampling and testing.

3. Weld inspection by Outside Agencies (See Section 1004.10 of these specifications).

The agency shall arrange for visual inspection to determine that welds meet the acceptance standards of Section 1003.5.1) above. Ultrasonic, X-Ray, and magnetic particle testing are inappropriate for joists due to the configurations of the components and welds.

b) **Strength**

Joint connections shall develop the maximum force due to any of the design loads, but not less than 50 percent of the allowable strength of the member in tension or compression, whichever force is the controlling factor in the selection of the member.

c) **Shop Splices**

Shop splices may occur at any point in chord or web members. Splices shall be designed for the member force but not less than 50 percent of the allowable member strength. Members containing a butt weld splice shall develop an ultimate tensile force of at least 57 ksi (393 MPa) times the full design area of the chord or web. The term "member" shall be defined as all component parts, comprising the chord or web, at the point of splice.

d) **Field Splices**

Field splices shall be designed by the manufacturer and may be either bolted or welded. Splices shall be designed for the member force, but not less than 50 percent of the allowable member strength.

1003.6 CAMBER

Joist Girders shall have approximate cambers in accordance with the following:

Top Chord Length	Approximate Camber
20′-0″ (6096 mm)	¼″ (6 mm)
30′-0″ (9144 mm)	⅜″ (10 mm)
40′-0″ (12192 mm)	⅝″ (16 mm)
50′-0″ (15240 mm)	1″ (25 mm)
60′-0″ (18288 mm)	1½″ (38 mm)

1003.7 VERIFICATION OF DESIGN AND MANUFACTURE

a) **Design Calculations**

Companies manufacturing Joist Girders shall submit design data to the Steel Joist Institute (or an independent agency approved by the Steel Joist Institute) for verification of compliance with the SJI Specifications.

b) **In-Plant Inspections**

Each manufacturer shall verify his ability to manufacture Joist Girders through periodic In-Plant Inspections. Inspections shall be performed by an independent agency approved by the Steel Joist Institute. The frequency, manner of inspection, and manner of reporting shall be determined by the Steel Joist Institute. The In-Plant Inspections are not a guaranty of the quality of any specific Joist Girders; this responsibility lies fully and solely with the individual manufacturer.

SECTION 1004.
APPLICATION

1004.1 USAGE

These specifications shall apply to any type of structure where steel joists are to be supported directly by Joist Girders installed as hereinafter specified. Where Joist Girders are used other than on simple spans under equal concentrated gravity loading, as prescribed in Section 1003.1, they shall be investigated and modified if necessary to limit the unit stresses to those listed in Section 1003.2. The magnitude and location of all loads and forces, other than equal concentrated gravity loadings, shall be provided on the structural drawings. The specifying professional shall design the supporting structure, including the design of columns, connections, and moment plates. This design shall account for the stresses caused by lateral forces and the stresses due to connecting the bottom chord to the column or other support.

The designed detail of a rigid type connection and moment plates shall be shown on the structural drawings by the specifying professional. The moment plates shall be furnished by other than the joist manufacturer.

1004.2 SPAN

The span of a Joist Girder shall not exceed 24 times its depth.

1004.3 DEPTH

The nominal depth of sloping chord Joist Girders shall be the depth at mid-span.

1004.4 END SUPPORTS

a) **Masonry and Concrete**

Joist Girders supported by masonry or concrete are to bear on steel bearing plates and shall be designed as steel bearing. Due consideration of the end reactions and all other vertical or lateral forces shall be taken by the specifying professional in the design of the steel bearing plate and the masonry or concrete. The ends of the Joist Girders shall extend a distance of not less than 6 inches (152 mm) over the masonry or concrete support and be anchored to the steel bearing plate. The plate shall be located not more than ½ inch (13 mm) from the face of the wall and shall be not less than 9 inches (229 mm) wide perpendicular to the length of the girder. It is to be designed by the specifying professional in compliance with the allowable unit stresses in Section A5.1 (Allowable Stress Design) of the A.I.S.C. Specifications of latest adoption. The steel bearing plate shall be furnished by other than the joist manufacturer.

Where it is deemed necessary to bear less than 6 inches (152 mm) over the masonry or concrete support, special consideration is to be given to the design of the steel bearing plate and the masonry or concrete by the specifying professional. The girders must bear a minimum of 4 inches (102 mm) on the steel bearing plate.

b) **Steel**

Due consideration of the end reactions and all other vertical and lateral forces shall be taken by the specifying professional in the design of the steel support. The ends of Joist Girders shall extend a distance of not less than 4 inches (102 mm) over the steel supports and shall have posi-

tive attachment to the support, either by bolting or welding.

1004.5 BRACING

Joist Girders shall be proportioned such that they can be erected without bridging (See Section 1004.9 for bracing required for uplift forces). Therefore, the following requirements must be met:

a) The ends of the bottom chord are restrained from lateral movement to brace the girder from overturning.

b) No other loads shall be placed on the Joist Girder until the steel joists bearing on the girder are in place and welded to the girder.

1004.6 END ANCHORAGE

a) **Masonry and Concrete**

Ends of Joist Girders resting on steel bearing plates on masonry or structural concrete shall be attached thereto with a minimum of two $\frac{1}{4}$ inch (6mm) fillet welds 2 inches (51 mm) long, or with two $\frac{3}{4}$ inch (19 mm) bolts.

b) **Steel**

Ends of Joist Girders resting on steel supports shall be attached thereto with a minimum of two $\frac{1}{4}$ inch (6 mm) fillet welds 2 inches (51 mm) long, or with two $\frac{3}{4}$ inch (19 mm) bolts. In steel frames, Joist Girders at column lines shall be field bolted to the columns to provide lateral stability during construction.

c) **Uplift**

Where uplift forces are a design consideration, roof Joist Girders shall be anchored to resist such forces.

1004.7 DEFLECTION

The deflections due to the design live load shall not exceed the following:

Floors: $\frac{1}{360}$ of span.
Roofs: $\frac{1}{360}$ of span where a plaster ceiling is attached or suspended.
$\frac{1}{240}$ of span for all other cases.

The specifying professional shall give due consideration to the effects of deflection and vibration* in the selection of Joist Girders.

* For further reference, refer to Steel Joist Institute Technical Digest No 5, "Vibration of Steel Joist-Concrete Slab Floors" and Computer Vibration program.

1004.8 PONDING

Unless a roof surface is provided with sufficient slope toward points of free drainage or adequate individual drains to prevent the accumulation of rain water, the roof system shall be investigated to assure stability under ponding conditions in accordance with Section K2 (Allowable Stress Design) of the AISC Specifications.*

The ponding investigation shall be performed by the specifying professional.

* For further reference, refer to the Steel Joist Institute Technical Digest #3, "Structural Design of Steel Joist Roofs to Resist Ponding Loads".

1004.9 UPLIFT

Where uplift forces due to wind are a design requirement, these forces must be indicated on the contract drawings in terms of net uplift in pounds per square foot (Pascals). When these forces are specified, they must be considered in the design of the Joist Girders and/or bracing. If the ends of the bottom chord are not strutted, bracing must be provided near the first bottom chord panel points whenever uplift due to wind forces is a design consideration.*

* For further reference, refer to Steel Joist Institute Technical Digest #6, "Structural Design of Steel Joist Roofs to Resist Uplift Loads".

1004.10 INSPECTION

Joist Girders shall be inspected by the manufacturer before shipment to insure compliance of materials and workmanship with the requirements of these specifications. If the purchaser wishes an inspection of the Joist Girders by someone other than the manufacturer's own inspectors, he may reserve the right to do so in his "Invitation to Bid" or the accompanying "Job Specifications". Arrangements shall be made with the manufacturer for such inspection of the Joist Girders at the manufacturing shop by the purchaser's inspectors at purchaser's expense.

SECTION 1005.*
HANDLING AND ERECTION

Particular attention should be paid to the erection of Joist Girders.

Care shall be exercised at all times to avoid damage through careless handling during unloading, storing

and erecting. Dropping of Joist Girders shall not be permitted.

During the construction period, the contractor shall provide means for the adequate distribution of concentrated loads so that the carrying capacity of any Joist Girder is not exceeded.
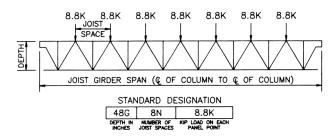
Field welding shall not damage the Joist Girder. The total length of weld at any one cross-section on cold-formed members whose yield strength has been attained by cold working and whose as-formed strength is used in the design, shall not exceed 50 percent of the overall developed width of the cold-formed section.

* For thorough coverage of this topic, refer to SJI Technical Digest #9, "Handling and Erection of Steel Joists and Joist Girders".

SECTION 1006.
HOW TO SPECIFY JOIST GIRDERS

For a given Joist Girder span, the specifying professional first determines the number of joist spaces. Then the panel point loads are calculated and a depth is selected. The following tables give the Joist Girder weight per linear foot (Kilograms/Meter) for various depths and loads.

Example using English units:

Given 50′-0″ x 40′-0″ bay. Joists spaced on 6′-3″ centers

Live Load   = 20 psf
Dead Load = 15 psf (includes the approximate
Total Load = 35 psf Joist Girder weight)

NOTE: Web configuration may vary from that shown. Contact Joist Girder manufacturer if exact layout must be known.

1. Determine number of actual joist spaces (N). In this example, N = 8.

2. Compute total load:
    Total load = 6.25 x 35 psf = 218.75 plf

3. Joist Girder Section: (Interior)

    a) Compute the concentrated load at top chord panel points P = 218.75 x 40 = 8,750 lbs = 8.8 kips (use 9K for depth selection).

    b) Select Joist Girder depth:

        Refer to the Joist Girder Design Guide Weight Table for the 50′-0″ span, 8 panel, 9.0K Joist Girder. The rule of about one inch of depth for each foot of span is a good compromise of limited depth and economy. Therefore, select a depth of 48 inches.

    c) The Joist Girder will then be designated 48G8N8.8K.

    d) The Joist Girder table shows the weight for a 48G8N9K as 43 pounds per linear foot. The designer should verify that the weight is not greater than the weight assumed in the dead load above.

    e) Check live load deflection:

        Live load = 20 psf x 40 ft. = 800 plf
        Approximate Joist Girder moment of inertia = 0.027 NPLd = 0.027 x 8 x 9 x 50 x 48 = 4666in^4

Allowable deflection
for plastered ceilings = L/360 = $\dfrac{50 \times 12}{360}$ = 1.67 in.

$$\text{Deflection} = 1.15\left[\frac{5wL^4}{384EI}\right] = \frac{1.15 \times 5\,(^{0.800}/_{12})\,(50 \times 12)^4}{384 \times 29{,}000 \times 4666}$$

$$= 0.96 \text{ in.} < 1.67 \text{ in., O′K′}$$

Live load deflection rarely governs because of the relatively small span-depth ratios of Joist Girders.

1. The purpose of the Design Guide Weight Table for Joist Girders is to assist the specifying professional in the selection of a roof or floor support system.

2. It is not necessary to use only the depths, spans, or loads shown in the tables.

3. Holes in chord elements present special problems which must be considered by both the specifying professional and the Joist Girder Manufacturer. The sizes and locations of such holes shall be clearly indicated on the structural drawings.

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 30 ksi
Joist Girder Weight — Pounds Per Linear Foot

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders weighing 60 pounds per foot and greater) require a minimum 7 1/2 inch depth bearing seat.

Span	No. Of Joist Spaces	Depth In Inches	4K	5K	6K	7K	8K	9K	10K	11K	12K	13K	14K	15K	16K	17K	18K	19K	20K
20' 0"	3N @ 6.67'	20	13	13	14	16	17	20	22	23	25	27	29	30	31	34	36	39	40
		24	13	14	14	14	15	17	19	21	22	24	25	25	29	29	30	32	33
		28	13	14	14	14	15	17	17	17	21	22	23	24	24	26	27	30	31
	4N @ 5.0'	20	14	14	15	17	18	21	23	24	26	28	31	33	34	37	38	41	43
		24	14	14	15	15	16	18	20	22	23	25	27	28	32	32	34	35	
		28	14	15	15	15	16	18	18	18	22	23	25	26	26	28	29	32	33
22' 0"	4N @ 5.5'	20	17	17	17	18	20	23	24	27	28	30	33	34	39	40	43	46	46
		24	17	17	17	17	18	19	21	23	24	27	29	29	33	34	34	40	40
		28	17	17	17	17	17	18	19	20	21	24	25	27	28	29	30	34	35
24' 0"	4N @ 6.0'	20	15	15	17	19	22	24	26	29	32	34	36	37	41	45	46	49	51
		24	15	15	15	17	19	21	23	25	27	30	31	33	34	37	38	40	43
		28	15	15	15	16	17	18	21	24	24	26	28	29	31	33	34	35	37
		32	15	15	15	16	16	19	19	22	22	25	25	27	29	30	31	31	34
	5N @ 4.8'	20	17	18	18	23	26	28	29	33	39	39	42	45	49	52	52	56	60
		24	17	17	18	19	20	24	26	29	30	34	34	40	40	43	47	47	50
		28	17	17	18	18	19	21	24	25	28	29	31	34	35	38	41	41	45
		32	18	18	18	18	18	19	20	22	25	26	29	31	32	33	37	37	43
25' 0"	4N @ 6.25'	20	16	16	18	20	22	25	27	31	32	35	37	39	42	44	46	48	52
		24	15	15	17	17	20	22	24	26	27	30	32	34	35	38	40	42	45
		28	15	15	15	16	18	20	22	23	26	28	28	31	33	34	35	37	39
		32	15	15	16	16	17	19	20	22	24	25	27	28	29	31	33	34	35
	5N @ 5.0'	20	18	18	22	25	27	31	33	36	40	43	45	48	52	55	57	60	63
		24	16	16	19	21	24	26	29	32	34	37	40	41	44	47	50	53	55
		28	15	15	17	19	21	24	27	28	31	33	34	38	39	42	44	46	48
		32	15	15	16	19	20	22	24	26	28	29	32	34	34	37	40	42	44
26' 0"	4N @ 6.5'	20	16	16	19	22	24	26	29	32	33	37	39	42	44	47	50	52	53
		24	15	15	16	19	21	22	25	27	30	32	33	35	38	40	41	43	45
		28	15	15	15	17	18	20	23	24	27	28	30	33	33	35	36	38	40
		32	15	15	16	16	17	18	20	23	24	26	27	28	31	33	34	35	36
	5N @ 5.20'	20	19	19	21	25	28	31	36	39	42	43	48	50	55	58	61	65	68
		24	16	16	19	22	26	27	31	32	35	38	41	42	46	48	50	53	56
		28	15	15	17	19	21	24	27	29	32	33	36	38	40	43	45	47	49
		32	15	15	17	19	20	23	24	28	28	31	33	34	36	38	40	43	45
28' 0"	4N @ 7.0'	20	17	17	20	22	25	29	31	34	37	39	44	44	47	50	52	55	58
		24	16	16	17	21	22	25	26	29	32	33	35	38	41	43	44	47	49
		28	15	15	17	17	20	22	24	27	27	30	33	33	36	37	39	42	45
		32	15	15	15	17	18	20	22	24	25	27	28	31	33	34	34	37	40
		36	16	16	16	16	18	19	20	23	24	25	29	29	29	31	33	34	35
	5N @ 5.6'	20	20	20	24	27	30	36	39	42	44	48	52	55	59	62	65	67	70
		24	18	18	21	23	26	29	32	36	37	41	42	46	49	53	56	58	60
		28	17	17	19	21	23	26	29	31	33	37	37	40	43	45	47	49	51
		32	16	16	17	19	22	24	27	28	30	33	34	38	38	41	44	46	48
		36	16	16	16	19	20	23	25	27	28	31	33	33	36	38	41	42	43
	6N @ 4.67'	20	20	23	26	29	35	38	44	47	51	55	58	64	68	73	76		
		24	18	19	23	26	29	33	36	39	42	45	52	56	59	63	66	74	
		28	17	18	20	23	27	29	30	34	39	40	43	47	50	53	57	58	61
		32	17	18	19	20	24	27	29	31	35	35	41	41	45	49	49	52	55
		36	18	18	19	19	22	25	26	30	32	32	37	39	43	44	47	50	50
30' 0"	5N @ 6.0'	24	18	19	22	25	28	31	34	37	39	42	45	48	52	55	58	61	
		28	17	17	19	22	26	28	31	32	36	37	40	43	46	48	50	54	57
		32	17	17	17	21	22	25	28	30	32	34	37	38	41	43	45	48	51
		36	16	16	18	20	22	23	27	28	31	33	33	35	39	40	42	44	46
		40	16	16	17	18	20	24	24	27	29	30	31	34	35	38	41	42	44
	6N @ 5.0'	24	17	20	23	28	32	35	38	41	45	51	52	58	59	65			
		28	17	18	20	24	27	30	34	39	39	43	46	49	53	56	60	61	
		32	17	18	19	21	25	28	29	33	35	40	40	44	48	50	54	55	58
		36	18	18	19	20	24	26	29	30	32	35	38	42	43	46	49	49	55
		40	18	18	19	20	21	25	27	30	32	33	36	38	43	44	45	47	50
32' 0"	5N @ 6.4'	24	20	20	24	25	30	33	36	39	42	45	48	52	55	59	63	67	70
		28	18	18	21	24	26	30	31	36	37	40	43	46	49	51	54	57	60
		32	17	17	19	21	24	27	30	32	34	36	37	41	43	46	49	52	54
		36	16	16	18	20	22	26	28	30	33	33	35	38	39	42	45	47	49
		40	16	16	18	19	22	24	26	28	30	32	33	35	39	41	43	44	46
	6N @ 5.33'	24	22	22	26	30	34	37	42	45	48	52	55	59	63	67			
		28	20	20	22	26	30	33	37	40	43	46	49	52	56	60	64	67	69
		32	19	19	21	24	27	30	33	36	39	42	45	47	51	53	56	58	61
		36	18	18	20	24	26	29	32	34	37	38	40	43	48	50	51	55	58
		40	17	17	19	22	25	28	29	32	35	35	39	41	43	46	49	51	53
34' 0"	5N @ 6.8'	24	20	20	25	29	30	36	39	42	45	48	52	55	61	64	68	71	74
		28	20	20	21	24	28	31	33	37	39	42	46	49	52	56	60	64	
		32	17	17	20	21	26	28	31	34	36	37	42	43	47	49	50	54	57
		36	17	17	19	21	24	26	29	31	32	35	38	40	43	45	48	50	52
		40	16	16	18	20	23	26	27	29	32	33	35	38	39	41	44	47	49

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 30 ksi
Joist Girder Weight — Pounds Per Linear Foot

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders weighing 60 pounds per foot and greater) require a minimum 7 ½ inch depth bearing seat.

Span	No. Of Joist Spaces	Depth In Inches	4K	5K	6K	7K	8K	9K	10K	11K	12K	13K	14K	15K	16K	17K	18K	19K	20K
34' 0"	6N@5.67'	24	24	24	27	31	36	40	43	48	51	55	59	63	70	74	78	84	
		28	22	22	25	28	32	36	39	42	44	49	52	56	58	62	65	68	71
		32	19	19	23	27	29	33	35	37	41	45	46	51	51	56	60	63	65
		36	18	18	21	24	27	30	32	34	38	39	43	46	49	51	53	56	59
		40	18	18	20	23	25	28	31	33	34	37	41	42	46	49	52	54	55
35' 0"	5N@7.0'	28	20	20	23	25	29	31	35	38	41	43	47	49	53	57	60	62	64
		32	18	18	20	23	27	29	32	33	37	39	42	44	47	49	52	54	57
		36	17	17	17	21	25	27	30	32	32	37	38	41	44	46	48	50	52
		40	17	17	18	22	22	27	28	30	32	33	35	38	39	42	45	47	49
	6N@5.83'	28	22	22	25	29	32	36	39	44	46	49	52	56	60	64	68	74	79
		32	20	20	23	26	30	33	37	38	41	45	48	51	53	57	60	63	66
		36	19	19	22	25	28	31	34	35	38	41	44	46	50	53	55	58	61
		40	18	18	20	24	26	28	32	34	36	39	40	44	48	50	52	54	57
	7N@5.0'	28	25	25	29	32	37	42	45	50	54	58	63	68					
		32	22	22	26	30	33	37	42	45	48	51	57	59		65			
		36	21	21	25	28	31	34	38	41	45	48	52	55	59	63			
		40	21	21	23	27	30	33	35	40	43	45	48	52	54	58	61	63	66
36' 0"	6N@6.0'	28	22	22	25	30	35	36	41	44	48	50	55	58	64	67	70	74	78
		32	21	21	23	27	32	33	37	40	43	46	50	51	57	60	63	66	69
		36	19	19	22	25	28	32	34	38	39	42	46	48	52	55	57	60	62
		40	18	18	21	24	28	29	32	34	37	39	42	45	48	51	53	56	58
		44	19	19	21	23	26	29	31	33	35	38	41	41	45	47	49	52	54
	7N@5.14'	28	25	25	30	34	39	42	47	50	55	59	63	70	78				
		32	22	22	26	31	34	39	43	46	50	53	57	61	65	69	72		
		36	22	22	25	29	32	35	38	43	46	49	53	57	59	63	66	70	74
		40	21	21	25	28	31	33	37	40	42	46	50	53	55	59	62	65	68
		44	19	19	22	26	29	32	35	38	41	44	48	50	53	56	58	61	64
38' 0"	6N@6.33'	28	24	24	28	31	36	39	42	45	50	55	57	63	65	70			
		32	21	21	25	28	32	37	38	42	44	49	50	56	59	62	65	69	72
		36	20	20	23	27	30	32	36	37	41	44	47	51	52	56	60	63	65
		40	20	20	22	26	28	30	33	35	39	42	45	47	49	52	55	58	61
		44	19	19	21	23	26	28	31	34	36	40	41	44	47	49	52	55	57
	7N@5.43'	28	26	26	31	36	40	45	48	55	58	63	70	71					
		32	24	24	28	32	37	40	44	49	53	56	60	64	69	74			
		36	22	22	27	30	33	38	41	44	48	51	54	58	62	67	71	76	80
		40	21	21	25	28	32	34	39	42	45	47	53	54	58	61	63	68	72
		44	21	21	23	28	30	34	35	41	41	46	49	51	54	58	61	63	65
40' 0"	6N@6.67'	28	25	25	29	32	36	42	45	48	52	55	61	63	68	73			
		32	22	22	25	31	33	37	39	43	46	49	55	56	62	66	69		
		36	21	21	24	27	32	34	37	40	44	47	50	51	57	60	63	68	72
		40	20	20	22	26	30	32	34	38	41	44	46	48	52	55	58	60	62
		44	19	19	23	25	28	31	34	35	39	40	43	45	50	51	53	56	60
	7N@5.71'	28	27	27	32	38	42	48	51	57	62	67	70						
		32	25	25	30	34	37	42	46	49	56	58	64	69	71	75			
		36	23	23	27	32	35	38	43	47	51	53	58	61	66	69	72	76	80
		40	23	23	26	30	33	36	39	43	47	50	52	57	59	63	66	71	75
		44	21	21	25	29	31	34	37	40	43	47	50	53	57	60	63	66	69
	8N@5.0'	28	31	31	36	42	47	51	57	62	70								
		32	28	28	32	37	43	46	51	56	60	66	71						
		36	26	26	30	34	39	43	48	51	56	60	66	68	73	77			
		40	24	24	28	33	36	40	44	48	52	56	60	63	67	71	75	79	
		44	23	23	29	32	36	39	42	45	49	53	55	59	63	67	70	75	79
42' 0"	6N@7.0'	32	24	24	28	31	36	39	42	46	49	53	56	62	64	68	71	75	
		36	21	21	25	29	32	37	37	43	45	48	50	55	57	61	65	69	72
		40	21	21	23	27	30	32	38	38	43	44	48	52	54	56	58	62	66
		44	20	20	23	27	28	32	33	38	39	42	45	48	51	54	56	59	62
		48	19	19	22	24	27	30	34	36	37	40	43	46	48	51	54	56	57
		52	20	20	22	24	27	31	33	35	36	38	41	44	47	50	52	54	55
	7N@6.0'	32	25	25	30	36	39	44	48	52	56	63	68	71					
		36	25	25	29	33	37	40	43	47	51	57	61	65		70			
		40	22	22	28	30	33	38	41	44	48	52	55	59	62	67	71	76	81
		44	23	23	26	28	33	36	39	43	46	49	53	56	59	63	66	70	73
		48	21	21	24	29	32	35	37	41	43	47	49	54	55	59	62	65	68
		52	22	22	25	28	31	33	36	38	42	45	48	50	53	57	60	62	64
	8N@5.25'	32	23	28	33	38	45	48	51	58	62	66	73	77	82	90	93	98	
		36	21	26	29	34	39	42	46	53	56	60	67	67	75	79	86	91	97
		40	20	24	28	31	35	40	44	47	54	55	61	62	68	69	76	81	88
		44	19	22	26	30	34	36	41	45	49	52	56	60	63	67	70	78	78
		48	19	21	26	30	32	36	39	43	47	51	54	57	61	64	65	72	73
		52	20	21	24	28	31	34	39	42	45	49	52	53	59	59	63	67	71

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 30 ksi
Joist Girder Weight — Pounds Per Linear Foot

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders weighing 60 pounds per foot and greater) require a minimum 7 ½ inch depth bearing seat.

Span	No. Of Joist Spaces	Depth In Inches	4K	5K	6K	7K	8K	9K	10K	11K	12K	13K	14K	15K	16K	17K	18K	19K	20K
44' 0"	7N @ 6.29'	32	28	28	32	36	42	45	49	55	61	63	70	78	78	85			
		36	26	26	30	33	37	43	46	50	53	57	63	65	71	76	80	86	
		40	24	24	27	32	35	38	44	47	51	54	58	61	66	69	73	77	81
		44	23	23	27	31	33	38	39	45	47	51	52	57	59	63	67	71	75
		48	23	23	26	29	32	35	39	41	45	47	50	54	57	61	65	67	69
		52	22	22	25	29	31	36	37	42	43	46	48	52	56	59	62	64	66
	8N @ 5.5'	32	30	30	36	41	46	50	55	63	68	71	78	83					
		36	28	28	33	37	42	46	50	57	60	65	70	72	79	86			
		40	27	27	31	34	38	44	48	51	55	60	66	68	73	77	81	88	
		44	24	24	29	34	37	41	46	50	53	56	60	64	68	72	76	80	83
		48	24	24	30	32	36	40	42	47	49	54	56	62	64	67	70	75	79
		52	24	24	27	31	35	38	42	45	49	51	56	58	62	65	67	71	74
	9N @ 4.89'	32	27	32	38	45	48	54	58	65	72	77							
		36	24	29	34	40	46	49	53	60	67	67	75	79					
		40	21	28	31	35	41	47	50	54	61	65	69	76	76	81	86		
		44	20	26	30	35	38	42	49	52	56	60	63	70	71	77	82		
		48	20	25	29	32	37	42	44	51	53	58	61	65	69	72	80	81	85
		52	21	24	28	32	35	39	45	49	52	55	59	63	67	67	74	75	82
45' 0"	7N @ 6.43'	32	22	27	31	35	38	44	51	52	58	64	65	72	73	86			
		36	19	24	28	32	38	39	45	45	52	58	59	66	66	74	74		
		40	19	23	27	29	33	39	40	46	47	53	53	60	61	67	67	75	76
		44	19	20	24	28	30	35	40	41	47	47	53	54	61	61	62	68	69
		48	18	20	24	25	30	34	36	41	42	48	49	50	55	56	62	63	70
		52	19	20	22	25	29	31	35	37	42	43	49	50	50	56	57	64	64
		56	19	20	22	25	27	31	33	36	39	44	45	48	51	51	58	58	59
	8N @ 5.63'	32	30	30	36	42	46	52	57	63	68	78	78						
		36	29	29	33	37	43	46	51	57	60	65	72	79	80				
		40	27	27	32	36	39	44	48	52	58	60	66	71	73	76	82		
		44	25	25	30	33	39	42	46	49	53	56	62	66	68	71	76	80	83
		48	25	25	30	33	36	41	44	47	51	54	57	62	65	67	74	78	84
		52	25	25	28	31	36	39	43	45	48	52	56	59	63	65	71	74	77
		56	24	24	28	32	35	38	41	44	47	51	54	58	59	62	67	71	74
	9N @ 5.0'	32	34	34	41	47	52	58	63	70	78	83							
		36	31	31	37	43	48	53	58	64	72	79	80						
		40	29	29	34	40	44	49	53	58	64	68	74	81	86				
		44	28	28	34	38	42	48	51	54	60	64	69	76	79	84	88		
		48	28	28	33	36	42	44	50	53	56	62	64	71	76	81	85	88	
		52	28	28	31	35	39	43	48	51	55	58	63	66	72	76	80	85	89
		56	27	27	32	35	40	43	46	50	53	57	60	64	68	72	75	80	84
46' 0"	7N @ 6.57'	32	29	29	33	39	42	48	52	57	63	68	70	78	82				
		36	26	26	31	36	40	43	48	53	56	62	64	69	75	80	84		
		40	25	25	29	32	38	41	44	49	51	56	59	63	69	73	77	79	81
		44	23	23	28	32	35	39	42	45	49	52	55	59	65	68	72	76	79
		48	23	23	27	30	34	36	40	43	46	49	53	56	60	63	66	69	73
		52	22	22	24	30	33	35	37	41	44	47	51	55	56	59	62	66	69
		56	22	22	25	29	32	35	36	41	43	45	49	53	55	58	60	63	66
	8N @ 5.75'	32	31	31	37	42	48	52	57	63	70	78	82						
		36	28	28	34	38	43	49	53	57	64	69	72	79	84				
		40	27	27	32	35	41	44	49	52	58	62	66	71	73	79	86		
		44	26	26	30	34	39	42	48	51	54	59	62	67	72	77	82	84	87
		48	25	25	29	33	36	41	44	48	52	55	59	63	67	71	74	79	84
		52	25	25	30	33	36	39	42	46	50	52	56	59	63	67	70	75	79
		56	25	25	28	32	36	38	43	45	48	52	54	58	61	63	66	70	74
	9N @ 5.11'	32	27	33	38	45	51	58	62	68	73								
		36	24	30	34	39	45	52	56	60	66	74	79						
		40	24	28	33	40	43	47	53	57	61	68	71	76	80				
		44	22	26	30	36	41	44	49	55	59	63	66	70	77	78	82		
		48	21	25	30	33	37	42	47	50	57	57	64	65	71	72	80	84	
		52	21	23	30	32	36	40	45	48	52	58	59	66	66	73	74	81	81
		56	21	23	28	32	35	40	46	47	52	54	60	61	65	69	72	75	76
48' 0"	7N @ 6.86'	32	30	30	35	40	45	48	55	61	66	70	77	78					
		36	28	28	31	37	41	46	49	54	59	64	68	71	79	85			
		40	25	25	30	33	38	42	47	50	53	57	63	65	70	75	80		
		44	25	25	29	33	37	39	43	47	51	54	58	62	66	70	74	79	81
		48	23	23	27	31	34	38	41	45	49	51	53	58	60	64	68	72	75
		52	23	23	27	30	33	37	39	43	46	50	52	54	59	62	65	69	72
		56	23	23	25	29	33	35	38	42	44	48	51	54	56	60	63	67	69
		60	22	22	25	30	32	35	36	39	44	46	49	50	55	58	61	62	64
	8N @ 6.0'	32	32	32	39	44	48	55	61	68	70	78							
		36	30	30	36	40	45	49	56	60	64	71	78	79					
		40	28	28	33	38	42	47	51	54	59	65	70	72	80				
		44	27	27	32	35	39	45	49	52	55	59	67	74	78	82			
		48	26	26	30	34	37	41	47	50	53	56	60	65	68	72	76	80	84
		52	26	26	30	33	36	42	44	48	51	55	59	62	65	68	71	76	80
		56	25	25	28	33	36	39	43	46	49	53	57	60	63	66	69	74	78
		60	24	24	29	33	35	37	41	45	48	51	55	58	59	64	68	72	75

JOIST GIRDERS
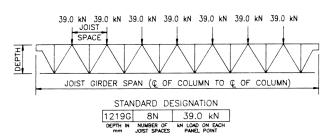## DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 30 ksi
Joist Girder Weight — Pounds Per Linear Foot

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders weighing 60 pounds per foot and greater) require a minimum 7 ½ inch depth bearing seat.

Span	No. Of Joist Spaces	Depth In Inches	4K	5K	6K	7K	8K	9K	10K	11K	12K	13K	14K	15K	16K	17K	18K	19K	20K
48' 0"	9N@5.33'	32	36	36	44	48	55	62	69	77	82								
		36	32	32	40	45	50	56	64	69	72	79							
		40	31	31	38	41	47	52	57	62	67	73	80	85					
		44	30	30	35	39	45	49	54	59	63	67	75	82	83				
		48	30	30	34	37	42	47	51	55	60	63	69	74	77	81	85		
		52	28	28	33	37	42	45	49	53	57	63	65	71	73	80	86	89	92
		56	28	28	32	36	40	44	48	52	56	59	63	67	73	77	81	85	89
		60	27	27	33	36	39	42	46	50	54	57	60	65	69	73	76	80	84
	8N@6.25'	32	34	34	39	45	51	57	62	69	77	82							
		36	31	31	37	43	46	52	56	63	68	71	78	83	91				
		40	29	29	34	38	43	47	54	57	63	65	72	79	80				
		44	27	27	33	37	41	45	49	53	58	62	66	71	74	78	82	88	
		48	27	27	31	35	40	43	46	51	54	59	64	68	72	77	83	85	88
		52	26	26	29	35	38	41	44	49	54	56	61	64	67	71	75	80	85
		56	25	25	30	33	36	41	43	48	51	56	57	62	63	68	72	76	80
		60	25	25	29	33	37	39	44	47	50	52	57	58	61	65	69	72	75
50' 0"	9N@5.56'	32	38	38	44	51	57	62	69	78									
		36	34	34	40	46	52	58	63	71	78	83							
		40	32	32	38	44	49	54	59	65	70	80	80						
		44	31	31	35	41	45	52	55	61	66	72	74	82	86	92	97		
		48	29	29	34	40	43	48	54	57	61	68	70	76	83	86	89	95	
		52	30	30	33	37	42	47	50	55	58	63	68	71	78	82	86	93	
		56	28	28	33	37	40	46	49	53	57	60	64	68	72	77	81	85	89
		60	28	28	32	37	40	45	47	51	55	59	62	66	70	75	80	84	88
	10N@5.0'	32	44	44	51	61	68	76											
		36	42	42	47	55	62	68	77	80									
		40	37	37	44	49	56	63	69	79	81								
		44	35	35	41	46	52	57	65	70	75	82							
		48	34	34	39	44	50	55	60	66	72	76	83	85					
		52	33	33	37	43	48	52	56	61	68	73	75	82	86	92			
		56	33	33	37	41	46	49	54	58	64	69	74	76	83	89	95	98	100
		60	33	33	35	39	46	47	53	56	62	65	70	76	77	83	88	95	102
	8N@6.5'	36	32	32	37	42	49	54	59	63	70								
		40	30	30	35	40	45	50	55	60	64	69	76						
		44	29	29	33	38	42	47	51	54	58	64	71	73	81				
		48	28	28	32	36	40	45	49	52	56	60	66	67	72	77	82		
		52	26	26	31	34	39	43	47	50	53	57	61	67	69	73	76	80	84
		56	26	26	30	35	37	42	45	48	52	55	59	62	66	71	76	80	84
		60	25	25	30	34	36	39	44	46	49	53	57	60	64	68	72	75	78
52' 0"	9N@5.78'	36	37	37	43	49	55	59	68	71									
		40	33	33	38	43	50	56	61	65	72								
		44	32	32	37	41	46	52	58	62	66	73	81						
		48	31	31	35	40	46	50	53	60	63	68	73	76					
		52	30	30	35	38	44	48	51	55	61	65	69	75	77	82			
		56	29	29	34	38	43	46	51	53	57	63	67	72	77	81	87	90	92
		60	28	28	32	37	41	45	50	52	57	61	65	67	73	77	81	85	90
	10N@5.2'	36	30	38	45	51	58	65	72	77	84	92							
		40	29	34	40	46	52	59	66	74	75	87	92	99					
		44	27	31	37	43	47	54	61	65	69	76	80	87	98				
		48	26	31	36	41	48	51	56	63	67	70	77	83	93	102			
		52	25	30	33	40	43	50	53	57	65	68	72	80	80	93	101		
		56	24	28	33	38	44	48	52	58	60	66	70	74	82	82	86	94	
		60	23	28	33	36	40	46	53	55	61	65	69	72	76	83	84	90	101
	8N@6.75'	36	33	33	39	45	49	56	61	68	75	78							
		40	31	31	37	41	46	50	57	62	67	71	79	80					
		44	29	29	34	38	44	48	51	57	63	65	71	77	81				
		48	28	28	33	38	42	45	50	53	58	63	67	72	74	78	82		
		52	27	27	31	35	40	43	47	51	56	60	64	68	73	77	81	82	84
		56	27	27	30	35	38	42	46	50	54	58	62	65	67	71	75	80	85
		60	25	25	31	34	36	41	45	49	52	56	59	63	65	69	72	76	80
		64	27	27	31	35	37	40	44	47	50	54	57	61	65	68	71	75	79
54' 0"	9N@6.0'	36	37	37	42	49	55	63	70	78	82	91							
		40	34	34	40	46	51	57	64	69	79	79	92						
		44	32	32	38	44	48	54	58	65	70	73	81	86					
		48	31	31	35	42	46	52	56	59	67	72	75	82	83				
		52	29	29	34	40	43	49	54	57	61	67	70	76	84	86	89		
		56	30	30	35	38	42	48	51	55	59	63	68	71	78	82	86	93	
		60	29	29	34	37	43	46	50	53	57	60	64	70	73	77	81	85	89
		64	29	29	34	38	41	45	48	51	55	59	66	66	73	76	80	85	91

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 30 ksi
Joist Girder Weight — Pounds Per Linear Foot

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders weighing 60 pounds per foot and greater) require a minimum 7 ½ inch depth bearing seat.

Span	No. Of Joist Spaces	Depth In Inches	4K	5K	6K	7K	8K	9K	10K	11K	12K	13K	14K	15K	16K	17K	18K	19K	20K
54' 0"	10N@5.4'	36	45	45	51	58	67	76	80										
		40	40	40	47	53	61	68	77	80									
		44	40	40	44	50	56	62	70	78	82								
		48	34	34	41	47	54	57	65	71	78	83							
		52	35	35	42	45	50	56	60	67	72	74	81	85					
		56	34	34	39	44	48	53	57	63	68	74	76	82	86				
		60	34	34	37	44	46	50	56	61	64	72	75	77	84				
		64	34	34	38	40	46	50	55	60	63	66	74	76	78	84	89		
55' 0"	8N@6.88'	36	34	34	40	45	51	56	63	68	78	78							
		40	31	31	37	43	46	53	56	62	69	71	79	84					
		44	31	31	34	40	44	49	54	57	63	69	73	80	80				
		48	28	28	33	38	42	45	50	55	59	65	67	72	78	80	82		
		52	27	27	32	36	40	44	49	53	56	60	66	68	72	78	83		
		56	26	26	32	35	39	43	47	51	54	57	61	65	69	73	77	81	85
		60	25	25	31	35	37	42	46	49	52	56	60	62	67	71	74	78	81
		64	26	26	31	35	37	40	44	48	50	54	57	61	65	68	71	75	79
		68	27	27	31	34	37	40	44	48	51	53	57	59	63	67	70	73	75
	9N@6.11'	36	37	37	44	50	55	63	70	78									
		40	34	34	40	46	53	59	64	71	79	84	81						
		44	32	32	38	44	49	54	60	65	70	80	80						
		48	32	32	36	42	45	52	56	61	67	72	75	82	87				
		52	31	31	35	41	45	50	54	58	63	69	73	76	84				
		56	30	30	35	38	42	48	51	55	62	64	70	75	78	82	86		
		60	30	30	35	38	43	46	50	53	58	63	66	72	78	81	87	90	93
		64	29	29	34	38	41	45	50	53	58	62	66	68	74	78	82	87	91
		68	29	29	34	37	41	46	49	52	56	60	63	67	72	75	77	82	86
	10N@5.5'	36	45	45	51	60	67	76	88										
		40	41	41	48	55	63	68	77	81									
		44	40	40	46	50	56	64	70	79	82								
		48	37	37	43	47	54	59	65	71	80	82							
		52	35	35	41	46	51	56	62	70	72	80	84						
		56	36	36	39	45	48	53	59	63	71	74	82	86	88				
		60	35	35	37	44	47	52	57	61	67	73	75	84	87				
		64	34	34	37	40	47	51	55	60	64	68	74	77	85	87	89		
		68	35	35	37	38	47	49	53	58	64	67	71	77	78	84	89		
	11N@5.0'	36	46	46	54	65	71	80											
		40	45	45	50	58	68	73	81										
		44	41	41	47	53	60	70	74	82									
		48	38	38	44	51	58	65	71	80	82								
		52	37	37	42	48	56	59	67	72	81	84							
		56	36	36	43	46	51	57	63	69	74	82	86						
		60	36	36	40	46	50	55	61	65	73	77	84	87	88				
		64	35	35	39	46	48	54	60	63	71	76	78	85	89				
		68	35	35	39	44	48	53	58	63	67	73	78	80	88				
56' 0"	8N@7.0'	36	35	35	40	45	52	56	63	70	78	78							
		40	31	31	37	43	48	53	56	64	69	76	79						
		44	31	31	35	41	44	50	54	57	63	70	73	80	81				
		48	30	30	33	39	43	48	52	56	59	65	70	74	78				
		52	28	28	32	36	40	46	49	53	58	60	66	68	73	78	83		
		56	27	27	32	35	39	44	47	51	54	59	61	67	69	73	77	81	85
		60	26	26	31	35	38	42	46	48	52	56	60	63	69	72	75	80	84
		64	26	26	31	35	37	42	44	48	51	55	57	62	65	69	72	76	79
		68	27	27	32	34	38	41	45	47	51	55	57	59	64	68	72	75	79
	9N@6.22'	36	39	39	45	52	57	63	70	78									
		40	36	36	43	46	53	60	64	71	79	83							
		44	33	33	38	44	51	54	61	65	72	80	81						
		48	32	32	38	42	47	52	59	62	67	72	81	82					
		52	31	31	36	41	46	50	53	60	64	68	73	76	83				
		56	30	30	35	40	44	48	51	56	62	65	70	75	78	82	86		
		60	30	30	34	38	43	46	51	56	59	64	67	72	77	81	87	90	93
		64	31	31	34	38	41	45	50	54	58	61	66	69	74	78	82	87	91
		68	29	29	34	38	41	46	48	52	56	60	63	67	72	77	82	86	89
	10N@5.6'	36	45	45	52	60	68	76	88										
		40	42	42	48	55	63	68	77	89									
		44	40	40	46	53	58	67	70	79	82								
		48	37	37	43	48	54	60	69	72	80	83							
		52	35	35	42	47	51	58	64	69	74	81	84						
		56	36	36	39	45	48	55	59	65	71	75	82	86					
		60	35	35	37	44	47	54	57	63	67	75	76	83	87				
		64	35	35	38	42	47	51	55	61	65	70	76	78	85				
		68	35	35	38	41	47	50	53	60	63	67	72	78	79	85	90		

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 30 ksi
Joist Girder Weight — Pounds Per Linear Foot

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders weighing 60 pounds per foot and greater) require a minimum 7 ½ inch depth bearing seat.

Span	No. Of Joist Spaces	Depth In Inches / Panel Pt. Load	4K	5K	6K	7K	8K	9K	10K	11K	12K	13K	14K	15K	16K	17K	18K	19K	20K
56' 0"	11N@5.1'	36	35	47	53	60	67	74											
		40	34	41	48	54	61	68	76										
		44	31	39	45	52	59	63	70	77	82								
		48	31	37	43	50	56	61	65	72	79	84							
		52	30	35	42	48	52	58	66	70	74	81	86						
		56	29	34	40	46	53	56	61	68	72	75	83	88					
		60	29	34	38	44	48	55	62	63	70	74	78	85	89				
		64	28	34	38	43	49	54	58	64	68	72	79	80	87	89			
		68	27	33	39	43	47	52	59	62	66	70	74	82	83	90	91	96	
	9N@6.44'	36	39	39	45	53	61	67	77	82									
		40	37	37	43	49	56	62	68	75	79								
		44	34	34	41	45	51	57	63	70	72	80							
		48	32	32	38	43	48	53	58	64	71	74	81	86					
		52	32	32	36	42	46	52	56	60	66	72	75	83	83				
		56	30	30	35	41	44	49	54	58	62	67	73	77	85	92			
		60	31	31	35	39	43	48	52	55	61	63	69	75	79	83	87	94	
		64	31	31	36	38	44	47	50	53	58	62	67	71	76	82	87	89	90
		68	32	32	34	38	42	45	49	53	59	62	66	73	77	81	86	91	
		72	31	31	35	39	42	47	49	53	57	61	64	68	73	76	78	82	86
58' 0"	10N@5.8'	36	48	48	55	65	69	79											
		40	44	44	50	57	66	70	80										
		44	40	40	46	53	61	69	75	81									
		48	39	39	45	50	57	63	70	77	82								
		52	37	37	43	47	53	59	66	71	78	81							
		56	36	36	42	46	52	56	61	70	73	80	82						
		60	37	37	40	45	48	53	60	64	72	74	81	83	89				
		64	36	36	37	44	48	50	59	62	67	73	76	82	85	93			
		68	36	36	38	40	48	51	56	61	64	68	75	77	84	87	89		
		72	35	35	38	40	47	50	54	60	64	66	72	77	79	84	89	94	
	11N@5.27'	36	41	47	54	61	68	79											
		40	36	42	49	58	65	72	80										
		44	33	42	49	56	63	67	77	78									
		48	33	38	44	50	57	64	71	79	80								
		52	32	38	45	48	55	59	66	74	81	81							
		56	30	35	41	46	54	60	65	69	76	82	84						
		60	30	36	40	47	51	56	63	66	71	77	85	86	91				
		64	30	36	39	44	50	57	60	64	72	73	79	87	88	93			
		68	29	34	39	45	51	56	60	65	67	74	78	82	89	91	96		
		72	29	35	39	45	49	54	61	62	68	73	77	80	85	92	93	98	
60' 0"	9N@6.67'	40	38	40	44	49	56	62	68	75	80								
		44	38	38	42	47	53	57	64	70	80	80							
		48	37	38	39	45	50	55	60	65	71	78	81						
		52	36	37	38	44	47	50	54	61	63	69	73	77					
		56	36	36	36	42	46	49	54	58	63	68	70	76	78	82			
		60	35	35	36	40	45	49	54	58	62	68	70	76	78	78	87		
		64	35	35	35	37	43	47	51	52	59	60	65	67	73	73	81	83	93
		68	34	34	34	37	43	47	50	53	58	59	65	68	73	75	81	83	93
		72	33	33	34	38	43	46	50	53	58	60	65	68	74	78	82	88	93
	10N@6.0'	40	32	42	49	55	62	69	78										
		44	31	41	49	55	61	69	78	82	94	96							
		48	30	37	45	52	58	68	70	80	82	95	97						
		52	29	35	42	48	52	58	65	72	75	80	87	92					
		56	28	34	42	47	50	57	64	67	74	78	85	89	96				
		60	28	33	41	46	49	55	62	66	72	76	83	87	95				
		64	25	32	39	43	48	52	58	64	66	74	78	80	85	85			
		68	24	30	39	42	48	51	58	63	65	72	77	76	83	84	90	90	
		72	24	38	39	41	48	48	57	61	64	70	76	78	80	84	90	90	
	11N@5.45'	40	33	42	51	58	65	73	77										
		44	33	40	46	53	60	67	74	79									
		48	30	36	44	48	55	62	69	76	81								
		52	30	35	42	48	55	59	65	71	78	82							
		56	29	34	40	46	51	57	65	66	73	79	85						
		60	28	33	39	45	51	55	60	66	71	76	82	86					
		64	28	33	39	45	47	55	60	64	69	76	78	84	89				
		68	28	33	37	42	48	55	56	62	67	71	78	79	87	91			
		72	28	32	38	42	49	51	58	61	65	72	73	81	82	89	94		
	12N@5.0'	40	39	47	53	64	73	81											
		44	38	47	53	64	70	81	93	94									
		48	37	43	51	58	66	74	82	94	96								
		52	32	39	46	52	57	64	71	79	84								
		56	31	38	44	52	57	62	68	75	83	86							
		60	31	38	44	52	57	62	68	75	83	86	99						
		64	30	35	40	47	54	58	65	70	77	78	85	91					
		68	30	35	41	48	53	57	64	68	73	80	87	89	93				
		72	30	37	41	48	53	58	62	66	73	79	84	91	92				

JOIST GIRDERS

Joist Girder design example using <u>Metric Units</u>:

Given 15.24 m x 12.19m bay. Joists spaced on 1.905m centers.

Live Load = .958 kN/m²
Dead Load = .718 kN/m²   Includes approximate
Total Load = 1.676 kN/m²   Joist Girder Weight.

NOTE: Web configuration may vary from that shown. Contact Joist Girder manufacturer if exact layout must be known.

1. Determine number of actual joist spaces (N)
    In this example N = 8

2. Compute the total load:
    T. L. = 1.905 m x 1.676 kN/m² = 3.193 kN/m

3. Joist Girder Selection (Interior):

    (a) Compute the concentrated load at top chord panel points P = 3.193 kN/m x 12.19 m = 38.92 kN (use 39.0 kN).

    (b) Select Joist Girder depth:

        Refer to the Joist Girder Design Guide Weight Table for the 15240mm span, 8 panel, 40.0kN Joist Girder. The rule of about one millimeter of depth for each 12 millimeters of span is a good compromise of limited depth and economy. Therefore, select a depth of 1219mm from the table.

    (c) The Joist Girder will be designated 1219G8N39.0 kN.

    (d) The Joist Girder table shows the weight for a 1219G8N40K as 64 kg/m. To convert mass multiply 64 x .0098 = .627 kN/m. The designer should verify that the weight is not greater than the weight assumed in the dead load above.

(e) Check live load deflection:

Live load = .958 kN/m² x 12.19m = 11.68 kN/m
Approximate Joist Girder moment of inertia:

$$I_{JG} = 0.3296NPLd \text{ where d = effective depth}$$

$$= 0.3296 \times 8 \times 39.0 \times 15\,240 \times 1219$$

$$= 1910 \times 10^6 \text{ mm}^4$$

Allowable deflection
for plaster ceilings = L/360 = 15240/360 = 42.33 mm

$$\text{Deflection} = 1.15 \left[\frac{5wL^4}{384EI} \right] =$$

$$= \frac{1.15 \times 5 \times 11.68 \times (15.24 \times 1000)^4}{384\,(200\,000)\,1910 \times 10^6}$$

$$= 24.70 \text{ mm} < 42.33 \text{ mm O'K'}$$

1. The purpose of the Design Guide Weight Table for Joist Girders is to assist the specifying professional in their selection of a roof or floor support system.

2. It is not necessary to use only the depths, spans or loads shown in the tables.

3. Holes in chord elements present special problems which must be considered by both the specifying professional and the Joist Girder Manufacturer. The sizes and locations of such holes shall be clearly indicated on the structural drawings.

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 207 MPa
Joist Girder Weight – kilogram/meter (kg/m).

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders having a mass of 89 kilograms/meter and greater) require a 191 millimeter depth bearing seat.

Span (mm)	No. Of Joist Spaces	Depth (mm)	Panel Point Loads																
			18 kN	22 kN	27 kN	31 kN	36 kN	40 kN	44 kN	49 kN	53 kN	58 kN	62 kN	67 kN	71 kN	76 kN	80 kN	85 kN	89 kN
6096	3N@ 2033	508	19	19	21	24	25	30	33	34	37	40	43	45	46	51	54	58	60
		610	19	21	21	21	22	25	28	31	33	36	37	37	43	43	45	48	49
		711	19	21	21	21	22	25	25	25	31	33	34	36	36	39	40	45	46
	4N@ 1524	508	21	21	22	25	27	31	34	36	39	42	46	49	51	55	57	61	64
		610	21	22	22	22	24	27	30	33	34	37	40	42	48	48	48	51	52
		711	21	22	22	22	24	27	27	27	33	34	37	39	39	42	43	48	49
6705	4N@ 1676	508	25	25	25	27	30	34	36	40	42	45	49	51	58	60	64	68	68
		610	25	25	25	25	27	28	31	34	36	40	43	43	49	51	51	60	60
		711	25	25	25	25	25	27	28	30	31	36	37	40	42	43	45	51	52
7315	4N@ 1828	508	22	22	25	28	33	36	39	43	48	51	54	55	61	67	68	73	76
		610	22	22	22	25	28	31	34	37	40	45	46	49	51	55	57	60	64
		711	22	22	22	24	25	27	31	36	36	39	42	43	46	49	51	52	55
		813	22	22	22	24	24	28	28	33	33	37	37	40	43	45	46	46	51
	5N@ 1463	508	25	27	27	34	39	42	43	49	58	58	63	67	73	77	77	83	89
		610	25	25	27	28	30	36	39	43	45	51	51	60	60	64	70	70	74
		711	25	25	27	27	28	31	36	37	42	43	46	51	52	57	61	61	67
		813	27	27	27	27	27	28	30	33	37	39	43	46	48	49	55	55	64
7620	4N@ 1904	508	24	24	27	30	33	37	40	46	48	52	55	58	63	65	68	71	77
		610	22	22	25	25	30	33	36	39	40	45	48	51	52	57	60	63	67
		711	22	22	22	24	27	30	33	34	39	42	42	46	49	51	52	55	58
		813	22	22	24	24	25	28	30	33	36	37	40	42	43	46	49	51	52
	5N@ 1524	508	27	27	33	37	40	46	34	54	60	64	67	71	77	82	85	89	94
		610	24	24	28	31	36	39	43	48	51	55	60	61	65	70	74	79	82
		711	22	22	25	28	31	36	40	42	46	49	51	57	58	63	65	68	71
		813	22	22	24	28	30	33	36	39	42	43	48	51	51	55	60	63	65
7924	4N@ 1981	508	24	24	28	33	36	39	43	48	49	55	58	63	65	70	74	77	79
		610	22	22	24	28	31	33	37	40	45	48	49	52	57	60	61	64	67
		711	22	22	22	25	27	30	34	36	40	42	45	49	49	52	54	57	60
		813	22	22	24	24	25	27	30	34	36	39	40	42	46	49	51	52	54
	5N@ 1584	508	28	28	31	37	42	46	54	58	63	64	71	74	82	86	91	97	101
		610	24	24	28	33	39	40	46	48	52	57	61	63	68	71	74	79	83
		711	22	22	25	28	31	36	40	43	48	49	54	57	60	64	67	70	73
		813	22	22	25	28	30	34	36	42	42	46	49	51	54	57	60	64	67
8534	4N@ 2133	508	25	25	30	33	37	43	46	51	55	58	65	65	70	74	77	82	86
		610	24	24	25	31	33	37	39	43	48	49	52	57	61	64	65	70	73
		711	22	22	25	25	30	33	36	40	40	45	49	49	54	55	58	63	67
		813	22	22	22	25	27	30	33	36	37	40	42	46	49	51	51	55	60
		914	24	24	24	24	27	28	30	34	36	37	43	43	43	46	49	51	52
	5N@ 1706	508	30	30	36	40	45	54	58	63	65	71	77	82	88	92	97	100	104
		610	27	27	31	34	39	43	48	54	55	61	63	68	73	79	83	86	89
		711	25	25	28	31	34	39	43	46	49	55	55	60	64	67	70	73	76
		813	24	24	25	28	33	36	40	42	45	49	51	57	57	61	65	68	71
		914	24	24	24	28	30	34	37	40	42	46	49	49	54	57	61	63	64
	6N@ 1428	508	30	34	39	43	52	57	65	70	76	82	86	95	101	109	113	0	0
		610	27	28	34	39	43	49	54	58	63	67	77	77	83	88	94	98	110
		711	25	27	30	34	40	43	45	51	58	60	64	70	74	79	85	86	91
		813	25	27	28	30	36	40	43	46	52	52	61	61	67	73	73	77	82
		914	27	27	28	28	33	37	39	45	48	48	55	58	64	65	70	74	74
9144	5N@ 1828	610	27	28	33	37	42	46	51	55	58	63	67	71	77	82	86	91	0
		711	25	25	28	33	39	42	46	48	54	55	60	64	68	71	74	80	85
		813	25	25	25	31	33	37	42	45	48	51	55	57	61	64	67	71	76
		914	24	24	27	30	33	34	40	42	46	49	49	52	58	60	63	65	68
		1016	24	24	25	27	30	36	36	40	43	45	46	51	52	57	61	63	65
	6N@ 1524	610	25	30	34	42	48	52	57	61	67	76	77	86	88	97	0	0	0
		711	25	27	30	36	40	45	51	58	58	64	68	73	79	83	89	91	0
		813	25	27	28	31	37	42	43	49	52	60	60	65	71	74	80	82	86
		914	27	27	28	30	36	39	43	45	48	52	57	63	64	68	73	73	82
		1016	27	27	28	30	31	37	40	45	48	49	54	57	64	65	67	70	74
9753	6N@ 1950	610	30	30	36	37	45	49	54	58	63	67	71	77	82	88	94	100	104
		711	27	27	31	36	39	45	46	54	55	60	64	68	73	76	80	85	89
		813	25	25	28	31	36	40	45	48	51	54	55	61	64	68	73	77	80
		914	24	24	27	30	33	39	42	45	49	49	52	57	58	63	67	70	73
		1016	24	24	27	28	33	36	39	42	45	48	49	52	58	61	64	65	68
	6N@ 1624	610	33	33	39	45	51	55	63	67	71	77	82	88	94	100	0	0	0
		711	30	30	33	39	45	49	55	60	64	68	73	77	83	89	95	100	103
		813	28	28	31	36	40	45	49	54	58	63	67	70	76	79	83	86	91
		914	27	27	30	36	39	43	48	51	55	57	60	64	71	74	76	82	86
		1016	25	25	28	33	37	42	43	48	52	52	58	61	64	68	73	76	79
10363	5N@ 2072	610	30	30	37	43	45	54	58	63	67	71	77	82	91	95	101	106	110
		711	30	30	31	36	42	46	49	55	58	63	68	73	73	77	83	89	95
		813	25	25	30	31	39	42	46	51	54	55	63	64	70	73	74	80	85
		914	25	25	28	31	36	39	43	46	48	52	57	60	64	67	71	74	77
		1016	24	24	27	30	34	39	40	43	48	49	52	57	58	61	65	70	73

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 207 MPa
Joist Girder Weight – kilogram/meter (kg/m).

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders having a mass of 89 kilograms/meter and greater) require a 191 millimeter depth bearing seat.

Span (mm)	No. Of Joist Spaces	Depth (mm)	Panel Point Loads																
			18 kN	22 kN	27 kN	31 kN	36 kN	40 kN	44 kN	49 kN	53 kN	58 kN	62 kN	67 kN	71 kN	76 kN	80 kN	85 kN	89 kN
10363	6N@ 1728	610	36	36	40	46	54	60	64	71	76	82	88	94	104	110	116	125	0
		711	33	33	37	42	48	54	58	63	65	73	77	83	86	92	97	101	106
		813	28	28	34	40	43	49	52	55	61	67	68	76	76	83	89	94	97
		914	27	27	31	36	40	45	48	51	57	58	64	68	73	76	79	83	88
		1016	27	27	30	34	37	42	46	49	51	55	61	63	68	73	77	80	82
10668	5N@ 2133	711	30	30	34	37	43	46	52	57	61	64	70	73	79	85	89	92	95
		813	27	27	30	34	40	43	48	49	55	58	63	65	70	73	77	80	85
		914	25	25	28	31	37	40	45	48	48	55	57	61	65	68	71	74	77
		1016	25	25	27	33	33	40	42	45	48	49	52	57	58	63	67	70	73
	6N@ 1777	711	33	33	37	43	48	54	58	65	68	73	77	83	89	95	101	110	118
		813	30	30	34	39	45	49	55	57	61	67	71	76	79	85	89	94	98
		914	28	28	33	37	42	46	51	52	57	61	65	68	74	79	82	86	91
		1016	27	27	30	36	39	42	48	51	54	58	60	65	71	74	77	80	85
	7N@ 1524	711	37	37	43	48	55	63	67	74	80	86	94	101	0	0	0	0	0
		813	33	33	39	45	49	55	63	67	71	76	85	88	97	0	0	0	0
		914	31	31	37	42	46	51	57	61	67	71	77	82	88	94	0	0	0
		1016	31	31	34	40	45	49	52	60	64	67	71	77	80	86	91	94	98
10972	6N@ 1828	711	33	33	37	45	52	54	61	65	71	74	82	86	95	100	104	110	116
		813	31	31	34	40	48	49	55	60	64	68	74	76	85	89	94	98	103
		914	28	28	33	37	42	48	51	57	58	63	68	71	77	82	85	89	92
		1016	27	27	31	36	42	43	48	51	55	58	63	67	71	76	79	83	86
		1118	28	28	31	34	39	43	46	49	52	57	61	61	67	70	73	77	95
	7N@ 1566	711	37	37	45	51	58	63	70	74	82	88	94	104	116	0	0	0	0
		813	33	33	39	46	51	58	64	68	74	79	85	91	97	103	107	0	0
		914	33	33	37	43	48	52	57	64	68	73	79	85	88	94	98	104	110
		1016	31	31	37	42	46	49	55	60	63	68	74	79	82	88	92	97	101
		1118	28	28	33	39	43	48	52	57	61	65	71	74	79	83	86	91	95
11582	6N@ 1929	711	36	36	42	46	54	58	63	67	74	82	85	94	97	104	0	0	0
		813	31	31	37	42	48	55	57	63	65	73	74	83	88	92	97	103	107
		914	30	30	34	40	45	48	54	55	61	65	70	76	77	83	89	94	97
		1016	30	30	33	39	42	45	49	52	58	63	67	70	73	77	82	86	91
		1118	28	28	31	34	39	42	46	51	54	60	61	65	70	73	77	82	85
	7N@ 1655	711	39	39	46	54	60	67	71	82	86	94	104	106	0	0	0	0	0
		813	36	36	42	48	55	60	65	73	79	83	89	95	103	110	0	0	0
		914	33	33	40	45	49	57	61	65	71	76	80	86	92	100	106	113	119
		1016	31	31	37	42	48	51	58	63	67	70	79	80	86	91	94	101	107
		1118	31	31	34	42	45	51	52	61	61	68	73	76	80	86	91	94	97
12192	6N@ 2033	711	37	37	43	48	54	63	67	71	77	82	91	94	101	109	0	0	0
		813	33	33	37	46	49	55	58	64	68	73	82	83	92	98	103	0	0
		914	31	31	36	40	48	51	55	60	65	70	74	76	85	89	94	101	107
		1016	30	30	33	39	45	48	51	57	61	65	68	71	77	82	86	89	92
		1118	28	28	34	37	42	46	51	52	58	60	64	67	74	76	79	83	89
	7N@ 1740	711	40	40	48	57	63	71	76	85	92	100	104	0	0	0	0	0	0
		813	37	37	45	51	55	63	68	73	83	86	95	103	106	112	0	0	0
		914	34	34	40	48	52	57	64	70	76	79	86	91	98	103	107	113	119
		1016	34	34	39	45	49	54	58	64	70	74	77	85	88	94	98	106	112
		1118	31	31	37	43	46	51	55	60	64	70	74	79	85	89	94	98	103
	8N@ 1524	711	46	46	54	63	70	76	85	92	104	0	0	0	0	0	0	0	0
		813	42	42	48	55	64	68	76	83	89	98	106	0	0	0	0	0	0
		914	39	39	45	51	58	64	71	76	83	89	98	101	109	115	0	0	0
		1016	36	36	42	49	54	60	65	71	77	83	89	94	100	106	112	118	0
		1118	34	34	43	48	54	58	63	67	73	79	82	88	94	100	104	112	118
12801	6N@ 2133	813	36	36	42	46	54	58	63	68	73	79	83	92	95	101	106	112	0
		914	31	31	37	43	48	55	55	64	67	71	74	82	85	91	97	103	107
		1016	31	31	34	40	45	48	57	57	64	65	71	77	80	83	86	92	98
		1118	30	30	34	40	42	48	49	57	58	63	67	71	76	80	83	88	92
		1219	28	28	33	36	40	45	51	54	55	60	64	68	71	76	80	83	85
		1321	30	30	33	36	40	46	49	52	54	57	61	65	70	74	77	80	82
	7N@ 1828	813	37	37	45	54	58	65	71	77	83	94	101	106	0	0	0	0	0
		914	37	37	43	49	55	60	64	70	76	85	91	97	104	0	0	0	0
		1016	33	33	42	45	49	57	61	65	71	77	82	88	92	100	106	113	121
		1118	34	34	39	42	49	54	58	64	68	73	79	83	88	94	98	104	109
		1219	31	31	36	43	48	52	55	61	64	70	73	80	82	88	92	97	101
		1321	33	33	37	42	46	49	54	57	63	67	71	74	79	85	89	92	95
	8N@ 1600	813	34	42	49	57	67	71	76	86	92	98	109	115	122	134	138	146	0
		914	31	39	43	51	58	63	68	79	83	89	100	100	112	118	128	135	144
		1016	30	36	42	46	52	60	65	70	80	82	91	92	101	103	113	121	131
		1118	28	33	39	45	51	54	61	67	73	77	83	89	94	100	104	116	116
		1219	28	31	39	45	48	54	58	64	70	76	80	85	91	95	97	107	109
		1321	30	31	36	42	46	51	58	63	67	73	77	79	88	88	94	100	106

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 207 MPa
Joist Girder Weight – kilogram/meter (kg/m).

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders having a mass of 89 kilograms/meter and greater) require a 191 millimeter depth bearing seat.

Span (mm)	No. Of Joist Spaces	Depth (mm)	18 kN	22 kN	27 kN	31 kN	36 kN	40 kN	44 kN	49 kN	53 kN	58 kN	62 kN	67 kN	71 kN	76 kN	80 kN	85 kN	89 kN
13411	7N@ 1917	813	42	42	48	54	63	67	73	82	91	94	104	116	116	126	0	0	0
		914	39	39	45	49	55	64	68	74	79	85	94	97	106	113	119	128	0
		1016	36	36	40	48	52	57	65	70	76	80	86	91	98	103	109	115	121
		1118	34	34	40	46	49	57	58	67	70	76	77	85	88	94	100	106	112
		1219	34	34	39	43	48	52	58	61	67	70	74	80	85	91	97	100	103
		1321	33	33	37	43	46	54	55	63	64	68	71	77	83	88	92	95	98
	8N@ 1676	813	45	45	54	61	68	74	82	94	101	106	116	124	0	0	0	0	0
		914	42	42	49	55	63	68	74	85	89	97	104	107	118	128	0	0	0
		1016	40	40	46	51	57	65	71	76	82	89	98	101	109	115	121	131	0
		1118	36	36	43	51	55	61	68	74	79	83	89	95	101	107	113	119	124
		1219	36	36	45	48	54	60	63	70	73	80	83	92	95	100	104	112	118
		1321	36	36	40	46	52	57	63	67	73	76	83	86	92	97	100	106	110
	9N@ 1490	813	40	48	57	67	71	80	86	97	107	115	0	0	0	0	0	0	0
		914	36	43	51	60	68	73	79	89	100	100	112	118	0	0	0	0	0
		1016	31	42	46	52	61	70	74	80	91	97	103	113	113	121	128	0	0
		1118	30	39	45	52	57	63	73	77	83	89	94	104	106	115	122	0	0
		1219	30	37	43	48	55	63	65	76	79	86	91	97	103	107	119	121	126
		1321	31	36	42	48	52	58	67	73	77	82	88	94	100	100	110	112	122
13716	7N@ 1959	813	33	40	46	52	57	65	76	77	86	95	97	107	109	128	0	0	0
		914	28	36	42	48	57	58	67	67	77	86	88	98	98	110	110	0	0
		1016	28	34	40	43	49	58	60	68	70	79	79	89	91	100	100	112	113
		1118	28	30	36	42	45	52	60	61	70	70	79	80	91	91	92	101	103
		1219	27	30	36	37	45	51	54	61	63	71	73	74	82	83	92	94	104
		1321	28	30	33	37	43	46	52	55	63	64	73	74	74	83	85	95	95
		1422	28	30	33	37	40	46	49	54	58	65	67	71	76	76	86	86	88
	8N@ 1716	813	45	45	54	63	68	77	85	94	101	116	116	0	0	0	0	0	0
		914	43	43	49	55	64	68	76	85	89	97	107	118	119	0	0	0	0
		1016	40	40	48	54	58	65	71	77	86	89	98	106	109	113	122	0	0
		1118	37	37	45	49	58	63	68	73	79	83	92	98	101	106	113	119	124
		1219	37	37	45	49	54	61	65	70	76	80	85	92	97	100	110	116	125
		1321	37	37	42	46	54	58	64	67	71	77	83	88	94	97	106	110	115
		1422	36	36	42	48	52	57	61	65	70	76	80	86	88	92	100	106	110
	9N@ 1524	813	51	51	61	70	77	86	94	104	116	124	0	0	0	0	0	0	0
		914	46	46	55	64	71	79	86	95	107	118	119	0	0	0	0	0	0
		1016	43	43	51	60	65	73	79	86	95	101	110	121	128	0	0	0	0
		1118	42	42	51	57	63	71	76	80	89	95	103	113	118	125	131	0	0
		1219	42	42	49	54	63	65	74	79	83	92	95	106	113	121	126	131	0
		1321	42	42	46	52	58	64	71	76	82	86	94	98	107	113	119	126	132
		1422	40	40	48	52	60	64	68	74	79	85	89	95	101	107	112	119	125
14020	7N@ 2002	813	43	43	49	58	63	71	77	85	94	101	104	116	122	0	0	0	0
		914	39	39	46	54	60	64	71	79	83	92	95	103	112	119	125	0	0
		1016	37	37	43	48	57	61	65	73	76	83	88	94	103	109	115	118	121
		1118	34	34	42	48	52	58	63	67	73	77	82	88	97	101	107	113	118
		1219	34	34	40	45	51	54	60	64	68	73	79	83	89	94	98	103	109
		1321	33	33	36	45	49	52	55	61	65	70	76	82	83	88	92	98	103
		1422	33	33	37	43	48	52	54	61	64	67	73	79	82	86	89	94	98
	8N@ 1752	813	46	46	55	63	71	77	85	94	104	116	122	0	0	0	0	0	0
		914	42	42	51	57	64	73	79	85	95	103	107	118	125	0	0	0	0
		1016	40	40	48	52	61	65	73	77	86	92	98	106	109	118	128	0	0
		1118	39	39	45	51	58	63	71	76	80	88	92	100	107	115	122	125	129
		1219	37	37	43	49	54	61	65	71	77	82	88	94	100	106	110	118	125
		1321	37	37	45	49	54	58	63	68	74	77	83	88	94	100	104	112	118
		1422	37	37	42	48	54	57	64	67	71	77	80	86	91	94	98	104	110
	9N@ 1557	813	40	49	57	67	76	86	92	101	109	0	0	0	0	0	0	0	0
		914	36	45	51	58	67	77	83	89	98	110	118	0	0	0	0	0	0
		1016	36	42	49	60	64	70	79	85	91	101	106	113	119	0	0	0	0
		1118	33	39	45	54	61	65	73	82	88	94	98	104	115	116	122	0	0
		1219	31	37	45	49	55	63	70	74	85	85	95	97	106	107	119	125	0
		1321	31	34	45	48	54	60	67	71	77	86	88	98	98	109	110	121	121
		1422	31	34	42	48	52	60	68	70	77	80	89	91	97	103	107	112	113
14630	7N@ 2090	813	45	45	52	60	67	71	82	91	98	104	115	116	0	0	0	0	0
		914	42	42	46	55	61	68	73	80	88	95	101	106	118	126	0	0	0
		1016	37	37	45	49	57	63	70	74	79	85	94	97	104	112	119	0	0
		1118	37	37	43	49	55	58	64	70	76	80	86	92	98	104	110	118	121
		1219	34	34	40	46	51	57	61	67	73	76	79	86	89	95	101	107	112
		1321	34	34	40	45	49	55	58	64	68	74	77	80	88	92	97	103	107
		1422	34	34	37	43	49	52	57	63	65	71	76	80	83	89	94	100	103
		1524	33	33	37	45	48	52	54	58	65	68	73	74	82	86	91	92	95
	8N@ 1828	813	48	48	58	65	71	52	91	101	104	116	0	0	0	0	0	0	0
		914	45	45	54	60	67	73	83	89	95	106	116	118	0	0	0	0	0
		1016	42	42	49	57	63	70	76	80	88	97	104	107	119	0	0	0	0
		1118	40	40	48	52	58	67	73	77	82	88	97	100	110	116	122	0	0
		1219	39	39	45	51	55	61	70	74	79	83	89	97	101	107	113	119	125
		1321	39	39	45	49	54	63	65	71	76	82	88	92	97	101	106	113	119
		1422	37	37	42	49	54	58	64	68	73	79	85	89	94	98	103	110	116
		1524	36	36	43	49	52	55	61	67	71	76	82	86	88	95	101	107	112

JOIST GIRDERS
DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 207 MPa
Joist Girder Weight – kilogram/meter (kg/m).

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders having a mass of 89 kilograms/meter and greater) require a 191 millimeter depth bearing seat.

Span (mm)	No. Of Joist Spaces	Depth (mm)	Panel Point Loads																
			18 kN	22 kN	27 kN	31 kN	36 kN	40 kN	44 kN	49 kN	53 kN	58 kN	62 kN	67 kN	71 kN	76 kN	80 kN	85 kN	89 kN
14630	9N@ 1624	813	54	54	65	71	82	92	103	115	122	0	0	0	0	0	0	0	0
		914	48	48	60	67	74	83	95	103	107	118	0	0	0	0	0	0	0
		1016	46	46	57	61	70	77	85	92	100	109	119	126	0	0	0	0	0
		1118	45	45	52	58	67	73	80	88	94	100	112	122	124	0	0	0	0
		1219	45	45	51	55	63	70	76	82	89	94	103	110	115	121	126	0	0
		1321	42	42	49	55	63	67	73	79	85	94	97	106	109	119	128	132	137
		1422	42	42	48	54	60	65	71	77	83	88	94	100	109	115	121	126	132
		1524	40	40	49	54	58	63	68	74	80	85	89	97	103	109	113	119	125
	8N@ 1904	813	51	51	58	67	76	85	92	103	115	122	0	0	0	0	0	0	0
		914	46	46	55	64	68	77	83	94	101	106	116	124	135	0	0	0	0
		1016	43	43	51	57	64	70	80	85	94	97	107	118	119	0	0	0	0
		1118	40	40	49	55	61	67	73	79	86	92	98	106	110	116	122	131	0
		1219	40	40	46	52	60	64	68	76	80	88	95	101	107	115	124	126	131
		1321	39	39	43	52	57	61	65	73	80	83	91	95	100	106	112	119	126
		1422	37	37	45	49	54	61	64	71	76	83	85	92	94	101	107	113	119
		1524	37	37	43	49	55	58	65	70	74	77	85	86	91	97	103	107	112
15240	9N@ 1694	813	57	57	65	76	85	92	103	116	0	0	0	0	0	0	0	0	0
		914	51	51	60	68	77	86	94	106	116	124	0	0	0	0	0	0	0
		1016	48	48	57	65	73	80	88	97	104	119	119	0	0	0	0	0	0
		1118	46	46	52	61	67	77	82	91	98	107	110	122	128	137	144	0	0
		1219	43	43	51	60	64	71	80	85	91	101	104	113	124	128	132	141	0
		1321	45	45	49	55	63	70	74	82	86	94	101	106	116	122	128	138	0
		1422	42	42	49	55	60	68	73	79	85	89	95	101	107	115	121	126	132
		1524	42	42	48	55	60	67	70	76	82	88	92	98	104	112	119	125	131
	10N@ 1524	813	65	65	76	91	101	113	0	0	0	0	0	0	0	0	0	0	0
		914	63	63	70	82	92	101	115	119	0	0	0	0	0	0	0	0	0
		1016	55	55	65	73	83	94	103	118	121	0	0	0	0	0	0	0	0
		1118	52	52	61	68	77	85	97	104	112	122	0	0	0	0	0	0	0
		1219	51	51	58	65	74	82	89	98	107	113	124	126	0	0	0	0	0
		1321	49	49	55	64	71	77	83	91	101	109	112	122	128	137	0	0	0
		1422	49	49	55	61	68	73	80	86	95	103	110	113	124	132	141	146	149
		1524	49	49	52	58	68	70	79	83	92	97	104	113	115	124	131	141	152
15850	8N@ 1981	914	48	48	55	63	73	80	88	94	104	0	0	0	0	0	0	0	0
		1016	45	45	52	60	67	74	82	89	95	103	113	0	0	0	0	0	0
		1118	43	43	49	57	63	70	76	80	86	95	106	109	121	0	0	0	0
		1219	42	42	48	54	60	67	73	77	83	89	98	100	107	115	122	0	0
		1321	39	39	46	51	58	64	70	74	79	85	91	100	103	109	113	119	125
		1422	39	39	45	52	55	63	67	71	77	82	88	92	98	106	113	119	125
		1524	37	37	45	51	54	58	65	68	73	79	85	89	95	101	107	112	116
	9N@ 2371	914	55	55	64	73	82	88	101	106	0	0	0	0	0	0	0	0	0
		1016	49	49	57	64	74	83	91	97	107	0	0	0	0	0	0	0	0
		1118	48	48	55	61	68	77	86	92	98	109	121	0	0	0	0	0	0
		1219	46	46	52	60	68	74	79	89	94	101	109	113	0	0	0	0	0
		1321	45	45	52	57	65	71	76	82	91	97	103	112	115	122	0	0	0
		1422	43	43	51	57	64	68	76	79	85	94	100	107	115	121	129	134	137
		1524	42	42	48	55	61	67	74	77	85	91	97	100	109	115	121	126	134
	10N@ 1584	914	45	57	67	76	86	97	107	115	125	137	0	0	0	0	0	0	0
		1016	43	51	60	68	77	88	98	110	112	129	137	147	0	0	0	0	0
		1118	40	46	55	64	70	80	91	97	103	113	119	129	146	0	0	0	0
		1219	39	46	54	61	71	76	83	94	100	104	115	124	138	152	0	0	0
		1321	37	45	49	60	64	74	79	85	97	101	107	119	119	138	150	0	0
		1422	36	42	49	57	65	71	77	86	89	98	104	110	122	122	128	140	0
		1524	34	42	49	54	60	68	79	82	91	97	103	107	113	124	125	134	150
16459	8N@ 2057	914	49	49	58	67	58	83	91	101	112	116	0	0	0	0	0	0	0
		1016	46	46	55	61	68	74	85	92	100	106	118	119	0	0	0	0	0
		1118	43	43	51	57	65	71	76	85	94	97	106	115	121	0	0	0	0
		1219	42	42	49	57	63	67	74	79	86	94	100	107	110	116	122	0	0
		1321	40	40	46	52	60	64	70	76	83	89	95	101	109	115	121	122	125
		1422	40	40	45	52	57	63	68	74	80	86	92	97	100	106	112	119	126
		1524	37	37	46	51	54	61	67	73	77	83	88	94	97	103	107	113	119
		1626	40	40	46	52	55	60	65	70	74	80	85	91	97	101	106	112	118
	9N@ 1828	914	55	55	63	73	82	94	104	116	122	135	0	0	0	0	0	0	0
		1016	51	51	60	68	76	85	95	103	118	118	137	0	0	0	0	0	0
		1118	48	48	57	65	71	80	86	97	104	109	121	128	0	0	0	0	0
		1219	46	46	52	63	68	77	83	88	100	107	112	122	124	0	0	0	0
		1321	43	43	51	60	64	73	80	85	91	100	104	113	125	128	132	0	0
		1422	45	45	52	57	63	71	76	82	88	94	101	106	116	122	128	138	0
		1524	43	43	51	55	64	68	74	79	85	89	95	104	109	115	121	126	132
		1626	43	43	51	57	61	67	71	76	82	88	98	98	109	113	119	126	135

Based on Allowable Tensile Stress of 207 MPa
Joist Girder Weight – kilogram/meter (kg/m).

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders having a mass of 89 kilograms/meter and greater) require a 191 millimeter depth bearing seat.

Span (mm)	No. Of Joist Spaces	Depth (mm)	Panel Point Loads																
			18 kN	22 kN	27 kN	31 kN	36 kN	40 kN	44 kN	49 kN	53 kN	58 kN	62 kN	67 kN	71 kN	76 kN	80 kN	85 kN	89 kN
16459	10N@ 1645	914	67	67	76	86	100	113	119	0	0	0	0	0	0	0	0	0	0
		1016	60	60	70	79	91	101	115	119	0	0	0	0	0	0	0	0	0
		1118	60	60	65	74	83	92	104	116	122	0	0	0	0	0	0	0	0
		1219	51	51	61	70	80	85	97	106	116	124	0	0	0	0	0	0	0
		1321	52	52	63	67	74	83	89	100	107	110	121	126	0	0	0	0	0
		1422	51	51	58	65	71	79	85	94	101	110	113	122	128	0	0	0	0
		1524	51	51	55	65	68	74	83	91	95	107	112	115	125	0	0	0	0
		1626	51	51	57	60	68	74	82	89	94	98	110	113	116	125	132	0	0
16764	8N@ 2097	914	51	51	60	67	76	83	94	101	116	116	0	0	0	0	0	0	0
		1016	46	46	55	64	68	79	83	92	103	106	118	125	0	0	0	0	0
		1118	46	46	51	60	65	73	80	85	94	103	109	119	119	0	0	0	0
		1219	42	42	49	57	63	67	74	82	88	97	100	107	116	119	122	0	0
		1321	40	40	48	54	60	65	73	79	83	89	98	101	107	116	124	0	0
		1422	39	39	48	52	58	64	70	76	80	85	91	97	103	109	115	121	126
		1524	37	37	46	52	55	63	68	73	77	83	89	92	100	106	110	116	121
		1626	39	39	46	52	55	60	65	71	74	80	85	91	97	101	106	112	118
		1727	40	40	46	51	55	60	65	71	76	79	85	88	94	100	104	109	112
	9N@ 1862	914	55	55	65	74	82	94	104	116	0	0	0	0	0	0	0	0	0
		1016	51	51	60	68	79	88	95	106	118	125	0	0	0	0	0	0	0
		1118	48	48	57	65	73	80	89	97	104	119	121	0	0	0	0	0	0
		1219	48	48	54	63	67	77	83	91	100	107	112	122	129	0	0	0	0
		1321	46	46	52	61	67	74	80	86	94	103	109	113	125	0	0	0	0
		1422	45	45	52	57	63	71	76	82	92	95	104	112	116	122	128	0	0
		1524	45	45	52	57	64	68	74	79	86	94	98	107	116	121	129	134	138
		1626	43	43	51	57	61	67	74	79	86	92	98	101	110	116	122	129	135
		1727	43	43	51	55	61	68	73	77	83	89	94	100	107	112	115	122	128
	10N@ 1676	914	67	67	76	89	100	113	131	0	0	0	0	0	0	0	0	0	0
		1016	61	61	71	82	94	101	115	121	0	0	0	0	0	0	0	0	0
		1118	60	60	68	74	83	95	104	118	122	0	0	0	0	0	0	0	0
		1219	55	55	64	70	80	88	97	106	119	124	0	0	0	0	0	0	0
		1321	52	52	61	68	76	83	92	104	107	119	125	0	0	0	0	0	0
		1422	54	54	58	67	71	79	88	94	106	110	122	128	131	0	0	0	0
		1524	52	52	55	65	70	77	85	91	100	109	112	125	129	0	0	0	0
		1626	51	51	55	60	70	76	82	89	95	101	110	115	126	129	132	0	0
		1727	52	52	55	57	70	73	79	86	95	100	106	115	116	125	132	0	0
	11N@ 1524	914	68	68	80	97	106	119	0	0	0	0	0	0	0	0	0	0	0
		1016	67	67	74	86	101	109	121	0	0	0	0	0	0	0	0	0	0
		1118	61	61	70	79	89	104	110	122	0	0	0	0	0	0	0	0	0
		1219	57	57	65	76	86	97	106	119	122	0	0	0	0	0	0	0	0
		1321	55	55	63	71	83	88	100	107	121	125	0	0	0	0	0	0	0
		1422	54	54	64	68	76	85	94	103	110	122	128	0	0	0	0	0	0
		1524	54	54	60	68	74	82	91	97	109	115	125	129	131	0	0	0	0
		1626	52	52	58	68	71	80	89	94	106	113	116	126	132	0	0	0	0
		1727	52	52	58	65	71	79	86	94	100	109	116	119	131	0	0	0	0
17068	8N@ 2133	914	52	52	60	67	77	83	94	104	116	116	0	0	0	0	0	0	0
		1016	46	46	55	64	71	79	83	95	103	113	118	0	0	0	0	0	0
		1118	46	46	52	61	65	74	80	85	94	104	109	119	121	0	0	0	0
		1219	45	45	49	58	64	71	77	83	88	97	104	110	116	0	0	0	0
		1321	42	42	48	54	60	68	73	79	86	89	98	101	109	116	124	0	0
		1422	40	40	48	52	58	65	70	76	80	88	91	100	103	109	115	119	126
		1524	39	39	46	52	57	63	68	71	77	83	89	94	103	107	112	119	125
		1626	39	39	46	52	55	63	65	71	76	82	85	92	97	103	107	113	118
		1727	40	40	48	51	57	61	67	70	76	82	85	88	95	101	107	112	118
	9N@ 1895	914	58	58	67	77	85	94	104	116	0	0	0	0	0	0	0	0	0
		1016	54	54	64	68	79	89	95	106	118	124	0	0	0	0	0	0	0
		1118	49	49	57	65	76	80	91	97	107	119	121	0	0	0	0	0	0
		1219	48	48	57	63	70	77	88	92	100	107	121	122	0	0	0	0	0
		1321	46	46	54	61	68	74	79	89	95	101	109	113	124	0	0	0	0
		1422	45	45	52	60	65	71	76	83	92	97	104	112	116	122	128	0	0
		1524	45	45	51	57	64	68	76	83	88	95	100	107	115	121	129	134	138
		1626	46	46	51	57	61	67	74	80	86	91	98	103	110	116	122	129	135
		1727	43	43	51	57	61	68	71	77	83	89	94	100	107	115	122	128	132
	10N@ 1706	914	67	67	77	89	101	113	131	0	0	0	0	0	0	0	0	0	0
		1016	63	63	71	82	94	101	115	132	0	0	0	0	0	0	0	0	0
		1118	60	60	68	79	86	100	104	118	122	0	0	0	0	0	0	0	0
		1219	55	55	64	71	80	89	103	107	119	124	0	0	0	0	0	0	0
		1321	52	52	63	70	76	86	95	103	110	121	125	0	0	0	0	0	0
		1422	54	54	58	67	71	82	88	97	106	112	122	128	0	0	0	0	0
		1524	52	52	55	65	70	80	85	94	100	112	113	124	129	0	0	0	0
		1626	52	52	57	63	70	76	82	91	97	104	113	116	126	0	0	0	0
		1727	52	52	57	61	70	74	79	89	94	100	107	116	118	126	134	0	0

JOIST GIRDERS - DESIGN GUIDE WEIGHT TABLE FOR JOIST GIRDERS

Based on Allowable Tensile Stress of 207 MPa
Joist Girder Weight – kilogram/meter (kg/m).

Joist Girder weights to the right of the heavy black line (i.e. Joist Girders having a mass of 89 kilograms/meter and greater) require a 191 millimeter depth bearing seat.

Span (mm)	No. Of Joist Spaces	Depth (mm)	Panel Point Loads																
			18 kN	22 kN	27 kN	31 kN	36 kN	40 kN	44 kN	49 kN	53 kN	58 kN	62 kN	67 kN	71 kN	76 kN	80 kN	85 kN	89 kN
17068	11N@ 1554	914	52	70	79	89	100	110	0	0	0	0	0	0	0	0	0	0	0
		1016	51	61	71	80	91	101	113	0	0	0	0	0	0	0	0	0	0
		1118	46	58	67	77	88	94	104	115	122	0	0	0	0	0	0	0	0
		1219	46	55	64	74	83	91	97	107	118	125	0	0	0	0	0	0	0
		1321	45	52	63	71	77	86	98	104	110	121	128	0	0	0	0	0	0
		1422	43	51	60	68	79	83	91	101	107	112	124	131	0	0	0	0	0
		1524	43	51	57	65	71	82	92	94	104	110	116	126	132	0	0	0	0
		1626	42	51	57	64	73	80	86	95	101	107	118	119	129	132	0	0	0
		1727	40	49	58	64	70	77	88	92	98	104	110	122	124	134	135	143	0
	9N@ 1962	914	58	58	67	79	91	100	115	122	0	0	0	0	0	0	0	0	0
		1016	55	55	64	73	83	92	101	112	118	0	0	0	0	0	0	0	0
		1118	51	51	61	67	76	85	94	104	107	119	0	0	0	0	0	0	0
		1219	48	48	57	64	71	79	86	95	106	110	121	128	0	0	0	0	0
		1321	48	48	54	63	68	77	83	89	98	107	112	124	124	0	0	0	0
		1422	45	45	52	61	65	73	80	86	92	100	109	115	126	137	0	0	0
		1524	46	46	52	58	64	71	77	82	91	94	103	112	118	124	129	140	0
		1626	46	46	54	57	65	70	74	79	86	92	100	106	113	122	129	132	134
		1727	48	48	51	57	63	67	73	79	88	92	98	101	109	115	121	128	135
		1829	46	46	52	58	63	70	73	79	85	91	95	101	109	113	116	122	128
17678	10N@ 1767	914	71	71	82	97	103	118	0	0	0	0	0	0	0	0	0	0	0
		1016	65	65	74	85	98	104	119	0	0	0	0	0	0	0	0	0	0
		1118	60	60	68	79	91	103	112	121	0	0	0	0	0	0	0	0	0
		1219	58	58	67	74	85	94	104	115	122	0	0	0	0	0	0	0	0
		1321	55	55	64	70	79	88	98	106	116	121	0	0	0	0	0	0	0
		1422	54	54	63	68	77	83	91	104	109	119	122	131	0	0	0	0	0
		1524	55	55	60	67	71	79	89	95	107	110	121	124	132	0	0	0	0
		1626	54	54	55	65	71	74	88	92	100	109	113	122	126	138	0	0	0
		1727	54	54	57	60	71	76	83	91	95	101	112	115	125	129	132	0	0
		1829	52	52	57	60	70	74	80	89	95	98	107	115	118	125	132	140	0
	11N@ 1606	914	61	70	80	91	101	118	0	0	0	0	0	0	0	0	0	0	0
		1016	54	63	73	86	97	107	119	0	0	0	0	0	0	0	0	0	0
		1118	49	63	73	83	94	100	115	116	0	0	0	0	0	0	0	0	0
		1219	49	57	65	74	85	95	106	118	119	0	0	0	0	0	0	0	0
		1321	48	57	67	71	82	88	98	110	121	121	0	0	0	0	0	0	0
		1422	45	52	61	68	80	89	97	103	113	122	125	0	0	0	0	0	0
		1524	45	54	60	70	76	83	94	98	106	115	126	128	135	0	0	0	0
		1626	45	54	58	65	74	85	89	95	107	109	118	129	131	138	0	0	0
		1727	43	51	58	67	76	83	89	97	100	110	116	122	132	135	143	0	0
		1829	43	52	58	67	73	80	91	92	101	109	115	119	126	137	138	146	0
18288	9N@ 2033	1016	57	60	65	73	83	92	101	112	119	0	0	0	0	0	0	0	0
		1118	57	57	63	70	79	85	95	104	119	119	0	0	0	0	0	0	0
		1219	55	57	58	67	74	82	89	97	106	116	121	0	0	0	0	0	0
		1321	54	55	57	65	70	74	80	91	94	103	109	115	0	0	0	0	0
		1422	54	54	54	63	68	73	80	86	94	101	104	113	116	122	0	0	0
		1524	52	52	54	60	67	73	80	86	92	101	104	113	116	116	129	0	0
		1626	52	52	52	55	64	70	76	77	88	89	97	100	109	109	121	122	0
		1727	51	51	51	55	64	70	74	79	86	88	97	101	109	112	121	124	138
		1829	49	49	51	57	64	68	74	79	86	89	97	101	110	116	122	131	138
	10N@ 1828	1016	48	63	73	82	92	103	116	0	0	0	0	0	0	0	0	0	0
		1118	46	61	73	82	91	103	116	122	140	143	0	0	0	0	0	0	0
		1219	45	55	67	77	86	101	104	119	122	141	144	0	0	0	0	0	0
		1321	43	52	63	71	77	86	97	107	112	119	129	137	0	0	0	0	0
		1422	42	51	63	70	74	85	95	100	110	116	126	132	143	0	0	0	0
		1524	42	49	61	68	73	82	92	98	107	113	124	129	141	0	0	0	0
		1626	37	48	58	64	71	77	86	95	98	110	116	119	126	126	0	0	0
		1727	36	45	58	63	71	76	86	94	97	107	115	113	124	125	134	134	0
		1829	36	57	58	61	71	76	85	91	95	104	113	116	119	125	134	134	0
	11N@ 1661	1016	49	63	76	86	97	109	115	0	0	0	0	0	0	0	0	0	0
		1118	49	60	68	79	89	100	110	118	0	0	0	0	0	0	0	0	0
		1219	45	54	65	71	82	92	103	113	121	0	0	0	0	0	0	0	0
		1321	45	52	63	71	82	88	97	106	116	122	0	0	0	0	0	0	0
		1422	43	51	60	68	76	85	97	98	109	118	126	0	0	0	0	0	0
		1524	42	49	58	67	76	82	89	98	106	113	122	128	0	0	0	0	0
		1626	42	49	58	67	70	82	89	95	103	113	116	125	132	0	0	0	0
		1727	42	49	55	63	71	82	83	92	100	106	116	118	129	135	0	0	0
		1829	42	48	57	63	73	76	86	91	97	107	109	121	122	132	140	0	0
	12N@ 1524	1016	58	70	79	95	109	121	0	0	0	0	0	0	0	0	0	0	0
		1118	57	70	79	95	104	121	138	140	0	0	0	0	0	0	0	0	0
		1219	55	64	76	86	98	110	122	140	143	0	0	0	0	0	0	0	0
		1321	48	58	68	77	85	95	106	118	125	0	0	0	0	0	0	0	0
		1422	46	57	65	77	85	92	101	112	124	128	0	0	0	0	0	0	0
		1524	46	57	65	77	85	92	101	112	124	128	147	0	0	0	0	0	0
		1626	45	52	60	70	80	86	97	104	115	116	126	135	0	0	0	0	0
		1727	45	52	61	71	79	85	95	101	109	119	129	132	138	0	0	0	0
		1829	45	55	61	71	79	86	92	98	109	118	125	135	137	0	0	0	0

RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS AND JOIST GIRDERS

Adopted by the Steel Joist Institute April 7, 1931
Revised to May 2, 1994 - Effective September 1, 1994

SECTION 1. GENERAL

1.1 SCOPE

The practices and customs set forth herein are in accordance with good engineering practice, tend to insure safety in steel joist and Joist Girder construction, and are standard within the industry. There shall be no conflict between this code and any legal building regulation. This code shall only supplement and amplify such laws. Unless specific provisions to the contrary are made in a contract for the purchase of steel joists or Joist Girders, this code is understood to govern the interpretation of such a contract.

1.2 APPLICATION

This Code of Standard Practice is to govern as a standard unless otherwise covered in the architects' and engineers' plans and specifications.

1.3 DEFINITION

The term Seller as used herein is defined as a company engaged in the manufacture and distribution of steel joists, Joist Girders and accessories.

The term Material as used herein is defined as steel joists, Joist Girders and accessories.

1.4 DESIGN

In the absence of ordinances or specifications to the contrary, all designs prepared by the specifying professional shall be in accordance with the applicable Steel Joist Institute specifications and table of latest adoption.

1.5 RESPONSIBILITY FOR DESIGN AND ERECTION

When Material requirements are specified, the seller shall assume no responsibility other than to furnish the items listed in Section 5.2 (a). When Material requirements are not specified, the Seller shall furnish the items listed in Section 5.2 (a) in accordance with applicable Steel Joist Institute Specifications of latest adoption, and this code. The Seller shall identify Material by showing size and type. In no case shall the Seller assume any responsibility for the erection of the item furnished.

1.6 PERFORMANCE TEST FOR K-SERIES STEEL JOIST CONSTRUCTION

When job tests on a structure are required, joists shall have bridging and top deck applied as used. In addition to the full dead load, the test panel shall sustain for one hour a test load of 1.65 times the design live load. After this test load has been removed for a minimum of 30 minutes, the remaining deflection shall not exceed 20% of the deflection caused by the test load. The weight of the test panel itself shall constitute the dead load of the construction and shall include the weight of the joists, bridging, top deck, slab, ceiling materials, etc. The design live load shall be the live load specified and in no case shall it be more than the published joist capacity less the dead load. The cost of such tests shall be borne by the purchaser.

SECTION 2. JOISTS AND ACCESSORIES

2.1 STEEL JOISTS AND JOIST GIRDERS

Steel joists and Joist Girders shall carry the designations and meet the requirements of the applicable Steel Joist Institute Specification and Table of latest adoption.

K-Series joists are furnished with parallel chords only, and with minimum standard end bearing depth of 2½ inches (64 mm).

LH- and **DLH-**Series joists are furnished either underslung or square ended, with top chords either parallel, pitched one way or pitched two ways. Underslung types are furnished with standard end bearing depth of 5 inches (127 mm) for **LH-**Series. **DLH-**Series are furnished with standard end bearing depths of 5 inches (127 mm) for section numbers thru 17 and 7½ inches (191 mm) for section numbers 18 and 19. The standard pitch is ⅛ inch in 12 inches (1:96). The nom-

inal depth of a pitched Longspan Joist is taken at the center of the span.

Joist Girders are furnished either underslung or square ended with top chords either parallel, pitched one way or pitched two ways. Under-slung types are furnished with a standard end bearing depth of 6 inches (152 mm) for Joist Girders weighing less than 60 pounds per lineal foot (89 kg/m), and 7½ inches (191mm) for Joist Girders weighing 60 pounds per lineal foot (89 kg/m) or more. The standard pitch is ⅛ inch in 12 inches (1:96). The nominal depth of a pitched Joist Girder is taken at the center of the span.

Because Longspan and Deep Long Span Joists may have exceptionally high end reactions, it is recommended that the supporting structure be designed to provide a minimum unit bearing pressure of 750 pounds per square inch (5171 Kilo Pascal).

2.2 SLOPED END BEARINGS

Where steel joists or Joist Girders are sloped, beveled ends or sloped shoes may be provided where the slope exceeds ¼ inch in 12 inches (1:48). For Open Web Steel Joists, K-Series, bearing ends will not be beveled for slopes of ¼ inch or less in 12 inches (1:48).

2.3 EXTENDED ENDS

Steel joist extended ends shall be in accordance with Manufacturer's Standard and shall meet the requirements of the Steel Joist Institute specification of latest adoption.

2.4 CEILING EXTENSIONS

Ceiling extensions shall be furnished to support ceilings which are to be attached to the bottom of the

TABLE 2.5.1a

K - SERIES JOIST

MAXIMUM JOIST SPACING FOR HORIZONTAL BRIDGING

SECTION NUMBER*	Round Rod	**BRIDGING MATERIAL SIZE					
	1/2″ round (13mm) r = .13″	Equal leg Angles					
		1 x 7/64 (25mm x 3mm) r = .20″	1-1/4 x 7/64 (32mm x 3mm) r = .25″	1-1/2 x 7/64 (38mm x 3mm) r = .30″	1-3/4 x 7/64 (45mm x 3mm) r = .35″	2 x 1/8 (51mm x 3mm) r = .40″	2-1/2 x 5/32 (64mm x 4mm) r = .50″
1 thru 9	3′- 3″ (991mm)	5′- 0″ (1524mm)	6′- 3″ (1905mm)	7′- 6″ (2286mm)	8′- 7″ (2616mm)	10′- 0″ (3048mm)	12′- 6″ (3810mm)
10	3′- 0″ (914mm)	4′- 8″ (1422mm)	6′- 3″ (1905mm)	7′- 6″ (2286mm)	8′- 7″ (2626mm)	10′- 0″ (3048mm)	12′- 6″ (3810mm)
11 and 12	2′- 7″ (787mm)	4′- 0″ (1219mm)	5′- 8″ (1727mm)	7′- 6″ (2286mm)	8′- 7″ (2626mm)	10′- 0″ (3048mm)	12′- 6″ (3810mm)

*   Refer to last digit(s) of Joist Designation
** Connection to Joist must resist 700 pounds (3114 N)

TABLE 2.5.1b

LH SERIES JOISTS

MAXIMUM JOIST SPACING FOR HORIZONTAL BRIDGING
SPANS OVER 60′ REQUIRE BOLTED DIAGONAL BRIDGING

Section Number*	**BRIDGING ANGLE SIZE - (EQUAL LEG ANGLE)					
	1 x 7/64 (25mm x 3mm) r = .20″	1-1/4 x 7/64 (32mm x 3mm) r = .25″	1-1/2 x 7/64 (38mm x 3mm) r = .30″	1-3/4 x 7/64 (45mm x 3mm) r = .35″	2 x 1/8 (52mm x 3mm) r = .40″	2-1/2 x 5/32 (64mm x 4mm) r = .50″
02, 03, 04	4′- 7″ (1397mm)	6′- 3″ (1905mm)	7′- 6″ (2289mm)	8′- 9″ (2667mm)	10′- 0″ (3048mm)	12′- 4″ (3759mm)
05 - 06	4′- 1″ (1245mm)	5′- 9″ (1753mm)	7′- 6″ (2286mm)	8′- 9″ (2667mm)	10′- 0″ (3048mm)	12′- 4″ (3759mm)
07 - 08	3′- 9″ (1143mm)	5′- 1″ (1549mm)	6′- 8″ (2032mm)	8′- 6 (2590mm)	10′- 0″ (3048mm)	12′- 4″ (3759mm)
09 - 10		4′- 6″ (1372mm)	6′- 0″ (1829mm)	7′- 8″ (2337mm)	10′- 0″ (3048mm)	12′- 4″ (3759mm)
11 - 12		4′- 1″ (1245mm)	5′- 5″ (1651mm)	6′- 10″ (2083mm)	8′- 11″ (2118mm)	12′- 4″ (3759mm)
13 - 14		3′ - 9″ (1143mm)	4′- 1″ (1245mm)	6′- 3″ (1905mm)	8′- 2″ (2489mm)	12′- 4″ (3759mm)
15 - 16			4′- 3″ (1295mm)	5′- 5″ (1651mm)	7′- 1″ (2159mm)	11′- 0″ (3353mm)
17			4′- 0″ (1219mm)	5′- 1″ (1549mm)	6′- 8″ (2032mm)	10′- 5″ (3175mm)

*   Refer to last two digits of Joist Designation
** Connection to Joist must resist force listed in Table 104.5.1

joists. They are not furnished for the support of sus-pended ceilings. The ceiling extension shall be either an extended bottom chord element or a loose unit, whichever is standard with the manufacturer, and shall be of sufficient strength to properly support the ceiling.

2.5 BRIDGING AND BRIDGING ANCHORS

(a) Bridging standard with the manufacturer and com-plying with the applicable Steel Joist Institute spec-ification of latest adoption shall be used for bridg-ing all joists furnished by the manufacturer. Positive anchorage shall be provided at the ends of each bridging row at both top and bottom chords.

(b) For the K- and LH-Series Joists horizontal bridging is recommended for spans up to and including 60 feet (18288 mm) except where Code requirements for _erection stability_ and/or the Steel Joist Institute Specifications require bolted diagonal bridging.

LH- and **DLH-**Series Joists exceeding 60 feet (18288 mm) in length shall have bolted diagonal bridging for all rows.

Refer to Section #5 in the **K-**Series Specifications and Section #105 in the **LH/DLH-** Specifications for Erection Stability requirements.

The ℓ/r ratio for horizontal bridging shall not exceed 300. The material sizes shown in TABLES 2.5.1a and 2.5.1b meet the criteria (page 88).

Horizontal bridging shall consist of two continuous steel members, one of which is attached to the top chord and the other attached to the bottom chord.

(c) Diagonal cross bridging consisting of angles or other shapes connected to the top and bottom chords, of **K-, LH-,** and **DLH-**Series Joists shall be used when required by the applicable Steel Joist Institute standards and specifications of latest adoption.

Diagonal bridging, when used, shall have an ℓ/r ratio not exceeding 200.

When the bridging members are connected at their point of intersection, the following table will meet the above specification.

TABLE 2.5.2

K, LH & DLH SERIES JOISTS

MAXIMUM JOIST SPACING FOR DIAGONAL BRIDGING

JOIST DEPTH	BRIDGING ANGLE SIZE - (EQUAL LEG ANGLES)				
	1 X 7/64 (25mm x 3mm) r = .20″	1-1/4 x 7/64 (32mm x 3mm) r = .25″	1-1/2 x 7/64 (38mm x 3mm) r = .30″	1-3/4 x 7/64 (45mm x 3mm) r = .35″	2x1/8 (51mm x 3mm) r = .40″
12	6′- 6″ (1981mm)	8′- 3″ (2514mm)	9′- 11″ (3022mm)	11′- 7″ (3530mm)	
14	6′- 6″ (1981mm)	8′- 3″ (2514mm)	9′- 11″ (3022mm)	11′- 7″ (3530mm)	
16	6′- 6″ (1981mm)	8′- 2″ (2489mm)	9′- 10″ (2997mm)	11′- 6″ (3505mm)	
18	6′- 6″ (1981mm)	8′- 2″ (2489mm)	9′- 10″ (2997mm)	11′- 6″ (3505mm)	
20	6′- 5″ (1955mm)	8′- 2″ (2489mm)	9′- 10″ (2997mm)	11′- 6″ (3505mm)	
22	6′- 4″ (1930mm)	8′- 1″ (2463mm)	9′- 10″ (2997mm)	11′- 6″ (3505mm)	
24	6′- 4″ (1930mm)	8′- 1″ (2463mm)	9′- 9″ (2971mm)	11′- 5″ (3479mm)	
26	6′- 3″ (1905mm)	8′- 0″ (2438mm)	9′- 9″ (2971mm)	11′- 5″ (3479mm)	
28	6′- 2″ (1879mm)	8′- 0″ (2438mm)	9′- 8″ (2946mm)	11′- 5″ (3479mm)	
30	6′- 2″ (1879mm)	7′- 11″ (2413mm)	9′- 8″ (2946mm)	11′- 4″ (3454mm)	
32	6′- 1″ (1854mm)	7′- 10″ (2387mm)	9′- 7″ (2921mm)	11′- 4″ (3454mm)	13′- 0 ″ (3962mm)
36		7′- 9″ (2362mm)	9′- 6″ (2895mm)	11′- 3″ (3429mm)	12′- 11″ (3973mm)
40		7′- 7″ (2311mm)	9′- 5″ (2870mm)	11′- 2″ (3403mm)	12′- 10″ (3911mm)
44		7′- 5″ (2260mm)	9′- 3″ (2819mm)	11′- 0″ (3352mm)	12′- 9″ (3886mm)
48		7′- 3″ (2209mm)	9′- 2″ (2794mm)	10′- 11″ (3327mm)	12′- 8″ (3860mm)
52			9′- 0″ (2743mm)	10′- 9″ (3276mm)	12′- 7″ (3835mm)
56			8 - 10″ (2692mm)	10′- 8″ (3251mm)	12′- 5″ (3784mm)
60			8′- 7″ (2616mm)	10′- 6″ (3200mm)	12′- 4″ (3759mm)
64			8′- 5″ (2565mm)	10′- 4″ (3149mm)	12′- 2″ (3708mm)
68			8′- 2″ (2489mm)	10′- 2″ (3098mm)	12′- 0″ (3657mm)
72			8′- 0″ (2438mm)	10′- 0″ (3048mm)	11′-10″ (3606mm)

MINIMUM A307 BOLT REQUIRED FOR CONNECTION

SERIES	*SECTION NUMBER	A307 BOLT DIAMETER
K	ALL	3/8″ (9mm)
LH/DLH	2 - 12	3/8″ (9mm)
LH/DLH	13 - 17	1/2″ (12mm)
DLH	18 & 19	5/8″ (15mm)

* Refer to last digit(s) of joist designation

2.6 HEADERS

Headers for Open Web Steel Joists, **K-**Series as outlined and defined in Section 5.2 (a) shall be furnished by the Seller. Such headers shall be any type standard with the manufacturer. Conditions involving headers shall be investigated and, if necessary, provisions made to provide a safe condition. Headers are not provided for Longspan Steel Joists, **LH-**Series, and Deep Longspan Steel Joists, **DLH-**Series.

2.7 BOTTOM CHORD LATERAL BRACING FOR JOIST GIRDERS

Bottom chord lateral bracing may be furnished to prevent lateral movement of the bottom chord of the Joist Girder and to prevent the ratio of chord length to radius of gyration from exceeding that specified. The lateral bracing shall be that which is standard with the manufacturer, and shall be of sufficient strength to properly resist any lateral force exerted by the bottom chord of the Joist Girder.

SECTION 3.
MATERIALS

3.1 STEEL

The steel used in the manufacture of joists and Joist Girders shall comply with the applicable Steel Joist Institute specification of latest adoption.

3.2 PAINT

The shop coat of paint, when specified, shall comply with the applicable Steel Joist Institute specification of latest adoption.

SECTION 4.
INSPECTION

All joist and Joist Girder inspections shall be made in accordance with the provision for inspection in the applicable Steel Joist Institute specification of latest adoption.

SECTION 5.
ESTIMATING

5.1 PLANS FOR BIDDING

Plans to serve as the basis for bids shall show the character of the work with sufficient clarity to permit making an accurate estimate and shall show the following:

Designation and location of Materials (See Section 5.2 [a]).

Locations and elevations of all steel and concrete supporting members and bearing walls.

Location and length of joist extended ends.

Location and size of all openings in floors and roofs.

Location of all partitions.

Location and magnitude of concentrated loads as defined in Section 5.5.

Construction and thickness of floor slabs, roof deck, ceilings and partitions.

Joists or Joist Girders requiring extended bottom chords.

Paint, if other than manufacturer's standard.

5.2 SCOPE OF ESTIMATE

(a) Unless otherwise specified, the following items shall be included in the estimate, and requirements shall be determined as outlined in Section 5.3 through 5.5.

Steel Joists

Joist Girders

Joist Extended Ends

Ceiling Extensions.

Extended bottom chord used as strut.

Bridging and bridging anchors.

Joist Girder bottom chord bracing.

Headers which are defined as members supported by and carrying Open Web Steel Joists, **K-**Series.

One shop coat of paint, when specified, shall be in accordance with Section 3.2.

(b) The following items shall not be included in the estimate but may be quoted and identified as separate items:

Headers for Longspan Steel Joists, **LH-**Series.

Headers for Deep Longspan Steel Joists, **DLH-**Series.

Reinforcement in slabs over joists.

Centering material and attachments.

Miscellaneous framing between joists for openings at ducts, dumbwaiters, ventilators, skylights, etc.

Loose individual or continuous bearing plates and bolts or anchors for such plates.

Erection bolts for joist and Joist Girder end anchorage.

Horizontal bracing in the plane of the top and bottom chords from joist to joist or joist to structural framing and walls.

Wood nailers.

Moment plates.

5.3 JOIST LOCATION AND SPACING

The maximum joist spacing shall be in accordance with the requirements of the applicable SJI specification and load table of latest adoption.

Where sidewalls, wall beams or tie beams are capable of supporting the floor slab or roof deck, the first adjacent joists may be placed one full space from these members. Longspan Steel Joists and Deep Longspan Steel Joists are provided with camber. These joists may have a significant difference in elevation with respect to the adjacent structure because of this camber. This difference in elevation should be given consideration when locating the first joist adjacent to a side wall, wall beam or tie beam. Therefore, it is recommended that this joist be located one full space away from these members.

Open Web Steel Joists, **K**-Series, should be no closer than 6 inches (152 mm) to these supporting walls or members. Where partitions occur parallel to joists, there shall be at least one typical joist provided under each such partition, and more than one such joist shall be provided if necessary to safely support the weight of such partition and the adjacent floor, less the live load, on a strip of floor one foot (305 mm) in width. Where such partitions extend less than one-third (⅓) of the span from the support, special spacing or additional joists shall not be required provided the loads do not exceed those in Section 5.5. When partitions occur normal to the joists, they shall be treated as concentrated loads, and joists shall be investigated as indicated in Section 5.5.

5.4 ACCESSORIES

Joist accessories standard with the manufacturer shall comply with applicable Steel Joist Institute specifications of latest adoption and shall be in accordance with Section 2 of this Code.

5.5 LOADS

The Steel Joist Institute Load Tables are based on uniform loading conditions and are valid for use in selecting joist sizes for gravity loads that can be expressed in terms of "Pounds per lineal foot" (Newtons per Meter) of joist. The Steel Joist Institute Weight Tables are based on uniformly spaced panel point loading conditions and are valid for use in selecting Joist Girder sizes for gravity conditions that can be expressed in kips (Kilo Newton) per panel point on the Joist Girder. **When Joist Girders are required to support unequal panel point loads or other special loads, a load diagram should be provided on the structural drawings.**
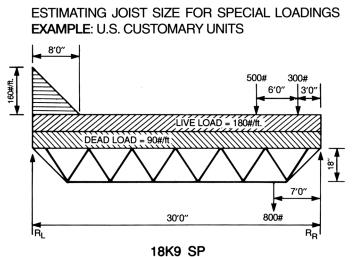
Loads such as Bulb "T"s, purlins, partitions, heavy pipes, monorail or tramrail type carrier, etc., running normal to the length of the joist, or a mechanical unit mounted on the joist, are concentrated loads. Where concentrated loads occur, the joist must be selected to carry the full combination of uniform load plus concentrated load. The magnitude and location of these concentrated loads shall be shown on the **structural drawings** when, in the opinion of the **specifying professional,** they may require special consideration by the manufacturer. Such joists shall be labeled "Special" on the **structural drawings.**

When Steel Joists are subjected to concentrated and/or varying loads, the specifying professional shall use the following procedure which will allow the:

1. Estimator to price the joists.
2. Joist manufacturer to design the joists properly.
3. Owner to obtain the most economical joists.

A. Sketch the joist(s) on the structural drawings showing **all** loads to be supported.
B. Determine the maximum moment in the joist and derive the **uniform** load that will produce that moment.
C. Determine the maximum end reaction and derive the **uniform** load that will produce that reaction.
D. Using the largest of the 2 uniform loads in B and C, select a joist from the load table and add an "SP" after the joist designation.
E. Place the designation under the sketch with the following note:
    "Joist supplier to design joist to support loads as shown above."

ESTIMATING JOIST SIZE FOR SPECIAL LOADINGS
EXAMPLE: U.S. CUSTOMARY UNITS

18K9 SP
(See Method of Joist Selection Below)
Joist supplier to design joist to support loads as shown above.

$$\text{Total Load} = \frac{160}{2}(8) + (180 + 90)30 + 500$$
$$+\ 800 + 300 = \textbf{10,300 lbs.}$$

$$R_L = \frac{160(8)}{2}\left[\frac{30 - \frac{8}{3}}{30}\right] + \frac{(180+90)\,(30)}{2} + 500\left[\frac{9}{30}\right]$$

$$+\ 800\left[\frac{7}{30}\right] + 300\left[\frac{3}{30}\right] =$$

$R_L = $ **5000 lbs.**

$R_R = $ **5340 lbs.**

Assume $R_R = \dfrac{W_{e1}(L)}{2}$, $W_{e1} = \dfrac{2(5340)}{30} = $ **356 lbs/ft.**

Point of Max. Mom. = Point of Zero Shear(V) = L_1
(dist. from rt. end of Jst.)

$V = \text{Zero} = 5340 - (300 + 500 + 800) - (180+90)(L_1)$

$L_1 = $ **13.85 ft.**

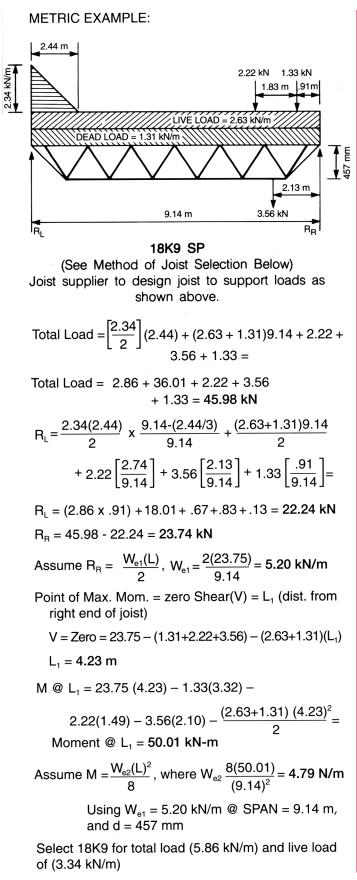$M @ L_1 = 5340\,(13.85) - 300(10.85) -$

$$800(6.86) - 500(4.85) - \frac{(180+90)\,(13.85)^2}{2}$$

$M = $ **36,903 ft. lbs.**

Assume $M = \dfrac{W_{e2}(L)^2}{8}$, $W_{e2} = \dfrac{8(36,903)}{(30)^2} = $ **328 lbs/ft.**

Using $W_{e1} = $ 356 lb/ft. @ SPAN = 30′,
and D = 18″

Select 18K9 for total load (402) and live load (229) and call it: **18K9SP**

The specifying professional shall compare the equivalent uniform loads W_{e1} & W_{e2} to the uniform loads tabulated in the K-Series Load Table. **Loads in excess of the load table loads** indicate that the specifying professional shall consider using additional joists to reduce the loading, or use the LH-Series Joist and make provisions for 5″ deep bearing seats.

METRIC EXAMPLE:

18K9 SP
(See Method of Joist Selection Below)
Joist supplier to design joist to support loads as shown above.

$$\text{Total Load} = \left[\frac{2.34}{2}\right](2.44) + (2.63 + 1.31)9.14 + 2.22 +$$
$$3.56 + 1.33 =$$

$$\text{Total Load} = 2.86 + 36.01 + 2.22 + 3.56$$
$$+ 1.33 = \textbf{45.98 kN}$$

$$R_L = \frac{2.34(2.44)}{2} \times \frac{9.14 - (2.44/3)}{9.14} + \frac{(2.63 + 1.31)9.14}{2}$$
$$+ 2.22\left[\frac{2.74}{9.14}\right] + 3.56\left[\frac{2.13}{9.14}\right] + 1.33\left[\frac{.91}{9.14}\right] =$$

$$R_L = (2.86 \times .91) + 18.01 + .67 + .83 + .13 = \textbf{22.24 kN}$$

$$R_R = 45.98 - 22.24 = \textbf{23.74 kN}$$

Assume $R_R = \dfrac{W_{e1}(L)}{2}$, $W_{e1} = \dfrac{2(23.75)}{9.14} = \textbf{5.20 kN/m}$

Point of Max. Mom. = zero Shear(V) = L_1 (dist. from right end of joist)

$$V = \text{Zero} = 23.75 - (1.31 + 2.22 + 3.56) - (2.63 + 1.31)(L_1)$$

$$L_1 = \textbf{4.23 m}$$

$$M @ L_1 = 23.75\ (4.23) - 1.33(3.32) -$$

$$2.22(1.49) - 3.56(2.10) - \frac{(2.63 + 1.31)\ (4.23)^2}{2} =$$
Moment @ $L_1 = \textbf{50.01 kN-m}$

Assume $M = \dfrac{W_{e2}(L)^2}{8}$, where $W_{e2}\ \dfrac{8(50.01)}{(9.14)^2} = \textbf{4.79 N/m}$

Using $W_{e1} = 5.20$ kN/m @ SPAN = 9.14 m, and d = 457 mm

Select 18K9 for total load (5.86 kN/m) and live load of (3.34 kN/m)

Call it: **18K9SP**

The specifying professional shall compare the equivalent uniform loads W_{e1} & W_{e2} to the uniform loads tabulated in the **K**-Series Load Table Table. Loads in excess of the load table loads indicate that the specifiying professional shall consider using additional joists to reduce the loading, or use an **LH**-Series Joist and make provisions for 127 mm deep bearing seats.

Due consideration by the specifying professional shall be given to live loads due to:

1. Ponded rain water.
2. Excessive accumulation of snow in the vicinity of obstructions such as penthouses, signs, parapets, adjacent buildings, etc.
3. Wind uplift.
4. End moments at the joist end supports due to live and/or wind/seismic loads shall be shown on the structural drawings by the specifying professional.

   For moment resisting joists framing near the end of a column, due consideration shall be given to extend the column length to allow a plate type connection between the top of the joist top chord and the column. Preferably, avoid resolving joist end moment forces through the joist bearing seat connection.

   The structural drawings shall specify that all moment resisting joists shall have all dead loads applied to the joist before the bottom chord struts are welding to the column connection.

   The top and bottom chord moment connection details shall be designed by the specifying professional. The joist designer shall furnish the specifying professional with the joist detail information if requested.

The design loads, as determined by the specifying professional, shall not be less than that specified in the applicable building codes.

SECTION 6.
PLANS AND SPECIFICATIONS

6.1 PLANS FURNISHED BY BUYER

The Buyer shall furnish the Seller plans and specifications showing all Material requirements, the layout of walls, columns, beams, girders and other supports, as well as floor and roof openings and partitions correctly dimensioned. The live loads to be used, the wind uplift if any, the weights of partitions and the location and amount of any special loads, such as monorails, fans, blowers, tanks, etc., shall be indicated. The elevation of finished floors and roofs and bearings shall be shown.

6.2 PLANS FURNISHED BY SELLER

The Seller shall furnish the Buyer with detailed plans and lists showing the number, type, locations, spacing, anchorage and mark of all Material as may be required for proper installation. All Material shall be identified with its mark which also appears on the bill of material. The type of shop paint, when required, shall be indicated on the drawings.

6.3 DISCREPANCIES

The specifying professional's bid plans and specifications will be assumed to be correct in the absence of written notice from the Buyer to the contrary. When plans are furnished by the Buyer which do not agree with the Architect's bid plans, such detailed plans shall be considered as a written notice of change of plans. However, it shall be the Buyer's responsibility to advise the Seller of those changes which affect the joists or Joist Girders.

6.4 APPROVAL

When joist placement plans are furnished by the Seller, prints thereof are submitted to the Buyer and owner for examination and approval. The Seller allows a maximum of fourteen (14) calendar days in his schedule for the return of placement plans noted with the owner's and customer's approval, or approval subject to corrections as noted. The Seller makes the corrections, furnishes corrected prints for field use to the owner/customer and is released by the owner/customer to start joist manufacture.

Approval by the owner/customer of the placement plans, sections, notes and joist schedule prepared by the Seller indicates that the Seller has correctly interpreted the contract requirements, and is released by the owner/customer to start joist manufacture. This approval constitutes the owner's/customer's acceptance of all responsibility for the design adequacy of any detail configuration of joist support conditions shown by the Seller as part of his preparation of these placement plans.

Approval does not relieve the Seller of the responsibility for accuracy of detail dimensions on the plans, nor the general fit-up of joists to be placed in the field.

6.5 CHANGES

When any changes in plans are made by the buyer (or Architect) either prior to or after approval of detailed plans, or when any Material is required and was not shown on plans used as the basis of the bid, the cost of such changes and/or extra Material shall be paid by

the Buyer at a price to be agreed upon between Buyer and Seller.

SECTION 7.*
HANDLING AND ERECTION

The Buyer and/or Erector shall check all materials on arrival at job site and promptly report to Seller any discrepancies and/or damages. The Buyer and/or Erector shall comply with the requirements of the applicable Steel Joist Institute specification of latest adoption in the handling and erection of Material.

The Seller shall not be responsible for the condition of paint finish on Material if it is not properly protected after delivery.

The Seller shall not be responsible for improper fit of Material in the case in inaccurate finish dimensions of field construction work.

* For thorough coverage of this topic, refer to SJI Technical Digest #9, "Handling and Erection of Steel Joists and Joist Girders".

SECTION 8.
BUSINESS RELATIONS

8.1 PRESENTATION OF PROPOSALS

All proposals for furnishing Material shall be made on a Sales Contract Form. After acceptance by the Buyer, these proposals must be approved or executed by a qualified official of the Seller. Upon such approval the proposal becomes a contract.

8.2 ACCEPTANCE OF PROPOSALS

All proposals are intended for prompt acceptance and are subject to change without notice.

8.3 BILLING

Contracts on a lump sum basis are to be billed proportionately as shipments are made.

8.4 PAYMENT
Payments shall be made in full on each invoice without retention.

8.5 ARBITRATION

All business controversies which cannot be settled by direct negotiations between Buyer and Seller shall be submitted to arbitration. Both parties shall sign a submission to arbitration and if possible agree upon an arbitrator. If they are unable to agree, each shall ap-point an arbitrator and these two shall appoint a third arbitrator. The expenses of the arbitration shall be divided equally between the parties, unless otherwise provided for in the agreements to submit to arbitration. The arbitrators shall pass finally upon all questions, both of law and fact, and their findings shall be conclusive.

NOTES: _____