



SABERDRIVE PLATINUM™

TECHNICAL BULLETIN

Multi-ply Connections

SaberDrive Platinum Construction Lags and Ledger Board Screws are used for attaching multi-ply wood members including trusses, sawn lumber, and Structural Composite Lumber (SCL) products. Examples of SCL products are Laminated Veneer Lumber (LVL), Laminated Strand Lumber (LSL), Parallel Strand Lumber (PSL), and Oriented Strand Lumber (OSL).

Multi-Ply Truss and Sawn Lumber Assemblies

Sawn lumber allowable lateral design values (in pounds per lineal foot [plf]) are provided in Tables 1-4 for assemblies with two-, three-, or four-ply 1½" members (see Figure 1). An example of two assemblies is shown in Figure 2.

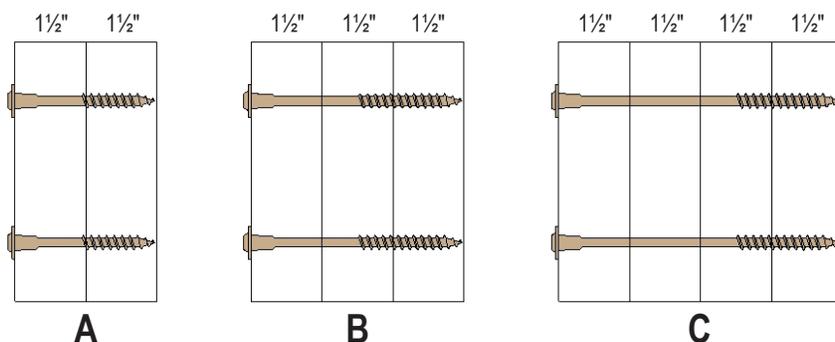


FIGURE 1. Truss and Sawn Lumber Assembly Configuration

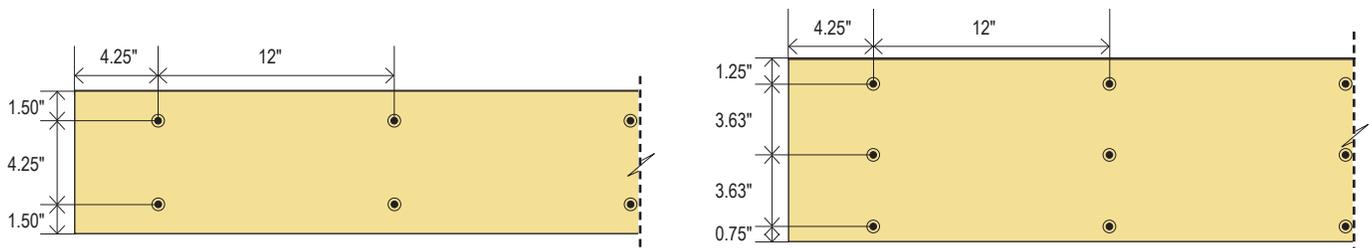


FIGURE 2. Example Fastener Spacing Diagram (12" o.c.) for 2x8 and 2x10





TABLE 1. Allowable Lateral Design Values (plf) for 5/16" Diameter Construction Lag Fasteners in Multi-Ply Truss and Sawn Lumber Assemblies

Fastener	Assembly	Members	Fastener Length ¹ (in)	SPF/HF (0.42)						DF/SP (0.50)							
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.			
				Number of Rows of Fasteners													
				2	3	2	3	2	3	2	3	2	3	2	3	2	3
Carbon Steel	A	2-ply 1½"	2½	780	1,170	585	880	390	585	820	1,230	615	925	410	615		
			3	780	1,170	585	880	390	585	820	1,230	615	925	410	615		
	B	3-ply 1½"	4	585	880	440	660	295	445	615	925	460	690	310	465		
C	4-ply 1½"	6	520	780	390	585	260	390	545	820	410	615	275	415			
305 Stainless Steel	A	2-ply 1½"	2½	460	690	345	520	230	345	580	870	435	655	290	435		
			3	460	690	345	520	230	345	580	870	435	655	290	435		
	B	3-ply 1½"	4	345	520	260	390	175	265	435	655	325	490	220	330		
C	4-ply 1½"	6	305	460	230	345	155	235	385	580	290	435	195	295			
316 Stainless Steel	A	2-ply 1½"	2½	560	840	420	630	280	420	680	1,020	510	765	340	510		
			3	560	840	420	630	280	420	680	1,020	510	765	340	510		
	B	3-ply 1½"	4	420	630	315	475	210	315	510	765	385	580	255	385		
C	4-ply 1½"	6	375	565	280	420	190	285	455	685	340	510	230	345			

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Fastener length is measured from the underside of the head to the tip.
2. Wood framing shall be any species with an SG of 0.42 or greater. For wood species with an assigned SG between 0.42 and 0.50, use the tabulated values for SG of 0.42. For wood species with an assigned SG greater than 0.50, use the tabulated values for SG of 0.50.
3. Allowable design values are based on a load duration factor $C_D = 1.0$ and shall be multiplied by all applicable adjustment factors per the NDS.
4. The tabulated allowable design loads may be applied to either side of the beam (head or point side of the fastener). Where loads are applied to both sides of the beam simultaneously, the total load applied to the beam shall not exceed the tabulated load.
5. For top-loaded members with even loading across the width of the entire assembly, fasteners shall be installed in two (2) rows with a maximum distance of 32" o.c. between fasteners in the same row.
6. Tabulated loads are for the connection strength. Beams and framing members shall be independently checked by a registered design professional.





TABLE 2. Allowable Lateral Design Values (plf) for 5/16" Diameter Structural Fasteners in Multi-Ply Truss and Sawn Lumber Assemblies

Fastener	Assembly	Members	Fastener Length ¹ (in)	SPF/HF (0.42)						DF/SP (0.50)					
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
				Number of Rows of Fasteners											
2	3	2	3	2	3	2	3	2	3	2	3	2	3		
5/16" Structural Screws	A	2-ply 1 1/2"	2 7/8	760	1,140	570	855	380	570	760	1,140	570	855	380	570
	B	3-ply 1 1/2"	4 1/2	570	855	430	645	285	430	570	855	430	645	285	430
	C	4-ply 1 1/2"	6	505	760	380	570	255	385	505	760	380	570	255	385

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Fastener length is measured from the underside of the head to the tip.
2. Wood framing shall be any species with an SG of 0.42 or greater. For wood species with an assigned SG between 0.42 and 0.50, use the tabulated values for SG of 0.42. For wood species with an assigned SG greater than 0.50, use the tabulated values for SG of 0.50.
3. Allowable design values are based on a load duration factor $C_D = 1.0$ and shall be multiplied by all applicable adjustment factors per the *NDS*.
4. The tabulated allowable design loads may be applied to either side of the beam (head or point side of the fastener). Where loads are applied to both sides of the beam simultaneously, the total load applied to the beam shall not exceed the tabulated load.
5. For top-loaded members with even loading across the width of the entire assembly, fasteners shall be installed in two (2) rows with a maximum distance of 32" o.c. between fasteners in the same row.
6. Tabulated loads are for the connection strength. Beams and framing members shall be independently checked by a registered design professional.





TABLE 3. Allowable Lateral Design Values (plf) for 3/8" Diameter Hex Head Screws in Multi-Ply Truss and Sawn Lumber Assemblies

Fastener	Assembly	Members	Fastener Length ¹ (in)	SPF/HF (0.42)						DF/SP (0.50)							
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.			
				Number of Rows of Fasteners													
				2	3	2	3	2	3	2	3	2	3	2	3	2	3
3/8" Hex Head	A	2-ply 1 1/2"	2 1/2	620	930	465	700	310	465	620	930	465	700	310	465		
			3	620	930	465	700	310	465	620	930	465	700	310	465		

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Fastener length is measured from the underside of the head to the tip.
2. Wood framing shall be any species with an SG of 0.42 or greater. For wood species with an assigned SG between 0.42 and 0.50, use the tabulated values for SG of 0.42. For wood species with an assigned SG greater than 0.50, use the tabulated values for SG of 0.50.
3. Allowable design values are based on a load duration factor $C_D = 1.0$ and shall be multiplied by all applicable adjustment factors per the *NDS*.
4. The tabulated allowable design loads may be applied to either side of the beam (head or point side of the fastener). Where loads are applied to both sides of the beam simultaneously, the total load applied to the beam shall not exceed the tabulated load.
5. For top-loaded members with even loading across the width of the entire assembly, fasteners shall be installed in two (2) rows with a maximum distance of 32" o.c. between fasteners in the same row.
6. Tabulated loads are for the connection strength. Beams and framing members shall be independently checked by a registered design professional.



TABLE 4. Allowable Lateral Design Values (plf) for 3/8" Diameter Ledger Board Screws in Multi-Ply Truss and Sawn Lumber Assemblies

Fastener	Assembly	Members	Fastener Length ¹ (in)	SPF/HF (0.42)						DF/SP (0.50)							
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.			
				Number of Rows of Fasteners													
				2	3	2	3	2	3	2	3	2	3	2	3	2	3
3/8" Ledger Board	B	3-ply 1 1/2"	4	465	700	350	525	235	355	465	700	350	525	235	355		
	C	4-ply 1 1/2"	6	415	625	310	465	210	315	415	625	310	465	210	315		

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Fastener length is measured from the underside of the head to the tip.
2. Wood framing shall be any species with an SG of 0.42 or greater. For wood species with an assigned SG between 0.42 and 0.50, use the tabulated values for SG of 0.42. For wood species with an assigned SG greater than 0.50, use the tabulated values for SG of 0.50.
3. Allowable design values are based on a load duration factor $C_D = 1.0$ and shall be multiplied by all applicable adjustment factors per the *NDS*.
4. The tabulated allowable design loads may be applied to either side of the beam (head or point side of the fastener). Where loads are applied to both sides of the beam simultaneously, the total load applied to the beam shall not exceed the tabulated load.
5. For top-loaded members with even loading across the width of the entire assembly, fasteners shall be installed in two (2) rows with a maximum distance of 32" o.c. between fasteners in the same row.
6. Tabulated loads are for the connection strength. Beams and framing members shall be independently checked by a registered design professional.



Multi-Ply Truss and SCL Assemblies

SCL allowable lateral design values are provided in Tables 5 and 6 for assemblies with two- or three-ply 1 3/4" members (as shown in Figure 3).

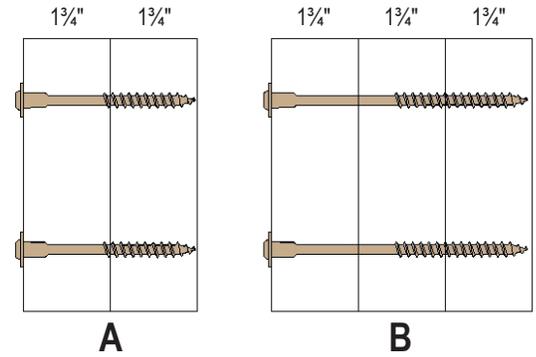


FIGURE 3. SCL Assembly Configurations

TABLE 5. Allowable Lateral Design Values (plf) for 5/16" Diameter Construction Lag Fasteners in Multi-Ply Truss and SCL Assemblies

Fastener	Assembly	Members	Fastener Length ¹ (in)	SPF/HF (0.42)						DF/SP (0.50)					
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
				Number of Rows of Fasteners											
				2	3	2	3	2	3	2	3	2	3	2	3
Carbon Steel	A	2-ply 1 3/4"	3	700	1,050	525	790	350	525	740	1,110	555	835	370	555
			3 1/2	700	1,050	525	790	350	525	740	1,110	555	835	370	555
	B	3-ply 1 3/4"	5	470	705	355	535	235	355	490	735	370	555	245	370
305 Stainless Steel	A	2-ply 1 3/4"	3	415	625	310	465	210	315	520	780	390	585	260	390
			3 1/2	415	625	310	465	210	315	520	780	390	585	260	390
	B	3-ply 1 3/4"	5	275	415	205	310	140	210	350	525	265	400	175	265
316 Stainless Steel	A	2-ply 1 3/4"	3	415	625	310	465	210	315	520	780	390	585	260	390
			5	310	465	235	355	155	235	390	585	295	445	195	295

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Fastener length is measured from the underside of the head to the tip.
2. SCL shall have an SG of 0.50 or greater. Thicknesses listed in Figure 3 are a minimum.
3. Allowable design values are based on a load duration factor of C_D=1.0 and shall be multiplied by all applicable adjustment factors per the NDS.
4. The tabulated allowable design loads may be applied to either side of the beam (head or point side of the fastener). Where loads are applied to both sides of the beam simultaneously, the total load applied to the beam shall not exceed the tabulated load.





TABLE 6. Allowable Lateral Design Values (plf) for 5/16" Diameter Ledger Structural Fasteners in Multi-Ply Truss and SCL Assemblies

Fastener	Assembly	Members	Fastener Length ¹ (in)	SPF/HF (0.42)						DF/SP (0.50)					
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
				Number of Rows of Fasteners											
				2	3	2	3	2	3	2	3	2	3	2	3
Carbon Steel	A	2-ply 1 3/4"	2 7/8	685	1,030	515	775	345	520	685	1,030	515	775	345	520
	B	3-ply 1 3/4"	4 1/2	515	775	385	580	260	390	515	775	385	580	260	390
			5	455	685	340	510	230	345	455	685	340	510	230	345

SI: 1 in = 25.4 mm, 1 lbf/ft = 0.0146 kN/m

1. Fastener length is measured from the underside of the head to the tip.
2. SCL shall have an SG of 0.50 or greater. Thicknesses listed in Figure 3 are a minimum.
3. Allowable design values are based on a load duration factor of $C_D=1.0$ and shall be multiplied by all applicable adjustment factors per the *NDS*.
4. The tabulated allowable design loads may be applied to either side of the beam (head or point side of the fastener). Where loads are applied to both sides of the beam simultaneously, the total load applied to the beam shall not exceed the tabulated load.

NOTE: SaberDrive Platinum Construction Lags and Ledger Board Screws spacing, edge, and end distance requirements shall comply with the provisions in the *ANSI/AWC NDS: National Design Specification (NDS) for Wood Construction*.

