



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.

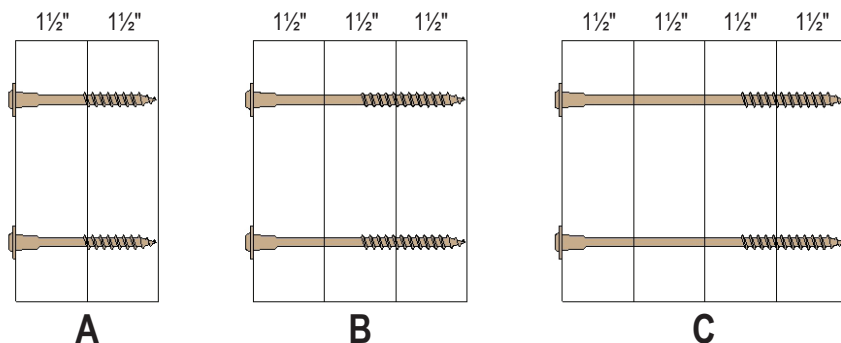


FIGURE 1. Truss and Sawn Lumber Assembly Configuration

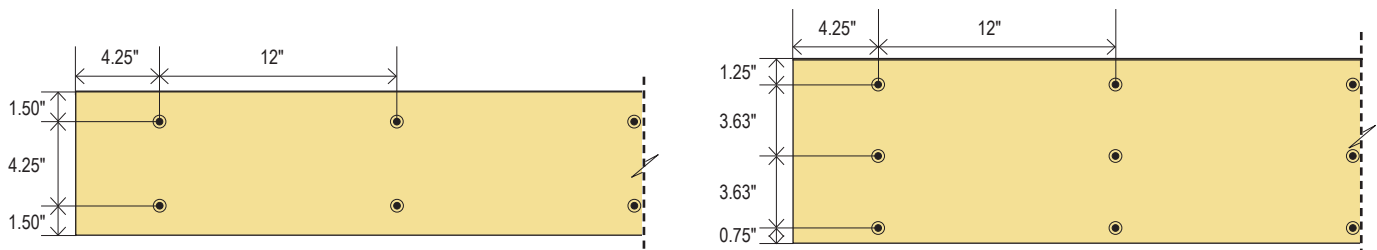


FIGURE 2. Example Fastener Spacing Diagram (12" o.c.) for 2x8 and 2x10



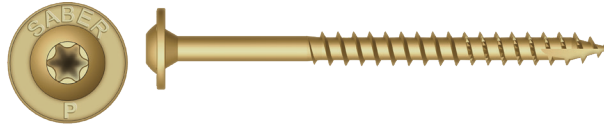


TABLE 1. Allowable Lateral Design Values (plf) for 5/16" Diameter Construction Lag Fasteners in Multi-Ply Truss and Sawn Lumber Assemblies

Fastener	Multiple Members		Product Fastener Length ¹ (in)	SPF/HF (SG=0.42)						DF/SP (SG=0.50)					
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
	Assembly	Components		2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows
5/16" Carbon Steel	A	2-ply 1 1/2"	2 1/2	360	540	270	405	180	270	460	695	345	520	230	345
			3	425	635	320	475	210	320	545	820	410	615	275	410
	B	3-ply 1 1/2"	4	270	405	200	305	135	200	345	520	260	390	175	260
			6	320	480	240	360	160	240	375	560	280	420	185	280
5/16" 305 Stainless Steel	A	2-ply 1 1/2"	2 1/2	305	460	230	345	155	230	350	525	265	395	175	265
			3	365	545	275	410	180	275	440	660	330	495	220	330
	B	3-ply 1 1/2"	4	230	345	170	260	115	170	265	395	195	295	130	195
			6	245	365	180	275	120	180	295	440	220	330	145	220
5/16" 316 Stainless Steel	A	2-ply 1 1/2"	2 1/2	310	465	235	350	155	235	355	535	265	400	180	265
			3	365	550	275	415	185	275	440	665	330	500	220	330
	B	3-ply 1 1/2"	4	235	350	175	265	115	175	265	400	200	300	135	200
			6	245	365	185	275	120	185	295	440	220	330	145	220

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	Multiple Members		Product Fastener Length ¹ (in)	SPF/HF (SG=0.42)						DF/SP (SG=0.50)					
				12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
	Assembly	Components		2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows
5/16" Structural Screws	A	2-ply 1 1/2"	3	415	620	310	465	205	310	530	800	400	600	265	400
	B	3-ply 1 1/2"	4 1/2	385	580	290	435	195	290	450	675	335	505	225	335
	C	4-ply 1 1/2"	6	345	515	260	385	170	260	400	600	300	450	200	300

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.



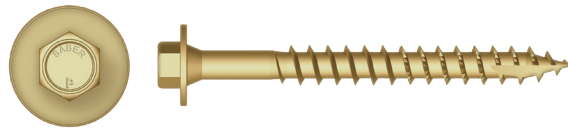


TABLE 3. Allowable Lateral Design Values (plf) for 3/8" Diameter Hex Head Screws in Multi-Ply Truss and Sawn Lumber Assemblies

Fastener	Multiple Members		Product Fastener Length ¹ (in)	SPF/HF (SG=0.42)						DF/SP (SG=0.50)					
	Assembly	Components		12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
				2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows
3/8" Hex Head Screw	A	2-ply 1 1/2"	2 1/2	360	535	270	405	180	270	460	690	345	520	230	345
			3	425	635	320	475	210	320	545	815	410	610	270	410

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	Multiple Members		Product Fastener Length ¹ (in)	SPF/HF (SG=0.42)						DF/SP (SG=0.50)					
	Assembly	Components		12" o.c.		16" o.c.		24" o.c.		12" o.c.		16" o.c.		24" o.c.	
				2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows	2 rows	3 rows
3/8" Ledger-board Screw	A	2-ply 1 1/2"	3 5/8	495	740	370	555	245	370	635	950	475	715	315	475
	B	3-ply 1 1/2"	4	265	400	200	300	135	200	345	515	255	385	170	255
	C	4-ply 1 1/2"	6	370	550	275	415	185	275	425	640	320	480	215	320

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).

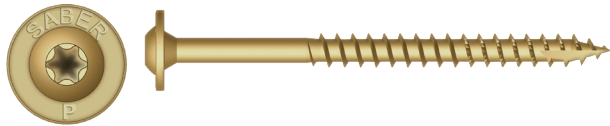
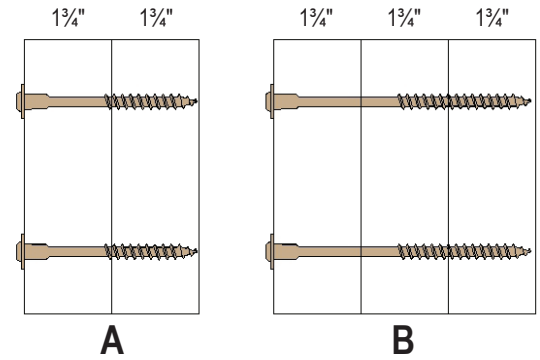


FIGURE 3. SCL Assembly Configurations

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

Fastener	Multiple Members		Product Fastener Length ¹ (in)	12" o.c.		16" o.c.		24" o.c.	
	Assembly	Components		2 rows	3 rows	2 rows	3 rows	2 rows	3 rows
5/16" Carbon Steel	A	2-ply 1 3/4"	3	555	830	415	625	275	415
			3 1/2	645	970	485	725	325	485
	B	3-ply 1 3/4"	5	445	665	335	500	220	335
5/16" 305 Stainless Steel	A	2-ply 1 3/4"	3 1/2	510	765	385	575	255	385
			5	350	530	265	395	175	265
	B	3-ply 1 3/4"	5	355	530	265	400	175	265
5/16" 316 Stainless Steel	A	2-ply 1 3/4"	3 1/2	410	620	310	465	205	310
			5	355	530	265	400	175	265
	B	3-ply 1 3/4"	5	355	530	265	400	175	265

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	Multiple Members		Product Fastener Length ¹ (in)	12" o.c.		16" o.c.		24" o.c.	
	Assembly	Components		2 rows	3 rows	2 rows	3 rows	2 rows	3 rows
5/16" Structural Screws	A	2-ply 1 3/4"	2 7/8	595	890	445	670	295	445
	B	3-ply 1 3/4"	4 1/2	380	570	285	425	190	285
			5	475	710	355	535	235	355

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*.

