This document outlines the Product Specifications for Tolko T-STRAND OSB Products and is based on information provided by the APA – The Engineered Wood Association pertaining to PS2-18. The information contained herein is intended for informational purposes only and the contents are subject to change at any time. Tolko T-STRAND OSB Products contain no added urea formaldehyde resin (NAUF).

APA Rated Sheathing Applied Direct-to-Studs[a, b, c]

Minimum Nail		Minimum Wood Structural Panel Span Rating	Minimum Panel Performance Category	Wall Stud Spacing (in.)	Panel Nail Spacing		Ultimate Design Wind Speed (mph)		
Shank Diameter (in.)	Minimum Penetration (in.)				Edges (in. o.c.)	Field (in. o.c.)	Wind Exposure Category		
							B	C	D
0.113	1.5	24/0	3/8	16	6	12	140	115	110
		24/16	7/16	16	6	12	140	130	115
						6	190	160	140
0.131	1.75	24/16	7/16	16	6	12	170	140	135
						6	190	160	140
				24 or Less	6	12	140	115	110

a. Panel strength axis parallel or perpendicular to supports.
b. Table is based on wind pressures acting toward and away from building surface, at 30-ft in wall Zone 5 (corners) with smallest effective area, per Chapter 30 of ASCE 7-10 and Section R301.2 of the 2015 IRC, stud specific gravity = 0.42.
c. Supported panel joints shall occur approximately along the center line of framing with a minimum bearing of 1/2 inch.

Recommended Minimum Fastening Schedule for APA Panel Roof-Sheathing

(Increased nail schedules may be required in high wind zones and where roof is engineered as a diaphragm.)

		Nailing [a, b]	
		Maximum Spacing (in.)	
Panel Performance Category [c]	Size	Supported Panel Edges [d]	Intermediate
3/8 - 1	8d	6	12[e]
1-1/8	8d or 10d	6	12[e]

a. Use common smooth or deformed shank nails for panels with Performance Category 1 or smaller. For 1-1/8 Performance Category panels, use 8d ring-or screw-shank or 10d common smooth-shank nails.
b. Other code-approved fasteners may be used.
c. For stapling asphalt shingles to Performance Category 3/8 and thicker panels, use stables with a 15/16-inch minimum crown width and a 1-inch leg length. Space according to shingle manufacturer's recommendations.
d. Supported panel joins shall occur approximately along the centerline of framing with a minimum bearing of 1/2". Fasteners shall be located 3/8 inch from panel edges.
e. For spans 48 inches or greater, space nails 6 inches at all supports.

Thermal Resistance

Panel Performance Category	Thermal Resistance, R[a,b]
1/4	0.31
3/8	0.47
7/16	0.55
15/32	0.59
1/2	0.62
19/32	0.74
23/32	0.90
7/8	1.09
1	1.25
1-1/8	1.41

a. Degree F-hr-sq.ft./BTU
b. The tabulated thermal resistance (R) values are based on Douglas-fir-Larch plywood at 8% moisture content and 75°F. For more information, refer to TenWolde, A, J.D. McNatt, and L. Krahn. 1988. *Thermal Properties of Wood and Wood Panel Products for Use in Building.* Report prepared for Oak Ridge National Laboratory. DOE/USDA-21697/1 and ORNL/Sub/87-21697/1. USDA Forest Products Laboratory. Madison, WI.

Source: The information in this document is provided by the APA – The Engineered Wood Association.

Recommended Uniform Roof Live Loads for APA Rated Sheathing[a] and APA Rated Sturd-I-Floor with Strength Axis Perpendicular to Supports[b]

Panel Span Rating	Minimum Panel Performance Category	Maximum Span (in.)		Allowable Live Loads (psf)[d]							
		With Edge Support[c]	Without Edge Support	Spacing of Supports Center-to-Center (in.)							
				12	16	20	24	32	40	48	60
APA Rated Sheathing[a]											
24/0	3/8	24	19.2[e]	190	100	60	30				
24/16	7/16	24	24	190	100	65	40				
32/16	15/32	32	28	300	165	110	65	30			
40/20	19/32	40	32	-	275	195	120	60	30		
48/24	23/32	48	36	-	-	270	175	95	45	30	
60/32[f]	7/8	60	40	-	-	-	305	165	100	70	35
60/48[f]	1-1/8	60	48	-	-	-	305	165	100	70	35
APA Rated Sturd-I-Floor [g]											
16 oc	19/32	24	24	185	100	65	40				
20 oc	19/32	32	32	270	150	100	60	30			
24 oc	23/32	48	36	-	240	160	100	50	30	20	
32 oc	7/8	48	40	-	-	295	185	100	55	35	
48 oc	1-3/32	60	48	-	-	-	290	160	100	65	40

a. Includes APA Rated Sheathing.
b. Applies to APA Rated Sheathing and APA Rated Sturd-I-Floor Panels 24 inches or wider applied over two or more spans.
c. Tongue-and-groove edges, panel edge clips (one midway* between each support, except two equally spaced between supports 48 inches on center or greater), lumber blocking, or other.
*No established tolerance.
d. 10 psf dead load assumed.
e. 19.2 inches for Performance Category 3/8 and 7/16 panels. 24 inches for Performance Category 15/32 and 1/2 panels.
f. Check with supplier for availability.
g. Also applies to C-C Plugged grade plywood.

APA Panel Subflooring (APA Rated Sheathing)[a,b]

Panel Span Rating	Panel Performance Category	Maximum Span (in.)	Nail Size & Type[c]	Maximum Nail Spacing (in.)	
				Supported Panel Edges[d]	Intermediate Supports
24/16	7/16	16	6d common	6	12
32/16	15/32, 1/2	16	8d common[e]	6	12
40/20	19/32	19.2[f]	8d common	6	12
48/24	23/32	24	8d common	6	12
60/32[g]	7/8	32	8d common	6	12

a. For subfloor recommendations under gypsum concrete, contact manufacturer of floor topping
b. APA Rated Sturd-I-Floor may be substituted when the Span Rating is equal to or greater than tabulated maximum span.
c. Other code-approved fasteners may be used.
d. Supported panel joints shall occur approximately along the centerline of framing with a minimum bearing of 1/2 inch. Fasteners shall be located 3/8 inch from panel edges.
e. 6d common nail permitted if panel has a Performance Category of 1/2 or smaller.
f. Span may be 24 inches if a minimum 1-1/2 inches of lightweight concrete is applied over panels.
g. Check with supplier for availability.

Source: The information in this document is provided by the APA – The Engineered Wood Association.

Allowable Shear (pounds per foot) for Horizontal APA Panel Diaphragms with Framing of Douglas-Fir, Larch or Southern Pine[a] for Wind [b,c] or Seismic Loading[c]

					Blocked Diaphragms				Unblocked Diaphragms	
					Nail Spacing (in.) at diaphragm boundaries (all cases), at continuous panel edges parallel to load (Cases 3 &4), and at all panel edges (Cases 5&6)[d]				Nails Spaced 6" max. at Supported Edges[d]	
					6	4	2-1/2	2		
Panel Grade	Common Nail Size	Min. Penetration in Framing (in.)	Min. Nom. Panel Thickness (in.)	Min. Nom. Width of Framing Members at Adjoining Panel Edges and Boundaries[f] (in.)	Nail Spacing (in.) at other panel edges (Cases 1, 2, 3 & 4)[d]				Case 1 (No unblocked edge or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5, & 6)
					6	6	4	3		
APA Structural 1 grades	6d[g]	1-1/4	5/16	2	185	250	375	420	165	125
				3	210	280	420	475	185	140
	8d	1-3/8	3/8	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	10d	1-1/2	15/32	2	320	425	640	730	285	215
				3	360	480	720	820	320	240
APA Rated Sheathing APA Rated Sturd-I-Floor grades	6d[g]	1-1/4	5/16	2	170	225	335	380	150	110
				3	190	250	380	430	170	125
			3/8	2	185	250	375	420	165	125
				3	210	280	420	475	185	140
	8d	1-3/8	3/8	2	240	320	480	545	215	160
				3	270	360	540	610	240	180
			7/16	2	255	340	505	575	230	170
				3	285	380	570	645	255	190
			15/32	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	10d[h]	1-1/2	15/32	2	290	385	575	655	255	190
				3	325	430	650	735	290	215
			19/32	2	320	425	640	730	285	215
				3	360	480	720	820	320	240

a. For framing of other species: (1) Find specific gravity for species of lumber in the AWC *National Design Specification* (NDS). (2) Find shear value from table above for nail size for actual grade. (3) Multiply value by the following adjustment factor:
Specific Gravity Adjustment Factor = [1-(0.5-SG)], where SG = specific gravity of the framing. This adjustment shall not be greater than 1.

b. For wind load applications, the values in the table above shall be permitted to be multiplied by 1.4.

c. For shear loads of normal or permanent load duration as defined by the NDS, the values in the table above shall be multiplied by 0.63 or 0.56 respectively.

d. Space nails maximum 12 inches o.c. along intermediate framing members (6 inches o.c. when supports are spaced 48 inches o.c. or greater). Fasteners shall be located 3/8" from panel edges.

e. Framing at adjoining panel edges shall be 3" nominal or wider, and nails shall be staggered where nails are spaced 2 inches o.c. or 2-1/2 inches o.c.

f. The minimum normal width of framing members not located at boundaries or adjoining panel edges shall be 2".

g. 8d is recommended minimum for roofs due to negative pressures of high winds.

h. Framing at adjoining panel edges shall be 3" nominal or wider, and nails shall be staggered where 10d nails having penetration into framing of more than 1-1/2: are spaced 3 inches o.c.

Source: The information in this document is provided by the APA – The Engineered Wood Association.

APA Rated Sturd-I-Floor[a]

Span Rating (Maximum Joist Spacing) (in.)	Panel Performance Category[d]	Fastening: Glue-Nailed[b]			Fastening: Nail Only		
			Maximum Spacing (in.)[c]			Maximum Spacing (in.)[c]	
		Nail Size and Type	Supported Panel Edges[e]	Intermediate Supports	Nail Size and Type	Supported Panel Edges[e]	Intermediate Supports
16	19/32	6d ring-or screw shank[f]	6[g]	12	6d ring-or screw-shank	6	12
20[h]	19/32	6d ring-or screw shank[f]	6[g]	12	6d ring-or screw-shank	6	12
24	23/32	6d ring-or screw shank[f]	6[g]	12	6d ring-or screw-shank	6	12
	7/8	8d ring-or screw shank[f]	6	12	8d ring-or screw-shank	6	12
32	7/8	8d ring-or screw shank[f]	6	12	8d ring-or screw-shank	6	12
48	1-1/8	8d ring-or screw shank[f]	6	j	8d ring-or screw-shank[i]	6	j

a. Special conditions may impose traffic and concentrated loads that require construction in excess of the minimums shown.
b. Use only adhesives conforming to APA Specification AFG-01 or ASTM D3498, applied in accordance with the adhesive manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.
c. Increased fastening schedules may be required where floor is engineered as a diaphragm.
d. Panels in a given Performance Category may be manufactured in more than one Span Rating. Panels with a Span Rating greater than the actual joist spacing may be substituted for panels of the same Performance Category with a Span Rating matching the actual joist-spacing. For example, Performance Category 19/32 Sturd-I-Floor 20 oc may be substituted for Performance Category 19/32 Sturd-I-Floor 16 oc over joists at 16 inches on center.
e. Supported panel joints shall occur approximately along the centerline of framing with a minimum bearing of 1/2 inch. Fasten panels 3/8 inch from panel edges.
f. 8d common nails may be substituted if ring-or screw-shank nails are not available.
g. Check with local building official; some local jurisdictions permit nail spacing at 12 inches o.c.
h. While Span Rating is shown as 20 oc, the actual joist spacing is 19.2 inches.
i. 10d common nails may be substituted with Performance Category 1-1/8 panels if supports are well seasoned.
j. Space nails maximum 6 inches for 48-inch spans and 12 inches for 32-inch spans.

Recommended Uniform Floor Live Loads for APA Rated Sturd-I-Floor and APA Rated Sheathing with Strength Axis Perpendicular to Supports[a]

Sturd-I-Floor Span Rating	Sheathing Span Rating	Minimum Panel Performance Category	Maximum Span (in.)	Allowable Live Loads (psf)[b]						
				Joist Spacing (in.)						
				12	16	19.2	24	32	40	48[c]
16 oc	24/16, 32/16	7/16[d]	16	185	100					
20 oc[e]	40/20	19/32	19.2	270	150	100				
24 oc	48/24	23/32	24	430	240	160	100			
32 oc	60/32[f]	7/8	32		405	295	185	100		
48 oc	NA	1-3/32	48			425	290	160	100	55

a. Panels 24" or wider applied over two spans or more, dry; normal load duration assumed.
b. 10 psf dead load assumed. Live load deflection limit is I/360.
c. 4x nominal or double 2x framing.
d. 19/32 is minimum Performance Category of Rated Sturd-I-Floor.
e. While Span Rating is shown as 20 oc, the actual joist spacing is 19.2 inches.
f. Check with supplier for availability.

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