



Technical Document

Products: CTX | BL | SCTX | WTX
Canadian Document

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Big Timber | Technical Information

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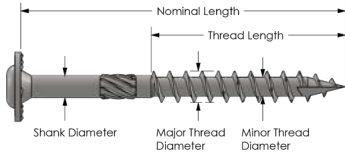
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TECHNICAL INFORMATION



Big Timber® CTX Construction Lag Screw



Star Drive



Round Washer

ACQ
COMPATIBLE

Fastener Name	Designation	Head (in) (mm)		Shank Diameter ² (in) (mm)	Thread Diameter (in) (mm)		Specified Minimum Core Hardness ⁴ (HV 0.3)	Nominal Bending Yield, FyB (psi) (Mpa)	Factored Fastener Strength (lbf) (kN)	
		Diameter	Drive Type		Minor	Major			Tensile	Shear ³
CTX	14	0.531 (13.5)	Torx 25	0.168 (4.3)	0.146 (3.7)	0.242 (6.2)	355	141,300 (975)	1,675 (7.4)	1,305 (5.8)
	15	0.620 (15.7)	Torx 30	0.202 (5.1)	0.179 (4.6)	0.275 (7.0)	355	151,600 (1,045)	2,655 (11.8)	1,835 (8.2)
	17	0.675 (17.1)	Torx 40	0.226 (5.7)	0.210 (5.3)	0.295 (7.5)	355	170,500 (1,175)	3,330 (14.8)	2,230 (9.9)

SI: 1in = 25.4mm, 1 lb = 4.45 N, 1 MPa=145 psi

1. Fastener length is measured from the underside of the head to the tip. Thread length includes tapered tip.
2. Shank diameter based on manufactured thickness. Finished dimensions are larger, due to the proprietary coatings added.
3. Shear determined at smooth shank diameter.
4. Based on 300 gram load using the Vickers indenter.

TECHNICAL INFORMATION



CTX Screw Factored Lateral Design Values for Connections

Fastener Name	Designation	Nominal Length ¹ (in) (mm)	Thread Length ¹ (in) (mm)	Minimum Side Member Thickness (in)	Minimum MainMember Penetration (in)	Factored Lateral Design Values ^{1,2} lbf (N) (N _r)	
						Species ³ (Relative Density)	
						HF/SPF (0.42)	
						N _r ⊥	N _r
CTX	14 x 2"	2 (51)	2 (51)	¾ (19.1)	1-¾ (32)	220 (985)	220 (985)
	14 x 2-½"	2-½ (64)	2-½ (57)	¾ (19.1)	1-¾ (45)	365 (1,615)	365 (1,615)
	14 x 3"	3 (76)	2 (51)				
	14 x 4"	4 (102)	2 (51)	1-¾ (45)	2-¼ (57)	515 (2,280)	515 (2,280)
	14 x 5"	5 (127)	3 (76)				
	14 x 6"	6 (152)	3 (76)	3 (76)	3 (76)	585 (2,595)	720 (3,250)
	15 x 2-½"	2-½ (64)	1-½ (38)	¾ (19.1)	1-¾ (32)	310 (1,385)	310 (1,385)
	15 x 3"	3 (76)	2 (51)	¾ (19.1)	2-¾ (57)	365 (1,630)	420 (1,875)
	15 x 3-½"	3-½ (89)	2-½ (64)				
	15 x 4"	4 (102)	2-½ (64)	1-½ (38)	2-½ (64)	915 (4,070)	870 (3,875)
	15 x 5"	5 (127)	3 (76)				
	15 x 6"	6 (152)	3 (76)	2 (51)	4 (102)	610 (2,270)	720 (3,210)
	17 x 4"	4 (102)	2-½ (64)	1-½ (38)	2-½ (64)	1,065 (4,735)	720 (1,065)
	17 x 5"	5 (127)	3 (76)				
	17 x 6"	6 (152)	3 (76)	2 (38)	4 (64)	650 (2,895)	970 (4,315)
	17 x 7"	7 (178)	3-½ (89)	2-¾ (70)	4-¾ (108)		
	17 x 8"	8 (203)	4 (102)				
	17 x 10"	10 (254)	4 (102)	3-½ (89)	6-½ (165)	710 (3,165)	1,190 (5,295)
	17 x 12"	12 (305)	4 (102)				
	17 x 14"	14 (356)	5 (102)				
	17 x 16"	16 (406)	5 (102)				

SI: 25.4mm = 1in, 1N = 0.225 lb

1. N_r⊥ = Lateral Design Values Perpendicular to Grain, N_r|| = Lateral Design Values Parallel to Grain.
2. Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086.
3. Factored lateral design values apply to two-member single shear connection where both members are of the same relative density, and the fastener is oriented perpendicular to grain. Where the members are of different relative densities, use the lower of the two.
4. Fastener main member penetration is the length embedded in the main member, including the tip.

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CTX Screw Reference Withdrawal Design Values (W) - Side Grain Applications, LBF/IN

Fastener Name	Designation	Nominal Length (in)	Thread Length (in)	Factored Withdrawal Design Values 1,2,3 lbf/in (N/mm)(Prw)
				Species (Relative Density)
				HF/SPF (0.42)
CTX	14 x 1"	1 (25)	1 (25)	200 (35)
	14 x 1-1/2"	1-½ (38)	1-½ (38)	
	14 x 2"	2 (51)	2 (51)	
	14 x 2-1/2"	2-½ (64)	2-¾ (57)	370 (85)
	14 x 3"	3 (76)	2 (51)	
	14 x 4"	4 (102)	2 (51)	
	14 x 5"	5 (127)	3 (76)	
	14 x 6"	6 (152)	3 (76)	
	15 x 2"	2 (51)	1-½ (38)	230 (40)
	15 x 2-1/2"	2-½ (64)	1-½ (38)	
	15 x 3"	3 (76)	2 (51)	315 (55)
	15 x 3-1/2"	3-1/2 (89)	2-½ (64)	
	15 x 4"	4 (102)	2-½ (64)	
	15 x 5"	5 (127)	3 (76)	
	15 x 6"	6 (152)	3 (76)	
	17 x 4"	4 (102)	2-½ (64)	230 (40)
	17 x 5"	5 (127)	3 (76)	
	17 x 6"	6 (152)	3 (76)	
	17 x 7"	7 (178)	3-½ (89)	315 (55)
	17 x 8"	8 (203)	4 (102)	
	17 x 10"	10 (254)	4 (102)	
	17 x 12"	12 (305)	4 (102)	
	17 x 14"	14 (356)	5 (127)	
	17 x 16"	16 (406)	5 (127)	

SI: 1 in = 25.4mm, 1 in, 1 kN/m = 737.6 lb/ft

1. Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086 for wood screws.
2. Minimum fastener penetration into main member of 1" (25.4 mm) is required. Fastener penetration is the threaded length embedded in the main member, excluding the tip.
3. The full factored design withdrawal value is equal to the tabulated withdrawal value multiplied by the length of the threaded portion of the fastener embedded in the main member.

TECHNICAL INFORMATION



CTX Screw Reference Withdrawal Reference Head Pull - Through Design Values (P), LBF

Fastener Name	Designation	Nominal Length (in) (mm)	Thread Legnth (in) (mm)	Factored Head Pull Through Design Value ^{1,2} lbf (N)	
				(P _{pt})	
				Species (Relative Density)	
				HF/SPF (0.42)	
CTX	14 x 1"	1 (25)	1 (25)	110 (495)	
	14 x 1-1/2"	1-½ (38)	1-½ (38)		
	14 x 2"	2 (51)	2 (51)		
	14 x 2-1/2"	2-½ (64)	2-¾ (57)		
	14 x 3"	3 (76)	2 (51)		
	14 x 4"	4 (102)	2 (51)		
	14 x 5"	5 (127)	3 (76)		
	14 x 6"	6 (152)	3 (76)		
	15 x 2"	2 (51)	1-½ (38)		
	15 x 2-1/2"	2-½ (64)	1-½ (38)		
	15 x 3"	3 (76)	2 (51)		
	15 x 3-1/2"	3-½ (89)	2-½ (64)		
	15 x 4"	4 (102)	2-½ (64)		
	15 x 5"	5 (127)	3 (76)		
	15 x 6"	6 (152)	3 (76)		
	17 x 4"	4 (102)	2-½ (64)		
	17 x 5"	5 (127)	3 (76)		
	17 x 6"	6 (152)	3 (76)		
	17 x 7"	7 (178)	3-½ (89)		
	17 x 8"	8 (203)	4 (102)		
	17 x 10"	10 (254)	4 (102)		
	17 x 12"	12 (305)	4 (102)		
	17 x 14"	14 (356)	5 (127)		
	17 x 16"	16 (406)	5 (127)		

SI: 1 in = 25.4mm, 1 in, 1 N = 0.225 lb

1. Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086 for wood screws.

2. Pull through designs values apply to connections having a minimum wood side member thickness of at least ¾".

CTX Screw Spacing, Edge Distance and End Distance Requirements

Symbol	Dimension	Minimum Spacing ^{1,2} (mm)		
		Species (Relative Density)		
		HF/SPF (0.42)		
		CTX 14	CTX 15	CTX 17
SP	Spacing parallel to grain	98	112	120
SQ	Spacing perpendicular to grain	49	56	60
a	End distance parallel to grain	74	84	90
e	Edge distance perpendicular to grain	25	28	30

SI: 1 in = 25.4mm

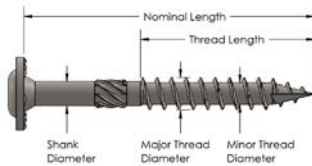
1. Table values are based on the major thread diameter from Table 1 in accordance with CSA 086 Table 12.25.

2. Spacing, edge distances and end distances of fasteners shall be sufficient to prevent splitting of the wood or as shown in this table, whichever is the more restrictive.

TECHNICAL INFORMATION



Big Timber® SCTX Construction Lag Screw



Star Drive



Round Washer

ACQ
COMPATIBLE

Big Timber SCTX Fastener Specifications

Fastener Name	Designation	Head (in)		Shank Diameter ² (in) (mm)	Thread Diameter (in) (mm)		Nominal Bending Yield, FyB (psi)	Factored Fastener Strength (lbf) (kN)	
		Diameter	Drive Type		Minor	Major		Tensile	Shear ³
SCTX	15	0.620 (15.7)	Torx 30	0.202 (5.1)	0.179 (4.5)	0.275 (7.0)	111,000 (765)	1,540 (6.9)	1,305 (5.8)

SI: 1in = 25.4mm, 1 in = 0.225 lb, 1 MPa=145 psi

1. Fastener length is measured from the underside of the head to the tip. Thread length includes tapered tip.
2. Shank diameter based on manufactured thickness. Finished dimensions are larger, due to the proprietary coatings added.
3. Shear determined at smooth shank diameter.

SCTX Factored Withdrawal Design Values (P_{rw}) - Side Grain Applications

Fastener Name	Designation	Nominal Length (in) (mm)	Thread Legnth (in) (mm)	Factored Head Pull Through Design Value ^{1,2} lbf (N)(P _{rel})	
				Species (Relative Density)	
				HF/SPF (0.42)	DF-L (0.49)
SCTX	15 x 2"	2 (51)	1-½ (38)	225 (39)	280 (49)
	15 x 2-1/2"	2-½ (64)	1-½ (38)		
	15 x 3"	3 (76)	2 (51)		
	15 x 3-1/2"	3-½ (89)	2-½ (64)	305 (53)	
	15 x 4"	4 (102)	2-½ (64)		
	15 x 5"	5 (127)	3 (76)		
	15 x 6"	6 (152)	3 (76)		
	15 x 7"	7 (178)	2-½ (64)		
	15 x 8"	5 (127)	3 (76)		

SI: 1in = 25.4mm, 1 in, 1 N = 0.225 lb

1. Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086 for wood screws.
2. For wood species with a relative density between 0.42 and 0.49, use the tabulated values for relative density of 0.42.
3. The full design withdrawal value is equal to the tabulated factored withdrawal value multiplied by the length of the threaded portion of the fastener embedded in the main member. Fastener penetration is the threaded length embedded in the main member, including the tip.
4. The full design withdrawal value is equal to the tabulated factored withdrawal value multiplied by the length of the threaded portion of the fastener embedded in the main member. Fastener penetration is the threaded length embedded in the main member, excluding the tip. Minimum fastener penetration into the main member of 1" (25.4mm) is required.

TECHNICAL INFORMATION



SCTX Screw Factored Lateral Design Values for Connections in Solid Sawn Lumber (N_r)

Fastener Name	Designation	Nominal Length ¹ (in)	Thread Length ¹ (in) (mm)	Minimum Side Member Thickness (in) (mm)	Minimum Main Member Penetration (in)(mm)	Factored Lateral Design Value ^{1,2} (lbf) (N)			
						Species ⁴ (Relative Density)			
						HF/SPF (0.42)		DF-L (0.49)	
						$N_{r\perp}$	$N_{r\parallel}$	$N_{r\perp}$	$N_{r\parallel}$
SCTX	15 x 3"	3 (76)	2 (51)	1-½ (38)	1-½ (38)	375 (1,665)		435 (1,945)	
	15 x 3-½"	3-½ (89)	2-½ (64)						
	15 x 4"	4 (102)	2-½ (64)						
	15 x 5"	5 (127)	3 (76)		2-½ (64)	500 (2,220)		570 (2,545)	
	15 x 6"	6 (152)	3 (76)	1-½ (38)					
	15 x 7"	7 (178)	3-½ (89)		3-½ (89)	635 (2,830)		705 (3,145)	
	15 x 8"	8 (203)	4 (102)						

SI: 1in = 25.4mm, 1 in, 1 N = 0.225 lb

1. Factored lateral design value apply to two-member single shear connections where both members are of the same specific gravity, and the fastener is oriented perpendicular to grain. Where the members are of different specific gravities, use the lower of the two.
2. Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086.
3. $N_{r\perp}$ = Lateral Design Values Perpendicular to Grain, $N_{r\parallel}$ = Lateral Design Values Parallel to Grain.
4. For wood species with a specific gravity between 0.42 and 0.55, use the tabulated values for specific gravity of 0.42.
5. Fastener main member penetration is the length embedded in the main member, including the tip.

SCTX Screw Factored Head Pull - Through Design Values in Solid Sawn Lumber (P_{pt})

Fastener Name	Designation	Nominal Length (in) (mm)	Thread Length (in) (mm)	Factored Head Pull Through Designs Value ^{1,2} , lbf (N)
				Species (Relative Gravity)
				HF/SPF (0.42)
SCTX	15 x 2"	2 (51)	1-½ (25)	225 (990)
	15 x 2-½"	2-½ (64)	1-½ (32)	
	15 x 3"	3 (76)	2 (51)	
	15 x 3-½"	3-½ (89)	2-½ (64)	
	15 x 4"	4 (102)	2-½ (64)	
	15 x 5"	5 (127)	3 (76)	
	15 x 6"	6 (152)	3 (76)	
	15 x 7"	7 (178)	3-½ (89)	
	15 x 8"	8 (203)	4 (102)	

SI: 1in = 25.4mm, 1 in, 1N = 0.225 lb

1. Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086 for wood screws.
2. Pull through designs values apply to connections having a minimum wood side member thickness of at least 1.5" (38mm).

SCTX Minimum Spacing, Edge Distance and End Distance Requirements

Symbol	Dimension	Minimum Spacing ^{1,2} (mm)	
		Species (Relative Density)	
		HF/SPF (0.42)	DF-L (0.49)
		SCTX 15	SCTX 15
S_p	Spacing parallel to grain	112	140
S_q	Spacing perpendicular to grain	56	70
a	End distance parallel to grain	84	105
e	Edge distance perpendicular to grain	28.0	35.0

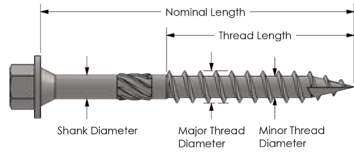
SI: 1in = 25.4mm

1. Table values are based on the major thread diameter from Table 1 in accordance with CSA 086 Table 12.25.
2. Spacing, edge distances and end distances of fasteners shall be sufficient to prevent splitting of the wood or as shown in this table, whichever is the more restrictive.

TECHNICAL INFORMATION



Big Timber® BL Log, Timber & Landscaping Screw



5/16"



Hex Washer

ACQ
COMPATIBLE

Big Timber® BL Fastener Specifications

Fastener Name	Designation	Head (in)		Shank Diameter ² (in) (mm)	Thread Diameter (in) (mm)		Specified Minimum Core Hardness ⁴ (HV 0.3)	Nominal Bending Yield, F _{yB} psi (MPa)	Factored Fastener Strength (lbf) (kN)	
		Diameter (in) (mm)	Drive Type		Minor	Major			Tensile	Shear ³
BL	14	0.487 (12.4)	Hex 3/8"	0.189 (4.8)	0.171 (4.3)	.258 (6.6)	355	177,700 (1,225)	1,085 (8.7)	725 (5.8)
BL	17	0.570 (14.5)	Hex 3/8"	0.224 (5.7)	0.211 (5.4)	0.297 (7.5)	355	172,600 (1,190)	1,990 (15.9)	1,240 (9.9)

SI: 25.4 mm = 1 in, 1 N = 0.225 lb, 1 MPa = 145 psi

- Fastener length is measured from the underside of the head to the tip. Thread length includes tapered tip.
- Shank diameter based on manufactured thickness. Finished dimensions are larger, due to the proprietary coatings added.
- Shear determined at smooth shank diameter.
- Based on a 300 gram load using the Vickers indenter.

BL Screw Factored Lateral Design Values for Connections in Sawn Lumber (N_r)

Fastener Name	Designation	Nominal Length ¹ in (mm)	Thread Length ¹ in (mm)	Minimum Side Member Thickness in (mm)	Minimum MainMember Penetration in (mm)	Factored Lateral Design Value ^{1,2} , lbf (N) (N _r)	
						Species ³ (Relative Density)	
						HF/SPF (0.42)	
						N _r ⊥	N _r
SCTX	14 x 2-½"	2-½ (64)	2 (51)	¾ (19.1)	1-¾ (44)	365 (1,620)	365 (1,620)
	14 x 3"	3-¼ (83)	2 (51)	¾ (19.1)	2-½ (64)		
	14 x 4"	4 (102)	2 (51)	¾ (19.1)	3-¼ (83)		
	14 x 5"	5 (127)	2 (51)				
	14 x 6"	6 (152)	2 (51)	3 (76)	3 (76)	585 (2,595)	720 (3,205)
	14 x 7"	7 (178)	2-½ (64)				
	14 x 8"	8 (208)	2-½ (64)				
	14 x 9"	9 (229)	2-½ (64)				
	14 x 10"	10 (254)	2-½ (64)				
	14 x 12"	12 (305)	2-½ (64)				
	14 x 14"	14 (356)	2-½ (64)				
	17 x 4"	4 (102)	2 (51)	1-½ (38)	2-½ (64)	535 (2,370)	535 (2,370)
	17 x 5"	5 (127)	3 (76)	1-½ (38)	3-½ (89)	605 (2,700)	660 (2,940)
	17 x 6"	6 (152)	3 (76)				
	17 x 7"	7 (178)	3 (76)	2-¾ (70)	4-½ (114)	650 (2,895)	970 (4,315)
	17 x 9"	9 (229)	3 (76)				

SI: 25.4mm = 1in, 1N = 0.225 lb

- N_r⊥ = Lateral Design Values Perpendicular to Grain, N_r|| = Lateral Design Values Parallel to Grain.
- Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086.
- Factored lateral design values apply to two-member single shear connection where both members are of the same relative density, and the fastener is oriented perpendicular to grain. Where the members are of different relative densities, use the lower of the two.
- Fastener main member penetration is the length embedded in the main member, including the tip.

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BL Screw Factored Withdrawal Design Values (P_{rw}) - Side Grain Applications

Fastener Name	Designation	Nominal Length (in) (mm)	Thread Length (in) (mm)	Factored Withdrawal Design Values ^{1,2,3} , lbf/in (N/mm) (P _{rw})
				Species (Relative Density)
				HF/SPF (0.42)
BL	14 x 2"	2 (51)	2 (51)	370 (65)
	14 x 2-½"	2-½ (64)	2 (51)	
	14 x 3-¾"	3-¾ (83)	2 (51)	
	14 x 4"	4 (102)	2 (51)	
	14 x 5"	5 (127)	2 (51)	
	14 x 6"	6 (152)	2 (51)	
	14 x 7"	7 (178)	2-½ (64)	
	14 x 8"	8 (203)	2-½ (64)	
	14 x 9"	9 (229)	2-½ (64)	
	14 x 10"	10 (254)	2-½ (64)	
	14 x 12"	12 (305)	2-½ (64)	
	14 x 14"	14 (356)	2-½ (64)	
	17 x 4"	4 (102)	2 (51)	230 (40)
	17 x 5"	5 (127)	3 (76)	370 (65)
	17 x 6"	6 (152)	3 (76)	
	17 x 7"	7 (178)	3 (76)	
	17 x 9"	9 (229)	3 (76)	

SI: 1in = 25.4mm, 1 in, 1kN/m = 737.6 lb/ft
 1. Tabulated pull through values (P) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1
 2. Minimum fastener penetration into main member of 1" is required. Fastener penetration is the threaded length embedded in the main member, excluding the tip.
 3. The full design withdrawal value is equal to the reference withdrawal value multiplied by the length of the threaded portion of the fastener embedded in the main member.

TECHNICAL INFORMATION



BL Screw Factored Head Pull - Through Design Values (P_{pt})

Fastener Name	Designation	Nominal Length (in) (mm)	Thread Length (in) (mm)	Factored Head Pull-Through Design Values ^{1,2,3} , lbf/in (N/mm) (P_{rw})
				Species (Relative Density)
				HF/SPF (0.42)
BL	14 x 2"	2 (51)	2 (51)	110 (495)
	14 x 2-½"	2-½ (64)	2 (51)	
	14 x 3-¾"	3-¾ (83)	2 (51)	
	14 x 4"	4 (102)	2 (51)	
	14 x 5"	5 (127)	2 (51)	
	14 x 6"	6 (152)	2 (51)	
	14 x 7"	7 (178)	2-½ (64)	
	14 x 8"	8 (203)	2-½ (64)	
	14 x 9"	9 (229)	2-½ (64)	
	14 x 10"	10 (254)	2-½ (64)	
	14 x 12"	12 (305)	2-½ (64)	
	14 x 14"	14 (356)	2-½ (64)	
	17 x 4"	4 (102)	2 (51)	
	17 x 5"	5 (127)	3 (76)	
	17 x 6"	6 (152)	3 (76)	
	17 x 7"	7 (178)	3 (76)	
	17 x 9"	9 (229)	3 (76)	

SI: 1in = 25.4mm, 1 in, 1 N=0.225 lb

1. Tabulated pull through values (P) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1

2. Pull-through design values apply to connections having a minimum wood side member thickness of at least 3/4 inch.

BL Screw Spacing, Edge Distance and End Distance Requirements

Symbol	Dimension	Minimum Spacing ^{1,2} (mm)	
		Species (Relative Density)	
		HF/SPF (0.42)	
		BL 14	BL 17
Sp	Spacing parallel to grain	106	120
Sq	Spacing perpendicular to grain	53	60
a	End distance parallel to grain	79	90
e	Edge distance perpendicular to grain	26	30

SI: 1in = 25.4mm

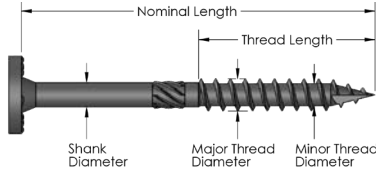
1. Table values are based on the major thread diameter from Table 1 in accordance with CSA 086 Table 12.25.

2. Spacing, edge distances and end distances of fasteners shall be sufficient to prevent splitting of the wood or as shown in this table, whichever is the more restrictive.

TECHNICAL INFORMATION



Big Timber® WTX Wafer Head Screw



Star Drive



Wafer Head

ACQ
COMPATIBLE

Big Timber® WTX Fastener Specifications

Fastener Name	Designation	Head (in) (mm)		Shank Diameter ² (in) (mm)	Thread Diameter (in) (mm)		Specified Minimum Core Hardness ⁵ (HV 0.3)	Nominal Bending Yield, FYB (psi) (MPa)	Allowable Fastener Strength (lbf) (kN)	
		Diameter (in) (mm)	Drive Type		Minor	Major			Tensile	Shear ⁴
WTX	15	0.659 (16.7)	Torx 30	0.205 (5.2)	0.187 (4.7)	0.274 (6.9)	286	190,000 (1,310)	2,780 (12.4)	2,095 (9.3)

SI: 1in = 25.4mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

1. Fastener length is measured from the underside of the head to the tip.
2. Thread length excludes the knurl. The WTX 15 x 3" fully threaded (no knurl).
3. Shank diameter based on manufactured thickness. Finished dimensions are larger, due to the proprietary coatings added.
4. Shear determined at smooth shank diameter.
5. Based on 300 gram load using the Vickers indenter.

WTX Screw Factored Lateral Design Values for Connections in Solid Sawn Lumber (N_r)

Fastener Name	Designation	Normal Length ¹ (in) (mm)	Thread Length ¹ (in) (mm)	Minimum Side Member Thickness (in) (mm)	Minimum Main Member Penetration (in) (mm)	Factored Lateral Design Value ^{1,2} , lbf (N) (N _r)			
						Species ^{3,4} (Relative Density)			
						HF/SPF (0.42)		HF/SPF (0.49)	
						N _r ⊥	N _r	N _r ⊥	N _r
WTX	15 x 3"	3 (76)	2-¾ (70)	1-½ (38)	1-½ (38)	460 (2,045)	480 (2,135)	580 (2,570)	505 (2,245)
	15 x 3-½"	3-½ (89)	2 (51)						
	15 x 4"	4 (102)	2 (51)						
	15 x 4-½"	4-½ (114)	2 (51)						
	15 x 5"	5 (127)	2 (51)						
	15 x 6"	6 (152)	2-½ (64)						
	15 x 7"	8 (203)	2-½ (64)						

SI: 25.4mm = 1in, 1N = 0.225 lb

1. N_r⊥ = Lateral Design Values Perpendicular to Grain, N_r|| = Lateral Design Values Parallel to Grain.
2. Tabulated values are for a standard load duration. Values shall be factored by all applicable modification factors per CSA 086.
3. Factored lateral design values apply to two-member single shear connection where both members are of the same relative density, and the fastener is oriented perpendicular to grain. Where the members are of different relative densities, use the lower of the two.
4. Fastener main member penetration is the length embedded in the main member, including the tip.

WTX Screw Factored Lateral Design Values for Connections in SIPS (N_r)

Fastener Name	Designation	Normal Length ¹ (in) (mm)	Thread Length ¹ (in) (mm)	SIP Total Thickness (in) (mm)	Main Member Wood Species ^{4,5} (Relative Density)	Factored Lateral Design Values ^{3,6} , Z (lbf) (N) (N _r)
WTX	15 x 5"	5 (127)	2 (51)	3-½ (89)	HF/SPF (0.42)	475 (2,120)
	15 x 8"	8 (203)	2-½ (64)	6-½ (165)		550 (2,450)
	15 x 8"	8 (203)	2-½ (64)	6-½ (165)	DF-L (0.50)	565 (2,505)

SI: 1in = 25.4mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

1. SIP thickness is measured from exterior face to exterior face. Each SIP consists of two 7/16" OSB faces with foam core in between.
2. The OSB faces on the SIPs shall comply with ANSI/APA PRS 610.1.
3. Fastener shall be driven such that the underside of the head is flush with the face of the SIP.
4. For the main member wood species with a gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42
5. The fastener is driven into the face of the main member and is loaded parallel to the grain.
6. Tabulated lateral design values (Z) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1

TECHNICAL INFORMATION



WTX Screw Factored Withdrawal Design Values (P_{rw}) - Side Grain Applications

Fastener Name	Designation	Nominal Length ¹ (in) (mm)	Thread Length ¹ (in) (mm)	Factored Withdrawal Design Value ^{1, 2, 3} W (Lbf/in) (N/mm) (P _{rw})	
				Species ⁴ (Relative Density)	
				HF/SPF (0.42)	DF-L (0.49)
WTX	15 x 3"	3 (76)	2-¾ (70)	205 (36)	290 (51)
	15 x 3-½"	3-½ (89)	2 (51)		
	15 x 4"	4 (102)	2 (51)		
	15 x 4-½"	4-½ (114)	2 (51)		
	15 x 6"	5 (127)	2 (51)		
	15 x 6"	6 (152)	2-½ (64)		
	15 x 8"	8 (203)	2-½ (64)		

SI: 1in = 25.4mm, 1 lb = 4.45 N, 1 lb/in = 0.175 kN/m

1. Tabulated withdrawal values (W) shall be adjusted by all applicable adjustment factors per NDS Table 11.3.1

2. Minimum fastener penetration into main member of 1" is required. Fastener penetration is the threaded length embedded in the main member, including the tip.

3. The wood species with a specific gravity between 0.42 and 0.50, use the tabulated values for specific gravity of 0.42.

4. The full design withdrawal value is equal to the reference withdrawal value multiplied by the length of the threaded portion of the fastener embedded in the main member.

WTX Screw Factored Head Pull - Through Design Values (P_{pt})

Fastener Name	Designation	Nominal Length ¹ (in) (mm)	Thread Length ¹ (in) (mm)	Factored Head Pull - Through Design Values ¹ , lbf (N) (P _{pt})	
				Assembly	
				¾" (11mm) OSB ²	¾" (11mm) OSB ² with Metal Washer ³
WTX	15 x 3"	3 (76)	2-¾ (70)	65 (289)	72 (321)
	15 x 3-½"	3-½ (89)	2 (51)		
	15 x 4"	4 (102)	2 (51)		
	15 x 4-½"	4-½ (114)	2 (51)		
	15 x 6"	5 (127)	2 (51)		
	15 x 6"	6 (152)	2-½ (64)		
	15 x 8"	8 (203)	2-½ (64)		

SI: 1in = 25.4mm, 1 in, 1 N = 0.225 lb

1. Tabulated values are for standard load duration. Values shall be factored by all applicable modification factors per CSA 086 for wood screws.

2. OSB shall comply with CSA 0325 and shall have a relative density of at least 0.42.

3. The fastener shall be installed with a minimum 2" (51mm) diameter 20 gage (0.9 mm) metal washer between the fastener head and the face of the OSB. Washer minimum tensile strength shall be 310 MPa.

WTX Screw Spacing, Edge Distance and End Distance Requirements

Symbol	Dimension	Minimum Spacing ^{1, 2} (mm)	
		Species (Relative Density)	
		HF/SPF	DF-L
S _p	Spacing parallel to grain	111 (4-¾)	139 (5-½)
S _q	Spacing perpendicular to grain	56 (2-¼)	70 (2-¾)
a	End distance parallel to grain	84 (3-¾)	104 (4-¾)
e	Edge distance perpendicular to grain	28 (1-⅞)	35 (1-¾)

SI: 1in = 25.4mm

1. Table values are based on the major thread diameter from Table 1 in accordance with CSA 086 Table 12.25.

2. Spacing, edge distances and end distances of fasteners shall be sufficient to prevent splitting of the wood or as shown in this table, whichever is the more restrictive.



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