

# PARALLAM<sup>®</sup> PLUS PSL BEAMS, HEADERS AND COLUMNS

Featuring Trus Joist<sup>®</sup> Parallam<sup>®</sup> PSL  
with Preservative Protection

- Columns and posts are ideal for ground and fresh water contact and saltwater splash applications
- Beams and headers are ideal for exterior, aboveground use
- Protects against termites and decay-causing fungi
- Treated throughout the cross section
- Kiln dried after treatment
- 30-year limited warranties





The products in this guide are readily available through our nationwide network of distributors and dealers. For more information on other applications or other Trus Joist® products, contact your Weyerhaeuser representative.

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## Why Choose Parallam® Plus PSL?

Wood is naturally susceptible to attack by wood-destroying fungi and termites, so any wood product used in wet-service conditions or exposed exterior applications requires preservative treatment to protect it from degradation and ensure an extensive service life.

Weyerhaeuser has partnered with Koppers Performance Chemicals Inc. to create Parallam® Plus PSL, which effectively resists fungal decay and termite attack. Parallam® Plus PSL is suitable for applications that are exposed directly to weather and water—such as decks, pavilions, and pool enclosures—and direct ground contact applications like deck posts. Column members can even be used in saltwater splash applications.

## DURABILITY AGAINST FUNGAL DECAY—GUARANTEED

Parallam® Plus PSL is backed by two 30-year limited warranties to provide long-term peace of mind. As the manufacturer of Parallam® PSL, Weyerhaeuser warrants Parallam® Plus PSL against manufacturing defects. Koppers Performance Chemicals Inc. warrants against termites and fungal decay. For more details, see our *Parallam® Plus PSL Limited 30-Year Warranty*, TJ-7101, available from your Weyerhaeuser representative or online at [weyerhaeuser.com/woodproducts](http://weyerhaeuser.com/woodproducts).

**EXCLUSIVE & LIMITED 30-YEAR WARRANTY**  
**Trus Joist® Parallam® Plus PSL**

**WEYERHAEUSER TRUS JOIST® PARALLAM® PLUS PSL 30-YEAR LIMITED WARRANTY**

Weyerhaeuser NR Company (Weyerhaeuser) warrants the Product for a limited period of 30 years from the date of purchase (Warranty Period) and is available to the retail owner of record of the real property on which the Product was installed ("Owner") and, to transferable to any subsequent Owner, subject to the terms and conditions below.

The only obligation of Weyerhaeuser, and the exclusive remedy available under this Limited Warranty, for inadequacy of design values, deterioration or manufacturing defects, in replacement of the defective Product with a new Product. Replacement material will be delivered to the project site at Weyerhaeuser's expense. Owner shall be solely responsible for all related costs and expenses connected with handling, unloading, installation, and other costs associated with the replacement material.

**Conditions and Exclusions**

The Limited Warranty provided by Weyerhaeuser hereunder is subject to the "General Conditions and Exclusions" below. In addition, this Limited Warranty does not cover the following:

- Damage to Product resulting from fire, flood, natural disaster or any other cause beyond Weyerhaeuser's control.
- Damage to Product resulting from misuse, improper product applications or installation of the Product, or noncompliance with the installation instructions, applicable building code or generally accepted construction practices.
- Defects in the structure due to construction, installation or manufacturing sub-assembly.
- Any alterations to the Product after the original installation.
- Utility structures, such as utility poles and cross arms.
- Damage due to fungal decay or termite attack (see the KPC Limited Warranty below).

See also "General Terms and Conditions" on reverse.

**How do I submit a warranty claim?**

Within thirty (30) days of discovery of a defect, send photographs and a description of the Product damage along with the purchase invoice, proof of purchase verification or proof of claim label to:

Weyerhaeuser Technical Support Group  
 2220 Commercial Avenue South  
 Seattle, Washington 98134  
 Email: [techsupport@weyerhaeuser.com](mailto:techsupport@weyerhaeuser.com)

**KOPPERS PERFORMANCE CHEMICALS INC. 30-YEAR LIMITED WARRANTY AGAINST TERMITES AND FUNGAL DECAY**

Koppers Performance Chemicals Inc. (KPCI) warrants that its CCA-C and CCA-C wood preservatives will protect the Product against damage by termites or Fungal Decay that would make the Product structurally unfit for the application for which it was properly installed. "Fungal Decay" means attack by wood-destroying fungi that disintegrate the wood cell walls, but exclude weathering, surface rot, rot, mold, or fungi associated with the appearance or weathering of wood. "Weathering" is the fungal decay of any 100%.

The only obligation of KPCI, and the exclusive remedy available under this Limited Warranty, for Product that is made structurally unfit for the application for which it was intended by termites or Fungal Decay is replacement of the damaged Product (damaged Product) only with new Product. Owner shall be solely responsible for all related costs and expenses in connection with removing any nonconforming products, installation or reinstallation, labor, and other costs associated with the replacement material.

**Conditions and Exclusions**

The Limited Warranty provided by KPCI hereunder is subject to the "General Conditions and Exclusions" below. In addition, this Limited Warranty does not cover damage to Product:

- If some or all of the Product has been used in contact with untreated or treated material that has been used in an improper application, or in contact with any other construction with any evidence of decay.
- If the Product has been exposed to depth or thickness other than cut to length or surfaced (sanded/planed) etc., but excluding light surface weathering.
- Resulting from deterioration or manufacturing defects of the Product (See the Weyerhaeuser Limited Warranty above).
- Other than due to termite attack or fungal decay.

See also "General Terms and Conditions" on reverse.

**Trus Joist**  
Weyerhaeuser



Certified Sourcing  
[www.sfiprogram.org](http://www.sfiprogram.org)  
 SFI-00008



**WARNING:** This product can expose you to chemicals including wood dust which are known to the State of California to cause cancer, and methanol, which are known to the State of California to cause birth defects or other reproductive harm. Drilling, sawing, sanding or machining wood products can expose you to wood dust. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov) and [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood).

# PRODUCT FEATURES AND SIZES

## Trus Joist® Parallam® Plus PSL with Preservative Protection

- Preservative treatment penetrates all the way to the core of the cross section
- Kiln dried after treatment
- Provides termite and fungal decay protection

Parallam® Plus PSL beams and columns are treated with waterborne preservatives. They are treated and dried only at Weyerhaeuser-authorized treatment facilities.

Treated beam and header products are suitable for exposed exterior applications such as decks, pavilions, and pool enclosures. Treated column products are suitable for direct ground contact applications such as deck posts and construction poles for elevated house construction, as well as for saltwater splash applications.



## Features and Use Characteristics for Parallam® Plus PSL Beams, Headers, and Columns

Feature/Use Characteristics	Parallam® Plus PSL	
	Beams and Headers	Columns
<b>AWPA Use Category</b>	UC4A or lower	UC4B or lower
<b>Saltwater splash permitted</b>	No	Yes
<b>Treatment</b>	Copper Azole	CCA
<b>Kiln dried after treating</b>	Yes (KD 19)	Yes (KD 19)
<b>Fungal decay protection</b>	Yes	Yes
<b>Termite protection</b>	Yes	Yes
<b>Corrosion-resistant hardware required</b>	Yes	Yes
<b>Suitable for interior applications</b>	Yes	Yes
<b>Paintable or stainable</b>	Yes	Yes

## Available Widths and Depths of Parallam® Plus PSL

Parallam® Plus PSL beams and headers are available in the following sizes:

**Widths:** 3½" and 5¼"

**Depths:** 9¼", 11⅞", 14", and 16"

Parallam® Plus PSL columns and posts are available in the following sizes:

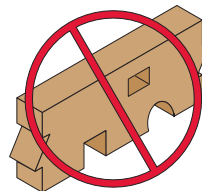
3½" x 5¼" 5¼" x 5¼" 7" x 7"

**Some sizes may not be available in your region.**

Contact your Weyerhaeuser representative for dealer locations, available sizes, and lead times for treatment and delivery.

Parallam® Plus PSL has an inherently industrial finish. Surface preparation may be required to achieve an acceptable architectural finish. Routine maintenance, such as the application of quality exterior stains and sealers, is required to improve and maintain the finish.

In order for Parallam® Plus PSL to perform as described, the product must maintain its original cross section. Parallam Plus® beams, headers and columns may be cut to length, but must not be resawn in depth or thickness.



**DO NOT** cut, notch, or drill holes in Parallam® Plus PSL except as indicated in the Trus Joist® Beams, Headers, and Columns Specifier's Guide, TJ-9000.

# PARALLAM® PLUS PSL APPLICATIONS

## Where to Use Parallam® Plus PSL

The American Wood Protection Association (AWPA) created Use Categories (UC) to characterize the end-use environments that require treated wood products.

Parallam® Plus PSL may be used for interior, dry or damp, aboveground applications (AWPA UC1 and AWPA UC2) to help protect against termites.

Parallam® Plus PSL is also suitable for exterior applications where a structural member is either partly or entirely located outside of the waterproof building envelope and exposed directly to weather (AWPA UC3) and ground contact (AWPA UC4). In these applications it can help protect against both termites and fungal decay.



Parallam® PSL products enter an airtight treatment cylinder—a highly controlled, pressurized environment where they are exposed to the treatment process.

## How to Specify Parallam® Plus PSL

**Step 1:** Verify the appropriate end-use condition for your application using the **Use Categories** table below.

**Step 2:** Determine the appropriate Service Level for your application using the **Service Levels** table below.

**Step 3:** Design the members using the Service Level from Step 2 and one of the following:

- Allowable design stresses on page 5
- Load and application tables in this guide
- Forte® software

## Use Categories

AWPA Use Category	Service Conditions	Use Environment	Typical Applications	Parallam® Plus PSL Acceptable Products	
				Beams and Headers	Columns
UC1	Interior construction, aboveground, dry	Continuously protected from weather or other sources of moisture	Interior construction	✓	✓
UC2	Interior construction, aboveground, damp	Protected from weather but may be subject to sources of moisture	Interior construction	✓	✓
UC3A	Exterior construction, aboveground, rapid water runoff	Exposed to all weather cycles, not exposed to prolonged wetting	Aboveground columns or rafters in an outdoor canopy structure	✓	✓
UC3B	Exterior construction, aboveground, poor water runoff	Exposed to all weather cycles including prolonged wetting	Aboveground joists, beams and columns <sup>(1)</sup>	✓	✓
UC4A	Ground contact or fresh water, non-critical components	Exposed to all weather cycles, normal exposure conditions	Aboveground joists, beams and columns <sup>(1)</sup>	✓	✓
UC4B	Ground contact or fresh water, critical components or difficult repair	Exposed to all weather cycles, includes saltwater splash	Columns with ground contact and high potential for deterioration	Not permitted	✓
UC4C	Ground contact or fresh water, critical structural components	Exposed to all weather cycles, severe environments	Land and freshwater piling, foundation piling	Not permitted	Not permitted
UC5A	Salt or brackish water and adjacent mud zone	Continuous marine exposure (salt water)	Piling, bulkheads, bracing	Not permitted	Not permitted

(1) Joists and beams shall be treated to requirements for UC4A when they are difficult to maintain, repair, or replace; and when they are critical to the performance and safety of the entire system/construction.

- This table has been adapted from the 2017 AWPA Book of Standards (Standard U1-17, Table 2-1).

## Service Levels

Service Level	Description	Allowable Moisture Content	Application Environment	Application Examples
1	Dry Use	≤ 16%	Dry, interior	Sill plate, rim board, wall framing
2	Wet Use	> 16% and ≤ 28%	Repeated exposure to wet and dry cycles	Deck beams and joists, gazebos, posts on raised pedestals
3	Saturated Use	> 28%	Exposed to continuous wet conditions	Posts in ground contact, freshwater docks

# DESIGN PROPERTIES

## Allowable Design Stresses for Beams and Columns (100% Load Duration)

Service Level <sup>(1)</sup>	G Shear Modulus of Elasticity (psi)	E Modulus of Elasticity (psi)	E <sub>min</sub> Adjusted Modulus of Elasticity (psi)	F <sub>b</sub> Flexural Stress <sup>(2)</sup> (psi)	F <sub>t</sub> Tension Stress <sup>(3)</sup> (psi)	F <sub>c⊥</sub> Compression Perpendicular to Grain <sup>(4)</sup> (psi)	F <sub>c  </sub> Compression Parallel to Grain (psi)	F <sub>v</sub> Horizontal Shear Parallel to Grain (psi)	C <sub>RP</sub> Creep Factor	SG Equivalent Specific Gravity
<b>Beam<sup>(5)</sup> Application</b>										
1	103,750	1.660 x 10 <sup>6</sup>	843,725 <sup>(6)</sup>	2,117	1,519	480	2,030	241	0.20	0.50
2	91,250	1.460 x 10 <sup>6</sup>	742,070 <sup>(6)</sup>	1,827	1,397	338	1,508	197	0.60	0.50
3	83,750	1.340 x 10 <sup>6</sup>	681,080 <sup>(6)</sup>	1,624	1,337	255	1,189	171	0.85	0.50
<b>Column Application</b>										
1	86,625 <sup>(8)</sup>	1.386 x 10 <sup>6</sup> <sup>(8)</sup>	704,460 <sup>(7)(8)</sup>	1,704 <sup>(8)</sup>	1,316	309 <sup>(8)</sup>	1,750	160 <sup>(8)</sup>	0.20	0.50
2	76,500 <sup>(8)</sup>	1.224 x 10 <sup>6</sup> <sup>(8)</sup>	622,120 <sup>(7)(8)</sup>	1,440 <sup>(8)</sup>	1,211	196 <sup>(8)</sup>	1,300	120 <sup>(8)</sup>	0.60	0.50
3	69,750 <sup>(8)</sup>	1.116 x 10 <sup>6</sup> <sup>(8)</sup>	567,227 <sup>(7)(8)</sup>	1,296 <sup>(8)</sup>	1,158	125 <sup>(8)</sup>	1,025	100 <sup>(8)</sup>	0.85	0.50

(1) Service levels take into account design stress adjustments for moisture and treatment process. Prior to treatment, beam application material was 2.0E Parallam PSL and column application material was 1.8E Parallam PSL.

(2) For 12" depth. For other depths, multiply by  $\left[\frac{12}{L_d}\right]^{10.111}$

(3) F<sub>t</sub> has been adjusted to reflect the volume effects for most standard applications.

(4) F<sub>c⊥</sub> must not be increased for duration of load.

(5) For products used in beam orientation only.

(6) Reference modulus of elasticity for beam stability calculations, per NDS®.

(7) Reference modulus of elasticity for column stability calculations, per NDS®.

(8) Value shown is for plank orientation.

## General Notes

- Surface checking is an inherent characteristic of Parallam® Plus PSL and is common to all wood products. The design values in this guide account for surface checking.
- The following formula approximates the total load deflection for a beam or header, including creep deflection (Δ<sub>CD</sub>), in inches:

Total load deflection Δ<sub>TL</sub> = Δ<sub>LL</sub> + Δ<sub>DL</sub> + Δ<sub>CD</sub>, where:

$$\Delta_{CD} = [\Delta_{DL} + \Delta_{LL} (F)] [C_{RP}]$$

F = 0.2 for floors; 0.3 for roofs

## Allowable Design Properties (100% Load Duration) 3½" Beams—Service Level 2

Design Property	Depth			
	9¼"	11⅞"	14"	16"
Moment (ft-lbs)	7,820	12,540	17,110	22,020
Shear (lbs)	4,255	5,465	6,440	7,360
Moment of Inertia (in. <sup>4</sup> )	231	488	800	1,195
Weight (plf)	11.7	15.1	17.8	20.3

## 5¼" Beams—Service Level 2

Design Property	Depth			
	9¼"	11⅞"	14"	16"
Moment (ft-lbs)	11,735	18,810	25,670	33,030
Shear (lbs)	6,385	8,195	9,665	11,045
Moment of Inertia (in. <sup>4</sup> )	346	733	1,201	1,792
Weight (plf)	17.6	22.6	26.6	30.5

## Nominal Connection Design Value Adjustment Factors

Service Level of Beam or Column Application	Moisture Content at Connection	Lateral Connections	Withdrawal Connections
SL1 or SL2	≤ 28%	0.7	0.25
SL3	≤ 28%	0.7	N.R. <sup>(1)</sup>
	> 28%	0.4	N.R. <sup>(1)</sup>

(1) Withdrawal connections in Service Level 3 applications are not recommended (N.R.).

# HARDWARE RECOMMENDATIONS AND BEARING REQUIREMENTS

## Hardware Recommendations

Due to the high moisture content typically present where Parallam® Plus PSL is used, it is very important to use corrosion-resistant fasteners and connectors for all applications. Fasteners include nails, screws, and bolts. Connectors include joist hangers, post bases, and hurricane or mudsill anchors.

Fasteners and connectors must have a coating that will provide the required level of corrosion resistance for the treatment types, retention levels, and end use conditions for Parallam® Plus PSL. To ensure that you select the appropriate hardware, follow the hardware manufacturer's recommendation for AWP Use Category UC4A for columns and beams in exposed above ground applications. For columns exposed to salt water splash follow recommendations for UC4B. Fasteners and hardware must comply with building codes.

## Beam Bearing Length Requirements—Service Level 2

Reaction	Treated Beam Width	
	3½"	5¼"
2,000	1¾"	1½"
4,000	3½"	2½"
6,000	5¼"	3½"
8,000	7"	4¾"
10,000	8½"	5¾"
12,000	10¼"	7"
14,000	12"	8"
16,000	13¾"	9¼"
18,000	15¼"	10¼"
20,000		11½"
22,000		12½"
24,000		13¾"
26,000		14¾"

## General Notes

- Minimum bearing length: 1½" at ends, 3½" at intermediate supports.
- Bearing across full beam width required.
- Interpolation between reaction loads is permitted for determining bearing lengths.

# BEAM LOAD TABLES



## How to Use Beam Load Tables on pages 6 and 7

1. Calculate total load and live load (neglect beam weight) on the beam or header in pounds per linear foot (plf).
2. Select appropriate **Span** (center-to-center of bearing).
3. Scan horizontally to find the proper width, and a depth with a capacity that exceeds actual total and live loads.
4. Review bearing length requirements to ensure adequacy.

## Floor Load (PLF)—Service Level 2

Load Duration	Span	Condition	3½" Width				5¼" Width			
			9¼"	11⅞"	14"	16"	9¼"	11⅞"	14"	16"
100% Floor	8'	Total Load	966	1,310	1,310	1,310	1,449	1,965	1,965	1,965
		Live Load L/360	853	*	*	*	1,280	*	*	*
		Min. End/Int. Bearing (in.)	3.3/8.3	4.5/11.3	4.5/11.3	4.5/11.3	3.3/8.3	4.5/11.3	4.5/11.3	4.5/11.3
	10'	Total Load	546	988	1,044	1,044	819	1,482	1,566	1,566
		Live Load L/360	457	918	*	*	686	1,377	*	*
		Min. End/Int. Bearing (in.)	2.4/5.9	4.2/10.6	4.5/11.3	4.5/11.3	2.4/5.9	4.2/10.6	4.5/11.3	4.5/11.3
	12'	Total Load	319	659	867	867	479	989	1,300	1,300
		Live Load L/360	271	553	*	*	407	830	*	*
		Min. End/Int. Bearing (in.)	1.7/4.2	3.4/8.6	4.5/11.3	4.5/11.3	1.7/4.2	3.4/8.6	4.5/11.3	4.5/11.3
	14'	Total Load	200	420	677	740	300	631	1,015	1,110
		Live Load L/360	173	357	570	*	260	536	855	*
		Min. End/Int. Bearing (in.)	1.5/3.5	2.6/6.4	4.1/10.3	4.5/11.3	1.5/3.5	2.6/6.4	4.1/10.3	4.5/11.3
	16'	Total Load	131	281	458	645	197	422	687	967
		Live Load L/360	117	243	390	570	176	365	586	855
		Min. End/Int. Bearing (in.)	1.5/3.5	2/5	3.2/8.1	4.5/11.3	1.5/3.5	2/5	3.2/8.1	4.5/11.3
	18'	Total Load	89	196	322	477	134	294	483	716
		Live Load L/360	83	173	278	408	124	259	418	612
		Min. End/Int. Bearing (in.)	1.5/3.5	1.6/4	2.6/6.5	3.8/9.5	1.5/3.5	1.6/4	2.6/6.5	3.8/9.5
	20'	Total Load	62	140	233	348	94	210	349	522
		Live Load L/360	61	127	205	302	91	190	308	453
		Min. End/Int. Bearing (in.)	1.5/3.5	1.5/3.5	2.1/5.3	3.1/7.8	1.5/3.5	1.5/3.5	2.1/5.3	3.1/7.8
	24'	Total Load		75	129	197		113	194	296
		Live Load L/360		74	120	178		111	181	267
		Min. End/Int. Bearing (in.)		1.5/3.5	1.5/3.7	2.2/5.5		1.5/3.5	1.5/3.7	2.2/5.5
28'	Total Load			75	118		63	113	177	
	Live Load L/360			*	113		*	*	170	
	Min. End/Int. Bearing (in.)			1.5/3.5	1.6/4.1		1.5/3.5	1.5/3.5	1.6/4.1	
32'	Total Load				73			68	110	
	Live Load L/360				*			*	*	
	Min. End/Int. Bearing (in.)				1.5/3.5			1.5/3.5	1.5/3.5	

\* Indicates **Total Load** value controls.

## General Notes

- Table is based on:
  - Uniform loads (beam weight considered).
  - More restrictive of simple or continuous span.
- Total load values are limited to deflection of L/240 and include creep deflection with an assumed dead load to live load ratio of 30%. Live load values are based on deflection of L/360. Check local code for other deflection criteria.
- For deflection limits of L/240 and L/480, multiply **Live Load L/360** values by 1.5 and 0.75 respectively. The resulting live load must not exceed the total load shown.
- Lateral support is required at bearing and along the span at 24" on-center, maximum.

- For continuous spans, ratio of short span to long span should be 0.4 or greater to prevent uplift.
- For conditions beyond the scope of this table, including applications other than Service Level 2, use Weyerhaeuser software or contact your Weyerhaeuser representative.



**DO NOT cut, notch, or drill holes in Parallam® Plus PSL except as indicated in the Trus Joist® Beams, Headers, and Columns Specifier's Guide, TJ-9000.**

# BEAM LOAD TABLES

## Roof Load (PLF)—Service Level 2

Load Duration	Span	Condition	3½" Width				5¼" Width			
			9¼"	11⅞"	14"	16"	9¼"	11⅞"	14"	16"
115% Snow	8'	Total Load	1,112	1,310	1,310	1,310	1,669	1,965	1,965	1,965
		Live Load L/240	*	*	*	*	*	*	*	*
		Min. End/Int. Bearing (in.)	3.8/9.5	4.5/11.3	4.5/11.3	4.5/11.3	3.8/9.5	4.5/11.3	4.5/11.3	4.5/11.3
	10'	Total Load	705	1,044	1,044	1,044	1,057	1,566	1,566	1,566
		Live Load L/240	686	*	*	*	1,029	*	*	*
		Min. End/Int. Bearing (in.)	3/7.6	4.5/11.3	4.5/11.3	4.5/11.3	3/7.6	4.5/11.3	4.5/11.3	4.5/11.3
	12'	Total Load	414	786	867	867	621	1,179	1,300	1,300
		Live Load L/240	407	*	*	*	611	*	*	*
		Min. End/Int. Bearing (in.)	2.2/5.4	4.1/10.2	4.5/11.3	4.5/11.3	2.2/5.4	4.1/10.2	4.5/11.3	4.5/11.3
	14'	Total Load	260	545	740	740	391	817	1,110	1,110
		Live Load L/240	260	536	*	*	391	804	*	*
		Min. End/Int. Bearing (in.)	1.6/4	3.3/8.3	4.5/11.3	4.5/11.3	1.6/4	3.3/8.3	4.5/11.3	4.5/11.3
	16'	Total Load	172	366	594	645	259	549	891	967
		Live Load L/240	*	365	586	*	*	548	879	*
		Min. End/Int. Bearing (in.)	1.5/3.5	2.6/6.5	4.1/10.3	4.5/11.3	1.5/3.5	2.6/6.5	4.1/10.3	4.5/11.3
	18'	Total Load	118	256	419	571	178	384	628	856
		Live Load L/240	*	*	418	*	*	*	627	*
		Min. End/Int. Bearing (in.)	1.5/3.5	2.1/5.2	3.3/8.3	4.5/11.3	1.5/3.5	2.1/5.2	3.3/8.3	4.5/11.3
	20'	Total Load	83	184	304	453	125	276	456	680
		Live Load L/240	*	*	*	453	*	*	*	680
		Min. End/Int. Bearing (in.)	1.5/3.5	1.7/4.2	2.7/6.8	4/10	1.5/3.5	1.7/4.2	2.7/6.8	4/10
	24'	Total Load		101	171	259	66	152	257	389
		Live Load L/240		*	*	*	*	*	*	*
		Min. End/Int. Bearing (in.)		1.5/3.5	1.9/4.8	2.8/7.1	1.5/3.5	1.5/3.5	1.9/4.8	2.8/7.1
28'	Total Load		58	102	157		88	153	236	
	Live Load L/240		*	*	*		*	*	*	
	Min. End/Int. Bearing (in.)		1.5/3.5	1.5/3.6	2.1/5.3		1.5/3.5	1.5/3.6	2.1/5.3	
125% Non-Snow	8'	Total Load	1,210	1,310	1,310	1,310	1,815	1,965	1,965	1,965
		Live Load L/240	*	*	*	*	*	*	*	*
		Min. End/Int. Bearing (in.)	4.1/10.3	4.5/11.3	4.5/11.3	4.5/11.3	4.1/10.3	4.5/11.3	4.5/11.3	4.5/11.3
	10'	Total Load	705	1,044	1,044	1,044	1,057	1,566	1,566	1,566
		Live Load L/240	686	*	*	*	1,029	*	*	*
		Min. End/Int. Bearing (in.)	3/7.6	4.5/11.3	4.5/11.3	4.5/11.3	3/7.6	4.5/11.3	4.5/11.3	4.5/11.3
	12'	Total Load	414	852	867	867	621	1,278	1,300	1,300
		Live Load L/240	407	830	*	*	611	1,245	*	*
		Min. End/Int. Bearing (in.)	2.2/5.4	4.4/11	4.5/11.3	4.5/11.3	2.2/5.4	4.4/11	4.5/11.3	4.5/11.3
	14'	Total Load	260	545	740	740	391	817	1,110	1,110
		Live Load L/240	260	536	*	*	391	804	*	*
		Min. End/Int. Bearing (in.)	1.6/4	3.3/8.3	4.5/11.3	4.5/11.3	1.6/4	3.3/8.3	4.5/11.3	4.5/11.3
	16'	Total Load	172	366	594	645	259	549	891	967
		Live Load L/240	*	365	586	*	*	548	879	*
		Min. End/Int. Bearing (in.)	1.5/3.5	2.6/6.5	4.1/10.3	4.5/11.3	1.5/3.5	2.6/6.5	4.1/10.3	4.5/11.3
	18'	Total Load	118	256	419	571	178	384	628	856
		Live Load L/240	*	*	418	*	*	*	627	*
		Min. End/Int. Bearing (in.)	1.5/3.5	2.1/5.2	3.3/8.3	4.5/11.3	1.5/3.5	2.1/5.2	3.3/8.3	4.5/11.3
	20'	Total Load	83	184	304	453	125	276	456	680
		Live Load L/240	*	*	*	453	*	*	*	680
		Min. End/Int. Bearing (in.)	1.5/3.5	1.7/4.2	2.7/6.8	4/10	1.5/3.5	1.7/4.2	2.7/6.8	4/10
	24'	Total Load		101	171	259	66	152	257	389
		Live Load L/240		*	*	*	*	*	*	*
		Min. End/Int. Bearing (in.)		1.5/3.5	1.9/4.8	2.8/7.1	1.5/3.5	1.5/3.5	1.9/4.8	2.8/7.1
28'	Total Load		58	102	157		88	153	236	
	Live Load L/240		*	*	*		*	*	*	
	Min. End/Int. Bearing (in.)		1.5/3.5	1.5/3.6	2.1/5.3		1.5/3.5	1.5/3.6	2.1/5.3	

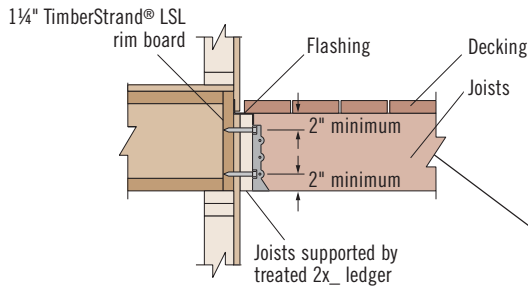
\* Indicates Total Load value controls.

See page 6 for how to use this table.

### General Notes

- Table is based on:
  - Uniform loads (beam weight considered).
  - More restrictive of simple or continuous span.
- Total load values are limited to deflection of L/180 and include creep deflection with an assumed dead load to live load ratio of 30%. For stiffer deflection criteria, Live Load L/240 values are provided. Check local code for other deflection criteria.
- Lateral support is required at bearing and along the span at 24" on-center, maximum.
- For continuous spans, ratio of short span to long span should be 0.4 or greater to prevent uplift.
- For conditions beyond the scope of this table, including applications other than Service Level 2, use Weyerhaeuser software or contact your Weyerhaeuser representative.

All lumber framing used in deck applications should be pressure treated to AWPA Standards or recognized in an ICC ES code report.

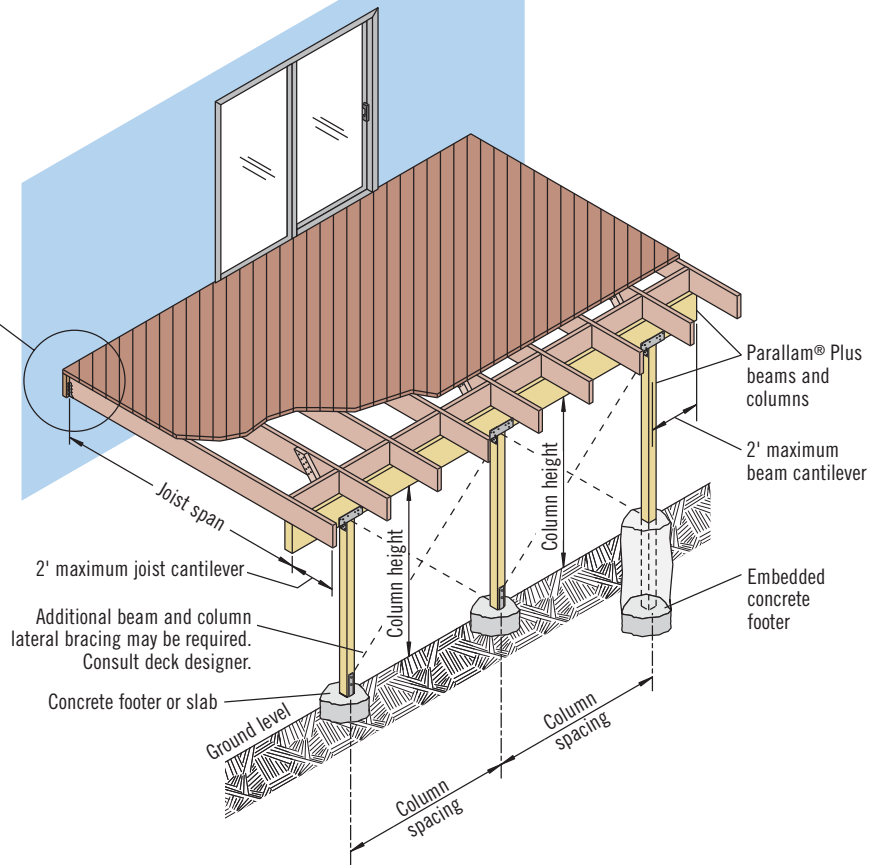


Flashing is a critical component and must be included.

## Ledger Connections for 1 1/4" TimberStrand LSL Rim Board

Live Load	Joist Span	Connection Type and Spacing <sup>(1)</sup>
		Two rows 1/2" lag bolts
40 psf	up to 9'	32" on-center, staggered
	9' to 16'	16" on-center
60 psf	up to 7'	32" on-center, staggered
	7' to 14'	16" on-center
	14' to 16'	12" on-center

(1) 2" minimum edge distance is required for fastening ledger (see detail above).



## Deck Beam and Column Selection (100% Load Duration)—Service Level 2

Deck Load (psf)	Joist Span	3 1/2" x 9 1/4" Beam		3 1/2" x 11 7/8" Beam		5 1/4" x 11 7/8" Beam		5 1/4" x 14" Beam	
		3 1/2" x 5 1/4" Column		3 1/2" x 5 1/4" Column		5 1/4" x 5 1/4" Column		5 1/4" x 5 1/4" Column	
		Maximum Column Spacing	Maximum Column Height	Maximum Column Spacing	Maximum Column Height	Maximum Column Spacing	Maximum Column Height	Maximum Column Spacing	Maximum Column Height
40LL + 10DL	8'	12'-0"	10'-0"	15'-0"	8'-6"	17'-6"	15'-0"	20'-6"	13'-6"
	10'	11'-6"	9'-6"	14'-0"	8'-0"	16'-6"	14'-6"	19'-6"	12'-6"
	12'	11'-0"	9'-0"	12'-6"	8'-0"	16'-0"	13'-6"	18'-0"	12'-6"
	14'	10'-6"	8'-6"	11'-0"	8'-6"	15'-6"	13'-0"	16'-6"	12'-0"
	16'	10'-0"	8'-6"	10'-0"	8'-6"	15'-0"	12'-6"	14'-6"	12'-6"
60LL + 10DL	8'	10'-6"	9'-0"	11'-6"	8'-6"	15'-6"	13'-6"	17'-0"	12'-6"
	10'	10'-0"	8'-6"	10'-0"	8'-6"	15'-0"	12'-6"	15'-0"	12'-6"
	12'	9'-0"	8'-0"	9'-0"	8'-0"	13'-0"	12'-6"	13'-0"	12'-6"
	14'	8'-0"	8'-6"	8'-0"	8'-0"	12'-0"	12'-6"	11'-6"	12'-6"
	16'	7'-0"	8'-6"	7'-0"	8'-6"	10'-6"	12'-6"	10'-6"	12'-6"

### How to Use this Table

- Determine the appropriate **Deck Load**.
- Locate the **Joist Span** that meets or exceeds your condition.
- Scan across the row to find both the **Maximum Column Spacing** and **Maximum Column Height** that meet or exceed your condition.
- Scan up to determine the required **Beam** and **Column** sizes.

### General Notes

- Table also applies to columns used in a Service Level 3 condition.
- Total load deflection for the beam is limited to L/240. Live load deflection is limited to L/360.
- Beams can be used in either continuous-span (up to 48') or simple-span applications.
- For conditions beyond the scope of this table, including beam applications other than Service Level 2, use Weyerhaeuser software or contact your Weyerhaeuser representative.



# COLUMNS

## Allowable Axial Loads (lbs)—Service Level 2

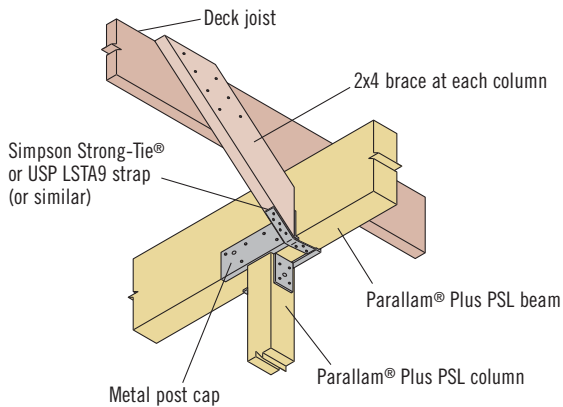
Effective Column Length	Column Size								
	3½" x 5¼"			5¼" x 5¼"			7" x 7"		
	100%	115%	125%	100%	115%	125%	100%	115%	125%
6'	10,045	10,725	11,115	19,645	21,865	23,250	37,795	40,000	40,000
8'	7,100	7,410	7,585	16,510	17,870	18,660	34,480	38,380	40,000
10'	5,140	5,310	5,405	13,240	14,000	14,440	30,440	33,200	34,835
12'	3,865	3,965	4,025	10,520	10,985	11,255	26,080	27,875	28,905
14'	3,000	3,065	3,105	8,460	8,770	8,945	21,990	23,180	23,860
16'	Slenderness ratio exceeds 50			6,920	7,135	7,255	18,535	19,370	19,845
18'				5,745	5,905	5,990	15,735	16,345	16,690
20'				4,840	4,960	5,025	13,480	13,935	14,200

## General Notes

- Table is based on:
  - Solid, one-piece column members.
  - Bracing in both directions at column ends.
  - NDS®.
  - Simple columns with axial loads only. For side loads or other combined bending and axial loads, see the NDS®.
- Allowable loads have been adjusted to accommodate the worst case of the following eccentric conditions: ¼ of the column thickness (first dimension) or ⅓ of the column width.
- For conditions beyond the scope of this table, including applications other than Service Level 2, use Weyerhaeuser software or contact your Weyerhaeuser representative.

**WARNING:** This product can expose you to chemicals including wood dust which are known to the State of California to cause cancer, and methanol, which are known to the State of California to cause birth defects or other reproductive harm. Drilling, sawing, sanding or machining wood products can expose you to wood dust. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov) and [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood).

## Beam to Column Connection

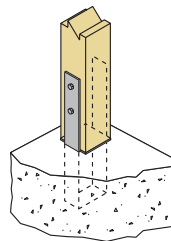


L27

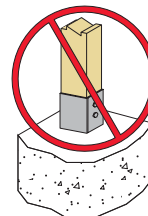
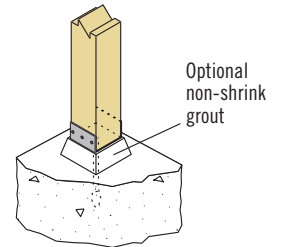
All lumber framing used in deck applications should be pressure treated to AWPA Standards or recognized in an ICC ES code report.

## Column Base Connections

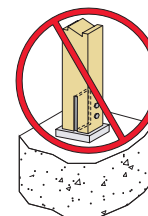
### Column Base



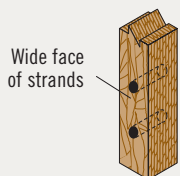
### Elevated Column Base



DO NOT encase column base



DO NOT size base plate larger than column



In order to use the manufacturer's published capacities when designing column caps, bases, or holdowns for uplift, the bolts or screws must be installed perpendicular to the wide face of strands as shown at left.

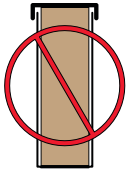


DO NOT install bolts or screws into the narrow face of strands

# CLADDING INFORMATION

Parallam® Plus PSL is suitable for exposed conditions with wet-dry moisture cycles. However it may be desirable for aesthetic reasons to wrap the product in a decorative cladding. As with all treated wood products, avoid applications that can trap moisture. If decorative cladding is used, the following considerations are critical for Parallam® Plus PSL to perform satisfactorily:

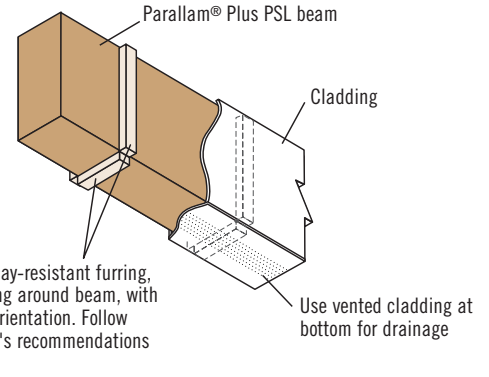
- The designer, builder, and owner must share responsibility for ensuring that the assembly is designed, installed, and maintained in a way that will prevent water from entering and being trapped.
- If the prevention of water intrusion over the life of the structure cannot be assured, then cladding must be designed and installed in a manner that allows adequate drainage and sufficient air-flow to facilitate drying. Suggested beam and column details are shown at right.
- Metal cladding materials should not be used, as the preservative treatment can react with the metal and lead to corrosion of the cladding and fasteners.
- All fasteners, furring strips, and other materials used in the cladding assembly must be corrosion-resistant, treated, or otherwise resistant to decay.
- Vented cladding, such as a soffit or drilled cladding material, should be used to allow proper drainage. Routine maintenance is also required to ensure that vent holes remain open and free of debris.
- For column bases with ground contact, maintain a 3" (minimum) gap between cladding and finish grade for drainage. For bases with patio or deck surface contact, maintain a 1" (minimum) gap between cladding and surface.



**DO NOT wrap exterior Parallam® Plus PSL products with materials that may trap moisture, such as wood, metal, or plastic trim that does not allow for proper ventilation and drainage.**

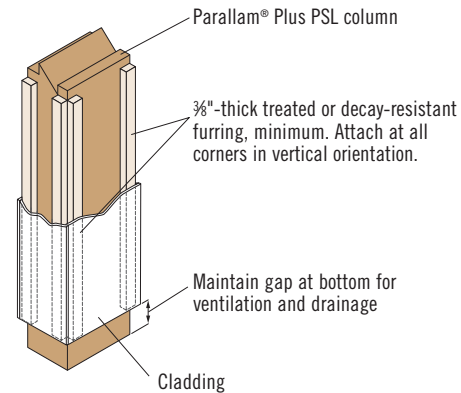
Cladding details shown are intended for use with Parallam® Plus PSL only and should not be used with untreated Weyerhaeuser products.

## Cladding on Beams



**IMPORTANT: Moisture trapped inside the cladding may cause mold. The treatment used in Parallam® Plus does not prevent mold.**

## Cladding on Columns



## Q&A

### Q1: What is Parallam® Plus PSL?

**A1:** Parallam® Plus PSL is Parallam® PSL that has been treated with Koppers Performance Chemicals Inc.'s preservative solution at a Weyerhaeuser-authorized treating facility. The treating facility is licensed by Koppers to produce treated product and is required to follow a strict quality assurance program.

Parallam® Plus PSL is produced from southern pine and is undersized to accommodate dimensional change during treatment. It is treated then kiln dried after treatment to a uniform moisture content.

Only Parallam® Plus PSL is manufactured using these methods, and it's the only product covered by both Weyerhaeuser (structural) and Koppers (treatment) limited 30-year warranties.

### Q2: Does Parallam® Plus PSL prevent mold growth on the product surface?

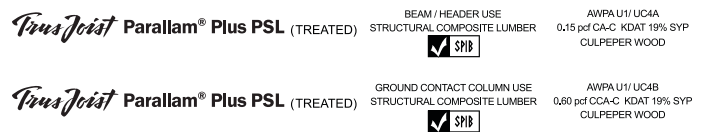
**A2:** No. Parallam® Plus PSL has been treated to effectively resist fungal decay. The preservative treatment solutions used to treat Parallam® Plus PSL also contain moldicides that inhibit surface mold growth on freshly treated product; however, they are not intended to provide continual protection from surface mold growth once the product is in service.

Mold fungi cause discoloration of the wood surface, commonly appearing as a colored, fuzzy or powdery surface growth that can quickly spread over surfaces with high moisture levels. Mold will not impact the strength or stiffness of a wood member, but the presence of mold indicates a high

moisture condition where, without preservative treatment and proper maintenance, decay or deterioration would likely develop.

### Q3: How can I be sure that I have genuine Parallam® Plus PSL?

**A3:** Parallam® Plus PSL is stamped with the product description, type of treatment, and treating facility. The stamp also references the treating standards and third-party quality program monitor. The following stamps are examples of those found on Parallam® Plus PSL.



### Q4: Was CCA phased out for residential use?

**A4:** In 2004, CCA was phased out for certain dimension-lumber, residential applications such as deck railings and play sets. However, CCA is an excellent preservative and remains an approved form of treatment for Parallam® PSL columns used in structural ground-contact applications (AWPA UC4B).

Parallam® Plus PSL columns are well suited for residential applications such as structural support columns, deck posts, and retaining walls. It is ideal for applications that result in occasional, intermittent saltwater splash exposure that will not support degradation by marine organisms.

The U.S. EPA concluded that CCA-treated wood does not pose unreasonable risks to the public, and they do not require CCA-treated products to be removed from service, coated/sealed, or encapsulated. However, they do note that the use of a suitable coating could reduce potential exposure.

Additional information is available on the U.S. EPA website at: [epa.gov/ingredients-used-pesticide-products/chromated-arsenicals-cca](http://epa.gov/ingredients-used-pesticide-products/chromated-arsenicals-cca).

### Q5: What are wet-service and dry-service conditions?

**A5:** The definitions of wet and dry service vary slightly from one publication to the next. The NDS® defines dry service for structural composite lumber products as an in-service moisture content of less than 16%. CSA O86 defines dry service as a climatic condition in which the average equilibrium moisture content (EMC) of sawn lumber over a year's time is 15% or less and does not exceed 19%.

Not all exterior applications are necessarily a wet-service condition and, conversely, not all interior applications are a dry-service condition. The EMC of wood is a function of the relative humidity and temperature of the surrounding environment. However, high moisture content and the ensuing degradation can be observed in local areas where water collects and doesn't readily evaporate, such as improperly detailed column bases and connections in saddles where water accumulates.

### Q6: How does Weyerhaeuser define "saltwater splash" with respect to applications for Parallam® Plus PSL?

**A6:** Saltwater splash applications are those in which incidental saltwater contact may occur, but at a level or time period insufficient to support the growth of marine organisms. Examples of incidental saltwater exposure include members used in proximity to saltwater and exposed to occasional or intermittent splash from storms or waves, or to saltwater spray or mist. Examples of conditions that would not be appropriate for Parallam® Plus PSL include members that are in or adjacent to the tidal zone where they would remain wetted with saltwater for extended periods of time.

### Q7: What applications are not suitable for Parallam® Plus PSL?

**A7:** Parallam® Plus PSL is not suited for applications where conditions support degradation by marine organisms, or for direct contact with animal wastes, caustic fertilizers, or other chemicals. These types of applications are not covered by the Weyerhaeuser and Koppers limited 30-year warranties.

### Q8: Why does Weyerhaeuser use a different treatment for columns than for beams?

**A8:** Column applications where Parallam® Plus PSL is exposed to direct ground contact or occasional, intermittent saltwater splash require a higher level of protection, which is best achieved using the traditional CCA preservative.

Parallam® Plus PSL that is intended for beam and header applications is treated with copper azole at a retention level that eliminates the need to use stainless steel connectors and fasteners in most applications. Refer to hardware manufacturer's recommendations for your specific application.

### Q9: Can I use Parallam® Plus PSL beams in column applications?

**A9:** Yes, provided it is an aboveground application (i.e., not in contact with the ground).

### Q10: Do I need to field-treat holes or end cuts?

**A10:** It is not required; however, it is recommended for good construction practice. Recommended endcoat wood preservatives include copper naphthenate, oxine copper, or zinc naphthenate products.

For the standard sizes shown in this guide, the unique structure of Parallam® PSL allows for penetration of preservative treatment throughout the cross section, eliminating the need to field treat holes or end cuts.

### Q11: Are sealers, coatings, or remedial treatments effective alternatives to Parallam® Plus PSL?

**A11:** No. Current commercially available coatings that contain a preservative do not provide adequate protection from fungal decay or termites throughout the cross section of Parallam® PSL. Field-applied treatments (other than those recommended for beams with drilled holes and end cuts as described in Q10) are not covered by the Weyerhaeuser and Koppers limited 30-year warranties.

### Q12: Do I need to finish or clad my Parallam® Plus PSL products?

**A12:** Finishing or cladding your Parallam® Plus PSL may be desirable for aesthetic reasons, however, it is not required. Finishes that trap or seal in moisture should not be used. Cladding must be designed and installed in a way that provides adequate drainage and ventilation to prevent moisture build-up.

### Q13: Can Parallam® Plus PSL products be painted or stained?

**A13:** Yes. Parallam® Plus PSL can be painted or stained with either oil- or water-based finishes; we recommend following the manufacturer's instructions and the label on the finish product. However, before you start, we recommend applying the finish product to a small exposed test area to insure it provides the intended results before proceeding.

Untreated and treated wood products may exhibit discoloration, checking, warping, or splitting when exposed to the weather. Appropriate maintenance, such as the application of quality exterior stains and paints, will help reduce the extent of these weathering effects. However, these finishes may not hide inherent surface irregularities, and the final color may be affected by the tint of the treatment. Commercial paints and finishes that are compatible with preservative-treated products do exist; however, finishes that seal in or trap moisture should not be used.

### Q14: Where can I find more information about Parallam® Plus PSL?

**A14:** For more information on Parallam® Plus PSL, see the Weyerhaeuser *Consumer Safety Information Sheet for Trus Joist® Parallam® Plus PSL* at [weyerhaeuser.com/woodproducts/document-library/TJ-1021](http://weyerhaeuser.com/woodproducts/document-library/TJ-1021)

Also see the following Safety Data Sheets (SDSs), available on our website:

- **WC S311-13 Parallam® Plus PSL (CCA)**  
[weyerhaeuser.com/application/files/6615/1311/1309/Parallam\\_Plus\\_PSL\\_CCA.pdf](http://weyerhaeuser.com/application/files/6615/1311/1309/Parallam_Plus_PSL_CCA.pdf)
- **WC S457-04 Parallam® Plus PSL (CA-C)**  
[weyerhaeuser.com/application/files/6215/1311/1309/Parallam\\_Plus\\_PSL\\_CA-C.pdf](http://weyerhaeuser.com/application/files/6215/1311/1309/Parallam_Plus_PSL_CA-C.pdf)

### Q15: Where can I purchase Parallam® Plus PSL beams and columns?

**A15:** Parallam® Plus PSL is intended for use by professional building contractors; therefore, it can be purchased only through professional contractor yards. It is not available for sale through retail channels.

## WE CAN HELP YOU BUILD SMARTER

You want to build solid and durable structures—we want to help. Weyerhaeuser provides high-quality building products and unparalleled technical and field assistance to support you and your project from start to finish.

**Floors and Roofs:** Start with the best framing components in the industry: our Trus Joist® TJI® joists; TimberStrand® LSL rim board; and TimberStrand® LSL, Microllam® LVL, and Parallam® PSL headers and beams. Pull them all together with our self-gapping and self-draining Weyerhaeuser Edge Gold™ floor panels and durable Weyerhaeuser roof sheathing.

**Walls:** Get the best value out of your framing package—use TimberStrand® LSL studs for tall walls, kitchens, and bathrooms, and our traditional, solid-sawn lumber everywhere else. Cut down installation time by using TimberStrand® LSL headers for doors and windows, and Weyerhaeuser wall sheathing with its handy two-way nail lines.

**Software Solutions:** Whether you are a design professional or lumber dealer, Weyerhaeuser offers an array of software packages to help you specify individual framing members, create cut lists, manage inventories—even help you design a complete structural frame. Contact your Weyerhaeuser representative to find out how to get the software you need.

**Technical Support:** Need technical help? Weyerhaeuser has one of the largest networks of engineers and sales representatives in the business. Call us for help, and a skilled member from our team of experts will answer your questions and work with you to develop solutions that meet all your structural framing needs.



### LIMITED LIFETIME PRODUCT WARRANTY

Weyerhaeuser provides a limited warranty for the expected life of the structure for all Trus Joist® branded products. Product information, installation instructions, and the full text of each product's limited warranty (including limitations and exclusions) are available on the Weyerhaeuser website, from your Weyerhaeuser representative, or by calling toll free: 888-453-8358.

Additionally, Weyerhaeuser offers limited warranties on a broad variety of its other products. To see complete details of all Weyerhaeuser product warranties, visit [weyerhaeuser.com/woodproducts/warranty](http://weyerhaeuser.com/woodproducts/warranty).

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