T-TEC ENGINEERED WOOD

INSTALLATION GUIDE

U S A

HEADERS, BEAMS, & COLUMNS

T-TEC LSL 1.35E & 1.55E
T-TEC LVL 1.6E, 1.8E, 2.1E & 2.2E

Issue Date: May 27, 2026
Reference: IG-HBC-U2

Important: All Tolko engineered wood products are intended and warranted for use in dry-service conditions.

T-TEC LSL	
Widths	1 ¾", 3 ½",
Depths	5 ½", 7 ¼", 9 ½", 11 ⅞", 14", 16", 18", 20", 22", 24"
Lengths	Up to 24'
E-Rating	1.35E, 1.55E
Zinc Borate Treatment	Optional

T-TEC LVL	
Widths	1 ¾", 3 ½", 5 ¼", 7"
Depths	9 ½" to 24"
Lengths	Up to 48'
E-Rating	1.6E, 1.8E, 2.1E, 2.2E

For additional information please visit Standards / Specifications - Tolko Industries. In the event of any discrepancy or conflict between published information, or should any questions arise, Tolko should be contacted for clarification prior to reliance on such information.

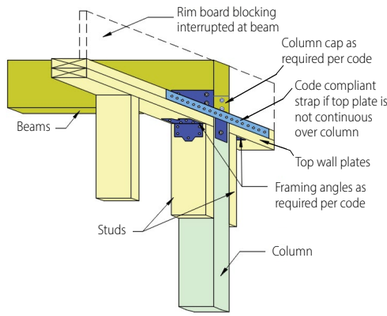
Tolko offers authorized customers access to engineered wood design software.

To become an authorized Tolko user, please contact your Tolko EWP sales representative at:
Phone: 250-549-5311
Email: designsoftware@tolko.com

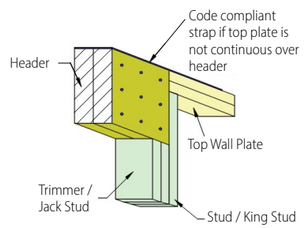
SIMPSON StrongTie MiTek

BEAM DETAILS

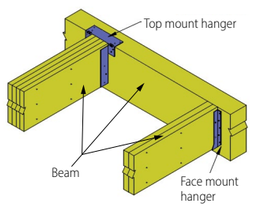
Detail 1: Bearing at Wall



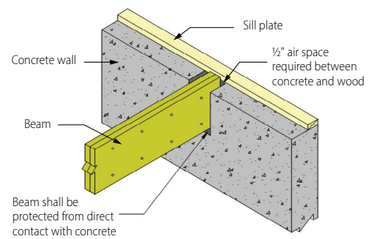
Detail 2: Bearing for Door or Window Header



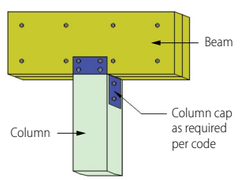
Detail 3: Beam to Beam Connection



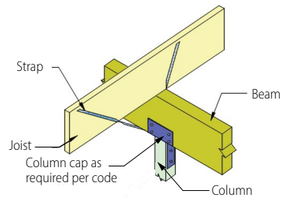
Detail 4: Bearing at Concrete Wall



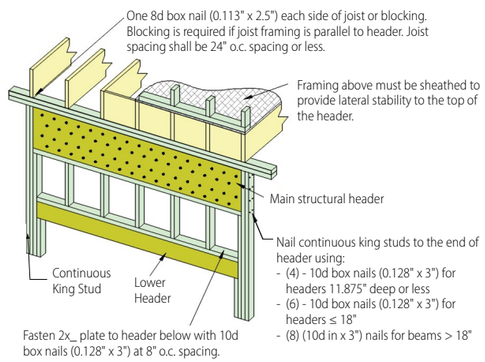
Detail 5: Bearing at Column



Detail 6: Beam to Column Lateral Brace

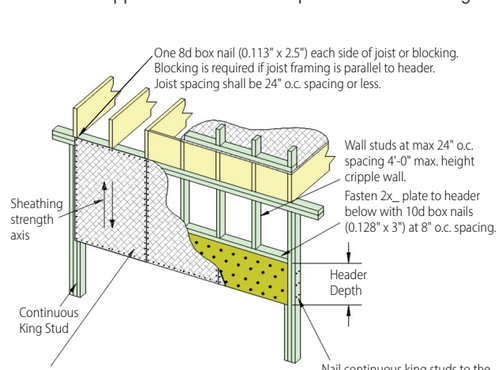


Detail 13: Dropped Header with Full Lateral Bracing



Reference: WIJMA – Dropped Header Design Guide

Detail 14: Dropped Header with Acceptable Lateral Bracing



Reference: WIJMA – Dropped Header Design Guide

The following dropped headers can be considered to be fully-braced under uniform load, simple-span conditions when framed as shown above:

Single-ply Headers	Multiply-ply Headers
1 ¾" thick headers with depths of up to 12"	Multiple-ply 1 ¾" thick headers with depths of up to 16"
3 ½" thick headers with depths of up to 16" and spans up to 18'-6"	Multiple-ply 1 ¾" x 14" headers and spans of up to 8'-6"

ALLOWABLE HOLES

Figure 1: Maximum 1.5" – 2" Diameter Round Holes (Single or Multiple Spans)

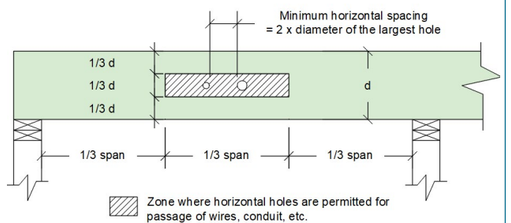
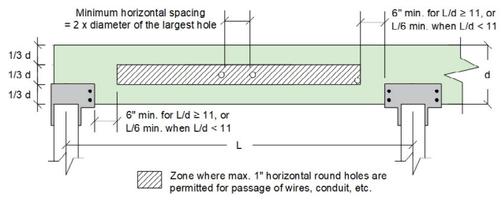


Figure 2: Maximum 1" Diameter Round Holes (Single or Multiple Spans)

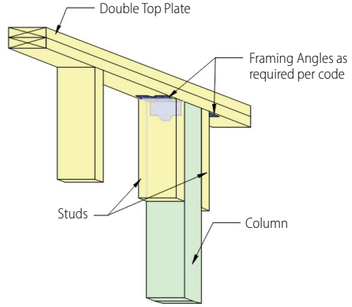


Notes:
1) Holes allowed for single or continuous spans for uniform loads only.
2) No more than 3 holes per span are permitted.
3) Holes shall not be cut in cantilevers.
4) Beam depth shall be at least 7.25 inches.
5) The horizontal spacing must be a minimum of two diameters clear distance between adjacent holes based on the diameter of the larger hole.
6) When holes are required to be drilled outside the allowable zones, an engineering analysis shall be conducted and approved be a professional engineer.

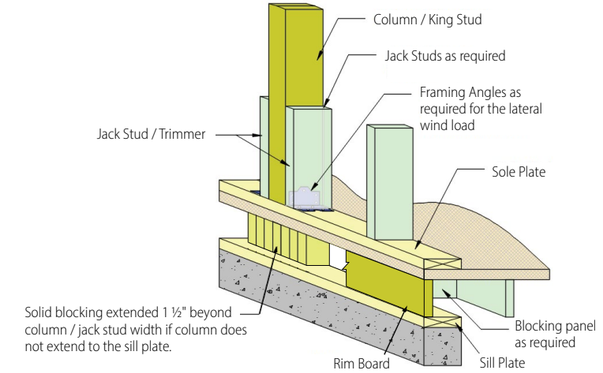
Reference: APA- The Engineered Wood Association: Form No. EWS G535A

COLUMN DETAILS

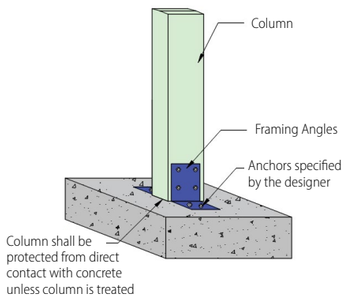
Detail 15: Column to Top Plate



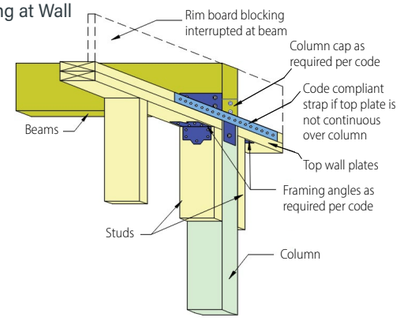
Detail 16: Column to Sill Plate



Detail 18: Column Base



Detail 1: Bearing at Wall



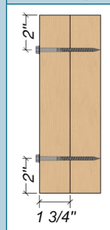
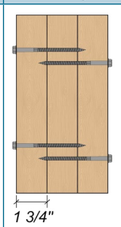
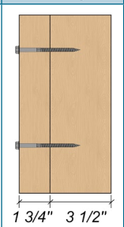
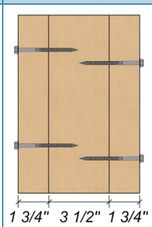
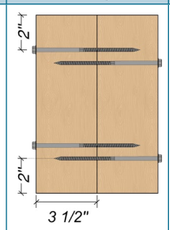
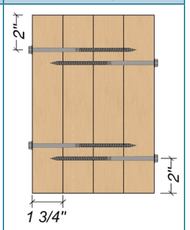
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MULTIPLE MEMBER CONNECTIONS: UNIFORM SIDE LOADS

TABLE 20: MULTIPLE MEMBER CONNECTIONS FOR UNIFORM SIDE LOADS (PLF)

Fastener Type	Placement	Number of Rows	Fastener On-Center Spacing	Fastener Pattern					
				Assembly A	Assembly B	Assembly C	Assembly D	Assembly E	Assembly F
									
				3 ½" wide, 2-ply	5 ¼" wide, 3-ply	5 ¼" wide, 2-ply	7" wide, 3-ply	7" wide, 2-ply	7" wide, 4-ply
10d (0.128" x 3") or (0.131" x 3") Nail[1]	As shown	2[6]	12"	370	280[8]	280	250[8]		
		3	12"	560	420[8]	420	370[8]		
½" A307 Through Bolt[2][3]	-	2	24"	510	380	525	465	860	340
			19.2"	635	475	655	580	1075	425
			16"	760	570	785	700	1290	510
Screw Length →				3 ½"	3 ½"	3 ½"	3 ½"	6"	6"
Simpson Strong-Tie® SDS[3]	As shown	2	24"	680	510[8]	510	455[8]	1360[8]	555[8]
			19.2"	850	640[8]	640	565[8]	1700[8]	695[8]
			16"	1020	765[8]	765	680[8]	2040[8]	835[8]
MiTek® WS[3]	As shown	2	24"	640	480[8]	480	425[8]		475[7,8]
			19.2"	800	600[8]	600	530[8]		595[7,8]
			16"	955	720[8]	720	640[8]		715[7,8]
Screw Length →				3 ⅜"	5"	3 ⅜"	6 ¾"	6 ¾"	6 ¾"
Simpson Strong-Tie® SDW22[3][4]	One side	2	24"	800	450	600	400	800	400
			19.2"	1000	565	750	500	1000	500
			16"	1200	675	900	600	1200	600
MiTek® WSWH[3][5]	One side	2	24"	600	430	480	380	830	380
			19.2"	750	535	600	475	1040	475
			16"	905	645	720	575	1245	575

Notes:
1) Tabulated nailed connection capacities may be increased by a factor of 2 for 6" o.c. spacing and by a factor of 3 for 4" o.c. spacing.
2) Provide washers. Maximum bolt hole diameter: 9/16". Minimum beam depth: 9 ¼".
3) Connection values for 24" o.c. bolted or screwed connections may be doubled when reduced to 12" o.c. spacing.
4) For head-side loading of SDW22 screws, increase capacities for Assemblies B, D, and F by 30%.
5) For head-side loading of WSWH screws, increase capacities for Assemblies B, D, and F by 25%.
6) Applies to beams with a maximum depth of 14".
7) Assembly F is not recommended for use with T-TEC LSL.
8) Assemblies require fasteners on both sides. Stagger fasteners on the opposite side so they are positioned midway between those on the first face.

MULTIPLE MEMBER CONNECTIONS: TOP-LOADED BEAMS

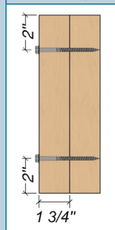
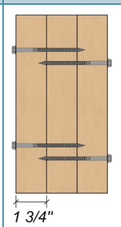
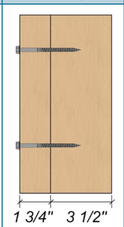
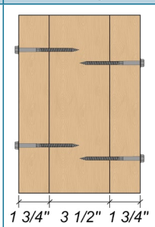
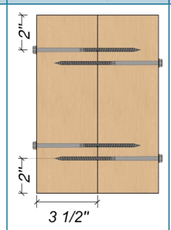
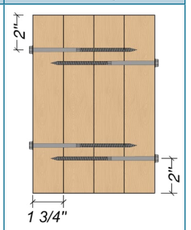
TABLE 25: FASTENER INSTALLATION REQUIREMENTS

Ply Width (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 ¾"	2	16d box nail (0.135" x 3.5")	9 ¼, 9 ½, 11 ¼, 11 ⅞	3	12	One side (front or back)	2	3	3
			14, 16, 18	4					
	3	16d box nail (0.135" x 3.5")	9 ¼, 9 ½, 11 ¼, 11 ⅞	3	12	Both side (front and back) - stagger nails on the opposite side by 6"	2	3	3
			14, 16, 18	4					
	4	SDW22634, WSWH634	9 ¼, 9 ½,	2	12	One side (front or back)	2	6	4
			11 ¼, 11 ⅞, 14	3					
			16, 18	4					
3 ½"	2	Screws	9 ¼, 9 ½,	2	12	One side (front or back)	2	6	4
			11 ¼, 11 ⅞, 14	3					
			16, 18	4					
		½" Bolts (8")	See note 4	2	24	Through	2	6	4

Notes:
1) Top-applied loads (uniform or concentrated) shall be distributed across the full width of the member.
2) Where load distribution does not meet this condition, use side-loaded connection values (uniform or concentrated).
3) Maximum beam width: 7".
4) Minimum beam depth: 9 ¼".
5) Provide washers at all bolted connections.

MULTIPLE MEMBER CONNECTIONS: CONCENTRATED SIDE LOADS

TABLE 21: POINT LOAD - MAXIMUM POINT LOAD APPLIED TO EITHER OUTSIDE MEMBER (LBS)

Fastener Type	Placement	Number of Fasteners per Face	Fastener Pattern					
			Assembly A	Assembly B	Assembly C	Assembly D	Assembly E	Assembly F
								
			3 ½" wide, 2-ply	5 ¼" wide, 3-ply	5 ¼" wide, 2-ply	7" wide, 3-ply	7" wide, 2-ply	7" wide, 4-ply
10d (0.128" x 3") or (0.131" x 3") Nail	As shown	6	1115	835[4]	835	745[4]		
		12	2230	1675[4]	1675	1490[4]		
		18	3350	2510[4]	2510	2230[4]		
		24	4465	3350[4]	3350	2975[4]		
Screw Length →			3 ½"	3 ½"	3 ½"	3 ½"	6"	6"
Simpson Strong-Tie® SDS	As shown	4	2720	2040[4]	2040	1815[4]	5440[4]	2225[4]
		6	4080	3060[4]	3060	2720[4]	8160[4]	3335[4]
		8	5440	4080[4]	4080	3625[4]	10880[4]	4450[4]
MiTek® WS	As shown	4	2550	1915[4]	1915	1700[4]		1910[3,4]
		6	3830	2870[4]	2870	2550[4]		2865[3,4]
		8	5105	3830[4]	3830	3405[4]		3820[3,4]
Screw Length →			3 ⅜"	5"	3 ⅜"	6 ¾"	6 ¾"	6 ¾"
Simpson Strong-Tie® SDW22[1]	One side	4	3200	1800	2400	1600	3200	1600
		6	4800	2700	3600	2400	4800	2400
		8	6400	3600	4800	3200	6400	3200
MiTek® WSWH[2]	One side	4	2410	1720	1915	1525	3320	1525
		6	3610	2580	2870	2290	4980	2290
		8	4815	3435	3830	3055	6640	3055

Notes:
1) For head-side loading of SDW22 screws, increase capacities for Assemblies B, D, and F by 30%.
2) For head-side loading of WSWH screws, increase capacities for Assemblies B, D, and F by 25%.
3) Assembly F is not recommended for use with T-TEC LSL.
4) Assemblies require fasteners on both sides. Stagger fasteners on the opposite side so they are positioned midway between those on the first face.

Figure 11: 24 NAILS

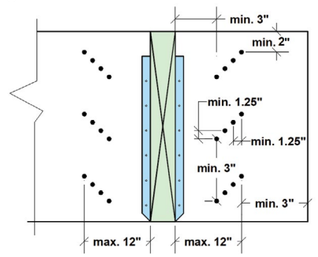


Figure 13: 8 SDS/SDW SCREWS

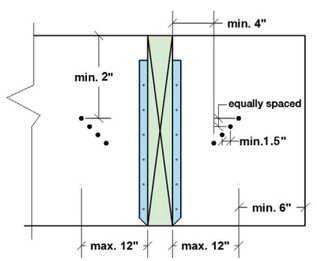
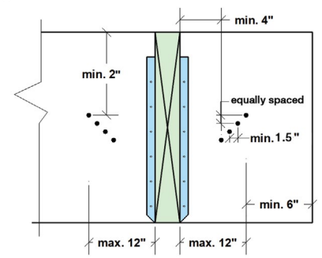


Figure 18: 8 WSWH/WS SCREWS



Additional Notes for Side Loaded Beams:
1) Verify side-loaded beams are designed using approved engineering software and reviewed by a design professional.
2) Connections shall be based on manufacturer evaluation reports or the NDS.
3) Provide a minimum end distance of 6" for all screws and bolts.
4) Use a specific gravity value of 0.50 for lateral connection design.
5) Refer to Tables 20 and 21 for nail, bolt, and screw spacing/placement requirements.

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Reference: IG-HBC-U2
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SUGGESTED TOOLS FOR INSTALLATION

Tools and personal protective equipment (PPE) are the responsibility of the framing contractor. The tools suggested are:

- Compressor
- Pneumatic Air Nailer
- Hammer
- Circular saw
- Hearing protection and other PPE as mandated by AHJ

STORAGE AND HANDLING

INTRODUCTION

Proper storage and handling of engineered wood products (EWP) including T-TEC LSL, T-TEC LVL, T-TEC I-Joists, Tolko LSL Industrials and Tolko LVL 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, T-TEC LVL, Tolko LSL Industrials and Tolko LVL 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, T-TEC LVL, Tolko LSL Industrials and Tolko LVL 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, T-TEC LVL, Tolko LSL Industrials and Tolko LVL 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, T-TEC LVL, Tolko LSL Industrials and Tolko LVL 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, T-TEC LVL, Tolko LSL Industrials and Tolko LVL 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, T-TEC LVL, Tolko LSL Industrials and Tolko LVL 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.



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 inhailing wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.



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.