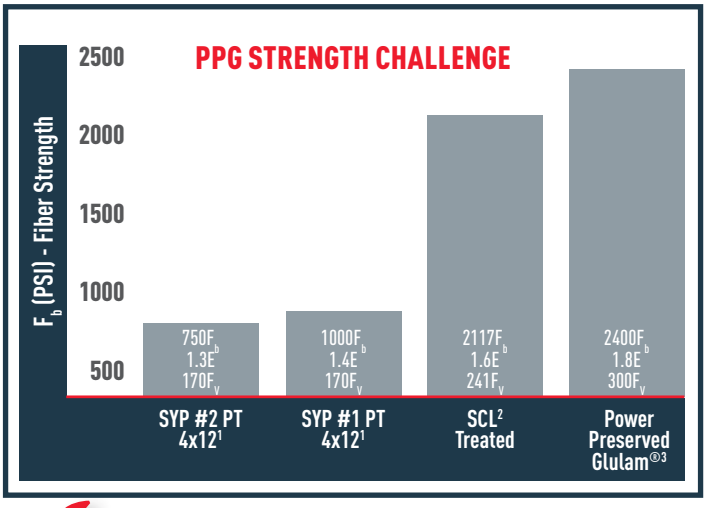
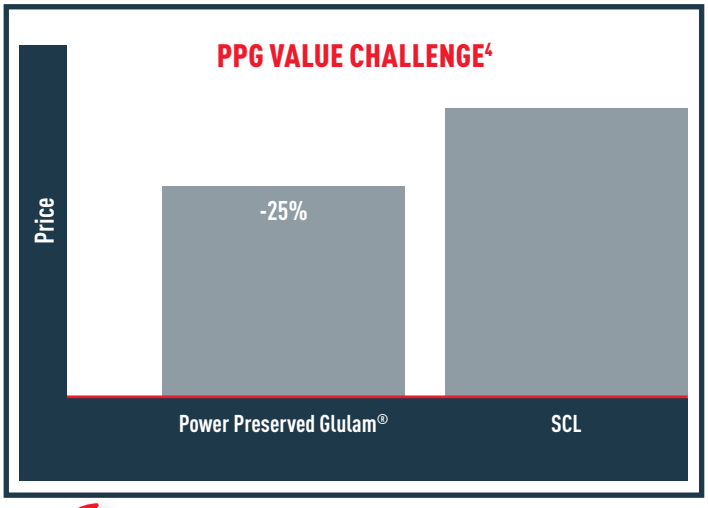
THE POWER PRESERVED GLULAM® BEAM CHALLENGE

Pressure Treated Glulam vs. Pressure Treated SCL

PPG - Power Preserved Glulam®

SCL - Treated Structural Composite Lumber





POWER PRESERVED GLULAM® wins the Strength Challenge making it an automatic replacement for treated SCL.

POWER PRESERVED GLULAM® wins the Value Challenge as being a lower cost alternative for treated SCL.

Notes:

[1] Design values from 2014 Standard Grading Rules for Southern Pine Lumber (wet use reduction factors used from NDS Table 4B).

[2] SCL (Structural Composite Lumber) is treated with waterborne copper preservatives for AWPA UC1 dry use or MC ≤ 16%. For wet use, (MC > 16% and ≤ 28%) additional reductions are required.

[3] PPG design values based upon dry use.

[4] Price difference varies from region to region.

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POWER PRESERVED GLULAM® BEAM DESIGN VALUE COMPARISON (PSI)

Product	F_b (Flexural Stress)	MOE (Modulus of Elasticity)	F_v (Horizontal Shear)	$F_{c\perp}$ (Compression Perpendicular to Grain)	$F_{t\,yy}$ (Tension Stress)	$F_{c\parallel yy}$ (Compression Parallel to Grain)
Power Preserved Glulam® Dry Use	2400	1.80×10^6	300	740	1150	1650
Power Preserved Glulam® Wet Use	1920	1.50×10^6	263	392	920	1205
(SCL) Structural Composite Lumber Dry Use	2117	1.66×10^6	241	480	1519	2030
(SCL) Structural Composite Lumber Wet Use	1827	1.46×10^6	197	338	1397	1508
#2 Treated SYP 4x12 Wet Use	750	1.26×10^6	175	380	450	1000

Note: Power Preserved Glulam® beams are almost exclusively designed for using dry use design values and allowable load tables. In rare cases, where the equilibrium moisture content of our PPG glulam beams is over 16%, we would suggest for the designer to use wet use values which are (MC > 16% and ≤ 28%). For this to happen, the constant relative humidity must be 80%+ and an ambient temperature of 70 degrees Fahrenheit or greater maintained. The literature cited is Table 1 "USDA Forest Products Laboratory, 1987 Wood Handbook."

POWER PRESERVED GLULAM® BEAM TOTAL LOAD VALUES

PPG AND SCL LOAD COMPARISON TABLES

	Allowable Total Floor Load (PLF) @ 1.00 LDF							
Span in feet	8	10	12	14	16	18	20	24
PPG 3 1/2" X 11 7/8" Dry Use	1918	1293	898	583	390	274	200	116
PPG 3 1/2" X 11 7/8" Wet Use	1631	1039	717	523	383	265	190	104
SCL 3 1/2" X 11 7/8" Wet Use	1310	988	659	420	281	196	140	75
PPG 3 1/2" X 16" Dry Use	2926	2101	1615	1182	901	671	489	283
PPG 3 1/2" X 16" Wet Use	2654	1893	1309	957	728	571	459	269
SCL 3 1/2" X 16" Wet Use	1310	1044	867	740	645	477	348	197
PPG 5 1/4" X 11 7/8" Dry Use	2910	1944	1344	885	593	419	305	177
PPG 5 1/4" X 11 7/8" Wet Use	2447	1559	1076	785	575	398	284	156
SCL 5 1/4" X 11 7/8" Wet Use	1965	1482	989	631	422	294	210	113
PPG 5 1/4" X 16" Dry Use	4440	3188	2451	1794	1400	1018	742	460
PPG 5 1/4" X 16" Wet Use	3981	2839	1963	1435	1090	850	679	404
SCL 5 1/4" X 16" Wet Use	1965	1566	1300	1110	967	716	522	296

Notes:

1. Power Preserved Glulam® load tables are based upon dry use of ≤ 16% MC due to treatment with oil borne preservatives. Dry use load and span tables are recommended in the majority of exterior applications. Wet use design values are based upon NDS Table 5A wet service factors.
   Wet use tables should be used in extreme high humidity and high temperature regions of the south as shown in above notes.
2. SCL is structural composite lumber treated with water-borne preservatives.
3. SCL load tables are based upon October 2017 TJ-7102 brochure. Service level 1 (Dry ≤ 16% MC) and Service Level 2 (Wet > 16% and ≤ 28% MC).

POWER PRESERVED COLUMN® vs. TREATED SCL COMPARISON

WET USE > 16% ≤ 28% MC
ALLOWABLE AXIAL LOADS (LBS)
LOAD DURATION FACTOR = 1.00

SIZE				
Effective Column Length (ft)	3 1/2" x 3 1/2"	3 1/2" x 3 1/2"	3 1/2" x 5 1/2"	3 1/2" x 5 1/4"
	100%	100%	100%	100%
	PPC	SCL	PPC	SCL
6	7,210	NA	13,160	10,045
8	5,330	NA	9,200	7,100
10	3,930	NA	6,630	5,140
12	2,990	NA	4,970	3,865
14	2,340	NA	3,850	3,000

SIZE				
	5 1/4" x 5 1/2"	5 1/4" x 5 1/4"	7" x 7"	7" x 7"
	PPC	SCL	PPC	SCL
8	20,650	16,510	38,360	34,480
10	16,660	13,240	33,440	30,440
12	13,330	10,520	28,340	26,080
14	10,790	8,460	23,770	21,990
16	8,860	6,920	20,000	18,535
18	7,380	5,745	16,970	15,735
20	6,210	4,840	14,540	13,480

Notes:

1. Treated SCL design and technical information can be found in the TJ-7102 2017 Specifier's Guide.
   The SCL columns are assumed to be used in Service Level 2 wet conditions.
   Allowable design for columns are: MOE = 1.224×10^6, F_b = 1,440 psi, and F_c = 1,300 psi.
2. Applicable service conditions = wet use for PPC and applicable values in note 5.
3. The tabulated allowable loads are based on simply axially loaded columns subjected to a maximum eccentricity of either 1/6 column width or 1/6 column depth, whichever is worse. For side loads, other eccentric end loads, or other combined axial and flexural loads, see 2015 NDS.
4. The column is assumed to be unbraced, except at the column ends, and the effective column length is equal to the actual column length.
5. Design properties for normal load duration and wet use service conditions for Power Preserved Column® derived for NDS Table 5B wet service factors. Compression parallel to grain (F_c) = 0.73 x 2,300 psi for 4 or more lams, or 0.73 x 1,700 psi for 2 or 3 lams, modulus of elasticity (E) = 0.833 x 1.9 x 10^6 psi. Flexural stress when loaded parallel to wide faces of lamination (F_{by}) = 0.8 x 2,300 psi for 4 or more lams, or 0.8 x 2,100 psi for 3 lams. Flexural stress when loaded perpendicular to wide faces of lamination (F_{bx}) = 0.8 x 2,100 psi for 2 lams to 15 in. deep without special tension laminations. Volume factor for (F_{bx}) is in accordance with 2015 NDS. Size factor for F_{by} is $(12/d)^{1/9}$, where d is equal to the lamination width in inches.
6. Consult hanger manufacturers literature for proper column caps and bases.
7. For loading and other conditions outside the scope of this table, contact your local retail yard or your Canfor sales person.

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CLEAR-GUARD® DECK BEAMS

Power Preserved Glulam® (PPG) Features

- PPG complies with the AWPA U1-16 Standard.
- Cop-Guard® or Copper Naphthenate (CuN) has a green coloration and for exterior use only. Applications include above ground use (UC 3) and ground contact use (UC 4).
- Clear-Guard® or IPBC/Permethrin leaves the beam natural looking as shown above and is for only above ground use (UC 3).
- PPG beams and columns are dissolved in low odor mineral spirits as the carrier.
- PPG beam and columns are covered under one product warranty and one treated warranty for both treatments.
- For more technical information go to www.anthonyforest.com.

Cop-Guard® Deck Beams

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SUSTAINABLE FORESTRY INITIATIVE

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