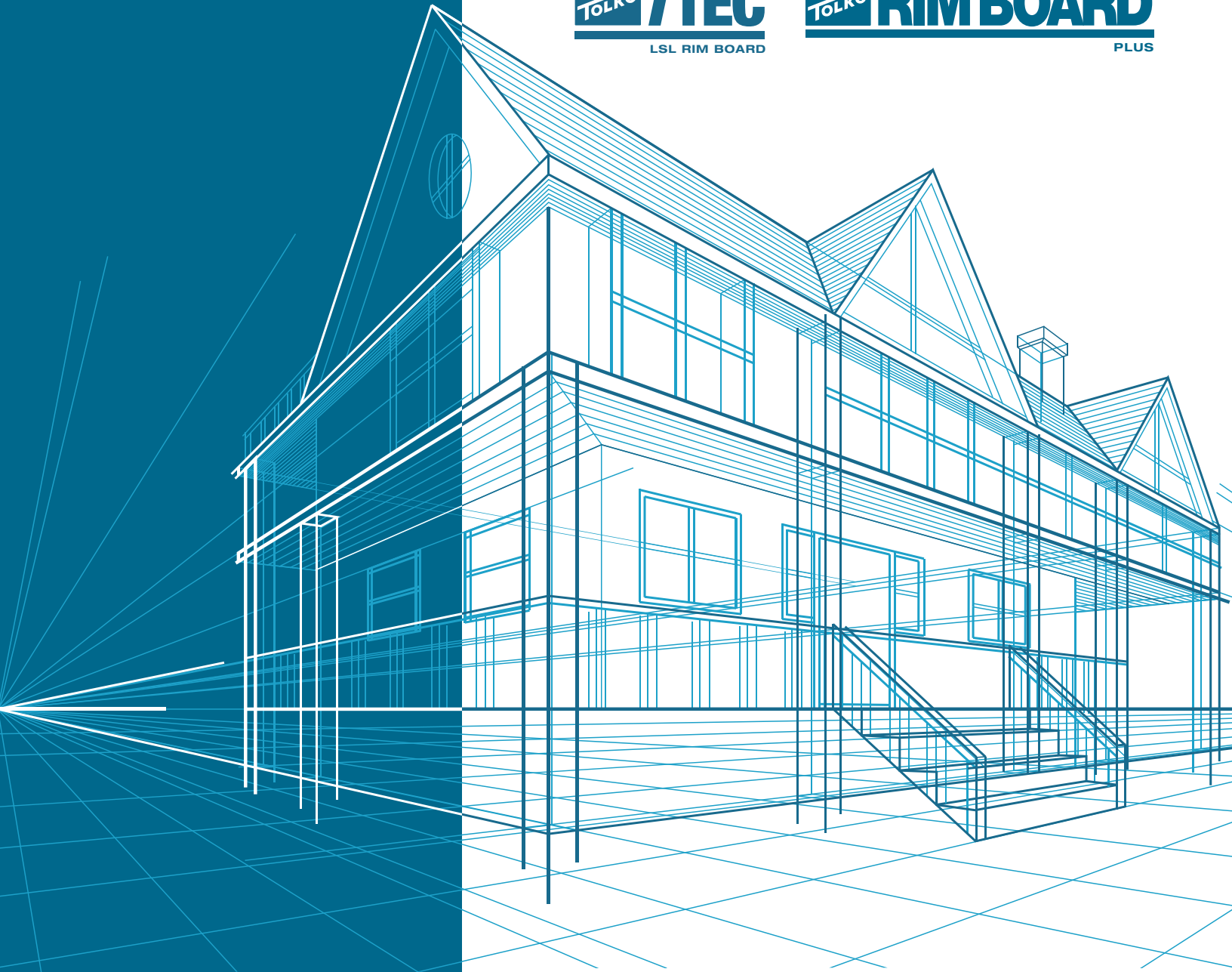


TOLKO

TECHNICAL GUIDE (ASD - USA)

T-TEC LSL RIM BOARD & TOLKO OSB RIM BOARD PLUS



**TRUE.
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ALLOWABLE STRESS DESIGN
Published: Dec. 19, 2023
WWW.TOLKO.COM



TOLKO RIM BOARD OFFERINGS

Tolko produces T-TEC LSL Rim Board from laminated strand lumber (LSL) and Tolko OSB Rim Board Plus from oriented strand board (OSB). Tolko’s rim board offerings are manufactured from highly predictable and uniform engineered wood that is sawn to consistent sizes and resists warping and splitting making them the preferred rim board for builders.



RIM BOARD APPLICATIONS

Tolko OSB Rim Board Plus fills the space between the sill plate and the bottom wall plate, or between the top plate and the bottom plate in multi-floor construction. In addition, to filling the void, rim board is an integral structural component that transfers both lateral and vertical forces. To function properly, the rim board must match the depth of framing members.

BUILDING WITH CONFIDENCE

T-TEC LSL Rim Board and Tolko OSB Rim Board Plus are structural-use products that are manufactured in accordance with the Performance Standard for APA EWS Rim Boards PRR-401 ANSI PRR-410, CCMC 13238-L (for OSB Rim Board) and meet or exceed the requirements given in the ICC-ES Acceptance Criteria for Wood-based Rim Board Products, AC124.

	T-TEC LSL Rim Board	Tolko OSB Rim Board Plus
Thickness¹	1-1/8", 1-1/4", 1-1/2", 1-3/4"	1", 1-1/8" and 1-1/4"
Depths¹	9-1/2", 11-7/8", 14", 16", 18", 20", 22", 24"	9-1/2", 11-7/8", 14", 16", 18", 20", 22", 24"
Lengths¹	12', 16', 24'	12', 16', 24'
E-Rating	1.35E, 1.55E ²	0.55E
Zinc Borate Protection	Optional	Optional

1 For promotional purposes, lengths and widths are the actual sizes.
 2 1.55E LSL is limited to 1-1/8" thickness.

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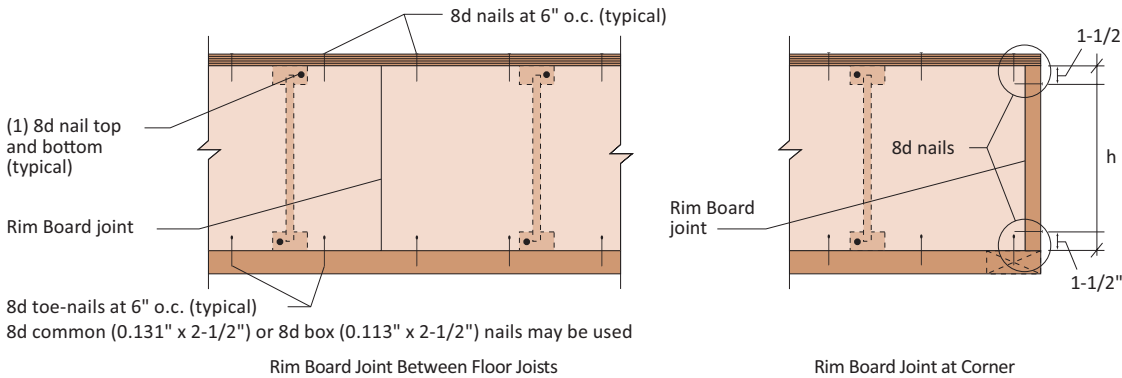
RIM BOARD INSTALLATION

TABLE 1: NAILING SCHEDULE FOR TOLKO OSB RIM BOARD PLUS, 1.35E & 1.55E T-TEC LSL

Sheathing to Rim Board	Rim Board to Sill Plate (Toe Nail)	Rim Board to I-Joist/LSL Joist	Sheathing to Rim Board to Bottom Plate
8d common (0.131" x 2-1/2") at 6" o.c. (typical)	8d box (0.113" x 2-1/2") at 6" o.c. (typical)	8d box (0.113" x 2-1/2") top and bottom. This is typical for a Rim Board of 1-1/8". A larger nail size (10d: 0.131" x 2-1/2") may be required for thicker Rim Board or as indicated by the I-Joist/LSL Joist manufacturer.	16d box (0.135" x 3-1/2") or 16d common (0.162" x 3-1/2") - in accordance with the prescriptive requirements of the applicable code.

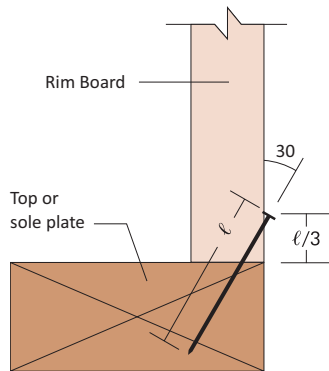
- Notes:
- 1) The first and last nail between sheathing and rim board (edge nails) shall be 3 inches from each rim board end.
 - 2) The first and last toe nails between rim board and sill plate shall be 3 inches from each rim board end.
 - 3) The lateral load capacity (Table 3) shall not be increased for nail spacings less than 6". The 16d (box or common) nails used to connect the bottom plate to the Rim Board through the sheathing do not reduce the lateral load capacity of the Rim Board provided that the 8d nail spacing (sheathing-Rim Board) is 6" o.c. and the 16d nail spacing (bottom plate-sheathing-Rim Board) is in accordance with the prescriptive requirements of the applicable code.

FIGURE 1: ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



Source: APA Performance Rated Rim Boards® – Form No.345K

FIGURE 2: TOE-NAIL CONNECTION AT RIM BOARD



Source: APA Performance Rated Rim Boards® – Form No.345K

TABLE 2: FASTENERS DESIGN FOR TOLKO OSB RIM BOARD PLUS & 1.35E T-TEC LSL ^(a, b)

Equivalent Specific Gravity (S.G.)					
Nails		Nails and Wood Screws		Bolts and Lag Screws ^(c, d)	
Withdrawal Load		Lateral Load		Lateral Load	
Installed in Edge	Installed in Face	Installed in Edge	Installed in Face	Installed in Face	
				Parallel to Grain	Perpendicular to Grain
0.42	0.44	0.47	0.50	0.50	0.50

- (a) Fastener design values calculated using the tabulated equivalent specific gravities given above must be adjusted by the applicable adjustment factors specified in the NDS for connections.
- (b) Fasteners spacing, and end and edge distances must be as specified in the NDS.
- (c) Bolts and lag screws shall only be installed into the face (plank orientation) of the LSL or Rim Board.
- (d) The capacities for the 1/2-inch diameter lag screws/bolts installed into Tolko LSL or Rim Board for ledger attachment shall be in accordance with Table 3
- (e) For Tolko OSB Rim Board Plus, a specific gravity of 0.5 could be used for generating the lateral resistances of nails or screws fastened on the face.

PROPOSITION 65 WARNING

WARNING

Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.

WARNING

This product can expose you to chemicals including methanol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

DESIGN PROPERTIES RIM BOARD APPLICATION

TABLE 3: ALLOWABLE LOADS FOR TOLKO OSB RIM BOARD PLUS, 1.35E T-TEC LSL, AND 1.55E T-TEC LSL^(a)

Grade	Thickness (in.)	Lateral Load ^(b, c) (lbf/ft)	Vertical Uniform Load ^(d) (lbf/ft)		Vertical Concentrated Load (lbf)	Lateral Resistance for 1/2-inch dia. Lag Screws/Bolts (lbf)
			Depth ≤ 16"	16" < Depth ≤ 24"	Depth ≤ 24"	
Tolko OSB Rim Board Plus	1-1/8	200	4850	3200	3500	350
	1-1/4					
1.35E T-TEC LSL	1-1/4	250 ^(e)	5400	4350	3800	560
	1-1/2	225	6450	5500	5000	
	1-3/4	200	7550	7550	7000	
1.55E T-TEC LSL	1-1/8	220	4850	3400	4600	440

- (a) The tabulated design values are applicable to the normal load duration (10 years) for wood products, except for the lateral load capacity, which is based on the short-term load duration (10 minutes). Design values shall be adjusted for the other load durations in accordance with the applicable building code except that the vertical uniform load capacity and vertical concentrated load capacity are not permitted to be increased for any load durations shorter than the normal load duration (10 years).
- (b) Toe-nailed connections are not limited by the 150 lbf/ft lateral load capacity noted for Seismic Design Category D, E and F in section 2305.1.4 of the IBC.
- (c) The nailing schedule for sheathing to rim board and rim board to sill plate (toe-nailed) is based on 8d box nails (0.113" x 2-1/2") at 6" o.c. spacing. Lateral capacity is permitted to be increased by a factor of 1.4 when subjected to wind loads. Commercial framing connectors may be used to achieve lateral load capacities exceeding the values shown in this table. Calculations shall be based on the equivalent specific gravity values listed in Table 2 subjected to the nailing spacing provided in Table 4.
- (d) The allowable vertical uniform load capacity is based on the strength of the rim board and may need to be reduced based on the bearing capacity of the supporting wall plate.
- (e) 1-1/4" 1.35E LSL used for rim board applications can transfer the same lateral loads allowed by the code for 2" nominal framing members for floor or roof diaphragms. This equivalency was verified by testing: International Building Code, Case 1, unblocked diaphragm of 240 plf with 23/32" sheathing and 8d nails at 6" o.c. spacing.
- (f) The vertical uniform load shall be simultaneously satisfied along with the vertical concentrated load as explained below:

Rim Boards subjected to a combination of uniform and concentrated vertical loads - First, the applied concentrated load shall not exceed the concentrated load capacity of the Rim Board, based on a 4-1/2" bearing length over the floor sheathing attached to the top of the Rim Board. Second, the applied concentrated load shall be calculated as an equivalent uniform load based on the applied loading length increased by a 45° load distribution through decking and plate on both sides of the concentrated load, as applicable. The equivalent uniform load shall be added to the applied uniform load to determine the total applied uniform load, which shall not exceed the vertical uniform of the Rim Board. If the total applied uniform load exceeds the vertical uniform load, use appropriate squash blocks, double Rim Boards, or a higher grade of Performance Rated Rim Board to carry the concentrated vertical load.

Example:

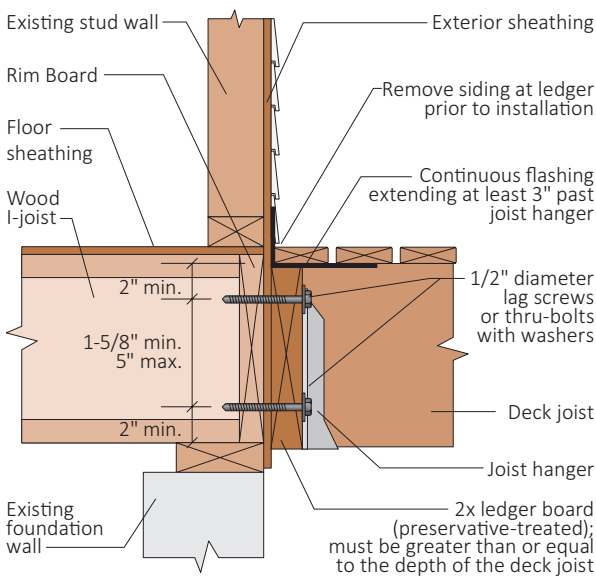
A mechanical device distributes a weight of 3,000 lbf for a distance of 12 inches along the top of a 1-1/8-inch x 16-inch Tolko OSB Rim Board Plus through 23/32-inch floor sheathing. In addition to the mechanical device the Rim Board carries a uniform load of 2,000 lbf/ft.

Check:

- (a) Concentrated vertical load = 3,000 lbf < 3,500 lbf. OK.
- (b) Equivalent uniform bearing load = $3,000 / [(12 + 2 * 23/32) / 12] = 2,680$ lbf/ft. Total equivalent uniform bearing load = $2,680 + 2,000 = 4,680$ lbf/ft. Use Tolko OSB Rim Board Plus that has an allowable bearing (vertical) load capacity of 4,850 lbf/ft.

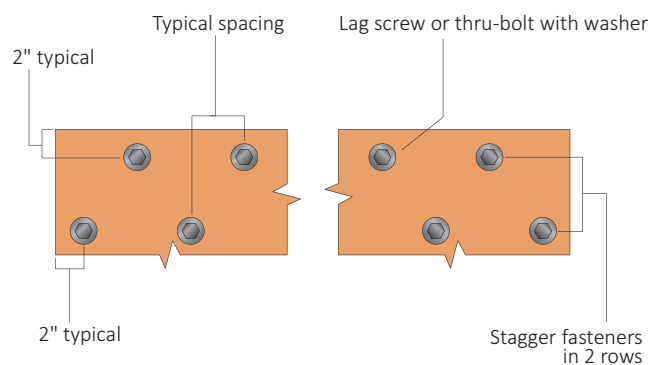
Source: Form No. W345K • © 2009 APA - The Engineered Wood Association • www.apawood.org

FIGURE 3: 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



Source: APA Performance Rated Rim Boards® – Form No.345K

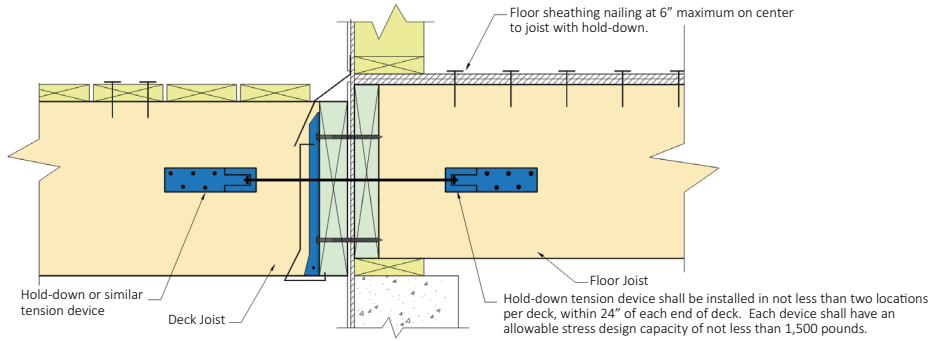
FIGURE 4: FASTENER SPACING FOR DECK LEDGER



Source: APA Performance Rated Rim Boards® – Form No.345K

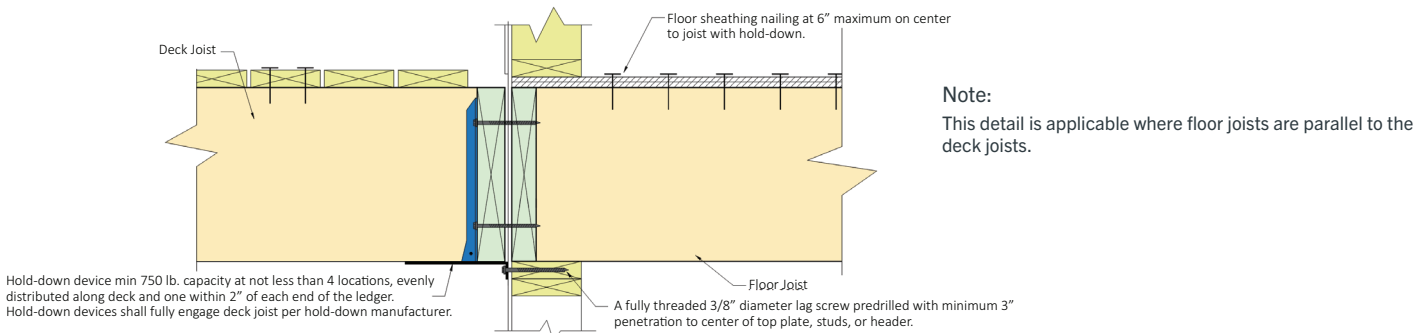
DECK ATTACHMENT FOR LATERAL LOADS

FIGURE 5: HOLD-DOWN TENSION DEVICE (2 LOCATIONS)



Ref.: IRC 2018 - 507.2.9.2(1)

FIGURE 6: HOLD-DOWN WITH FULLY THREADED 3/8" DIAMETER LAG SCREW (4 LOCATIONS)



Ref.: IRC 2018 - 507.2.9.2(2)

NAILING DISTANCES ON THE EDGE AND FACE

TABLE 4: NAILING DISTANCES ON THE EDGE AND FACE

Product	Thickness (in.)	Orientation	Pennyweight/Type	Max. Diameter (in.)	Max. Length (in.)	Min. End Distance (in.)	Minimum Nail Spacing per Row (in.)		
							Single Row	Multiple Rows	
Tolko OSB Rim Board Plus	1-1/8	Face	8d; 10d; 12d	0.148	3-1/4	2-1/2	2		
	1-1/4	Edge	8d; 10d; 12d	0.148	3-1/4	2-1/2	6		
1.35E T-TEC LSL Rim Board	1-1/4 ≤ thickness < 1-1/2	Edge	8d and smaller	0.131	2-1/2	2	4	Not recommended	
			10d; 12d	0.148	3-1/4	2	4		
			16d	0.162	3-1/2	2-1/2	5		
		Face	8d and smaller	0.131	2-1/2	7/8	1		1
			10d; 12d	0.148	3-1/4	7/8	1		1
			16d	0.162	3-1/2	7/8	1-1/2		1-1/2
	1-1/2 ≤ thickness < 3-1/2	Edge	8d and smaller	0.131	2-1/2	1	2	3	
			10d; 12d	0.148	3-1/4	2	3	4	
		Face	8d and smaller	0.131	2-1/2	1/2	1	1	
			10d; 12d	0.148	3-1/4	1/2	1	1	
1.55E T-TEC LSL Rim Board	1-1/8	Edge	8d and smaller	0.131	2-1/2	2	4	Not recommended	
			10d; 12d	0.148	3-1/4	2-1/2	5		
			16d	0.162	3-1/2	3	6		
		Face	8d and smaller	0.131	2-1/2	7/8	1		1
			10d; 12d	0.148	3-1/4	7/8	1		1
			16d	0.162	3-1/2	7/8	1-1/2		1-1/2

- Notes:
- 1) Face orientation applies to nails driven into the face of the member, such that the long axis of the nail is perpendicular to the wide face of the strands. Edge orientation applies to nails driven into the edge of the member.
 - 2) 16d sinker nails (0.148" x 3-1/4") may be spaced the same as the 12d common wire nails (0.148" x 3-1/4").
 - 3) Nails listed are common wire nails. For box nails, the spacing and end distance requirements of the next lower penny weight common nail may be used: e.g. a 16d box nail may be spaced the same as a 10d or 12d common nail.
 - 4) Nail penetration for edge nailing shall not exceed 2 inches for 16d common wire nails (0.162" x 3-1/2") and 2-1/2" for 10d and 12d nails (common or box).
 - 5) Tabulated closest on-center spacing for face orientation is applicable to nails that are installed in rows parallel to the grain (length) of the member. For nails installed in rows perpendicular to the direction of the grain (width/depth) of the member, the closest on-center spacing for face orientation shall be sufficient to prevent splitting of the member.

DESIGN PROPERTIES EDGEWISE BENDING

TABLE 5: ALLOWABLE EDGEWISE BENDING PROPERTIES^(a)

Product/Grade	Modulus of Elasticity E ^(d) (psi)	Flexural Stress, Fb ^(b) (psi)	Compression perpendicular to grain, Fc⊥ (psi)	Horizontal Shear parallel to grain, Fv (psi)
Tolko OSB Rim Board Plus	0.55 X 10 ⁶	600	500	140
1.35E T-TEC LSL	1.35 X 10 ⁶	1850 ^(c)	750	330
1.55E T-TEC LSL ^(e)	1.55 X 10 ⁶	2360 ^(c)	900	445

(a) The tabulated values are design values for normal load duration. All values, except E and Fc⊥, are permitted to be adjusted for other load durations as permitted by the code. The design stresses are limited to conditions in which the average equivalent moisture content of sawn lumber does not exceed 16 percent.

(b) Tabulated flexural stress (Fb) may be increased by 4 percent when the member qualifies as a repetitive member as defined in NDS.

(c) Tabulated value is based on a reference depth of 12 inches. For other depths, when loaded edgewise, Fb shall be modified by (12/d)^{0.125}, where d = depth in inches. For depths less than 2-1/2 inches, the factor for the 2-1/2-inch depth shall be used.

(d) For a simple span member, deflection for a uniform load could be calculated as follows:
where:

δT = total deflection (in)

w = applied uniform loads (lb/ft)

L = design span (ft)

E = modulus of elasticity (lb/in²)

b = beam width (in)

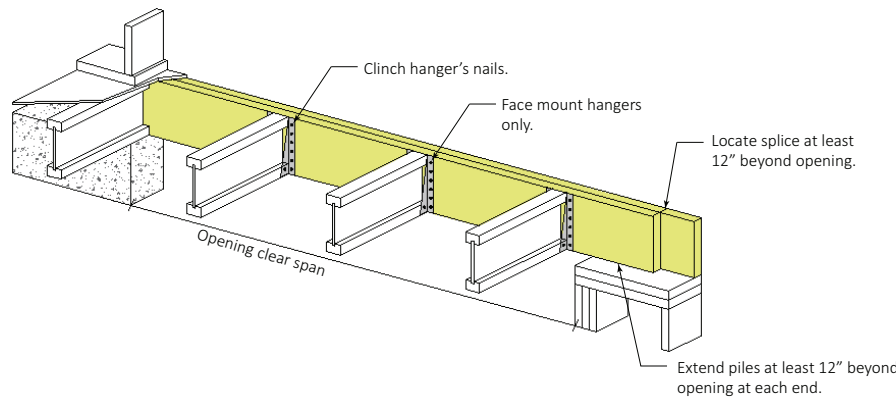
h = beam depth (in)

$$\delta_T = \frac{270wL^4}{Ebh^3}$$

(e) 1.55E LSL is limited to 1-1/8" thickness.

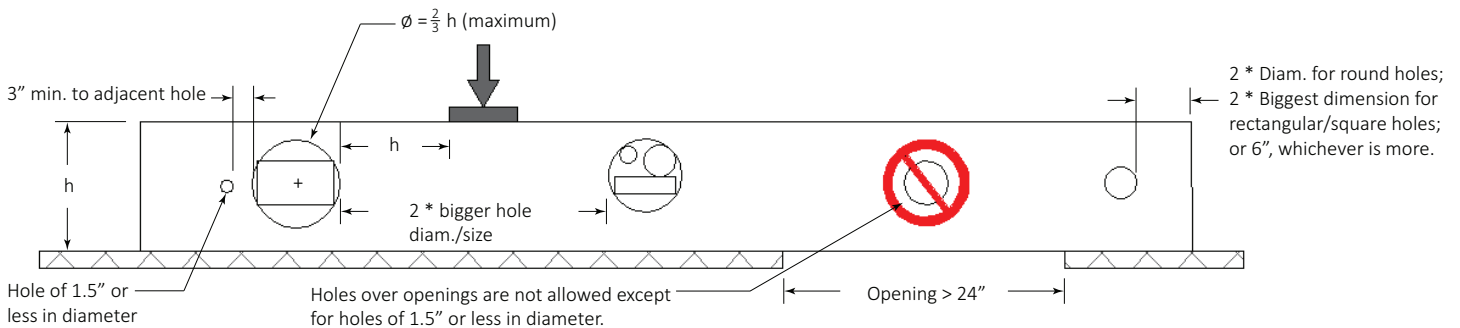
RIM BOARD HEADER APPLICATION

FIGURE 7: HEADER APPLICATION



ALLOWABLE HOLES

FIGURE 8: RIM BOARD HOLES SPECIFICATION



Notes:

- 1) The maximum allowable round hole size for rim boards is limited to 2/3 of the rim board depth. Rectangular/square holes shall be circumscribed in the maximum allowable round holes, and the corners shall not be over-cut. Pre-drilling corners with a 1-inch diameter bit is recommended.
- 2) Holes should not occur in rim board installed over openings, such as doors or windows, where the rim board is not fully supported, except that holes of 1-1/2 inches or less in size are permitted provided they are positioned at the mid-depth and in the middle 1/3 of the span.
- 3) When concentrated loads are present on the rim board (loads not supported by other vertical-load-carrying members such as squash blocks), holes should not be placed in the rim board within a distance equal to the depth of the rim board from the area of loading.
- 4) For multiple holes, the clear spacing between holes should be at least two times the diameter of the larger hole, or twice the length of the longest side of the longest rectangular hole. This minimum hole spacing does not apply to holes of 1-1/2" or less in diameter, which can be placed anywhere in the rim board except that the clear distance to the adjacent hole should be 3 inches minimum.
- 5) Closely grouped holes are permitted if the group perimeter meets the requirements for the round hole.

ALLOWABLE PLF SIDE LOADS HEADER APPLICATION

TABLE 6: ALLOWABLE PLF LOADS - RIM BOARD HEADERS TOLKO OSB RIM BOARD PLUS 1-1/8"

Product Grade	Single Ply Thickness (in.)	# of plies	Depth (in.)	Header Span (ft)																				
				2		3		4		5		6		8		10		12		14		16		
				Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	
Tolko OSB Rim Board Plus	1-1/8	1	7.25	986	438	246	158	110	57	62														
			9.25	1580	713	401	257	178	100															
			9.5	1651	752	423	271	188	106															
			11.25	2126	1055	593	380	264	148															
			11.875	2126	1175	661	423	294	165															
		2	7.25	1971	876	493	315	219	114	123	58	79												
			9.25	3161	1426	802	513	357	201	121	128	70	89	44	65									
			9.5	3302	1504	846	542	376	212	131	135	76	94	48	69									
			11.25	4253	2109	1187	759	527	297	190	126	132	79	97	53	74								
			11.875	4253	2350	1322	846	588	331	212	147	93	108	62	83									
			14	4253	2835	1838	1176	817	459	294	204	150	102	115										
		16	4253	2835	2126	1536	1067	600	384	267	196													
		3	7.25	3075	1367	769	492	342	171	192	87	123	51	76										
			9.25	4741	2225	1251	801	556	313	181	200	105	139	66	99	44	66							
			9.5	4953	2347	1320	845	587	330	196	211	114	147	72	107	48	72							
			11.25	6379	3291	1851	1185	823	463	296	189	206	119	151	80	116								
			11.875	6379	3666	2062	1320	917	516	330	222	229	140	168	94	129								
			14	6379	4253	2867	1835	1274	717	459	319	229	234	154	179									
			16	6379	4253	3189	2396	1664	936	599	416	306												
		4	7.25	4100	1822	1025	656	456	227	256	116	164	67	101	42	64								
			9.25	6321	2966	1668	1068	742	417	242	267	140	185	88	132	59	89							
			9.5	6604	3129	1760	1126	782	440	262	282	152	196	95	143	64	96							
			11.25	8505	4388	2468	1580	1097	617	395	252	274	159	201	106	154								
			11.875	8505	4889	2750	1760	1222	687	440	296	306	186	224	125	172								
			14	8505	5670	3822	2446	1699	956	612	425	306	312	205	239									
		16	8505	5670	4253	3195	2219	1248	799	555	408													

Design Assumptions

- Header span is the center-to-center distance of the supports and is only valid for simple span applications.
- The allowable loads represent the capacity in pounds per lineal foot (plf) of length.
- Tabulated values are valid for uniform loads only.
- Minimum end bearing of 4 1/2".
- Deflection of L/360 for the live load and L/240 for the total load.
- Multiple-ply members shall have the same thickness and grade and be properly connected. Refer to the multi-ply connections on Table 12 to Table 15.
- Vertical load transfer at bearings is limited to a maximum of 360 psi as per ASTM D7672.
- Tabulated values shall not be increased for a load duration C_d > 1.0
- Joints in Rim Board shall not be located within the header span.
- Tabulated values assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24".
- Tabulated values are valid for dry service conditions, where the moisture content in service does not exceed 16%, as in most covered structures.

How to use this table

- Both total and live loads shall be checked. Where the live load is blank the total load governs the design.
- Header weight shall be included in the total load.
- Select the appropriate Span [center-to-center of min. end bearing, or clear span + (4.5/12)].
- Scan vertically to find the proper ply thickness, number of plies, and depth with the capacities that exceed the actual live and total loads.
- Verify the min. end bearing length of 4-1/2".
- Hanger capacities may be reduced for the selected rim board thicknesses. Refer to the hanger manufacturer for appropriate reductions.
- For loading conditions not shown, use CSD[®] software or contact your Tolko representative.

TABLE 7: ALLOWABLE PLF LOADS - RIM BOARD HEADERS TOLKO OSB RIM BOARD PLUS 1-1/4"

Product Grade	Single Ply Thickness (in.)	# of plies	Depth (in.)	Header Span (ft)																				
				2		3		4		5		6		8		10		12		14		16		
				Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	
Tolko OSB Rim Board Plus	1-1/4	1	7.25	1095	487	274	175	122	63	68														
			9.25	1756	792	446	285	198	111															
			9.5	1834	836	470	301	209	118															
			11.25	2363	1172	659	422	293	165															
			11.875	2363	1306	734	470	326	184															
		2	7.25	2190	973	548	350	243	126	137	65	88												
			9.25	3512	1584	891	570	396	223	134	143	78	99	49	73									
			9.5	3669	1671	940	602	418	235	146	150	84	104	53	77									
			11.25	4725	2344	1318	844	586	330	211	140	146	88	108	59	82								
			11.875	4725	2611	1469	940	653	367	235	163	104	120	69	92									
			14	4725	3150	2042	1307	907	510	327	227	167	114	128										
		3	16	4725	3150	2363	1707	1185	667	427	296	218	167											
			7.25	3417	1518	854	547	380	190	214	97	137	56	84										
			9.25	5268	2472	1390	890	618	348	202	222	117	154	73	110	49	74							
			9.5	5503	2607	1467	939	652	367	218	235	126	163	80	119	53	80							
			11.25	7088	3656	2057	1316	914	514	329	210	229	132	168	89	129								
			11.875	7088	4074	2292	1467	1018	573	367	247	255	155	187	104	143								
			14	7088	4725	3185	2038	1416	796	510	354	255	260	171	199									
		4	16	7088	4725	3544	2662	1849	1040	666	462	340	255	260										
			7.25	4555	2025	1139	729	506	253	285	129	182	75	112	47	71								
			9.25	7024	3296	1854	1186	824	463	269	297	155	206	98	147	66	98							
			9.5	7338	3476	1955	1251	869	489	291	313	168	217	106	159	71	107							
			11.25	9450	4875	2742	1755	1219	686	439	280	305	176	224	118	171								
			11.875	9450	5432	3055	1955	1358	764	489	329	339	207	249	139	191								
			14	9450	6300	4247	2718	1887	1062	679	472	340	347	227	265									
			16	9450	6300	4725	3550	2465	1387	887	616	453	340	347										

Design Assumptions

- Header span is the center-to-center distance of the supports and is only valid for simple span applications.
- The allowable loads represent the capacity in pounds per lineal foot (plf) of length.
- Tabulated values are valid for uniform loads only.
- Minimum end bearing of 4 1/2".
- Deflection of L/360 for the live load and L/240 for the total load.
- Multiple-ply members shall have the same thickness and grade and be properly connected. Refer to the multi-ply connections on Table 12 to Table 15.
- Vertical load transfer at bearings is limited to a maximum of 360 psi as per ASTM D7672.
- Tabulated values shall not be increased for a load duration $C_D > 1.0$
- Joints in Rim Board shall not be located within the header span.
- Tabulated values assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24".
- Tabulated values are valid for dry service conditions, where the moisture content in service does not exceed 16%, as in most covered structures.

How to use this table

- Both total and live loads shall be checked. Where the live load is blank the total load governs the design.
- Header weight shall be included in the total load.
- Select the appropriate Span [center-to-center of min. end bearing, or clear span + (4.5/12)].
- Scan vertically to find the proper ply thickness, number of plies, and depth with the capacities that exceed the actual live and total loads.
- Verify the min. end bearing length of 4-1/2".
- Hanger capacities may be reduced for the selected rim board thicknesses. Refer to the hanger manufacturer for appropriate reductions.
- For loading conditions not shown, use CSD® software or contact your Tolko representative.

TABLE 8: ALLOWABLE PLF LOADS - RIM BOARD HEADERS 1.35E T-TEC LSL 1-1/4"

Product Grade	Single Ply Thickness (in.)	# of plies	Depth (in.)	Header Span (ft)																					
				2		3		4		5		6		8		10		12		14		16			
				Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)		
1.35E T-TEC LSL	1-1/4	1	7.25	2363	1575	899	575	368	400	155	225	79	119												
			9.25	2363	1575	1181	908	631	322	355	165	227	95	143											
			9.5	2363	1575	1181	945	663	349	373	179	239	103	155											
			11.25	2363	1575	1181	945	788	512	297	328	172	228												
			11.875	2363	1575	1181	945	788	567	349	363	202	252												
		2	7.25	4725	3150	1798	1151	735	799	310	449	159	238	92	138	58	87								
			9.25	4725	3150	2363	1817	1262	644	710	330	454	191	286	120	180	81	121							
			9.5	4725	3150	2363	1890	1326	698	746	357	478	207	310	130	195	87	131							
			11.25	4725	3150	2363	1890	1575	1024	593	656	343	455	216	324	145	217								
			11.875	4725	3150	2363	1890	1575	1134	698	726	404	504	254	370	170	256								
			14	4725	3150	2363	1890	1575	1181	945	662	686	417	504	279	386									
		3	16	4725	3150	2363	1890	1575	1181	945	788	622	647	417	496										
			7.25	7088	4725	2805	1795	1103	1247	465	698	238	357	138	207	87	130	58	87						
			9.25	7088	4725	3544	2834	1968	966	1107	495	709	286	429	180	270	121	181							
			9.5	7088	4725	3544	2835	2069	1047	1164	536	745	310	465	195	293	131	196							
			11.25	7088	4725	3544	2835	2363	1598	890	1023	515	710	324	486	217	326								
			11.875	7088	4725	3544	2835	2363	1769	1047	1132	606	786	381	572	256	383								
		4	14	7088	4725	3544	2835	2363	1772	1418	992	1070	625	786	419	602									
			16	7088	4725	3544	2835	2363	1772	1418	1181	933	1010	625	773										
			7.25	9450	6300	3740	2393	1470	1662	620	930	318	476	184	276	116	174	78	116						
			9.25	9450	6300	4725	3779	2624	1288	1476	660	945	382	573	240	361	161	242							
			9.5	9450	6300	4725	3780	2759	1395	1552	714	993	413	620	260	391	174	262							
			11.25	9450	6300	4725	3780	3150	2131	1187	1364	687	947	432	649	290	435								
			11.875	9450	6300	4725	3780	3150	2358	1395	1509	808	1048	509	763	341	511								
		4	14	9450	6300	4725	3780	3150	2363	1890	1323	1427	833	1048	558	803									
			16	9450	6300	4725	3780	3150	2363	1890	1575	1244	1347	833	1031										

Design Assumptions

- 1) Header span is the center-to-center distance of the supports and is only valid for simple span applications.
- 2) The allowable loads represent the capacity in pounds per lineal foot (plf) of length.
- 3) Tabulated values are valid for uniform loads only.
- 4) Minimum end bearing of 4 1/2".
- 5) Deflection of L/360 for the live load and L/240 for the total load.
- 6) Multiple-ply members shall have the same thickness and grade and be properly connected. Refer to the multi-ply connections on Table 12 to Table 15.
- 7) Vertical load transfer at bearings is limited to a maximum of 360 psi as per ASTM D7672.
- 8) Tabulated values shall not be increased for a load duration C_D > 1.0
- 9) Joints in Rim Board shall not be located within the header span.
- 10) Tabulated values assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24".
- 11) Tabulated values are valid for dry service conditions, where the moisture content in service does not exceed 16%, as in most covered structures.

How to use this table

- 1) Both total and live loads shall be checked. Where the live load is blank the total load governs the design.
- 2) Header weight shall be included in the total load.
- 3) Select the appropriate Span [center-to-center of min. end bearing, or clear span + (4.5/12)].
- 4) Scan vertically to find the proper ply thickness, number of plies, and depth with the capacities that exceed the actual live and total loads.
- 5) Verify the min. end bearing length of 4-1/2".
- 6) Hanger capacities may be reduced for the selected rim board thicknesses. Refer to the hanger manufacturer for appropriate reductions.
- 7) For loading conditions not shown, use CSD[®] software or contact your Tolko representative.

TABLE 9: ALLOWABLE PLF LOADS - RIM BOARD HEADERS 1.35E T-TEC LSL 1-1/2"

Product Grade	Single Ply Thickness (in.)	# of plies	Depth (in.)	Header Span (ft)																				
				2		3		4		5		6		8		10		12		14		16		
				Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	
1.35E T-TEC LSL	1-1/2	1	7.25	2835	1890	1079	690	441	479	186	270	95	143	55	83									
			9.25	2835	1890	1418	1090		757	386	426	198	273	115	172	72	108							
			9.5	2835	1890	1418	1134		796	419	448	214	287	124	186	78	117							
			11.25	2835	1890	1418	1134		945		615	356	393	206	273	130	195							
			11.875	2835	1890	1418	1134		945		680	419	435	242	302	153	222							
		2	7.25	5670	3780	2158	1381	882	959	372	539	191	286	110	165	69	104	47	70					
			9.25	5670	3780	2835	2180		1514	773	852	396	545	229	344	144	216	97	145					
			9.5	5670	3780	2835	2268		1592	837	895	429	573	248	372	156	234	105	157					
			11.25	5670	3780	2835	2268		1890		1229	712	787	412	546	259	389	174	261					
			11.875	5670	3780	2835	2268		1890		1361	837	871	485	605	305	444	204	307					
			14	5670	3780	2835	2268		1890		1418		1134	794	823	500	605	335	463					
		16	5670	3780	2835	2268		1890		1418		1134		945	746	777	500	595						
		3	7.25	8505	5670	3366	2154	1323	1496	558	837	286	429	165	248	104	156	70	105					
			9.25	8505	5670	4253	3401		2362	1159	1329	594	850	344	515	216	324	145	217					
			9.5	8505	5670	4253	3402		2483	1256	1397	643	894	372	558	234	352	157	235					
			11.25	8505	5670	4253	3402		2835		1918	1068	1227	618	852	389	584	261	391					
			11.875	8505	5670	4253	3402		2835		2122	1256	1358	727	943	458	687	307	460					
			14	8505	5670	4253	3402		2835		2126		1701	1191	1284	750	944	502	722					
			16	8505	5670	4253	3402		2835		2126		1701		1418	1120	1212	750	928					
		4	7.25	10000	7560	4488	2872	1764	1995	744	1116	381	572	221	331	139	208	93	140					
			9.25	10000	7560	5670	4535		3149	1546	1772	791	1134	458	687	288	433	193	290					
			9.5	10000	7560	5670	4536		3311	1675	1862	857	1192	496	744	312	469	209	314					
			11.25	10000	7560	5670	4536		3780		2557	1424	1637	824	1136	519	778	348	521					
			11.875	10000	7560	5670	4536		3780		2830	1675	1811	969	1258	610	915	409	613					
			14	10000	7560	5670	4536		3780		2835		2268	1588	1713	1000	1258	670	963					
		16	10000	7560	5670	4536		3780		2835		2268		1890	1493	1616	1000	1237						

Design Assumptions

- Header span is the center-to-center distance of the supports and is only valid for simple span applications.
- The allowable loads represent the capacity in pounds per lineal foot (plf) of length.
- Tabulated values are valid for uniform loads only.
- Minimum end bearing of 4 1/2".
- Deflection of L/360 for the live load and L/240 for the total load.
- Multiple-ply members shall have the same thickness and grade and be properly connected. Refer to the multi-ply connections on Table 12 to Table 15.
- Vertical load transfer at bearings is limited to a maximum of 360 psi as per ASTM D7672.
- Tabulated values shall not be increased for a load duration $C_D > 1.0$
- Joints in Rim Board shall not be located within the header span.
- Tabulated values assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24".
- Tabulated values are valid for dry service conditions, where the moisture content in service does not exceed 16%, as in most covered structures.

How to use this table

- Both total and live loads shall be checked. Where the live load is blank the total load governs the design.
- Header weight shall be included in the total load.
- Select the appropriate Span [center-to-center of min. end bearing, or clear span + (4.5/12)].
- Scan vertically to find the proper ply thickness, number of plies, and depth with the capacities that exceed the actual live and total loads.
- Verify the min. end bearing length of 4-1/2".
- Hanger capacities may be reduced for the selected rim board thicknesses. Refer to the hanger manufacturer for appropriate reductions.
- For loading conditions not shown, use CSD® software or contact your Tolko representative.

TABLE 10: ALLOWABLE PLF LOADS - RIM BOARD HEADERS 1.35E T-TEC LSL 1-3/4"

Product Grade	Single Ply Thickness (in.)	# of plies	Depth (in.)	Header Span (ft)																			
				2		3		4		5		6		8		10		12		14		16	
				Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)
1.35E T-TEC LSL	1-3/4	1	7.25		3308		2205		1259		805	515	559	217	315	111	167	64	96	41	61		
			9.25		3308		2205		1654		1272		883	451	497	231	318	134	200	84	126	56	85
			9.5		3308		2205		1654		1323		929	488	522	250	334	145	217	91	137	61	92
			11.25		3308		2205		1654		1323		1103		717	415	459	240	319	151	227	101	152
			11.875		3308		2205		1654		1323		1103		794	488	508	283	353	178	259	119	179
		2	7.25		6615		4410		2517		1611	1029	1119	434	629	222	333	129	193	81	122	54	81
			9.25		6615		4410		3308		2544		1766	902	994	462	636	267	401	168	252	113	169
			9.5		6615		4410		3308		2646		1857	977	1045	500	669	289	434	182	273	122	183
			11.25		6615		4410		3308		2646		2205		1434	831	918	481	637	303	454	203	304
			11.875		6615		4410		3308		2646		2205		1587	977	1016	565	705	356	518	238	358
			14		6615		4410		3308		2646		2205		1654		1323	926	961	583	706	391	540
		16		6615		4410		3308		2646		2205		1654		1323		1103	871	906	583	694	
		3	7.25		9923		6615		3927		2513	1544	1745	651	977	333	500	193	289	122	182	81	122
			9.25		9923		6615		4961		3968		2756	1353	1550	693	992	401	601	252	379	169	254
			9.5		9923		6615		4961		3969		2897	1465	1630	750	1043	434	651	273	410	183	275
			11.25		9923		6615		4961		3969		3308		2237	1246	1432	721	994	454	681	304	456
			11.875		9923		6615		4961		3969		3308		2476	1465	1585	848	1101	534	801	358	537
			14		9923		6615		4961		3969		3308		2481		1985	1389	1498	875	1101	586	843
			16		9923		6615		4961		3969		3308		2481		1985		1654	1306	1414	875	1083
		4	7.25		13230		8820		5236		3351	2058	2327	868	1303	445	667	257	386	162	243	109	163
			9.25		13230		8820		6615		5291		3674	1803	2067	923	1323	534	802	337	505	225	338
			9.5		13230		8820		6615		5292		3863	1954	2173	1000	1391	579	868	365	547	244	366
			11.25		13230		8820		6615		5292		4410		2983	1661	1909	961	1326	605	908	406	608
			11.875		13230		8820		6615		5292		4410		3302	1954	2113	1131	1467	712	1068	477	715
			14		13230		8820		6615		5292		4410		3308		2646	1853	1998	1167	1468	782	1124
			16		13230		8820		6615		5292		4410		3308		2646		2205	1741	1886	1167	1444

Design Assumptions

- Header span is the center-to-center distance of the supports and is only valid for simple span applications.
- The allowable loads represent the capacity in pounds per lineal foot (plf) of length.
- Tabulated values are valid for uniform loads only.
- Minimum end bearing of 4 1/2".
- Deflection of L/360 for the live load and L/240 for the total load.
- Multiple-ply members shall have the same thickness and grade and be properly connected. Refer to the multi-ply connections on Table 12 to Table 15.
- Vertical load transfer at bearings is limited to a maximum of 360 psi as per ASTM D7672.
- Tabulated values shall not be increased for a load duration $C_D > 1.0$
- Joints in Rim Board shall not be located within the header span.
- Tabulated values assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24".
- Tabulated values are valid for dry service conditions, where the moisture content in service does not exceed 16%, as in most covered structures.

How to use this table

- Both total and live loads shall be checked. Where the live load is blank the total load governs the design.
- Header weight shall be included in the total load.
- Select the appropriate Span [center-to-center of min. end bearing, or clear span + (4.5/12)].
- Scan vertically to find the proper ply thickness, number of plies, and depth with the capacities that exceed the actual live and total loads.
- Verify the min. end bearing length of 4-1/2".
- Hanger capacities may be reduced for the selected rim board thicknesses. Refer to the hanger manufacturer for appropriate reductions.
- For loading conditions not shown, use CSD® software or contact your Tolko representative.

TABLE 11: ALLOWABLE PLF LOADS - RIM BOARD HEADERS 1.55E T-TEC LSL 1-1/8"

Product Grade	Single Ply Thickness (in.)	# of plies	Depth (in.)	Header Span (ft)																			
				2		3		4		5		6		8		10		12		14		16	
				Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)	Live Load (PLF)	Total Load (PLF)
1.55E T-TEC LSL	1-1/8	1	7.25		2126		1418		1032	656	661	380	459	160	240	82	123	47	71				
			9.25		2126		1418		1063		851		709	333	407	170	256	99	148				
			9.5		2126		1418		1063		851		709	360	428	185	274	107	160				
			11.25		2126		1418		1063		851		709		532	307	376	177	261				
			11.875		2126		1418		1063		851		709		532	360	417	209	289				
		2	7.25		4253		2835		2064	1313	1321	760	917	320	481	164	246	95	142	60	90		
			9.25		4253		2835		2126		1701		1418	666	815	341	511	197	296	124	186	83	125
			9.5		4253		2835		2126		1701		1418	721	857	369	548	214	320	135	202	90	135
			11.25		4253		2835		2126		1701		1418		1063	613	753	355	523	223	335	150	225
			11.875		4253		2835		2126		1701		1418		1063	721	833	417	579	263	394	176	264
			14		4253		2835		2126		1701		1418		1063		851	684	709	431	579	288	433
		3	16		4253		2835		2126		1701		1418		1063		851		709		608	431	532
			7.25		6379		4253		3189	1969	2061	1139	1431	481	721	246	369	142	214	90	135	60	90
			9.25		6379		4253		3189		2552		2126	998	1271	511	767	296	444	186	279	125	187
			9.5		6379		4253		3189		2552		2126	1081	1336	554	831	320	481	202	303	135	203
			11.25		6379		4253		3189		2552		2126		1595	920	1174	532	798	335	503	225	337
			11.875		6379		4253		3189		2552		2126		1595	1081	1276	626	903	394	591	264	396
			14		6379		4253		3189		2552		2126		1595		1276	1026	1063	646	903	433	649
		4	16		6379		4253		3189		2552		2126		1595		1276		1063		911	646	797
			7.25		8505		5670		4253	2625	2748	1519	1908	641	961	328	492	190	285	120	179	80	120
			9.25		8505		5670		4253		3402		2835	1331	1695	682	1022	394	592	248	373	166	250
			9.5		8505		5670		4253		3402		2835	1442	1782	738	1107	427	641	269	404	180	270
			11.25		8505		5670		4253		3402		2835		2126	1226	1566	710	1064	447	670	299	449
			11.875		8505		5670		4253		3402		2835		2126	1442	1701	834	1203	526	788	352	528
			14		8505		5670		4253		3402		2835		2126		1701	1367	1418	861	1204	577	865
		16		8505		5670		4253		3402		2835		2126		1701		1418		1215	861	1063	

Design Assumptions

- Header span is the center-to-center distance of the supports and is only valid for simple span applications.
- The allowable loads represent the capacity in pounds per lineal foot (plf) of length.
- Tabulated values are valid for uniform loads only.
- Minimum end bearing of 4 1/2".
- Deflection of L/360 for the live load and L/240 for the total load.
- Multiple-ply members shall have the same thickness and grade and be properly connected. Refer to the multi-ply connections on Table 12 to Table 15.
- Vertical load transfer at bearings is limited to a maximum of 360 psi as per ASTM D7672.
- Tabulated values shall not be increased for a load duration $C_D > 1.0$
- Joints in Rim Board shall not be located within the header span.
- Tabulated values assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24".
- Tabulated values are valid for dry service conditions, where the moisture content in service does not exceed 16%, as in most covered structures.

How to use this table

- Both total and live loads shall be checked. Where the live load is blank the total load governs the design.
- Header weight shall be included in the total load.
- Select the appropriate Span [center-to-center of min. end bearing, or clear span + (4.5/12)].
- Scan vertically to find the proper ply thickness, number of plies, and depth with the capacities that exceed the actual live and total loads.
- Verify the min. end bearing length of 4-1/2".
- Hanger capacities may be reduced for the selected rim board thicknesses. Refer to the hanger manufacturer for appropriate reductions.
- For loading conditions not shown, use CSD® software or contact your Tolko representative.

MULTIPLE MEMBER CONNECTIONS: TOP LOADED MEMBERS

TABLE 12: MULTIPLE MEMBER CONNECTIONS: TOP LOADED MEMBERS (1.35E T-TEC LSL AND 1.55E T-TEC LSL)

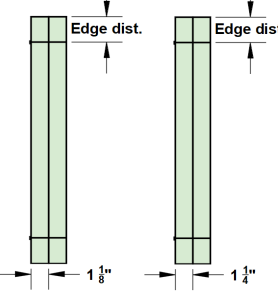
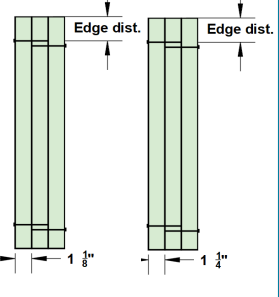
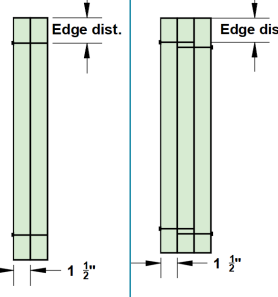
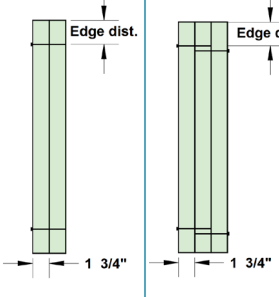
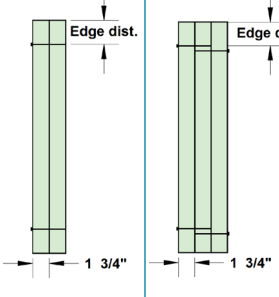
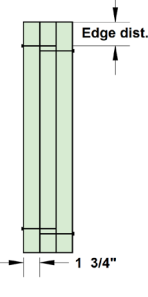
Ply Thickness (in.)	# of Plies	Fastener Type	Depth (in.)	# Rows	On-Center Spacing (in.)	Location	Min. Edge Distance (in.)	Min. End Distance (in.)	Min. Distance Between Rows of Fasteners (in.)
1-1/8, 1-1/4	2	8d box nail (0.113" x 2.5")	7-1/4	2	12	One side (front or back)	1.5	3	3
			9-1/4, 9-1/2, 11-1/4, 11-7/8	3					
			14, 16	4					
	3	8d box nail (0.113" x 2.5")	7-1/4	2	12	Both sides (front and back) - stagger nails on the opposite side by 6"	1.5	3	3
			9-1/4, 9-1/2, 11-1/4, 11-7/8	3					
			14, 16	4					
1-1/8	4	SDW22438	7-1/4, 9-1/4, 9-1/2	2	12	One side (front or back)	1.5	6	4
			11-1/4, 11-7/8, 14	3					
			16	4					
1-1/4	4	SDW22500, WSS, WSWH5	7-1/4, 9-1/4, 9-1/2	2	12	One side (front or back)	1.5	6	4
			11-1/4, 11-7/8, 14	3					
			16	4					
1-1/2	2	10d box nail (0.128" x 3")	7-1/4	2	12	One side (front or back)	1.5	3	3
			9-1/4, 9-1/2, 11-1/4, 11-7/8	3					
			14, 16	4					
	3	10d box nail (0.128" x 3")	7-1/4	2	12	Both sides (front and back) - stagger nails on the opposite side by 6"	1.5	3	3
			9-1/4, 9-1/2, 11-1/4, 11-7/8	3					
			14, 16	4					
	4	SDW22600, WS6, WSWH6	7-1/4, 9-1/4, 9-1/2	2	12	One side (front or back)	1.5	6	4
			11-1/4, 11-7/8, 14	3					
			16	4					
1 3/4	2	16d box nail (0.135" x 3.5")	7 1/4	2	12	One side (front or back)	1.5	3	3
			9 1/4, 9 1/2, 11 1/4, 11 7/8	3					
			14, 16	4					
	3	16d box nail (0.135" x 3.5")	7 1/4	2	12	Both side (front and back) - stagger nails on the opposite side by 6"	1.5	3	3
			9 1/4, 9 1/2, 11 1/4, 11 7/8	3					
			14, 16	4					
	4	SDW22634, WSWH634	7 1/4, 9 1/4, 9 1/2	2	12	One side (front or back)	1.5	6	4
			11 1/4, 11 7/8, 14	3					
			16	4					

Note:

Top Loads (uniform or concentrated) must be applied evenly across the entire total width. Otherwise, the side-loaded connections (uniform or concentrated) shall be used.

MULTIPLE MEMBER CONNECTIONS: UNIFORM SIDE LOADS

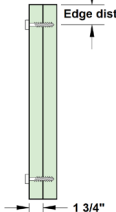
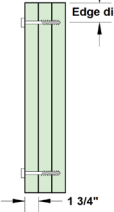
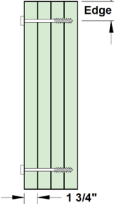
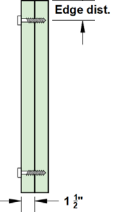
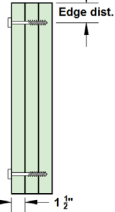
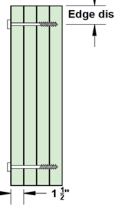
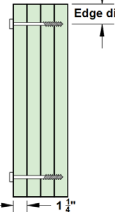
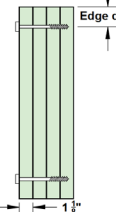
TABLE 13: MULTIPLE MEMBER CONNECTIONS FOR UNIFORM SIDE LOADS - NAILS

			Assembly A	Assembly B	Assembly A	Assembly B	Assembly A	Assembly B		
										
Fastener type			8d Box Nail (0.113" x 2.5")				10d Box Nail (0.128" x 3")		16d Box Nail (0.135" x 3.5")	
Side Member thickness			1-1/8" or 1-1/4"		1-1/2"		1-3/4"		1-3/4"	
Main member thickness			1-1/8" or 1-1/4"		1-1/2"		1-3/4"		1-3/4"	
Min. depth (in.)	# of Rows	Fastener o.c. spacing (in.)	Max. Allowable Uniform Side Loads (PLF)							
7.25	2	12	290	220	375	280	415	310		
9.25	3	12	435	325	560	420	620	465		
14	4	12	580	435	745	560	825	620		

Notes:

- 1) Tabulated values shall not be increased for a load duration $C_D > 1.0$
- 2) Min. nail edge distance = 1.5"
- 3) Min. nail end distance = 3"
- 4) Min. distance between rows of nails = 3"
- 5) Min. distance between nails in a row = 6"
- 6) Nails staggering distance = o.c. spacing/2
- 7) For other nails o.c. spacings, multiply the tabulated PLF load by 12/o.c. spacing (max. fasteners o.c. spacing = 24")
- 8) For three-ply members (Assembly B), min. o.c. spacing = 12"

TABLE 14: MULTIPLE MEMBER CONNECTIONS FOR UNIFORM SIDE LOADS - SIMPSON SDW SCREWS

			Assembly A	Assembly B	Assembly F	Assembly A	Assembly B	Assembly F	Assembly F	Assembly F
										
Fastener type			SDW22338	SDW22500	SDW22634	SDW22300	SDW22458	SDW22600	SDW22500	SDW22438
Fastener nominal length (in)			3.375	5	6.75	3	4 5/8	6	5	4.375
Side Member Thickness			1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"	1-1/8"
Main Member Thickness			1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"	1-1/8"
Min. depth (in.)	# of Rows	Fastener o.c. spacing (in.)	Max. Allowable Uniform Side Loads (PLF)							
7.25	2	12	1600	900	800	1100	825	735	630	630
11.25	3	12	2400	1350	1200	1650	1240	1100	940	940
16	4	12	3200	1800	1600	2200	1650	1470	1255	1255

Notes:

- 1) Min. fastener edge distance = 1.5"
- 2) Min. fastener end distance = 6"
- 3) Min. distance between rows of fasteners = 4"
- 4) Fasteners staggering distance = o.c. spacing/2
- 5) For other fasteners o.c. spacings, multiply the tabulated PLF load by 12/o.c. spacing (max. fasteners o.c. spacing = 24")
- 6) Fasteners installed on one side only.

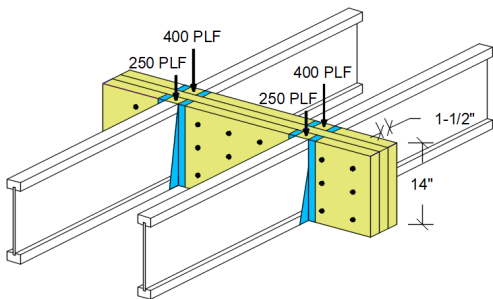
TABLE 15: MULTIPLE MEMBER CONNECTIONS FOR UNIFORM SIDE LOADS - USP WSWH/WS SCREWS

			Assembly A	Assembly B	Assembly F	Assembly A	Assembly B	Assembly F	Assembly F
Fastener type			USP: WSWH338	USP: WSWH5, WS5	USP: WSWH634	USP: WSWH278, WS3	USP: WSWH45, WS45	USP: WSWH6, WS6	USP: WSWH5, WS5
Fastener nominal length (in)			3.375	5	6.75	3	4 5/8	6	5
Side Member Thickness			1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"
Main Member Thickness			1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"
Min. depth (in.)	# of Rows	Fastener o.c. spacing (in.)	Max. Allowable Uniform Side Loads (PLF)						
			7.25	2	12	910	1075	955	910
11.25	3	12	1365	1615	1435	1365	1260	1120	1120
16	4	12	1820	2150	1910	1820	1675	1490	1490

Notes:

- 1) Min. fastener edge distance = 1.5"
- 2) Min. fastener end distance = 6"
- 3) Min. distance between rows of fasteners = 4"
- 4) Fasteners staggering distance = o.c. spacing/2
- 5) For other fasteners o.c. spacings, multiply the tabulated PLF load by 12/o.c. spacing (max. fasteners o.c. spacing = 24")
- 6) Fasteners installed on one side only.

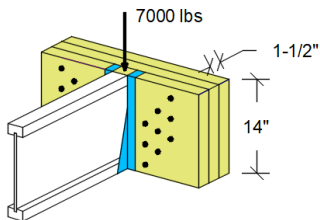
FIGURE 9: UNIFORM SIDE LOAD DESIGN EXAMPLE



Notes:

- 1) Verify that a 3-ply, 1-1/2" x 14" header can support the total load of 650 PLF with proper live and total deflection criteria.
- 2) Maximum load applied to the outer ply member is 400 PLF.
- 3) For an assembly of three 1-1/2" plies (Assembly B – Table 13), 3 rows of 10d Box nails (0.128" x 3") at 12" o.c. spacing fastened on both sides (face and back) are good for 420 PLF. Therefore, use 3 rows of 10d Box nails (0.128" x 3") at 12" o.c. spacing.
- 4) Since nails are required on both sides (face and back) for 3-ply members, stagger fasteners on the back side by half the distance between the fasteners on the face side.
- 5) Verify hanger capacity. Capacity reduction may be required for the selected header thickness. Refer to hanger manufacturer for appropriate reductions.

FIGURE 10: CONCENTRATED SIDE LOAD EXAMPLE

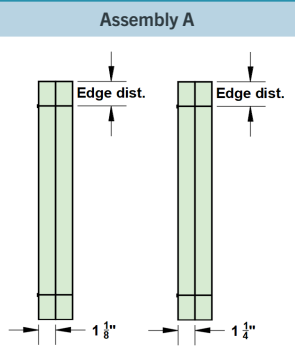
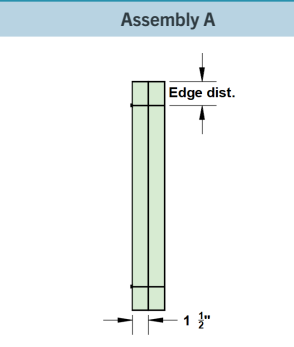
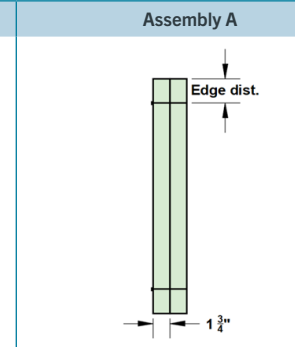


Notes:

- 1) Verify that a 3-ply, 1-1/2" x 14" header can support a 7000 lbs side point load and all other loads applied.
- 2) The 7000 lbs side point load is transferred to the header with a face mount hanger.
- 3) For an assembly of three 1-1/2" plies (Assembly B – Table 17), 18 - SDW22458 screws are good for 7425 lbs with a face mount hanger.
- 4) Verify hanger capacity. Capacity reduction may be required for the selected header thickness. Refer to hanger manufacturer for appropriate reductions.

MULTIPLE MEMBER CONNECTIONS: CONCENTRATED SIDE LOADS

TABLE 16: MULTIPLE MEMBER CONNECTIONS FOR CONCENTRATED SIDE LOADS - NAILS

		Assembly A	Assembly A	Assembly A
				
Fastener type		8d Box Nail (0.113" x 2.5")	10d Box Nail (0.128" x 3")	16d Box Nail (0.135" x 3.5")
Side Member Thickness		1-1/8" or 1-1/4"	1-1/2"	1-3/4"
Main Member Thickness		1-1/8" or 1-1/4"	1-1/2"	1-3/4"
Min depth (in.)	Total # of Fasteners	Max. Allowable Concentrated Side Loads (lbs)		
7.25	6	865	1120	1240
9.25	8	1155	1490	1650
9.5	12	1730	2235	2475
11.25	16	2305	2980	3300
14	18	2595	3350	3710
16	24	3460	4465	4945

Notes:

- 1) Tabulated values shall not be increased for a load duration $C_D > 1.0$
- 2) Min. fastener edge distance = 1.5"
- 3) Min. fastener end distance = 3"
- 4) Min. distance between rows of fasteners = 3"

FIGURE 11: 6 NAILS

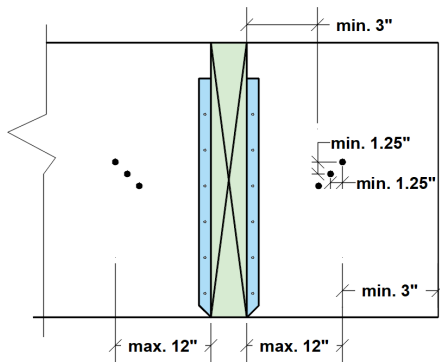


FIGURE 12: 8 NAILS

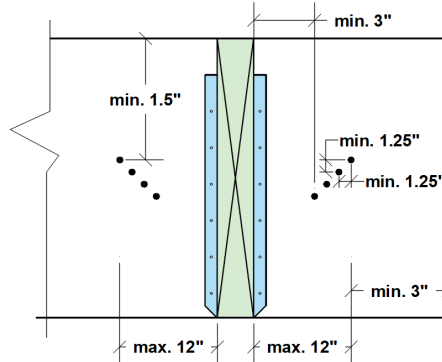


FIGURE 13: 12 NAILS

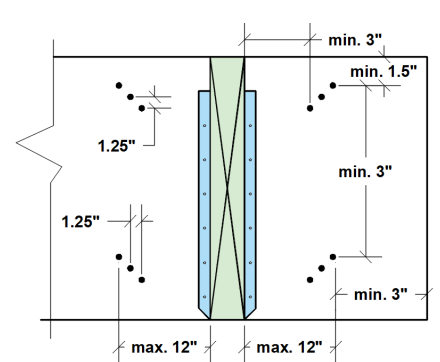


FIGURE 14: 16 NAILS

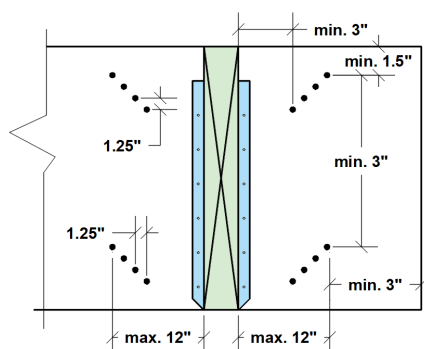


FIGURE 15: 18 NAILS

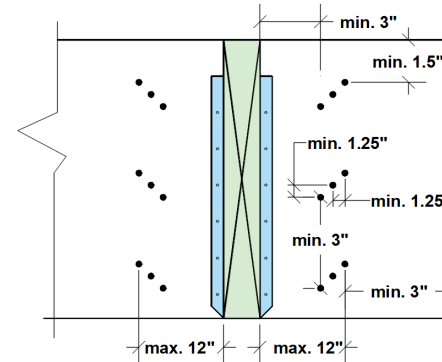


FIGURE 16: 24 NAILS

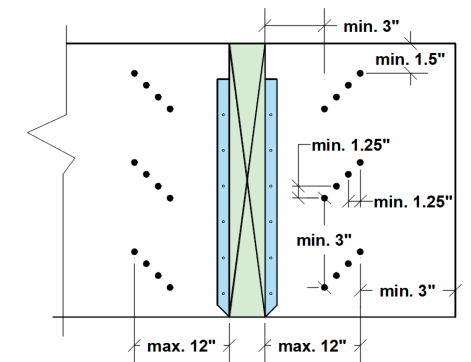


TABLE 17: MULTIPLE MEMBER CONNECTIONS FOR CONCENTRATED SIDE LOADS - SIMPSON SDW SCREWS

		Assembly A	Assembly B	Assembly F	Assembly A	Assembly B	Assembly F	Assembly F	Assembly F
Fastener type		SDW22338	SDW22500	SDW22634	SDW22300	SDW22458	SDW22600	SDW22500	SDW22438
Fastener nominal length (in)		3	5	6.75	3	4 5/8	6	5	4.375
Side Member Thickness		1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"	1-1/8"
Main Member Thickness		1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"	1-1/8"
Min depth (in.)	Total # of Fasteners	Max. Allowable Concentrated Side Loads (lbs)							
7.25	6	4800	2700	2400	3300	2475	2200	1880	1880
9.25	8	6400	3600	3200	4400	3300	2935	2510	2510
9.5	12	9600	5400	4800	6600	4950	4400	3760	3760
11.25	16	12800	7200	6400	8800	6600	5870	5015	5015
14	18	14400	8100	7200	9900	7425	6600	5640	5640

Notes:

- 1) Tabulated values shall not be increased for a load duration $C_D > 1.0$
- 2) Min. fastener edge distance = 1.5"
- 3) Min. fastener end distance = 6"
- 4) Min. distance between rows of fasteners = 4"

FIGURE 17: 6 SDW SCREWS

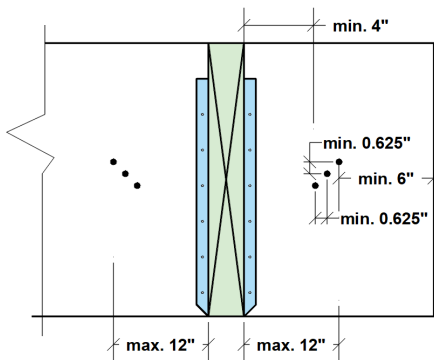


FIGURE 18: 8 SDW SCREWS

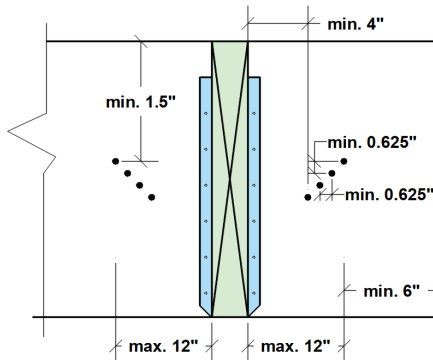


FIGURE 19: 12 SDW SCREWS

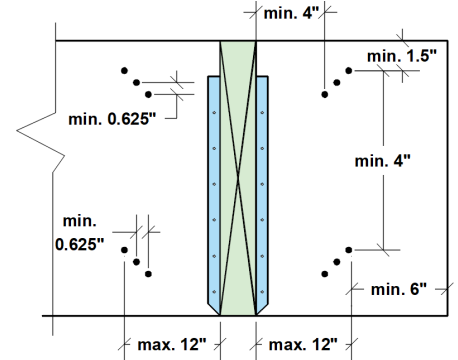


FIGURE 20: 16 SDW SCREWS

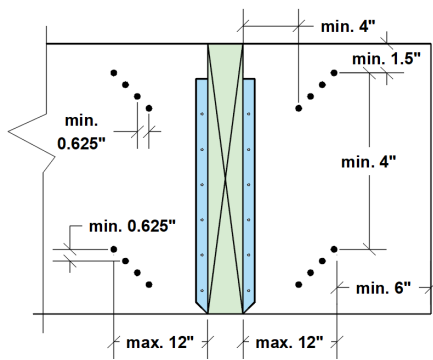


FIGURE 21: 18 SDW SCREWS

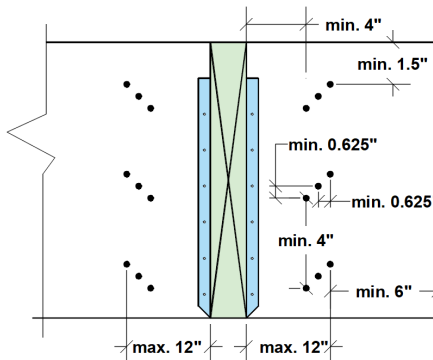


TABLE 18: MULTIPLE MEMBER CONNECTIONS FOR CONCENTRATED SIDE LOADS - MITEK PRO-SERIES WOOD SCREWS: WSW/WS

		Assembly A	Assembly B	Assembly F	Assembly A	Assembly B	Assembly F	Assembly F
Fastener type		USP: WSWH338	USP: WSWH5, WS5	USP: WSWH634	USP: WSWH278, WS3	USP: WSWH45, WS45	USP: WSWH6, WS6	USP: WSWH5, WS5
Fastener nominal length (in)		3	5	6.75	3	4 5/8	6	5
Side Member Thickness		1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"
Main Member Thickness		1-3/4"	1-3/4"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/4"
Min depth (in.)	Total # of Fasteners	Max. Allowable Concentrated Side Loads (lbs)						
7.25	6	2725	3225	2865	2725	2515	2235	2235
9.25	8	3635	4300	3820	3635	3350	2980	2980
9.5	12	5450	6445	5730	5450	5025	4465	4465
11.25	16	7265	8595	7640	7265	6700	5955	5955
14	18	8175	9670	8595	8175	7535	6700	6700

Notes:

- 1) Tabulated values shall not be increased for a load duration $C_D > 1.0$
- 2) Min. fastener edge distance = 1.5"
- 3) Min. fastener end distance = 6"
- 4) Min. distance between rows of fasteners = 4"

FIGURE 22: 6 WSWH/WS SCREWS

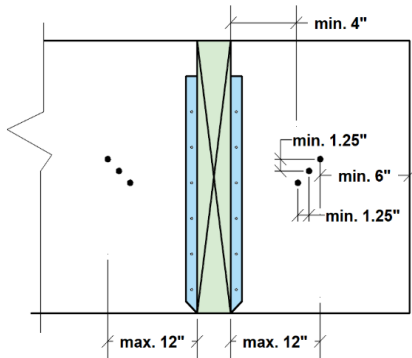


FIGURE 23: 8 WSWH/WS SCREWS

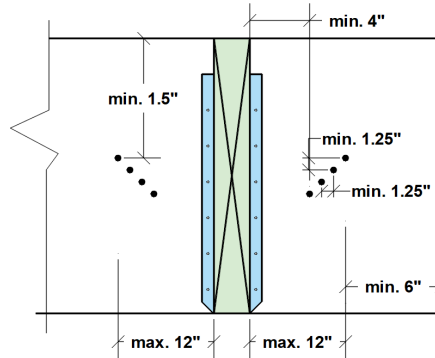


FIGURE 24: 12 WSWH/WS SCREWS

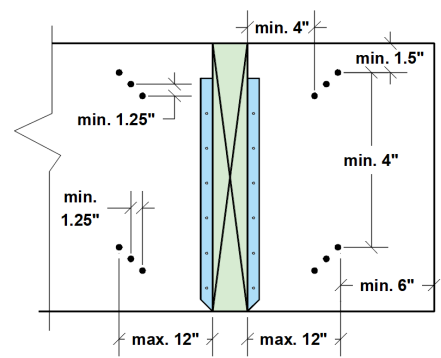


FIGURE 25: 16 WSWH/WS SCREWS

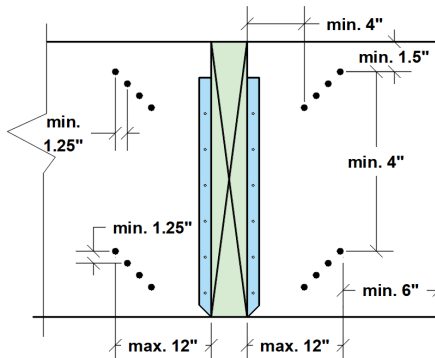
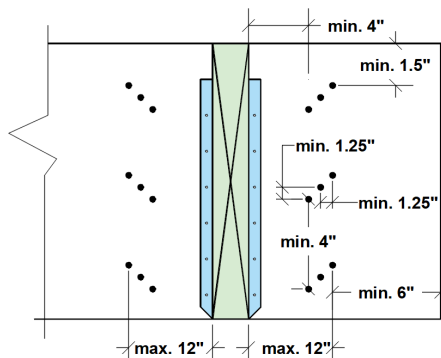


FIGURE 26: 18 WSWH/WS SCREWS



STORAGE AND HANDLING

INTRODUCTION

Proper storage and handling of engineered wood products (EWP) including T-TEC LSL and Tolko LSL Industrials is required to protect the products during distribution and at the jobsite. APA – The Engineered Wood Association recommends the following storage and handling practices for EWP products. For full details on proper storage and handling, refer to *APA Technical Note: Proper Storage and Handling of I-Joists and LVL, Form E705* available at www.apawood.org.

SAFE HANDLING DURING DISTRIBUTION

1. Bundle wrap can be slippery. Avoid walking on wrapped bundles. Stacks of product may be unstable or slippery, especially when wet. Avoid walking on the material.
2. Follow good forklift safety procedures when handling T-TEC LSL and Tolko LSL Industrials at the yard.
3. Store longest material lowest to the ground.
4. When handling with a crane, pick up the load using a spreader if necessary to minimize handling stresses.
5. Post and follow load limits on storage racks.

STORAGE DURING DISTRIBUTION

1. Keep wrapped to protect from weather.
2. Use stickers to separate bundles.
3. Use stickers every 8 feet and maintain vertical alignment of the stickers.
4. Do not store T-TEC LSL and Tolko LSL Industrials in direct contact with the ground.
5. For optimal moisture protection, keep at least 12 inches up from the ground.
6. To protect from dirt and weather, delay unwrapping the bundles until the time of the installation or cut-up for delivery.
7. Take care to avoid forklift damage. If the ground is unlevel in the storage area, reduce forklift speed to avoid “bouncing” the load.
8. When handling with a crane, pick up the load using a spreader if necessary to minimize handling stresses.
9. Maintain stack height within safe limits.
10. Do not stack other material on top of T-TEC LSL and Tolko LSL Industrials.

PROPER HANDLING AT THE JOBSITE

1. Do not drop the product off the delivery truck. Best practice is to use a forklift or boom.
2. Store on level, well-drained area.
3. Keep on stickers spaced every 8’ and at least every 6” off the ground at the jobsite.
4. Keep material covered to protect from weather.
5. Do not stack other material on top of the product.
6. Never use or try to repair damaged products. If defective material is discovered prior to or during installation, cease installation and contact the supplier.

MOISTURE EFFECTS

T-TEC LSL and Tolko LSL Industrials products are manufactured under carefully controlled conditions that assure they are dry. Moisture content can be affected by humidity, exposure to wetting and drying conditions. While T-TEC LSL and Tolko LSL Industrials products are engineered to withstand normal exposure, excessive exposure to moisture may lead to dimensional change.

If moisture is present, mold, mildew and wood decay fungi may grow on any engineered wood products, thus it is important to properly store T-TEC LSL and Tolko LSL Industrials to control exposure to moisture. Moisture increase is expected under normal construction situations and does not adversely affect the performance of the products if good building practices are followed to minimize exposure and to provide proper conditions for the products to re-equilibrate to dry conditions.

Reference: *APA Technical Note: Proper Storage and Handling of I-Joists and LVL, Form E705* available at www.apawood.org.

CSD SOFTWARE

Calculated Structured Designs Inc. (CSD®) is a software development company providing solutions for the engineered wood, engineering, design, and building industries for all of North America and Australia.

Building with the most recent cutting edge development tools, CSD® offers solutions for our industry leading designers, drafters, engineers, and builders.

Website: csdsoftware.com/csd/software/

DRAW

- Multiple input styles for quick and easy drawing
- Real Time 3D feedback
- Create realistic model the way it will be built
- Draw the way you want. iStruct® will follow
- Robust graphics tools allow custom detailing in the model

DESIGN

- Analyze anytime for quick results and guidance
- Precision load development for accurate designs
- Solution Seeker finds the optimum product solution
- Easily create required engineering reports
- Automatic load distribution analyzes all components at once

BUILD

- Create Flexible and detailed plot layouts
- Add any type of data to your plot
- Integrate customer details and information
- Create dynamic quotes with exports to point of sale systems
- Send materials to automated saw files or create manual cut lists

ACCESS THE CSD SOFTWARE

Tolko offers authorized customers access to engineered wood design software by CSD. This software includes:



isPlan®

A 3D layout and design solution that allows users to model an entire structure with 2D and 3D views. isPlan® develops and transfers gravity loads through the structure and designs the structural members.



isDesign®

A single member sizing solution that allows users to size floor and roof joists, beams and posts by inputting span and load information. Innovative tools allow selection of the most cost effective solution.



isWall®

The first stand alone wall design application that allows users to model a tall wall and run gravity and wind analysis for all the components of the wall.

To become a Tolko authorized user, please contact your Tolko EWP sales representative at:

Phone: 250-549-5311 Email: EWPsales@tolko.com

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