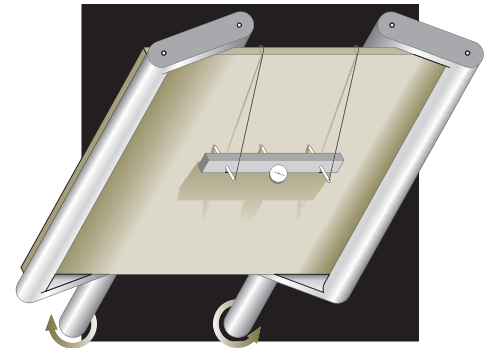


# LP TECHNICAL NOTE: MECHANICAL PROPERTIES FOR 24OC APA RATED STURD-I-FLOOR

LP offers three 24oc span rated single-floor structural panels—TopNotch® 250 (TN250), TopNotch® 350 (TN350) and LP Legacy® sub-flooring—each uniquely designed to match your requirements (see Value Proposition table below). This publication can help specifiers and builders decide which is right for the job. Bending stresses are typically of greatest interest. This Tech Note provides engineering design values—Stiffness, Strength and Shear—and subsequent performance values—Uniform Load and Deflection—for the 23/32 Performance Category panels.



## PRODUCT VALUE PROPOSITION

The following table compares LP's single-floor OSB panels from the standpoint of general properties and value-added features.

### 24OC SUB-FLOOR GENERAL PROPERTIES AND VALUE-ADDED FEATURES

PRODUCT	THICKNESS TARGET (INCH)	DENSITY (LBS/CF) ASPEN/PINE	DIMENSIONAL STABILITY	BENDING STRESSES	FASTENER HOLDING	SURFACE SANDING	FASTENER MARKS	SANDING WARRANTY
TN250	0.719	36/40	Commodity <sup>1</sup>	Commodity <sup>1</sup>	Commodity <sup>1</sup>	Partial	Lines	n/a
TN350	0.719	36/40	Enhanced <sup>2</sup>	Commodity <sup>1</sup>	Commodity <sup>1</sup>	Full	X Mark	200 Day
LP Legacy®	0.719	40/44	Enhanced <sup>2</sup>	Enhanced <sup>3</sup>	Enhanced <sup>3</sup>	Full	X Mark	Covered Until It's Covered®

1) Conforms to the Industry Voluntary Product Standard PS 2-10 (Performance Standard for Wood-Based Structural-Use Panels).

2) Enhanced levels of resin and wax result in significantly improved Thickness Swell properties.

3) Conforms to LP's Proprietary Design Values found in APA Product Report® PR-N127. The Bending Stress values are listed below.

## 24OC BENDING PROPERTIES—STIFFNESS, STRENGTH AND SHEAR

The table below contains bending stress Design Values used for engineering purposes. The values listed for TN250 and TN350 are found in panel Design Specification D510, while those listed for LP Legacy® sub-flooring are from LP's Proprietary Product Report PR-N127. The values, derived using ASTM D-3043 Test Method C, illustrate a significant increase in bending properties when using LP's premium floor product—LP Legacy sub-flooring.

### BENDING STIFFNESS<sup>1</sup>, EI (LBF-IN<sup>2</sup>/FT OF PANEL WIDTH)

PRODUCT	PARALLEL TO STRENGTH AXIS		PERPENDICULAR TO STRENGTH AXIS	
	DESIGN VALUE	% INCREASE	DESIGN VALUE	% INCREASE
TN250 & TN350	300,000		80,500	
LP Legacy®	395,120	32%	160,980	100%



## BENDING STRENGTH<sup>2</sup>, F<sub>B</sub>S (LBF-IN/FT OF PANEL WIDTH)

PRODUCT	PARALLEL TO STRENGTH AXIS		PERPENDICULAR TO STRENGTH AXIS	
	DESIGN VALUE	% INCREASE	DESIGN VALUE	% INCREASE
TN250 & TN350	770		385	
LP Legacy®	1,300	69%	750	95%

## SHEAR STRENGTH<sup>3</sup>, F<sub>s</sub>(LB/Q) (LBF/FT OF PANEL WIDTH)

PRODUCT	PARALLEL TO STRENGTH AXIS		PERPENDICULAR TO STRENGTH AXIS	
	DESIGN VALUE	% INCREASE	DESIGN VALUE	% INCREASE
TN250 & TN350	250		250	
LP Legacy®	385	54%	385	54%

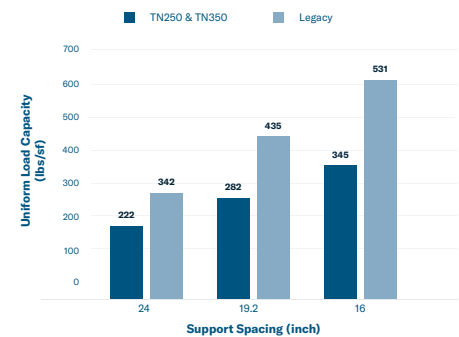
- 1) Panel Bending Stiffness is the capacity to resist deflection.
- 2) Allowable Bending Strength capacity is the design maximum moment.
- 3) Allowable Shear capacity in the plane of the panel.

## UNIFORM LOAD CAPACITY AND DEFLECTION

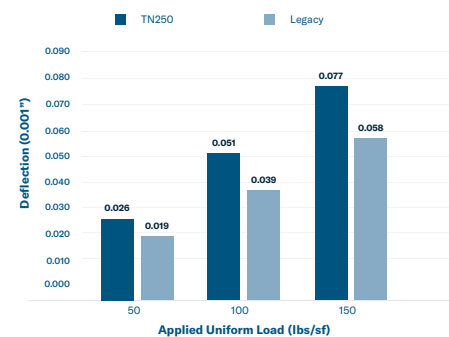
Uniform Load is an estimate of how much weight a floor structure can safely bear when the weight is distributed uniformly over the supporting area. The uniform load values from the chart to the right are calculated using the Shear Strength design values from the table above, applied to various support spacing conditions. All values assume a Dead Load of 10 lbs/sf (e.g. a capacity of 160 lbs/sf = 10 lbs/sf dead load + 150 lbs/sf live load). Also assume dry conditions and that the panel strength axis is applied perpendicular to the supports.

Deflection is an estimate of how much a panel will flex, at mid-span, under a given uniform load. The deflection values in the chart to the right are calculated using the Bending Stiffness EI design values from the table above, and assuming various loads. All values assume structural support spacing of 24" o.c. Also assume dry conditions and that the panel strength axis is applied perpendicular to the supports.

UNIFORM LOAD CAPACITY AT VARIOUS SUPPORT SPACING



DEFLECTION AT VARIOUS APPLIED UNIFORM LOADS  
(Support spacing 24" o.c.)



SFI-00003



For more information, please visit [LPCorp.com/Legacy](http://LPCorp.com/Legacy) or call 1-888-820-0325.

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