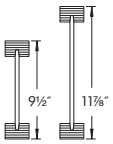
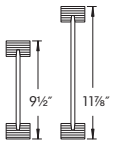
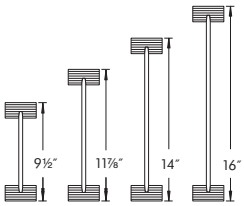
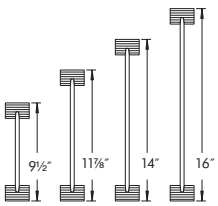
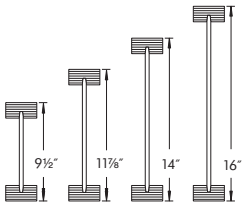
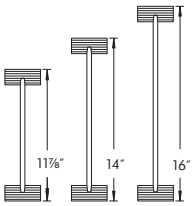
DESIGN PROPERTIES

I-JOIST ILLUSTRATION DIMENSIONS

RFPI® 20	RFPI® 30	RFPI® 40	RFPI® 50	RFPI® 70	RFPI® 90
					
1¾″ x 1⅜″ LVL Flange ⅜″ OSB Web	1½″ x 1½″ LVL Flange ⅜″ OSB Web	2⁵⁄₁₆″ x 1⅜″ LVL Flange ⅜″ OSB Web	1¾″ x 1½″ LVL Flange ⅜″ OSB Web	2⁵⁄₁₆″ x 1½″ LVL Flange ⅜″ OSB Web	3½″ x 1½″ LVL Flange ⁷⁄₁₆″ OSB Web
PRI 20	**PRI 30**	**PRI 40**	**PRI 50**	**PRI 70**	**PRI 90**

DESIGN PROPERTIES FOR RFPI-JOISTS(1)

Roseburg Designation	APA PRI	EI[2] 10^6 lb-in.^{2}	M[3] lb-ft	V[4] lb	IR[5] lb	ER[6] lb	K[7] 10^6 lb	Weight plf
9½″ RFPI 20	9½″ PRI 20	145	2,520	1,120	1,700	830	4.94	1.97
9½″ RFPI 30	9½″ PRI 30	161	3,225	1,120	1,905	945	4.94	2.03
9½″ RFPI 40	9½″ PRI 40	193	2,735	1,120	2,160	1,080	4.94	2.37
9½″ RFPI 50	9½″ PRI 50	186	3,800	1,120	2,040	1,015	4.94	2.18
9½″ RFPI 70	Not Applicable	245	4,935	1,120	2,335	1,160	4.94	2.57
11⅞″ RFPI 20	11⅞″ PRI 20	253	3,265	1,420	1,700	830	6.18	2.20
11⅞″ RFPI 30	11⅞″ PRI 30	280	4,170	1,420	1,905	945	6.18	2.27
11⅞″ RFPI 40	11⅞″ PRI 40	330	3,545	1,420	2,500	1,200	6.18	2.61
11⅞″ RFPI 50	11⅞″ PRI 50	322	4,915	1,420	2,040	1,015	6.18	2.41
11⅞″ RFPI 70	11⅞″ PRI 70	420	6,595	1,420	2,335	1,160	6.18	2.91
11⅞″ RFPI 90	11⅞″ PRI 90	604	8,770	1,925	3,355	1,400	6.18	3.84
14″ RFPI 40	14″ PRI 40	482	4,270	1,710	2,500	1,200	7.28	2.87
14″ RFPI 50	14″ PRI 50	480	5,860	1,710	2,040	1,015	7.28	2.67
14″ RFPI 70	14″ PRI 70	613	7,865	1,710	2,335	1,160	7.28	3.13
14″ RFPI 90	14″ PRI 90	881	10,460	2,125	3,355	1,400	7.28	4.14
16″ RFPI 40	16″ PRI 40	657	4,950	1,970	2,500	1,200	8.32	3.14
16″ RFPI 50	16″ PRI 50	663	6,715	1,970	2,040	1,015	8.32	2.86
16″ RFPI 70	16″ PRI 70	841	9,010	1,970	2,335	1,160	8.32	3.35
16″ RFPI 90	16″ PRI 90	1,192	11,985	2,330	3,355	1,400	8.32	4.42

(1) The tabulated values are design values for 100% duration of load. All values except for EI and K are permitted to be adjusted for other load durations as permitted by code.

(2) Bending stiffness (EI) of the I-joist.

(3) Moment capacity (M) of a single I-joist. **Moment capacity of the I-Joist shall not be increased by any repetitive member use factor.**

(4) Shear capacity (V) with a minimum bearing length of 4 inches (5 inches for 14-inch and 16-inch RFPI®-50).

(5) Intermediate reaction (IR) with a minimum bearing length of 3½″ without web stiffeners.

(6) End reaction (ER) of the I-joist with a minimum bearing length of 1¾″ without web stiffeners. Higher end reactions are permitted. For a bearing length of 4″ (5″ for 14″ and 16″ RFPI 50s), the end reaction may be set equal to the tabulated shear value. Interpolation of the end reaction between 1¾″ and 4″ (5″ for 14″ and 16″ RFPI 50s) of bearing is permitted. For interpolated end reaction values over 1550 lb, web stiffeners are required, except for RFPI 90, which requires a web stiffener for interpolated reactions over 1885 lb.

(7) Coefficient of shear deflection (K), used to calculate deflections for I-joist application. Equations 1 and 2 below are provided for uniform load and center point load conditions for simple spans.

Uniform Load:

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

Center-Point Load:

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

where:
δ = calculated deflection (in.)
ω = uniform load (lb/in.)
ℓ = design span (in.)
P = concentrated load (lb)
EI = bending stiffness of the I-joist (lb-in^2)
K = coefficient of shear deflection (lb)