

PWI-JOIST
LIMIT STATES DESIGN
USER'S GUIDE

INTRODUCTION

Pacific Woodtech Corporation manufactures laminated veneer lumber (LVL) products and wooden I-joists. We private-label these engineered wood products for other forest products companies as well as wholesale and retail building products companies all across Canada and the United States.

Design properties for all grades of Pacific Woodtech LVL, and all series of PWI joists, are found in Canadian Construction Materials Centre reports 13006-R and 00000-X. All Pacific Woodtech products are as described in these reports regardless of the private label applied.

To ensure proper identification in the field, each LVL product is stamped with “PACIFIC WOODTECH”, “CCMC 13006-R” and one of the grades listed in the report (1.5E, 1.8E, 2.0E). Each PWI joist is stamped with “PACIFIC WOODTECH”, “CCMC 00000-X” and one of the series listed in the report (20, 30, 40, etc.). These markings are in addition to the private label.

For a list of private-label partners, refer to www.pacificwoodtech.com or call 888.707.2285.

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PWI JOIST LVL FLANGES

SAMPLE TRADEMARK

Joist Depth

Generic Joist
Series

Mill Number

Date of
Manufacture

Inspection
Agency
Trademark

Evaluation
Report
Number

11-7/8"
PWI-30

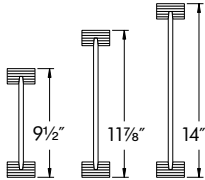
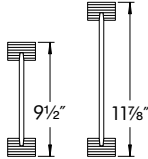
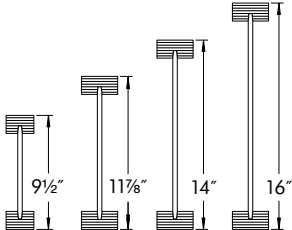
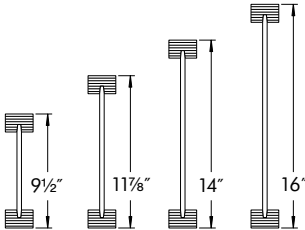
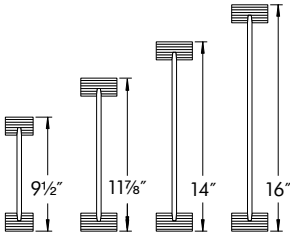
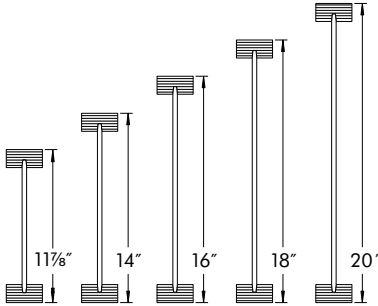
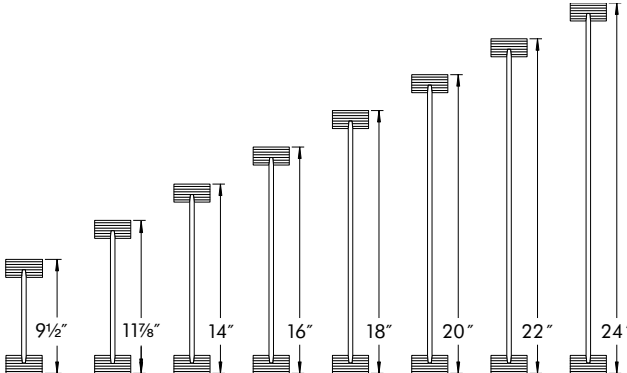
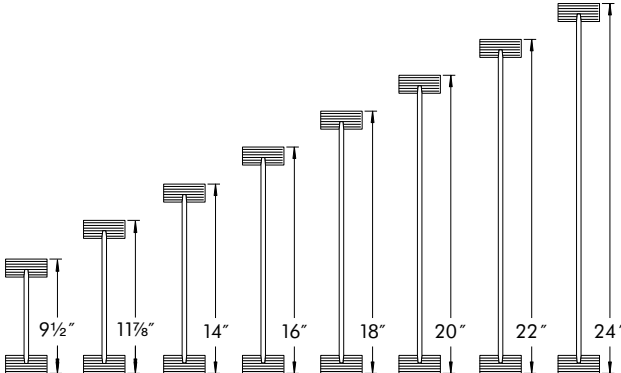
PACIFIC
WOODTECH 1048
09/24/08

APA EWS

CCMC 00000-X



PWI JOIST DIMENSIONS

PWI 20  9 1/2" 11 7/8" 14" 3/8" OSB Web 1 3/4" x 1 3/8" Flange	PWI 30  9 1/2" 11 7/8" 3/8" OSB Web 1 1/2" x 1 1/2" Flange	PWI 40  9 1/2" 11 7/8" 14" 16" 3/8" OSB Web 2 5/16" x 1 3/8" Flange	PWI 50  9 1/2" 11 7/8" 14" 16" 3/8" OSB Web 1 3/4" x 1 1/2" Flange
PWI 60  9 1/2" 11 7/8" 14" 16" 3/8" OSB Web 2 5/16" x 1 3/8" Flange		PWI 70  11 7/8" 14" 16" 18" 20" 3/8" OSB Web 2 5/16" x 1 1/2" Flange	
PWI 77  9 1/2" 11 7/8" 14" 16" 18" 20" 22" 24" 7/16" OSB Web 2 5/16" x 1 1/2" Flange		PWI 90  9 1/2" 11 7/8" 14" 16" 18" 20" 22" 24" 7/16" OSB Web 3 1/2" x 1 1/2" Flange	

PWI JOIST FACTORED RESISTANCE

FACTORED RESISTANCE FOR PWI JOISTS⁽¹⁾

Joist Series	Joist Depth	EI ⁽²⁾ (x 10 ⁶ lbs-in ²)	k ⁽³⁾ (x 10 ⁶ lbs)	M ⁽⁴⁾ (ft-lb)	V ⁽⁵⁾ (lb)	ER ⁽⁶⁾ (lb)	IR ⁽⁷⁾ (lb)
PWI 20	9½"	145	4.94	4191	1768	1444	3141
	11⅞"	253	6.18	5430	2241	1444	3141
	14"	373	7.28	6470	2699	1444	3141
PWI 30	9½"	161	4.94	5364	1768	1492	3007
	11⅞"	280	6.18	6936	2241	1492	3007
PWI 40	9½"	193	4.94	4549	1768	1705	3409
	11⅞"	330	6.18	5896	2241	1894	3946
	14"	482	7.28	7102	2699	1894	3946
	16"	657	8.32	8233	3109	1894	3946
PWI 50	9½"	186	4.94	6320	1768	1602	3220
	11⅞"	322	6.18	8175	2241	1602	3220
	14"	480	7.28	9746	2699	1602	3220
	16"	663	8.32	11168	3109	1602	3220
PWI 60	9½"	231	4.94	6287	1768	1705	3409
	11⅞"	396	6.18	8150	2241	1894	3946
	14"	584	7.28	9805	2699	1894	3946
	16"	799	8.32	11368	3109	1894	3946
PWI 70	11⅞"	440	6.19	11193	2241	1831	3686
	14"	644	7.33	13355	2699	1831	3686
	16"	873	8.42	15301	3109	1831	3686
	18"	1141	9.53	17222	3534	1831	3686
	20"	1447	10.63	19118	3956	1831	3686
PWI 77	9½"	261	5.57	8574	2257	2028	4254
	11⅞"	442	6.92	11102	3038	2028	4254
	14"	648	8.17	13239	3354	2028	4254
	16"	881	9.35	15168	3678	2028	4254
	18"	1152	10.55	17073	4001	2028	4254
	20"	1463	11.76	18952	4325	2028	4254
	22"	1815	12.97	20823	4633	3772 ⁽⁸⁾	6511 ⁽⁸⁾
PWI 90	24"	2209	14.18	22669	4830	3772 ⁽⁸⁾	6511 ⁽⁸⁾
	9½"	392	5.57	13164	2257	2210	4514
	11⅞"	661	6.92	17056	3038	2210	5296
	14"	965	8.17	20349	3354	2210	5296
	16"	1306	9.35	23318	3678	2210	5296
	18"	1703	10.55	26245	4001	2210	5296
	20"	2155	11.76	29139	4325	2210	5296
	22"	2664	12.97	32008	4633	3788 ⁽⁸⁾	7269 ⁽⁸⁾
	24"	3232	14.18	34852	4830	3788 ⁽⁸⁾	7269 ⁽⁸⁾

1. Calculations have been carried out in accordance with CSA O86-01 and O86S1-05

2. Specified bending stiffness (EI) of the I-joist; dry service conditions, K_{SE} = 1.0; no treatment, K_{TE} = 1.0

3. Coefficient of shear deflection (k). For calculating uniform load and center-point load deflections of an I-joist in a simple-span application, use Equations 1 and 2:

$$[1] \delta = \frac{5w\ell^4}{384EI} + \frac{w\ell^2}{k}$$

Center-Point Load:

$$[2] \delta = \frac{P\ell^3}{48EI} + \frac{2P\ell}{k}$$

where:

δ = calculated deflection (in)

w = uniform load (lb/in.)

ℓ = design span (in.)

P = concentrated load (lb)

EI = bending stiffness (lb-in²)

k = coefficient of shear deflection (lb)

4. Factored moment resistance (M); φ = 0.9; standard term, K_D = 1.0; dry service conditions, K_S = 1.0; no system adjustment allowed, K_H = 1.0; no treatment, K_T = 1.0; lateral support at points of bearing and compression edge, K_L = 1.0

5. Factored shear resistance (V); φ = 0.9; standard term, K_D = 1.0; dry service conditions, K_S = 1.0; no treatment, K_T = 1.0

6. Factored end reaction resistance (ER) for 1¾" bearing length without web stiffeners; φ = 0.9; standard term, K_D = 1.0; dry service conditions, K_S = 1.0; no treatment, K_T = 1.0

7. Factored intermediate reaction resistance (IR) for 3½" bearing length without web stiffeners; φ = 0.9; standard term, K_D = 1.0; dry service conditions, K_S = 1.0; no treatment, K_T = 1.0

8. Web stiffeners required. See *Web Stiffener Requirements* on page 50.

PWI JOIST FLOOR SPANS

ALLOWABLE RESIDENTIAL FLOOR SPANS — 40 PSF LIVE LOAD AND 10 PSF DEAD LOAD DIRECTLY ATTACHED 1/2" GYPSUM CEILING

Joist Series	Joist Depth	Simple Span				Multiple Span				Simple or Multiple Spans			
		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.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9 1/2"	15'-4"	14'-6"	14'-1"	13'-4"	16'-7"	15'-8"	15'-2"	14'-10"	15'-4"	14'-6"	14'-1"	13'-4"
	11 7/8"	17'-3"	16'-4"	15'-10"	16'-0"	18'-10"	17'-8"	17'-1"	17'-1"	17'-3"	16'-4"	15'-10"	16'-0"
	14"	19'-0"	17'-9"	17'-3"	17'-5"	21'-0"	19'-7"	18'-10"	17'-1"	19'-0"	17'-9"	17'-3"	17'-1"
PWI 30	9 1/2"	15'-7"	14'-9"	14'-3"	13'-10"	16'-10"	15'-11"	15'-5"	15'-4"	15'-7"	14'-9"	14'-3"	13'-10"
	11 7/8"	17'-6"	16'-7"	16'-1"	16'-2"	19'-3"	17'-11"	17'-4"	16'-4"	17'-6"	16'-7"	16'-1"	16'-2"
	14"	19'-0"	17'-9"	17'-3"	17'-5"	21'-0"	19'-7"	18'-10"	17'-1"	19'-0"	17'-9"	17'-3"	17'-1"
PWI 40	9 1/2"	15'-11"	15'-1"	14'-7"	14'-8"	17'-3"	16'-4"	15'-9"	15'-7"	15'-11"	15'-1"	14'-7"	14'-8"
	11 7/8"	18'-0"	17'-0"	16'-5"	16'-6"	19'-10"	18'-6"	17'-9"	17'-9"	18'-0"	17'-0"	16'-5"	16'-6"
	14"	20'-0"	18'-7"	17'-10"	18'-0"	22'-1"	20'-6"	19'-8"	19'-6"	20'-0"	18'-7"	17'-10"	18'-0"
PWI 50	16"	21'-9"	20'-3"	19'-5"	19'-7"	24'-1"	22'-5"	21'-6"	21'-1"	21'-9"	20'-3"	19'-5"	19'-7"
	9 1/2"	15'-11"	15'-0"	14'-7"	14'-8"	17'-3"	16'-4"	15'-9"	15'-7"	15'-11"	15'-0"	14'-7"	14'-8"
	11 7/8"	17'-11"	16'-11"	16'-4"	16'-6"	19'-9"	18'-5"	17'-8"	17'-6"	17'-11"	16'-11"	16'-4"	16'-6"
PWI 60	14"	20'-0"	18'-7"	17'-10"	18'-0"	22'-1"	20'-6"	19'-8"	17'-6"	20'-0"	18'-7"	17'-10"	17'-6"
	16"	21'-10"	20'-4"	19'-6"	19'-8"	24'-1"	22'-5"	21'-6"	17'-6"	21'-10"	20'-4"	19'-6"	17'-6"
	9 1/2"	16'-5"	15'-6"	15'-0"	15'-1"	17'-9"	16'-9"	16'-3"	16'-4"	16'-5"	15'-6"	15'-0"	15'-1"
PWI 70	11 7/8"	18'-8"	17'-5"	16'-10"	17'-0"	20'-7"	19'-2"	18'-4"	18'-6"	18'-8"	17'-5"	16'-10"	17'-0"
	14"	20'-0"	19'-3"	18'-6"	18'-7"	22'-11"	21'-4"	20'-5"	20'-7"	20'-9"	19'-3"	18'-6"	18'-7"
	16"	22'-8"	21'-0"	20'-2"	20'-3"	25'-0"	23'-3"	22'-3"	21'-6"	22'-8"	21'-0"	20'-2"	20'-3"
PWI 77	11 7/8"	19'-1"	17'-9"	17'-2"	17'-3"	21'-1"	19'-7"	18'-9"	18'-11"	19'-1"	17'-9"	17'-2"	17'-3"
	14"	21'-3"	19'-9"	18'-11"	19'-0"	23'-6"	21'-10"	20'-11"	21'-0"	21'-3"	19'-9"	18'-11"	19'-0"
	16"	23'-2"	21'-6"	20'-7"	20'-9"	25'-7"	23'-9"	22'-9"	22'-11"	23'-2"	21'-6"	20'-7"	20'-9"
PWI 90	18"	25'-0"	23'-2"	22'-3"	22'-4"	27'-7"	25'-8"	24'-7"	23'-3"	25'-0"	23'-2"	22'-3"	22'-4"
	20"	26'-9"	24'-10"	23'-9"	23'-11"	29'-6"	27'-5"	26'-3"	23'-3"	26'-9"	24'-10"	23'-9"	23'-3"
	22"	28'-5"	26'-4"	25'-3"	25'-5"	31'-4"	29'-2"	27'-11"	28'-1"	28'-5"	26'-4"	25'-3"	25'-5"
PWI 90	24"	30'-0"	27'-10"	26'-8"	26'-10"	33'-6"	30'-9"	29'-6"	29'-8"	30'-0"	27'-10"	26'-8"	26'-10"
	9 1/2"	18'-0"	16'-11"	16'-4"	16'-5"	19'-11"	18'-5"	17'-8"	17'-9"	18'-0"	16'-11"	16'-4"	16'-5"
	11 7/8"	20'-10"	19'-3"	18'-5"	18'-6"	23'-0"	21'-4"	20'-4"	20'-5"	20'-10"	19'-3"	18'-5"	18'-6"
PWI 90	14"	23'-2"	21'-5"	20'-6"	20'-6"	25'-7"	23'-8"	22'-8"	22'-9"	23'-2"	21'-5"	20'-6"	20'-6"
	16"	25'-3"	23'-4"	22'-3"	22'-4"	27'-11"	25'-10"	24'-8"	24'-9"	25'-3"	23'-4"	22'-3"	22'-4"
	18"	27'-2"	25'-2"	24'-0"	24'-1"	30'-1"	27'-10"	26'-7"	26'-8"	27'-2"	25'-2"	24'-0"	24'-1"
PWI 90	20"	29'-1"	26'-10"	25'-8"	25'-9"	32'-2"	29'-9"	28'-5"	28'-6"	29'-1"	26'-10"	25'-8"	25'-9"
	22"	30'-10"	28'-6"	27'-3"	27'-4"	34'-10"	31'-7"	30'-2"	30'-3"	30'-10"	28'-6"	27'-3"	27'-4"
	24"	32'-9"	30'-1"	28'-9"	28'-10"	37'-5"	33'-10"	31'-10"	31'-11"	32'-9"	30'-1"	28'-9"	28'-10"

Notes:

- Table values apply to uniformly loaded, residential floor joists and standard term load duration.
- Span is measured from face to face of supports.
- Calculations have been carried out in accordance with CAN/CSA O86-01, O86S1-05 and the concluding report on vibration-controlled spans (September 4, 1997). Deflection, calculated on the basis of joist stiffness only, is limited to L/240 at total load and L/360 at live load. Vibration analysis is based on sheathing that is glued and nailed to the joists (23/32" panels for joists at 24" o.c. and 19/32" panels for joists at 19.2" o.c. and less, CAN/CGSB-71.26-M88 adhesive).
- Provide at least 1 3/4" of bearing length at end supports and 3 1/2" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. commercial floors, different bearing conditions, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE FLOOR SPAN TABLES

- Choose the appropriate unfactored live and dead load combination, ceiling condition, span condition and joist spacing.
- Scan down the spacing column to find a span that exceeds the design span.
- Scan to the left from that span to determine the joist size required.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST FLOOR SPANS

ALLOWABLE RESIDENTIAL FLOOR SPANS — 40 PSF LIVE LOAD AND 25 PSF DEAD LOAD DIRECTLY ATTACHED 1/2" GYPSUM CEILING

Joist Series	Joist Depth	Simple Span				Multiple Span				Simple or Multiple Spans			
		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.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9 1/2"	15'-4"	14'-6"	14'-0"	13'-0"	16'-7"	15'-8"	14'-11"	13'-4"	15'-4"	14'-6"	14'-0"	13'-0"
	11 1/8"	17'-3"	16'-4"	15'-10"	15'-3"	18'-10"	17'-8"	16'-11"	13'-6"	17'-3"	16'-4"	15'-10"	13'-6"
	14"	19'-0"	17'-9"	17'-3"	15'-8"	21'-0"	19'-7"	16'-11"	13'-6"	19'-0"	17'-9"	16'-11"	13'-6"
PWI 30	9 1/2"	15'-7"	14'-9"	14'-3"	13'-5"	16'-10"	15'-11"	15'-5"	12'-11"	15'-7"	14'-9"	14'-3"	12'-11"
	11 1/8"	17'-6"	16'-7"	16'-1"	16'-2"	19'-3"	17'-11"	16'-3"	12'-11"	17'-6"	16'-7"	16'-1"	12'-11"
PWI 40	9 1/2"	16'-0"	15'-1"	14'-7"	13'-11"	17'-3"	16'-4"	15'-6"	13'-10"	16'-0"	15'-1"	14'-7"	13'-10"
	11 1/8"	18'-0"	17'-0"	16'-5"	15'-11"	19'-10"	18'-6"	17'-9"	15'-10"	18'-0"	17'-0"	16'-5"	15'-10"
	14"	20'-0"	18'-7"	17'-10"	17'-5"	22'-11"	20'-6"	19'-6"	17'-0"	20'-0"	18'-7"	17'-10"	17'-0"
	16"	21'-9"	20'-3"	19'-5"	18'-10"	24'-1"	22'-5"	21'-0"	17'-0"	21'-9"	20'-3"	19'-5"	17'-0"
PWI 50	9 1/2"	15'-11"	15'-0"	14'-7"	13'-11"	17'-3"	16'-4"	15'-6"	13'-10"	15'-11"	15'-0"	14'-7"	13'-10"
	11 1/8"	17'-11"	16'-11"	16'-4"	16'-6"	19'-9"	18'-5"	17'-5"	13'-10"	17'-11"	16'-11"	16'-4"	13'-10"
	14"	20'-0"	18'-7"	17'-10"	17'-4"	22'-11"	20'-6"	17'-5"	13'-10"	20'-0"	18'-7"	17'-10"	13'-10"
	16"	21'-10"	20'-4"	19'-6"	17'-4"	24'-1"	20'-11"	17'-5"	13'-10"	21'-10"	20'-4"	17'-5"	13'-10"
PWI 60	9 1/2"	16'-5"	15'-6"	15'-0"	15'-1"	17'-9"	16'-3"	16'-3"	14'-8"	16'-5"	15'-6"	15'-0"	14'-8"
	11 1/8"	18'-8"	17'-5"	16'-10"	17'-0"	20'-7"	19'-2"	18'-4"	17'-0"	18'-8"	17'-5"	16'-10"	17'-0"
	14"	20'-9"	19'-3"	18'-6"	18'-7"	22'-11"	21'-4"	20'-5"	17'-0"	20'-9"	19'-3"	18'-6"	17'-0"
	16"	22'-8"	21'-0"	20'-2"	20'-3"	25'-0"	23'-3"	21'-4"	17'-0"	22'-8"	21'-0"	20'-2"	17'-0"
PWI 70	11 1/8"	19'-1"	17'-9"	17'-2"	17'-3"	21'-0"	19'-6"	18'-9"	15'-11"	19'-1"	17'-9"	17'-2"	15'-11"
	14"	21'-2"	19'-8"	18'-10"	18'-11"	23'-5"	21'-9"	19'-11"	15'-11"	21'-2"	19'-8"	18'-10"	15'-11"
	16"	23'-1"	21'-5"	20'-6"	19'-11"	25'-6"	23'-8"	19'-11"	15'-11"	23'-1"	21'-5"	19'-11"	15'-11"
	18"	24'-10"	23'-1"	22'-1"	19'-11"	27'-6"	24'-0"	19'-11"	15'-11"	24'-10"	23'-1"	19'-11"	15'-11"
	20"	26'-7"	24'-8"	23'-8"	19'-11"	29'-5"	24'-0"	19'-11"	15'-11"	26'-7"	24'-0"	19'-11"	15'-11"
PWI 77	9 1/2"	16'-10"	15'-10"	15'-4"	15'-5"	18'-3"	17'-2"	16'-7"	16'-8"	16'-10"	15'-10"	15'-4"	15'-5"
	11 1/8"	19'-1"	17'-9"	17'-2"	17'-3"	21'-1"	19'-7"	18'-9"	18'-5"	19'-1"	17'-9"	17'-2"	17'-3"
	14"	21'-3"	19'-9"	18'-11"	19'-0"	23'-6"	21'-10"	20'-11"	18'-5"	21'-3"	19'-9"	18'-11"	18'-5"
	16"	23'-2"	21'-6"	20'-7"	20'-9"	25'-7"	23'-9"	22'-9"	18'-5"	23'-2"	21'-6"	20'-7"	18'-5"
	18"	25'-0"	23'-2"	22'-3"	22'-0"	27'-7"	25'-8"	23'-1"	18'-5"	25'-0"	23'-2"	22'-3"	18'-5"
	20"	26'-9"	24'-10"	23'-9"	22'-0"	29'-6"	27'-5"	23'-1"	18'-5"	26'-9"	24'-10"	23'-1"	18'-5"
	22"	28'-5"	26'-4"	25'-3"	25'-5"	31'-4"	29'-2"	27'-11"	28'-1"	28'-5"	26'-4"	25'-3"	25'-5"
PWI 90	24"	30'-0"	27'-10"	26'-8"	26'-10"	33'-6"	30'-9"	29'-6"	28'-3"	30'-0"	27'-10"	26'-8"	26'-10"
	9 1/2"	18'-0"	16'-11"	16'-4"	16'-5"	19'-11"	18'-5"	17'-8"	17'-9"	18'-0"	16'-11"	16'-4"	16'-5"
	11 1/8"	20'-10"	19'-3"	18'-5"	18'-6"	23'-0"	21'-4"	20'-4"	20'-5"	20'-10"	19'-3"	18'-5"	18'-6"
	14"	23'-2"	21'-5"	20'-6"	20'-6"	25'-7"	23'-8"	22'-8"	22'-9"	23'-2"	21'-5"	20'-6"	20'-6"
	16"	25'-3"	23'-4"	22'-3"	22'-4"	27'-11"	25'-10"	24'-8"	22'-11"	25'-3"	23'-4"	22'-3"	22'-4"
	18"	27'-2"	25'-2"	24'-0"	24'-0"	30'-1"	27'-10"	26'-7"	22'-11"	27'-2"	25'-2"	24'-0"	22'-11"
	20"	29'-1"	26'-10"	25'-8"	24'-0"	32'-2"	29'-9"	28'-5"	22'-11"	29'-1"	26'-10"	25'-8"	22'-11"
	22"	30'-10"	28'-6"	27'-3"	27'-4"	34'-10"	31'-7"	30'-2"	30'-3"	30'-10"	28'-6"	27'-3"	27'-4"
	24"	32'-9"	30'-1"	28'-9"	28'-10"	37'-5"	33'-10"	31'-10"	31'-7"	32'-9"	30'-1"	28'-9"	28'-10"

See notes on page 6

PWI JOIST FLOOR SPANS

ALLOWABLE RESIDENTIAL FLOOR SPANS — 40 PSF LIVE LOAD AND 10 PSF DEAD LOAD NO DIRECTLY ATTACHED GYPSUM CEILING

Joist Series	Joist Depth	Simple Span				Multiple Span				Simple or Multiple Spans			
		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.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	14'-11"	14'-1"	13'-8"	13'-4"	16'-0"	15'-2"	14'-8"	14'-10"	14'-11"	14'-1"	13'-8"	13'-4"
	11⅞"	16'-9"	15'-10"	15'-4"	15'-6"	18'-1"	17'-1"	16'-6"	16'-9"	16'-9"	15'-10"	15'-4"	15'-6"
	14"	18'-3"	17'-3"	16'-8"	16'-10"	20'-2"	18'-9"	18'-0"	17'-1"	18'-3"	17'-3"	16'-8"	16'-10"
PWI 30	9½"	15'-1"	14'-3"	13'-10"	13'-10"	16'-3"	15'-5"	14'-11"	15'-1"	15'-1"	14'-3"	13'-10"	13'-10"
	11⅞"	17'-0"	16'-1"	15'-7"	15'-9"	18'-6"	17'-4"	16'-9"	16'-4"	17'-0"	16'-1"	15'-7"	15'-9"
	14"	18'-3"	17'-3"	16'-8"	16'-10"	20'-2"	18'-9"	18'-0"	17'-1"	18'-3"	17'-3"	16'-8"	16'-10"
PWI 40	9½"	15'-0"	14'-8"	14'-2"	14'-4"	16'-9"	15'-10"	15'-4"	15'-7"	15'-7"	14'-8"	14'-2"	14'-4"
	11⅞"	17'-5"	16'-6"	15'-11"	16'-1"	19'-1"	17'-9"	17'-2"	17'-4"	17'-5"	16'-6"	15'-11"	16'-1"
	14"	19'-3"	17'-11"	17'-4"	17'-6"	21'-3"	19'-9"	18'-11"	19'-1"	19'-3"	17'-11"	17'-4"	17'-6"
PWI 50	16"	21'-0"	19'-6"	18'-8"	18'-11"	23'-2"	21'-6"	20'-7"	20'-10"	21'-0"	19'-6"	18'-8"	18'-11"
	9½"	15'-6"	14'-7"	14'-2"	14'-4"	16'-9"	15'-10"	15'-4"	15'-7"	15'-6"	14'-8"	14'-2"	14'-4"
	11⅞"	17'-5"	16'-5"	15'-11"	16'-1"	19'-0"	17'-9"	17'-2"	17'-4"	17'-5"	16'-5"	15'-11"	16'-1"
PWI 60	14"	19'-3"	17'-11"	17'-4"	17'-6"	21'-3"	19'-9"	18'-11"	17'-6"	19'-3"	17'-11"	17'-4"	17'-6"
	16"	21'-0"	19'-6"	18'-9"	18'-11"	23'-2"	21'-6"	20'-8"	17'-6"	21'-0"	19'-6"	18'-9"	17'-6"
	9½"	16'-0"	15'-1"	14'-7"	14'-9"	17'-3"	16'-4"	15'-9"	15'-11"	16'-0"	15'-1"	14'-7"	14'-9"
PWI 70	11⅞"	18'-0"	17'-0"	16'-5"	16'-7"	19'-10"	18'-5"	17'-9"	17'-10"	18'-0"	17'-0"	16'-5"	16'-7"
	14"	20'-1"	18'-7"	17'-10"	18'-0"	22'-2"	20'-6"	19'-9"	19'-10"	20'-1"	18'-7"	17'-10"	18'-0"
	16"	21'-10"	20'-3"	19'-5"	19'-7"	24'-2"	22'-5"	21'-5"	21'-6"	21'-10"	20'-3"	19'-5"	19'-7"
PWI 77	11⅞"	18'-5"	17'-3"	16'-8"	16'-10"	20'-4"	18'-10"	18'-1"	18'-3"	18'-5"	17'-3"	16'-8"	16'-10"
	14"	20'-6"	19'-0"	18'-2"	18'-5"	22'-7"	21'-0"	20'-1"	20'-1"	20'-6"	19'-0"	18'-2"	18'-5"
	16"	22'-4"	20'-8"	19'-10"	20'-0"	24'-8"	22'-10"	21'-10"	20'-1"	22'-4"	20'-8"	19'-10"	20'-0"
PWI 90	18"	24'-1"	22'-3"	21'-4"	21'-6"	26'-7"	24'-7"	23'-7"	20'-1"	24'-1"	22'-3"	21'-4"	20'-1"
	20"	25'-9"	23'-10"	22'-9"	23'-0"	28'-5"	26'-3"	25'-2"	20'-1"	25'-9"	23'-10"	22'-9"	20'-1"
	9½"	16'-5"	15'-6"	14'-11"	15'-1"	17'-8"	16'-8"	16'-2"	16'-3"	16'-5"	15'-6"	14'-11"	15'-1"
PWI 77	11⅞"	18'-6"	17'-4"	16'-9"	16'-11"	20'-5"	18'-11"	18'-2"	18'-4"	18'-6"	17'-4"	16'-9"	16'-11"
	14"	20'-7"	19'-1"	18'-4"	18'-6"	22'-9"	21'-1"	20'-2"	20'-4"	20'-7"	19'-1"	18'-4"	18'-6"
	16"	22'-5"	20'-9"	19'-11"	20'-1"	24'-9"	22'-11"	22'-0"	22'-2"	22'-5"	20'-9"	19'-11"	20'-1"
PWI 90	18"	24'-2"	22'-5"	21'-5"	21'-7"	26'-8"	24'-9"	23'-8"	23'-3"	24'-2"	22'-5"	21'-5"	21'-7"
	20"	25'-10"	23'-11"	22'-11"	23'-1"	28'-6"	26'-5"	25'-4"	23'-3"	25'-10"	23'-11"	22'-11"	23'-1"
	22"	27'-6"	25'-5"	24'-4"	24'-6"	30'-4"	28'-1"	26'-10"	27'-1"	27'-6"	25'-5"	24'-4"	24'-6"
PWI 90	24"	29'-0"	26'-10"	25'-8"	25'-11"	32'-1"	29'-8"	28'-5"	28'-7"	29'-0"	26'-10"	25'-8"	25'-11"
	9½"	17'-7"	16'-7"	16'-0"	16'-1"	19'-4"	17'-11"	17'-3"	17'-5"	17'-7"	16'-7"	16'-0"	16'-1"
	11⅞"	20'-3"	18'-9"	17'-11"	18'-1"	22'-5"	20'-8"	19'-9"	19'-11"	20'-3"	18'-9"	17'-11"	18'-1"
PWI 90	14"	22'-6"	20'-10"	19'-11"	20'-0"	24'-11"	23'-0"	22'-0"	22'-1"	22'-6"	20'-10"	19'-11"	20'-0"
	16"	24'-6"	22'-8"	21'-8"	21'-9"	27'-1"	25'-0"	23'-11"	24'-1"	24'-6"	22'-8"	21'-8"	21'-9"
	18"	26'-5"	24'-5"	23'-4"	23'-5"	29'-2"	27'-0"	25'-9"	25'-11"	26'-5"	24'-5"	23'-4"	23'-5"
PWI 90	20"	28'-3"	26'-1"	24'-11"	25'-0"	31'-3"	28'-10"	27'-6"	27'-8"	28'-3"	26'-1"	24'-11"	25'-0"
	22"	30'-0"	27'-8"	26'-5"	26'-6"	33'-7"	30'-7"	29'-2"	29'-4"	30'-0"	27'-8"	26'-5"	26'-6"
	24"	31'-8"	29'-2"	27'-11"	28'-0"	36'-1"	32'-5"	30'-10"	31'-0"	31'-8"	29'-2"	27'-11"	28'-0"

Notes:

- Table values apply to uniformly loaded, residential floor joists and standard term load duration.
- Span is measured from face to face of supports.
- Calculations have been carried out in accordance with CAN/CSA O86-01, O86S1-05 and the concluding report on vibration-controlled spans (September 4, 1997). Deflection, calculated on the basis of joist stiffness only, is limited to L/240 at total load and L/360 at live load. Vibration analysis is based on sheathing that is glued and nailed to the joists (23/32" panels for joists at 24" o.c. and 19/32" panels for joists at 19.2" o.c. and less, CAN/CGSB-71.26-M88 adhesive).
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. commercial floors, different bearing conditions, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE FLOOR SPAN TABLES

- Choose the appropriate unfactored live and dead load combination, ceiling condition, span condition and joist spacing.
- Scan down the spacing column to find a span that exceeds the design span.
- Scan to the left from that span to determine the joist size required.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST FLOOR SPANS

**ALLOWABLE RESIDENTIAL FLOOR SPANS — 40 PSF LIVE LOAD AND 25 PSF DEAD LOAD
NO DIRECTLY ATTACHED GYPSUM CEILING**

Joist Series	Joist Depth	Simple Span				Multiple Span				Simple or Multiple Spans			
		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.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	14'-11"	14'-1"	13'-8"	13'-0"	16'-0"	15'-2"	14'-8"	13'-4"	14'-11"	14'-1"	13'-8"	13'-0"
	11⅞"	16'-9"	15'-10"	15'-4"	15'-3"	18'-1"	17'-1"	16'-6"	13'-6"	16'-9"	15'-10"	15'-4"	13'-6"
	14"	18'-3"	17'-3"	16'-8"	15'-8"	20'-2"	18'-9"	16'-11"	13'-6"	18'-3"	17'-3"	16'-8"	13'-6"
PWI 30	9½"	15'-1"	14'-3"	13'-10"	13'-5"	16'-3"	15'-5"	14'-11"	12'-11"	15'-1"	14'-3"	13'-10"	12'-11"
	11⅞"	17'-0"	16'-1"	15'-7"	15'-9"	18'-6"	17'-4"	16'-3"	12'-11"	17'-0"	16'-1"	15'-7"	12'-11"
PWI 40	9½"	15'-6"	14'-8"	14'-2"	13'-11"	16'-8"	15'-10"	15'-4"	13'-10"	15'-6"	14'-8"	14'-2"	13'-10"
	11⅞"	17'-5"	16'-6"	15'-11"	15'-11"	19'-1"	17'-9"	17'-2"	15'-10"	17'-5"	16'-6"	15'-11"	15'-10"
	14"	19'-3"	17'-11"	17'-4"	17'-5"	21'-3"	19'-9"	18'-11"	17'-0"	19'-3"	17'-11"	17'-4"	17'-0"
PWI 50	16"	21'-0"	19'-6"	18'-8"	18'-10"	23'-2"	21'-6"	20'-7"	17'-0"	21'-0"	19'-6"	18'-8"	17'-0"
	9½"	15'-6"	14'-7"	14'-2"	13'-11"	16'-8"	15'-9"	15'-4"	13'-10"	15'-6"	14'-7"	14'-2"	13'-10"
	11⅞"	17'-5"	16'-5"	15'-11"	16'-1"	19'-0"	17'-9"	17'-2"	13'-10"	17'-5"	16'-5"	15'-11"	13'-10"
PWI 60	14"	19'-3"	17'-11"	17'-4"	17'-4"	21'-3"	19'-9"	17'-5"	13'-10"	19'-3"	17'-11"	17'-4"	13'-10"
	16"	21'-0"	19'-6"	18'-9"	17'-4"	23'-2"	20'-11"	17'-5"	13'-10"	21'-0"	19'-6"	17'-5"	13'-10"
	9½"	16'-0"	15'-1"	14'-7"	14'-9"	17'-3"	16'-4"	15'-9"	14'-8"	16'-0"	15'-1"	14'-7"	14'-8"
PWI 70	11⅞"	18'-0"	17'-0"	16'-5"	16'-7"	19'-10"	18'-5"	17'-9"	17'-0"	18'-0"	17'-0"	16'-5"	16'-7"
	14"	20'-1"	18'-7"	17'-10"	18'-0"	22'-2"	20'-6"	19'-8"	17'-0"	20'-1"	18'-7"	17'-10"	17'-0"
	16"	21'-10"	20'-3"	19'-5"	19'-7"	24'-2"	22'-5"	21'-4"	17'-0"	21'-10"	20'-3"	19'-5"	17'-0"
PWI 77	11⅞"	18'-5"	17'-3"	16'-8"	16'-10"	20'-4"	18'-10"	18'-1"	15'-11"	18'-5"	17'-3"	16'-8"	15'-11"
	14"	20'-6"	19'-0"	18'-2"	18'-5"	22'-7"	21'-0"	19'-11"	15'-11"	20'-6"	19'-0"	18'-2"	15'-11"
	16"	22'-4"	20'-8"	19'-10"	19'-11"	24'-8"	22'-10"	19'-11"	15'-11"	22'-4"	20'-8"	19'-10"	15'-11"
PWI 90	18"	24'-1"	22'-3"	21'-4"	19'-11"	26'-7"	24'-0"	19'-11"	15'-11"	24'-1"	22'-3"	19'-11"	15'-11"
	20"	25'-9"	23'-10"	22'-9"	19'-11"	28'-5"	24'-0"	19'-11"	15'-11"	25'-9"	23'-10"	19'-11"	15'-11"
	9½"	16'-5"	15'-6"	14'-11"	15'-1"	17'-8"	16'-8"	16'-2"	16'-3"	16'-5"	15'-6"	14'-11"	15'-1"
PWI 97	11⅞"	18'-6"	17'-4"	16'-9"	16'-11"	20'-5"	18'-11"	18'-2"	18'-4"	18'-6"	17'-4"	16'-9"	16'-11"
	14"	20'-7"	19'-1"	18'-4"	18'-6"	22'-9"	21'-1"	20'-2"	18'-5"	20'-7"	19'-1"	18'-4"	18'-5"
	16"	22'-5"	20'-9"	19'-11"	20'-1"	24'-9"	22'-11"	22'-0"	18'-5"	22'-5"	20'-9"	19'-11"	18'-5"
PWI 100	18"	24'-2"	22'-5"	21'-5"	21'-7"	26'-8"	24'-9"	23'-1"	18'-5"	24'-2"	22'-5"	21'-5"	18'-5"
	20"	25'-10"	23'-11"	22'-11"	22'-0"	28'-6"	26'-5"	23'-1"	18'-5"	25'-10"	23'-11"	22'-11"	18'-5"
	22"	27'-6"	25'-5"	24'-4"	24'-6"	30'-4"	28'-1"	26'-10"	27'-1"	27'-6"	25'-5"	24'-4"	24'-6"
PWI 110	24"	29'-0"	26'-10"	25'-8"	25'-11"	32'-1"	29'-8"	28'-5"	28'-3"	29'-0"	26'-10"	25'-8"	25'-11"
	9½"	17'-7"	16'-7"	16'-0"	16'-1"	19'-4"	17'-11"	17'-3"	17'-5"	17'-7"	16'-7"	16'-0"	16'-1"
	11⅞"	20'-3"	18'-9"	17'-11"	18'-1"	22'-5"	20'-8"	19'-9"	19'-11"	20'-3"	18'-9"	17'-11"	18'-1"
PWI 120	14"	22'-6"	20'-10"	19'-11"	20'-0"	24'-11"	23'-0"	22'-0"	22'-1"	22'-6"	20'-10"	19'-11"	20'-0"
	16"	24'-6"	22'-8"	21'-8"	21'-9"	27'-1"	25'-0"	23'-11"	22'-11"	24'-6"	22'-8"	21'-8"	21'-9"
	18"	26'-5"	24'-5"	23'-4"	23'-5"	29'-2"	27'-0"	25'-9"	22'-11"	26'-5"	24'-5"	23'-4"	22'-11"
PWI 130	20"	28'-3"	26'-1"	24'-11"	24'-0"	31'-3"	28'-10"	27'-6"	22'-11"	28'-3"	26'-1"	24'-11"	22'-11"
	22"	30'-0"	27'-8"	26'-5"	26'-6"	33'-7"	30'-7"	29'-2"	29'-4"	30'-0"	27'-8"	26'-5"	26'-6"
	24"	31'-8"	29'-2"	27'-11"	28'-0"	36'-1"	32'-5"	30'-10"	31'-0"	31'-8"	29'-2"	27'-11"	28'-0"

See notes on page 8

PWI JOIST FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 20									PWI 30									PWI 40								
	9½"			11⅞"			14"			9½"			11⅞"			9½"			11⅞"			14"			16"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	481	-	-	481	-	-	481	-	-	497	-	-	497	-	-	568	-	-	631	-	-	631	-	-	631
7	356	-	413	-	-	413	-	-	413	385	-	426	-	-	426	439	-	487	-	-	541	-	-	541	-	-	541
8	253	-	361	-	-	361	-	-	361	275	-	373	-	-	373	316	-	426	-	-	474	-	-	474	-	-	474
9	185	-	321	304	-	321	-	-	321	202	-	331	329	-	331	234	-	379	372	-	421	-	-	421	-	-	421
10	139	279	289	231	-	289	-	-	289	152	-	298	251	-	298	177	-	341	285	-	379	-	-	379	-	-	379
11	107	214	263	179	-	263	254	-	263	118	235	271	195	-	271	137	275	301	223	-	344	311	-	344	-	-	344
12	84	168	233	141	-	241	202	-	241	92	185	249	154	-	249	108	217	253	177	-	316	249	-	316	-	-	316
13	67	134	198	113	-	222	162	-	222	74	148	229	124	-	229	87	174	215	143	-	279	202	-	291	266	-	291
14	54	109	171	92	184	206	133	-	206	60	120	213	101	202	213	71	141	186	117	233	241	165	-	271	219	-	271
15	45	89	149	76	152	193	109	-	193	49	98	191	83	166	199	58	116	162	96	193	210	137	-	253	182	-	253
16	37	74	131	63	126	170	91	-	181	41	82	168	69	139	186	48	97	142	81	161	184	115	-	222	153	-	237
17				53	106	150	77	154	170				58	117	175				68	136	163	97	194	197	130	-	223
18				45	90	134	66	131	160				50	99	166				58	116	146	83	166	175	111	-	203
19				39	77	120	56	112	143				43	85	154				50	99	131	71	142	157	95	-	182
20				33	67	109	48	97	129				37	73	139				43	86	118	62	123	142	83	-	165
21							42	84	117													54	107	129	72	144	149
22							37	74	107													47	94	117	63	126	136
23							32	65	98													41	83	107	56	111	125
24							29	57	90													37	73	99	49	98	114
25																									44	88	105
26																									39	78	97
27																									35	70	90
28																									32	63	84
29																											
30																											

Notes:

- Table values apply to uniformly loaded floor joists and standard term load duration.
- Table values apply to simple or two-equal-multiple span joists. Span is measured to the center of each support.
- Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. The unfactored live load L/480 and total load L/240 columns are based on stiffness only. Stiffness added by glued or nailed sheathing has not been considered. Vibration has not been considered. The factored total load column is based on strength only.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE FLOOR LOAD TABLES

- Choose a joist spacing, then convert the unfactored live load, unfactored total load and factored total load from pounds per square foot of floor to pounds per lineal foot of joist. Joist Spacing [ft] x Load [psf] = Load [plf]

LOAD (POUNDS PER LINEAL FOOT)

Joist Spacing		Load (pounds per square foot)								
Inches	Feet	20	30	40	50	60	70	80	90	100
12	1	20	30	40	50	60	70	80	90	100
16	1.33	27	40	53	67	80	93	106	120	133
19.2	1.6	32	48	64	80	96	112	128	144	160
24	2	40	60	80	100	120	140	160	180	200

- Choose a span, then scan across that Joist Span row to find a joist size with sufficient stiffness and strength. All three load columns must be checked. Where the unfactored columns are blank, the factored column governs.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 50												PWI 60											
	9½"			11½"			14"			16"			9½"			11½"			14"			16"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	534	-	-	534	-	-	534	-	-	534	-	-	568	-	-	631	-	-	631	-	-	631
7	427	-	458	-	-	458	-	-	458	-	-	458	-	-	487	-	-	541	-	-	541	-	-	541
8	307	-	401	-	-	401	-	-	401	-	-	401	361	-	426	-	-	474	-	-	474	-	-	474
9	227	-	356	-	-	356	-	-	356	-	-	356	269	-	379	-	-	421	-	-	421	-	-	421
10	172	-	320	280	-	320	-	-	320	-	-	320	205	-	341	328	-	379	-	-	379	-	-	379
11	133	266	291	219	-	291	-	-	291	-	-	291	160	-	310	258	-	344	-	-	344	-	-	344
12	105	210	267	174	-	267	248	-	267	-	-	267	127	253	284	206	-	316	290	-	316	-	-	316
13	84	168	246	140	-	246	201	-	246	-	-	246	102	204	262	167	-	291	236	-	291	-	-	291
14	68	137	229	114	228	229	165	-	229	221	-	229	83	166	244	137	-	271	194	-	271	257	-	271
15	56	112	214	94	189	214	137	-	214	184	-	214	68	137	224	113	226	253	162	-	253	214	-	253
16	47	94	198	79	158	200	114	-	200	154	-	200	57	114	196	95	190	237	136	-	237	181	-	237
17				66	133	188	97	-	188	131	-	188				80	160	223	115	-	223	153	-	223
18				57	113	178	82	165	178	112	-	178				68	136	201	98	197	210	131	-	210
19				48	97	169	71	142	169	96	-	169				59	117	181	85	169	199	113	-	199
20				42	84	160	61	123	160	83	-	160				51	101	163	73	147	189	98	-	189
21							53	107	153	73	145	153							64	128	178	86	172	180
22							47	93	146	64	127	146							56	112	162	75	151	172
23							41	82	139	56	112	139							49	99	148	67	133	165
24							36	73	134	50	99	134							44	87	136	59	118	158
25										44	88	128										53	105	146
26										39	79	123										47	94	135
27										35	71	119										42	84	125
28										32	64	114										38	76	116
29																								
30																								

See notes on page 10

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 70														
	11½"			14"			16"			18"			20"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	610	-	-	610	-	-	610	-	-	610	-	-	610
7	-	-	523	-	-	523	-	-	523	-	-	523	-	-	523
8	-	-	458	-	-	458	-	-	458	-	-	458	-	-	458
9	-	-	407	-	-	407	-	-	407	-	-	407	-	-	407
10	354	-	366	-	-	366	-	-	366	-	-	366	-	-	366
11	280	-	333	-	-	333	-	-	333	-	-	333	-	-	333
12	224	-	305	-	-	305	-	-	305	-	-	305	-	-	305
13	182	-	282	255	-	282	-	-	282	-	-	282	-	-	282
14	149	-	262	210	-	262	-	-	262	-	-	262	-	-	262
15	124	-	244	175	-	244	231	-	244	-	-	244	-	-	244
16	104	208	229	148	-	229	195	-	229	-	-	229	-	-	229
17	88	176	215	125	-	215	166	-	215	211	-	215	-	-	215
18	75	150	203	107	-	203	142	-	203	182	-	203	-	-	203
19	65	129	193	92	185	193	123	-	193	157	-	193	-	-	193
20	56	112	183	80	160	183	107	-	183	137	-	183	170	-	183
21				70	140	174	93	-	174	120	-	174	149	-	174
22				61	123	166	82	164	166	105	-	166	131	-	166
23				54	108	159	72	144	159	93	-	159	116	-	159
24				48	96	153	64	128	153	83	-	153	103	-	153
25							57	114	146	74	-	146	92	-	146
26							51	102	141	66	132	141	83	-	141
27							46	92	136	59	118	136	74	-	136
28							41	83	131	53	107	131	67	-	131
29										48	97	126	61	121	126
30										44	88	122	55	110	122
31										40	80	118	50	100	118
32													46	92	114
33													42	84	111
34													38	77	108
35													35	71	105

See notes on page 10

PWI JOIST FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 77																							
	9½"			11⅞"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	676	-	-	676	-	-	676	-	-	676	-	-	676	-	-	676	-	-	1257	-	-	1257
7	560	-	580	-	-	580	-	-	580	-	-	580	-	-	580	-	-	580	-	-	1078	-	-	1078
8	407	-	507	-	-	507	-	-	507	-	-	507	-	-	507	-	-	507	-	-	943	-	-	943
9	304	-	451	-	-	451	-	-	451	-	-	451	-	-	451	-	-	451	-	-	838	-	-	838
10	232	-	406	366	-	406	-	-	406	-	-	406	-	-	406	-	-	406	-	-	754	-	-	754
11	181	361	369	288	-	369	-	-	369	-	-	369	-	-	369	-	-	369	-	-	686	-	-	686
12	143	286	338	230	-	338	322	-	338	-	-	338	-	-	338	-	-	338	-	-	629	-	-	629
13	115	230	312	186	-	312	262	-	312	-	-	312	-	-	312	-	-	312	-	-	580	-	-	580
14	94	187	290	152	-	290	216	-	290	284	-	290	-	-	290	-	-	290	532	-	539	-	-	539
15	77	155	270	126	253	270	180	-	270	237	-	270	-	-	270	-	-	270	449	-	503	-	-	503
16	65	129	254	106	212	254	151	-	254	200	-	254	-	-	254	-	-	254	381	-	472	452	-	472
17				89	179	239	128	-	239	170	-	239	217	-	239	-	-	239	326	-	444	388	-	444
18				76	152	225	109	218	225	145	-	225	186	-	225	-	-	225	281	-	419	335	-	419
19				65	131	214	94	188	214	125	-	214	161	-	214	200	-	214	244	-	397	291	-	397
20				57	113	203	81	163	203	109	-	203	140	-	203	174	-	203	212	-	377	254	-	377
21							71	142	193	95	190	193	122	-	193	153	-	193	186	-	359	223	-	359
22							62	124	184	83	167	184	107	-	184	134	-	184	164	328	343	197	-	343
23							55	110	176	73	147	176	95	-	176	119	-	176	145	291	315	174	-	328
24							49	97	169	65	130	169	84	168	169	105	-	169	129	258	289	155	310	314
25										58	116	162	75	150	162	94	-	162	115	231	267	139	277	290
26										52	104	156	67	134	156	84	-	156	103	207	246	124	249	268
27										47	93	150	60	120	150	76	-	150	93	186	229	112	224	249
28										42	84	145	54	109	145	68	137	145	84	168	212	101	202	231
29													49	98	140	62	124	140	76	152	198	92	183	216
30													45	89	135	56	112	135	69	138	185	83	166	202
31													41	81	131	51	102	131	63	126	173	76	152	189
32																47	93	127	57	115	163	69	139	177
33																43	85	123	53	105	153	63	127	167
34																39	78	119	48	96	144	58	117	157
35																36	72	116	44	89	136	54	107	148
36																			41	82	129	49	99	140
37																			38	76	122	46	91	132
38																			35	70	115	42	85	126
39																						39	78	119
40																						36	73	113
41																						34	68	108
42																						32	63	103

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 90																							
	9½"			11⅞"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	737	-	-	737	-	-	737	-	-	737	-	-	737	-	-	737	-	-	1263	-	-	1263
7	-	-	631	-	-	631	-	-	631	-	-	631	-	-	631	-	-	631	-	-	1082	-	-	1082
8	536	-	552	-	-	552	-	-	552	-	-	552	-	-	552	-	-	552	-	-	947	-	-	947
9	408	-	491	-	-	491	-	-	491	-	-	491	-	-	491	-	-	491	-	-	842	-	-	842
10	317	-	442	-	-	442	-	-	442	-	-	442	-	-	442	-	-	442	-	-	758	-	-	758
11	250	-	402	388	-	402	-	-	402	-	-	402	-	-	402	-	-	402	-	-	689	-	-	689
12	200	-	368	314	-	368	-	-	368	-	-	368	-	-	368	-	-	368	-	-	631	-	-	631
13	162	324	340	257	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	583	-	-	583
14	133	266	316	212	-	316	296	-	316	-	-	316	-	-	316	-	-	316	-	-	541	-	-	541
15	111	221	295	177	-	295	248	-	295	-	-	295	-	-	295	-	-	295	-	-	505	-	-	505
16	93	185	276	150	-	276	210	-	276	274	-	276	-	-	276	-	-	276	-	-	474	-	-	474
17				127	254	260	179	-	260	235	-	260	-	-	260	-	-	260	437	-	446	-	-	446
18				109	218	246	154	-	246	202	-	246	-	-	246	-	-	246	379	-	421	-	-	421
19				94	188	233	133	-	233	175	-	233	223	-	233	-	-	233	331	-	399	392	-	399
20				81	163	221	116	-	221	153	-	221	195	-	221	-	-	221	290	-	379	344	-	379
21							101	203	210	134	-	210	171	-	210	-	-	210	256	-	361	304	-	361
22							89	178	201	118	-	201	151	-	201	187	-	201	227	-	344	270	-	344
23							79	157	192	105	-	192	134	-	192	166	-	192	202	-	329	240	-	329
24							70	140	184	93	-	184	119	-	184	148	-	184	180	-	316	215	-	316
25										83	166	177	106	-	177	133	-	177	161	-	303	192	-	303
26										74	149	170	95	-	170	119	-	170	145	290	291	173	-	291
27										67	134	164	86	-	164	107	-	164	131	261	281	156	-	281
28										60	121	158	78	155	158	97	-	158	118	237	271	142	-	271
29													70	141	152	88	-	152	107	215	261	129	257	261
30													64	128	147	80	-	147	98	195	253	117	234	253
31													58	117	143	73	-	143	89	178	244	107	214	244
32																67	133	138	82	163	237	98	196	237
33																61	122	134	75	150	230	90	180	230
34																56	112	130	69	138	222	83	165	223
35																52	103	126	63	127	209	76	152	216
36																			58	117	198	70	141	210
37																			54	108	187	65	130	204
38																			50	100	177	60	121	193
39																						56	112	183
40																						52	104	174
41																						49	97	166
42																						45	91	158

PWI JOIST FLOOR LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 20								PWI 30								PWI 40																		
	9½"				11½"				14"				9½"				11½"				9½"				11½"				14"				16"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load		
6	-	-	419	-	-	419	-	-	419	-	-	401	-	-	401	-	-	455	-	-	526	-	-	526	-	-	526	-	-	526	-	-	526		
7	-	-	359	-	-	359	-	-	359	-	-	344	-	-	344	-	-	390	-	-	451	-	-	451	-	-	451	-	-	451	-	-	451		
8	-	-	314	-	-	314	-	-	314	-	-	301	-	-	301	-	-	341	-	-	395	-	-	395	-	-	395	-	-	395	-	-	395		
9	241	-	279	-	-	279	-	-	279	261	-	267	-	-	267	298	-	303	-	-	351	-	-	351	-	-	351	-	-	351	-	-	351		
10	184	-	251	-	-	251	-	-	251	200	-	241	-	-	241	230	-	273	-	-	316	-	-	316	-	-	316	-	-	316	-	-	316		
11	143	-	228	-	-	228	-	-	228	156	-	219	-	-	219	180	-	248	286	-	287	-	-	287	-	-	287	-	-	287	-	-	287		
12	113	-	209	187	-	209	-	-	209	124	-	200	-	-	200	144	-	227	230	-	263	-	-	263	-	-	263	-	-	263	-	-	263		
13	91	182	193	151	-	193	-	-	193	99	-	185	164	-	185	116	-	210	187	-	243	-	-	243	-	-	243	-	-	243	-	-	243		
14	74	148	171	124	-	179	176	-	179	81	162	172	135	-	172	95	-	186	154	-	225	216	-	225	216	-	225	-	-	225	-	-	225		
15	61	122	149	103	-	168	146	-	168	67	134	160	112	-	160	79	157	162	129	-	210	181	-	210	181	-	210	-	-	210	-	-	210		
16	51	102	131	86	-	157	123	-	157	56	112	150	94	-	150	66	132	142	108	-	184	153	-	197	-	-	197	-	-	197	-	-	197		
17				73	145	148	104	-	148				79	-	142				92	-	163	130	-	186	172	-	186	-	-	186	-	-	186		
18				62	124	134	89	-	140				68	-	134				78	-	146	111	-	175	148	-	175	-	-	175	-	-	175		
19				53	106	120	77	-	132				58	116	127				67	-	131	96	-	157	128	-	166	-	-	166	-	-	166		
20				46	92	109	66	-	126				50	101	120				58	117	118	83	-	142	111	-	158	-	-	158	-	-	158		
21							58	116	117										73	-	129	97	-	129	97	-	149	-	-	149	-	-	149		
22							51	101	107										64	-	117	86	-	117	86	-	136	-	-	136	-	-	136		
23							45	89	98										56	-	107	76	-	107	76	-	125	-	-	125	-	-	125		
24							40	79	90										50	-	99	67	-	99	67	-	114	-	-	114	-	-	114		
25																											60	-	105	-	-	105	-	-	105
26																											54	-	97	-	-	97	-	-	97
27																											48	-	90	-	-	90	-	-	90
28																											43	-	84	-	-	84	-	-	84
29																																			
30																																			
31																																			
32																																			
33																																			
34																																			
35																																			
36																																			
37																																			
38																																			
39																																			
40																																			
41																																			
42																																			

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 50												PWI 60																	
	9½"			11⅞"			14"			16"			9½"				11⅞"				14"				16"					
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load			
6	-	-	429	-	-	429	-	-	429	-	-	429	-	-	455	-	-	455	-	-	526	-	-	526	-	-	526	-	-	526
7	-	-	368	-	-	368	-	-	368	-	-	368	-	-	390	-	-	390	-	-	451	-	-	451	-	-	451	-	-	451
8	-	-	322	-	-	322	-	-	322	-	-	322	-	-	341	-	-	341	-	-	395	-	-	395	-	-	395	-	-	395
9	-	-	286	-	-	286	-	-	286	-	-	286	-	-	303	-	-	303	-	-	351	-	-	351	-	-	351	-	-	351
10	223	-	258	-	-	258	-	-	258	-	-	258	262	-	273	-	-	273	-	-	316	-	-	316	-	-	316	-	-	316
11	175	-	234	-	-	234	-	-	234	-	-	234	207	-	248	-	-	248	-	-	287	-	-	287	-	-	287	-	-	287
12	139	-	215	-	-	215	-	-	215	-	-	215	166	-	227	-	-	227	-	-	263	-	-	263	-	-	263	-	-	263
13	113	-	198	184	-	198	-	-	198	-	-	198	135	-	210	216	-	243	-	-	243	-	-	243	-	-	243	-	-	243
14	92	-	184	151	-	184	-	-	184	-	-	184	111	-	195	179	-	225	-	-	225	-	-	225	-	-	225	-	-	225
15	76	152	172	126	-	172	-	-	172	-	-	172	92	-	182	149	-	210	210	-	210	-	-	210	-	-	210	-	-	210
16	64	127	161	106	-	161	152	-	161	-	-	161	77	154	170	126	-	197	178	-	197	-	-	197	-	-	197	-	-	197
17				90	-	152	129	-	152	-	-	152				107	-	186	152	-	186	-	-	186	-	-	186	-	-	186
18				77	-	143	111	-	143	-	-	143				92	-	175	131	-	175	173	-	175	173	-	175	173	-	175
19				66	132	136	96	-	136	129	-	136				79	158	166	113	-	166	150	-	166	150	-	166	150	-	166
20				57	114	129	83	-	129	112	-	129				69	138	158	99	-	158	131	-	158	131	-	158	131	-	158
21							73	-	123	98	-	123							86	-	150	115	-	150	115	-	150	115	-	150
22							64	-	117	86	-	117							76	-	143	101	-	143	101	-	143	101	-	143
23							56	-	112	76	-	112							67	134	137	90	-	137	90	-	137	90	-	137
24							50	100	107	68	-	107							60	119	132	80	-	132	80	-	132	80	-	132
25										60	-	103										71	-	126	71	-	126	71	-	126
26										54	-	99										64	-	121	64	-	121	64	-	121
27										49	-	95										58	115	117	58	115	117	58	115	117
28										44	88	92										52	104	113	52	104	113	52	104	113
29																														
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PWI JOIST FLOOR LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 70														
	11 7/8"			14"			16"			18"			20"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	491	-	-	491	-	-	491	-	-	491	-	-	491
7	-	-	421	-	-	421	-	-	421	-	-	421	-	-	421
8	-	-	369	-	-	369	-	-	369	-	-	369	-	-	369
9	-	-	328	-	-	328	-	-	328	-	-	328	-	-	328
10	-	-	295	-	-	295	-	-	295	-	-	295	-	-	295
11	-	-	268	-	-	268	-	-	268	-	-	268	-	-	268
12	-	-	246	-	-	246	-	-	246	-	-	246	-	-	246
13	-	-	227	-	-	227	-	-	227	-	-	227	-	-	227
14	194	-	211	-	-	211	-	-	211	-	-	211	-	-	211
15	163	-	197	-	-	197	-	-	197	-	-	197	-	-	197
16	138	-	184	-	-	184	-	-	184	-	-	184	-	-	184
17	117	-	173	165	-	173	-	-	173	-	-	173	-	-	173
18	101	-	164	142	-	164	-	-	164	-	-	164	-	-	164
19	87	-	155	123	-	155	-	-	155	-	-	155	-	-	155
20	75	-	147	107	-	147	141	-	147	-	-	147	-	-	147
21				94	-	140	124	-	140	-	-	140	-	-	140
22				83	-	134	110	-	134	-	-	134	-	-	134
23				73	-	128	97	-	128	124	-	128	-	-	128
24				65	-	123	86	-	123	111	-	123	-	-	123
25							77	-	118	99	-	118	-	-	118
26							69	-	113	89	-	113	111	-	113
27							62	-	109	80	-	109	100	-	109
28							56	-	105	73	-	105	91	-	105
29										66	-	102	82	-	102
30										60	-	98	75	-	98
31										55	-	95	68	-	95
32													63	-	92
33													57	-	89
34													53	-	87
35													49	-	84
36															
37															
38															
39															
40															
41															
42															

Notes:

- Table values apply to uniformly loaded floor joists and standard term load duration.
- Table values apply to simple or two-equal-multiple span joists. Span is measured to the center of each support.
- Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. The unfactored live load L/480 and total load L/240 columns are based on stiffness only. Stiffness added by glued or nailed sheathing has not been considered. Vibration has not been considered. The factored total load column is based on strength only.
- Provide at least 1 3/4" of bearing length at end supports and 3 1/2" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE FLOOR LOAD TABLES

- Choose a joist spacing, then convert the unfactored live load, unfactored total load and factored total load from pounds per square foot of floor to pounds per lineal foot of joist. Joist Spacing [ft] x Load [psf] = Load [plf]

LOAD (POUNDS PER LINEAL FOOT)

Joist Spacing		Load (pounds per square foot)								
Inches	Feet	20	30	40	50	60	70	80	90	100
12	1	20	30	40	50	60	70	80	90	100
16	1.33	27	40	53	67	80	93	106	120	133
19.2	1.6	32	48	64	80	96	112	128	144	160
24	2	40	60	80	100	120	140	160	180	200

- Choose a span, then scan across that Joist Span row to find a joist size with sufficient stiffness and strength. All three load columns must be checked. Where the unfactored columns are blank, the factored column governs.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST FLOOR LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 77																							
	9½"			11⅝"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	-	-	868	-	-	868
7	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	-	-	744	-	-	744
8	-	-	425	-	-	425	-	-	425	-	-	425	-	-	425	-	-	425	-	-	651	-	-	651
9	-	-	378	-	-	378	-	-	378	-	-	378	-	-	378	-	-	378	-	-	579	-	-	579
10	296	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	521	-	-	521
11	234	-	309	-	-	309	-	-	309	-	-	309	-	-	309	-	-	309	-	-	474	-	-	474
12	187	-	284	-	-	284	-	-	284	-	-	284	-	-	284	-	-	284	-	-	434	-	-	434
13	152	-	262	241	-	262	-	-	262	-	-	262	-	-	262	-	-	262	-	-	401	-	-	401
14	125	-	243	200	-	243	-	-	243	-	-	243	-	-	243	-	-	243	-	-	372	-	-	372
15	104	208	227	167	-	227	-	-	227	-	-	227	-	-	227	-	-	227	-	-	347	-	-	347
16	87	174	213	141	-	213	198	-	213	-	-	213	-	-	213	-	-	213	-	-	326	-	-	326
17				120	-	200	169	-	200	-	-	200	-	-	200	-	-	200	-	-	306	-	-	306
18				103	-	189	145	-	189	-	-	189	-	-	189	-	-	189	-	-	289	-	-	289
19				88	177	179	126	-	179	166	-	179	-	-	179	-	-	179	-	-	274	-	-	274
20				77	154	170	110	-	170	145	-	170	-	-	170	-	-	170	-	-	260	-	-	260
21							96	-	162	127	-	162	-	-	162	-	-	162	244	-	248	-	-	248
22							84	-	155	112	-	155	143	-	155	-	-	155	217	-	237	-	-	237
23							75	-	148	99	-	148	127	-	148	-	-	148	193	-	226	-	-	226
24							66	132	142	88	-	142	113	-	142	141	-	142	172	-	217	206	-	217
25										79	-	136	101	-	136	127	-	136	154	-	208	184	-	208
26										71	-	131	91	-	131	114	-	131	139	-	200	166	-	200
27										64	-	126	82	-	126	102	-	126	125	-	193	150	-	193
28										57	115	122	74	-	122	93	-	122	113	-	186	136	-	186
29													67	-	117	84	-	117	103	-	180	124	-	180
30													61	-	113	77	-	113	94	-	174	113	-	174
31													56	-	110	70	-	110	86	-	168	103	-	168
32																64	-	106	78	157	163	94	-	163
33																59	-	103	72	144	153	86	-	158
34																54	-	100	66	132	144	80	-	153
35																50	-	97	61	122	136	73	147	148
36																			56	112	129	68	136	140
37																			52	104	122	63	125	132
38																			48	96	115	58	116	126
39																						54	108	119
40																						50	101	113
41																						47	94	108
42																						44	87	103

See notes on page 14

PWI JOIST FLOOR LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 90																															
	9½"				11⅞"				14"				16"				18"				20"				22"				24"			
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load		Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load		Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load		Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load		Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load		Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load		Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load					
6	-	-	602	-	-	-	706	-	-	-	706	-	-	-	706	-	-	-	706	-	-	-	969	-	969	-	-	969	-			
7	-	-	516	-	-	-	605	-	-	-	605	-	-	-	605	-	-	-	605	-	-	-	831	-	831	-	-	831	-			
8	-	-	451	-	-	-	530	-	-	-	530	-	-	-	530	-	-	-	530	-	-	-	727	-	727	-	-	727	-			
9	-	-	401	-	-	-	471	-	-	-	471	-	-	-	471	-	-	-	471	-	-	-	646	-	646	-	-	646	-			
10	-	-	361	-	-	-	424	-	-	-	424	-	-	-	424	-	-	-	424	-	-	-	581	-	581	-	-	581	-			
11	313	-	328	-	-	-	385	-	-	-	385	-	-	-	385	-	-	-	385	-	-	-	529	-	529	-	-	529	-			
12	254	-	301	-	-	-	353	-	-	-	353	-	-	-	353	-	-	-	353	-	-	-	485	-	485	-	-	485	-			
13	209	-	278	323	-	-	326	-	-	-	326	-	-	-	326	-	-	-	326	-	-	-	447	-	447	-	-	447	-			
14	173	-	258	270	-	-	303	-	-	-	303	-	-	-	303	-	-	-	303	-	-	-	415	-	415	-	-	415	-			
15	145	-	241	228	-	-	282	-	-	-	282	-	-	-	282	-	-	-	282	-	-	-	388	-	388	-	-	388	-			
16	123	-	226	194	-	-	265	-	-	-	265	-	-	-	265	-	-	-	265	-	-	-	363	-	363	-	-	363	-			
17				166	-	-	249	231	-	-	249	-	-	-	249	-	-	-	249	-	-	-	342	-	342	-	-	342	-			
18				143	-	-	235	200	-	-	235	-	-	-	235	-	-	-	235	-	-	-	323	-	323	-	-	323	-			
19				124	-	-	223	174	-	-	223	-	-	-	223	-	-	-	223	-	-	-	306	-	306	-	-	306	-			
20				109	-	-	212	153	-	-	212	199	-	-	212	-	-	-	212	-	-	-	291	-	291	-	-	291	-			
21								134	-	-	202	176	-	-	202	-	-	-	202	-	-	-	277	-	277	-	-	277	-			
22								119	-	-	193	156	-	-	193	-	-	-	193	-	-	-	264	-	264	-	-	264	-			
23								105	-	-	184	139	-	-	184	176	-	-	184	-	-	-	253	-	253	-	-	253	-			
24								94	-	-	177	124	-	-	177	157	-	-	177	234	-	-	242	-	242	-	-	242	-			
25												111	-	-	169	141	-	-	169	211	-	-	233	-	233	-	-	233	-			
26												100	-	-	163	127	-	-	163	158	-	-	224	-	224	-	-	224	-			
27												90	-	-	157	115	-	-	157	143	-	-	215	205	-	215	-	215	-			
28												82	-	-	151	104	-	-	151	129	-	-	208	187	-	208	-	208	-			
29															95	-	-	146	118	-	-	201	170	-	201	-	201	-				
30															86	-	-	141	108	-	-	194	156	-	194	-	194	-				
31															79	-	-	137	98	-	-	188	143	-	188	-	188	-				
32																		90	-	-	132	110	-	182	131	-	182	-				
33																		83	-	-	128	101	-	176	121	-	176	-				
34																		76	-	-	125	93	-	171	111	-	171	-				
35																		70	-	-	121	86	-	166	103	-	166	-				
36																						79	159	162	95	-	162	-				
37																						74	147	157	88	-	157	-				
38																						68	137	153	82	-	153	-				
39																								76	-	149	-	149	-			
40																								71	142	145	-	145	-			
41																								66	133	142	-	142	-			
42																								62	124	133	-	133	-			

Notes:

- Table values apply to uniformly loaded floor joists and standard term load duration.
- Table values apply to simple or two-equal-multiple span joists. Span is measured to the center of each support.
- Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. The unfactored live load L/480 and total load L/240 columns are based on stiffness only. Stiffness added by glued or nailed sheathing has not been considered. Vibration has not been considered. The factored total load column is based on strength only.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE FLOOR LOAD TABLES

- Choose a joist spacing, then convert the unfactored live load, unfactored total load and factored total load from pounds per square foot of floor to pounds per lineal foot of joist. Joist Spacing [ft] x Load [psf] = Load [plf]

LOAD (POUNDS PER LINEAL FOOT)

Joist Spacing		Load (pounds per square foot)								
Inches	Feet	20	30	40	50	60	70	80	90	100
12	1	20	30	40	50	60	70	80	90	100
16	1.33	27	40	53	67	80	93	106	120	133
19.2	1.6	32	48	64	80	96	112	128	144	160
24	2	40	60	80	100	120	140	160	180	200

- Choose a span, then scan across that Joist Span row to find a joist size with sufficient stiffness and strength. All three load columns must be checked. Where the unfactored columns are blank, the factored column governs.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST FLOOR LOADS

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 20									PWI 30									PWI 40								
	9½"			11½"			14"			9½"			11½"			9½"			11½"			14"			16"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	419	-	-	419	-	-	419	-	-	401	-	-	401	-	-	455	-	-	526	-	-	526	-	-	526
7	356	-	359	-	-	359	-	-	359	-	-	344	-	-	344	-	-	390	-	-	451	-	-	451	-	-	451
8	253	-	314	-	-	314	-	-	314	275	-	301	-	-	301	316	-	341	-	-	395	-	-	395	-	-	395
9	185	-	279	-	-	279	-	-	279	202	-	267	-	-	267	234	-	303	-	-	351	-	-	351	-	-	351
10	139	-	251	231	-	251	-	-	251	152	-	241	-	-	241	177	-	273	285	-	316	-	-	316	-	-	316
11	107	214	228	179	-	228	-	-	228	118	-	219	195	-	219	137	-	248	223	-	287	-	-	287	-	-	287
12	84	168	209	141	-	209	202	-	209	92	185	200	154	-	200	108	217	227	177	-	263	249	-	263	-	-	263
13	67	134	193	113	-	193	162	-	193	74	148	185	124	-	185	87	174	210	143	-	243	202	-	243	-	-	243
14	54	109	171	92	-	179	133	-	179	60	120	172	101	-	172	71	141	186	117	-	225	165	-	225	219	-	225
15	45	89	149	76	152	168	109	-	168	49	98	160	83	-	160	58	116	162	96	193	210	137	-	210	182	-	210
16	37	74	131	63	126	157	91	-	157	41	82	150	69	139	150	48	97	142	81	161	184	115	-	197	153	-	197
17				53	106	148	77	-	148				58	117	142				68	136	163	97	-	186	130	-	186
18				45	90	134	66	131	140				50	99	134				58	116	146	83	166	175	111	-	175
19				39	77	120	56	112	132				43	85	127				50	99	131	71	142	157	95	-	166
20				33	67	109	48	97	126				37	73	120				43	86	118	62	123	142	83	-	158
21							42	84	117													54	107	129	72	144	149
22							37	74	107													47	94	117	63	126	136
23							32	65	98													41	83	107	56	111	125
24							29	57	90													37	73	99	49	98	114
25																									44	88	105
26																									39	78	97
27																									35	70	90
28																									32	63	84
29																											
30																											

See notes on page 16

PWI JOIST FLOOR LOADS

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 50												PWI 60											
	9½"			11½"			14"			16"			9½"			11½"			14"			16"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	429	-	-	429	-	-	429	-	-	429	-	-	455	-	-	526	-	-	526	-	-	526
7	-	-	368	-	-	368	-	-	368	-	-	368	-	-	390	-	-	451	-	-	451	-	-	451
8	307	-	322	-	-	322	-	-	322	-	-	322	-	-	341	-	-	395	-	-	395	-	-	395
9	227	-	286	-	-	286	-	-	286	-	-	286	269	-	303	-	-	351	-	-	351	-	-	351
10	172	-	258	-	-	258	-	-	258	-	-	258	205	-	273	-	-	316	-	-	316	-	-	316
11	133	-	234	219	-	234	-	-	234	-	-	234	160	-	248	258	-	287	-	-	287	-	-	287
12	105	210	215	174	-	215	-	-	215	-	-	215	127	-	227	206	-	263	-	-	263	-	-	263
13	84	168	198	140	-	198	-	-	198	-	-	198	102	204	210	167	-	243	236	-	243	-	-	243
14	68	137	184	114	-	184	165	-	184	-	-	184	83	166	195	137	-	225	194	-	225	-	-	225
15	56	112	172	94	-	172	137	-	172	-	-	172	68	137	182	113	-	210	162	-	210	-	-	210
16	47	94	161	79	158	161	114	-	161	154	-	161	57	114	170	95	190	197	136	-	197	181	-	197
17				66	133	152	97	-	152	131	-	152				80	160	186	115	-	186	153	-	186
18				57	113	143	82	-	143	112	-	143				68	136	175	98	-	175	131	-	175
19				48	97	136	71	-	136	96	-	136				59	117	166	85	-	166	113	-	166
20				42	84	129	61	123	129	83	-	129				51	101	158	73	147	158	98	-	158
21							53	107	123	73	-	123							64	128	150	86	-	150
22							47	93	117	64	-	117							56	112	143	75	-	143
23							41	82	112	56	-	112							49	99	137	67	133	137
24							36	73	107	50	99	107							44	87	132	59	118	132
25										44	88	103										53	105	126
26										39	79	99										47	94	121
27										35	71	95										42	84	117
28										32	64	92										38	76	113
29																								
30																								

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 70												18"						20"		
	11½"			14"			16"			18"			18"			20"			20"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load
6	-	-	491	-	-	491	-	-	491	-	-	491	-	-	491	-	-	491	-	-	491
7	-	-	421	-	-	421	-	-	421	-	-	421	-	-	421	-	-	421	-	-	421
8	-	-	369	-	-	369	-	-	369	-	-	369	-	-	369	-	-	369	-	-	369
9	-	-	328	-	-	328	-	-	328	-	-	328	-	-	328	-	-	328	-	-	328
10	-	-	295	-	-	295	-	-	295	-	-	295	-	-	295	-	-	295	-	-	295
11	-	-	268	-	-	268	-	-	268	-	-	268	-	-	268	-	-	268	-	-	268
12	224	-	246	-	-	246	-	-	246	-	-	246	-	-	246	-	-	246	-	-	246
13	182	-	227	-	-	227	-	-	227	-	-	227	-	-	227	-	-	227	-	-	227
14	149	-	211	210	-	211	-	-	211	-	-	211	-	-	211	-	-	211	-	-	211
15	124	-	197	175	-	197	-	-	197	-	-	197	-	-	197	-	-	197	-	-	197
16	104	-	184	148	-	184	-	-	184	-	-	184	-	-	184	-	-	184	-	-	184
17	88	-	173	125	-	173	166	-	173	-	-	173	-	-	173	-	-	173	-	-	173
18	75	150	164	107	-	164	142	-	164	-	-	164	-	-	164	-	-	164	-	-	164
19	65	129	155	92	-	155	123	-	155	-	-	155	-	-	155	-	-	155	-	-	155
20	56	112	147	80	-	147	107	-	147	137	-	147	-	-	147	-	-	147	-	-	147
21				70	140	140	93	-	140	120	-	140	-	-	140	-	-	140	-	-	140
22				61	123	134	82	-	134	105	-	134	131	-	134	131	-	134	-	-	134
23				54	108	128	72	-	128	93	-	128	116	-	128	116	-	128	-	-	128
24				48	96	123	64	-	123	83	-	123	103	-	123	103	-	123	-	-	123
25							57	114	118	74	-	118	92	-	118	92	-	118	-	-	118
26							51	102	113	66	-	113	83	-	113	83	-	113	-	-	113
27							46	92	109	59	-	109	74	-	109	74	-	109	-	-	109
28							41	83	105	53	-	105	67	-	105	67	-	105	-	-	105
29										48	97	102	61	-	102	61	-	102	-	-	102
30										44	88	98	55	-	98	55	-	98	-	-	98
31										40	80	95	50	-	95	50	-	95	-	-	95
32													46	92	92	46	92	92	-	-	92
33													42	84	89	42	84	89	-	-	89
34													38	77	87	38	77	87	-	-	87
35													35	71	84	35	71	84	-	-	84

See notes on page 16

LOW LOADS FOR FLOW

Joist Span (ft)	PWI 77																														
	9½"				11½"				14"				16"				18"				20"				22"				24"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load				
6	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	-	-	567	
7	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	-	-	486	
8	407	-	425	-	-	425	-	-	425	-	-	425	-	-	425	-	-	425	-	-	425	-	-	425	-	-	425	-	-	425	
9	304	-	378	-	-	378	-	-	378	-	-	378	-	-	378	-	-	378	-	-	378	-	-	378	-	-	378	-	-	378	
10	232	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	340	-	-	340	
11	181	-	309	288	-	309	-	-	309	-	-	309	-	-	309	-	-	309	-	-	309	-	-	309	-	-	309	-	-	309	
12	143	-	284	230	-	284	-	-	284	-	-	284	-	-	284	-	-	284	-	-	284	-	-	284	-	-	284	-	-	284	
13	115	230	262	186	-	262	-	-	262	-	-	262	-	-	262	-	-	262	-	-	262	-	-	262	-	-	262	-	-	262	
14	94	187	243	152	-	243	216	-	243	-	-	243	-	-	243	-	-	243	-	-	243	-	-	243	-	-	243	-	-	243	
15	77	155	227	126	-	227	180	-	227	-	-	227	-	-	227	-	-	227	-	-	227	-	-	227	-	-	227	-	-	227	
16	65	129	213	106	212	213	151	-	213	200	-	213	-	-	213	-	-	213	-	-	213	-	-	213	-	-	213	-	-	213	
17				89	179	200	128	-	200	170	-	200	-	-	200	-	-	200	-	-	200	-	-	200	-	-	200	-	-	200	
18				76	152	189	109	-	189	145	-	189	186	-	189	-	-	189	-	-	189	281	-	189	281	-	189	281	-	189	
19				65	131	179	94	-	179	125	-	179	161	-	179	-	-	179	-	-	179	244	-	179	244	-	179	244	-	179	
20				57	113	170	81	163	170	109	-	170	140	-	170	-	-	170	-	-	170	212	-	170	212	-	170	212	-	170	
21							71	142	162	95	-	162	122	-	162	153	-	162	153	-	162	186	-	162	186	-	162	186	-	162	
22							62	124	155	83	-	155	107	-	155	134	-	155	134	-	155	164	-	155	164	-	155	164	-	155	
23							55	110	148	73	147	148	95	-	148	119	-	148	119	-											

Joist Span (ft)	PWI 90																														
	9½"				11⅞"				14"				16"				18"				20"				22"				24"		
	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load	Unfactored Live Load L/480	Unfactored Total Load L/240	Factored Total Load				
6	-	-	602	-	-	706	-	-	706	-	-	706	-	-	706	-	-	706	-	-	969	-	-	969							
7	-	-	516	-	-	605	-	-	605	-	-	605	-	-	605	-	-	605	-	-	831	-	-	831							
8	-	-	451	-	-	530	-	-	530	-	-	530	-	-	530	-	-	530	-	-	727	-	-	727							
9	-	-	401	-	-	471	-	-	471	-	-	471	-	-	471	-	-	471	-	-	646	-	-	646							
10	317	-	361	-	-	424	-	-	424	-	-	424	-	-	424	-	-	424	-	-	581	-	-	581							
11	250	-	328	-	-	385	-	-	385	-	-	385	-	-	385	-	-	385	-	-	529	-	-	529							
12	200	-	301	314	-	353	-	-	353	-	-	353	-	-	353	-	-	353	-	-	485	-	-	485							
13	162	-	278	257	-	326	-	-	326	-	-	326	-	-	326	-	-	326	-	-	447	-	-	447							
14	133	-	258	212	-	303	296	-	303	-	-	303	-	-	303	-	-	303	-	-	415	-	-	415							
15	111	221	241	177	-	282	248	-	282	-	-	282	-	-	282	-	-	282	-	-	388	-	-	388							
16	93	185	226	150	-	265	210	-	265	-	-	265	-	-	265	-	-	265	-	-	363	-	-	363							
17				127	-	249	179	-	249	235	-	249	-	-	249	-	-	249	-	-	342	-	-	342							
18				109	218	235	154	-	235	202	-	235	-	-	235	-	-	235	-	-	323	-	-	323							
19				94	188	223	133	-	223	175	-	223	223	-	223	-	-	223	-	-	306	-	-	306							
20				81	163	212	116	-	212	153	-	212	195	-	212	-	-	212	290	-	291	-	-	291							
21							101	-	202	134	-	202	171	-	202	-	-	202	256	-	277	-	-	277							
22							89	178	193	118	-	193	151	-	193	187	-	193	227	-	264	-	-	264							
23							79	157	184	105	-	184	134	-	184	166	-	184	202	-	253	240	-	253							
24							70	140	177	93	-	177	119	-	177	148	-	177	180	-	242	215	-	242							
25										83	166	169	106	-	169	133	-	169	161	-	233	192	-	233							
26										74	149	163	95	-	163	119	-	163	145	-	224	173	-	224							
27										67	134	157	86	-	157	107	-	157	131	-	215	156	-	215							
28																															

19

PWI JOIST ROOF SPANS

ALLOWABLE SPANS FOR PWI JOISTS – 20 PSF SNOW LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span								
		Slopes to 4 in 12			Slopes to 8 in 12			Slopes to 12 in 12		
		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.
PWI 20	9½"	19'-3" (1)	18'-1" (2)	16'-9" (2)	18'-6" (2)	17'-4" (2)	16'-1" (3)	17'-4" (3)	16'-4" (3)	15'-1" (3)
	11⅞"	23'-3" (2)	21'-10" (2)	20'-3" (2)	22'-3" (3)	20'-11" (3)	19'-5" (3)	20'-11" (3)	19'-8" (3)	18'-3" (3)
	14"	26'-6" (2)	24'-11" (2)	22'-7" (2)	25'-5" (3)	23'-10" (3)	22'-0" (3)	23'-10" (3)	22'-5" (3)	20'-9" (3)
PWI 30	9½"	19'-11" (2)	18'-9" (2)	17'-4" (2)	19'-2" (2)	18'-0" (3)	16'-8" (3)	18'-0" (3)	16'-10" (3)	15'-8" (3)
	11⅞"	24'-1" (2)	22'-7" (2)	20'-11" (2)	23'-1" (3)	21'-8" (3)	20'-1" (3)	21'-8" (3)	20'-4" (3)	18'-10" (3)
	14"	28'-10" (2)	26'-6" (2)	23'-8" (2)	27'-8" (3)	25'-10" (3)	23'-1" (3)	26'-0" (3)	24'-5" (3)	22'-3" (3)
PWI 40	9½"	21'-2" (2)	19'-11" (2)	18'-5" (2)	20'-4" (2)	19'-1" (3)	17'-8" (3)	19'-1" (3)	17'-11" (3)	16'-7" (3)
	11⅞"	25'-5" (2)	23'-10" (2)	21'-7" (2)	24'-4" (3)	22'-10" (3)	21'-0" (3)	22'-10" (3)	21'-6" (3)	19'-11" (3)
	14"	28'-10" (2)	26'-6" (2)	23'-8" (2)	27'-8" (3)	25'-10" (3)	23'-1" (3)	26'-0" (3)	24'-5" (3)	22'-3" (3)
PWI 50	9½"	20'-11" (2)	19'-8" (2)	18'-2" (2)	20'-1" (2)	18'-10" (3)	17'-5" (3)	18'-10" (3)	17'-8" (3)	16'-5" (3)
	11⅞"	25'-2" (2)	23'-8" (2)	21'-11" (2)	24'-2" (3)	22'-8" (3)	21'-0" (3)	22'-8" (3)	21'-4" (3)	19'-9" (3)
	14"	28'-10" (2)	27'-1" (2)	25'-1" (2)	27'-7" (3)	25'-11" (3)	24'-0" (3)	25'-11" (3)	24'-5" (3)	22'-7" (3)
PWI 60	9½"	22'-6" (2)	21'-1" (2)	19'-6" (2)	21'-7" (3)	20'-3" (3)	18'-9" (3)	20'-3" (3)	19'-0" (3)	17'-7" (3)
	11⅞"	27'-0" (2)	25'-4" (2)	23'-5" (2)	25'-10" (3)	24'-4" (3)	22'-6" (3)	24'-4" (3)	22'-10" (3)	21'-2" (3)
	14"	30'-9" (2)	28'-10" (2)	26'-9" (3)	29'-6" (3)	27'-8" (3)	25'-8" (3)	27'-8" (3)	26'-0" (3)	24'-1" (3)
PWI 70	9½"	34'-2" (2)	32'-1" (2)	29'-8" (3)	32'-9" (3)	30'-9" (3)	28'-6" (3)	30'-9" (3)	28'-11" (3)	26'-9" (3)
	11⅞"	38'-6" (2)	36'-2" (3)	33'-6" (3)	36'-11" (3)	34'-8" (3)	32'-1" (3)	34'-8" (3)	32'-7" (3)	30'-2" (3)
	14"	41'-8" (3)	39'-2" (3)	36'-3" (3)	40'-0" (3)	37'-7" (3)	34'-8" (3)	37'-7" (3)	35'-4" (3)	32'-3" (4)
PWI 77	9½"	23'-6" (2)	22'-0" (2)	20'-5" (2)	22'-6" (3)	21'-2" (3)	19'-7" (3)	21'-2" (3)	19'-10" (3)	18'-5" (3)
	11⅞"	28'-0" (2)	26'-4" (2)	24'-4" (2)	26'-10" (3)	25'-3" (3)	23'-4" (3)	25'-3" (3)	23'-8" (3)	21'-11" (3)
	14"	31'-10" (2)	29'-11" (2)	27'-8" (3)	30'-7" (3)	28'-8" (3)	26'-7" (3)	28'-8" (3)	27'-0" (3)	25'-0" (3)
PWI 90	9½"	35'-4" (2)	33'-2" (3)	30'-9" (3)	33'-11" (3)	31'-10" (3)	29'-6" (3)	31'-10" (3)	29'-11" (3)	27'-8" (3)
	11⅞"	38'-8" (2)	36'-4" (3)	33'-8" (3)	37'-1" (3)	34'-10" (3)	32'-3" (3)	34'-10" (3)	32'-9" (3)	30'-4" (3)
	14"	41'-11" (3)	39'-4" (3)	36'-6" (3)	40'-2" (3)	37'-9" (3)	35'-0" (3)	37'-9" (3)	35'-6" (3)	32'-10" (4)
PWI 90	16"	45'-1" (3)	42'-4" (3)	39'-2" (3)	43'-2" (3)	40'-7" (3)	37'-7" (3)	40'-7" (3)	38'-2" (3)	35'-4" (4)
	18"	48'-2" (3)	45'-3" (3)	41'-11" (3)	46'-2" (3)	43'-4" (3)	40'-2" (3)	43'-4" (3)	40'-9" (4)	37'-9" (4)
	20"	51'-2" (3)	48'-1" (3)	44'-6" (3)	49'-1" (3)	46'-1" (3)	42'-8" (4)	46'-1" (3)	43'-4" (4)	40'-1" (4)
PWI 90	22"	54'-7" (3)	51'-3" (3)	47'-6" (3)	52'-4" (3)	49'-2" (3)	45'-7" (4)	49'-2" (4)	46'-2" (4)	42'-10" (4)
	24"									

Notes:

- Table values apply to uniformly loaded roof joists, sloped at least ¼" in 12", and standard term load duration.
- Span is measured on the horizontal from face to face of supports.
- Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. Deflection, calculated on the basis of joist stiffness only, is limited to L/180 at total load and L/360 at live load.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- The numbers in parentheses refer to the minimum connection required at each support.
 - Beveled plate and two 2½" nails (205 lbs. factored lateral resistance)
 - Beveled plate and four 2½" nails (415 lbs. factored lateral resistance), or (3)
 - Gussets at high support (1245 lbs. factored lateral resistance), birdsmouth cut at low support, or (4)
 - Strap (2030 lbs. factored lateral resistance) or pair of twist straps (1175 lbs. factored lateral resistance each) at high support, birdsmouth cut at low support
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing conditions, concentrated loads, multiple span joists).

HOW TO USE ROOF SPAN TABLES

- Choose the appropriate unfactored live and dead load combination, maximum roof slope and joist spacing.
- Scan down the spacing column to find a span that exceeds the horizontal design span. Note the minimum connection required at each support.
- Scan to the left from that span to determine the joist size required.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST ROOF SPANS

ALLOWABLE SPANS FOR PWI JOISTS – 30 PSF SNOW LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span								
		Slopes to 4 in 12			Slopes to 8 in 12			Slopes to 12 in 12		
		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.
PWI 20	9½"	16'-9" (2)	15'-9" (2)	14'-6" (2)	16'-1" (2)	15'-1" (3)	13'-11" (3)	15'-3" (3)	14'-4" (3)	13'-3" (3)
	11⅞"	20'-3" (2)	19'-0" (2)	17'-7" (2)	19'-5" (3)	18'-2" (3)	16'-10" (3)	18'-5" (3)	17'-3" (3)	16'-0" (3)
	14"	23'-1" (2)	21'-8" (2)	19'-10" (2)	22'-1" (3)	20'-9" (3)	19'-2" (3)	21'-0" (3)	19'-8" (3)	18'-3" (3)
PWI 30	9½"	17'-4" (2)	16'-3" (2)	15'-1" (2)	16'-8" (3)	15'-7" (3)	14'-5" (3)	15'-9" (3)	14'-10" (3)	13'-9" (3)
	11⅞"	20'-11" (2)	19'-7" (2)	18'-2" (2)	20'-1" (3)	18'-10" (3)	17'-5" (3)	19'-0" (3)	17'-10" (3)	16'-7" (3)
	14"	23'-1" (2)	21'-8" (2)	19'-10" (2)	22'-1" (3)	20'-9" (3)	19'-2" (3)	21'-0" (3)	19'-8" (3)	18'-3" (3)
PWI 40	9½"	18'-5" (2)	17'-3" (2)	16'-0" (2)	17'-8" (3)	16'-7" (3)	15'-4" (3)	16'-9" (3)	15'-9" (3)	14'-7" (3)
	11⅞"	22'-1" (2)	20'-9" (2)	18'-11" (2)	21'-2" (3)	19'-11" (3)	18'-5" (3)	20'-1" (3)	18'-11" (3)	17'-6" (3)
	14"	25'-1" (2)	23'-3" (2)	20'-9" (3)	24'-1" (3)	22'-7" (3)	20'-4" (3)	22'-10" (3)	21'-5" (3)	19'-9" (3)
PWI 50	9½"	18'-2" (2)	17'-1" (2)	15'-9" (2)	17'-5" (3)	16'-5" (3)	15'-2" (3)	16'-7" (3)	15'-7" (3)	14'-5" (3)
	11⅞"	21'-11" (2)	20'-9" (2)	19'-0" (2)	21'-0" (3)	19'-9" (3)	18'-3" (3)	19'-11" (3)	18'-9" (3)	17'-4" (3)
	14"	25'-1" (2)	23'-6" (2)	21'-9" (3)	24'-0" (3)	22'-7" (3)	20'-11" (3)	22'-10" (3)	21'-5" (3)	19'-10" (3)
PWI 60	9½"	19'-6" (2)	18'-4" (2)	16'-11" (2)	18'-9" (3)	17'-7" (3)	16'-3" (3)	17'-10" (3)	16'-9" (3)	15'-6" (3)
	11⅞"	23'-5" (2)	22'-0" (2)	20'-4" (2)	22'-6" (3)	21'-1" (3)	19'-6" (3)	21'-4" (3)	20'-1" (3)	18'-7" (3)
	14"	26'-9" (2)	25'-1" (2)	23'-2" (3)	25'-8" (3)	24'-1" (3)	22'-3" (3)	24'-4" (3)	22'-10" (3)	21'-2" (3)
PWI 70	9½"	29'-8" (2)	27'-11" (3)	25'-9" (3)	28'-6" (3)	26'-9" (3)	24'-9" (3)	27'-1" (3)	25'-5" (3)	23'-6" (3)
	11⅞"	34'-3" (2)	32'-9" (2)	30'-1" (3)	33'-3" (3)	31'-10" (3)	28'-3" (3)	32'-1" (3)	30'-9" (3)	28'-3" (3)
	14"	38'-7" (2)	36'-11" (3)	34'-1" (3)	37'-7" (3)	35'-4" (3)	32'-8" (3)	35'-8" (3)	33'-6" (4)	31'-1" (4)
PWI 77	9½"	20'-5" (2)	19'-2" (2)	17'-8" (2)	19'-7" (3)	18'-4" (3)	17'-0" (3)	18'-7" (3)	17'-5" (3)	16'-2" (3)
	11⅞"	24'-4" (2)	22'-10" (2)	21'-2" (3)	23'-4" (3)	21'-11" (3)	20'-4" (3)	22'-2" (3)	20'-10" (3)	19'-3" (3)
	14"	27'-8" (2)	26'-0" (3)	24'-1" (3)	26'-7" (3)	25'-0" (3)	23'-1" (3)	25'-3" (3)	23'-8" (3)	21'-11" (3)
PWI 90	9½"	23'-4" (2)	21'-10" (2)	20'-3" (3)	22'-5" (3)	21'-0" (3)	19'-5" (3)	21'-3" (3)	20'-0" (3)	18'-6" (3)
	11⅞"	27'-10" (2)	26'-1" (3)	24'-1" (3)	26'-8" (3)	25'-1" (3)	23'-2" (3)	25'-4" (3)	23'-10" (3)	22'-0" (3)
	14"	31'-7" (3)	29'-8" (3)	27'-5" (3)	30'-4" (3)	28'-6" (3)	26'-4" (3)	28'-10" (3)	27'-1" (3)	25'-0" (4)
PWI 90	16"	35'-0" (3)	32'-10" (3)	30'-4" (3)	33'-7" (3)	31'-6" (3)	29'-2" (3)	31'-11" (3)	29'-11" (3)	27'-9" (4)
	18"	38'-3" (3)	35'-11" (3)	33'-3" (3)	36'-9" (3)	34'-6" (3)	31'-11" (3)	34'-10" (3)	32'-9" (4)	30'-4" (4)
	20"	41'-5" (3)	38'-11" (3)	33'-11" (3)	39'-9" (3)	37'-4" (3)	32'-6" (3)	37'-9" (4)	35'-5" (4)	30'-9" (4)
PWI 90	22"	44'-6" (3)	41'-9" (3)	38'-8" (3)	42'-8" (3)	40'-1" (3)	37'-1" (4)	40'-6" (4)	38'-1" (4)	35'-3" (4)
	24"	47'-6" (3)	44'-7" (3)	41'-3" (3)	45'-7" (3)	42'-9" (4)	39'-7" (4)	43'-3" (4)	40'-8" (4)	37'-8" (4)

See notes on page 20

PWI JOIST ROOF SPANS

ALLOWABLE SPANS FOR PWI JOISTS – 50 PSF SNOW LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span								
		Slopes to 4 in 12			Slopes to 8 in 12			Slopes to 12 in 12		
		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.
PWI 20	9½"	14'-0" (2)	13'-2" (2)	12'-1" (2)	13'-5" (3)	12'-7" (3)	11'-8" (3)	12'-9" (3)	12'-0" (3)	11'-1" (3)
	11⅞"	16'-11" (2)	15'-10" (2)	14'-8" (3)	16'-3" (3)	15'-3" (3)	14'-1" (3)	15'-5" (3)	14'-6" (3)	13'-5" (3)
	14"	19'-3" (2)	18'-1" (3)	15'-1" (3)	18'-6" (3)	17'-4" (3)	14'-7" (3)	17'-7" (3)	16'-6" (3)	14'-0" (3)
PWI 30	9½"	14'-6" (2)	13'-7" (2)	12'-7" (2)	13'-11" (3)	13'-1" (3)	12'-1" (3)	13'-3" (3)	12'-5" (3)	11'-6" (3)
	11⅞"	17'-6" (2)	16'-5" (2)	15'-2" (3)	16'-9" (3)	15'-9" (3)	14'-7" (3)	15'-11" (3)	15'-0" (3)	13'-10" (3)
	14"	21'-0" (3)	19'-2" (3)	17'-2" (3)	20'-2" (3)	18'-11" (3)	16'-11" (3)	19'-2" (3)	18'-0" (3)	16'-6" (3)
PWI 40	9½"	15'-5" (2)	14'-5" (2)	13'-4" (2)	14'-9" (3)	13'-10" (3)	12'-10" (3)	14'-1" (3)	13'-2" (3)	12'-2" (3)
	11⅞"	18'-5" (2)	17'-4" (3)	15'-7" (3)	17'-9" (3)	16'-8" (3)	15'-4" (3)	16'-10" (3)	15'-10" (3)	14'-7" (3)
	14"	22'-8" (3)	20'-8" (3)	18'-5" (3)	22'-4" (3)	20'-4" (3)	18'-2" (3)	21'-3" (3)	19'-11" (3)	17'-10" (4)
PWI 50	9½"	15'-2" (2)	14'-3" (2)	13'-2" (2)	14'-7" (3)	13'-8" (3)	12'-8" (3)	13'-11" (3)	13'-0" (3)	12'-0" (3)
	11⅞"	18'-4" (2)	17'-2" (3)	15'-10" (3)	17'-7" (3)	16'-6" (3)	15'-3" (3)	16'-9" (3)	15'-8" (3)	14'-6" (3)
	14"	20'-11" (3)	19'-8" (3)	16'-9" (3)	20'-1" (3)	18'-11" (3)	16'-3" (3)	19'-1" (3)	17'-11" (3)	15'-7" (3)
PWI 60	9½"	16'-4" (2)	15'-4" (2)	14'-1" (3)	15'-8" (3)	14'-8" (3)	13'-7" (3)	14'-11" (3)	14'-0" (3)	12'-11" (3)
	11⅞"	19'-7" (2)	18'-4" (3)	16'-11" (3)	18'-10" (3)	17'-8" (3)	16'-4" (3)	17'-11" (3)	16'-10" (3)	15'-6" (3)
	14"	22'-4" (3)	20'-11" (3)	19'-4" (3)	21'-6" (3)	20'-2" (3)	18'-7" (3)	20'-5" (3)	19'-2" (3)	17'-10" (4)
PWI 70	9½"	17'-1" (2)	16'-0" (2)	14'-9" (3)	16'-4" (3)	15'-4" (3)	14'-2" (3)	15'-7" (3)	14'-7" (3)	13'-6" (3)
	11⅞"	20'-4" (2)	19'-1" (3)	17'-8" (3)	19'-7" (3)	18'-4" (3)	17'-0" (3)	18'-7" (3)	17'-5" (3)	16'-2" (3)
	14"	23'-2" (3)	21'-9" (3)	20'-1" (3)	22'-3" (3)	20'-11" (3)	19'-4" (3)	21'-2" (3)	19'-10" (3)	18'-4" (4)
PWI 77	16"	25'-9" (3)	24'-2" (3)	21'-3" (3)	24'-8" (3)	23'-2" (3)	20'-7" (3)	23'-6" (3)	22'-0" (4)	19'-10" (4)
	18"	28'-2" (3)	26'-5" (3)	21'-3" (3)	27'-1" (3)	25'-5" (3)	20'-7" (3)	25'-8" (3)	24'-2" (4)	19'-10" (4)
	20"	30'-6" (3)	26'-7" (3)	21'-3" (3)	29'-4" (3)	25'-10" (3)	20'-7" (3)	27'-10" (4)	24'-9" (4)	19'-10" (4)
PWI 90	22"	32'-10" (3)	30'-10" (3)	28'-6" (3)	31'-6" (3)	29'-7" (4)	27'-5" (4)	29'-11" (4)	28'-2" (4)	26'-0" (4)
	24"	35'-1" (3)	32'-11" (3)	30'-5" (3)	33'-8" (3)	31'-8" (4)	29'-3" (4)	32'-0" (4)	30'-1" (4)	27'-10" (4)
PWI 90	9½"	19'-6" (2)	18'-3" (3)	16'-10" (3)	18'-9" (3)	17'-7" (3)	16'-2" (3)	17'-10" (3)	16'-8" (3)	15'-5" (3)
	11⅞"	23'-3" (3)	21'-9" (3)	20'-1" (3)	22'-4" (3)	20'-11" (3)	19'-4" (3)	21'-3" (3)	19'-11" (3)	18'-5" (4)
	14"	26'-5" (3)	24'-9" (3)	22'-10" (3)	25'-5" (3)	23'-10" (3)	22'-0" (3)	24'-2" (3)	22'-8" (4)	20'-11" (4)
PWI 90	16"	29'-3" (3)	27'-5" (3)	23'-2" (3)	28'-1" (3)	26'-5" (3)	22'-6" (3)	26'-9" (4)	25'-1" (4)	21'-7" (4)
	18"	32'-0" (3)	29'-0" (3)	23'-2" (3)	30'-9" (3)	28'-2" (3)	22'-6" (3)	29'-3" (4)	27'-0" (4)	21'-7" (4)
	20"	34'-8" (3)	29'-0" (3)	23'-2" (3)	33'-4" (3)	28'-2" (3)	22'-6" (3)	31'-8" (4)	27'-0" (4)	21'-7" (4)
PWI 90	22"	37'-3" (3)	34'-11" (3)	32'-3" (3)	35'-9" (4)	33'-7" (4)	31'-1" (4)	34'-0" (4)	31'-11" (4)	28'-1" (4)
	24"	39'-9" (3)	37'-4" (3)	34'-6" (3)	38'-2" (4)	35'-10" (4)	33'-2" (4)	36'-4" (4)	34'-1" (4)	28'-1" (4)

See notes on page 22

ALLOWABLE SPANS FOR PWI JOISTS – 60 PSF SNOW LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span								
		Slopes to 4 in 12			Slopes to 8 in 12			Slopes to 12 in 12		
		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.
PWI 20	9½"	13'-2" (2)	12'-4" (2)	11'-4" (2)	12'-7" (3)	11'-10" (3)	10'-11" (3)	12'-0" (3)	11'-3" (3)	10'-5" (3)
	11⅞"	15'-10" (2)	14'-10" (3)	13'-0" (3)	14'-3" (3)	12'-8" (3)	14'-6" (3)	14'-6" (3)	13'-7" (3)	12'-2" (3)
	14"	18'-1" (3)	16'-3" (3)	13'-0" (3)	17'-4" (3)	15'-10" (3)	12'-8" (3)	16'-6" (3)	15'-4" (3)	12'-2" (3)
PWI 30	9½"	13'-7" (2)	12'-9" (2)	11'-9" (2)	13'-1" (3)	12'-3" (3)	11'-4" (3)	12'-5" (3)	11'-8" (3)	10'-9" (3)
	11⅞"	16'-5" (2)	15'-4" (3)	13'-5" (3)	15'-9" (3)	14'-9" (3)	13'-1" (3)	15'-0" (3)	14'-1" (3)	12'-7" (3)
PWI 40	9½"	14'-5" (2)	13'-6" (2)	12'-6" (3)	13'-10" (3)	13'-0" (3)	12'-0" (3)	13'-2" (3)	12'-4" (3)	11'-5" (3)
	11⅞"	17'-4" (2)	16'-2" (3)	14'-6" (3)	16'-8" (3)	15'-7" (3)	14'-3" (3)	15'-10" (3)	14'-10" (3)	13'-8" (3)
	14"	19'-6" (3)	17'-10" (3)	15'-11" (3)	18'-11" (3)	17'-7" (3)	15'-8" (3)	18'-0" (3)	16'-10" (3)	15'-5" (4)
PWI 50	16"	21'-0" (3)	19'-2" (3)	17'-1" (3)	20'-9" (3)	18'-11" (3)	16'-8" (3)	20'-0" (3)	18'-7" (3)	16'-1" (4)
	9½"	14'-3" (2)	13'-4" (2)	12'-4" (3)	13'-8" (3)	12'-10" (3)	11'-10" (3)	13'-0" (3)	12'-3" (3)	11'-3" (3)
	11⅞"	17'-2" (2)	16'-1" (3)	14'-5" (3)	16'-6" (3)	15'-6" (3)	14'-1" (3)	15'-8" (3)	14'-9" (3)	13'-7" (3)
	14"	19'-8" (3)	18'-1" (3)	14'-5" (3)	18'-11" (3)	17'-7" (3)	14'-1" (3)	17'-11" (3)	16'-10" (3)	13'-7" (3)
PWI 60	16"	21'-8" (3)	18'-1" (3)	14'-5" (3)	21'-1" (3)	17'-7" (3)	14'-1" (3)	20'-0" (3)	17'-0" (3)	13'-7" (3)
	9½"	15'-4" (2)	14'-4" (2)	13'-3" (3)	14'-8" (3)	13'-9" (3)	12'-9" (3)	14'-0" (3)	13'-1" (3)	12'-1" (3)
	11⅞"	18'-4" (3)	17'-2" (3)	15'-10" (3)	17'-8" (3)	16'-7" (3)	15'-3" (3)	16'-10" (3)	15'-9" (3)	14'-7" (3)
	14"	20'-11" (3)	19'-8" (3)	17'-1" (3)	20'-2" (3)	18'-11" (3)	16'-8" (3)	19'-2" (3)	18'-0" (3)	16'-1" (4)
PWI 70	16"	23'-4" (3)	21'-5" (3)	17'-1" (3)	22'-5" (3)	20'-10" (3)	16'-8" (3)	21'-4" (3)	20'-0" (4)	16'-1" (4)
	11⅞"	19'-0" (3)	17'-10" (3)	16'-5" (3)	18'-3" (3)	17'-2" (3)	15'-10" (3)	17'-5" (3)	16'-4" (3)	15'-1" (4)
	14"	21'-8" (3)	20'-3" (3)	16'-6" (3)	20'-10" (3)	19'-6" (3)	16'-1" (3)	19'-9" (3)	18'-7" (3)	15'-6" (4)
	16"	24'-0" (3)	20'-8" (3)	16'-6" (3)	23'-1" (3)	20'-2" (3)	16'-1" (3)	21'-11" (3)	19'-5" (4)	15'-6" (4)
	18"	24'-10" (3)	20'-8" (3)	16'-6" (3)	24'-3" (3)	20'-2" (3)	16'-1" (3)	23'-5" (4)	19'-5" (4)	15'-6" (4)
PWI 77	20"	24'-10" (3)	20'-8" (3)	16'-6" (3)	24'-3" (3)	20'-2" (3)	16'-1" (3)	23'-5" (4)	19'-5" (4)	15'-6" (4)
	9½"	16'-0" (2)	15'-0" (3)	13'-10" (3)	15'-4" (3)	14'-5" (3)	13'-3" (3)	14'-7" (3)	13'-8" (3)	12'-8" (3)
	11⅞"	19'-1" (3)	17'-11" (3)	16'-6" (3)	18'-4" (3)	17'-3" (3)	15'-11" (3)	17'-5" (3)	16'-4" (3)	15'-2" (4)
	14"	21'-9" (3)	20'-5" (3)	18'-3" (3)	20'-11" (3)	19'-7" (3)	17'-10" (3)	19'-10" (3)	18'-8" (3)	17'-3" (4)
	16"	24'-2" (3)	22'-7" (3)	18'-3" (3)	23'-2" (3)	21'-9" (3)	17'-10" (3)	22'-0" (3)	20'-8" (4)	17'-3" (4)
	18"	26'-5" (3)	22'-11" (3)	18'-3" (3)	25'-5" (3)	22'-4" (3)	17'-10" (3)	24'-2" (4)	21'-7" (4)	17'-3" (4)
	20"	27'-6" (3)	22'-11" (3)	18'-3" (3)	26'-10" (3)	22'-4" (3)	17'-10" (3)	25'-11" (4)	21'-7" (4)	17'-3" (4)
PWI 90	22"	30'-10" (3)	28'-11" (3)	26'-8" (3)	29'-7" (3)	27'-9" (4)	25'-8" (4)	28'-2" (4)	26'-5" (4)	24'-5" (4)
	24"	32'-11" (3)	30'-11" (3)	28'-7" (3)	31'-8" (4)	29'-8" (4)	30'-1" (4)	28'-3" (4)	24'-5" (4)	
	9½"	18'-3" (3)	17'-1" (3)	15'-9" (3)	17'-7" (3)	16'-5" (3)	15'-2" (3)	16'-8" (3)	15'-8" (3)	14'-6" (3)
	11⅞"	21'-9" (3)	20'-5" (3)	18'-10" (3)	20'-11" (3)	19'-8" (3)	18'-2" (3)	19'-11" (3)	18'-8" (3)	17'-3" (4)
	14"	24'-9" (3)	23'-2" (3)	19'-11" (3)	23'-10" (3)	22'-4" (3)	19'-5" (3)	22'-8" (4)	21'-3" (4)	18'-9" (4)
	16"	27'-5" (3)	25'-0" (3)	19'-11" (3)	26'-5" (3)	24'-4" (3)	19'-5" (3)	25'-1" (4)	23'-6" (4)	18'-9" (4)
	18"	30'-0" (3)	25'-0" (3)	19'-11" (3)	28'-10" (3)	24'-4" (3)	19'-5" (3)	27'-5" (4)	23'-6" (4)	18'-9" (4)
PWI 90	20"	30'-0" (3)	25'-0" (3)	19'-11" (3)	29'-3" (3)	24'-4" (3)	19'-5" (3)	28'-3" (4)	23'-6" (4)	18'-9" (4)
	22"	34'-11" (3)	32'-9" (3)	30'-3" (3)	33'-7" (4)	31'-6" (4)	29'-1" (4)	31'-11" (4)	30'-0" (4)	24'-5" (4)
	24"	37'-4" (3)	35'-0" (3)	32'-4" (3)	35'-10" (4)	33'-7" (4)	31'-1" (4)	34'-1" (4)	30'-7" (4)	24'-5" (4)

Notes:

1. Table values apply to uniformly loaded roof joists, sloped at least 1/4" in 12", and standard term load duration.
2. Span is measured on the horizontal from face to face of supports.
3. Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. Deflection, calculated on the basis of joist stiffness only, is limited to L/180 at total load and L/360 at live load.
4. Provide at least 1 3/4" of bearing length at end supports and 3 1/2" at intermediate supports.
5. The numbers in parentheses refer to the minimum connection required at each support.
 - (1) Beveled plate and two 2 1/2" nails (205 lbs. factored lateral resistance)
 - (2) Beveled plate and four 2 1/2" nails (415 lbs. factored lateral resistance), or (3)
 - (3) Gussets at high support (1245 lbs. factored lateral resistance), birdsmouth cut at low support, or (4)
 - (4) Strap (2030 lbs. factored lateral resistance) or pair of twist straps (1175 lbs. factored lateral resistance each) at high support, birdsmouth cut at low support
6. Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
7. Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing conditions, concentrated loads, multiple span joists).

HOW TO USE ROOF SPAN TABLES

1. Choose the appropriate unfactored live and dead load combination, maximum roof slope and joist spacing.
2. Scan down the spacing column to find a span that exceeds the horizontal design span. Note the minimum connection required at each support.
3. Scan to the left from that span to determine the joist size required.
4. Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST LOW-SLOPE ROOF SPANS

ALLOWABLE SPANS FOR PWI JOISTS – 20 PSF SNOW LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span Slopes to 1 in 12			Multiple Spans Slopes to 1 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	19'-7" (1)	18'-5" (1)	17'-0" (1)	21'-10" (1)	20'-6" (1)	18'-3" (1)
	11⅞"	23'-7" (1)	22'-2" (1)	20'-6" (1)	25'-7" (1)	23'-4" (1)	20'-10" (2)
	14"	26'-11" (1)	25'-3" (1)	22'-10" (1)	27'-11" (1)	25'-6" (2)	22'-9" (2)
PWI 30	9½"	20'-3" (1)	19'-0" (1)	17'-7" (1)	22'-8" (1)	21'-3" (1)	19'-8" (1)
	11⅞"	24'-5" (1)	22'-11" (1)	21'-3" (1)	27'-4" (1)	25'-7" (2)	23'-7" (2)
	14"	28'-11" (1)	26'-11" (1)	24'-10" (1)	31'-10" (1)	29'-10" (2)	26'-10" (2)
PWI 40	9½"	21'-6" (1)	20'-2" (1)	18'-8" (1)	23'-5" (1)	21'-4" (1)	19'-1" (1)
	11⅞"	25'-10" (1)	24'-3" (1)	21'-10" (1)	26'-8" (1)	24'-4" (1)	21'-9" (2)
	14"	29'-4" (1)	26'-9" (1)	23'-11" (1)	29'-3" (1)	26'-9" (2)	23'-10" (2)
PWI 50	9½"	31'-7" (1)	28'-10" (1)	25'-9" (1)	31'-7" (2)	28'-9" (2)	25'-9" (2)
	11⅞"	35'-11" (1)	32'-10" (1)	29'-10" (1)	35'-11" (2)	32'-10" (2)	29'-10" (2)
	14"	39'-4" (1)	36'-9" (1)	33'-11" (1)	39'-4" (2)	36'-9" (2)	33'-11" (2)
PWI 60	9½"	33'-7" (1)	30'-8" (1)	28'-4" (1)	36'-6" (2)	32'-9" (2)	28'-4" (2)
	11⅞"	38'-11" (1)	35'-11" (1)	33'-11" (1)	41'-10" (2)	37'-10" (2)	33'-11" (2)
	14"	42'-4" (1)	39'-9" (1)	36'-10" (1)	45'-0" (2)	41'-3" (2)	37'-6" (2)
PWI 70	9½"	36'-11" (1)	33'-9" (1)	31'-3" (1)	40'-2" (2)	37'-8" (2)	34'-7" (2)
	11⅞"	41'-10" (1)	38'-11" (1)	36'-10" (1)	45'-0" (2)	41'-3" (2)	37'-6" (2)
	14"	45'-5" (1)	42'-10" (1)	40'-8" (1)	49'-5" (2)	45'-5" (2)	41'-10" (2)
PWI 77	9½"	39'-3" (1)	36'-11" (1)	34'-2" (1)	43'-11" (2)	41'-3" (2)	38'-11" (2)
	11⅞"	44'-8" (1)	41'-10" (1)	39'-10" (1)	48'-6" (2)	45'-11" (2)	42'-10" (2)
	14"	48'-11" (1)	45'-11" (1)	42'-6" (1)	52'-6" (2)	47'-11" (2)	45'-11" (2)
PWI 90	9½"	42'-7" (1)	40'-0" (1)	37'-0" (1)	47'-7" (2)	43'-4" (2)	40'-8" (2)
	11⅞"	47'-11" (1)	44'-8" (1)	42'-1" (1)	52'-11" (2)	48'-6" (2)	45'-5" (2)
	14"	51'-5" (1)	48'-10" (1)	45'-2" (1)	56'-5" (2)	51'-5" (2)	48'-10" (2)
PWI 99	9½"	46'-11" (1)	43'-9" (1)	40'-2" (1)	50'-4" (2)	45'-11" (2)	42'-10" (2)
	11⅞"	51'-5" (1)	48'-10" (1)	45'-2" (1)	56'-5" (2)	51'-5" (2)	48'-10" (2)
	14"	55'-9" (1)	52'-1" (1)	48'-3" (1)	60'-9" (2)	55'-9" (2)	52'-1" (2)

Notes:

- Table values apply to uniformly loaded roof joists, sloped at least ¼" in 12", and standard term load duration.
- Span is measured on the horizontal from face to face of supports.
- Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. Deflection, calculated on the basis of joist stiffness only, is limited to L/180 at total load and L/360 at live load.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- The numbers in parentheses refer to the minimum connection required at each support.
 - Beveled plate and two 2½" nails (205 lbs. factored lateral resistance), or joist hangers at end supports
 - Beveled plate and four 2½" nails (415 lbs. factored lateral resistance) at intermediate supports, two 2½" nails or joist hangers at end supports
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing conditions, concentrated loads), or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE LOW-SLOPE ROOF SPAN TABLES

- Choose the appropriate unfactored live and dead load combination, roof slope and a joist spacing.
- Scan down the spacing column to find a span that exceeds the horizontal design span and the minimum connection required at each support.
- Scan to the left from that span to determine the joist size required.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

LOW-SLOPE ROOF SPANS

Joist Series	Joist Depth	Simple Span			Multiple Spans		
		Slopes to 1 in 12			Slopes to 1 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	15'-5" (1)	14'-5" (1)	13'-4" (1)	17'-2" (1)	16'-1" (2)	14'-4" (2)
	11⅞"	18'-7" (1)	17'-5" (1)	16'-1" (1)	20'-1" (2)	18'-4" (2)	15'-8" (2)
	14"	21'-2" (1)	19'-10" (1)	17'-11" (1)	21'-11" (2)	19'-8" (2)	15'-8" (2)
PWI 30	9½"	15'-11" (1)	14'-11" (1)	13'-9" (1)	17'-9" (1)	16'-7" (2)	15'-0" (2)
	11⅞"	19'-2" (1)	18'-0" (1)	16'-8" (1)	21'-5" (2)	18'-10" (2)	15'-0" (2)
PWI 40	9½"	16'-11" (1)	15'-10" (1)	14'-8" (1)	18'-4" (1)	16'-9" (2)	14'-11" (2)
	11⅞"	20'-3" (1)	19'-0" (1)	17'-1" (1)	20'-11" (2)	19'-1" (2)	17'-0" (2)
	14"	23'-0" (1)	21'-0" (1)	18'-10" (1)	23'-0" (2)	21'-0" (2)	18'-9" (2)
PWI 50	16"	24'-10" (1)	22'-8" (1)	20'-3" (1)	24'-9" (2)	22'-7" (2)	19'-9" (2)
	9½"	16'-8" (1)	15'-8" (1)	14'-5" (1)	18'-7" (2)	17'-5" (2)	16'-1" (2)
	11⅞"	20'-1" (1)	18'-10" (1)	17'-5" (1)	22'-5" (2)	20'-2" (2)	16'-1" (2)
	14"	23'-0" (1)	21'-7" (1)	19'-11" (1)	24'-3" (2)	20'-2" (2)	16'-1" (2)
	16"	25'-8" (1)	24'-1" (1)	20'-2" (1)	24'-3" (2)	20'-2" (2)	16'-1" (2)
PWI 60	9½"	17'-11" (1)	16'-10" (1)	15'-6" (1)	20'-0" (2)	18'-8" (2)	17'-1" (2)
	11⅞"	21'-6" (1)	20'-2" (1)	18'-8" (1)	24'-0" (2)	22'-6" (2)	19'-9" (2)
	14"	24'-6" (1)	23'-0" (1)	21'-3" (1)	27'-1" (2)	24'-8" (2)	19'-9" (2)
	16"	27'-3" (1)	25'-7" (1)	23'-8" (1)	29'-2" (2)	24'-9" (2)	19'-9" (2)
PWI 70	11⅞"	22'-3" (1)	20'-11" (1)	19'-3" (1)	24'-10" (2)	23'-1" (2)	18'-5" (2)
	14"	25'-4" (1)	23'-9" (1)	21'-11" (1)	27'-10" (2)	23'-1" (2)	18'-5" (2)
	16"	28'-1" (1)	26'-4" (1)	23'-1" (1)	27'-10" (2)	23'-1" (2)	18'-5" (2)
	18"	30'-9" (1)	28'-10" (1)	23'-1" (1)	27'-10" (2)	23'-1" (2)	18'-5" (2)
	20"	33'-4" (1)	28'-10" (1)	23'-1" (1)	27'-10" (2)	23'-1" (2)	18'-5" (2)
PWI 77	9½"	18'-9" (1)	17'-7" (1)	16'-3" (1)	20'-10" (2)	19'-6" (2)	18'-0" (2)
	11⅞"	22'-4" (1)	21'-0" (1)	19'-5" (1)	24'-11" (2)	23'-4" (2)	21'-4" (2)
	14"	25'-5" (1)	23'-11" (1)	22'-1" (1)	28'-5" (2)	26'-7" (2)	21'-4" (2)
	16"	28'-3" (1)	26'-6" (1)	24'-6" (1)	31'-6" (2)	26'-9" (2)	21'-4" (2)
	18"	30'-11" (1)	29'-0" (1)	25'-7" (1)	32'-1" (2)	26'-9" (2)	21'-4" (2)
	20"	33'-6" (1)	31'-5" (1)	25'-7" (1)	32'-1" (2)	26'-9" (2)	21'-4" (2)
	22"	36'-1" (1)	33'-10" (1)	31'-3" (2)	37'-9" (2)	31'-5" (2)	25'-1" (2)
PWI 90	24"	38'-6" (1)	36'-2" (1)	33'-5" (2)	37'-9" (2)	31'-5" (2)	25'-1" (2)
	9½"	21'-5" (1)	20'-1" (1)	18'-6" (1)	23'-10" (2)	22'-4" (2)	20'-7" (2)
	11⅞"	25'-6" (1)	23'-11" (1)	22'-1" (1)	28'-5" (2)	26'-8" (2)	24'-7" (2)
	14"	29'-0" (1)	27'-2" (1)	25'-2" (1)	32'-4" (2)	30'-4" (2)	25'-1" (2)
	16"	32'-2" (1)	30'-2" (1)	27'-10" (1)	35'-10" (2)	31'-5" (2)	25'-1" (2)
	18"	35'-2" (1)	33'-0" (1)	27'-10" (1)	37'-9" (2)	31'-5" (2)	25'-1" (2)
	20"	38'-1" (1)	34'-10" (1)	27'-10" (1)	37'-9" (2)	31'-5" (2)	25'-1" (2)
	22"	40'-11" (1)	38'-4" (1)	35'-5" (2)	37'-9" (2)	31'-5" (2)	25'-1" (2)
	24"	43'-8" (1)	40'-11" (2)	37'-10" (2)	37'-9" (2)	31'-5" (2)	25'-1" (2)

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PWI JOIST LOW-SLOPE ROOF SPANS

ALLOWABLE SPANS FOR PWI JOISTS – 50 PSF SNOW LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span			Multiple Spans		
		Slopes to 1 in 12			Slopes to 1 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	14'-3" (1)	13'-4" (1)	12'-4" (1)	15'-10" (2)	14'-8" (2)	13'-1" (2)
	11⅞"	17'-2" (1)	16'-1" (1)	14'-10" (1)	18'-5" (2)	16'-6" (2)	13'-2" (2)
	14"	19'-7" (1)	18'-4" (1)	15'-2" (1)	19'-10" (2)	16'-6" (2)	13'-2" (2)
PWI 30	9½"	14'-9" (1)	13'-9" (1)	12'-9" (1)	16'-4" (2)	15'-4" (2)	12'-7" (2)
	11⅞"	17'-9" (1)	16'-8" (1)	15'-4" (1)	19'-0" (2)	15'-9" (2)	12'-7" (2)
	14"	15'-7" (1)	14'-8" (1)	13'-6" (1)	16'-10" (2)	15'-4" (2)	13'-8" (2)
PWI 40	11⅞"	18'-9" (1)	17'-6" (1)	15'-8" (1)	19'-2" (2)	17'-6" (2)	15'-7" (2)
	14"	21'-1" (1)	19'-3" (1)	17'-3" (1)	21'-1" (2)	19'-2" (2)	16'-7" (2)
	16"	22'-9" (1)	20'-9" (1)	18'-7" (1)	22'-8" (2)	20'-8" (2)	16'-7" (2)
PWI 50	9½"	15'-5" (1)	14'-5" (1)	13'-4" (1)	17'-2" (2)	16'-1" (2)	13'-6" (2)
	11⅞"	18'-7" (1)	17'-5" (1)	16'-1" (1)	20'-4" (2)	16'-11" (2)	13'-6" (2)
	14"	21'-3" (1)	19'-11" (1)	16'-11" (1)	20'-4" (2)	16'-11" (2)	13'-6" (2)
PWI 60	9½"	16'-7" (1)	15'-6" (1)	14'-4" (1)	18'-5" (2)	17'-3" (2)	14'-3" (2)
	11⅞"	19'-11" (1)	18'-8" (1)	17'-2" (1)	22'-2" (2)	20'-7" (2)	16'-7" (2)
	14"	22'-8" (1)	21'-3" (1)	19'-8" (1)	24'-9" (2)	20'-9" (2)	16'-7" (2)
PWI 70	9½"	17'-4" (1)	16'-3" (1)	15'-0" (1)	19'-3" (2)	18'-0" (2)	16'-7" (2)
	11⅞"	20'-7" (1)	19'-3" (1)	17'-10" (1)	22'-11" (2)	19'-5" (2)	15'-5" (2)
	14"	23'-5" (1)	21'-11" (1)	19'-4" (1)	23'-4" (2)	19'-5" (2)	15'-5" (2)
PWI 77	16"	26'-0" (1)	24'-3" (1)	19'-4" (1)	23'-4" (2)	19'-5" (2)	15'-5" (2)
	18"	28'-5" (1)	24'-3" (1)	19'-4" (1)	23'-4" (2)	19'-5" (2)	15'-5" (2)
	20"	29'-1" (1)	24'-3" (1)	19'-4" (1)	23'-4" (2)	19'-5" (2)	15'-5" (2)
PWI 90	9½"	17'-4" (1)	16'-3" (1)	15'-0" (1)	19'-3" (2)	18'-0" (2)	16'-7" (2)
	11⅞"	20'-8" (1)	19'-5" (1)	17'-11" (1)	23'-0" (2)	21'-7" (2)	17'-11" (2)
	14"	23'-6" (1)	22'-1" (1)	20'-5" (1)	26'-3" (2)	22'-5" (2)	17'-11" (2)
PWI 90	16"	26'-1" (1)	24'-6" (1)	21'-5" (1)	26'-11" (2)	22'-5" (2)	17'-11" (2)
	18"	28'-7" (1)	26'-10" (1)	21'-5" (1)	26'-11" (2)	22'-5" (2)	17'-11" (2)
	20"	31'-0" (1)	26'-10" (1)	21'-5" (1)	26'-11" (2)	22'-5" (2)	17'-11" (2)
PWI 90	22"	33'-4" (1)	31'-3" (1)	28'-11" (2)	31'-8" (2)	26'-4" (2)	21'-1" (2)
	24"	35'-8" (1)	33'-5" (2)	30'-11" (2)	31'-8" (2)	26'-4" (2)	21'-1" (2)
PWI 90	9½"	19'-9" (1)	18'-6" (1)	17'-1" (1)	22'-0" (2)	20'-7" (2)	18'-11" (2)
	11⅞"	23'-7" (1)	22'-1" (1)	20'-5" (1)	26'-3" (2)	24'-7" (2)	21'-1" (2)
	14"	26'-10" (1)	25'-2" (1)	23'-2" (1)	29'-10" (2)	26'-4" (2)	21'-1" (2)
PWI 90	16"	29'-8" (1)	27'-10" (1)	23'-4" (1)	31'-8" (2)	26'-4" (2)	21'-1" (2)
	18"	32'-6" (1)	29'-3" (1)	23'-4" (1)	31'-8" (2)	26'-4" (2)	21'-1" (2)
	20"	35'-2" (1)	29'-3" (1)	23'-4" (1)	31'-8" (2)	26'-4" (2)	21'-1" (2)
PWI 90	22"	37'-10" (1)	35'-5" (2)	32'-9" (2)	31'-8" (2)	26'-4" (2)	21'-1" (2)
	24"	40'-4" (2)	37'-10" (2)	35'-0" (2)	31'-8" (2)	26'-4" (2)	21'-1" (2)

Notes:

- Table values apply to uniformly loaded roof joists, sloped at least ¼" in 12", and standard term load duration.
- Span is measured on the horizontal from face to face of supports.
- Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. Deflection, calculated on the basis of joist stiffness only, is limited to L/180 at total load and L/360 at live load.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- The numbers in parentheses refer to the minimum connection required at each support.
 - Beveled plate and two 2½" nails (205 lbs. factored lateral resistance), or joist hangers at end supports
 - Beveled plate and four 2½" nails (415 lbs. factored lateral resistance) at intermediate supports, two 2½" nails or joist hangers at end supports
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing conditions, concentrated loads), or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE LOW-SLOPE ROOF SPAN TABLES

- Choose the appropriate unfactored live and dead load combination, roof slope and a joist spacing.
- Scan down the spacing column to find a span that exceeds the horizontal design span and the minimum connection required at each support.
- Scan to the left from that span to determine the joist size required.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST LOW-SLOPE ROOF SPANS

ALLOWABLE SPANS FOR PWI JOISTS – 60 PSF SNOW LOAD – 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span			Multiple Spans		
		Slopes to 1 in 12			Slopes to 1 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	13'-4" (1)	12'-6" (1)	11'-6" (1)	14'-10" (2)	13'-7" (2)	11'-3" (2)
	11⅞"	16'-1" (1)	15'-1" (1)	13'-1" (1)	17'-1" (2)	14'-2" (2)	11'-3" (2)
	14"	18'-4" (1)	16'-5" (1)	13'-1" (1)	17'-1" (2)	14'-2" (2)	11'-3" (2)
PWI 30	9½"	13'-9" (1)	12'-11" (1)	11'-11" (1)	15'-4" (2)	13'-7" (2)	10'-10" (2)
	11⅞"	16'-8" (1)	15'-7" (1)	13'-6" (1)	16'-4" (2)	13'-7" (2)	10'-10" (2)
	14"	18'-8" (1)	16'-3" (1)	12'-8" (1)	15'-7" (2)	14'-2" (2)	12'-3" (2)
PWI 40	9½"	17'-7" (1)	16'-3" (1)	14'-6" (1)	17'-9" (2)	16'-2" (2)	14'-3" (2)
	11⅞"	19'-7" (1)	17'-11" (1)	16'-0" (1)	19'-6" (2)	17'-10" (2)	14'-3" (2)
	14"	21'-1" (1)	19'-3" (1)	17'-3" (1)	21'-1" (2)	17'-10" (2)	14'-3" (2)
PWI 50	9½"	14'-5" (1)	13'-6" (1)	12'-6" (1)	16'-1" (2)	14'-6" (2)	11'-7" (2)
	11⅞"	17'-4" (1)	16'-4" (1)	14'-6" (1)	17'-6" (2)	14'-6" (2)	11'-7" (2)
	14"	19'-11" (1)	18'-3" (1)	14'-6" (1)	17'-6" (2)	14'-6" (2)	11'-7" (2)
PWI 60	9½"	15'-6" (1)	14'-6" (1)	13'-5" (1)	17'-3" (2)	15'-5" (2)	12'-3" (2)
	11⅞"	18'-8" (1)	17'-5" (1)	16'-1" (1)	20'-9" (2)	17'-10" (2)	14'-3" (2)
	14"	21'-3" (1)	19'-11" (1)	17'-3" (1)	21'-6" (2)	17'-10" (2)	14'-3" (2)
PWI 70	9½"	23'-8" (1)	21'-7" (1)	17'-3" (1)	21'-6" (2)	17'-10" (2)	14'-3" (2)
	11⅞"	19'-3" (1)	18'-1" (1)	16'-8" (1)	20'-1" (2)	16'-8" (2)	13'-3" (2)
	14"	21'-11" (1)	20'-7" (1)	16'-8" (1)	20'-1" (2)	16'-8" (2)	13'-3" (2)
PWI 77	9½"	24'-4" (1)	20'-10" (1)	16'-8" (1)	20'-1" (2)	16'-8" (2)	13'-3" (2)
	11⅞"	25'-1" (1)	20'-10" (1)	16'-8" (1)	20'-1" (2)	16'-8" (2)	13'-3" (2)
	14"	25'-1" (1)	20'-10" (1)	16'-8" (1)	20'-1" (2)	16'-8" (2)	13'-3" (2)
PWI 90	9½"	16'-3" (1)	15'-2" (1)	14'-0" (1)	18'-0" (2)	16'-10" (2)	15'-5" (2)
	11⅞"	19'-5" (1)	18'-2" (1)	16'-9" (1)	21'-7" (2)	19'-3" (2)	15'-5" (2)
	14"	22'-1" (1)	20'-8" (1)	18'-5" (1)	23'-2" (2)	19'-3" (2)	15'-5" (2)
PWI 99	9½"	24'-6" (1)	22'-11" (1)	18'-5" (1)	23'-2" (2)	19'-3" (2)	15'-5" (2)
	11⅞"	27'-9" (1)	23'-1" (1)	18'-5" (1)	23'-2" (2)	19'-3" (2)	15'-5" (2)
	14"	30'-3" (1)	25'-2" (1)	20'-1" (1)	27'-4" (2)	22'-8" (2)	18'-1" (2)
PWI 100	9½"	31'-3" (1)	29'-4" (2)	27'-1" (2)	27'-4" (2)	22'-8" (2)	18'-1" (2)
	11⅞"	33'-5" (1)	31'-4" (2)	28'-8" (2)	27'-4" (2)	22'-8" (2)	18'-1" (2)
	14"	37'-10" (2)	35'-6" (2)	32'-9" (2)	27'-4" (2)	22'-8" (2)	18'-1" (2)

See notes on page 28

PWI JOIST ROOF LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 20									PWI 30					
	9½"			11½"			14"			9½"			11½"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	475	-	-	475	-	-	475	-	-	490	-	-	490
7	-	-	407	-	-	407	-	-	407	-	-	420	-	-	420
8	330	-	356	-	-	356	-	-	356	359	-	368	-	-	368
9	241	-	317	-	-	317	-	-	317	263	-	327	-	-	327
10	181	-	285	-	-	285	-	-	285	199	-	294	-	-	294
11	139	-	259	233	-	259	-	-	259	153	-	268	254	-	268
12	109	219	230	184	-	237	-	-	237	120	240	245	201	-	245
13	87	175	196	147	-	219	211	-	219	96	192	226	161	-	226
14	71	141	169	120	-	204	173	-	204	78	156	210	131	-	210
15	58	116	147	99	-	190	142	-	190	64	128	188	108	-	196
16	48	96	129	82	164	167	119	-	178	53	106	165	90	180	184
17	40	81	114	69	138	148	100	-	168	45	89	146	76	152	173
18	34	68	102	59	117	132	85	-	158	38	76	131	65	129	163
19	29	58	92	50	100	119	73	-	141	32	65	117	55	110	152
20				43	87	107	63	126	128				48	95	137
21				38	75	97	55	110	116				41	83	124
22				33	66	89	48	96	105				36	72	113
23				29	58	81	42	84	97				32	64	103
24							37	74	89						
25							33	66	82						
26							29	59	76						
27							26	53	70						
28							24	47	65						
29															
30															

Notes:

1. Table values apply to uniformly loaded roof joists, sloped at least ¼" in 12", and standard term load duration.
2. Table values apply to simple or two-equal-multiple span joists. Span is measured to the center of each support.
3. Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. The unfactored live load L/360 and total load L/180 columns are based on stiffness only. Stiffness added by glued or nailed sheathing has not been considered. The factored total load column is based on strength only.
4. Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
5. Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
6. Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE ROOF LOAD TABLES

1. Choose a joist spacing, then convert the unfactored live load, unfactored total load and factored total load from pounds per square foot of roof to pounds per lineal foot of joist. Joist Spacing [ft] x Load [psf] = Load [plf]

JOIST LOAD (PLF)

Joist Spacing		Design Load (psf)								
(inches)	(feet)	20	30	40	50	60	70	80	90	100
12	1	20	30	40	50	60	70	80	90	100
16	1.33	27	40	53	67	80	93	106	120	133
19.2	1.6	32	48	64	80	96	112	128	144	160
24	2	40	60	80	100	120	140	160	180	200

2. Choose a span. Use the horizontal span dimension from the building plans for roofs that slope up to 2" in 12". For roof slopes greater than 2" in 12", multiply the horizontal dimension by the appropriate factor from the table below.

Slope	2½ in 12	3 in 12	3½ in 12	4 in 12	4½ in 12	5 in 12	6 in 12	7 in 12	8 in 12	9 in 12	10 in 12	11 in 12	12 in 12
Factor	1.01	1.02	1.03	1.04	1.05	1.07	1.10	1.14	1.19	1.23	1.28	1.34	1.39

3. Scan across the Joist Span row to find a joist size with sufficient stiffness and strength. All three load columns must be checked. Where the unfactored columns are blank, the factored column governs.
4. Sloping joists must be fastened to each support to resist a factored sliding force equal to:

$$\frac{0.5XWL}{\sqrt{X^2 + 144}} \text{ at end supports and } \frac{1.25XWL}{\sqrt{X^2 + 144}} \text{ at intermediate supports}$$

$$\text{where } X = \text{roof slope in 12, } L = \text{span [ft] and } W = S \left\{ LL + \frac{DL\sqrt{X^2 + 144}}{12} \right\}, \text{ where } S = \text{joist spacing [ft], } LL = \text{live load [psf] and } DL = \text{dead load [psf]}$$

5. Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST ROOF LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 40												PWI 50											
	9½"			11⅞"			14"			16"			9½"			11⅞"			14"			16"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	560	-	-	623	-	-	623	-	-	623	-	-	527	-	-	527	-	-	527	-	-	527
7	-	-	480	-	-	534	-	-	534	-	-	534	-	-	452	-	-	452	-	-	452	-	-	452
8	413	-	420	-	-	467	-	-	467	-	-	467	-	-	395	-	-	395	-	-	395	-	-	395
9	305	-	374	-	-	415	-	-	415	-	-	415	296	-	351	-	-	351	-	-	351	-	-	351
10	231	-	336	372	-	374	-	-	374	-	-	374	224	-	316	-	-	316	-	-	316	-	-	316
11	179	-	297	291	-	340	-	-	340	-	-	340	173	-	287	285	-	287	-	-	287	-	-	287
12	141	-	249	231	-	311	-	-	311	-	-	311	137	-	263	226	-	263	-	-	263	-	-	263
13	113	-	212	186	-	275	263	-	287	-	-	287	109	219	243	182	-	243	-	-	243	-	-	243
14	92	-	183	152	-	237	215	-	267	-	-	267	89	178	226	149	-	226	215	-	226	-	-	226
15	76	151	160	125	-	207	179	-	249	237	-	249	73	146	211	123	-	211	178	-	211	-	-	211
16	63	126	140	105	-	182	150	-	219	199	-	234	61	122	195	102	-	198	149	-	198	-	-	198
17	53	106	124	88	-	161	126	-	194	169	-	220	51	102	173	86	173	186	126	-	186	170	-	186
18	45	90	111	75	-	144	108	-	173	144	-	201	43	87	154	73	147	176	107	-	176	145	-	176
19	38	77	99	64	129	129	92	-	155	124	-	180	37	74	138	63	126	166	92	-	166	125	-	166
20				56	111	116	80	-	140	107	-	162				54	109	158	80	-	158	108	-	158
21				48	97	106	70	-	127	94	-	147				47	94	146	69	139	151	94	-	151
22				42	85	96	61	-	116	82	-	134				41	83	133	61	121	144	83	-	144
23				37	74	88	54	-	106	72	-	123				36	73	122	53	107	137	73	-	137
24							47	95	97	64	-	113							47	94	132	65	129	132
25							42	84	90	57	-	104							42	84	123	57	115	126
26							38	75	83	51	-	96							37	75	114	51	102	122
27							34	67	77	46	-	89							34	67	106	46	92	117
28							30	61	71	41	82	83							30	60	98	41	83	112
29										37	74	77										37	75	105
30										34	67	72										34	68	98
31										30	61	68										31	62	92
32										28	56	63										28	56	86

See notes on page 30

PWI JOIST ROOF LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 60												PWI 70																							
	9½"				11½"				14"				16"				11½"				14"				16"				18"				20"			
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load					
6	-	-	560	-	-	623	-	-	-	-	623	-	-	602	-	-	602	-	-	602	-	-	-	602	-	-	-	602	-	-	-	602				
7	-	-	480	-	-	534	-	-	-	-	534	-	-	516	-	-	516	-	-	516	-	-	-	516	-	-	-	516	-	-	-	516				
8	-	-	420	-	-	467	-	-	-	-	467	-	-	452	-	-	452	-	-	452	-	-	-	452	-	-	-	452	-	-	-	452				
9	351	-	374	-	-	415	-	-	-	-	415	-	-	401	-	-	401	-	-	401	-	-	-	401	-	-	-	401	-	-	-	401				
10	268	-	336	-	-	374	-	-	-	-	374	-	-	361	-	-	361	-	-	361	-	-	-	361	-	-	-	361	-	-	-	361				
11	208	-	306	336	-	340	-	-	-	-	340	-	-	328	-	-	328	-	-	328	-	-	-	328	-	-	-	328	-	-	-	328				
12	165	-	280	268	-	311	-	-	-	-	311	-	-	301	-	-	301	-	-	301	-	-	-	301	-	-	-	301	-	-	-	301				
13	133	-	259	217	-	287	-	-	-	-	287	-	-	278	-	-	278	-	-	278	-	-	-	278	-	-	-	278	-	-	-	278				
14	108	216	240	178	-	267	253	-	-	-	267	-	-	258	-	-	258	-	-	258	-	-	-	258	-	-	-	258	-	-	-	258				
15	89	178	220	147	-	249	210	-	-	-	249	-	-	241	229	-	241	-	-	241	-	-	-	241	-	-	-	241	-	-	-	241				
16	74	149	194	123	-	234	177	-	-	-	234	-	-	234	135	-	226	192	-	226	-	-	-	226	-	-	-	226	-	-	-	226				
17	63	125	172	104	208	220	150	-	-	-	220	200	-	220	114	-	212	163	-	212	-	-	-	212	-	-	-	212	-	-	-	212				
18	53	106	153	89	178	198	128	-	-	-	208	171	-	208	98	195	201	140	-	201	185	-	-	201	-	-	-	201	-	-	-	201				
19	45	91	137	76	152	178	110	-	-	-	197	148	-	197	84	168	190	120	-	190	160	-	-	190	-	-	-	190	-	-	-	190				
20				66	132	161	95	-	-	-	187	128	-	187	73	145	181	104	-	181	139	-	-	181	178	-	181	-	-	-	181					
21				57	115	146	83	166	175	112	-	178	63	126	172	91	-	172	121	-	172	156	-	172	156	-	172	-	-	-	172					
22				50	100	133	73	146	160	98	-	170	55	111	164	80	159	164	106	-	164	137	-	164	137	-	164	-	-	-	164					
23				44	88	122	64	128	146	87	-	162	49	97	157	70	140	157	94	-	157	121	-	157	121	-	157	151	-	-	157					
24							57	114	134	77	153	156				62	124	151	83	-	151	107	-	151	107	-	151	134	-	-	151					
25							51	101	124	68	137	144				55	111	144	74	-	144	96	-	144	96	-	144	120	-	-	144					
26							45	90	114	61	122	133				49	99	139	66	133	139	86	-	139	86	-	139	107	-	-	139					
27							40	81	106	55	110	123				44	89	134	60	119	134	77	-	134	77	-	134	97	-	-	134					
28							36	73	99	49	99	114				40	80	129	54	107	129	69	-	129	69	-	129	87	-	-	129					
29										45	89	107							48	97	125	63	-	125	79	-	125	79	-	-	125					
30										40	81	100							44	88	120	57	114	120	57	114	120	72	-	-	120					
31										37	74	93							40	80	117	52	104	117	52	104	117	65	-	-	117					
32										34	67	88							36	73	113	47	95	113	47	95	113	60	-	-	113					
33																						43	87	109	43	87	109	55	109	109						
34																						40	79	106	40	79	106	50	100	106						
35																						37	73	103	37	73	103	46	92	103						
36																						34	67	100	34	67	100	42	85	100						
37																												39	78	98						
38																												36	72	95						
39																												34	67	93						
40																												31	62	90						
41																																				
42																																				
43																																				
44																																				
45																																				
46																																				
47																																				
48																																				

See notes on page 30

PWI JOIST ROOF LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 77																							
	9½"			11½"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	667	-	-	667	-	-	667	-	-	667	-	-	667	-	-	667	-	-	1240	-	-	1240
7	-	-	572	-	-	572	-	-	572	-	-	572	-	-	572	-	-	572	-	-	1063	-	-	1063
8	-	-	500	-	-	500	-	-	500	-	-	500	-	-	500	-	-	500	-	-	930	-	-	930
9	397	-	445	-	-	445	-	-	445	-	-	445	-	-	445	-	-	445	-	-	827	-	-	827
10	303	-	400	-	-	400	-	-	400	-	-	400	-	-	400	-	-	400	-	-	744	-	-	744
11	235	-	364	-	-	364	-	-	364	-	-	364	-	-	364	-	-	364	-	-	677	-	-	677
12	186	-	333	300	-	333	-	-	333	-	-	333	-	-	333	-	-	333	-	-	620	-	-	620
13	150	299	308	242	-	308	-	-	308	-	-	308	-	-	308	-	-	308	-	-	572	-	-	572
14	122	244	286	199	-	286	281	-	286	-	-	286	-	-	286	-	-	286	-	-	532	-	-	532
15	101	201	267	165	-	267	234	-	267	-	-	267	-	-	267	-	-	267	-	-	496	-	-	496
16	84	168	250	138	-	250	196	-	250	-	-	250	-	-	250	-	-	250	-	-	465	-	-	465
17	71	141	234	116	233	235	166	-	235	221	-	235	-	-	235	-	-	235	426	-	438	-	-	438
18	60	120	209	99	198	222	142	-	222	189	-	222	-	-	222	-	-	222	366	-	413	-	-	413
19	51	103	187	85	170	211	122	-	211	163	-	211	209	-	211	-	-	211	318	-	392	379	-	392
20				74	147	200	106	-	200	141	-	200	182	-	200	-	-	200	277	-	372	331	-	372
21				64	128	191	92	184	191	123	-	191	159	-	191	-	-	191	243	-	354	291	-	354
22				56	112	181	81	162	182	108	-	182	140	-	182	175	-	182	214	-	338	256	-	338
23				49	99	166	71	142	174	96	-	174	123	-	174	154	-	174	189	-	311	227	-	324
24							63	126	167	85	-	167	109	-	167	137	-	167	168	-	285	202	-	310
25							56	112	160	75	151	160	97	-	160	122	-	160	150	-	263	180	-	286
26							50	100	154	67	135	154	87	-	154	110	-	154	134	-	243	162	-	265
27							45	90	143	60	121	148	78	-	148	98	-	148	121	-	225	146	-	245
28							40	81	133	54	109	143	71	141	143	89	-	143	109	-	210	131	-	228
29										49	98	138	64	128	138	80	-	138	99	-	195	119	-	213
30										45	89	133	58	116	133	73	-	133	90	179	183	108	-	199
31										41	81	125	53	105	129	66	-	129	82	163	171	99	-	186
32										37	74	117	48	96	125	61	121	125	75	149	160	90	-	175
33													44	88	121	55	111	121	68	136	151	82	-	164
34													40	81	117	51	102	118	63	125	142	76	151	155
35													37	74	110	47	93	114	58	115	134	70	139	146
36													34	68	104	43	86	111	53	106	127	64	128	138
37																40	80	108	49	98	120	59	119	131
38																37	74	104	45	91	114	55	110	124
39																34	68	98	42	84	108	51	102	118
40																32	63	93	39	78	103	47	95	112
41																			36	73	98	44	88	106
42																			34	68	93	41	82	101
43																			32	63	89	38	77	97
44																			30	59	85	36	72	92
45																						34	67	88
46																						32	63	85
47																						30	59	81
48																						28	56	78

See notes on page 30

PWI JOIST ROOF LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 90																							
	9½"			11⅞"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	727	-	-	727	-	-	727	-	-	727	-	-	727	-	-	727	-	-	1246	-	-	1246
7	-	-	623	-	-	623	-	-	623	-	-	623	-	-	623	-	-	623	-	-	1068	-	-	1068
8	-	-	545	-	-	545	-	-	545	-	-	545	-	-	545	-	-	545	-	-	934	-	-	934
9	-	-	484	-	-	484	-	-	484	-	-	484	-	-	484	-	-	484	-	-	830	-	-	830
10	414	-	436	-	-	436	-	-	436	-	-	436	-	-	436	-	-	436	-	-	747	-	-	747
11	326	-	396	-	-	396	-	-	396	-	-	396	-	-	396	-	-	396	-	-	679	-	-	679
12	261	-	363	-	-	363	-	-	363	-	-	363	-	-	363	-	-	363	-	-	623	-	-	623
13	211	-	335	335	-	335	-	-	335	-	-	335	-	-	335	-	-	335	-	-	575	-	-	575
14	174	-	311	277	-	311	-	-	311	-	-	311	-	-	311	-	-	311	-	-	534	-	-	534
15	144	288	291	231	-	291	-	-	291	-	-	291	-	-	291	-	-	291	-	-	498	-	-	498
16	121	241	272	195	-	272	-	-	272	-	-	272	-	-	272	-	-	272	-	-	467	-	-	467
17	102	204	256	166	-	256	234	-	256	-	-	256	-	-	256	-	-	256	-	-	440	-	-	440
18	87	174	242	142	-	242	201	-	242	-	-	242	-	-	242	-	-	242	-	-	415	-	-	415
19	75	150	229	122	-	229	173	-	229	229	-	229	-	-	229	-	-	229	-	-	393	-	-	393
20				106	212	218	151	-	218	199	-	218	-	-	218	-	-	218	-	-	374	-	-	374
21				92	185	208	132	-	208	175	-	208	-	-	208	-	-	208	334	-	356	-	-	356
22				81	162	198	116	-	198	154	-	198	197	-	198	-	-	198	296	-	340	-	-	340
23				72	143	190	102	-	190	136	-	190	174	-	190	-	-	190	263	-	325	313	-	325
24							91	-	182	121	-	182	155	-	182	-	-	182	234	-	311	280	-	311
25							81	162	174	108	-	174	139	-	174	173	-	174	210	-	299	251	-	299
26							73	145	168	97	-	168	124	-	168	155	-	168	189	-	287	226	-	287
27							65	130	161	87	-	161	112	-	161	140	-	161	170	-	277	204	-	277
28							59	118	156	78	-	156	101	-	156	126	-	156	154	-	267	184	-	267
29										71	142	150	92	-	150	114	-	150	140	-	258	167	-	258
30										65	129	145	83	-	145	104	-	145	127	-	249	153	-	249
31										59	118	141	76	-	141	95	-	141	116	232	241	139	-	241
32										54	107	136	69	-	136	87	-	136	106	212	234	127	-	234
33													63	127	132	79	-	132	97	195	226	117	-	226
34													58	116	128	73	-	128	89	179	218	108	215	220
35													54	107	125	67	-	125	82	165	206	99	198	214
36													49	99	121	62	-	121	76	152	195	92	183	208
37																57	115	118	70	141	185	85	169	201
38																53	106	115	65	130	175	78	157	190
39																49	99	112	60	121	166	73	146	181
40																46	92	109	56	113	158	68	136	172
41																			52	105	150	63	126	164
42																			49	98	143	59	118	156
43																			46	91	137	55	110	149
44																			43	85	130	52	103	142
45																						48	97	136
46																						45	91	130
47																						43	85	125
48																						40	80	119

See notes on page 30

PWI JOIST ROOF LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 20									PWI 30					
	9½"			11⅞"			14"			9½"			11⅞"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	413	-	-	413	-	-	413	-	-	395	-	-	395
7	-	-	354	-	-	354	-	-	354	-	-	339	-	-	339
8	-	-	310	-	-	310	-	-	310	-	-	297	-	-	297
9	-	-	275	-	-	275	-	-	275	-	-	264	-	-	264
10	240	-	248	-	-	248	-	-	248	-	-	237	-	-	237
11	186	-	225	-	-	225	-	-	225	203	-	216	-	-	216
12	147	-	207	-	-	207	-	-	207	161	-	198	-	-	198
13	118	-	191	-	-	191	-	-	191	130	-	183	-	-	183
14	96	-	169	161	-	177	-	-	177	106	-	169	-	-	169
15	79	-	147	133	-	165	-	-	165	87	-	158	146	-	158
16	66	-	129	112	-	155	-	-	155	73	146	148	122	-	148
17	56	111	114	94	-	146	136	-	146	61	123	140	103	-	140
18	47	95	102	80	-	132	116	-	138	52	104	131	88	-	132
19	40	81	92	69	-	119	100	-	130	45	89	117	76	-	125
20				60	-	107	86	-	124				65	-	119
21				52	-	97	75	-	116				57	-	113
22				45	-	89	66	-	105				50	100	108
23				40	80	81	58	-	97				44	88	103
24							51	-	89						
25							46	-	82						
26							41	-	76						
27							37	-	70						
28							33	-	65						
29															
30															

Notes:

- Table values apply to uniformly loaded roof joists, sloped at least ¼" in 12", and standard term load duration.
- Table values apply to simple or two-equal-multiple span joists. Span is measured to the center of each support.
- Calculations have been carried out in accordance with CAN/CSA O86-01 and O86S1-05. The unfactored live load L/360 and total load L/180 columns are based on stiffness only. Stiffness added by glued or nailed sheathing has not been considered. The factored total load column is based on strength only.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
- Consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE ROOF LOAD TABLES

- Choose a joist spacing, then convert the unfactored live load, unfactored total load and factored total load from pounds per square foot of roof to pounds per lineal foot of joist. Joist Spacing [ft] x Load [psf] = Load [plf]

JOIST LOAD (PLF)

Joist Spacing		Design Load (psf)								
(inches)	(feet)	20	30	40	50	60	70	80	90	100
12	1	20	30	40	50	60	70	80	90	100
16	1.33	27	40	53	67	80	93	106	120	133
19.2	1.6	32	48	64	80	96	112	128	144	160
24	2	40	60	80	100	120	140	160	180	200

- Choose a span. Use the horizontal span dimension from the building plans for roofs that slope up to 2" in 12". For roof slopes greater than 2" in 12", multiply the horizontal dimension by the appropriate factor from the table below.

Slope	2½ in 12	3 in 12	3½ in 12	4 in 12	4½ in 12	5 in 12	6 in 12	7 in 12	8 in 12	9 in 12	10 in 12	11 in 12	12 in 12
Factor	1.01	1.02	1.03	1.04	1.05	1.07	1.10	1.14	1.19	1.23	1.28	1.34	1.39

- Scan across the Joist Span row to find a joist size with sufficient stiffness and strength. All three load columns must be checked. Where the unfactored columns are blank, the factored column governs.
- Sloping joists must be fastened to each support to resist a factored sliding force equal to:

$$\frac{0.5XWL}{\sqrt{X^2 + 144}} \text{ at end supports and } \frac{1.25XWL}{\sqrt{X^2 + 144}} \text{ at intermediate supports}$$

where X = roof slope in 12, L = span [ft] and W = $S \left\{ LL + \frac{DL\sqrt{X^2 + 144}}{12} \right\}$, where S = joist spacing [ft], LL = live load [psf] and DL = dead load [psf]

- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 50 for more details.

PWI JOIST ROOF LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 40												PWI 50																			
	9½"				11⅞"				14"				16"				9½"				11⅞"				14"				16"			
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load					
6	-	-	448	-	-	519	-	-	519	-	-	519	-	-	423	-	-	423	-	-	423	-	-	423	-	-	423	-	-	423		
7	-	-	384	-	-	445	-	-	445	-	-	445	-	-	363	-	-	363	-	-	363	-	-	363	-	-	363	-	-	363		
8	-	-	336	-	-	389	-	-	389	-	-	389	-	-	318	-	-	318	-	-	318	-	-	318	-	-	318	-	-	318		
9	-	-	299	-	-	346	-	-	346	-	-	346	-	-	282	-	-	282	-	-	282	-	-	282	-	-	282	-	-	282		
10	-	-	269	-	-	311	-	-	311	-	-	311	-	-	254	-	-	254	-	-	254	-	-	254	-	-	254	-	-	254		
11	235	-	245	-	-	283	-	-	283	-	-	283	228	-	231	-	-	231	-	-	231	-	-	231	-	-	231	-	-	231		
12	187	-	224	-	-	259	-	-	259	-	-	259	182	-	212	-	-	212	-	-	212	-	-	212	-	-	212	-	-	212		
13	151	-	207	-	-	240	-	-	240	-	-	240	147	-	195	-	-	195	-	-	195	-	-	195	-	-	195	-	-	195		
14	124	-	183	201	-	222	-	-	222	-	-	222	120	-	181	-	-	181	-	-	181	-	-	181	-	-	181	-	-	181		
15	102	-	160	168	-	207	-	-	208	-	-	208	99	-	169	164	-	169	-	-	169	-	-	169	-	-	169	-	-	169		
16	86	-	140	141	-	182	-	-	195	-	-	195	83	-	159	138	-	159	-	-	159	-	-	159	-	-	159	-	-	159		
17	72	-	124	119	-	161	169	-	183	-	-	183	70	140	149	117	-	149	-	-	149	-	-	149	-	-	149	-	-	149		
18	62	-	111	102	-	144	145	-	173	-	-	173	60	119	141	100	-	141	-	-	141	-	-	141	-	-	141	-	-	141		
19	53	-	99	88	-	129	125	-	155	-	-	164	51	102	134	86	-	134	125	-	134	-	-	134	-	-	134	-	-	134		
20				76	-	116	109	-	140	145	-	156				74	-	127	108	-	127	-	-	127	-	-	127	-	-	127		
21				66	-	106	95	-	127	127	-	147				65	-	121	94	-	121	-	-	121	-	-	121	-	-	121		
22				58	-	96	83	-	116	111	-	134				57	114	115	83	-	115	112	-	115	112	-	115	112	-	115		
23				51	-	88	73	-	106	98	-	123				50	100	110	73	-	110	99	-	110	99	-	110	99	-	110		
24							65	-	97	87	-	113							65	-	106	88	-	106	88	-	106	88	-	106		
25							58	-	90	78	-	104							58	-	102	79	-	102	79	-	102	79	-	102		
26							52	-	83	70	-	96							52	-	98	70	-	98	70	-	98	70	-	98		
27							47	-	77	63	-	89							46	93	94	63	-	94	63	-	94	63	-	94		
28							42	-	71	57	-	83							42	84	91	57	-	91	57	-	91	57	-	91		
29										51	-	77																52	-	88		
30										46	-	72																47	-	85		
31										42	-	68																43	-	82		
32										39	-	63																39	78	79		
33																																
34																																
35																																
36																																
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See notes on page 35

PWI JOIST ROOF LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 60												PWI 70																							
	9½"				11⅞"				14"				16"				11⅞"				14"				16"				18"				20"			
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load		Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load					
6	-	-	448		-	-	519		-	-	519		-	-	485		-	-	485		-	-	485		-	-	485		-	-	485					
7	-	-	384		-	-	445		-	-	445		-	-	415		-	-	415		-	-	415		-	-	415		-	-	415					
8	-	-	336		-	-	389		-	-	389		-	-	364		-	-	364		-	-	364		-	-	364		-	-	364					
9	-	-	299		-	-	346		-	-	346		-	-	323		-	-	323		-	-	323		-	-	323		-	-	323					
10	-	-	269		-	-	311		-	-	311		-	-	291		-	-	291		-	-	291		-	-	291		-	-	291					
11	-	-	245		-	-	283		-	-	283		-	-	264		-	-	264		-	-	264		-	-	264		-	-	264					
12	216	-	224		-	-	259		-	-	259		-	-	242		-	-	242		-	-	242		-	-	242		-	-	242					
13	176	-	207		-	-	240		-	-	240		-	-	224		-	-	224		-	-	224		-	-	224		-	-	224					
14	144	-	192		-	-	222		-	-	222		-	-	208		-	-	208		-	-	208		-	-	208		-	-	208					
15	120	-	179		195	-	208		-	-	208		-	-	194		-	-	194		-	-	194		-	-	194		-	-	194					
16	100	-	168		164	-	195		-	-	195		-	-	182		-	-	182		-	-	182		-	-	182		-	-	182					
17	85	-	158		140	-	183		-	-	183		-	-	171		-	-	171		-	-	171		-	-	171		-	-	171					
18	72	145	149		120	-	173	170	-	173		-	173	131	-	162		-	162		-	-	162		-	-	162		-	-	162					
19	62	125	137		103	-	164	147	-	164		-	164	113	-	153		-	153		-	-	153		-	-	153		-	-	153					
20					90	-	156	128	-	156		-	156	98	-	145	140	-	145		-	-	145		-	-	145		-	-	145					
21					78	-	146	112	-	148		-	148	86	-	138	122	-	138		-	-	138		-	-	138		-	-	138					
22					69	-	133	99	-	142	132	-	142	75	-	132	108	-	132		-	-	132		-	-	132		-	-	132					
23					61	121	122	87	-	135	117	-	135	67	-	126	95	-	126		-	-	126		-	-	126		-	-	126					
24							78	-	130	104	-	130			85	-	121	113	-	121		-	-	121		-	-	121		-	-	121				
25							69	-	124	93	-	125			76	-	116	101	-	116		-	-	116		-	-	116		-	-	116				
26							62	-	114	83	-	120			68	-	112	90	-	112		-	-	112		-	-	112		-	-	112				
27							56	-	106	75	-	115			61	-	108	81	-	108	105	-	-	108	105	-	-	108		-	-	108				
28							50	-	99	68	-	111			55	-	104	73	-	104	94	-	-	104	94	-	-	104		-	-	104				
29										61	-	107					66	-	100	86	-	-	100	86	-	-	100		-	-	100					
30										56	-	100							60	-	97	78	-	-	97	78	-	-	97		-	-	97			
31										51	-	93							55	-	94	71	-	-	94	71	-	-	94	89	-	-	94			
32										46	-	88							50	-	91	65	-	-	91	65	-	-	91	81	-	-	91			
33																					60	-	-	88	75	-	-	88	75	-	-	88				
34																					55	-	-	86	69	-	-	86	69	-	-	86				
35																					50	-	-	83	63	-	-	83	63	-	-	83				
36																					46	-	-	81	58	-	-	81	58	-	-	81				
37																													54	-	-	79				
38																													50	-	-	77				
39																													46	-	-	75				
40																													43	-	-	73				
41																																				
42																																				
43																																				
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45																																				
46																																				
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48																																				

See notes on page 35

PWI JOIST ROOF LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 77																							
	9½"			11½"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	559	-	-	559	-	-	559	-	-	559	-	-	559	-	-	559	-	-	856	-	-	856
7	-	-	480	-	-	480	-	-	480	-	-	480	-	-	480	-	-	480	-	-	734	-	-	734
8	-	-	420	-	-	420	-	-	420	-	-	420	-	-	420	-	-	420	-	-	642	-	-	642
9	-	-	373	-	-	373	-	-	373	-	-	373	-	-	373	-	-	373	-	-	571	-	-	571
10	-	-	336	-	-	336	-	-	336	-	-	336	-	-	336	-	-	336	-	-	514	-	-	514
11	-	-	305	-	-	305	-	-	305	-	-	305	-	-	305	-	-	305	-	-	467	-	-	467
12	244	-	280	-	-	280	-	-	280	-	-	280	-	-	280	-	-	280	-	-	428	-	-	428
13	198	-	258	-	-	258	-	-	258	-	-	258	-	-	258	-	-	258	-	-	395	-	-	395
14	163	-	240	-	-	240	-	-	240	-	-	240	-	-	240	-	-	240	-	-	367	-	-	367
15	135	-	224	218	-	224	-	-	224	-	-	224	-	-	224	-	-	224	-	-	343	-	-	343
16	113	-	210	183	-	210	-	-	210	-	-	210	-	-	210	-	-	210	-	-	321	-	-	321
17	96	192	197	156	-	197	-	-	197	-	-	197	-	-	197	-	-	197	-	-	302	-	-	302
18	82	164	186	134	-	186	-	-	186	-	-	186	-	-	186	-	-	186	-	-	285	-	-	285
19	70	141	177	115	-	177	164	-	177	-	-	177	-	-	177	-	-	177	-	-	270	-	-	270
20				100	-	168	143	-	168	-	-	168	-	-	168	-	-	168	-	-	257	-	-	257
21				87	-	160	125	-	160	-	-	160	-	-	160	-	-	160	-	-	245	-	-	245
22				77	-	153	110	-	153	146	-	153	-	-	153	-	-	153	-	-	234	-	-	234
23				68	135	146	97	-	146	129	-	146	-	-	146	-	-	146	-	-	223	-	-	223
24							86	-	140	115	-	140	-	-	140	-	-	140	-	-	214	-	-	214
25							77	-	134	103	-	134	132	-	134	-	-	134	201	-	206	-	-	206
26							69	-	129	92	-	129	118	-	129	-	-	129	181	-	198	-	-	198
27							62	124	124	83	-	124	107	-	124	-	-	124	163	-	190	-	-	190
28							56	111	120	75	-	120	96	-	120	-	-	120	148	-	183	177	-	183
29										68	-	116	87	-	116	109	-	116	134	-	177	161	-	177
30										61	-	112	79	-	112	100	-	112	122	-	171	147	-	171
31										56	-	108	72	-	108	91	-	108	111	-	166	134	-	166
32										51	102	105	66	-	105	83	-	105	102	-	160	123	-	161
33													61	-	102	76	-	102	93	-	151	113	-	156
34													56	-	99	70	-	99	86	-	142	103	-	151
35													51	-	96	64	-	96	79	-	134	95	-	146
36													47	-	93	59	-	93	73	-	127	88	-	138
37																55	-	91	68	-	120	82	-	131
38																51	-	88	63	-	114	76	-	124
39																47	-	86	58	-	108	70	-	118
40																44	-	84	54	-	103	65	-	112
41																			50	-	98	61	-	106
42																			47	-	93	57	-	101
43																			44	88	89	53	-	97
44																			41	82	85	50	-	92
45																						47	-	88
46																						44	-	85
47																						41	-	81
48																						39	77	78

See notes on page 35

PWI JOIST ROOF LOADS

MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 90																							
	9½"			11½"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	594	-	-	696	-	-	696	-	-	696	-	-	696	-	-	696	-	-	956	-	-	956
7	-	-	509	-	-	597	-	-	597	-	-	597	-	-	597	-	-	597	-	-	819	-	-	819
8	-	-	445	-	-	522	-	-	522	-	-	522	-	-	522	-	-	522	-	-	717	-	-	717
9	-	-	396	-	-	464	-	-	464	-	-	464	-	-	464	-	-	464	-	-	637	-	-	637
10	-	-	356	-	-	418	-	-	418	-	-	418	-	-	418	-	-	418	-	-	574	-	-	574
11	-	-	324	-	-	380	-	-	380	-	-	380	-	-	380	-	-	380	-	-	521	-	-	521
12	-	-	297	-	-	348	-	-	348	-	-	348	-	-	348	-	-	348	-	-	478	-	-	478
13	273	-	274	-	-	321	-	-	321	-	-	321	-	-	321	-	-	321	-	-	441	-	-	441
14	226	-	254	-	-	298	-	-	298	-	-	298	-	-	298	-	-	298	-	-	410	-	-	410
15	190	-	237	-	-	279	-	-	279	-	-	279	-	-	279	-	-	279	-	-	382	-	-	382
16	160	-	223	254	-	261	-	-	261	-	-	261	-	-	261	-	-	261	-	-	358	-	-	358
17	136	-	210	217	-	246	-	-	246	-	-	246	-	-	246	-	-	246	-	-	337	-	-	337
18	117	-	198	187	-	232	-	-	232	-	-	232	-	-	232	-	-	232	-	-	319	-	-	319
19	101	-	187	162	-	220	-	-	220	-	-	220	-	-	220	-	-	220	-	-	302	-	-	302
20				142	-	209	199	-	209	-	-	209	-	-	209	-	-	209	-	-	287	-	-	287
21				124	-	199	175	-	199	-	-	199	-	-	199	-	-	199	-	-	273	-	-	273
22				109	-	190	155	-	190	-	-	190	-	-	190	-	-	190	-	-	261	-	-	261
23				97	-	182	137	-	182	181	-	182	-	-	182	-	-	182	-	-	249	-	-	249
24							122	-	174	161	-	174	-	-	174	-	-	174	-	-	239	-	-	239
25							109	-	167	145	-	167	-	-	167	-	-	167	-	-	229	-	-	229
26							98	-	161	130	-	161	-	-	161	-	-	161	-	-	221	-	-	221
27							89	-	155	117	-	155	150	-	155	-	-	155	-	-	212	-	-	212
28							80	-	149	106	-	149	136	-	149	-	-	149	205	-	205	-	-	205
29										96	-	144	123	-	144	-	-	144	186	-	198	-	-	198
30										88	-	139	113	-	139	-	-	139	170	-	191	-	-	191
31										80	-	135	103	-	135	128	-	135	156	-	185	-	-	185
32										73	-	131	94	-	131	117	-	131	143	-	179	171	-	179
33													86	-	127	108	-	127	131	-	174	157	-	174
34													80	-	123	99	-	123	121	-	169	145	-	169
35													73	-	119	92	-	119	112	-	164	134	-	164
36													68	-	116	85	-	116	103	-	159	124	-	159
37																78	-	113	96	-	155	115	-	155
38																73	-	110	89	-	151	107	-	151
39																68	-	107	83	-	147	99	-	147
40																63	-	104	77	-	143	92	-	143
41																			72	-	140	86	-	140
42																			67	134	137	81	-	137
43																			63	126	133	75	-	133
44																			59	118	130	71	-	130
45																						66	-	127
46																						62	-	125
47																						59	117	122
48																						55	110	119

See notes on page 35

PWI JOIST ROOF LOADS

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 20									PWI 30					
	9½"			11⅞"			14"			9½"			11⅞"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	413	-	-	413	-	-	413	-	-	395	-	-	395
7	-	-	354	-	-	354	-	-	354	-	-	339	-	-	339
8	-	-	310	-	-	310	-	-	310	-	-	297	-	-	297
9	241	-	275	-	-	275	-	-	275	263	-	264	-	-	264
10	181	-	248	-	-	248	-	-	248	199	-	237	-	-	237
11	139	-	225	-	-	225	-	-	225	153	-	216	-	-	216
12	109	-	207	184	-	207	-	-	207	120	-	198	-	-	198
13	87	175	191	147	-	191	-	-	191	96	-	183	161	-	183
14	71	141	169	120	-	177	173	-	177	78	156	169	131	-	169
15	58	116	147	99	-	165	142	-	165	64	128	158	108	-	158
16	48	96	129	82	-	155	119	-	155	53	106	148	90	-	148
17	40	81	114	69	138	146	100	-	146	45	89	140	76	-	140
18	34	68	102	59	117	132	85	-	138	38	76	131	65	129	132
19	29	58	92	50	100	119	73	-	130	32	65	117	55	110	125
20				43	87	107	63	-	124				48	95	119
21				38	75	97	55	110	116				41	83	113
22				33	66	89	48	96	105				36	72	108
23				29	58	81	42	84	97				32	64	103
24							37	74	89						
25							33	66	82						
26							29	59	76						
27							26	53	70						
28							24	47	65						
29															
30															

See notes on page 35

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 40									PWI 50								
	9½"			11⅞"			14"			9½"			11⅞"			14"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	448	-	-	519	-	-	519	-	-	423	-	-	423	-	-	423
7	-	-	384	-	-	445	-	-	445	-	-	363	-	-	363	-	-	363
8	-	-	336	-	-	389	-	-	389	-	-	318	-	-	318	-	-	318
9	-	-	299	-	-	346	-	-	346	-	-	282	-	-	282	-	-	282
10	231	-	269	-	-	311	-	-	311	224	-	254	-	-	254	-	-	254
11	179	-	245	-	-	283	-	-	283	173	-	231	-	-	231	-	-	231
12	141	-	224	231	-	259	-	-	259	137	-	212	-	-	212	-	-	212
13	113	-	207	186	-	240	-	-	240	109	-	195	182	-	195	-	-	195
14	92	-	183	152	-	222	215	-	222	89	178	181	149	-	181	-	-	181
15	76	151	160	125	-	207	179	-	208	73	146	169	123	-	169	-	-	169
16	63	126	140	105	-	182	150	-	195	61	122	159	102	-	159	149	-	159
17	53	106	124	88	-	161	126	-	183	51	102	149	86	-	149	126	-	149
18	45	90	111	75	-	144	108	-	173	43	87	141	73	-	141	107	-	141
19	38	77	99	64	129	129	92	-	155	37	74	134	63	126	134	92	-	134
20				56	111	116	80	-	140				54	109	127	80	-	127
21				48	97	106	70	-	127				47	94	121	69	-	121
22				42	85	96	61	-	116				41	83	115	61	-	115
23				37	74	88	54	-	106				36	73	110	53	107	110
24							47	95	97							47	94	106
25							42	84	90							42	84	102
26							38	75	83							37	75	98
27							34	67	77							34	67	94
28							30	61	71							30	60	91
29																		
30																		
31																		
32																		

See notes on page 35

PWI JOIST ROOF LOADS

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 60												PWI 70											
	9½"				11½"				14"				11½"				14"				16"			
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	448	-	-	519	-	-	519	-	-	519	-	-	485	-	-	485	-	-	485	-	-	485
7	-	-	384	-	-	445	-	-	445	-	-	445	-	-	415	-	-	415	-	-	415	-	-	415
8	-	-	336	-	-	389	-	-	389	-	-	389	-	-	364	-	-	364	-	-	364	-	-	364
9	-	-	299	-	-	346	-	-	346	-	-	346	-	-	323	-	-	323	-	-	323	-	-	323
10	268	-	269	-	-	311	-	-	311	-	-	311	-	-	291	-	-	291	-	-	291	-	-	291
11	208	-	245	-	-	283	-	-	283	-	-	283	-	-	264	-	-	264	-	-	264	-	-	264
12	165	-	224	-	-	259	-	-	259	-	-	259	-	-	242	-	-	242	-	-	242	-	-	242
13	133	-	207	217	-	240	-	-	240	-	-	240	-	-	224	-	-	224	-	-	224	-	-	224
14	108	-	192	178	-	222	-	-	222	-	-	222	195	-	208	-	-	208	-	-	208	-	-	208
15	89	178	179	147	-	208	-	-	208	-	-	208	161	-	194	-	-	194	-	-	194	-	-	194
16	74	149	168	123	-	195	177	-	195	-	-	195	135	-	182	-	-	182	-	-	182	-	-	182
17	63	125	158	104	-	183	150	-	183	-	-	183	114	-	171	163	-	171	-	-	171	-	-	171
18	53	106	149	89	-	173	128	-	173	171	-	173	98	-	162	140	-	162	-	-	162	-	-	162
19	45	91	137	76	152	164	110	-	164	148	-	164	84	-	153	120	-	153	-	-	153	-	-	153
20				66	132	156	95	-	156	128	-	156	73	145	145	104	-	145	139	-	145	-	-	145
21				57	115	146	83	-	148	112	-	148	63	126	138	91	-	138	121	-	138	-	-	138
22				50	100	133	73	-	142	98	-	142	55	111	132	80	-	132	106	-	132	-	-	132
23				44	88	122	64	128	135	87	-	135	49	97	126	70	-	126	94	-	126	121	-	126
24							57	114	130	77	-	130				62	-	121	83	-	121	107	-	121
25							51	101	124	68	-	125				55	111	116	74	-	116	96	-	116
26							45	90	114	61	-	120				49	99	112	66	-	112	86	-	112
27							40	81	106	55	110	115				44	89	108	60	-	108	77	-	108
28							36	73	99	49	99	111				40	80	104	54	-	104	69	-	104
29										45	89	107							48	97	100	63	-	100
30										40	81	100							44	88	97	57	-	97
31										37	74	93							40	80	94	52	-	94
32										34	67	88							36	73	91	47	-	91
33																						43	87	88
34																						40	79	86
35																						37	73	83
36																						34	67	81
37																								
38																							39	78
39																							36	72
40																							34	67
41																							31	62
42																								
43																								
44																								
45																								
46																								
47																								
48																								

See notes on page 35

PWI JOIST ROOF LOADS

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 77																							
	9 1/2"			11 7/8"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	559	-	-	559	-	-	559	-	-	559	-	-	559	-	-	559	-	-	856	-	-	856
7	-	-	480	-	-	480	-	-	480	-	-	480	-	-	480	-	-	480	-	-	734	-	-	734
8	-	-	420	-	-	420	-	-	420	-	-	420	-	-	420	-	-	420	-	-	642	-	-	642
9	-	-	373	-	-	373	-	-	373	-	-	373	-	-	373	-	-	373	-	-	571	-	-	571
10	303	-	336	-	-	336	-	-	336	-	-	336	-	-	336	-	-	336	-	-	514	-	-	514
11	235	-	305	-	-	305	-	-	305	-	-	305	-	-	305	-	-	305	-	-	467	-	-	467
12	186	-	280	-	-	280	-	-	280	-	-	280	-	-	280	-	-	280	-	-	428	-	-	428
13	150	-	258	242	-	258	-	-	258	-	-	258	-	-	258	-	-	258	-	-	395	-	-	395
14	122	-	240	199	-	240	-	-	240	-	-	240	-	-	240	-	-	240	-	-	367	-	-	367
15	101	201	224	165	-	224	-	-	224	-	-	224	-	-	224	-	-	224	-	-	343	-	-	343
16	84	168	210	138	-	210	196	-	210	-	-	210	-	-	210	-	-	210	-	-	321	-	-	321
17	71	141	197	116	-	197	166	-	197	-	-	197	-	-	197	-	-	197	-	-	302	-	-	302
18	60	120	186	99	-	186	142	-	186	-	-	186	-	-	186	-	-	186	-	-	285	-	-	285
19	51	103	177	85	170	177	122	-	177	163	-	177	-	-	177	-	-	177	-	-	270	-	-	270
20				74	147	168	106	-	168	141	-	168	-	-	168	-	-	168	-	-	257	-	-	257
21				64	128	160	92	-	160	123	-	160	159	-	160	-	-	160	243	-	245	-	-	245
22				56	112	153	81	-	153	108	-	153	140	-	153	-	-	153	214	-	234	-	-	234
23				49	99	146	71	142	146	96	-	146	123	-	146	-	-	146	189	-	223	-	-	223
24							63	126	140	85	-	140	109	-	140	137	-	140	168	-	214	202	-	214
25							56	112	134	75	-	134	97	-	134	122	-	134	150	-	206	180	-	206
26							50	100	129	67	-	129	87	-	129	110	-	129	134	-	198	162	-	198
27							45	90	124	60	121	124	78	-	124	98	-	124	121	-	190	146	-	190
28							40	81	120	54	109	120	71	-	120	89	-	120	109	-	183	131	-	183
29										49	98	116	64	-	116	80	-	116	99	-	177	119	-	177
30										45	89	112	58	-	112	73	-	112	90	-	171	108	-	171
31										41	81	108	53	105	108	66	-	108	82	163	166	99	-	166
32										37	74	105	48	96	105	61	-	105	75	149	160	90	-	161
33													44	88	102	55	-	102	68	136	151	82	-	156
34													40	81	99	51	-	99	63	125	142	76	-	151
35													37	74	96	47	93	96	58	115	134	70	139	146
36													34	68	93	43	86	93	53	106	127	64	128	138
37																40	80	91	49	98	120	59	119	131
38																37	74	88	45	91	114	55	110	124
39																34	68	86	42	84	108	51	102	118
40																32	63	84	39	78	103	47	95	112
41																			36	73	98	44	88	106
42																			34	68	93	41	82	101
43																			32	63	89	38	77	97
44																			30	59	85	36	72	92
45																						34	67	88
46																						32	63	85
47																						30	59	81
48																						28	56	78

See notes on page 35

PWI JOIST ROOF LOADS

SIMPLE- OR MULTIPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

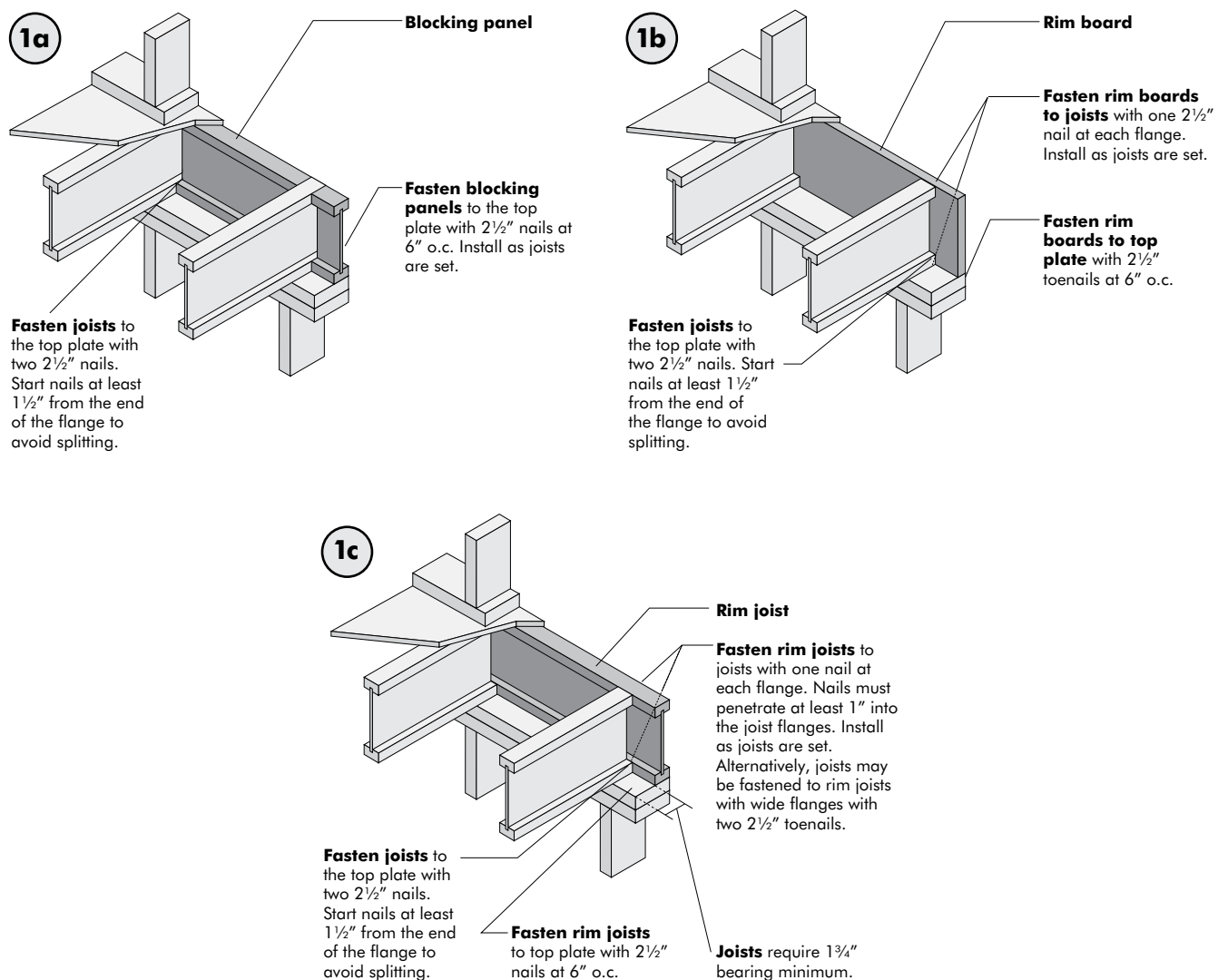
Joist Span (ft)	PWI 90																							
	9 1/2"			11 1/8"			14"			16"			18"			20"			22"			24"		
	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load	Unfactored Live Load L/360	Unfactored Total Load L/180	Factored Total Load
6	-	-	594	-	-	696	-	-	696	-	-	696	-	-	696	-	-	696	-	-	956	-	-	956
7	-	-	509	-	-	597	-	-	597	-	-	597	-	-	597	-	-	597	-	-	819	-	-	819
8	-	-	445	-	-	522	-	-	522	-	-	522	-	-	522	-	-	522	-	-	717	-	-	717
9	-	-	396	-	-	464	-	-	464	-	-	464	-	-	464	-	-	464	-	-	637	-	-	637
10	-	-	356	-	-	418	-	-	418	-	-	418	-	-	418	-	-	418	-	-	574	-	-	574
11	-	-	324	-	-	380	-	-	380	-	-	380	-	-	380	-	-	380	-	-	521	-	-	521
12	261	-	297	-	-	348	-	-	348	-	-	348	-	-	348	-	-	348	-	-	478	-	-	478
13	211	-	274	-	-	321	-	-	321	-	-	321	-	-	321	-	-	321	-	-	441	-	-	441
14	174	-	254	277	-	298	-	-	298	-	-	298	-	-	298	-	-	298	-	-	410	-	-	410
15	144	-	237	231	-	279	-	-	279	-	-	279	-	-	279	-	-	279	-	-	382	-	-	382
16	121	-	223	195	-	261	-	-	261	-	-	261	-	-	261	-	-	261	-	-	358	-	-	358
17	102	204	210	166	-	246	234	-	246	-	-	246	-	-	246	-	-	246	-	-	337	-	-	337
18	87	174	198	142	-	232	201	-	232	-	-	232	-	-	232	-	-	232	-	-	319	-	-	319
19	75	150	187	122	-	220	173	-	220	-	-	220	-	-	220	-	-	220	-	-	302	-	-	302
20				106	-	209	151	-	209	199	-	209	-	-	209	-	-	209	-	-	287	-	-	287
21				92	185	199	132	-	199	175	-	199	-	-	199	-	-	199	-	-	273	-	-	273
22				81	162	190	116	-	190	154	-	190	-	-	190	-	-	190	-	-	261	-	-	261
23				72	143	182	102	-	182	136	-	182	174	-	182	-	-	182	-	-	249	-	-	249
24							91	-	174	121	-	174	155	-	174	-	-	174	234	-	239	-	-	239
25							81	162	167	108	-	167	139	-	167	-	-	167	210	-	229	-	-	229
26							73	145	161	97	-	161	124	-	161	155	-	161	189	-	221	-	-	221
27							65	130	155	87	-	155	112	-	155	140	-	155	170	-	212	204	-	212
28							59	118	149	78	-	149	101	-	149	126	-	149	154	-	205	184	-	205
29										71	142	144	92	-	144	114	-	144	140	-	198	167	-	198
30										65	129	139	83	-	139	104	-	139	127	-	191	153	-	191
31										59	118	135	76	-	135	95	-	135	116	-	185	139	-	185
32										54	107	131	69	-	131	87	-	131	106	-	179	127	-	179
33													63	-	127	79	-	127	97	-	174	117	-	174
34													58	116	123	73	-	123	89	-	169	108	-	169
35													54	107	119	67	-	119	82	-	164	99	-	164
36													49	99	116	62	-	116	76	152	159	92	-	159
37																57	-	113	70	141	155	85	-	155
38																53	106	110	65	130	151	78	-	151
39																49	99	107	60	121	147	73	146	147
40																46	92	104	56	113	143	68	136	143
41																		52	105	140	63	126	140	
42																		49	98	137	59	118	137	
43																		46	91	133	55	110	133	
44																		43	85	130	52	103	130	
45																					48	97	127	
46																					45	91	125	
47																					43	85	122	
48																					40	80	119	

See notes on page 35

PWI JOIST FLOOR DETAILS

GENERAL NOTES

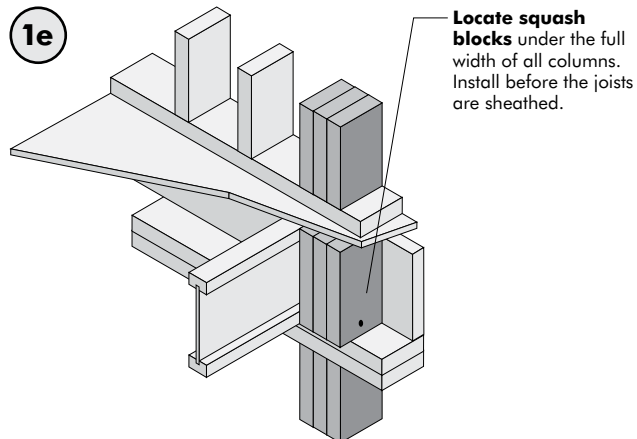
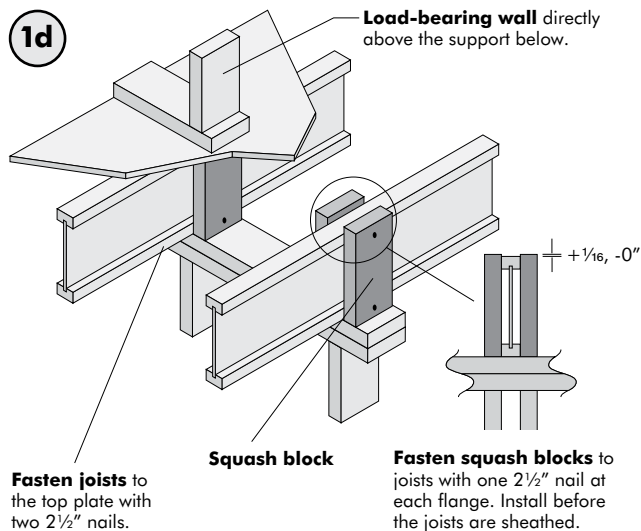
1. Nails shall be minimum 10-gauge common-wire nails unless otherwise noted. Larger diameter nails might split the flanges.
2. Fastening specifications are minimum requirements. Engineered projects might require higher strength connections. Refer to the building designer's recommendations.
3. Framing lumber is assumed to be S-P-F unless otherwise noted.
4. Mid-span bridging is not required.
5. See *Web Stiffener Requirements* on page 50.



**BLOCKING PANEL & RIM JOIST—
VERTICAL LOAD FACTORED RESISTANCE**

Depth	3/8" Web	7/16" Web
$d \leq 16"$	4000 plf	4750 plf
$18" \leq d \leq 20"$	3050 plf	3900 plf
$22" \leq d \leq 24"$	—	2850 plf

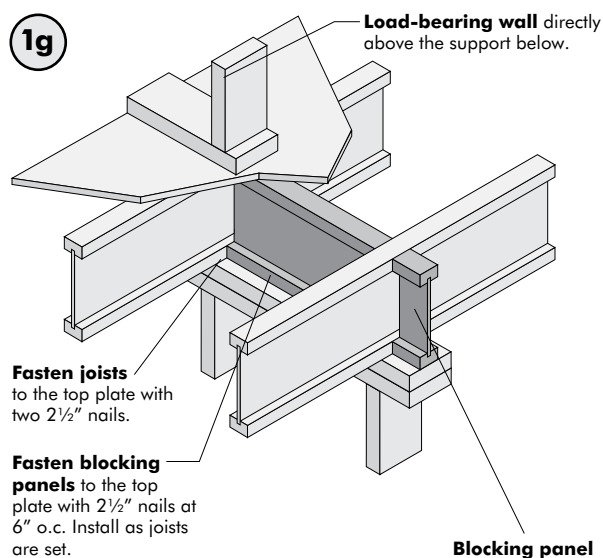
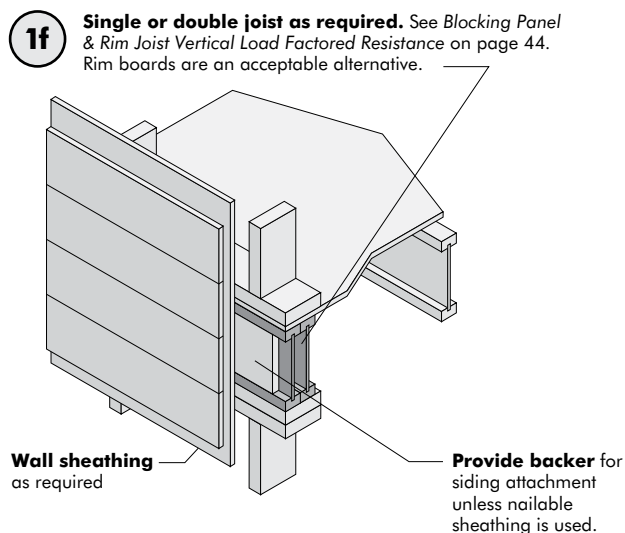
PWI JOIST FLOOR DETAILS



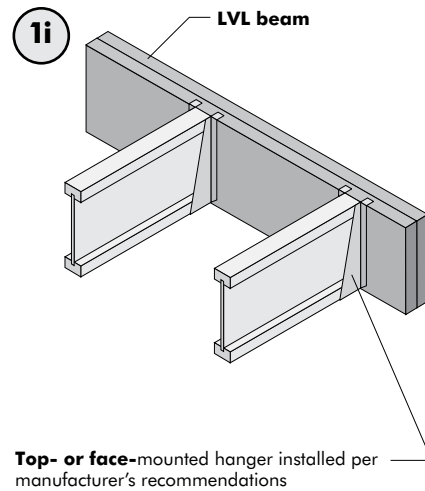
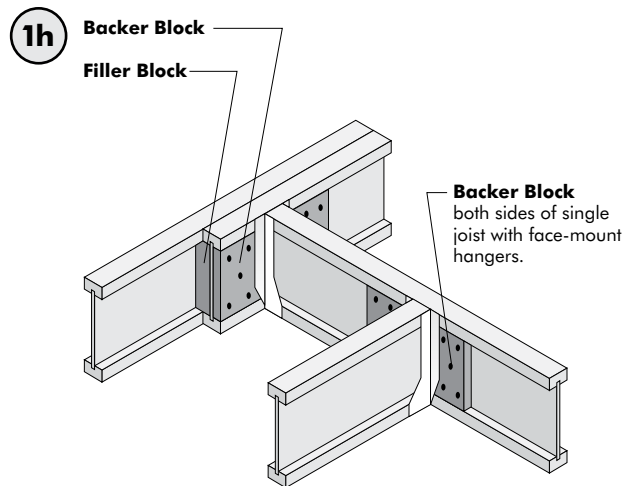
SQUASH BLOCK—VERTICAL LOAD FACTORED RESISTANCE

Pair of 2x4 Squash Blocks	5600 lbs
Pair of 2x6 Squash Blocks	8800 lbs

(Hem-Fir wall plates assumed)



PWI JOIST FLOOR DETAILS



NUMBER OF NAILS

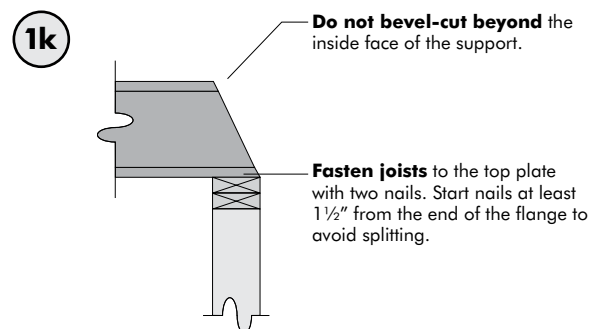
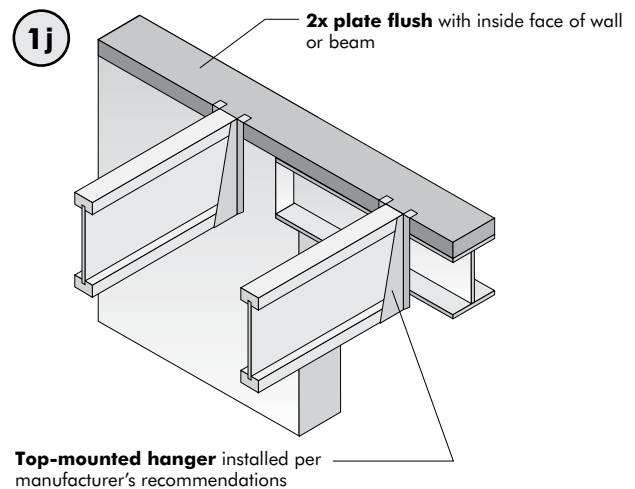
Factored Side Load	Backer Block Nails Required	Filler Block Nails Required
500 lbs	6	4
750 lbs	8	4
1000 lbs	10	6
1250 lbs	14	8
1500 lbs	16	8
1750 lbs	18	10
2000 lbs	20	10

NAIL LENGTH & BLOCK THICKNESS

Joist Flange Width	Minimum Filler Block Nail Length	Filler Block Thickness	Backer Block Thickness
1 1/2"	2 1/2"	1 1/8", 1 1/4"	1/2", 5/8"
1 3/4"	3"	1 1/2"	3/4"
2 5/16"	3 1/4"	2"	1"
2 1/2"	3 1/2"	2", 2 1/4"	1", 1 1/8"
3 1/2"	3" each side	3"	1 1/2"

Notes:

1. Factored Side Load is the concentrated load transferred by a joist hanger.
2. Use minimum 10-gauge common-wire nails. For backer blocks, use 2 1/2" nails. For filler blocks, use the length shown in the table. Note that some joists require filler block nailing from each side.
3. Blocks shall be Sheathing grade panels, Utility grade S-P-F dimension lumber, or better. Thinner blocks may be combined to achieve specified thicknesses.
4. Size and position the filler and backer blocks to receive all nails, including hanger nails, without splitting.
5. Maximum filler and backer block depth should be equal to the joist depth minus 3 1/8" to avoid an interference fit between the flanges.
6. For top-mount hangers, install backer blocks snug to the top flange.
7. Clinch nails when possible.
8. Attach hangers according to the manufacturer's instructions.

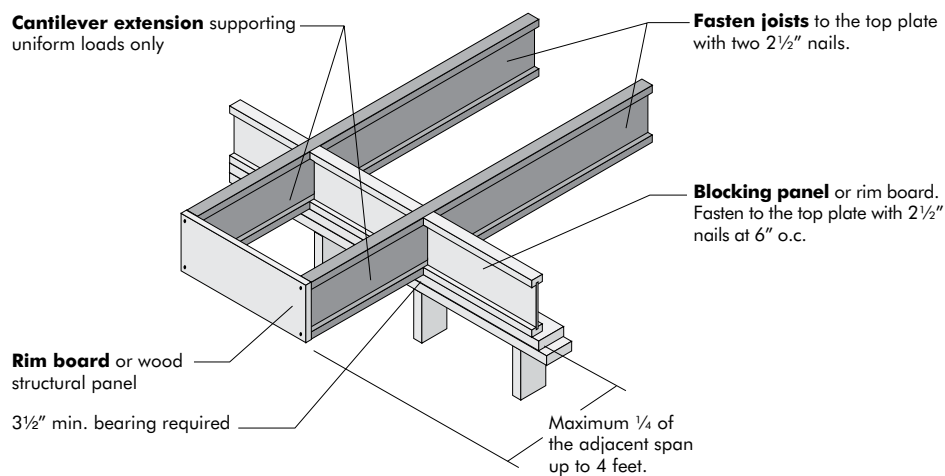


PWI JOIST CANTILEVER DETAILS

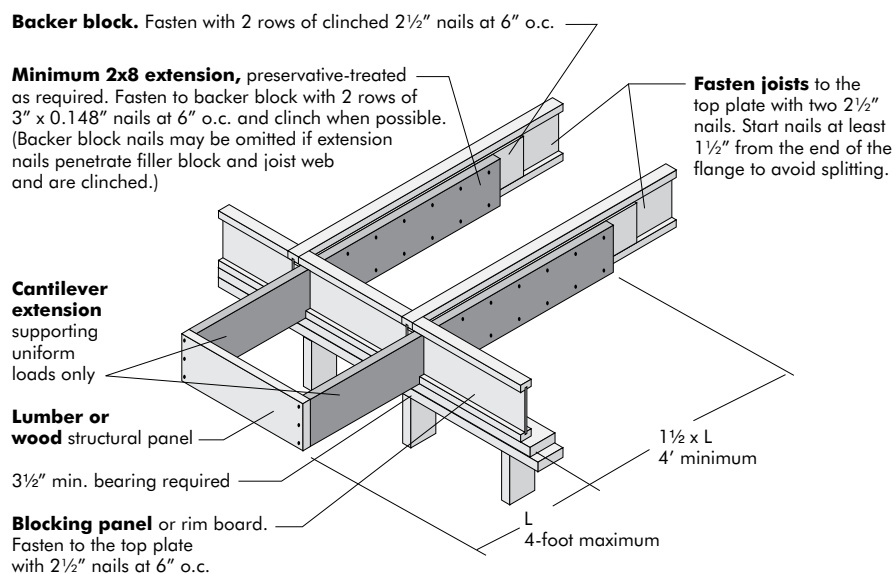
GENERAL NOTES

1. Nails shall be minimum 10-gauge common-wire nails unless otherwise noted. Larger diameter nails might split the flanges.
2. Fastening specifications are minimum requirements. Engineered projects might require higher strength connections. Refer to the building designer's recommendations.
3. Framing lumber is assumed to be S-P-F unless otherwise noted.
4. Mid-span bridging is not required.
5. See *Web Stiffener Requirements* on page 50.

INTERIOR BALCONIES

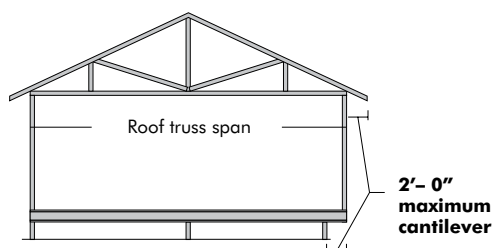


EXTERIOR BALCONIES



Note: This detail applies to balconies supporting a maximum specified live load of 60 psf.

PWI JOIST CANTILEVER REINFORCEMENT



JOISTS WITH 3/8" WEBS

Roof Truss		9 1/2" Joist				11 7/8" Joist				14" Joist				16" Joist			
Load	Span (ft)	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.	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.
20 psf Snow Load	26	0	0	0	1	0	0	0	1	0	0	0	WS	0	0	0	1
	28	0	0	0	1	0	0	1	1	0	0	0	WS	0	0	0	1
	30	0	0	1	2	0	0	1	1	0	0	0	1	0	0	0	1
	32	0	0	1	2	0	0	1	1	0	0	0	1	0	0	0	1
	34	0	0	1	2	0	0	1	1	0	0	0	1	0	0	0	1
	36	0	0	1	2	0	0	1	1	0	0	0	1	0	0	1	1
	38	0	1	1	X	0	0	1	1	0	0	WS	1	0	0	1	1
	40	0	1	2	X	0	0	1	2	0	0	1	1	0	0	1	1
30 psf Snow Load	26	0	0	1	2	0	0	1	2	0	0	1	2	0	0	1	2
	28	0	0	1	X	0	0	1	1	0	0	0	1	0	0	0	1
	30	0	1	2	X	0	0	1	1	0	0	1	1	0	0	1	1
	32	0	1	2	X	0	0	1	1	0	0	1	1	0	0	1	1
	34	0	1	2	X	0	0	1	2	0	0	1	1	0	0	1	1
	36	0	1	2	X	0	1	1	2	0	0	1	1	0	0	1	1
	38	0	2	X	X	0	1	1	2	0	1	1	1	0	1	1	1
	40	0	2	X	X	0	1	1	2	0	1	1	2	0	1	1	1
40 psf Snow Load	26	1	2	X	X	0	1	1	X	0	1	1	2	0	1	1	2
	28	0	1	2	X	0	0	1	2	0	0	1	1	0	0	1	1
	30	0	1	X	X	0	1	1	2	0	1	1	1	0	1	1	1
	32	0	2	X	X	0	1	1	2	0	1	1	1	0	1	1	1
	34	1	2	X	X	0	1	1	X	0	1	1	2	0	1	1	2
	36	1	2	X	X	0	1	2	X	0	1	1	2	0	1	1	2
	38	1	X	X	X	0	1	2	X	0	1	1	2	0	1	1	2
	42	1	X	X	X	0	1	2	X	0	1	1	2	0	1	1	2

JOISTS WITH 7/16" WEBS

Roof Truss		9 1/2" Joist				11 7/8" Joist				14" Joist				16" Joist			
Load	Span (ft)	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.	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.
20 psf Snow Load	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	32	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	34	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	36	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	38	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	40	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	WS
30 psf Snow Load	26	0	0	1	2	0	0	0	0	0	0	0	WS	0	0	0	WS
	28	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
	30	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
	32	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
	34	0	0	1	2	0	0	0	1	0	0	0	1	0	0	0	1
	36	0	0	1	X	0	0	0	1	0	0	0	1	0	0	0	1
	38	0	0	1	X	0	0	0	1	0	0	0	1	0	0	0	1
	40	0	1	2	X	0	0	0	1	0	0	0	1	0	0	0	1
40 psf Snow Load	26	0	1	2	X	0	0	0	1	0	0	0	1	0	0	0	1
	28	0	0	1	2	0	0	0	1	0	0	0	1	0	0	0	1
	30	0	0	1	X	0	0	0	1	0	0	0	1	0	0	0	1
	32	0	1	2	X	0	0	0	1	0	0	0	1	0	0	0	1
	34	0	1	2	X	0	0	0	1	0	0	0	1	0	0	0	1
	36	0	1	2	X	0	0	1	2	0	0	1	1	0	0	1	1
	38	0	1	X	X	0	0	1	2	0	0	1	1	0	0	1	1
	42	0	2	X	X	0	0	1	2	0	0	1	1	0	0	1	1

Notes:

- 0 = No reinforcement and no web stiffeners are required.
- WS = Web stiffeners are required at the cantilever support. Follow the intermediate support web stiffener nailing requirements on page 50.
- 1 = Reinforcer required on one side of the cantilever. See the detail on page 48.
- 2 = Reinforcers required on both sides of the cantilever. See the detail on page 48.
- X = Consider deeper joists or closer spacing.

Table values apply to joists sized by means of the 40 psf live load and 10 psf dead load, 1/2 in directly applied gypsum ceiling, allowable residential floor spans table on page 6 and are based on uniform loads across the ends of the cantilevers that include a 15 psf roof dead load and a 100 plf exterior wall load. Uniform loading may be assumed when window and door openings are up to three feet wide and spaced at least three feet apart. Otherwise, consider the need for extra joists under the window and door header jack studs.

Use sizing software or consult a professional engineer for conditions beyond the scope of this table.

WEB STIFFENER REQUIREMENTS

Web stiffeners are pairs of small blocks, cut from panels or 2x4's, that are nailed to the joist web to stiffen a deep web, increase reaction capacity or accommodate a special connector. Web stiffeners are not required when joists are sized by means of the tables included in this guide, with the following exceptions:

1. Web stiffeners are required at the ends of joists set in hangers that are not deep enough to laterally support the top flanges of the joists. Refer to the hanger manufacturer's installation instructions.
2. Web stiffeners are required to accommodate special connector nailing requirements. Refer to the connector manufacturer's installation instructions.
3. Web stiffeners are required at birdsmouth cuts at the low end supports of sloped joists.
4. Web stiffeners are required at all supports on 22 and 24 inch joists.

When joists are sized by means of sizing software, or otherwise engineered for an application, web stiffeners are required as follows:

1. Web stiffeners are required for high reactions at supports. Refer to the CCMC evaluation report.
2. Web stiffeners are required under concentrated loads applied to the tops of joists between supports, or along cantilevers beyond the support, when the unfactored concentrated load exceeds 1500 pounds.

I-JOIST WEB STIFFENER REQUIREMENTS

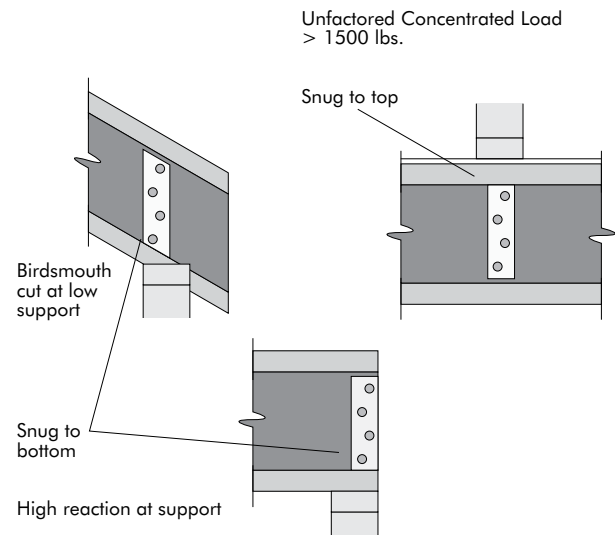
NUMBER OF WEB STIFFENER NAILS REQUIRED

Joist Depth	24" & 22"	20" & 18"	16" & Less
Intermediate Support	10	8	4
All Other Conditions	8	6	4

WEB STIFFENER SIZE REQUIRED

Flange Width	Minimum Dimensions		
	Web Stiffeners		Nails
	Thickness	Width	
1½"	1⅝"	2⅝"	2½" x 10 ga.
1¾"	1⅞"	2⅞"	2½" x 10 ga.
2⅛"	2⅜"	2⅞"	2½" x 10 ga.
2¼"	7/8"	2⅞"	2½" x 10 ga.
2½"	7/8"	2⅞"	2½" x 10 ga.
3½"	1½"	3½"	3½" x 10 ga.

Web stiffener length is approximately ⅛" less than the clear distance between flanges.



PWI JOIST WEB HOLE SPECIFICATIONS

DUCT HOLES

Minimum Distance 'D' From Any Support to the Centerline of the Hole

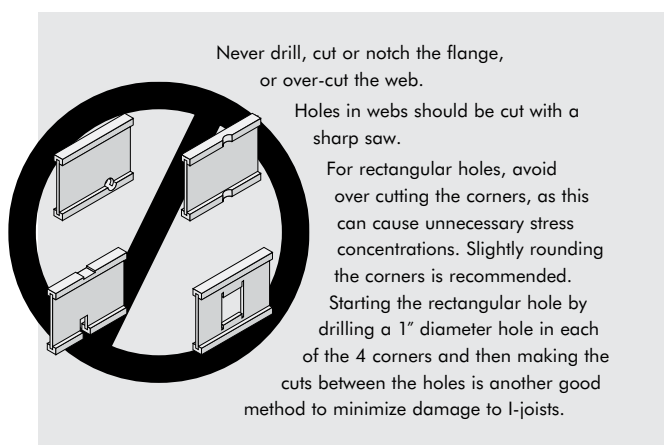
Joist Series	Joist Span (ft)	Duct Hole Width				
		8"	10"	12"	14"	16"
PWI-20	8	3'-10"	3'-11"	3'-11"		
	12	5'-9"	5'-10"	5'-11"		
	16	7'-8"	7'-10"	7'-11"		
	20	9'-7"	9'-9"	9'-11"		
	24	11'-6"	11'-9"	11'-11"		
	28	13'-5"	13'-8"	13'-11"		
PWI-30	32	15'-4"	15'-8"	15'-11"		
	8	3'-9"	3'-10"	3'-11"		
	12	5'-8"	5'-9"	5'-11"		
	16	7'-6"	7'-8"	7'-10"		
	20	9'-5"	9'-8"	9'-10"		
	24	11'-4"	11'-7"	11'-10"		
PWI-40	28	13'-3"	13'-6"	13'-10"		
	32	15'-1"	15'-5"	15'-9"		
	8	3'-7"	3'-8"	3'-10"	3'-11"	
	12	5'-5"	5'-7"	5'-9"	5'-10"	
	16	7'-3"	7'-5"	7'-8"	7'-10"	
	20	9'-1"	9'-4"	9'-7"	9'-9"	
PWI-50	24	10'-11"	11'-2"	11'-6"	11'-9"	
	28	12'-9"	13'-1"	13'-5"	13'-8"	
	32	14'-6"	14'-11"	15'-4"	15'-8"	
	8	3'-7"	3'-9"	3'-10"	3'-11"	
	12	5'-5"	5'-7"	5'-9"	5'-11"	
	16	7'-3"	7'-6"	7'-9"	7'-11"	
PWI-60	20	9'-1"	9'-5"	9'-8"	9'-11"	
	24	10'-11"	11'-3"	11'-7"	11'-11"	
	28	12'-9"	13'-2"	13'-7"	13'-11"	
	32	14'-7"	15'-1"	15'-6"	15'-11"	

DUCT HOLES

Minimum Distance 'D' From Any Support to the Centerline of the Hole

Joist Series	Joist Span (ft)	Duct Hole Width				
		8"	10"	12"	14"	16"
PWI-60	8	3'-7"	3'-8"	3'-10"	3'-11"	
	12	5'-5"	5'-7"	5'-9"	5'-10"	
	16	7'-3"	7'-5"	7'-8"	7'-10"	
	20	9'-1"	9'-4"	9'-7"	9'-9"	
	24	10'-11"	11'-2"	11'-6"	11'-9"	
	28	12'-9"	13'-1"	13'-5"	13'-8"	
PWI-70	32	14'-6"	14'-11"	15'-4"	15'-8"	
	8	3'-6"	3'-7"	3'-9"	3'-10"	3'-11"
	12	5'-3"	5'-5"	5'-7"	5'-9"	5'-10"
	16	7'-1"	7'-3"	7'-6"	7'-8"	7'-10"
	20	8'-10"	9'-1"	9'-4"	9'-7"	9'-10"
	24	10'-7"	10'-11"	11'-3"	11'-6"	11'-9"
77 (depths to 20")	28	12'-5"	12'-9"	13'-1"	13'-5"	13'-9"
	32	14'-2"	14'-7"	15'-0"	15'-4"	15'-9"
	8	3'-8"	3'-10"	3'-11"		
	12	5'-7"	5'-9"	5'-10"		
	16	7'-5"	7'-8"	7'-10"		
	20	9'-4"	9'-7"	9'-9"		
90 (depths to 20")	24	11'-2"	11'-6"	11'-9"		
	28	13'-1"	13'-5"	13'-8"		
	32	14'-11"	15'-4"	15'-8"		
	8	3'-9"	3'-9"	3'-10"	3'-11"	
	12	5'-7"	5'-8"	5'-10"	5'-11"	
	16	7'-6"	7'-7"	7'-9"	7'-11"	
PWI-80	20	9'-4"	9'-6"	9'-8"	9'-10"	
	24	11'-3"	11'-5"	11'-8"	11'-10"	
	28	13'-1"	13'-4"	13'-7"	13'-10"	
	32	15'-0"	15'-3"	15'-6"	15'-10"	

For depths greater than 20", consult a professional engineer to size and locate duct holes. See GENERAL NOTES below.



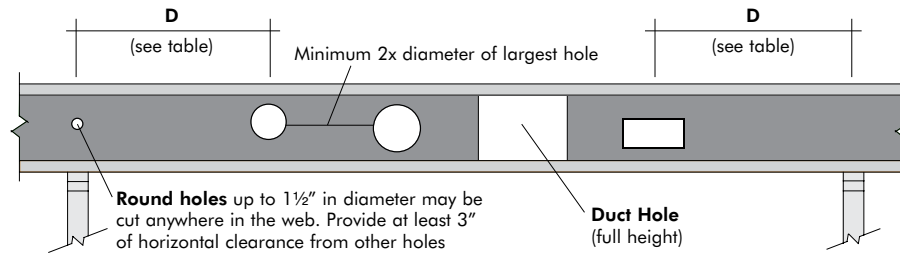
GENERAL NOTES

- Table values apply to joists sized by means of the load or span tables in this publication. Consult a professional engineer, for a more precise analysis or to analyze conditions outside of the scope of these tables.
- Web holes may be located anywhere between the joist flanges. Leave at least 1/8 inch clearance between the edges of holes and the flanges.
- Do not cut rectangular holes, or round holes larger than 1 1/2 inch diameter, in cantilevers.
- The horizontal clearance between the edges of adjacent holes must be at least twice the diameter (or longest side) of the larger hole.

Exception: A 1 1/2 inch diameter hole may be drilled anywhere in the web. Provide at least 3 inches of horizontal clearance from adjacent holes of any size.
- 1 1/2 inch diameter holes are factory-scored in the web at 16 inches on centre.

PWI JOIST WEB HOLE SPECIFICATIONS

JOIST TYPICAL HOLES



ROUND AND RECTANGULAR HOLES — Minimum Distance 'D' From Any Support to the Centerline of the Hole

Round Hole Diameter		2"	3"	4"	5"	6"	6 1/4"	8 5/8"	10"	10 3/4"	12"	12 3/4"	14 3/4"	16 3/4"
Rectangular Hole Side		1 1/2"	2 1/4"	3"	3 3/4"	4 1/2"	4 5/8"	6 3/8"	7 1/2"	8"	9"	9 1/2"	11"	12 1/2"
9 1/2" Joist	Span (ft)	8	1'-1"	1'-7"	2'-2"	2'-8"	3'-2"	3'-4"						
		12	1'-7"	2'-5"	3'-2"	4'-0"	4'-9"	5'-0"						
		16	2'-2"	3'-2"	4'-3"	5'-4"	6'-4"	6'-7"						
		20	2'-8"	4'-0"	5'-4"	6'-7"	7'-11"	8'-3"						
		24	3'-2"	4'-9"	6'-4"	7'-11"	9'-6"	9'-11"						
		28	3'-9"	5'-7"	7'-5"	9'-3"	11'-1"	11'-7"						
11 7/8" Joist	Span (ft)	32	4'-3"	6'-4"	8'-6"	10'-7"	12'-8"	13'-2"						
		8	1'-1"	1'-2"	1'-8"	2'-1"	2'-6"	2'-7"	3'-8"					
		12	1'-1"	1'-9"	2'-5"	3'-1"	3'-9"	3'-11"	5'-5"					
		16	1'-6"	2'-4"	3'-3"	4'-1"	4'-11"	5'-2"	7'-3"					
		20	1'-10"	2'-11"	4'-0"	5'-1"	6'-2"	6'-5"	9'-0"					
		24	2'-2"	3'-6"	4'-10"	6'-1"	7'-5"	7'-9"	10'-10"					
14" Joist	Span (ft)	28	2'-7"	4'-1"	5'-7"	7'-1"	8'-8"	9'-0"	12'-7"					
		32	2'-11"	4'-8"	6'-5"	8'-2"	9'-10"	10'-4"	14'-5"					
		8	1'-1"	1'-2"	1'-2"	1'-5"	1'-10"	1'-11"	2'-10"	3'-5"	3'-9"			
		12	1'-1"	1'-2"	1'-6"	2'-1"	2'-8"	2'-10"	4'-3"	5'-1"	5'-7"			
		16	1'-1"	1'-2"	1'-11"	2'-9"	3'-7"	3'-9"	5'-8"	6'-10"	7'-5"			
		20	1'-1"	1'-5"	2'-5"	3'-5"	4'-5"	4'-8"	7'-1"	8'-6"	9'-3"			
16" Joist	Span (ft)	24	1'-1"	1'-8"	2'-11"	4'-1"	5'-4"	5'-8"	8'-6"	10'-2"	11'-1"			
		28	1'-1"	2'-0"	3'-5"	4'-10"	6'-3"	6'-7"	9'-11"	11'-11"	12'-11"			
		32	1'-1"	2'-3"	3'-10"	5'-6"	7'-1"	7'-6"	11'-4"	13'-7"	14'-9"			
		8	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	2'-0"	2'-7"	2'-11"	3'-5"	3'-9"	
		12	1'-1"	1'-2"	1'-2"	1'-3"	1'-5"	1'-7"	3'-0"	3'-10"	4'-4"	5'-1"	5'-7"	
		16	1'-1"	1'-2"	1'-2"	1'-3"	1'-11"	2'-1"	4'-0"	5'-2"	5'-9"	6'-9"	7'-5"	
18" Joist	Span (ft)	20	1'-1"	1'-2"	1'-2"	1'-4"	2'-4"	2'-7"	5'-0"	6'-5"	7'-2"	8'-6"	9'-3"	
		24	1'-1"	1'-2"	1'-2"	1'-7"	2'-10"	3'-1"	6'-0"	7'-8"	8'-7"	10'-2"	11'-1"	
		28	1'-1"	1'-2"	1'-2"	1'-10"	3'-3"	3'-8"	7'-0"	9'-0"	10'-1"	11'-10"	12'-11"	
		32	1'-1"	1'-2"	1'-2"	2'-1"	3'-9"	4'-2"	8'-0"	10'-3"	11'-6"	13'-6"	14'-9"	
		8	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	1'-8"	2'-0"	2'-6"	2'-10"	3'-8"
		12	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-8"	2'-6"	3'-0"	3'-9"	4'-3"	5'-6"
20" Joist	Span (ft)	16	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	2'-2"	3'-4"	3'-11"	5'-0"	5'-8"	7'-4"
		20	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	2'-8"	4'-2"	4'-11"	6'-3"	7'-0"	9'-2"
		24	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	3'-3"	5'-0"	5'-11"	7'-6"	8'-5"	10'-11"
		28	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	3'-9"	5'-9"	6'-11"	8'-9"	9'-10"	12'-9"
		32	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	4'-4"	6'-7"	7'-10"	10'-0"	11'-3"	14'-7"
		8	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	1'-5"	1'-6"	1'-9"	2'-1"	2'-11"
22" Joist	Span (ft)	12	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	1'-5"	1'-11"	2'-8"	3'-1"	4'-4"
		16	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	2'-4"	3'-1"	4'-4"	5'-2"	7'-2"
		20	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	2'-9"	3'-9"	5'-3"	6'-2"	8'-7"
		24	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	3'-9"	5'-3"	6'-2"	8'-7"	11'-1"
		28	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	3'-3"	4'-4"	6'-1"	7'-2"	10'-0"
		32	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-6"	3'-8"	4'-11"	7'-0"	8'-2"	11'-6"
24" Joist	Span (ft)	8	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	1'-5"	1'-6"	1'-10"	2'-0"	2'-7"
		12	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	1'-11"	2'-3"	2'-9"	3'-0"	3'-10"
		16	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	2'-7"	3'-4"	4'-6"	5'-0"	6'-4"
		20	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	2'-3"	3'-2"	3'-8"	4'-6"	5'-0"	6'-4"
		24	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	2'-9"	3'-10"	4'-5"	5'-5"	6'-0"	7'-8"
		28	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	3'-2"	4'-6"	5'-2"	6'-4"	7'-0"	8'-11"
24" Joist	Span (ft)	32	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	3'-8"	5'-1"	5'-11"	7'-3"	8'-0"	10'-2"
		8	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	1'-5"	1'-6"	1'-10"	2'-0"	2'-7"
		12	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	1'-11"	2'-3"	2'-9"	3'-0"	3'-10"
		16	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-5"	2'-7"	3'-4"	4'-6"	5'-0"	6'-4"
		20	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	2'-3"	3'-2"	3'-8"	4'-6"	5'-0"	6'-4"
		24	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	2'-9"	3'-10"	4'-5"	5'-5"	6'-0"	7'-8"

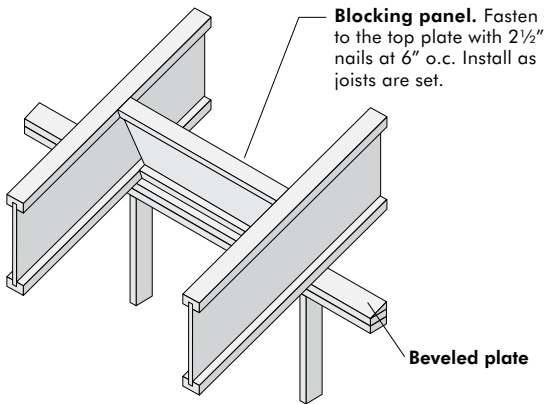
See notes on page 51

PWI JOIST ROOF DETAILS

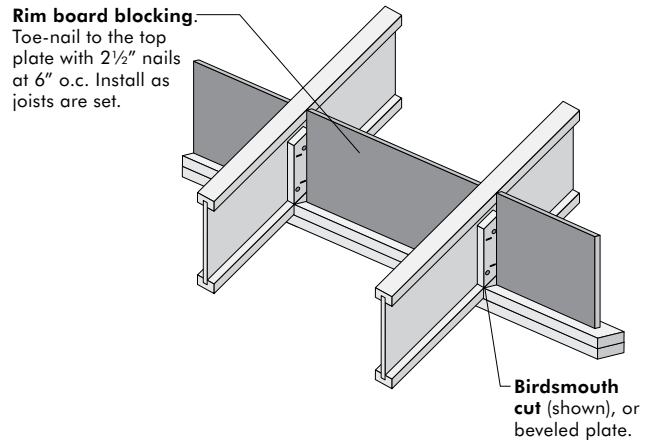
TYPICAL I-JOIST ROOF FRAMING AND CONSTRUCTION DETAILS

Individual components not shown to scale for clarity.

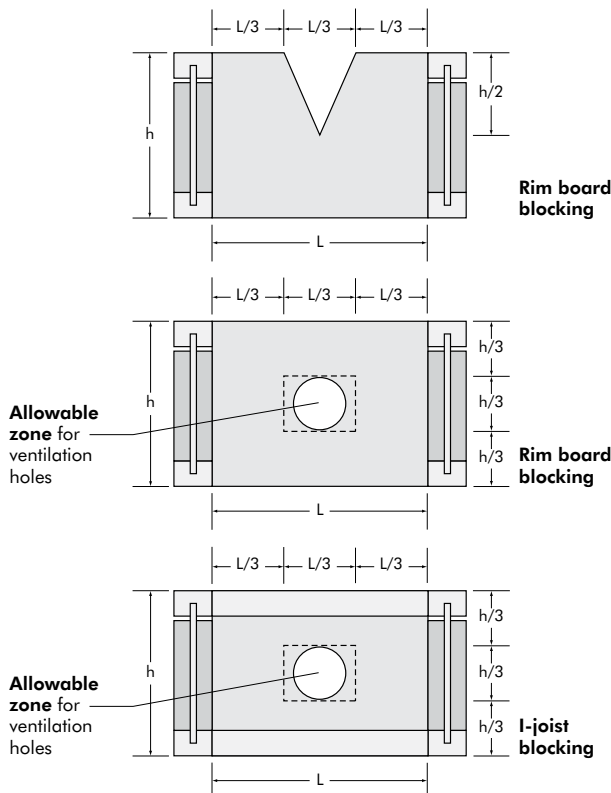
2a LATERAL SUPPORT DETAIL



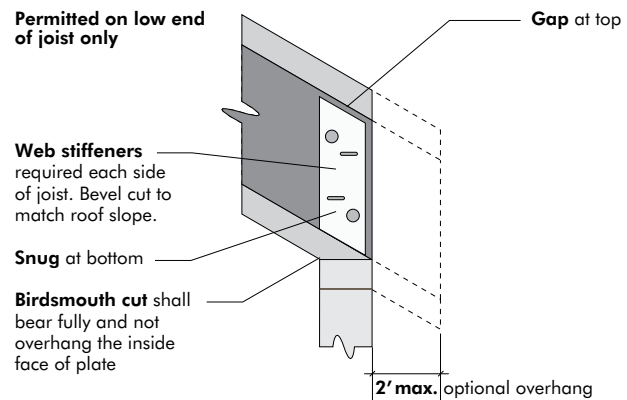
2b LATERAL SUPPORT DETAIL



2c VENTILATION HOLES



2d BIRDSMOUTH CUT DETAIL



GENERAL NOTES

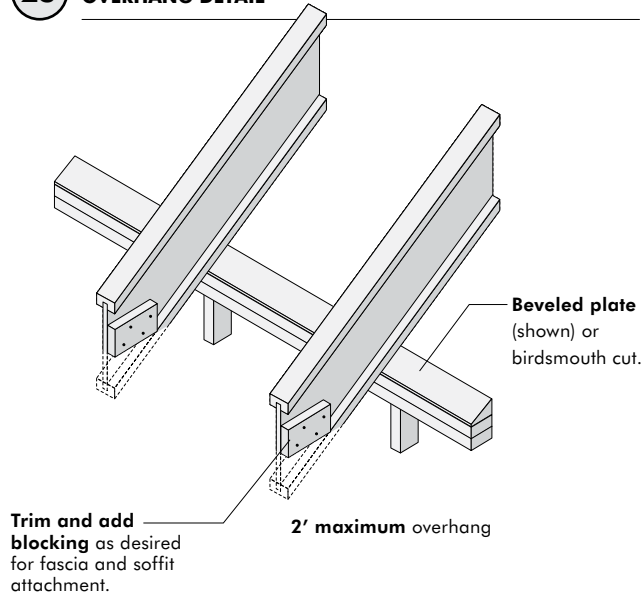
1. Use minimum 10-gauge common-wire nails unless otherwise noted. Larger diameter nails might split the flanges.
2. Fasten joists to the top plate with at least two 2 1/2" nails. Start nails at least 1 1/2" from the end of the flange to avoid splitting.
3. Minimum bearing length requirements are 1 3/4" at end supports and 3 1/2" at intermediate supports.
4. See *Web Stiffener Requirements* on page 50.
5. Framing lumber is assumed to be S-P-F unless otherwise noted.
6. Joists sloped more than 1/4 in 12 must be birdsmouth-cut or set on sloped supports (e.g. beveled wall plates, sloped-seat hangers). Birdsmouth cuts are allowed only at a low end supports. Do not make birdsmouth cuts at high end supports or at intermediate supports.
7. Details apply to joists sloped 12 in 12 and less.
8. Engineered designs may call for different connections. Refer to the designer's specifications.
9. Lateral support, to prevent lateral movement and rotation, is required at all supports.
10. Attach straps and hangers according to the manufacturer's instructions.

PWI JOIST ROOF DETAILS

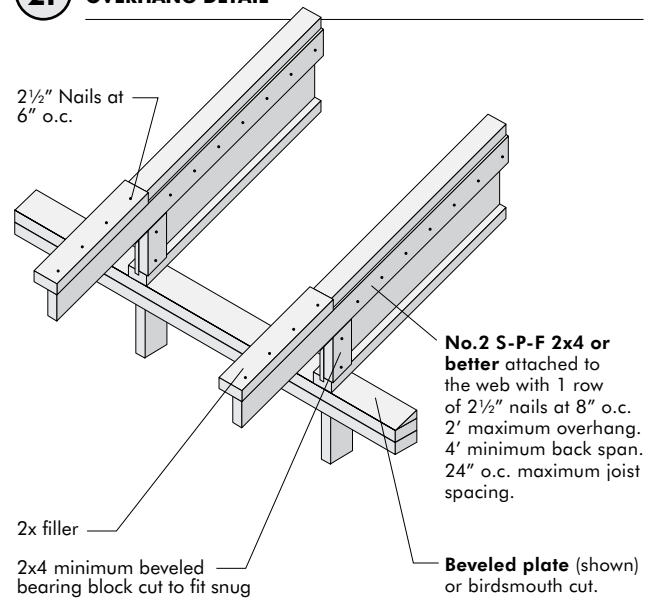
TYPICAL I-JOIST ROOF FRAMING AND CONSTRUCTION DETAILS

Individual components not shown to scale for clarity.

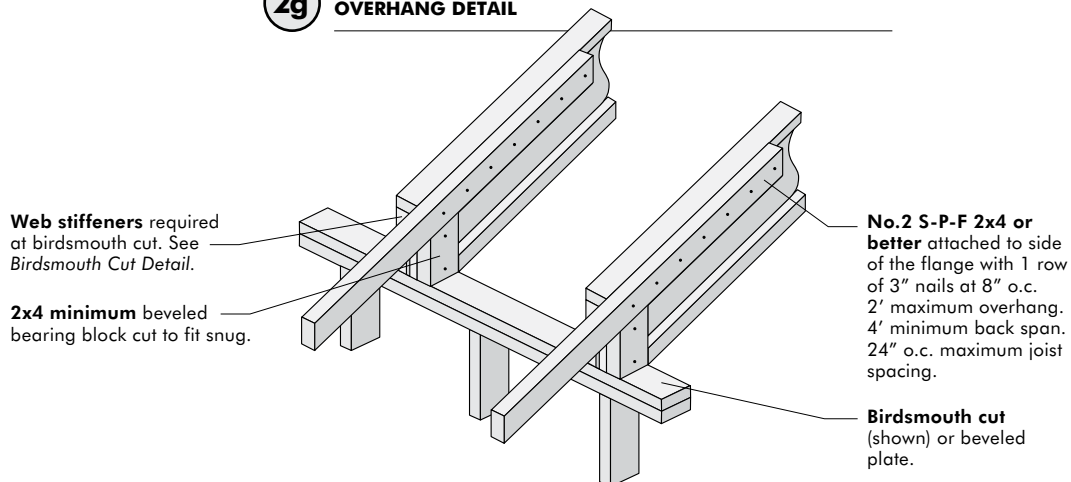
2e OVERHANG DETAIL



2f OVERHANG DETAIL



2g OVERHANG DETAIL

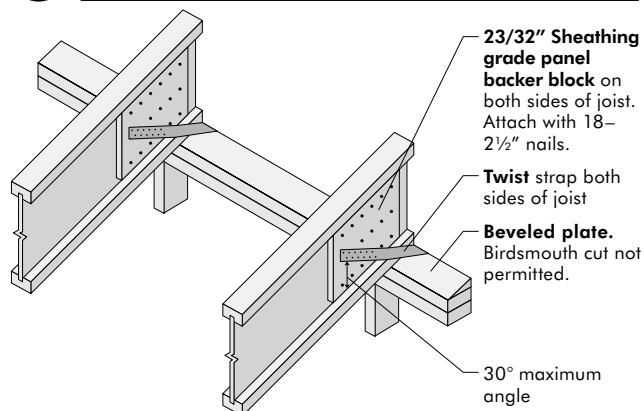


PWI JOIST ROOF DETAILS

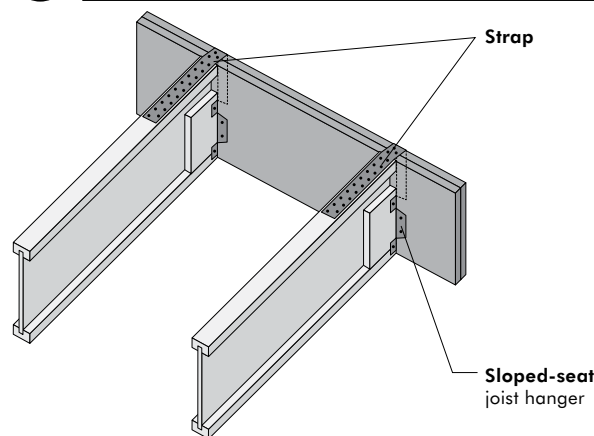
TYPICAL I-JOIST ROOF FRAMING AND CONSTRUCTION DETAILS

Individual components not shown to scale for clarity

2h PEAK DETAIL



2i PEAK DETAIL

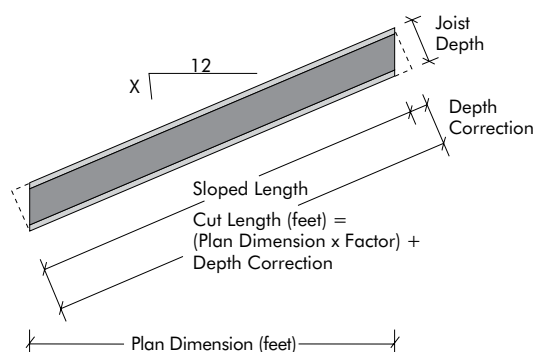


GENERAL NOTES

1. Use minimum 10-gauge common-wire nails unless otherwise noted. Larger diameter nails might split the flanges.
2. Fasten joists to the top plate with at least two 2 1/2" nails. Start nails at least 1 1/2" from the end of the flange to avoid splitting.
3. Minimum bearing length requirements are 1 3/4" at end supports and 3 1/2" at intermediate supports.
4. See *Web Stiffener Requirements* on page 50.
5. Framing lumber is assumed to be S-P-F unless otherwise noted.
6. Joists sloped more than 1/4 in 12 must be birdsmouth-cut or set on sloped supports (e.g. beveled wall plates, sloped-seat hangers). Birds-mouth cuts are allowed only at a low end supports. Do not make birdsmouth cuts at high end supports or at intermediate supports.
7. Details apply to joists sloped 12 in 12 and less.
8. Engineered designs may call for different connections. Refer to the designer's specifications.
9. Lateral support, to prevent lateral movement and rotation, is required at all supports.
10. Attach straps and hangers according to the manufacturer's instructions.

UP-THE-SLOPE SPANS & CUTTING LENGTHS FOR SLOPED ROOFS

Slope	Factor	Joist Depth (inches)			
		9½	11½	14	16
		Depth Correction (feet)			
1 in 12	1.00	0.07	0.08	0.10	0.11
2 in 12	1.01	0.13	0.16	0.19	0.22
2.5 in 12	1.02	0.16	0.21	0.24	0.28
3 in 12	1.03	0.20	0.25	0.29	0.33
3.5 in 12	1.04	0.23	0.29	0.34	0.39
4 in 12	1.05	0.26	0.33	0.39	0.44
4.5 in 12	1.07	0.30	0.37	0.44	0.50
5 in 12	1.08	0.33	0.41	0.49	0.56
6 in 12	1.12	0.40	0.49	0.58	0.67
7 in 12	1.16	0.46	0.58	0.68	0.78
8 in 12	1.20	0.53	0.66	0.78	0.89
9 in 12	1.25	0.59	0.74	0.88	1.00
10 in 12	1.30	0.66	0.82	0.97	1.11
11 in 12	1.36	0.73	0.91	1.07	1.22
12 in 12	1.41	0.79	0.99	1.17	1.33

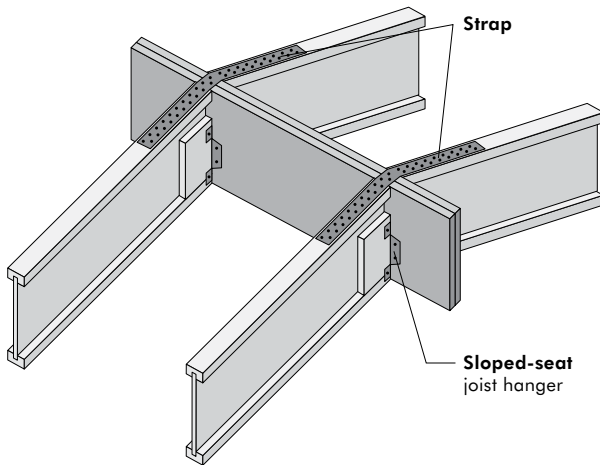


PWI JOIST ROOF DETAILS

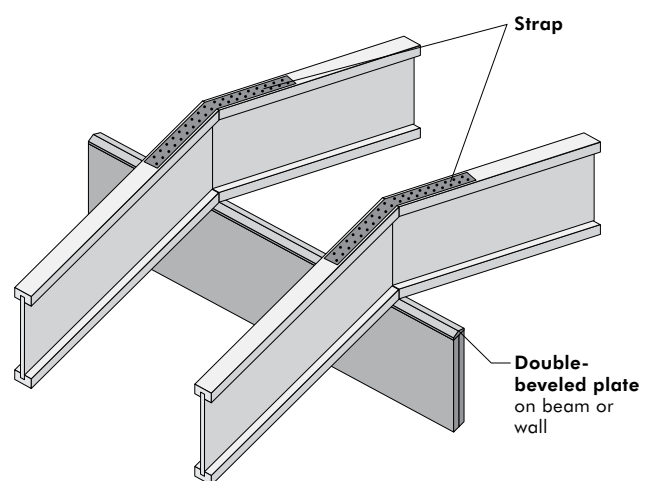
TYPICAL I-JOIST ROOF FRAMING AND CONSTRUCTION DETAILS

Individual components not shown to scale for clarity.

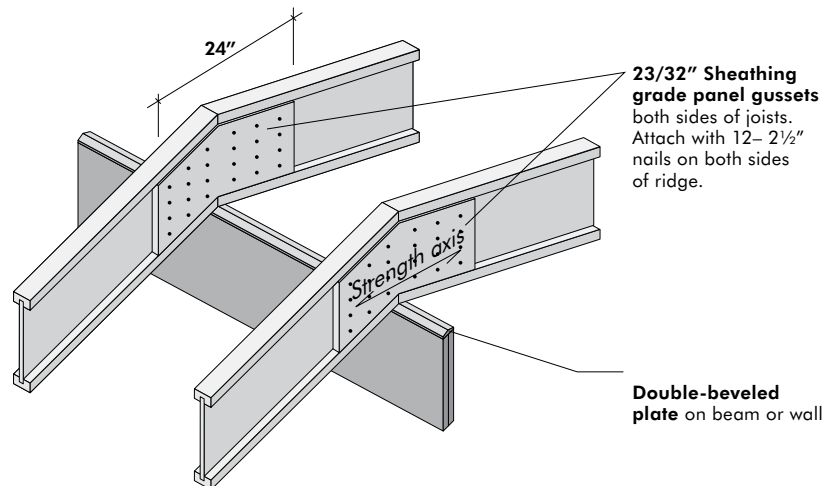
2j RIDGE DETAIL



2k RIDGE DETAIL



2l RIDGE DETAIL

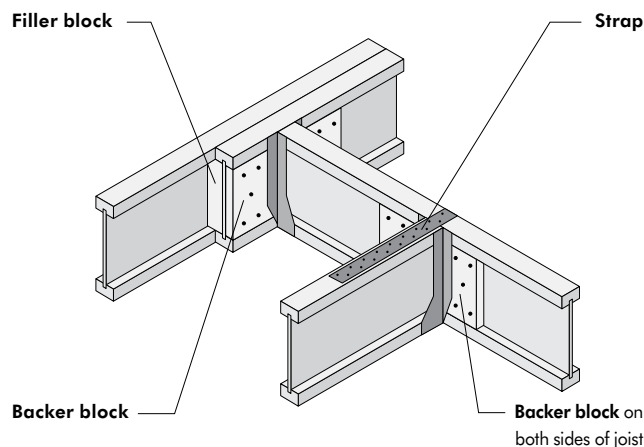


PWI JOIST ROOF DETAILS

TYPICAL I-JOIST ROOF FRAMING AND CONSTRUCTION DETAILS

Individual components not shown to scale for clarity

2m ROOF OPENING DETAIL



GENERAL NOTES

1. Use minimum 10-gauge common-wire nails unless otherwise noted. Larger diameter nails might split the flanges.
2. Fasten joists to the top plate with at least two 2½" nails. Start nails at least 1½" from the end of the flange to avoid splitting.
3. Minimum bearing length requirements are 1¾" at end supports and 3½" at intermediate supports.
4. See *Web Stiffener Requirements* on page 50.
5. Framing lumber is assumed to be S-P-F unless otherwise noted.
6. Joists sloped more than ¼ in 12 must be birdsmouth-cut or set on sloped supports (e.g. beveled wall plates, sloped-seat hangers). Birds mouth cuts are allowed only at a low end supports. Do not make birdsmouth cuts at high end supports or at intermediate supports.
7. Details apply to joists sloped 12 in 12 and less.
8. Engineered designs may call for different connections. Refer to the designer's specifications.
9. Lateral support, to prevent lateral movement and rotation, is required at all supports.
10. Attach straps and hangers according to the manufacturer's instructions.

NUMBER OF NAILS

Factored Side Load (lbs)	Backer Block Nails Required	Filler Block Nails Required
500	6	4
750	8	4
1000	10	6
1250	14	8
1500	16	8
1750	18	10
2000	20	10

NAIL LENGTH & BLOCK THICKNESS

Joist Flange Width	Min. Filler Block Nail Length	Filler Block Thickness	Backer Block Thickness
1½"	2½"	1⅛", 1¼"	½", ⅝"
1¾"	3"	1½"	¾"
2⅝"	3¼"	2"	1"
2½"	3½"	2", 2¼"	1", 1⅛"
3½"	3" each side	3"	1½"

1. Factored Side Load is the concentrated load transferred by a joist hanger.
2. Use minimum 10-gauge common-wire nails. For backer blocks, use 2½" nails. For filler blocks, use the length shown in the table. Note that some joists require filler block nailing from each side. Clinch nails when possible.
3. Blocks shall be Sheathing grade panels, Utility grade S-P-F dimension lumber, or better. Thinner blocks may be combined to achieve specified thicknesses.
4. Size and position the filler and backer blocks to receive all nails, including hanger nails, without splitting.
5. Maximum filler and backer block depth should be equal to the joist depth minus 3⅛" to avoid an interference fit between the flanges.
6. For top-mount hangers, install backer blocks snug to the top flange.
7. Clinch nails when possible.
8. Attach hangers according to manufacturer's instructions.