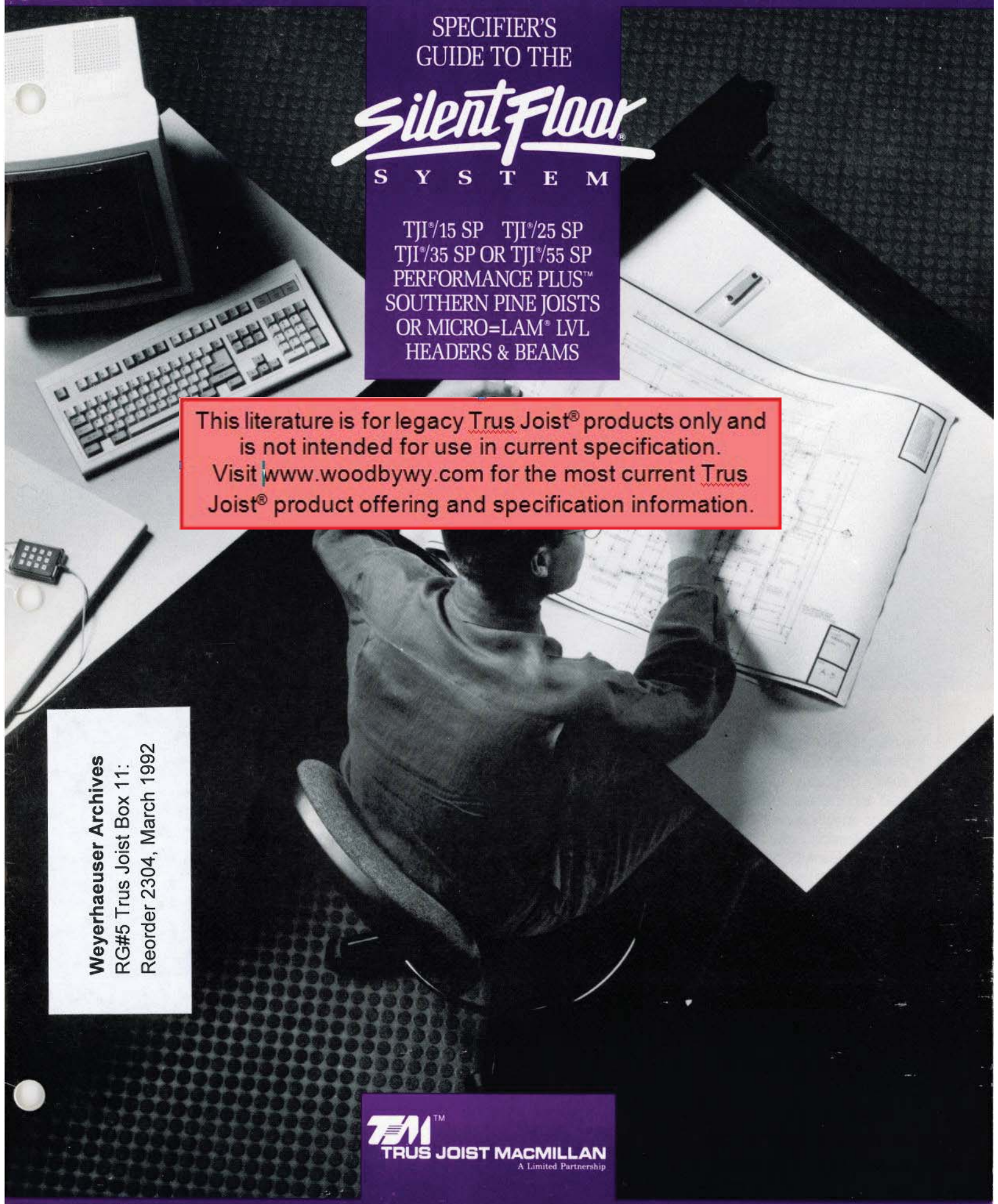
RESIDENTIAL APPLICATIONS

SPECIFIER'S GUIDE TO THE Silent Floor® SYSTEM

TJI®/15 SP TJI®/25 SP
TJI®/35 SP OR TJI®/55 SP
PERFORMANCE PLUS™
SOUTHERN PINE JOISTS
OR MICRO=LAM® LVL
HEADERS & BEAMS

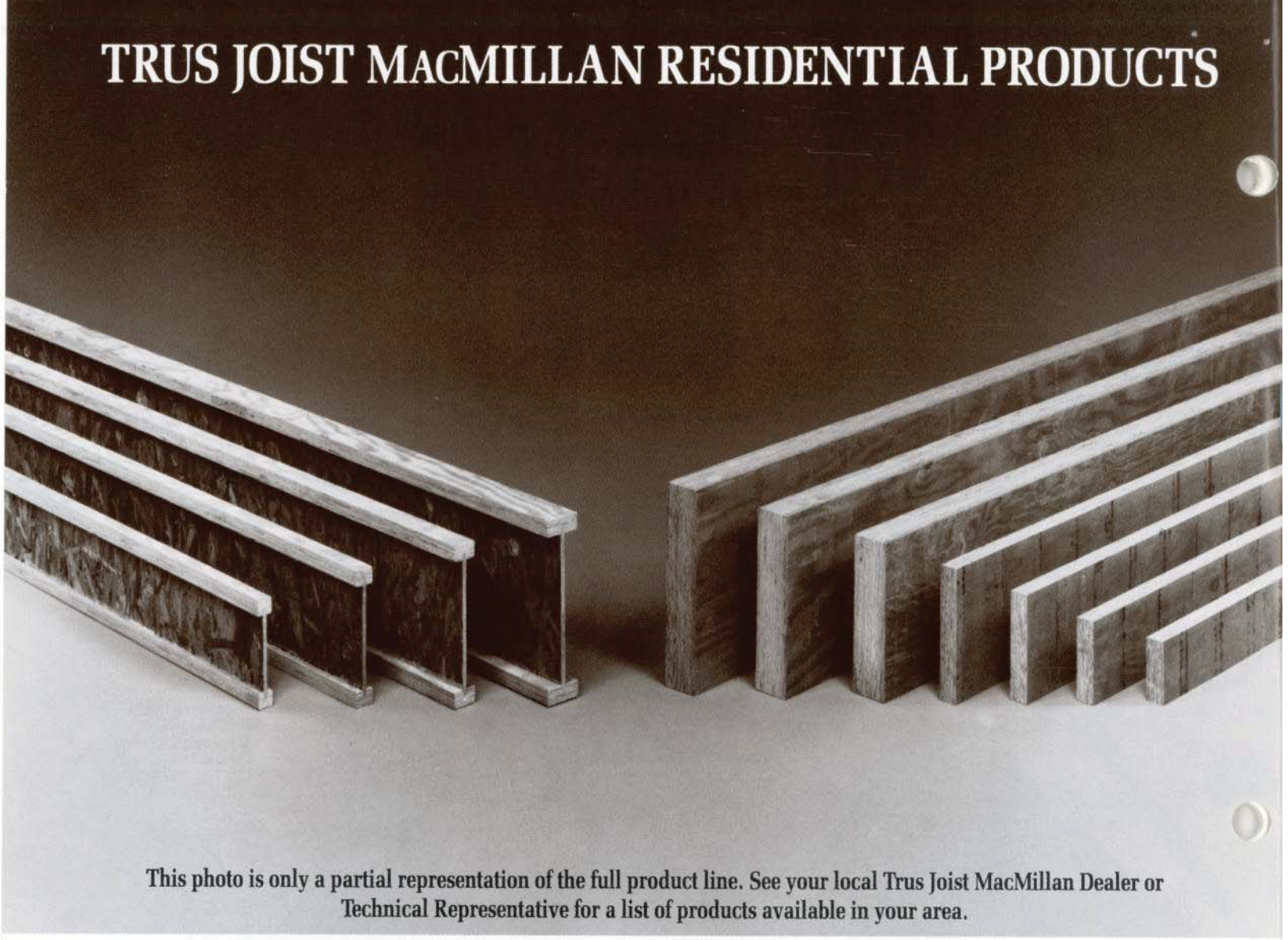


This literature is for legacy Trus Joist® products only and is not intended for use in current specification. Visit www.woodbywy.com for the most current Trus Joist® product offering and specification information.

TRUS JOIST MACMILLAN™
A Limited Partnership

DESIGN SPECIFICATIONS

TRUS JOIST MACMILLAN RESIDENTIAL PRODUCTS



This photo is only a partial representation of the full product line. See your local Trus Joist MacMillan Dealer or Technical Representative for a list of products available in your area.

The Silent Floor® structural system from Trus Joist MacMillan is the benchmark of quality. Structural materials engineered and manufactured to perform exactly to specification in each and every application in the home.

Trus Joist MacMillan's advanced technology rearranges valuable wood fiber into shapes which maximize the fibers' contribution to the strength of the member, producing consistently superior building materials with significantly less wood fiber than in their solid sawn counterparts.

Two new improvements to the Silent Floor® brand TJI® joists have increased significantly both its structural and economic efficiency. Trus Joist MacMillan's exclusive Performance Plus™ web combines the strength of oriented strand board with the dimensional stability of plywood to produce a stronger joist that will resist weathering as well or better than a plywood web joist. Secondly, a new enhanced MICRO=LAM® laminated veneer lumber (LVL) flange increases strength without increasing cost.

A full complement of beams and headers is now available from Trus Joist MacMillan. MICRO=LAM® LVL in 1¾" thick pieces can be used individually or built up to the size required for most any job. For bigger load carrying jobs, MICRO=LAM® LVL is available in 3½" thick pieces.

Another big advantage of Trus Joist MacMillan products for residential construction is that they are all available in lengths to 60 feet.

As always, Trus Joist MacMillan backs up every product with technical support second to none. Our highly trained technical representatives have advanced computer software available to increase speed and accuracy of design. And they are backed with the best quality guarantee in the business.

When you specify Trus Joist MacMillan, you are specifying quality in every way. Quality structural products manufactured with innovative technology designed to get the most from the limited forest resource, plus the best service and guarantee in the business.

CODE EVALUATIONS:
FHA 689, FHA 925, NER 119 and NER 126.

NOTE: NER Evaluation includes BOCA, ICBO, and SBCCI.

A WORD ABOUT FLOOR PERFORMANCE

The spans indicated in the "Minimum Criteria Per Code" charts on page 5 meet or exceed all code requirements and may provide acceptable performance to the user. But, in addition to safely supporting the loads to be imposed on it, a floor system must perform to the satisfaction of the end user. Since expectancy levels may vary from one user to another, designing a floor system becomes a subjective issue requiring judgement as to the sensitivity of the occupant.

The second span charts entitled "Improved Performance System" have been developed as a guide to help builders construct higher quality floors. Spans in these charts were developed using stricter criteria to limit deflection over longer spans.

In addition to the joist deflection, several other factors may affect the performance of the floor system. A glue-nailed floor system will perform better than a nailed floor. Deflection of the sheathing material between the joists can be reduced by increasing the thickness of sheathing or decreasing the spacing of the joist. Proper installation, including adequate and level support for the joists, and care in fastening of the joists and sheathing are essential to the system performance.

In some cases where the system is stiff and very little dead load (i.e., partition walls, ceilings, furniture, etc.) exists, vibrations may occur. Vibrations are generally sufficiently dampened when a ceiling is directly attached to the bottom flange of the joists. When the joists occur in a crawl space or over an unfinished basement, the vibration can be minimized by nailing a continuous 2x4 (flat) perpendicular to the joists' bottom flanges at midspan and tying off to the end walls.

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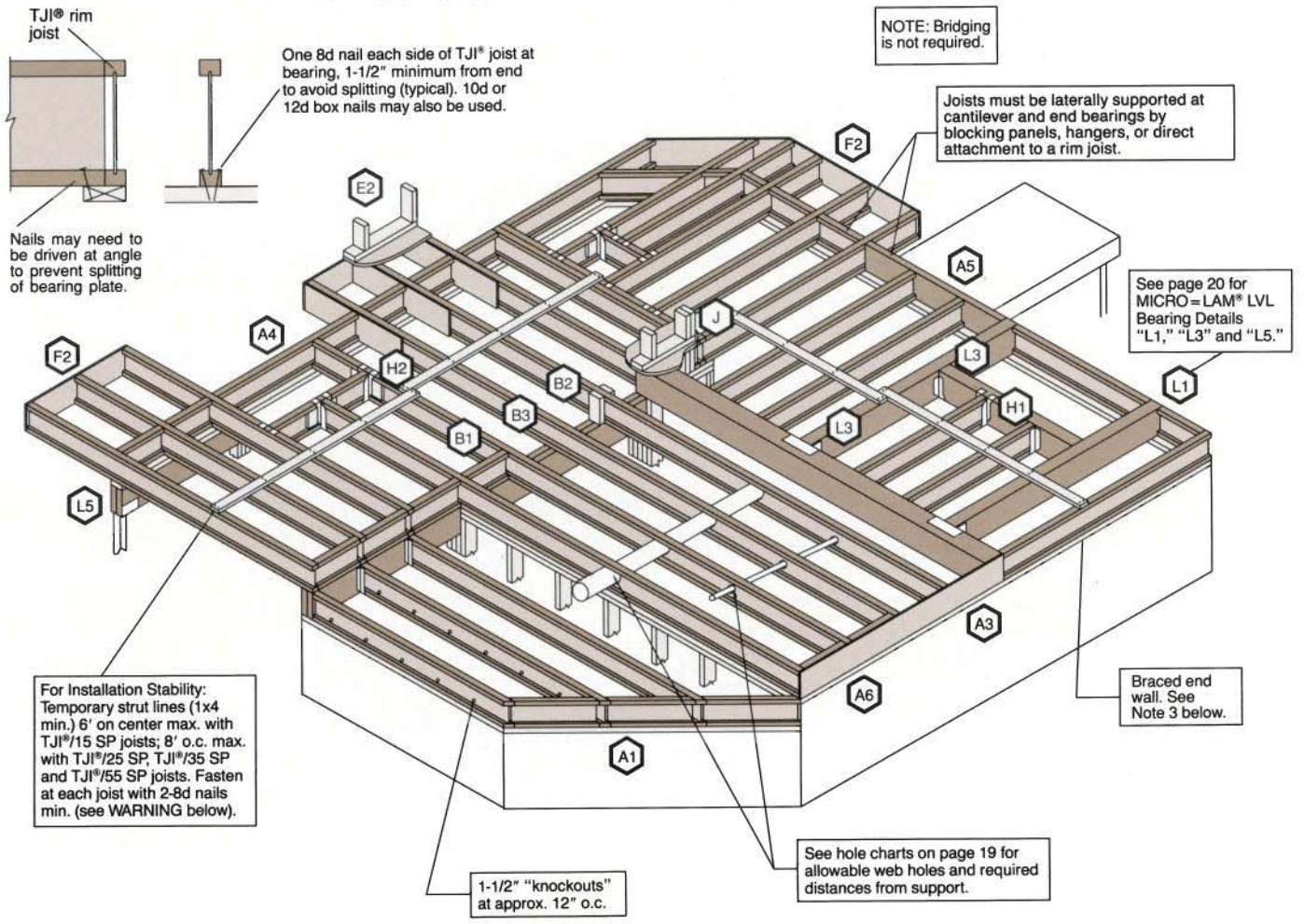
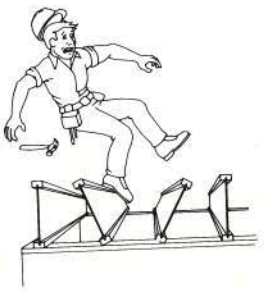
TJI® JOIST RESIDENTIAL FLOOR FRAMING

TYPICAL Silent Floor® SYSTEM FRAMING





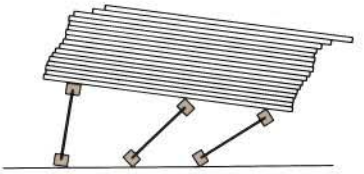
WARNING

JOISTS ARE UNSTABLE UNTIL BRACED LATERALLY

DO NOT allow workers to walk on joists until braced. INJURY MAY RESULT. See Notes 1, 2 & 3 below.

BRACING INCLUDES:

- BLOCKING
- HANGERS
- STRUT LINES
- SHEATHING



DO NOT stack building materials on unsheathed joists. Stack only over beams or walls. See Note 4 below.

WARNING NOTES:

Lack of concern for proper bracing during construction can result in serious accidents. Under normal conditions if the following guidelines are observed, accidents will be avoided.

1. All blocking, hangers and rim joists at the end supports of the TJI® joists must be completely installed and properly nailed.
2. Lateral strength, like a braced end wall or an existing deck, must be established at the ends of the bay. This can also be accomplished by a temporary or permanent deck (sheathing) nailed to the first 4 feet of joists at the end of the bay.
3. Temporary strut lines of 1 x 4 (min.) must be nailed to a braced end wall or sheathed area as in note 2 and to each joist. Without this bracing, buckling sideways or roll over is highly probable under light construction loads — like a worker and one layer of unnailed sheathing.
4. Sheathing must be totally attached to each TJI® joist before additional loads can be placed on the system.
5. Ends of cantilevers require strut lines on both the top and bottom flanges.
6. The flanges must remain straight within a tolerance of 1/2" from the true alignment.

TJI® JOIST RESIDENTIAL FLOOR SPAN CHARTS

40 PSF LIVE LOAD, 10 PSF DEAD LOAD (12 PSF DEAD LOAD AT TJI®/55 SP JOISTS)

(Example: Single layer glue-nailed wood sheathing and direct applied ceiling)

MINIMUM CRITERIA PER CODE

L/360 LIVE LOAD DEFLECTION

JOIST DEPTH	JOIST SERIES	O.C. SPACING			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9 1/2"	TJI®/15 SP	18'-10"	17'-3"	16'-3"	15'-2"
	TJI®/25 SP	19'-8"	18'-0"	17'-0"	15'-10"
11 7/8"	TJI®/15 SP	22'-5"	20'-6"	19'-4"	16'-7"
	TJI®/25 SP	23'-5"	21'-5"	20'-2"	18'-4"(7)
	TJI®/35 SP	25'-4"	23'-1"	21'-9"	20'-3"(7)
	TJI®/55 SP	28'-9"	26'-2"	24'-8"	22'-11"
14"	TJI®/25 SP	26'-7"	24'-3"	22'-11"(7)	18'-4"(7)
	TJI®/35 SP	28'-9"	26'-2"	24'-8"(7)	20'-10"(7)
	TJI®/55 SP	32'-8"	29'-8"	28'-0"	26'-0"(6)
16"	TJI®/25 SP	29'-6"	26'-11"(7)	22'-11"(7)	18'-4"(7)
	TJI®/35 SP	31'-10"	29'-0"	26'-1"(7)	20'-10"(7)
	TJI®/55 SP	36'-1"	32'-10"	30'-11"(6)	26'-9"(6)

IMPROVED PERFORMANCE SYSTEM

L/480 LIVE LOAD DEFLECTION

JOIST DEPTH	JOIST SERIES	O.C. SPACING			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9 1/2"	TJI®/15 SP	17'-0"	15'-6"	14'-8"	13'-8"
	TJI®/25 SP	17'-9"	16'-3"	15'-4"	14'-3"
11 7/8"	TJI®/15 SP	20'-3"	18'-6"	17'-6"	16'-3"
	TJI®/25 SP	21'-2"	19'-4"	18'-3"	16'-11"(7)
	TJI®/35 SP	22'-11"	20'-10"	19'-7"	18'-3"
	TJI®/55 SP	26'-0"	23'-8"	22'-3"	20'-8"
14"	TJI®/25 SP	24'-1"	21'-11"	20'-8"	18'-4"(7)
	TJI®/35 SP	26'-0"	23'-8"	22'-3"	20'-8"(7)
	TJI®/55 SP	29'-6"	26'-10"	25'-3"	23'-5"(6)
16"	TJI®/25 SP	26'-8"	24'-4"	22'-11"(7)	18'-4"(7)
	TJI®/35 SP	28'-9"	26'-2"	24'-8"(7)	20'-10"(7)
	TJI®/55 SP	32'-8"	29'-8"	27'-11"	25'-11"(6)

40 PSF LIVE LOAD, 20 PSF DEAD LOAD

(Example: Single layer glue-nailed wood sheathing with 3/4" poured gypsum concrete and direct applied ceiling)

MINIMUM CRITERIA PER CODE

L/360 LIVE LOAD DEFLECTION

JOIST DEPTH	JOIST SERIES	O.C. SPACING			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9 1/2"	TJI®/15 SP	18'-10"	17'-1"	15'-7"	13'-9"
	TJI®/25 SP	19'-8"	18'-0"	16'-11"	15'-2"(7)(8)
11 7/8"	TJI®/15 SP	22'-5"	19'-9"	17'-3"	13'-9"
	TJI®/25 SP	23'-5"	21'-5"(7)	19'-1"(7)	15'-3"(7)
	TJI®/35 SP	25'-4"	23'-1"	21'-9"	17'-4"(7)
	TJI®/55 SP	28'-9"	26'-2"	24'-8"	22'-11"(6)
14"	TJI®/25 SP	26'-7"	23'-11"(7)	19'-1"(7)	15'-3"(7)
	TJI®/35 SP	28'-9"	26'-2"	21'-9"(7)	17'-4"(7)
	TJI®/55 SP	32'-8"	29'-8"	28'-0"(6)	23'-2"(6)
16"	TJI®/25 SP	29'-6"(7)	22'-11"(7)	19'-1"(7)	15'-3"(7)
	TJI®/35 SP	31'-10"	26'-1"(7)	21'-9"(7)	17'-4"(7)
	TJI®/55 SP	36'-1"	32'-10"(6)	29'-0"(6)	23'-2"(6)

IMPROVED PERFORMANCE SYSTEM

L/480 LIVE LOAD DEFLECTION

JOIST DEPTH	JOIST SERIES	O.C. SPACING			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9 1/2"	TJI®/15 SP	17'-0"	15'-6"	14'-8"	13'-8"
	TJI®/25 SP	17'-9"	16'-3"	15'-4"	14'-3"(7)
11 7/8"	TJI®/15 SP	20'-3"	18'-6"	17'-3"	13'-9"
	TJI®/25 SP	21'-2"	19'-4"	18'-3"(7)	15'-3"(7)
	TJI®/35 SP	22'-11"	20'-10"	19'-7"	17'-4"(7)
	TJI®/55 SP	26'-0"	23'-8"	22'-3"	20'-8"(6)
14"	TJI®/25 SP	24'-1"	21'-11"(7)	19'-1"(7)	15'-3"(7)
	TJI®/35 SP	26'-0"	23'-8"	21'-9"(7)	17'-4"(7)
	TJI®/55 SP	29'-6"	26'-10"	25'-3"(6)	23'-2"(6)
16"	TJI®/25 SP	26'-8"	22'-11"(7)	19'-1"(7)	15'-3"(7)
	TJI®/35 SP	28'-9"	26'-1"(7)	21'-9"(7)	17'-4"(7)
	TJI®/55 SP	32'-8"	29'-8"	27'-11"(6)	23'-2"(6)

NOTE: Installing TJI® joists at closer on center spacings or at shorter spans than shown may improve floor performance. See page 3 for "A WORD ABOUT FLOOR PERFORMANCE," or contact your Trus Joist MacMillan representative for assistance.

GENERAL NOTES:

1. Span charts assume composite action with single layer of the appropriate span rated glue-nailed wood sheathing for deflection only. **Spans shall be reduced 5" where sheathing panels are nailed only.**
2. Spans are based on clear distance between supports, uniformly loaded joists, and include allowable increases for repetitive use members.
3. For loading conditions not shown, refer to allowable uniform load tables on page 16.
4. Spans shown reflect the most restrictive of simple span or multiple span applications.

WEB STIFFENER REQUIREMENTS

End Bearings: Web stiffeners (see detail "K" on page 7) are not required at end bearings of TJI® floor joists listed in this guide **except** in hangers when the following conditions exist:

5. **All Joists:** Web stiffeners are required in hangers when the sides of the hanger do not laterally support the TJI® joist top flange. (See detail "H1" on page 7).
6. **TJI®/55 SP Joists Only:** Web stiffeners are required in hangers when the TJI®/55 SP joist span is greater than the spans shown in the following chart:

JOIST SERIES	40 PSF LIVE LOAD, 12 PSF DEAD LOAD				40 PSF LIVE LOAD, 20 PSF DEAD LOAD			
	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
TJI®/55 SP	Not Required	Not Required	28'-8"	22'-11"	Not Required	29'-10"	24'-10"	19'-10"

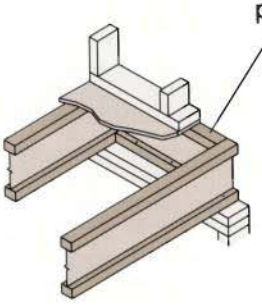
7. **Intermediate Bearings:** At intermediate supports where the joists are continuous span, web stiffeners are required **only** if the intermediate bearing width is less than 5-1/4" **and** the span on either side of the intermediate bearing is greater than the spans shown in the following chart:

JOIST SERIES	40 PSF LIVE LOAD, 10 PSF DEAD LOAD*				40 PSF LIVE LOAD, 20 PSF DEAD LOAD			
	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
TJI®/15 SP	WEB STIFFENERS NOT REQUIRED				WEB STIFFENERS NOT REQUIRED			
TJI®/25 SP	Not Required	25'-1"	20'-10"	16'-8"	27'-10"	20'-10"	17'-4"	13'-10"
TJI®/35 SP	Not Required	Not Required	24'-2"	19'-4"	Not Required	24'-2"	20'-1"	16'-1"
TJI®/55 SP	WEB STIFFENERS NOT REQUIRED				WEB STIFFENERS NOT REQUIRED			

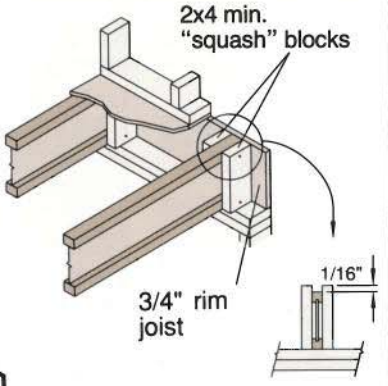
*12 PSF Dead Load at TJI®/55 SP joists.

8. When using IUT9 hangers with this load/spacing condition the maximum joist span is 14'-3".
9. Maximum spans shown within gray shading reflect long term dead load deflection of 1/2" or greater (including creep). If product application requires less deflection, use shorter spans, deeper joists, or closer o.c. spacing. Contact your Trus Joist MacMillan representative for additional assistance.

TJI® JOIST RESIDENTIAL FLOOR DETAILS



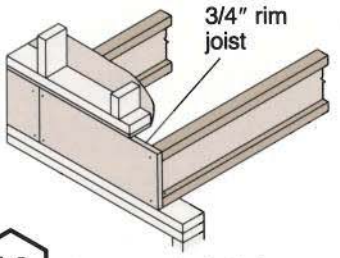
A1



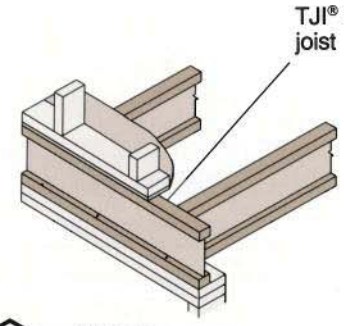
A2 See detail "A6" for additional information.

Use only for single story applications or second story of two-story applications.

9-1/2" AND 11-7/8" TJI® JOISTS ONLY

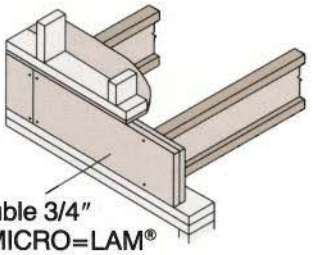


A3 See detail "A6" for additional information.

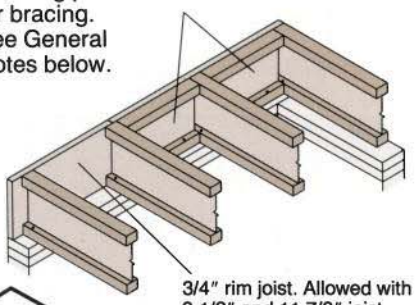


A4 **NOTE:** Must have 1-3/4" minimum joist bearing at ends.

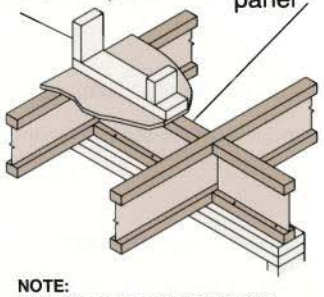
9-1/2" AND 11-7/8" TJI® JOISTS ONLY WHEN USING DOUBLE 3/4" RIM JOIST



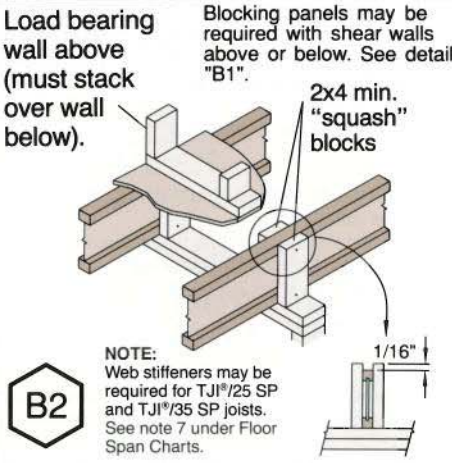
A5 See detail "A6" for additional information.



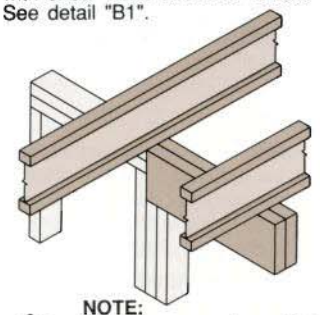
A6



B1 **NOTE:** Web stiffeners may be required for TJI®/25 SP and TJI®/35 SP joists. See note 7 under Floor Span Charts.



B2 **NOTE:** Web stiffeners may be required for TJI®/25 SP and TJI®/35 SP joists. See note 7 under Floor Span Charts.



B3 **NOTE:** Web stiffeners may be required for TJI®/25 SP and TJI®/35 SP joists. See note 7 under Floor Span Charts.

INTERMEDIATE BEARING – NO LOAD BEARING WALL ABOVE.

GENERAL NOTES

MINIMUM BEARING LENGTH

- 1¾" minimum bearing is required at joist ends.
- 3½" minimum bearing is required when joists are continuous over the support.

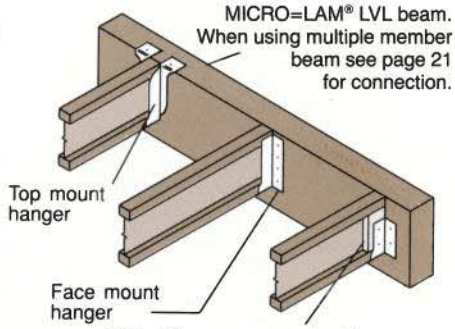
BLOCKING PANELS OR RIM JOISTS

- For single-story applications and second story of two-story applications, use details "A1," "A2," "A3," "A4," or "A5."
- For main floor rim of two-story applications, use details "A1," "A2," "A4," or "A5."
- Assumes 1000 plf vertical load transfer for each layer of ¾" rim joist.
- Assumes 2000 plf vertical load transfer for each TJI® blocking panel or rim joist.
- Assumes 5145 plf vertical load transfer for each 1¾" MICRO=LAM® LVL used as rim joist or blocking.

¾" RIM JOIST, REINFORCEMENT OR CLOSURE

- ¾" for rim joist, reinforcement or closure refers to ¾" CDX plywood or other ¾" exterior grade 48/24 span rated sheathing that is cut to match the full depth of the joist. Install with face grain horizontal.
- Rim joist and cantilever reinforcement must bear fully on the wall plate.
- Bracing complying with the code shall be carried to the foundation. When ¾" rim joist is used, blocking panels cut from TJI® joists or MICRO=LAM® LVL may be installed for a minimum of 4' at each end and at least 4' every 25' of bearing wall length to carry wall bracing as required to the foundation. See detail "A6".
- Check local codes for acceptance of details "A2", "A3", "A5" and "A6".

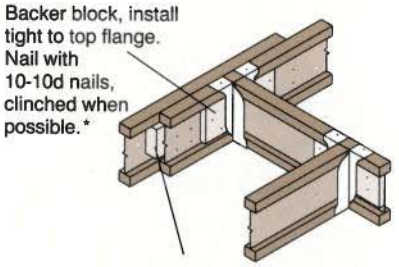
TJI® JOIST RESIDENTIAL FLOOR DETAILS



H1

Web stiffeners are required if the sides of the hanger do not laterally support the TJI® joist top flange or per note 6 under floor span charts. See detail "K."

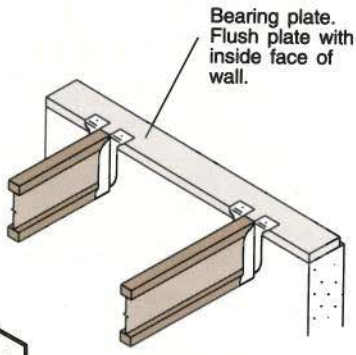
NOTE: Face mount hangers may also be used. See detail "H6" on page 15 for example.



Filler block. Nail with 10-10d nails, clinched (use 10-16d nails from each side with TJI®/55 SP joists).

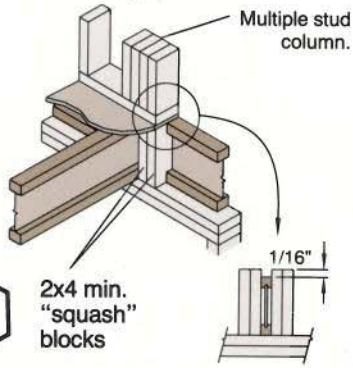
*Backer block required where hanger load exceeds 250 pounds.

H2



H3

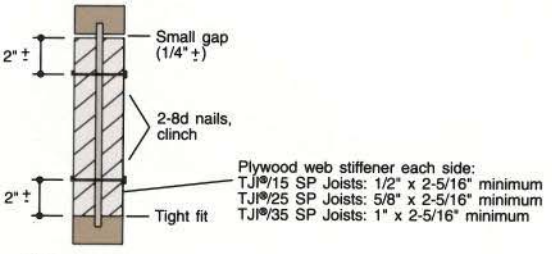
Solid block post loads from above to bearing plate below.



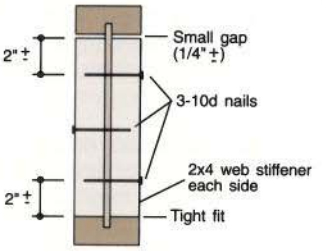
J

2x4 min. "squash" blocks

TJI®/15 SP, TJI®/25 SP, TJI®/35 SP JOISTS



TJI®/55 SP JOISTS

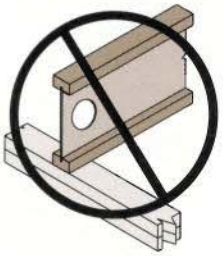


K

WEB STIFFENER ATTACHMENT

THESE CONDITIONS ARE NOT PERMITTED

DO NOT cut holes too close to supports

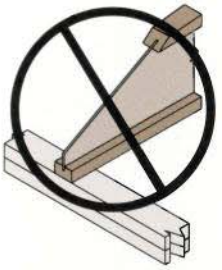


Refer to hole charts on page 19 for minimum distance from bearing wall.

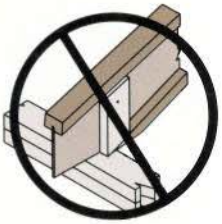
DO NOT split the flange

Use 8d nails, 1½" minimum from end of flange. 10d or 12d box nails may also be used.

DO NOT bevel cut joist beyond inside face of wall.



Birdsmouth cut must not overhang inside face of plate.



TJI® joist flange must bear fully on the plate. See detail "R12" on page 15.

NAILING REQUIREMENTS

- Nail joists at bearings with 2-8d (or 10d or 12d box) nails (1 each side), 1½" minimum from end to avoid splitting.
- Nail TJI® joist blocking panels or TJI® rim joist to bearing plate with 8d nails at 6" on center. When used for shear transfer, nail to bearing plate with same nailing schedule as the decking.
- Nail TJI® rim joist, MICRO=LAM® LVL rim joist, ¾" rim joist or closure to TJI® joist with 2-8d nails, one each at top and bottom flange. Use 16d nails with TJI®/35 SP rim joists. Toenail TJI®/55 SP joist to TJI®/55 SP rim joist with one 10d nail at each side of the top flange.
- Attach 2x4 min. "squash" blocks at details "A2," "B2" and "J" to TJI® joist top and bottom flanges with 1-8d nail.

WEB STIFFENER REQUIREMENTS

- Web stiffeners are required if the sides of the hanger do not laterally support the TJI® joist top flange. Web stiffeners are also required for TJI®/25 SP and TJI®/35 SP joists per note 7 under floor span charts and are required for TJI®/55 SP joists per note 6 under the floor span charts.

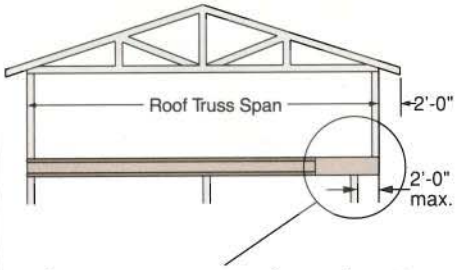
FILLER AND BACKER BLOCK SIZES

	9½" or 11⅞" TJI®/15 SP	9½" or 11⅞" TJI®/25 SP	14" or 16" TJI®/25 SP	11⅞" TJI®/35 SP	14" or 16" TJI®/35 SP	11⅞" TJI®/55 SP	14" or 16" TJI®/55 SP
Filler Block (Detail "H2")	1⅛" net	2x6	2x8	2x6 + ½" plywood	2x8 + ½" plywood	2-2x6	2-2x8
Cantilever Filler (Detail "E4")	2x6	2x6	2x10	2x6 + ½" plywood	2x10 + ½" plywood	NOT APPLICABLE	
Backer Block (Details "F1" or "H2")	½" or ⅝"	⅝" or ¾"	⅝" or ¾"	1" net	1" net	2x6	2x8

Legacy Literature
See Note on Front Cover

LOAD BEARING CANTILEVER DETAILS

Proper detail selection for each specific application must be determined from tables on pages 9 and 10.

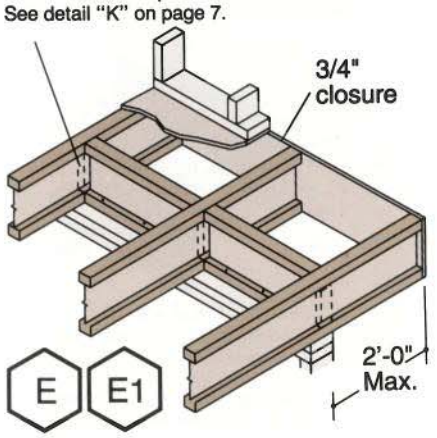


TJI® joists may be cantilevered up to a maximum of 2'-0" when supporting roof load, but may require reinforcement. **Consult tables on page 9 to determine required reinforcement** and details at right for methods of reinforcement.

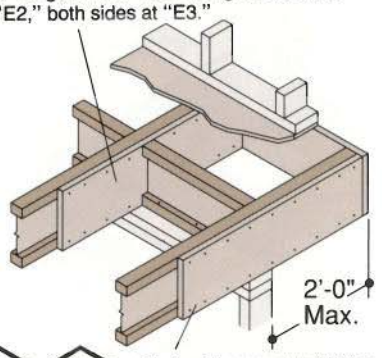
NOTE:

- 3/4" CDX plywood reinforcement or other 3/4" exterior grade 48/24 span rated sheathing must match the full depth of the TJI® joist. Install with face grain horizontal. Reinforcing member must bear fully on the wall plate.
- Other cantilever conditions may be possible. Contact your Trus Joist MacMillan representative for assistance.

Web stiffeners required each side at "E1." See detail "K" on page 7.



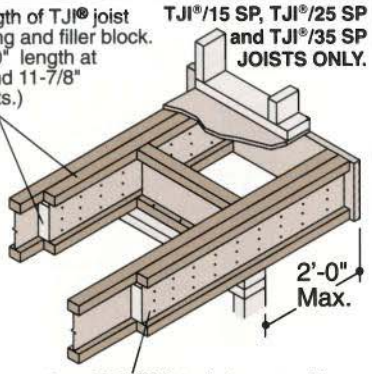
4'-0" length of 3/4" reinforcing on one side at "E2," both sides at "E3."



Attach reinforcement to joist top and bottom flanges with 8d nails at 6" o.c. When reinforcing both sides, stagger nails to avoid splitting.

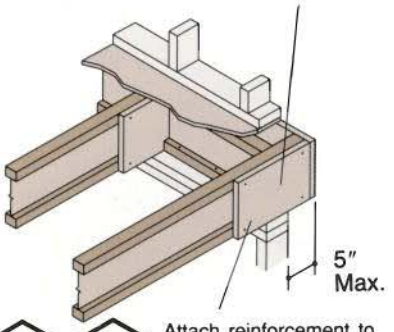
6'-0" length of TJI® joist reinforcing and filler block. (Use 4'-0" length at 9-1/2" and 11-7/8" TJI® joists.)

TJI®/15 SP, TJI®/25 SP and TJI®/35 SP JOISTS ONLY.



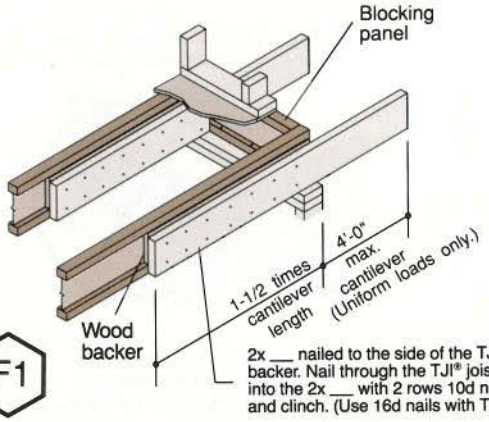
Attach TJI® joist reinforcement to joist web with 3 rows 10d nails at 6" o.c. clinched. (Use 2 rows with 9-1/2" and 11-7/8" joists.)

12" length of 3/4" reinforcing on one side at "E5," both sides at "E6."



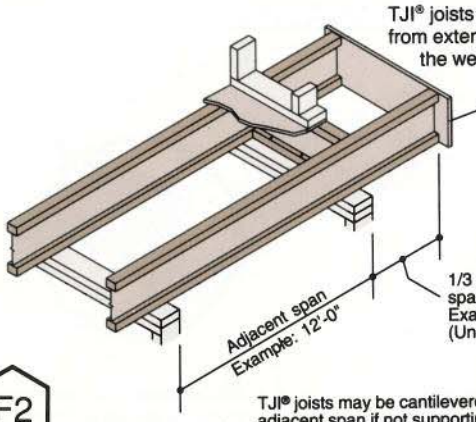
Attach reinforcement to joist top and bottom flanges with one 8d nail at each corner.

NON-LOAD BEARING CANTILEVER DETAILS



2x ___ nailed to the side of the TJI® joist with wood backer. Nail through the TJI® joist and backer into the 2x ___ with 2 rows 10d nails at 6" o.c. and clinch. (Use 16d nails with TJI®/55 SP joists.)

TJI® joists must be protected from extended exposure to the weather.



TJI® joists may be cantilevered up to 1/3 the adjacent span if not supporting concentrated loads on the cantilever.

REFER TO PAGES 6 AND 7 FOR GENERAL NOTES FOR DETAILS.

NAILING OF SHEATHING TO TOP FLANGE

Nail Size	Closest o.c. spacing per row
8d box	2-1/2"
8d common	3-1/2"
10d, 12d box	3"

- Maximum spacing of nails is: 18" o.c. for TJI®/15 SP and TJI®/25 SP joists. 24" o.c. for TJI®/35 SP and TJI®/55 SP joists.
- If more than 1 row of nails is used, the rows must be offset at least 1/2."
- 14 ga. staples may be substituted for 8d nails if minimum penetration of 1" into the TJI® joists is achieved.

Joist Layout for 19.2" On Center Spacing

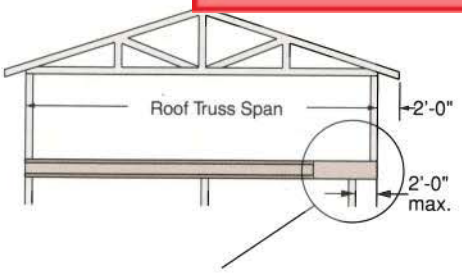
	1 — $19^{3}/_{16}$"
	2 — $38^{3}/_{8}$"
	3 — $57^{5}/_{8}$"
	4 — $76^{13}/_{16}$"
8'	5 — 96"
	6 — $115^{3}/_{16}$"
	7 — $134^{3}/_{8}$"
	8 — $153^{5}/_{8}$"
	9 — $172^{13}/_{16}$"
16'	10 — 192"
	11 — $211^{3}/_{16}$"
	12 — $230^{3}/_{8}$"
	13 — $249^{5}/_{8}$"
	14 — $268^{13}/_{16}$"
24'	15 — 288"

TJI® JOIST RESIDENTIAL LOAD BEARING CANTILEVER TABLES

Legacy Literature
See Note on Front Cover

TJI® JOIST LOAD BEARING 24″ CANTILEVER TABLE

	Roof Total Load		30 PSF			40 PSF			50 PSF		
	Joist Spacing		16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.
9½″ TJI®/15 SP	Roof Truss Span w/24″ Soffit Assumed	24′	0	0	0	0	0	1	0	1	1
		26′	0	0	0	0	1	1	1	1	X
		28′	0	0	1	0	1	1	1	1	X
		30′	0	0	1	0	1	1	1	1	X
		32′	0	0	1	0	1	X	1	1	X
		34′	0	0	1	1	1	X	1	X	X
		36′	0	1	1	1	1	X	1	X	X
9½″ TJI®/25 SP	Roof Truss Span w/24″ Soffit Assumed	24′	0	0	0	0	0	1	0	1	1
		26′	0	0	0	0	0	1	0	1	1
		28′	0	0	0	0	0	1	0	1	1
		30′	0	0	0	0	0	1	1	1	X
		32′	0	0	1	0	1	1	1	1	X
		34′	0	0	1	0	1	1	1	1	X
		36′	0	0	1	0	1	1	1	1	X
11⅞″ TJI®/15 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	1	0	1	1	1	1	1
		28′	0	0	1	0	1	1	1	1	1
		30′	0	0	1	1	1	1	1	1	1
		32′	0	0	1	1	1	1	1	1	1
		34′	0	1	1	1	1	1	1	1	1
		36′	0	1	1	1	1	1	1	1	X
		38′	0	1	1	1	1	1	1	1	X
11⅞″ TJI®/25 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	K	0	K	1
		28′	0	0	0	0	0	1	0	1	1
		30′	0	0	K	0	K	1	K	1	1
		32′	0	0	K	0	K	1	K	1	1
		34′	0	0	K	0	K	1	K	1	1
		36′	0	0	K	0	1	1	1	1	1
		38′	0	0	1	K	1	1	1	1	1
11⅞″ TJI®/35 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	0	0	0	1
		28′	0	0	0	0	0	K	0	K	1
		30′	0	0	0	0	0	K	0	K	1
		32′	0	0	0	0	0	1	0	K	1
		34′	0	0	0	0	0	1	0	1	1
		36′	0	0	0	0	K	1	K	1	1
		38′	0	0	K	0	K	1	K	1	2
11⅞″ TJI®/55 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	0	0	0	0
		28′	0	0	0	0	0	0	0	0	0
		30′	0	0	0	0	0	0	0	0	0
		32′	0	0	0	0	0	0	0	0	1
		34′	0	0	0	0	0	0	0	0	1
		36′	0	0	0	0	0	0	0	0	1
		38′	0	0	0	0	0	0	0	0	1
14″ TJI®/25 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	K	0	K	1
		28′	0	0	0	0	0	1	0	1	1
		30′	0	0	K	0	K	1	K	1	1
		32′	0	0	K	0	K	1	K	1	1
		34′	0	0	K	0	K	1	K	1	1
		36′	0	0	K	0	1	1	1	1	1
		38′	0	0	1	K	1	1	1	1	1
		40′	0	K	1	K	1	1	1	1	1
		42′	0	K	1	K	1	1	1	1	1
14″ TJI®/35 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	0	0	0	1
		28′	0	0	0	0	0	K	0	K	1
		30′	0	0	0	0	0	K	0	K	1
		32′	0	0	0	0	0	1	0	K	1
		34′	0	0	0	0	0	1	0	1	1
		36′	0	0	0	0	K	1	K	1	1
		38′	0	0	K	0	K	1	K	1	1
		40′	0	0	K	0	K	1	K	1	1
		42′	0	0	K	0	K	1	1	1	1
14″ TJI®/55 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	0	0	0	0
		28′	0	0	0	0	0	0	0	0	0
		30′	0	0	0	0	0	0	0	0	0
		32′	0	0	0	0	0	0	0	0	0
		34′	0	0	0	0	0	0	0	0	0
		36′	0	0	0	0	0	0	0	0	1
		38′	0	0	0	0	0	0	0	0	1
		40′	0	0	0	0	0	0	0	0	1
		42′	0	0	0	0	0	0	0	0	1



TJI® joists may be cantilevered up to a maximum of 2′-0″ when supporting roof load, but may require reinforcement. Consult table and refer to footnotes to determine required reinforcement. See details E1, E2, E3 and E4 on page 8 for methods of reinforcement. (Detail E4 not used with TJI®/55 SP joists.)

Numbers in charts refer to footnotes below.

0. No reinforcement required.

K. Web stiffener required each side of joist at bearing (detail E1 on page 8).

1. ¾″ x 48″ reinforcement required on one side of joist (detail E2 on page 8) or, double the joists (detail E4 on page 8). Detail E4 not used with TJI®/55 SP joists.

2. ¾″ x 48″ reinforcement required on both sides of joist (detail E3 on page 8) or, double the joists (detail E4 on page 8). Detail E4 not used with TJI®/55 SP joists.

X. Will not work. Reduce spacing of joists and recheck on table.

NOTE:

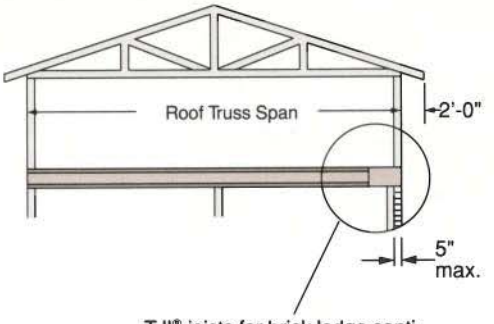
- Assumes a 10 psf roof dead load and 60 plf wall load. Additional support may be required for other loadings.
- ¾″ reinforcement refers to ¾″ CDX plywood or other ¾″ exterior grade 48/24 span rated sheathing that is cut to match the full depth of the joist. Install with face grain horizontal. Reinforcing member must bear fully on the wall plate. Minimum wall plate width is 3½ inches.
- Calculations assume a bearing stress of 480 psi.

	Roof Total Load		30 PSF			40 PSF			50 PSF		
	Joist Spacing		16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.
16″ TJI®/25 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	K	0	K	1
		28′	0	0	0	0	0	1	0	1	1
		30′	0	0	K	0	K	1	K	1	1
		32′	0	0	K	0	K	1	K	1	1
		34′	0	0	K	0	K	1	K	1	1
		36′	0	0	K	0	1	1	1	1	1
		38′	0	0	1	K	1	1	1	1	1
		40′	0	K	1	K	1	1	1	1	1
		42′	0	K	1	K	1	1	1	1	1
16″ TJI®/35 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	0	0	0	1
		28′	0	0	0	0	0	K	0	K	1
		30′	0	0	0	0	0	K	0	K	1
		32′	0	0	0	0	0	1	0	K	1
		34′	0	0	0	0	0	1	0	1	1
		36′	0	0	0	0	K	1	K	1	1
		38′	0	0	K	0	K	1	K	1	1
		40′	0	0	K	0	K	1	K	1	1
		42′	0	0	K	0	K	1	1	1	1
16″ TJI®/55 SP	Roof Truss Span w/24″ Soffit Assumed	26′	0	0	0	0	0	0	0	0	0
		28′	0	0	0	0	0	0	0	0	0
		30′	0	0	0	0	0	0	0	0	0
		32′	0	0	0	0	0	0	0	0	0
		34′	0	0	0	0	0	0	0	0	0
		36′	0	0	0	0	0	0	0	0	0
		38′	0	0	0	0	0	0	0	0	0
		40′	0	0	0	0	0	0	0	0	1
		42′	0	0	0	0	0	0	0	0	1

TJI® JOIST RESIDENTIAL LOAD BEARING CANTILEVER TABLES

TJI® JOIST LOAD BEARING CANTILEVER TABLE – BRICK LEDGE

	Roof Total Load		30 PSF			40 PSF			50 PSF		
	Joist Spacing		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
9½" & 11⅞" TJI®/15 SP	Roof Truss Span w/24" Soffit Assumed	24'	0	0	0	0	0	1	1	1	1
		26'	0	0	1	0	0	1	1	1	1
		28'	0	0	1	0	0	1	1	1	1
		30'	0	0	1	0	0	1	1	1	1
		32'	0	1	1	0	1	1	1	1	2
		34'	0	1	1	0	1	1	1	1	2
		36'	0	1	1	0	1	1	1	1	2
9½" 11⅞" 14" & 16" TJI®/25 SP	Roof Truss Span w/24" Soffit Assumed	24'	0	0	0	0	0	1	0	1	1
		26'	0	0	0	0	0	1	0	1	1
		28'	0	0	0	0	1	1	1	1	1
		30'	0	0	1	0	1	1	1	1	1
		32'	0	0	1	0	1	1	1	1	1
		34'	0	0	1	0	1	1	1	1	1
		36'	0	0	1	1	1	1	1	1	2
11⅞" 14" & 16" TJI®/35 SP	Roof Truss Span w/24" Soffit Assumed	26'	0	0	0	0	0	1	0	0	0
		28'	0	0	0	0	0	1	0	1	0
		30'	0	0	0	0	0	1	0	1	0
		32'	0	0	0	0	0	1	0	1	0
		34'	0	0	0	0	1	1	1	1	1
		36'	0	0	1	0	1	1	1	1	2
		38'	0	0	1	0	1	1	1	1	2
11⅞" TJI®/55 SP	Roof Truss Span w/24" Soffit Assumed	26'	0	0	0	0	0	0	0	0	0
		28'	0	0	0	0	0	0	0	0	0
		30'	0	0	0	0	0	0	0	0	0
		32'	0	0	0	0	0	0	0	0	1
		34'	0	0	0	0	0	0	0	0	1
		36'	0	0	0	0	0	0	0	0	2
		38'	0	0	0	0	0	0	0	0	2
14" TJI®/55 SP	Roof Truss Span w/24" Soffit Assumed	26'	0	0	0	0	0	0	0	0	0
		28'	0	0	0	0	0	0	0	0	0
		30'	0	0	0	0	0	0	0	0	0
		32'	0	0	0	0	0	0	0	0	0
		34'	0	0	0	0	0	0	0	0	0
		36'	0	0	0	0	0	0	0	0	2
		38'	0	0	0	0	0	0	0	0	2
		40'	0	0	0	0	0	0	0	0	2
		42'	0	0	0	0	0	0	0	0	2
16" TJI®/55 SP	Roof Truss Span w/24" Soffit Assumed	26'	0	0	0	0	0	0	0	0	0
		28'	0	0	0	0	0	0	0	0	0
		30'	0	0	0	0	0	0	0	0	0
		32'	0	0	0	0	0	0	0	0	0
		34'	0	0	0	0	0	0	0	0	1
		36'	0	0	0	0	0	0	0	0	2
		38'	0	0	0	0	0	0	0	0	2
		40'	0	0	0	0	0	0	0	0	2
		42'	0	0	0	0	0	0	0	0	2



TJI® joists for brick ledge cantilevers may be cantilevered up to 5" when supporting roof load, but may require reinforcement. Consult table and refer to footnotes to determine required reinforcement. See details E5 and E6 on page 8 for method of reinforcement.

Numbers in charts refer to footnotes below.

0. No reinforcement required.

1. ¾" x 12" reinforcement required on one side of joist. Attach per detail E5 on page 8.

2. ¾" x 12" reinforcement required on both sides of joist. Attach per detail E6 on page 8.

NOTE:

- Assumes a 10 psf roof dead load and 60 plf wall load. Additional support may be required for other loadings.
- ¾" reinforcement refers to ¾" CDX plywood or other ¾" exterior grade 48/24 span rated sheathing that is cut to match the full depth of the joist. Install with face grain horizontal. Reinforcing member must bear fully on the wall plate. Minimum wall plate width is 3½ inches.
- Calculations assume a bearing stress of 480 psi.

PSF TO PLF CONVERSION TABLE

Load in lbs. per lineal foot (plf)

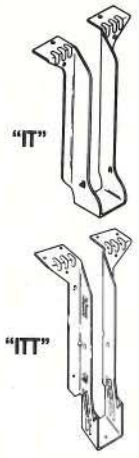
o.c. spacing	LOAD IN LBS. PER SQUARE FOOT (PSF)								
	20	25	30	35	40	45	50	55	60
12"	20	25	30	35	40	45	50	55	60
16"	27	34	40	47	54	60	67	74	80
19.2"	32	40	48	56	64	72	80	88	96
24"	40	50	60	70	80	90	100	110	120

TJI® JOIST RESIDENTIAL FRAMING CONNECTORS

C1
TOP MOUNT
SINGLE JOIST HANGER

DEPTH	JOIST	HANGER
9½"	TJI®/15 SP	IT29.5 or ITT29.5
	TJI®/25 SP	IT9 or ITT9
11⅞"	TJI®/15 SP	IT211.88 or ITT211.88
	TJI®/25 SP	IT11 or ITT11
	TJI®/35 SP	IT3511.88
	TJI®/55 SP	MIT11-2*
14"	TJI®/25 SP	IT14 or ITT14
	TJI®/35 SP	IT3514
	TJI®/55 SP	MIT414*
16"	TJI®/25 SP	IT16 or ITT16
	TJI®/35 SP	IT3516
	TJI®/55 SP	MIT416*

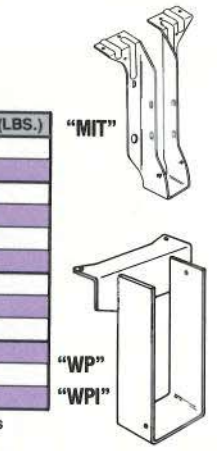
*Requires use of web stiffeners when the joist reaction exceeds 1200 pounds.



C2
TOP MOUNT
DOUBLE JOIST HANGER

DEPTH	JOIST	HANGER	MAXIMUM LOAD (LBS.)
9½"	TJI®/15 SP	WP29.5-2	2525
	TJI®/25 SP	MIT9-2	1915
11⅞"	TJI®/15 SP	WP211.88-2	2525
	TJI®/25 SP	MIT11-2	1915
	TJI®/35 SP	WP3511.88-2	2525
	TJI®/55 SP	WPI411.88-2*	2525
14"	TJI®/25 SP	MIT414	2000
	TJI®/35 SP	WP3514-2	2525
	TJI®/55 SP	WPI414-2*	2525
16"	TJI®/25 SP	MIT416	2000
	TJI®/35 SP	WP3516-2	2525
	TJI®/55 SP	WPI416-2*	2525

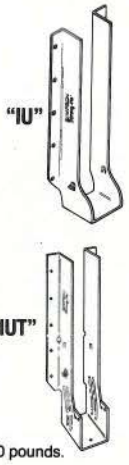
*Requires use of web stiffeners when the joist reaction exceeds 2000 pounds.



C3
FACE MOUNT
SINGLE JOIST HANGER

DEPTH	JOIST	HANGER
9½"	TJI®/15 SP	IU29 or IUT29
	TJI®/25 SP	IU9 or IUT9
11⅞"	TJI®/15 SP	IU211 or IUT211
	TJI®/25 SP	IU11 or IUT11
	TJI®/35 SP	IU3512
	TJI®/55 SP	IU412**
14"	TJI®/25 SP	IU14 or IUT14
	TJI®/35 SP	IU3514
	TJI®/55 SP	IU414**
16"	TJI®/25 SP	IU14* or IUT14*
	TJI®/35 SP	IU3514*
	TJI®/55 SP	IU414*

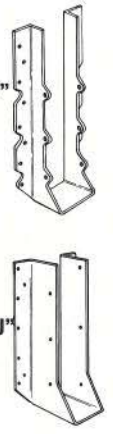
*Requires use of web stiffeners.
**Requires use of web stiffeners when the joist reaction exceeds 1200 pounds.



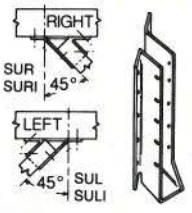
C4
FACE MOUNT
DOUBLE JOIST HANGER

DEPTH	JOIST	HANGER	MAXIMUM LOAD (LBS.)
9½"	TJI®/15 SP	U210-2*	1875 (100%) - 2350 (125%)
	TJI®/25 SP	U410*	1875 (100%) - 2350 (125%)
11⅞"	TJI®/15 SP	HU212-2*	2160 (100%) - 2700 (125%)
	TJI®/25 SP	U414*	2145 (100%) - 2690 (125%)
	TJI®/35 SP	U3512-2*	2145 (100%) - 2690 (125%)
	TJI®/55 SP	HU412-2*	2145 (100%) - 2690 (125%)
14"	TJI®/25 SP	U414*	2145 (100%) - 2690 (125%)
	TJI®/35 SP	U3512-2*	2145 (100%) - 2690 (125%)
	TJI®/55 SP	HU414-2*	2680 (100%) - 3360 (125%)
16"	TJI®/25 SP	U414*	2145 (100%) - 2690 (125%)
	TJI®/35 SP	U3512-2*	2145 (100%) - 2690 (125%)
	TJI®/55 SP	HU414-2*	2680 (100%) - 3360 (125%)

*Requires use of web stiffeners.



C5
FACE MOUNT SKEWED
45° JOIST HANGER

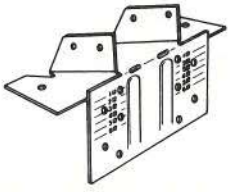


TOP VIEW

JOIST	HANGER
9½" and 11⅞" TJI®/15 SP	SUR210* or SUL210*
9½" and 11⅞" TJI®/25 SP	SURI9* or SULI9*
14" and 16" TJI®/25 SP	SURI11* or SULI11*
11⅞" and 14" TJI®/35 SP	SURI3510-12* or SULI3510-12*
16" TJI®/35 SP	SURI3514-20* or SULI3514-20*
11⅞" TJI®/55 SP	SUR410* or SUL410*
14" and 16" TJI®/55 SP	SUR414* or SUL414*

*Requires use of web stiffeners.

C6
VARIABLE SLOPE
SEAT CONNECTOR



NOTE:
- Requires 3½" width bearing surface.
- May be used only on slopes of 1"/12" through 6"/12".

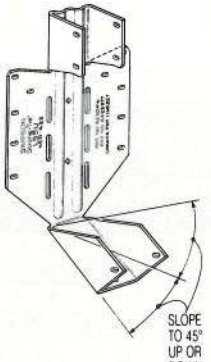
JOIST	CONNECTOR	MAXIMUM LOAD (LBS.)
TJI®/15 SP	VP2	1150
TJI®/25 SP	VPI/25	1085
TJI®/35 SP	VPI/35	1750
TJI®/55 SP	VP4	1850

C7
VARIABLE SLOPE
SEAT JOIST HANGER

NOTE:
Hanger can be field adjusted for slopes and skews of up to 45 degrees.

JOIST	HANGER
9½" and 11⅞" TJI®/15 SP	LSSU210*
9½"-14" TJI®/25 SP	LSSUI25*
11⅞" and 14" TJI®/35 SP	LSSUI35*
11⅞" and 14" TJI®/55 SP	LSSU410*

*Requires use of web stiffeners

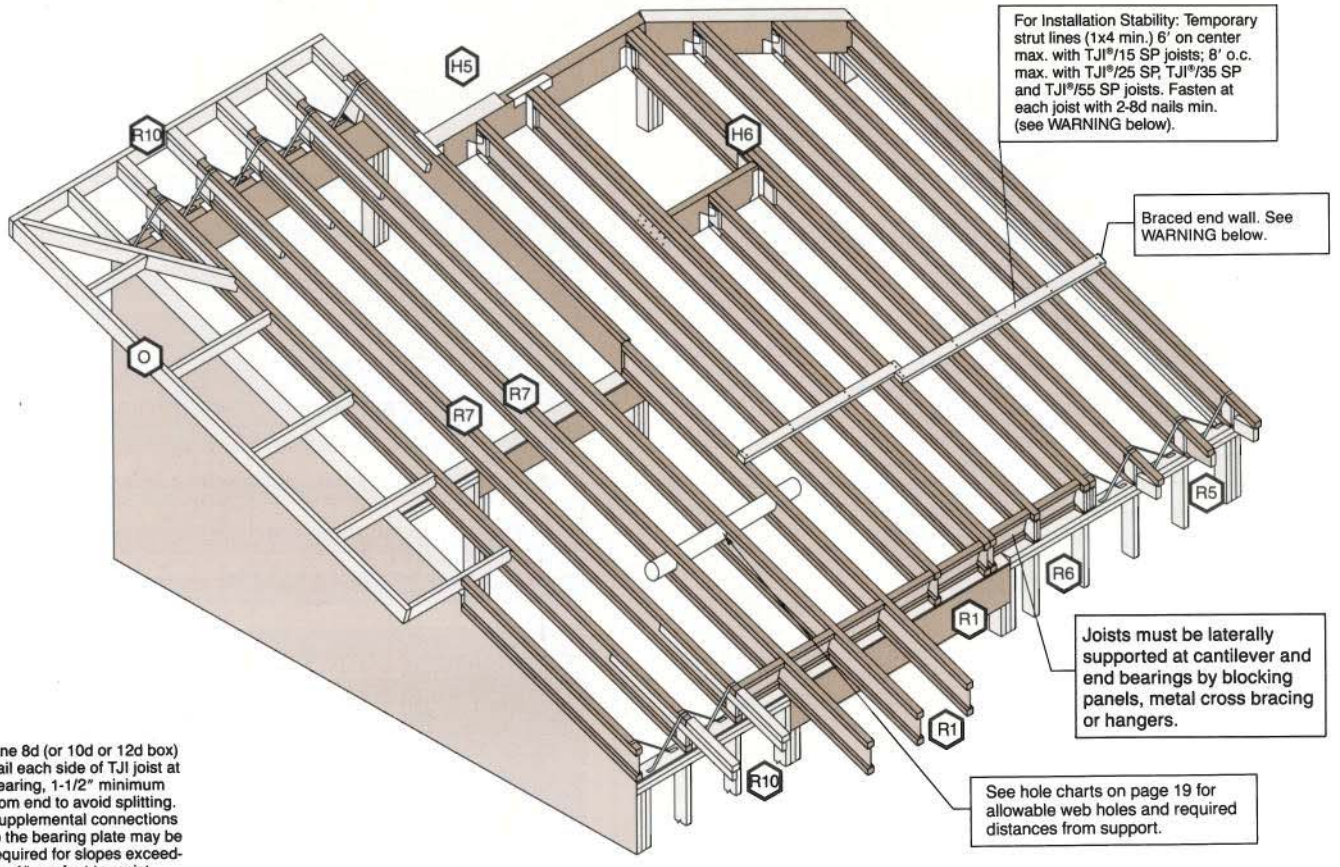


NOTES:

Some hangers shown have less capacity than the capacity of the TJI® joists. For single joist applications beyond those shown in the span tables and all double joist applications, these hangers will need to be checked to assure adequate capacity.

- Hangers can only achieve maximum capacity if all nail holes are filled with the proper nails.
- In some cases, the hangers shown may have greater capacity when used in conjunction with certain supporting member categories or support member criteria.
- Leave 1/16" clearance between end of TJI® joist and support member.
- The hangers listed above are manufactured by Simpson Strong-Tie® Company, Inc. For additional hanger information, please refer to the appropriate Simpson Strong-Tie® Company, Inc. evaluation report.

TJI® JOIST RESIDENTIAL ROOF FRAMING & SPAN CHART



One 8d (or 10d or 12d box) nail each side of TJI joist at bearing, 1-1/2″ minimum from end to avoid splitting. Supplemental connections to the bearing plate may be required for slopes exceeding 4″ per foot to resist sliding forces (typical).

WARNING
Unbraced joists are unstable. See complete warning on page 4.

RESIDENTIAL ROOF SPAN CHART

Low Slope: 6″/12″ or less.
High Slope: Over 6″/12″ through 12″/12.″

				DESIGN LIVE LOAD (LL) AND DEAD LOAD (DL) IN PSF												
				NON-SNOW (125%)		SNOW LOAD AREA (115%)										
O.C. SPACING	DEPTH	SERIES	SLOPE	20 LL 10 DL	20 LL 20 DL	20 LL 10 DL	20 LL 20 DL	25 LL 10 DL	25 LL 15 DL	25 LL 20 DL	30 LL 10 DL	30 LL 15 DL	30 LL 20 DL	40 LL 10 DL	40 LL 20 DL	50 LL 10 DL	50 LL 20 DL
16″ o.c.	9½″	TJI®/15 SP	LOW	21′-6″	19′-4″	21′-6″	19′-4″	20′-5″	19′-5″	18′-7″	19′-6″	18′-8″	17′-11″	17′-10″	16′-11″	16′-6″	16′-0″
			HIGH	19′-4″	17′-2″	19′-4″	17′-2″	18′-5″	17′-5″	16′-7″	17′-8″	16′-10″	16′-1″	16′-6″	15′-2″	15′-4″	14′-6″
		TJI®/25 SP	LOW	22′-7″	20′-3″	22′-7″	20′-3″	21′-5″	20′-5″	19′-6″	20′-6″	19′-7″	18′-10″	18′-9″	17′-9″	17′-4″	16′-10″
			HIGH	20′-3″	18′-0″	20′-3″	18′-0″	19′-4″	18′-3″	17′-5″	18′-7″	17′-8″	16′-10″	17′-4″	16′-0″	16′-1″	15′-3″
	11⅞″	TJI®/15 SP	LOW	25′-11″	23′-4″	25′-11″	23′-4″	24′-7″	23′-5″	22′-5″	23′-6″	22′-6″	21′-8″	21′-6″	20′-5″	19′-11″	19′-3″
			HIGH	23′-3″	20′-8″	23′-3″	20′-8″	22′-2″	21′-0″	20′-0″	21′-4″	20′-3″	19′-4″	19′-10″	18′-4″	18′-6″	17′-6″
		TJI®/25 SP	LOW	27′-1″	24′-5″	27′-1″	24′-5″	25′-9″	24′-6″	23′-6″	24′-8″	23′-7″	22′-8″	22′-6″	21′-4″	20′-10″	20′-3″
			HIGH	24′-4″	21′-8″	24′-4″	21′-8″	23′-3″	22′-0″	20′-11″	22′-4″	21′-3″	20′-3″	20′-10″	19′-3″	19′-4″	18′-4″
		TJI®/35 SP	LOW	29′-6″	26′-6″	29′-6″	26′-6″	28′-0″	26′-8″	25′-6″	26′-9″	25′-7″	24′-8″	24′-6″	23′-2″	22′-8″	22′-0″
			HIGH	26′-6″	23′-6″	26′-6″	23′-6″	25′-3″	23′-11″	22′-9″	24′-3″	23′-1″	22′-1″	22′-7″	20′-11″	21′-1″	19′-11″
		TJI®/55 SP	LOW	33′-9″	30′-4″	33′-9″	30′-4″	32′-1″	30′-6″	29′-3″	30′-8″	29′-4″	28′-3″	28′-0″	26′-7″	25′-11″	25′-2″
			HIGH	30′-4″	26′-11″	30′-4″	26′-11″	28′-11″	27′-4″	26′-1″	27′-9″	26′-5″	25′-3″	25′-11″	23′-11″	24′-1″	22′-10″
	14″	TJI®/25 SP	LOW	31′-0″	27′-11″	31′-0″	27′-11″	29′-5″	28′-0″	26′-10″	28′-2″	27′-0″	25′-11″	25′-9″	24′-5″	23′-10″	22′-3″
			HIGH	27′-10″	24′-9″	27′-10″	24′-9″	26′-7″	25′-2″	23′-11″	25′-6″	24′-3″	23′-2″	23′-10″	22′-0″	22′-2″	20′-11″
		TJI®/35 SP	LOW	33′-7″	30′-3″	33′-7″	30′-3″	31′-11″	30′-5″	29′-1″	30′-7″	29′-3″	28′-1″	27′-11″	26′-5″	25′-10″	24′-11″
			HIGH	30′-3″	26′-10″	30′-3″	26′-10″	28′-10″	27′-3″	25′-11″	27′-8″	26′-4″	25′-2″	25′-10″	23′-10″	24′-0″	22′-9″
		TJI®/55 SP	LOW	38′-5″	34′-7″	38′-5″	34′-7″	36′-6″	34′-9″	33′-3″	34′-11″	33′-5″	32′-2″	31′-11″	30′-3″	29′-7″	28′-9″
			HIGH	34′-6″	30′-8″	34′-6″	30′-8″	33′-0″	31′-2″	29′-8″	31′-8″	30′-1″	28′-9″	29′-6″	27′-3″	27′-6″	26′-0″
	16″	TJI®/25 SP	LOW	34′-7″	31′-1″	34′-7″	31′-1″	32′-10″	31′-3″	29′-11″	31′-5″	30′-1″	28′-11″	28′-9″	25′-10″	26′-4″	22′-3″
			HIGH	31′-1″	27′-7″	31′-1″	27′-7″	29′-8″	28′-0″	26′-8″	28′-5″	27′-0″	25′-10″	26′-6″	24′-6″	24′-8″	21′-8″
		TJI®/35 SP	LOW	37′-5″	33′-8″	37′-5″	33′-8″	35′-6″	33′-10″	32′-5″	34′-0″	32′-6″	31′-3″	31′-1″	28′-11″	28′-9″	24′-11″
			HIGH	33′-7″	29′-10″	33′-7″	29′-10″	32′-1″	30′-4″	28′-10″	30′-9″	29′-3″	28′-0″	28′-8″	26′-5″	26′-9″	23′-0″
		TJI®/55 SP	LOW	42′-8″	38′-5″	42′-8″	38′-5″	40′-6″	38′-7″	36′-11″	38′-9″	37′-1″	35′-8″	35′-6″	33′-7″	32′-10″	31′-11″
			HIGH	38′-4″	34′-1″	38′-4″	34′-1″	36′-7″	34′-7″	32′-11″	35′-2″	33′-5″	31′-11″	32′-9″	30′-3″	30′-6″	28′-10″

See page 13 for applicable notes.

RESIDENTIAL ROOF SPAN CHART

Low Slope: 6″/12″ or less.
High Slope: Over 6″/12″ through 12″/12.″

O.C. SPACING	DEPTH	SERIES	SLOPE	DESIGN LIVE LOAD (LL) AND DEAD LOAD (DL) IN PSF													
				NON-SNOW (125%)		SNOW LOAD AREA (115%)											
				20 LL 10 DL	20 LL 20 DL	20 LL 10 DL	20 LL 20 DL	25 LL 10 DL	25 LL 15 DL	25 LL 20 DL	30 LL 10 DL	30 LL 15 DL	30 LL 20 DL	40 LL 10 DL	40 LL 20 DL	50 LL 10 DL	50 LL 20 DL
19.2″ o.c.	9½″	TJI®/15 SP	LOW	20′-2″	18′-2″	20′-2″	18′-2″	19′-2″	18′-3″	17′-5″	18′-4″	17′-6″	16′-10″	16′-9″	15′-10″	15′-6″	15′-1″
			HIGH	18′-2″	16′-1″	18′-2″	16′-1″	17′-4″	16′-4″	15′-7″	16′-7″	15′-9″	15′-1″	15′-6″	14′-3″	14′-5″	13′-7″
		TJI®/25 SP	LOW	21′-2″	19′-1″	21′-2″	19′-1″	20′-1″	19′-2″	18′-4″	19′-3″	18′-5″	17′-8″	17′-7″	16′-8″	16′-3″	15′-10″
			HIGH	19′-0″	16′-11″	19′-0″	16′-11″	18′-2″	17′-2″	16′-4″	17′-5″	16′-7″	15′-10″	16′-3″	15′-0″	15′-1″	14′-3″
	11⅞″	TJI®/15 SP	LOW	24′-4″	21′-11″	24′-4″	21′-11″	23′-1″	22′-0″	21′-1″	22′-1″	21′-2″	20′-4″	20′-2″	18′-11″	18′-8″	17′-7″
			HIGH	21′-10″	19′-5″	21′-10″	19′-5″	20′-10″	19′-8″	18′-9″	20′-0″	19′-0″	18′-2″	18′-8″	17′-3″	17′-4″	16′-5″
		TJI®/25 SP	LOW	25′-6″	22′-11″	25′-6″	22′-11″	24′-2″	23′-0″	22′-1″	23′-2″	22′-2″	21′-3″	21′-2″	20′-0″	19′-7″	18′-6″
			HIGH	22′-11″	20′-4″	22′-11″	20′-4″	21′-10″	20′-8″	19′-8″	21′-0″	19′-11″	19′-1″	19′-7″	18′-0″	18′-2″	17′-2″
		TJI®/35 SP	LOW	27′-8″	24′-11″	27′-8″	24′-11″	26′-3″	25′-0″	23′-11″	25′-2″	24′-1″	23′-1″	23′-0″	21′-9″	21′-3″	20′-8″
			HIGH	24′-11″	22′-1″	24′-11″	22′-1″	23′-9″	22′-5″	21′-4″	22′-9″	21′-8″	20′-8″	21′-3″	19′-7″	19′-9″	18′-8″
		TJI®/55 SP	LOW	31′-8″	28′-6″	31′-8″	28′-6″	30′-1″	28′-8″	27′-5″	28′-9″	27′-6″	26′-6″	26′-4″	24′-11″	24′-4″	23′-8″
			HIGH	28′-6″	25′-4″	28′-6″	25′-4″	27′-2″	25′-8″	24′-5″	26′-1″	24′-10″	23′-9″	24′-4″	22′-5″	22′-8″	21′-5″
	14″	TJI®/25 SP	LOW	29′-1″	26′-2″	29′-1″	26′-2″	27′-8″	26′-4″	25′-2″	26′-5″	25′-4″	24′-4″	24′-2″	21′-6″	21′-11″	18′-6″
			HIGH	26′-2″	23′-3″	26′-2″	23′-3″	25′-0″	23′-7″	22′-6″	24′-0″	22′-9″	21′-9″	22′-4″	20′-8″	20′-10″	18′-0″
		TJI®/35 SP	LOW	31′-7″	28′-5″	31′-7″	28′-5″	30′-0″	28′-7″	27′-4″	28′-8″	27′-5″	26′-5″	26′-3″	24′-1″	24′-3″	20′-9″
			HIGH	28′-5″	25′-3″	28′-5″	25′-3″	27′-1″	25′-7″	24′-4″	26′-0″	24′-8″	23′-8″	24′-3″	22′-0″	22′-7″	19′-2″
		TJI®/55 SP	LOW	36′-1″	32′-6″	36′-1″	32′-6″	34′-3″	32′-7″	31′-3″	32′-9″	31′-4″	30′-2″	30′-0″	28′-5″	27′-9″	26′-11″
			HIGH	32′-5″	28′-10″	32′-5″	28′-10″	31′-0″	29′-3″	27′-10″	29′-9″	28′-3″	27′-0″	27′-8″	25′-7″	25′-9″	24′-5″
	16″	TJI®/25 SP	LOW	32′-6″	29′-3″	32′-6″	29′-3″	30′-10″	29′-4″	28′-1″	29′-6″	28′-3″	25′-8″	26′-3″	21′-6″	21′-11″	18′-6″
			HIGH	29′-2″	25′-11″	29′-2″	25′-11″	27′-10″	26′-4″	25′-1″	26′-9″	25′-5″	24′-3″	24′-11″	20′-8″	22′-0″	18′-0″
		TJI®/35 SP	LOW	35′-1″	31′-7″	35′-1″	31′-7″	33′-4″	31′-9″	30′-5″	31′-11″	30′-6″	28′-8″	29′-2″	24′-1″	24′-6″	20′-9″
			HIGH	31′-7″	28′-1″	31′-7″	28′-1″	30′-2″	28′-6″	27′-1″	28′-11″	27′-6″	25′-9″	27′-0″	22′-0″	23′-5″	19′-2″
		TJI®/55 SP	LOW	40′-1″	36′-1″	40′-1″	36′-1″	38′-1″	36′-3″	34′-8″	36′-5″	34′-10″	33′-6″	33′-3″	31′-6″	30′-10″	27′-8″
			HIGH	36′-0″	32′-0″	36′-0″	32′-0″	34′-5″	32′-6″	30′-11″	33′-0″	31′-4″	30′-0″	30′-9″	28′-5″	28′-8″	25′-7″
24″ o.c.	9½″	TJI®/15 SP	LOW	18′-8″	16′-9″	18′-8″	16′-9″	17′-9″	16′-10″	16′-2″	16′-11″	16′-3″	15′-7″	15′-6″	14′-8″	14′-4″	13′-7″
			HIGH	16′-10″	14′-11″	16′-10″	14′-11″	16′-0″	15′-2″	14′-5″	15′-4″	14′-7″	13′-11″	14′-4″	13′-2″	13′-4″	12′-7″
		TJI®/25 SP	LOW	19′-7″	17′-7″	19′-7″	17′-7″	18′-7″	17′-8″	16′-11″	17′-10″	17′-0″	16′-4″	16′-3″	15′-5″	15′-0″	14′-7″
			HIGH	17′-8″	15′-8″	17′-8″	15′-8″	16′-10″	15′-11″	15′-1″	16′-2″	15′-4″	14′-8″	15′-0″	13′-10″	14′-0″	13′-3″
	11⅞″	TJI®/15 SP	LOW	22′-6″	20′-3″	22′-6″	20′-2″	21′-5″	20′-4″	19′-5″	20′-5″	19′-2″	18′-6″	18′-8″	16′-11″	17′-1″	14′-9″
			HIGH	20′-3″	18′-0″	20′-3″	18′-0″	19′-4″	18′-3″	17′-4″	18′-6″	17′-7″	16′-10″	17′-3″	15′-8″	16′-1″	13′-8″
		TJI®/25 SP	LOW	23′-7″	21′-2″	23′-7″	21′-2″	22′-5″	21′-4″	20′-5″	21′-5″	20′-6″	19′-8″	19′-7″	17′-2″	17′-6″	14′-9″
			HIGH	21′-3″	18′-10″	21′-3″	18′-10″	20′-3″	19′-1″	18′-2″	19′-5″	18′-5″	17′-8″	18′-1″	16′-6″	16′-10″	14′-5″
		TJI®/35 SP	LOW	25′-7″	23′-0″	25′-7″	23′-0″	24′-4″	23′-2″	22′-2″	23′-3″	22′-3″	21′-5″	21′-3″	19′-3″	19′-7″	16′-6″
			HIGH	23′-1″	20′-5″	23′-1″	20′-5″	22′-0″	20′-9″	19′-9″	21′-1″	20′-1″	19′-2″	19′-8″	17′-6″	18′-3″	15′-3″
		TJI®/55 SP	LOW	29′-4″	26′-5″	29′-4″	26′-5″	27′-10″	26′-6″	25′-4″	26′-8″	25′-6″	24′-6″	24′-4″	23′-0″	22′-6″	21′-10″
			HIGH	26′-5″	23′-5″	26′-5″	23′-5″	25′-2″	23′-9″	22′-8″	24′-2″	22′-11″	21′-11″	22′-6″	20′-9″	20′-11″	19′-10″
	14″	TJI®/25 SP	LOW	27′-0″	24′-3″	27′-0″	24′-3″	25′-7″	24′-4″	22′-8″	24′-6″	22′-11″	20′-6″	20′-11″	17′-2″	17′-6″	14′-9″
			HIGH	24′-3″	21′-6″	24′-3″	21′-6″	23′-2″	21′-10″	20′-10″	22′-2″	21′-1″	19′-5″	20′-8″	16′-6″	17′-7″	14′-5″
		TJI®/35 SP	LOW	29′-3″	26′-3″	29′-3″	26′-3″	27′-9″	26′-5″	25′-3″	26′-7″	25′-5″	22′-11″	23′-5″	19′-3″	19′-7″	16′-6″
			HIGH	26′-4″	23′-4″	26′-4″	23′-4″	25′-1″	23′-8″	22′-6″	24′-1″	22′-10″	20′-7″	22′-2″	17′-6″	18′-8″	15′-3″
		TJI®/55 SP	LOW	33′-5″	30′-1″	33′-5″	30′-1″	31′-9″	30′-2″	28′-11″	30′-4″	29′-0″	27′-11″	27′-9″	25′-8″	25′-8″	22′-1″
			HIGH	30′-1″	26′-8″	30′-1″	26′-8″	28′-8″	27′-1″	25′-9″	27′-6″	26′-2″	25′-0″	25′-8″	23′-5″	23′-10″	20′-5″
	16″	TJI®/25 SP	LOW	30′-1″	27′-0″	30′-1″	25′-4″	28′-7″	25′-9″	22′-8″	26′-1″	22′-11″	20′-6″	20′-11″	17′-2″	17′-6″	14′-9″
			HIGH	27′-0″	24′-0″	27′-0″	23′-5″	25′-10″	24′-4″	21′-3″	24′-9″	22′-1″	19′-5″	20′-11″	16′-6″	17′-7″	14′-5″
		TJI®/35 SP	LOW	32′-6″	29′-3″	32′-6″	28′-4″	30′-11″	28′-9″	25′-4″	29′-2″	25′-8″	22′-11″	23′-5″	19′-3″	19′-7″	16′-6″
			HIGH	29′-3″	26′-0″	29′-3″	24′-10″	27′-11″	26′-0″	22′-6″	26′-9″	23′-5″	20′-7″	22′-2″	17′-6″	18′-8″	15′-3″
		TJI®/55 SP	LOW	37′-1″	33′-4″	37′-1″	33′-4″	35′-3″	33′-6″	32′-1″	33′-8″	32′-3″	30′-7″	30′-10″	25′-8″	26′-2″	22′-1″
			HIGH	33′-5″	29′-8″	33′-5″	29′-8″	31′-10″	30′-1″	28′-8″	30′-7″	29′-0″	27′-6″	28′-6″	23′-5″	24′-11″	20′-5″

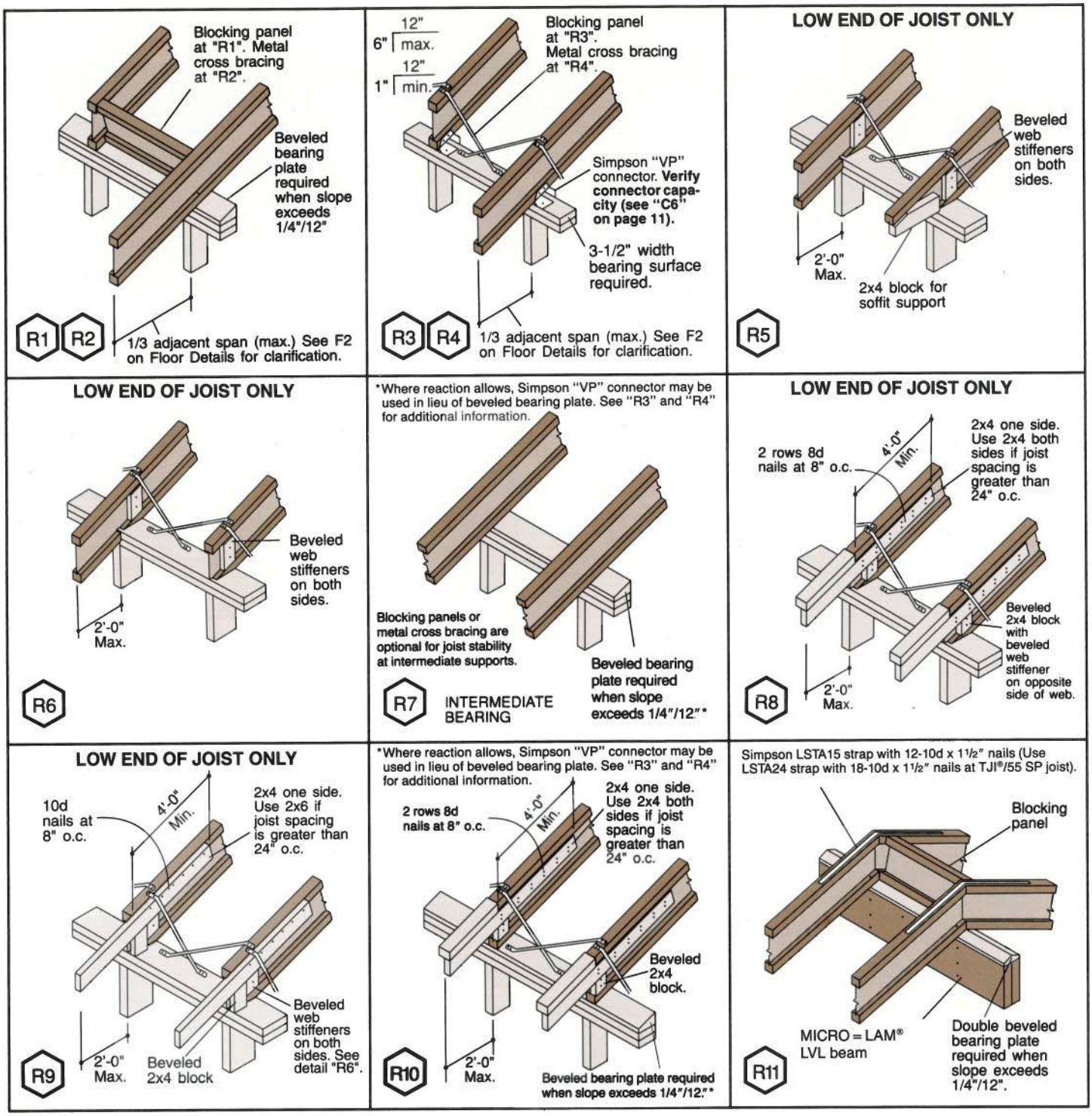
ROOF JOIST SIZING:

1. Roof surface must be sloped ¼″ in 12″ minimum to provide positive drainage.
2. Maximum deflection is limited to L/180 at total load, and L/240 at live load.
3. For loads not shown, refer to allowable uniform load tables on page 17.
4. Charts are based on a support beam or wall at the high end. Applications utilizing ridge boards are not covered by these charts.
5. Spans are based on the horizontal clear distance between supports, uniformly loaded joists, and include allowable increases for repetitive use members.
6. Spans shown are based on the most restrictive of simple span or multiple span applications.

WEB STIFFENER REQUIREMENTS:

7. **TJI®/15 SP, TJI®/25 SP and TJI®/35 SP joists:** Web stiffeners are required if the sides of the hanger do not laterally support the TJI® joist top flange. Web stiffeners are also required at all sloped hanger locations and all birdsmouth cut locations.
8. **TJI®/55 SP joists:** Web stiffeners are required at all hanger locations and at all birdsmouth cut locations.

TJI® JOIST RESIDENTIAL ROOF DETAILS



GENERAL NOTES

MINIMUM BEARING LENGTH

- 1¾" minimum bearing is required at joist ends.
- 3½" minimum bearing is required when joists are continuous over the support.

SLOPE/BEVEL PLATE CRITERIA

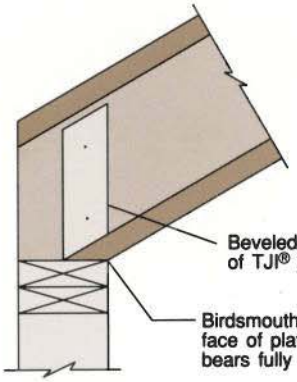
- Unless otherwise noted, all details are valid to maximum 12"/12" slope.
- A sloped bearing surface is required for all slopes exceeding ¼" per foot for wood bearing surfaces. At the low end of joists a birdsmouth cut may be used without a beveled bearing surface. See detail "R12."
- Slope seats for hangers are required when the roof slope exceeds ½" per foot. Beveled web stiffeners are required at sloped seat hangers. See detail "R13."
- Supplemental connections to the bearing plate may be required for sloped conditions beyond 4" per foot to resist sliding forces.

LATERAL SUPPORT TO PREVENT JOIST ROLLOVER

- All roof joists must be laterally supported at cantilever and end bearings to prevent joist rollover. Use TJI® joist blocking panels or metal cross bracing. Attach metal cross bracing with 2-10d x 1½" nails at each end.

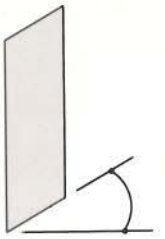
WEB STIFFENER REQUIREMENTS

- **TJI®/15 SP, TJI®/25 SP and TJI®/35 SP joists:** Web stiffeners are required if the sides of the hanger do not laterally support the TJI® joist top flange. Web stiffeners are also required at all sloped hanger locations and at all birdsmouth cut locations.
- **TJI®/55 SP joists:** Web stiffeners are required at all hanger locations and at all birdsmouth cut locations.



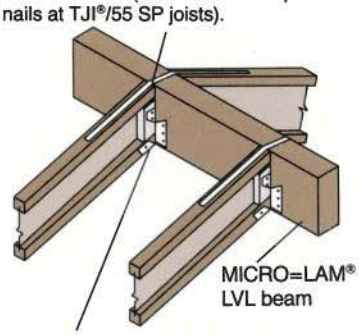
Birdsmouth cut is only allowed on low end of joist.

R12 BIRDSMOUTH CUT



R13 BEVELED WEB STIFFENER

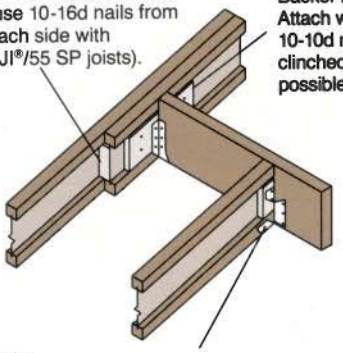
Simpson LSTA15 strap with 12-10d x 1½" nails may be required with hangers other than "LSSU" when slope exceeds 7"/12" (Use LSTA24 strap with 18-10d x 1½" nails at TJI®/55 SP joists).



H5 Simpson "LSSU" hanger with beveled web stiffeners. "LSSU" hangers allowed with 9½," 11⅞" and 14" TJI® joists only.

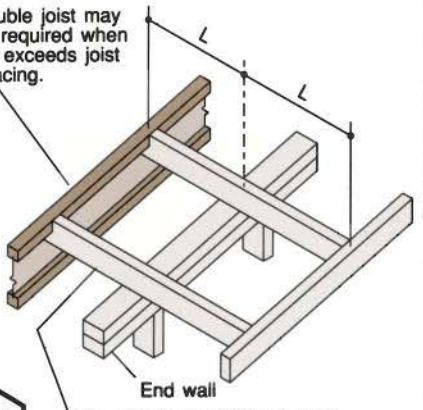
Filler block. Attach with 10-10d nails, clinched (use 10-16d nails from each side with TJI®/55 SP joists).

Backer block. Attach with 10-10d nails, clinched when possible.



H6 Simpson "LSSU" hanger with beveled web stiffeners. "LSSU" hangers allowed with 9½," 11⅞" and 14" TJI® joists only.

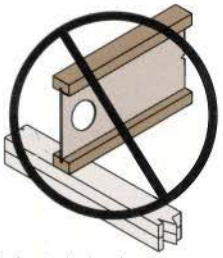
Double joist may be required when "L" exceeds joist spacing.



O 2x overhang. Notch around TJI® joist top flange.

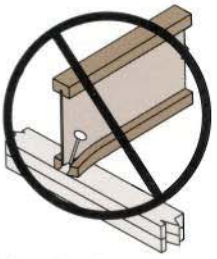
THESE CONDITIONS ARE NOT PERMITTED

DO NOT cut holes too close to supports



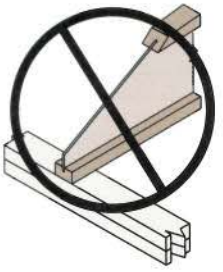
Refer to hole charts on page 19 for minimum distance from bearing wall.

DO NOT split the flange

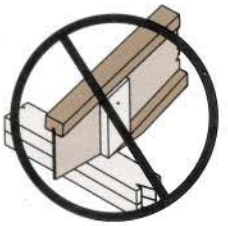


Use 8d nails, 1½" minimum from end of flange. 10d or 12d box nails may also be used.

DO NOT bevel cut joist beyond inside face of wall.



Birdsmouth cut must not overhang inside face of plate.



TJI® joist flange must bear fully on the plate. See detail "R12" above.

FILLER AND BACKER BLOCK SIZES

	9½" or 11⅞" TJI®/15 SP	9½" or 11⅞" TJI®/25 SP	14" or 16" TJI®/25 SP	11⅞" TJI®/35 SP	14" or 16" TJI®/35 SP	11⅞" TJI®/55 SP	14" or 16" TJI®/55 SP
Filler Block (Detail "H6")	1⅛" net	2x6	2x8	2x6 + ½" plywood	2x8 + ½" plywood	2-2x6	2-2x8
Backer Block (Detail "H6")	½" or ⅝"	⅝" or ¾"	⅝" or ¾"	1" net	1" net	2x6	2x8

TJI® JOIST ALLOWABLE UNIFORM LOAD – FLOOR

Values shown are in pounds per lineal foot (PLF)

JOIST CLEAR SPAN (Ft.)	TJI®/15 SP				JOIST CLEAR SPAN (Ft.)
	9½" TJI®/15 SP		11⅞" TJI®/15 SP		
	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	
6		272		272	6
8		205		205	8
10	146	165		165	10
12	89	138		138	12
14	59	114	98	118	14
16	40	80	68	104	16
18	29	58	49	92	18
20			36	73	20
22			28	56	22

JOIST CLEAR SPAN (Ft.)	TJI®/25 SP								JOIST CLEAR SPAN (Ft.)
	9½" TJI®/25 SP		11⅞" TJI®/25 SP		14" TJI®/25 SP		16" TJI®/25 SP		
	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	
6		273		273		273		273	6
8		206		206		206		206	8
10	164	166		166		166		166	10
12	102	138		138		138		138	12
14	67	119	111	119		119		119	14
16	46	92	77	104		104		104	16
18	33	66	56	93	81	93		93	18
20	24	49	41	83	60	83	82	83	20
22			32	63	46	76	63	76	22
24			25	50	36	70	49	70	24
26					29	58	39	64	26
28							32	60	28
30							26	52	30

JOIST CLEAR SPAN (Ft.)	TJI®/35 SP						JOIST CLEAR SPAN (Ft.)
	11⅞" TJI®/35 SP		14" TJI®/35 SP		16" TJI®/35 SP		
	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	
6		316		316		316	6
8		239		239		239	8
10		192		192		192	10
12		160		160		160	12
14	137	137		137		137	14
16	96	120		120		120	16
18	70	107	100	107		107	18
20	52	96	75	96	101	96	20
22	40	80	58	88	78	88	22
24	31	62	45	81	61	81	24
26	25	50	36	72	49	74	26
28			29	59	40	69	28
30					33	64	30
32					27	54	32

JOIST CLEAR SPAN (Ft.)	TJI®/55 SP						JOIST CLEAR SPAN (Ft.)
	11⅞" TJI®/55 SP		14" TJI®/55 SP		16" TJI®/55 SP		
	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	
6		456*		456*		456*	6
8		344*		344*		344*	8
10		276*		276*		276*	10
12		231*		231*		231*	12
14	195*	198*		198*		198*	14
16	138*	173*		173*		173*	16
18	101	154*	144*	154*		154*	18
20	76	139*	109	139*		139*	20
22	59	117*	84	126*	112*	126*	22
24	46	91	66	116*	88	116*	24
26	36	73	53	106*	71	107*	26
28	30	59	43	86*	58	99*	28
30			35	71	47	93*	30
32			29	59	39	79*	32
34					33	67	34
36					28	56	36

*Joist reaction exceeds 1200 lbs., web stiffeners are required at hanger locations. Web stiffeners may be required for other conditions, see note 3 below.

NOTES:

1. Load capacity assumes no composite action provided by sheathing.
2. These values reflect the most restrictive of simple span or multiple span applications.
3. Web stiffeners are required if the sides of the hanger do not laterally support the TJI® joist top flange. Web stiffeners are also required at TJI®/55 SP joist hanger locations where joist reactions exceed 1200 pounds.

FLOOR JOIST SIZING:

4. To size a joist for use in a floor, it is necessary to check both live load and total load. When live load is not shown, total load will control.
5. Total Load column limits joist deflection to L/240. Live load column is based on joist deflection of L/480.
6. For live load deflection limits of L/360 (minimum code criteria), multiply value in live load column by 1.33. The resulting live load shall not exceed the total load shown.

PSF TO PLF CONVERSION TABLE

Load in lbs. per lineal foot (PLF)

o.c. spacing	LOAD IN LBS. PER SQUARE FOOT (PSF)								
	20	25	30	35	40	45	50	55	60
12"	20	25	30	35	40	45	50	55	60
16"	27	34	40	47	54	60	67	74	80
19.2"	32	40	48	56	64	72	80	88	96
24"	40	50	60	70	80	90	100	110	120

TJI® JOIST ALLOWABLE UNIFORM LOAD – ROOF

Values shown are in pounds per lineal foot (PLF)

JOIST CLEAR SPAN[6] (Ft.)	TJI®/15 SP					
	9½" TJI®/15 SP			11⅞" TJI®/15 SP		
	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.
	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240
6	312	340		312	340	
8	235	256		235	256	
10	189	206		189	206	
12	158	172		158	172	
14	131	142	117	135	147	
16	101	107	80	119	130	
18	77	77	58	105	115	98
20	57	57	43	86	93	73
22	43	43	32	71	74	56
24	33	33	25	57	57	43
26	26	26	20	46	46	35
28				37	37	28
30				30	30	23

JOIST CLEAR SPAN[6] (Ft.)	TJI®/25 SP											
	9½" TJI®/25 SP			11⅞" TJI®/25 SP			14" TJI®/25 SP			16" TJI®/25 SP		
	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.
	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240
6	313	341		313	341		313	341		313	341	
8	236	257		236	257		236	257		236	257	
10	190	207		190	207		190	207		190	207	
12	158	172		158	172		158	172		158	172	
14	136	148	134	136	148		136	148		136	148	
16	118	123	92	119	130		119	130		119	130	
18	88	88	66	106	116	111	106	116		106	116	
20	65	65	49	95	103	83	95	103	121	95	103	164
22	49	49	37	83	84	63	87	95	92	87	95	126
24	38	38	29	66	66	50	80	87	72	80	87	98
26	30	30	23	52	52	39	73	77	58	73	80	79
28				42	42	32	62	62	47	68	75	64
30				34	34	26	51	51	38	64	69	52
32				28	28	21	42	42	32	57	58	44
34							35	35	26	48	48	36
36							30	30	23	41	41	31

JOIST CLEAR SPAN[6] (Ft.)	TJI®/35 SP								
	11⅞" TJI®/35 SP			14" TJI®/35 SP			16" TJI®/35 SP		
	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.
	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240
6	363	395		363	395		363	395	
8	274	298		274	298		274	298	
10	220	240		220	240		220	240	
12	183	200		183	200		183	200	
14	157	171		157	171		157	171	
16	137	150		137	150		137	150	
18	123	133		123	133		123	133	
20	110	120	104	110	120		110	120	
22	101	106	80	101	110		101	110	
24	83	83	62	93	101	91	93	101	
26	66	66	50	85	92	72	85	92	98
28	53	53	40	78	78	59	76	86	80
30	44	44	33	64	64	48	73	80	65
32	36	36	27	53	53	40	68	72	54
34	30	30	23	45	45	34	61	61	46
36				38	38	29	51	51	38

JOIST CLEAR SPAN[6] (Ft.)	TJI®/55 SP								
	11⅞" TJI®/55 SP			14" TJI®/55 SP			16" TJI®/55 SP		
	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.
	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240
6	524*	570*		524*	570*		524*	570*	
8	395*	430*		395*	430*		395*	430*	
10	317*	345*		317*	345*		317*	345*	
12	265*	288*		265*	288*		265*	288*	
14	227*	247*		227*	247*		227*	247*	
16	198*	216*		198*	216*		198*	216*	
18	177*	192*		177*	192*		177*	192*	
20	159*	173*	152*	159*	173*		159*	173*	
22	144*	156*	117*	144*	157*		144*	157*	
24	122*	122*	92	133*	145*	132*	133*	145*	
26	97*	97*	73	123*	133*	106*	123*	133*	
28	79	79	59	113*	114*	86*	113*	123*	116*
30	65	65	49	94*	94*	71	106*	116*	95*
32	54	54	41	78*	78*	59	100*	105*	79*
34	45	45	34	66	66	50	89*	89*	67
36	38	38	29	56	56	42	75*	75*	56
38	33	33	25	48	48	36	64*	64*	48
40	28	28	21	41	41	31	56	56	42

*Joist reaction exceeds 1200 lbs., web stiffeners are required at hanger locations. Web stiffeners may be required for other conditions, see note 3 below.

NOTES:

1. Load capacity assumes no composite action provided by sheathing.
2. These values reflect the most restrictive of simple span or multiple span applications.
3. Web stiffeners are required if the sides of the hanger do not laterally support the TJI® joist top flange. Web stiffeners are also required at all sloped hanger locations; all birdsmouth cut locations; and for TJI®/55 SP joists, at all hanger locations where joist reactions exceed 1200 pounds.

ROOF JOIST SIZING:

4. Roof surface must be sloped 1/4" in 12" minimum to provide positive drainage.
5. Total Load column limits joist deflection to L/180. For stiffer deflection criteria, check the L/240 column.
   Note: Some codes may require a L/240 live load deflection limit; check the L/240 column at live load. Check your local code for roof deflection criteria.
6. For roof slopes greater than 2"/12," consideration must be given to the increased dead load and deflection caused by actual sloped length. Approximate this effect by multiplying the horizontal clear span by the slope factor from the "Slope Factor Table" on page 18 to determine the **JOIST CLEAR SPAN.**

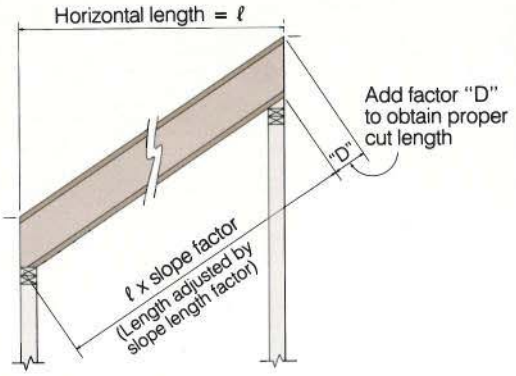
Legacy Literature
See Note on Front Cover

TJI® JOIST SLOPE FACTOR TABLES

SLOPE FACTOR TABLE

SLOPE	FACTOR
2½ in 12	1.022
3 in 12	1.031
3½ in 12	1.042
4 in 12	1.054
4½ in 12	1.068
5 in 12	1.083
6 in 12	1.118
7 in 12	1.158
8 in 12	1.202
9 in 12	1.250
10 in 12	1.302
11 in 12	1.357
12 in 12	1.414

TJI® JOIST CUT LENGTH CALCULATION

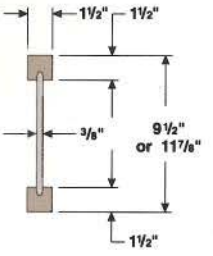


Actual cut length can be approximated by multiplying the horizontal length by the slope factor and adding the "D" factor.

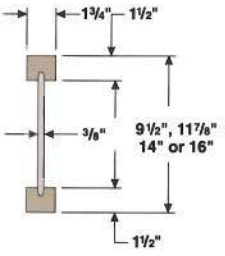
SLOPE	"D" FACTOR			
	9½"	11⅞"	14"	16"
2½ in 12	2"	2½"	3"	3⅜"
3 in 12	2⅜"	3"	3½"	4"
3½ in 12	2⅞"	3½"	4⅛"	4¾"
4 in 12	3¼"	4"	4¾"	5⅜"
4½ in 12	3⅝"	4½"	5¼"	6"
5 in 12	4"	5"	5⅞"	6¾"
6 in 12	4¾"	6"	7"	8"
7 in 12	5⅝"	7"	8¼"	9⅜"
8 in 12	6⅜"	8"	9⅜"	10¾"
9 in 12	7⅛"	9"	10½"	12"
10 in 12	8"	10"	11¾"	13⅜"
11 in 12	8¾"	11"	12⅞"	14¾"
12 in 12	9½"	11⅞"	14"	16"

TJI® JOIST DESIGN PROPERTIES (100% Load Duration)

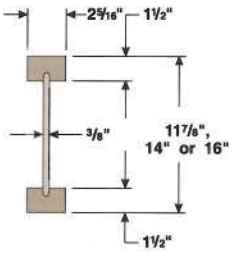
Joist Series	Joist Depth (Inches)	Joist Weight (Lbs./Ft.)	EI x 10⁶ (In² Lbs.)	Max. Vertical Shear (Lbs.)	Max. End Reaction (Lbs.)	Max. Intermediate Reaction (Lbs.)		Maximum Resistive Moment (Ft.-Lbs.)
						No Web Stiffeners	With Web Stiffeners	
TJI®/15 SP	9½	2.1	164	1120	940	2090	2090	2860
	11⅞	2.4	286	1420	940	2090	2090	3800
TJI®/25 SP	9½	2.3	190	1120	990	2100	2310	3370
	11⅞	2.6	329	1420	990	2100	2310	4480
	14	2.8	490	1710	990	2100	2310	5480
	16	3.1	677	1970	990	2100	2310	6425
TJI®/35 SP	11⅞	3.1	423	1420	1050	2430	2640	5960
	14	3.3	626	1710	1050	2430	2640	7300
	16	3.6	859	1970	1050	2430	2640	8560
TJI®/55 SP	11⅞	4.4	633	1750	1400	3680	3980	9140
	14	4.7	932	1935	1400	3680	3980	11195
	16	5.0	1273	2120	1400	3680	3980	13135



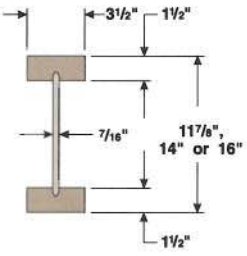
9½" or 11⅞" TJI®/15 SP joists



9½", 11⅞", 14", or 16" TJI®/25 SP joists



11⅞", 14", or 16" TJI®/35 SP joists



11⅞", 14" or 16" TJI®/55 SP Joists

NOTE:
- Design reaction includes all loads on the joist. Design shear is computed at the face of supports including all loads on the span(s). Allowable shear may sometimes be increased at interior supports in accordance with NER-200 and these increases are reflected in span tables.
- The reaction values above are based on an assumed minimum bearing length of 1¾" at ends, 3½" at intermediate supports.

The following formula approximates the uniform load deflection of Δ (inches):

$$\Delta = \frac{22.5w\ell^4}{EI} + \frac{2.67w\ell^2}{d \times 10^5}$$ **For TJI®/15 SP TJI®/25 SP and TJI®/35 SP**

$$\Delta = \frac{22.5w\ell^4}{EI} + \frac{2.29w\ell^2}{d \times 10^5}$$ **For TJI®/55 SP**

w = uniform load in pounds per lineal foot
ℓ = clear span in feet
d = out to out depth of the joist in inches
EI = value from table

MATERIAL WEIGHTS

Include TJI® joist weights in dead load calculations – see chart above for joist weights.

Southern Pine Sheathing*
(Based on 40 pcf for plywood, 44 pcf for OSB)

½" plywood	1.7 psf
⅝" plywood	2.0 psf
¾" plywood	2.5 psf
1⅛" plywood	3.8 psf
½" OSB	1.8 psf
⅝" OSB	2.2 psf
¾" OSB	2.7 psf
1⅛" OSB	4.1 psf

*For Douglas Fir weights, decrease Southern Pine weights by 10%.

Roofing Materials

Asphalt shingles	2.5 psf
Wood shingles	2.0 psf
Clay tile	9.0 to 14.0 psf
Slate (⅜" thick)	15 psf

Roll or Batt Insulation

Rock Wool	(1" thick) 0.2 psf
Glass Wool	(1" thick) 0.1 psf

Floors

Hardwood (Nominal 1")	4.0 psf
Concrete (1" thick)	
Regular	12.0 psf
Lightweight	6.0 to 10.0 psf
Sheet vinyl	0.2 psf
Carpet and pad	0.6 psf
¾" ceramic or quarry tile	10.0 psf
Gypsum concrete (¾")	6.5 psf

Ceilings

Acoustical fiber tile	1.0 psf
½" gypsum board	2.2 psf
⅝" gypsum board	2.8 psf
Plaster (1" thick)	8.0 psf

TJI® JOIST HOLE CHARTS – ROUND, SQUARE AND RECTANGULAR HOLES

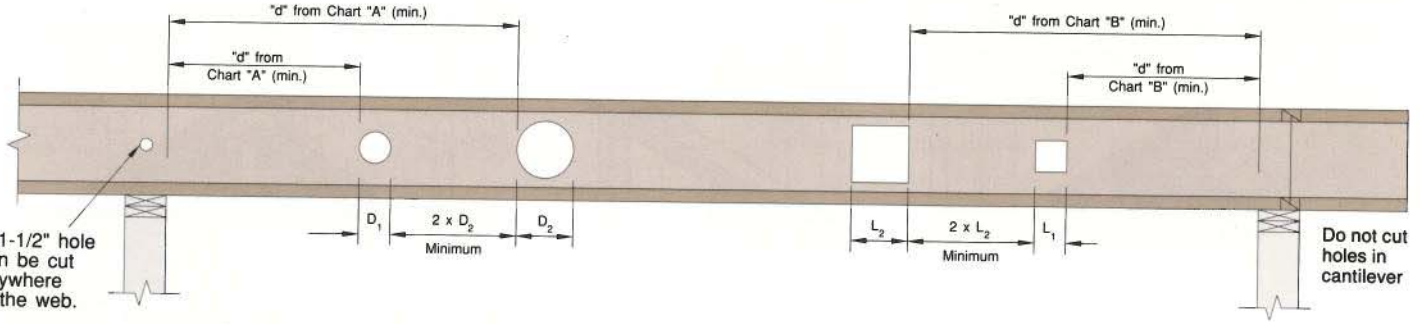


CHART A — ROUND HOLES

MINIMUM DISTANCE (d) FROM INSIDE FACE OF ANY SUPPORT TO NEAREST EDGE OF HOLE

JOIST DEPTH	JOIST SERIES	ROUND HOLE SIZE													
		2"	3"	4"	5"	6"	6¼"	7"	8"	8⅝"	9"	10"	10¾"	12"	12¾"
9½"	TJI®/15 SP	1'-0"	2'-6"	3'-6"	6'-0"	8'-0"	8'-6"	—	—	—	—	—	—	—	—
	TJI®/25 SP	2'-0"	3'-0"	4'-6"	6'-6"	8'-6"	9'-0"	—	—	—	—	—	—	—	—
11⅞"	TJI®/15 SP	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	4'-0"	6'-6"	8'-0"	9'-6"	—	—	—	—	—
	TJI®/25 SP	1'-0"	1'-0"	2'-0"	3'-6"	5'-0"	5'-0"	7'-6"	9'-0"	10'-0"	—	—	—	—	—
	TJI®/35 SP	1'-0"	2'-0"	3'-6"	5'-0"	6'-6"	7'-0"	8'-0"	9'-6"	10'-6"	—	—	—	—	—
	TJI®/55 SP	3'-0"	4'-6"	5'-6"	7'-0"	8'-0"	8'-6"	9'-6"	10'-6"	11'-6"	—	—	—	—	—
14"	TJI®/25 SP	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	3'-0"	5'-0"	7'-0"	7'-6"	9'-6"	11'-0"	—	—
	TJI®/35 SP	1'-0"	1'-0"	1'-0"	2'-0"	3'-6"	4'-0"	5'-6"	7'-0"	8'-6"	9'-0"	11'-0"	12'-0"	—	—
	TJI®/55 SP	1'-6"	3'-0"	4'-6"	6'-0"	7'-0"	7'-6"	8'-6"	10'-0"	10'-6"	11'-6"	12'-6"	13'-6"	—	—
16"	TJI®/25 SP	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	1'-6"	2'-6"	3'-0"	6'-0"	7'-6"	10'-6"	12'-0"
	TJI®/35 SP	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	1'-6"	3'-6"	5'-0"	5'-6"	8'-0"	9'-6"	12'-0"	13'-6"
	TJI®/55 SP	1'-0"	1'-0"	2'-6"	4'-0"	5'-6"	6'-0"	7'-0"	8'-6"	9'-6"	10'-0"	11'-6"	12'-6"	14'-6"	15'-6"

CHART B — SQUARE OR RECTANGULAR HOLES

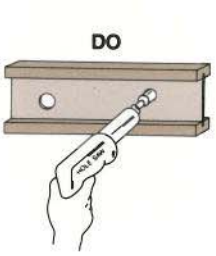
MINIMUM DISTANCE (d) FROM INSIDE FACE OF ANY SUPPORT TO NEAREST EDGE OF HOLE

JOIST DEPTH	JOIST SERIES	SQUARE OR RECTANGULAR HOLE SIZE*													
		2"	3"	4"	5"	6"	6¼"	7"	8"	8⅝"	9"	10"	10¾"	12"	12¾"
9½"	TJI®/15 SP	2'-6"	5'-0"	6'-0"	6'-6"	—	—	—	—	—	—	—	—	—	—
	TJI®/25 SP	3'-0"	5'-6"	6'-6"	7'-0"	—	—	—	—	—	—	—	—	—	—
11⅞"	TJI®/15 SP	1'-0"	2'-0"	4'-0"	6'-0"	7'-0"	7'-0"	8'-0"	9'-0"	—	—	—	—	—	—
	TJI®/25 SP	1'-0"	3'-6"	5'-0"	7'-0"	7'-6"	8'-0"	8'-6"	9'-6"	—	—	—	—	—	—
	TJI®/35 SP	2'-0"	5'-0"	7'-0"	8'-6"	9'-6"	10'-0"	10'-6"	11'-6"	—	—	—	—	—	—
	TJI®/55 SP	4'-6"	7'-0"	8'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	—	—	—	—	—
14"	TJI®/25 SP	1'-0"	1'-0"	2'-0"	5'-0"	7'-0"	7'-0"	8'-0"	9'-0"	9'-6"	10'-0"	11'-0"	12'-0"	—	—
	TJI®/35 SP	1'-0"	2'-0"	4'-0"	7'-0"	9'-0"	9'-6"	10'-0"	11'-0"	12'-0"	12'-6"	13'-6"	14'-0"	—	—
	TJI®/55 SP	3'-0"	6'-0"	7'-6"	10'-0"	11'-6"	11'-6"	12'-0"	13'-0"	13'-6"	13'-6"	14'-6"	15'-0"	—	—
16"	TJI®/25 SP	1'-0"	1'-0"	2'-0"	4'-0"	5'-0"	5'-6"	6'-6"	7'-6"	8'-6"	9'-0"	10'-0"	11'-0"	12'-6"	13'-6"
	TJI®/35 SP	1'-0"	1'-0"	2'-0"	5'-0"	8'-0"	8'-0"	9'-0"	10'-6"	11'-0"	11'-6"	12'-6"	13'-6"	15'-0"	16'-0"
	TJI®/55 SP	1'-0"	4'-0"	6'-0"	8'-6"	11'-6"	12'-0"	12'-6"	13'-6"	14'-0"	14'-0"	15'-0"	16'-0"	17'-0"	17'-6"

***NOTE:** Rectangular holes based on measurement of longest side.

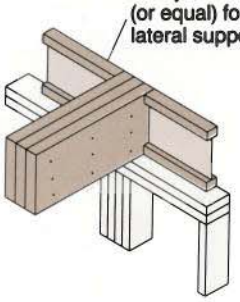
NOTES:

1. If more than one hole is to be cut in the web, the length of the uncut web between holes must be twice the length of the longest dimension of the largest adjacent hole. Holes may be located vertically anywhere within the web.
2. TJI® joists are manufactured with 1½" perforated "knockouts" in the web at approximately 12" on center along the length of the joist.
3. The distances in the hole charts are based on uniformly loaded joists using maximum loads shown for any of the tables listed within this guide. **For other load conditions or hole configurations not included in these charts, contact your Trus Joist MacMillan Representative.**

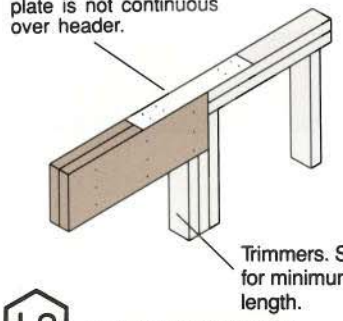


FULL DEPTH RECTANGULAR HOLES ARE ALSO POSSIBLE. CONTACT YOUR TRUS JOIST MACMILLAN REPRESENTATIVE FOR ASSISTANCE.

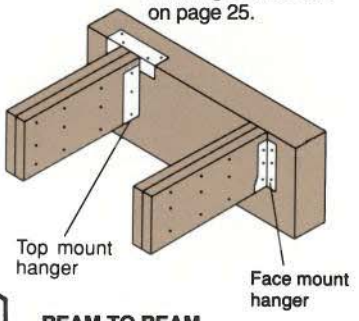
BEARING DETAILS



L1 **BEARING AT WALL**

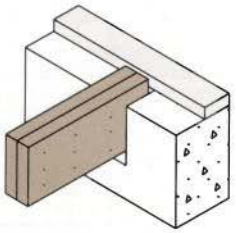


L2 **BEARING FOR DOOR OR WINDOW HEADER**



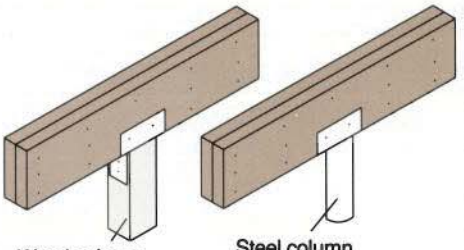
L3 **BEAM TO BEAM CONNECTION**

NOTE: BEARING LENGTH IS EXTREMELY CRITICAL AND MUST BE CONSIDERED FOR EACH APPLICATION.



Protect wood in direct contact with concrete.

L4 **BEARING AT CONCRETE WALL**

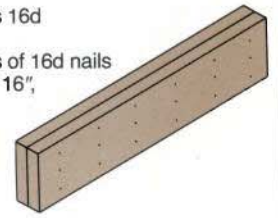


NOTE: Verify column capacity and bearing length (below).

L5 **BEARING AT WOOD OR STEEL COLUMN**

1¾" Width Pieces
- Minimum of 2 rows 16d nails @ 12" o.c.
- Minimum of 3 rows of 16d nails @ 12" o.c. for 14", 16", and 18" beams.

3½" Width Pieces
- Minimum of 2 rows ½" bolts @ 24" o.c. staggered.



NOTE: For side loaded multiple member beams, additional nailing or bolting may be required. See page 21.

L6 **CONNECTION OF MULTIPLE PIECES OF TOP LOADED BEAMS**

BEARING LENGTH REQUIREMENTS

REACTION (POUNDS X 1,000)	BEAM WIDTH			
	1¾"	3½"	5¼"	7"
1	1.5	1.5	1.5	1.5
2	1.75	1.5	1.5	1.5
3	2.5	1.5	1.5	1.5
4	3.25	1.75	1.5	1.5
5	4	2.0	1.5	1.5
6	4.75	2.5	1.75	1.5
7	5.5	2.75	2	1.5
8	6.25	3.25	2.25	1.75
9		3.5	2.5	1.75
10		4	2.75	2
11		4.25	3	2.25
12		4.75	3.25	2.5
13		5	3.5	2.5
14		5.5	3.75	2.75
15		5.75	4	3
16			4.25	3.25
17			4.5	3.25
18			4.75	3.5
19			5	3.75
20			5.25	4
21			5.5	4
22			5.75	4.25
23				4.5
24				4.75
25				5
26				5
27				5.25
28				5.5
29				5.75

Multiple pieces of MICRO=LAM® LVL can be nailed or bolted together to form a header or beam of the required size, up to a **maximum width of 7 inches.** See detail L6 above and page 21 for connection details.

NOTES:

1. Bearing length should never be less than 1½."
2. Bearing across the full width of the beam is required.
3. Bearing lengths are based on 750 psi bearing stress for Douglas Fir MICRO=LAM® LVL beams, 880 psi bearing stress may be used for Southern Pine MICRO=LAM® LVL beams (bearing stresses cannot be increased for duration of load). Bearing length may need to be increased if support member's allowable bearing stress is less.
4. Beams require lateral support at bearing points.
5. Lateral support of beam compression edge is required at intervals of 24" o.c. or closer.
6. 1¾" x 16" and 1¾" x 18" beams are to be used in multiple member units only.

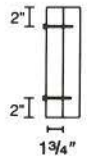
NAILS INSTALLED ON THE NARROW FACE

Nail Size	Closest o.c. Spacing Per Row
8d common	3"
10d or 12d common	4"
16d common	8"

If more than one row of nails is used the rows must be offset at least ½ inch.

SIDE-LOADED CONNECTION FOR MULTIPLE MEMBER BEAMS

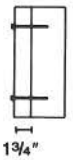
ASSEMBLY "A"
2 pcs. 1¾"



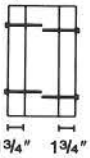
ASSEMBLY "B"
3 pcs. 1¾"

ASSEMBLY "C"
4 pcs. 1¾"

ASSEMBLY "D"
1 pc. 1¾"
1 pc. 3½"



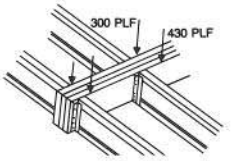
ASSEMBLY "E"
1 pc. 1¾"
1 pc. 3½"
1 pc. 1¾"



ASSEMBLY "F"
2 pcs. 3½"

Multiple Assembly (see pictures)	Maximum Uniform Load applied to either outside member (lbs. per lin. ft.)			
	Nailed Connection[3]		Through Bolted Connection[4]	
	2 rows 16d common wire at 12" o.c.	3 rows 16d common wire at 12" o.c.	2 rows ½" bolts at 24" o.c.	2 rows ½" bolts at 12" o.c.
A	420	630	580	1160
B[5]	320	480	440	880
C[6]	NOT APPLICABLE		390	780
D	305	460	425	850
E[5][6]	275	415	380	760
F[6]	NOT APPLICABLE		1120	2240

EXAMPLE PROBLEM



SOLUTION: First, check allowable load tables to verify that 3 pcs. can carry the total load of 730 plf with proper live load deflection criteria. Maximum load applied to **either** outside member is 430 plf. For a 3 pc. 1-3/4" multiple assembly, 2 rows 16d nails at 12" o.c. is good for only 320 plf. Therefore, use 3 rows 16d nails at 12" o.c. (good for 480 plf). Alternate: 2 rows 1/2" bolts at 24" o.c.

NOTES:

1. Verify adequacy of beam in uniform load tables, pages 22 and 23.
2. Values listed are for 100% stress level. Increase 15% for snow loaded roof conditions or 25% for non-snow roof conditions, where code allows.
3. "Nailed connection" values may be doubled for 6" o.c. or tripled for 4" o.c. nail spacing.
4. Bolts are to be material conforming to ASTM standard A307 (machine bolts). Bolt holes are to be the same diameter as the bolt, and located 2" from the top and bottom of the member. Washers should be used under head and nut.
5. For a three-piece member, the nailing specified is from each side.
6. 7"-wide beams should only be side-loaded when loads are applied to both sides of the members (to minimize rotation).
7. Beams wider than 7" require special consideration by the design professional.

FLOOR BEAM SIZING TABLE

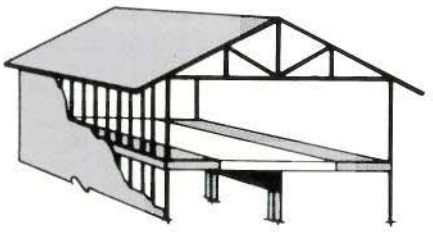
GENERAL NOTES:

1. Table assumes a residential floor loading of 40 psf live load and 12 psf dead load with beam deflection limited to L/360 at live load. For other loading conditions refer to allowable uniform load tables on page 22 or contact your Trus Joist MacMillan representative for assistance.
2. Table assumes a continuous floor joist span and a simple or continuous beam span.
3. Reduction in live load has been applied in accordance with UBC 2306, NBC 1115.1, SBC 1203.2 and BOCA 1115.
4. Support beam ends with double trimmers (3" bearing). At intermediate supports of continuous spans use 5 trimmers (7.5" bearing). In gray shaded portion of table, use 3 trimmers (4.5" bearing) at beam ends and 7 trimmers (10.5" bearing) at intermediate supports of continuous spans.
5. Beam widths of 3½" and 5¼" may be one piece (3½" maximum) or multiple pieces as shown in the following chart:

BEAM DEPTH	BEAM WIDTH	
	3½"	5¼"
5½" & 7¼"	Two 1¾"	Three 1¾"
9½"-18"	One 3½" or Two 1¾"	Three 1¾" or One 3½" & One 1¾"

Multiple member beams must be properly connected together. See above and page 20 for connection details.

Column Spacing	FLOOR JOIST SPAN Use 1/2 the sum of the joist spans on both sides of the beam.								
	11'	12'	13'	14'	15'	16'	17'	18'	20'
10'	3½" x 9½"	3½" x 9½"	3½" x 9½"	5¼" x 9½" 3½" x 11⅞"	5¼" x 9½" 3½" x 11⅞"	5¼" x 9½" 3½" x 11⅞"	5¼" x 9½" 3½" x 11⅞"	5¼" x 9½" 3½" x 11⅞"	5¼" x 9½" 3½" x 11⅞"
12'	5¼" x 9½" 3½" x 11⅞"	5¼" x 9½" 3½" x 11⅞"	3½" x 11⅞"	3½" x 11⅞"	3½" x 11⅞"	5¼" x 11⅞" 3½" x 14"	5¼" x 11⅞" 3½" x 14"	5¼" x 11⅞" 3½" x 14"	5¼" x 11⅞" 3½" x 14"
14'	5¼" x 11⅞" 3½" x 14"	5¼" x 11⅞" 3½" x 14"	5¼" x 11⅞" 3½" x 14"	5¼" x 11⅞" 3½" x 14"	5¼" x 11⅞" 3½" x 14"	3½" x 14"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"
16'	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 18"	5¼" x 16" 3½" x 18"
18'	5¼" x 14" 3½" x 16"	5¼" x 14" 3½" x 18"	5¼" x 16" 3½" x 18"	5¼" x 16" 3½" x 18"	5¼" x 16" 3½" x 18"	5¼" x 16" 3½" x 18"	5¼" x 16" 3½" x 18"	5¼" x 16" 3½" x 18"	5¼" x 16"
20'	5¼" x 16" 3½" x 18"	5¼" x 16" 3½" x 18"	5¼" x 16"	5¼" x 18"	5¼" x 18"	5¼" x 18"	5¼" x 18"	5¼" x 18"	5¼" x 18"



Non-shaded portion indicates area of load on beam.

ALLOWABLE UNIFORM APPLIED LOAD – FLOOR (PLF)

GENERAL NOTES:

1. Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
2. Tables are based on uniform loads and the most restrictive of simple or continuous span. Gray shaded areas represent load conditions controlled by a continuous span condition.
3. MICRO = LAM® LVL beams are made without camber; therefore, in addition to complying with the deflection limits of the applicable Building Code, other deflection considerations, such as long term deflection under sustained loads (including creep) and aesthetics, must be evaluated.
4. Lateral support of beam compression edge is required at intervals of 24″ o.c. or closer.
5. Lateral support of beams is required at bearing points.
6. Bearing area to be calculated for specific application; see table on page 20.

FLOOR BEAM SIZING:

- To size a beam for use in a floor it is necessary to check both live load and total load. Make sure the selected beam will work in both columns. When no live load is shown, total load will control.
- Total load column limits deflection to L/240. Live load column is based on deflection of L/360. Check local code for other deflection criteria.
- For deflection limits of L/240 and L/480 multiply loads shown in live load column by 1.5 and 0.75 respectively. The resulting live load shall not exceed the total load shown.

1¾″ 2.0E SP MICRO=LAM® LVL

	One 1¾″ x 5½″		One 1¾″ x 7¼″		One 1¾″ x 9½″		One 1¾″ x 11⅞″		One 1¾″ x 14″		One 1¾″ x 16″(b)		One 1¾″ x 18″(b)	
SPAN (Ft.)	LIVE LOAD L/360	TOTAL LOAD	LIVE LOAD L/360	TOTAL LOAD	LIVE LOAD L/360	TOTAL LOAD	LIVE LOAD L/360	TOTAL LOAD	LIVE LOAD L/360	TOTAL LOAD	LIVE LOAD L/360	TOTAL LOAD	LIVE LOAD L/360	TOTAL LOAD
6	305	455	660	763		1063		1424		1795		2193		2651
8	134	198	296	440	629	746		979		1207		1443		1701
10	70	102	156	230	338	502	629	745		909		1074		1251
12	41	58	92	134	201	297	379	552	599	728		855		988
14	26	36	58	84	129	188	245	361	390	550	566	706	781	816
16	17	23	39	55	87	126	167	244	268	394	390	539	542	672
18			28	38	62	88	119	172	191	279	280	412	390	529
20			20	27	45	63	87	125	141	204	207	303	290	426
22			15	19	34	46	66	93	107	153	157	228	221	322
24					26	35	51	71	83	117	122	175	172	249
26					21	26	40	54	65	91	97	137	136	196
28					17	20	32	43	53	72	78	109	110	156
30							26	34	43	57	64	87	90	126

Table can be used for 1¾″ or 3½″ width beams. Use the following multipliers to calculate the allowable load for each width:

1¾″ width beam[a][b]: Use values in table
3½″ width beam[c] : Use values in table x 2.00

(a) Table is for one 1¾″ beam. When properly connected together, double the values for two 1¾″ beams, triple for three. See pages 20 and 21 for connection details.
(b) **1¾″ x 16″ and 1¾″ x 18″ beams are to be used in multiple member units only.**
(c) 3½″ width, one piece beams are not available in 5½″ and 7¼″ depths.

NOTES:

ALLOWABLE UNIFORM APPLIED LOAD – ROOF (PLF)

GENERAL NOTES:

1. Values shown are the maximum uniform loads, in pounds per lineal foot (plf), that can be applied to the beam in addition to its own weight.
2. Tables are based on uniform loads and the most restrictive of simple or continuous span. Gray shaded areas represent load conditions controlled by a continuous span condition.
3. Total load column limits deflection to L/180. For stiffer deflection criteria check L/240 column at total load. Check local code for other deflection criteria.
4. MICRO = LAM® LVL beams are made without camber; therefore, in addition to complying with the deflection limits of the applicable Building Code, other deflection considerations, such as ponding (positive drainage is essential), long term deflection under sustained loads (including creep) and aesthetics, must be evaluated.
5. Roof members shall either be sloped for drainage or designed to account for load and deflection as specified in the applicable Building Code.
6. Lateral support of beam compression edge is required at intervals of 24″ o.c. or closer.
7. Lateral support of beams required at bearing points.
8. Bearing area to be calculated for specific application; see table on page 20.

1¾″ 2.0E SP MICRO=LAM® LVL

	One 1¾″ x 5½″			One 1¾″ x 7¼″			One 1¾″ x 9½″			One 1¾″ x 11⅞″			One 1¾″ x 14″			One 1¾″ x 16″(b)			One 1¾″ x 18″(b)		
	TOTAL LOAD		DEFL	TOTAL LOAD		DEFL	TOTAL LOAD		DEFL	TOTAL LOAD		DEFL	TOTAL LOAD		DEFL	TOTAL LOAD		DEFL	TOTAL LOAD		DEFL
SPAN (Ft.)	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240
6	608	608	458	878	954		1223	1330		1639	1782		2065	2245		2524	2744		3050	3316	
8	265	265	201	572	588	444	858	933		1126	1225		1389	1511		1660	1806		1957	2128	
10	137	137	104	308	308	234	605	658	507	857	932		1046	1138		1236	1344		1440	1566	
12	79	79	61	180	180	138	397	397	301	635	691	569	838	912	899	984	1070		1138	1238	
14	49	49	39	113	113	88	253	253	193	465	484	367	633	689	586	813	885	849	940	1023	
16	32	32	26	75	75	59	170	170	131	328	328	250	483	526	401	621	676	586	774	842	813
18	22	22	18	52	52	42	119	119	93	231	231	178	375	375	286	489	532	420	610	664	586
20				37	37	30	86	86	68	168	168	131	275	275	211	394	406	311	492	536	435
22				27	27	23	63	63	51	126	126	99	206	206	160	307	307	236	405	433	331
24							48	48	40	96	96	77	158	158	124	236	236	183	335	335	258
26							37	37	31	75	75	60	124	124	98	186	186	145	264	264	205
28							29	29	25	59	59	49	98	98	79	148	148	117	211	211	165
30										47	47	40	79	79	64	119	119	95	171	171	135

Table can be used for 1¾″ or 3½″ width beams. Use the following multipliers to calculate the allowable load for each width:

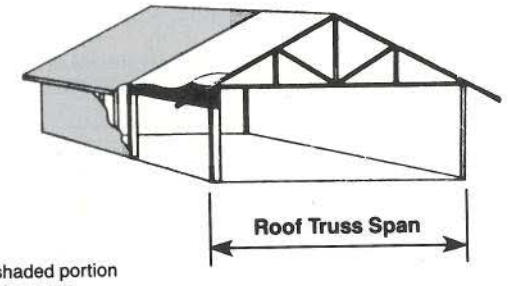
1¾″ width beam[a][b]: Use values in table
3½″ width beam[c] : Use values in table x 2.00

(a) Table is for one 1¾″ beam. When properly connected together, double the values for two 1¾″ beams, triple for three. See pages 20 and 21 for connection details.
(b) **1¾″ x 16″ and 1¾″ x 18″ beams are to be used in multiple member units only.**
(c) 3½″ width, one piece beams are not available in 5½″ and 7¼″ depths.

NOTES:

GARAGE DOOR HEADER SIZING TABLE

For Single Story Applications



Non-shaded portion indicates area of load on header.

GENERAL NOTES:

1. Table assumes a simple span header supporting 1/2 of the total roof load.
2. Deflection limited to L/240 at live load or L/180 at total load.
3. Reduction in live load has been applied in accordance with UBC 2306, NBC 1110.2, SBC 1203.6 and BOCA 1110 for the header sizes listed in the non-snow (125%) columns.
4. Support header with double trimmers (3" bearing).
5. For loading conditions not shown refer to allowable uniform load tables on page 23 or contact your Trus Joist MacMillan representative for assistance.
6. Header widths of 3 1/2" and 5 1/4" may be one piece (3 1/2" maximum) or multiple pieces as shown in the following chart:

	HEADER WIDTH	
HEADER DEPTH	3 1/2"	5 1/4"
5 1/2" & 7 1/4"	Two 1 3/4"	Three 1 3/4"
9 1/2"-18"	One 3 1/2" or Two 1 3/4"	Three 1 3/4" or One 3 1/2" & One 1 3/4"

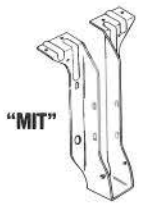
Multiple member headers must be properly connected together. See pages 20 and 21 for connection details.

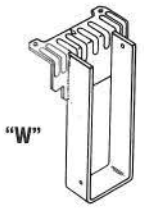
Roof Load (PSF)		NON-SNOW (125%)						SNOW (115%)					
		20LL + 12DL			20LL + 25DL			25LL + 12DL			30LL + 12DL		
Rough Door Opening Size		9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"
ROOF TRUSS SPAN IN FEET WITH 24" SOFFIT ASSUMED	22'	5 1/4" x 5 1/2" 3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 9 1/2" 3 1/2" x 11 7/8" 1 3/4" x 14"	3 1/2" x 11 7/8"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 5 1/2" 3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8" 1 3/4" x 14"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"
	24'	5 1/4" x 5 1/2" 3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 9 1/2" 3 1/2" x 11 7/8" 1 3/4" x 14"	3 1/2" x 11 7/8"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"
	26'	5 1/4" x 5 1/2" 3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 9 1/2" 3 1/2" x 11 7/8" 1 3/4" x 14"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 11 7/8" 3 1/2" x 14"
	28'	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8" 1 3/4" x 14"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 14"
	30'	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"
	32'	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 7 1/4" 3 1/2" x 9 1/2" 1 3/4" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 14"	5 1/4" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"
	34'	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 7 1/4" 3 1/2" x 9 1/2" 1 3/4" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	3 1/2" x 14"	5 1/4" x 7 1/4" 3 1/2" x 9 1/2" 1 3/4" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"
	36'	3 1/2" x 7 1/4" 1 3/4" x 9 1/2"	3 1/2" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 7 1/4" 3 1/2" x 9 1/2" 1 3/4" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"	5 1/4" x 7 1/4" 1 3/4" x 9 1/2"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"	5 1/4" x 7 1/4" 3 1/2" x 9 1/2" 1 3/4" x 11 7/8"	5 1/4" x 11 7/8" 3 1/2" x 14"	5 1/4" x 14" 3 1/2" x 16"

TOP MOUNT HANGERS

C8 – 1¾" MEMBERS

Member	Hanger	Minimum Support	Maximum Load (lbs.)
1¾" x 9½"	W9	All types	1600
	WP9	All types	2525
1¾" x 11⅞"	W11	All types	1600
	WP11	All types	2525
1¾" x 14"	W14	All types	1600
	WP14	All types	2525





C9 – 3½" MEMBERS

Member	Hanger	Minimum Support	Maximum Load (lbs.)
3½" x 9½"	WP9-2 or MIT9-2	All types	1915
	GLTV3.59	4x4 or larger	7500(1)(2)
3½" x 11⅞"	WP11-2 or MIT11-2	All types	1915
	GLTV3.511	4x4 or larger	7500(1)(2)
3½" x 14"	WPI414 or MIT414	All types	2000
	HGLTV3.514	4x4 or larger	10500(1)(2)
3½" x 16"	HGLTV3.516	4x4 or larger	10500(1)(2)
3½" x 18"	HGLTV3.518	4x4 or larger	10500(1)(2)

(1) Maximum load is 6000 lbs. if supporting member is multiple plies of 1¾" Parallam® PSL.
(2) Maximum load is 7400 lbs. if supporting member is 2¹¹⁄₁₆" or wider pieces of Parallam® PSL.

C10 – 5¼" MEMBERS

Member	Hanger	Minimum Support	Maximum Load (lbs.)
5¼" x 9½"	WP5.50/9.5	All types	2525
	GLTV5.59	4x4 or larger	7500(1)(2)
5¼" x 11⅞"	WP5.50/11.88	All types	2525
	HGLTV5.511	4x4 or larger	10500(1)(2)
5¼" x 14"	WP5.50/14	All types	2525
	HGLTV5.514	4x4 or larger	10500(1)(2)
5¼" x 16"	HGLTV5.516	4x4 or larger	10500(1)(2)
5¼" x 18"	HGLTV5.518	4x4 or larger	10500(1)(2)

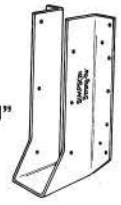
(1) Maximum load is 6000 lbs. if supporting member is multiple plies of 1¾" Parallam® PSL.
(2) Maximum load is 7400 lbs. if supporting member is 2¹¹⁄₁₆" or wider pieces of Parallam® PSL.

FACE MOUNT HANGERS

C11 – 1¾" MEMBERS

Member	Hanger	Maximum Load (lbs.)
1¾" x 9½" -14"	IUT9	860 (100%) - 1075 (125%)
	HHU9*	2575 (100%) - 3220 (125%)
1¾" x 11⅞" -14"	IUT11	1075 (100%) - 1345 (125%)
	HHU11*	3145 (100%) - 3805 (125%)
1¾" x 14"	IUT14	1505 (100%) - 1880 (125%)
	HHU14*	3880 (100%) - 4165 (125%)

*These hangers are not suitable for attachment to TJI® joists.



This hanger is not suitable for attachment to TJI® joists.

C12 – 3½" MEMBERS

Member	Hanger	Maximum Load (lbs.)
3½" x 9½"-16"	HHU410*	2430 (100%) - 3040 (125%)
3½" x 11⅞"-18"	HHU414*	3130 (100%) - 3910 (125%)
3½" x 14"-18"	HHU416*	3475 (100%) - 4345 (125%)

*These hangers are not suitable for attachment to TJI® joists.

C13 – 5¼" MEMBERS

Member	Hanger	Maximum Load (lbs.)
5¼" x 9½"-16"	HHU610*	2430 (100%) - 3040 (125%)
5¼" x 11⅞"-18"	HHU614*	3130 (100%) - 3910 (125%)
5¼" x 14"-18"	HHU616*	3475 (100%) - 4345 (125%)

*These hangers are not suitable for attachment to TJI® joists.

NOTES:

- 3½" members may be two pieces 1¾" or single 3½" width beam.
- 5¼" members may be three pieces 1¾" or one piece 1¾" with one piece 3½".
- **Hanger capacities may be less than the capacity of the MICRO=LAM® LVL, therefore all applications need to be checked to assure adequate capacity.**
- Leave 1⁄16" clearance between end of MICRO=LAM® LVL and support member.
- Hangers can only achieve their maximum capacity if all nail holes are filled with the proper nails. In some cases, these hangers have greater capacity when supported from certain member categories and with alternate nailing schedules. The minimum support of a "4x4 or larger" includes 3½" or wider MICRO=LAM® LVL, Parallam® PSL, GLULAM, 4x4 nailers, or 4x4 or larger solid sawn lumber.
- The hangers listed above are manufactured by Simpson Strong-Tie® Company, Inc. For additional application and hanger capacity information, please refer to the current Simpson Strong-Tie® Company, Inc. evaluation report.

MICRO=LAM® LVL DESIGN PROPERTIES

DESIGN VALUES SHOWN ARE FOR 100% LOAD DURATION

1¾" 2.0E SP MICRO=LAM® LVL

DESIGN PROPERTY	DEPTH						
	5½"	7¼"	9½"	11⅞"	14"	16"	18"
Moment (ft. lbs.)	2,460	3,960	6,620	10,060	13,645	17,435	21,785
Shear (lbs.)	1,830	2,410	3,160	3,950	4,655	5,320	5,985
Moment of Inertia (in⁴)	25	55	125	245	400	595	850
Weight (lbs./lin. ft.)	2.8	3.7	4.9	6.1	7.1	8.1	9.1

3½" 2.0E SP MICRO=LAM® LVL

DESIGN PROPERTY	DEPTH				
	9½"	11⅞"	14"	16"	18"
Moment (ft. lbs.)	13,245	20,080	27,290	35,005	43,600
Shear (lbs.)	6,320	7,900	9,310	10,640	11,970
Moment of Inertia (in⁴)	250	488	800	1,195	1,701
Weight (lbs./lin. ft.)	9.2	11.5	13.6	15.5	17.4

2.0E SP MICRO=LAM® LVL ALLOWABLE DESIGN STRESSES

Shear modulus of elasticity	G	= 125,000 psi
Modulus of elasticity	E	= 2.0 x 10^6 psi
Flexural stress	F_b	= 2925 psi(1)
Compression perpendicular to grain parallel to glue line	$F_{c\perp}$	= 880 psi(2)
Compression parallel to grain	$F_{c\parallel}$	= 3035 psi
Horizontal shear perpendicular to glue line	F_v	= 285 psi

(1) For 12-inch depth. For others, multiply by $\left[\frac{12}{d}\right]^{0.136}$

(2) $F_{c\perp}$ shall not be increased for duration of load.

NOTES:

- Lateral support of beam compression edge is required at intervals of 24" o.c. or closer.
- See NER-126 for additional design information.

NOTES:

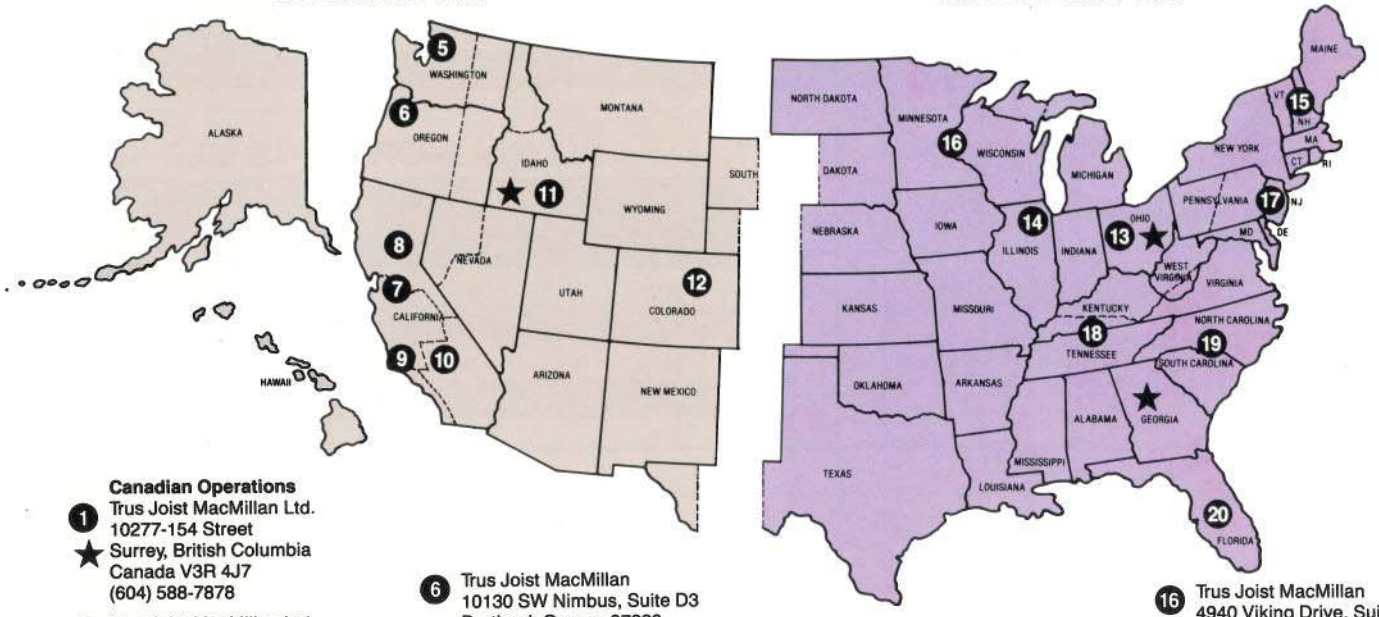
NOTES:

Trus Joist MacMillan now offers a product line that includes both Douglas Fir and Southern Pine species. Some of these products have different properties and capacities. The map below indicates the general distribution of each species, although some overlap may occur. **To be sure the product you specify is readily available in your project's location, contact your local Trus Joist MacMillan representative, or call 1-800-338-0515 for the representative near you.** The regional offices listed below represent over 175 technical representatives throughout North America.

PRODUCT DISTRIBUTION

DOUGLAS FIR

SOUTHERN PINE



Canadian Operations
1 Trus Joist MacMillan Ltd.
10277-154 Street
★ Surrey, British Columbia
Canada V3R 4J7
(604) 588-7878

2 Trus Joist MacMillan Ltd.
#210, 10335 178 Street
Edmonton, Alberta
Canada T5S 1R5
(403) 489-8800

3 Trus Joist MacMillan Ltd.
86 Guided Court
Suite #10
Rexdale, Ontario
Canada M9V 4K6
(416) 740-1427

4 Trus Joist MacMillan Ltd.
6363 Trans Canada Highway
Unit 113
St. Laurent, Quebec
Canada H4T 1Z9
(514) 744-0576

Western Operations
★ Trus Joist MacMillan
3210 East Amity Road
Boise, Idaho 83705
(208) 343-7771

5 Trus Joist MacMillan
3006 Northup Way, Suite 302
Bellevue, Washington 98004
(206) 889-9800

6 Trus Joist MacMillan
10130 SW Nimbus, Suite D3
Portland, Oregon 97223
(503) 620-9490

7 Trus Joist MacMillan
4125 Mohr Avenue, Suite G-H
Pleasanton, California 94566
(510) 426-3270

8 Trus Joist MacMillan
819 W. Striker, Suite 1
Sacramento, California 95834
(916) 649-6835

Pacific Inland Operations
★ Trus Joist MacMillan
2600 East Amity Road
Boise, Idaho 83706
(208) 343-7772

9 Trus Joist MacMillan
2100 W. Orangewood Ave.,
Suite 150
Orange, California 92668
(714) 937-5055

10 Trus Joist MacMillan
650 E. Parkridge Ave., Suite 108
Corona, California 91719
(714) 371-1170

★ Indicates Operations Group General Offices

11 Trus Joist MacMillan
2090 South Cole Road
Boise, Idaho 83709
(208) 322-4931

12 Trus Joist MacMillan
5600 S. Quebec Street, Suite 250B
Englewood, Colorado 80111
(303) 770-6262

Atlantic Central Operations
13 Trus Joist MacMillan
2965 E. Dublin-Granville Rd., Suite B
★ Columbus, Ohio 43231
(614) 882-5840

14 Trus Joist MacMillan
1811 W. Diehl Road, Suite 700
Naperville, Illinois 60563
(708) 369-5000

15 Trus Joist MacMillan
548 Donald Street, #5
Bedford, New Hampshire 03102
(603) 647-9236

16 Trus Joist MacMillan
4940 Viking Drive, Suite 220
Edina, Minnesota 55435
(612) 896-1115

17 Trus Joist MacMillan
104 Centre Boulevard, Suite A
Marlton, New Jersey 08053
(609) 596-5555

18 Trus Joist MacMillan
1645 Murfreesboro Road, Suite I
Nashville, Tennessee 37217
(615) 399-2184

Eastern Operations
★ Trus Joist MacMillan
5880 Live Oak Parkway, Suite 100
Norcross, Georgia 30093
(404) 263-8440

19 Trus Joist MacMillan
1101 Woodridge Center Dr.
Suite 114
Charlotte, North Carolina 28217
(704) 357-3291

20 Trus Joist MacMillan
5444 Bay Center Drive, Suite 200
Tampa, Florida 33609
(813) 286-2665

TRUS JOIST MACMILLAN
A Limited Partnership

9777 West Chinden Blvd. (83714)
P.O. Box 60 Boise, Idaho 83707
(208) 375-4450

Call for the dealer or regional office nearest you:
1-800-338-0515

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Legacy Literature
See Note on Front Cover