

## 2.2E Parallam® PSL 20", 22", and 24" Deep Beams

### Available Sizes for 2.2E Parallam® PSL

2.2E Parallam® PSL headers and beams are available in the following standard sizes:

**Widths:** 3½", 5¼", and 7"

**Depths:** 20", 22", and 24"

**Lengths:** up to 66'

Custom widths and depths are also available. Contact your Weyerhaeuser representative for details.

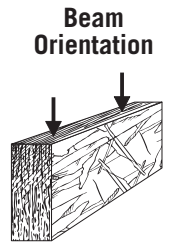
### General Assumptions for Trus Joist® Beams

- Lateral support is required at all bearing points and along the compression edge at intervals of 48" on-center, maximum.
- No camber.
- Beams and columns must remain straight to within 5L/4608 (in.) of true alignment. L is the unrestrained length of the member in feet.

### Specified Strengths<sup>(1)</sup> and Moduli of Elasticity (Standard Term)

Shear modulus of elasticity	G	=	137,500 psi
<b>Modulus of elasticity</b>	<b>E</b>	=	<b>2.2 x 10<sup>6</sup> psi</b>
Flexural stress	f <sub>b</sub>	=	5,360 psi <sup>(2)</sup>
Tension stress	f <sub>t</sub>	=	3,750 psi <sup>(3)</sup>
Compression perpendicular to grain	f <sub>c⊥</sub>	=	1,135 psi <sup>(4)</sup>
Compression parallel to grain	f <sub>c  </sub>	=	4,630 psi <sup>(5)</sup>
Horizontal shear parallel to grain	f <sub>v</sub>	=	540 psi
Equivalent specific gravity	SG	=	0.50 <sup>(6)</sup>
Density		=	45 lbs/ft <sup>3</sup>

- (1) To obtain factored resistances, apply the appropriate formulae from CSA 086 to the specified strengths shown.
- (2) For 12" depth. For other depths, multiply by  $\left[\frac{12}{d}\right]^{0.111}$ .
- (3) f<sub>t</sub> has been adjusted to reflect the volume effects for most standard applications.
- (4) f<sub>c⊥</sub> shall not be increased for duration of load.
- (5) For column applications, use a specified strength of 800 psi. Alternatively, refer to CCMC 11161-R, Table 4.1.1, footnote 9.
- (6) For lateral connection design only.



*Use Trus Joist® Forte® single-member sizing software to help design deep-depth Parallam® PSL members. Forte® is available as a free download at: [woodbywy.com/software/forte-software/](http://woodbywy.com/software/forte-software/)*

Code Evaluation: See CCMC 11161-R

*Untreated Parallam® PSL is intended for dry-use applications.*

### Bearing Length Requirements

Factored Reaction (lbs)	Beam Width		
	3½"	5¼"	7"
6,000	2"	1½"	1½"
8,000	2¾"	1¾"	1½"
10,000	3¼"	2¼"	1¾"
12,000	4"	2¾"	2"
14,000	4½"	3"	2¼"
16,000	5¼"	3½"	2¾"
18,000	5¾"	4"	3"
20,000	6½"	4¼"	3¼"
22,000	7"	4¾"	3½"
24,000	7¾"	5¼"	4"
26,000		5½"	4¼"
28,000		6"	4½"
30,000		6½"	4¾"
32,000		6¾"	5¼"
34,000		7¼"	5½"

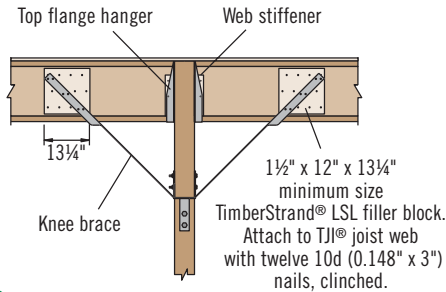
### General Notes

- **Minimum bearing length:** 1½" at ends, 3½" at intermediate supports.
- Bearing across full beam width is required.
- Bearing lengths for Parallam® PSL are based on a factored bearing resistance of 910 psi.
- Bearing length may need to be increased if the factored bearing resistance of the support member is less than 910 psi.
- Interpolation between reaction loads is permitted for determining bearing lengths.



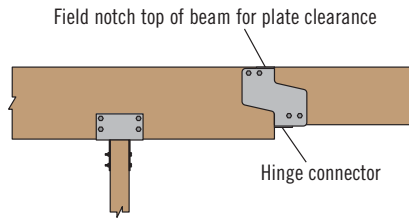
**DO NOT**  
cut, notch, or drill  
holes except as  
approved by the  
designer of record

### Joist Bearing on Beam with Knee Braces Required



L22

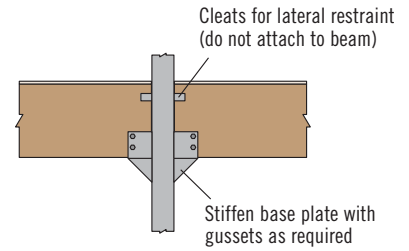
### Bearing on Column with Hinge Connector



L23

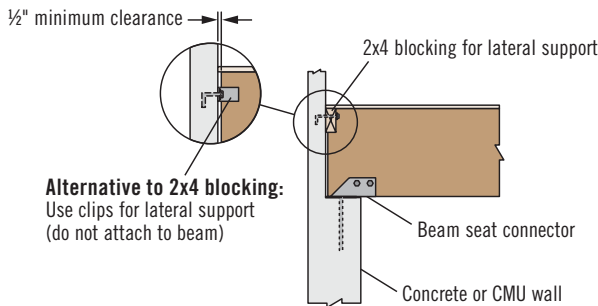
Hinge connector and required bracing are the responsibility of the designer of record.

### Bearing on Gusseted Steel Column



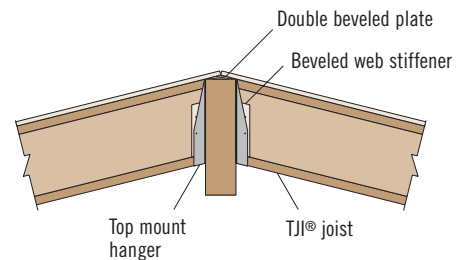
L24

### Bearing on Concrete or Masonry Pocket



L25

### Joist Bearing on Ridge Beam



L26

## CONNECTIONS AND NAILING REQUIREMENTS

### Closest Allowable Nail Spacing

Nail Size	Closest On-center Spacing Per Row	
	Narrow Face	Wide Face
8d (0.131" x 2 1/2")	4"	2"
10d (0.148" x 3") or 12d (0.148" x 3 1/4")	4"	3"
16d (0.162" x 3 1/2")	6"	4"

- To minimize splitting, member edge distance and spacing between rows shall be 2.5 x nail diameter or 3/8", whichever is greater. Where multiple rows are used, fasteners in adjacent rows must be staggered and the rows must be equally spaced from the centerline of the narrow face axis.

### General Notes

- Parallam® PSL lateral nail resistance and nail withdrawal are equivalent to that of Douglas fir (specific gravity = 0.50).
- Bolt design values are as provided in the adopted code for Douglas fir (specific gravity = 0.50).
- Bolt holes must be minimum of bolt diameter plus 1/32" and no greater than bolt diameter plus 1/16". Bolt size not to exceed 1" diameter.
- Contact your Weyerhaeuser representative for multiple-ply connections and other connections not addressed in this guide.
- The following two manufacturers have met the technical requirements to supply proprietary connectors for Trus Joist products. For additional information, please refer to their literature.
  - Simpson Strong-Tie Co., Inc.: 1-800-999-5099
  - USP Structural Connector®: 1-800-328-5934

For additional details and design information for Parallam® beams, see the Trus Joist® Beam, Header, and Column Specifier's Guide, TJ-9505.

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