Anchor: ITW Tapcon or Tapcon LDT or Simpson Strong-Tie.

ITW Ramset/Redhead Tapcon, 1/4" diameter, minimum 3.5" long with washer that conforms to ANSI B18.22.1 type B.

ITW Ramset/Redhead Large Diameter Tapcon, 3/8" diameter, minimum 4" long with washer that conforms to ANSI B18.22.1 type B.

Simpson Titen HD, 3/8" diameter, minimum 4" long with washer that conforms to ANSI B18.22.1 type B.

Simpson Wedge-All, 3/8" diameter, minimum 4" long with washer that conforms to ANSI B18.22.1 type B.

When applying back jambs over dry wall or other non structural wall covering, use longer fasteners to insure minimum embedment required.

This chart applies to wood species with specific gravity greater than or equal to 0.42 including spruce pine fir (SPF) and southern pine (SP).

See chart for minimum washer diameter. Washer diameters in chart are based on use of Spruce Pine Fir. Washers may be 10% smaller when Southern Pine is used.

See chart for minimum edge distance required. Lowest anchor to be greater than the minimum edge distance up from the floor and less than 10-inches from the floor.

**FASTENER SPACING (inches)** 2500 psi concrete Filled CMU Simpson **ITW Tapcon** Strong-Tie DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF) 20psf | 24psf | 28psf | 32psf | 36psf | 40psf | 44psf | 48psf | 1/4" 1/4" 3/8" 3/8 3/8" 3/8" 14psf 17psf 53psf 58psf 63psf | 69psf | 75psf 81psf 87psf 93psf 22'-9 15'-11 13'-3 9'-11 8'-10 7'-11 7'-3 5'-0 4'-3 24 24 24 24 24 18'-9 11'-4 6'-7 6'-0 5'-6 4'-7 3'-11 n/a n/a 24 22 24 24 24 24 24'-3 20'-0 17'-0 14'-1 12'-1 10'-7 9'-5 8'-6 7'-8 7'-0 6'-4 5'-10 5'-4 4'-11 4'-6 4'-2 n/a n/a 24 24 26'-6 11'-7 10'-3 4'-6 24 20 24 16 21'-9 18'-6 15'-5 13'-3 9'-3 8'-5 7'-8 7'-0 6'-4 5'-10 5'-4 4'-11 4'-3 3'-11 20'-2 16'-10 14'-5 12'-7 11'-2 4'-4 24 18 24 22 24 16 28'-10 23'-9 10'-1 9'-2 8'-5 7'-7 6'-11 6'-5 5'-10 5'-4 4'-11 4'-7 24 17 24 20 24 16 31'-9 26'-2 22'-3 18'-6 15'-10 13'-10 12'-4 11'-1 10'-1 9'-3 8'-4 7'-8 7'-0 6'-5 5'-11 5'-5 5'-1 4'-9 24 15 24 18 24 16 34'-3 28'-2 24'-0 20'-0 17'-1 15'-0 13'-4 12'-0 10'-10 10'-0 9'-0 8'-3 7'-7 6'-11 6'-4 5'-11 5'-6 5'-1 15 24 17 16 16 36'-3 29'-10 25'-4 21'-2 18'-1 15'-10 14'-1 12'-8 11'-6 10'-7 9'-7 8'-9 8'-0 7'-4 6'-9 6'-3 5'-10 5'-5 24 22 13 24 16 16 8 32'-3 27'-5 22'-10 19'-7 17'-1 15'-2 13'-8 12'-5 11'-5 10'-4 8'-8 7'-11 7'-3 6'-9 6'-3 5'-10 n/a 28'-9 24'-0 20'-6 18'-0 16'-0 14'-4 13'-1 12'-0 10'-10 9'-11 8'-4 7'-8 7'-1 6'-2 21 13 24 15 16 8 n/a 33'-10 9'-1 6'-7 19 12 24 14 16 8 n/a n/a 31'-4 26'-1 22'-5 19'-7 17'-5 15'-8 14'-3 13'-0 11'-10 10'-9 9'-11 9'-1 8'-4 7'-8 7'-2 6'-8 16 10 24 12 16 8 36'-0 30'-0 25'-8 22'-6 20'-0 18'-0 16'-4 15'-0 13'-7 12'-4 11'-5 10'-5 9'-7 8'-10 8'-3 7'-8 n/a n/a 9'-4 10 24 11 8 8 n/a 31'-9 27'-2 23'-9 21'-2 19'-0 17'-3 15'-10 14'-4 13'-1 12'-1 11'-0 10'-1 8'-9 8'-2 16 n/a n/a 14 8 24 10 8 8 n/a n/a n/a 35'-9 30'-8 26'-10 23'-10 21'-5 19'-6 17'-10 16'-2 14'-9 13'-7 12'-5 11'-5 10'-7 9'-10 9'-2 7 20 9 8 8 n/a n/a n/a n/a 30'-11 27'-5 24'-8 22'-5 20'-7 18'-8 17'-0 15'-8 14'-4 13'-2 12'-2 11'-4 10'-7 12 n/a 7 20 8 8 8 31'-10 28'-3 25'-6 23'-2 21'-3 19'-2 17'-7 16'-2 14'-9 13'-7 12'-7 11'-8 10'-11 11 n/a n/a n/a n/a n/a 6 17 7 8 n/a n/a 32'-0 28'-9 26'-2 24'-0 21'-8 19'-10 18'-3 16'-8 15'-4 14'-2 13'-2 12'-4 10 n/a n/a n/a n/a n/a 6 18'-6 17'-0 15'-9 9 n/a 16 8 n/a n/a n/a n/a n/a 32'-0 29'-1 26'-8 24'-1 22'-0 20'-3 14'-8 13'-9 n/a n/a n/a n/a 13 6 n/a 30'-11 28'-0 25'-7 23'-6 21'-6 19'-9 18'-3 17'-0 15'-11 12 n/a 32'-4 29'-7 27'-3 24'-10 22'-10 21'-2 19'-8 18'-5 n/a 28psf 32psf 44psf 48psf 58psf 69psf 75psf 17psf 20psf 24psf 36psf 40psf 53psf 63psf 81psf 87psf 93psf 14psf Filled CMU 2500 psi concrete Titen Wedge DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF) ITW LDT ITW Tapcon HD ΔII 3/8" 3/8" 1/4" 1/4" 3/8" 3/8" FASTENER DIAMETER 1.75" 1.75" 2.5" 2.5" 2.75" 2.68' EMBEDMENT LENGTH

Manufacturer's installation instructions must be followed.

1-1/8" 1-1/8'

508# 319# 859# 371# 480# 340# FASTENER LOAD CAPACITY

4"

4"

WASHER DIAMETER

EDGE DISTANCE

Maximum spacing shown in chart,

3"

1"

3"

1-1/8" 7/8" 1-1/2"

2-1/2"2-1/2"

Lesser spacing may be used to avoid interference with door hardware and or fastening system, but not less than 6".

Load per jamb = 0.5 x door width x max positive pressure x door height.

8" CMU block walls shall comply with ASTM C90.

Use minimum 2000 psi grout or concrete when filling CMU.

CMU fastener spacing distance may vary +/-1".

John E. Scates, P.E. 2560 King Arthur, Ste 124-54 Lewisville, TX 75056 Florida P.E. # 51737 TXPE 56308, F-2203

Professional Engineer's seal provided only for verification of windload construction details.

keep each area clear of any back jamb attachment fasteners

| Header | Head

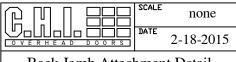
Highest anchor installed at least as high as door opening.

Anchors to be evenly spaced between the header and the floor.

2x6 structural grade lumber. May be counterbored up to 3/8" deep at each anchor location to provide a flush mounting surface.

First anchor to start at no more than half the fastener spacing distance and no less than the minimum edge distance.

Supporting structural elements shall be designed by a registered professional engineer for wind loads in addition to other loads. This drawing does not address the jamb/wall design, but only door attachment. Jamb/wall construction is shown only for illustration purposes. The building designer is responsible for ensuring that the jamb/wall is sufficient to carry the door live and static loads. This drawing does not address the spring pad connections. Registered professional engineer may approved an alternative design.



Back Jamb Attachment Detail Concrete Anchors

C.H.I. Drawing: BJA-101

| Rev.-0

⊕

Use SP values only if both structure and jamb are Southern Pine.

Use SPF values when Spruce-Pine-Fir is present in structure or jamb material.

Lesser spacing may be used to avoid interference with door hardware and or fastening system.

Maximum spacing shown in chart.

Lag screw: 3/8" diameter x 3" minimum long; must conform to ANSI/ASME B18.2.1

When applying back jambs over dry wall or other non structural wall covering,

use longer lags screws to insure 1-1/2" minimum embedment required.

Washer: 1-1/8" minimum outside diameter, must conform to ANSI B18.22.1 type A.

Pre-drill 1/4" diameter pilot holes for lag screw insertion. 1-1/2" minimum lag screw edge distance required.

#### Spruce-Pine-Fir (SPF)

## MAX LAG SCREW SPACING (Inches) FOR DOOR WIDTH (max) vs DESIGN PRESSURE

MAX WIDTH				DE	SIGN PR	ESSURE	IN POUN	DS-PER-	SQUARE-	FEET (PS	SF)			
IN FEET	12 PSF	15 PSF	18 PSF	21 PSF	24 PSF	27 PSF	30 PSF	33 PSF	36 PSF	39 PSF	42 PSF	46 PSF	50 PSF	53 PSF
≤ 9'	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"
10'	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	23"	21"
12'	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	22"	20"	19"	18"
14'	24"	24"	24"	24"	24"	24"	24"	24"	22"	21"	19"	17''	16"	15"
15'	24"	24"	24"	24"	24"	24"	24"	23"	21"	19"	18"	16"	15"	14"
16'	24"	24"	24"	24"	24"	24"	24"	21"	20"	18"	17"	15''	14"	13"
18'	24"	24"	24"	24"	24"	23"	21"	19"	17''	16"	15"	13"	12"	12"
20'	24"	24"	24"	24"	24"	21"	19"	17"	16"	14"	13"	12"	11"	10"
22'	24"	24"	24"	24"	21"	19"	17"	15"	14"	13"	12"	11"	10"	9"
24'	24"	24"	24"	22"	20"	17"	16"	14"	13"	12"	11"	10"	9''	9"
26'	24"	24"	24"	21"	18"	16"	14"	13"	12"	11"	10"	9"	8''	8"
30'	24"	24"	21"	18"	16"	14"	12"	11"	10"	9''	9"	8"	7''	7"

#### Southern Pine (SP)

## MAX LAG SCREW SPACING (Inches) FOR DOOR WIDTH (max) vs DESIGN PRESSURE

MAX WIDTH		DESIGN PRESSURE IN POUNDS-PER-SQUARE-FEET (PSF)													
IN FEET	12 PSF	15 PSF	18 PSF	21 PSF	24 PSF	27 PSF	30 PSF	33 PSF	36 PSF	39 PSF	42 PSF	46 PSF	50 PSF	53 PSF	
≤ 10'	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	
12'	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24''	24"	23"	
14'	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	24"	23"	21"	20"	
15'	24"	24"	24"	24"	24"	24"	24"	24"	24''	24"	23"	21''	19"	18"	
16'	24"	24"	24"	24"	24"	24"	24"	24"	24"	23"	22"	20"	18"	17"	
18'	24"	24"	24"	24"	24"	24"	24"	24"	22"	21"	19"	17''	16"	15"	
20'	24"	24"	24"	24"	24"	24"	24"	22"	20"	19"	17"	16''	14"	14"	
22'	24"	24"	24"	24"	24"	24"	22"	20"	18''	17"	16"	14"	13"	12"	
24'	24"	24"	24"	24"	24"	22"	20"	18"	17"	15"	14"	13"	12"	11"	
26'	24"	24"	24"	24"	23"	21"	19"	17"	15"	14"	13"	12"	11"	10"	
30'	24"	24"	24"	23"	20"	18"	16"	15"	13"	12"	11"	10"	9''	9"	

Southern Pine (SP) specific gravity = 0.55; load per anchor = 620 pounds.

Maximum load per jamb = 0.5 x (door height) x (door width) x (maximum positive pressure)

These charts do not address spring pad connections to the building.

Alternative design may be approved by a registered professional engineer. Supporting structural elements shall be designed by a registered professional

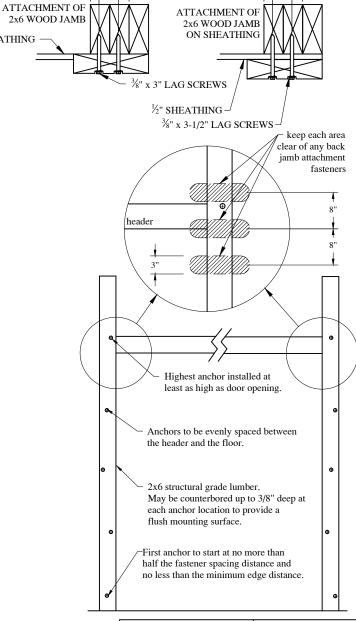
engineer for wind loads in addition to other loads.

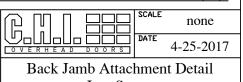
John E. Scates, P.E.

Florida P.E. # 51737 TXPE 56308, F-2203

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½" SHEATHING



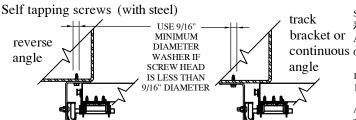


Lag Screw

C.H.I. Drawing: BJA-102 Rev.-06

Spruce-Pine-Fir (SPF) specific gravity = 0.42; load per anchor = 482 pounds.

2560 King Arthur, Ste 124-54 Lewisville, TX 75056



ATTACHMENT SPACING (inches)

Screw: 1/4" dia x 3/4" self tapping screw; must conform to ANSI/ASME B18.2.1.  $\frac{1}{16}$ " steel Jambs; allowable load per screw= 444 lbs.

bracket or Allowable load per screw; 12 gauge = 209 lbs, 14 gauge = 143 lbs, and 16 gauge = 110 lbs.

continuous Optional Washer: 9/16" O.D. minimum; must conform to ANSI B18.22.1 type A.

angle Washer not required if fastener head has minimum 9/16" outside diameter.

Lowest fastener to be within 10-inches of the floor

Maximum spacing shown in chart. Lesser spacing may be used to avoid interference with door component system.

Add holes to continuous angle as required to satisfy fastener spacing in these charts. These charts do not address spring pad connections to the building. Load per jamb =  $0.5 \, x$  door width x max positive pressure x door height

## .100" x 1" fillet welds

Welds performed by a Certified Welder or inspected by a Certified Welding Inspector to verify integrity of welds.

12 gauge or  $\frac{1}{16}$ " steel Jambs; allowable load per weld= 1,272 lbs. Use all necessary precautions when welding galvanized steel.

Welds to be evenly spaced between header and floor.

Lowest weld to be within 10-inches of the floor Minimum of 3 welds per jamb required.

Fillet welds to have a straight or convex face surface.

Tack weld toe of angle at same spacing to prevent rotation of track angle. Cracks and blemishes shall be ground to a smooth contour and checked to ensure soundness.

These charts do not address spring pad connections to the building. Load per jamb =  $0.5 \times 10^{-5}$  x door width x max positive pressure x door height

CODELLIC	CORFINE	CODEING	WELDS	SCREWS	WELDS	-															These ch	arts do no	ot address s
SCREWS	SCREWS	SCREWS	WELDS	3/16"	3/16"	DOOR	MIDT	u /foot	and in	shos) a	+	n DEC	ICN DD	ESSUR	E (DCE)		1						).5 x door w
16 ga	14 ga	12 ga	12 ga			_									<del></del>							Ž	
jamb	jamb	jamb	jamb	jamb	jamb	14psf	<del></del>	<u> </u>			32psf		40psf	44psf	48psf								
24	31	36	36	36	36	7'-10	6'-5	5'-6				3'-0	n/a	n/a	n/a	n/a	trac	k brac	ket or	7	·		
20	26	36	36	36	36	9'-5	7'-9	6'-7		_	4'-1	3'-8	n/a	n/a	n/a	n/a	con	tinuou	ıs anol	e /	٠ ا		
18	24	36	36	36	36	9'-11	8'-2	6'-11	5'-9	4'-11	4'-4	3'-10	n/a	n/a	n/a	n/a	Con	imaou	is angi	<b>A</b>			_/ /
16	20	30	36	36	36	11'-9	9'-8	8'-3	6'-10	5'-10	5'-1	4'-7	4'-1	n/a	n/a	n/a				•	[H.	7	<i>'</i>
14	18	26	36	36	36	13'-5	11'-1	9'-5	7'-10	6'-8	5'-10	5'-2	4'-8	4'-3	3'-11	n/a				Œ			
12	16	24	36	36	36	14'-11	12'-3	10'-5	8'-8	7'-5	6'-6	5'-9	5'-2	4'-9	4'-4	3'-11					WT	<del></del>	
12	15	22	36	36	36	15'-8	12'-11	11'-0	9'-2	7'-10	6'-10	6'-1	5'-6	5'-0	4'-7	4'-1							
9	12	17	36	36	36	20'-5	16'-9	14'-3	11'-11	10'-2	8'-11	7'-11	7'-1	6'-6	5'-11	5'-4	4'-11	4'-6	4'-1	n/a	n/a	n/a	n/a
8	10	16	36	34	36	22'-4	18'-5	15'-8	13'-0	11'-2	9'-9	8'-8	7'-10	7'-1	6'-6	5'-10	5'-4	4'-11	4'-6	4'-2	n/a	n/a	n/a
7	10	14	36	31	36	24'-6	20'-2	17'-1	14'-3	12'-3	10'-8	9'-6	8'-6	7'-9	7'-1	6'-5	5'-11	5'-5	4'-11	4'-6	4'-2	1 -	n/a
6	8	12	36	25	36	29'-10	24'-7	20'-10	17'-5	14'-11	13'-0	11'-7	10'-5	9'-6	8'-8	7'-10	7'-2	6'-7	6'-0	5'-6	5'-1	4'-9	4'-5
6	7	11	36	24	36	31'-5	25'-10	22'-0	18'-4	15'-8	13'-9	12'-2	11'-0	10'-0	9'-2	8'-3	7'-7	6'-11	6'-4	5'-10	5'-5	5'-0	4'-8
n/a	6	8	36	18	36			_	23'-10				_		11'-11		9'-10	9'-0	8'-3		7'-0		6'-1
n/a	5	7	36	16	36	n/a	39'-2	33'-3			_		_	15'-1			_				8'-2		7'-1
n/a	n/a	6	36	12	36	n/a	n/a	41'-9	_	29'-10			_	_	17'-5	_	14'-4	13'-3	-	11'-1		1	8'-11
n/a	n/a	5	32	11	32	n/a	n/a	n/a	39'-9		29'-9	_			_			15'-1		12'-8		10'-11	_
n/a	n/a	n/a	30	10	30	n/a	n/a	n/a	n/a		31'-9			_				16'-1				11'-8	
•			26			l '.	T .	1.	1.		36'-8	20 -3 32'-7		26'-8		-	20'-2	-	_	15'-7		13'-5	
n/a	n/a	n/a		9	26	n/a	n/a	n/a	l -	n/a		_	_		_		_	_	_	_			1
n/a	n/a	n/a	24	8	24	n/a	n/a	n/a	n/a	n/a	n/a	35'-4	31'-9	28'-10		24'-0		_		_		14'-7	
n/a	n/a	n/a	16	5	16	n/a	n/a	n/a	· .	· .	n/a	n/a	l *.	· .	n/a	n/a	32'-10					21'-11	
n/a	n/a	n/a	14	n/a	14	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	31'-7	29'-0	26'-11	25'-0	23'-5
n/a	n/a	n/a	12	n/a	12	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	31'-4	29'-2	27'-4
SCREWS	SCREWS	SCREWS	WELDS	SCREWS	WELDS	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
16 ga	14 ga	12 ga	12 ga	3/16"	3/16"	DOOR	WIDT	H (feet	and in	ches) a	t a give	en DES	IGN PR	ESSUR	E (PSF)								
jamb	jamb	jamb	jamb	jamb	jamb		•		•					•				•		•			

.100" x 1" long fillet weld (E60XX Electrodes Min). Weld to be located vertically on angle at spacing specified in chart and tack weld toe of angle or track bracket at same spacing.

reverse angle

Alternative design may be approved by a licensed professional engineer.

Supporting structural elements shall be designed by a licensed professional engineer for wind loads in addition to other loads.

This drawing does not address the jamb/wall design, but only door attachment. Jamb/wall construction is shown only for illustration purposes. The building designer is responsible for ensuring that the jamb/wall is sufficient to carry the door live and static loads.

John E. Scates, P.E. 2560 King Arthur, Ste 124-54 Lewisville, TX 75056 Florida P.E. # 51737 TXPE 56308, F-2203

ATTACHMENT SPACING (inches)

LOAD PER FASTENER (pounds)

143# 209# 1272# 444# 1272#

OVERHEAD DOORS

none 2-18-2015

Steel Attachment Detail

C.H.I. Drawing: BJA-103

Rev.-07

Simpson Titen HD; 3/8" diameter x 3" long (minimum).

Simpson Wedge-All; 3/8" diameter x 3" long (minimum).

ITW Ramset/Redhead Large Diameter Tapcon, 3/8" diameter, minimum 2" long with washer that conforms to ANSI B18.22.1 type B.

Use a fastener for every track bracket unless the quantity of fasteners determined from this chart is more than the quantity of track brackets specified on the door drawing.

Add track brackets as required to satisfy fastener spacing in these charts. Maximum spacing shown in chart.

Lesser spacing may be used to avoid interference with door hardware and or fastening system, but not less than 6".

See chart for minimum edge distance required.

Load per jamb =  $0.5 \times 10^{-5} \times 10$ 

Manufacturer's installation instructions must be followed.

8" CMU block walls shall comply with ASTM C90. Use minimum 2000 psi grout or concrete when filling CMU.

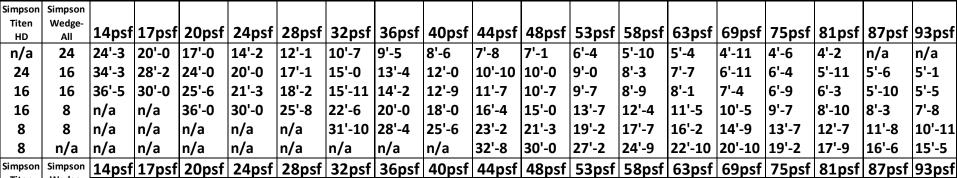
Fastener spacing distance may vary +/-1".



Filled CMU

480#

# DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)



Simpson Titen Wedge-All All FASTENER DIAMETER

2.75" 2.68" All All EDGE DISTANCE

Simpson Wedge-All All FASTENER DIAMETER

2.75" 2.68" EMBEDMENT LENGTH

EDGE DISTANCE

340# FASTENER LOAD CAPACITY

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These charts do not address spring pad connections to building. Alternative design may be approved by a registered professional engineer.

Supporting structural elements shall be designed by a registered professional engineer for wind loads in addition to other loads. This drawing does not address the wall design, but only door attachment. Wall construction is shown only for illustration purposes. The building designer is responsible for ensuring that the wall is sufficient to carry the door live and static loads.

SCALE none

OVERHEAD DOORS

CMILDIAL WALL

COMILDIAL WALL

COM

CMU Block Wall Attachment Detail

C.H.I. Drawing: BJA-104

-104 | Rev.-07

John E. Scates, P.E. 2560 King Arthur, Ste 124-54 Lewisville, TX 75056 Florida P.E. # 51737 TXPE 56308, F-2203

Professional Engineer's seal provided only for verification of windload construction details.

Anchor: ITW Tapcon or Tapcon LDT or Simpson Strong-Tie Wedge-All.

ITW Ramset/Redhead Tapcon, 1/4" diameter, 2" long (minimum)

ITW Ramset/Redhead Large Diameter Tapcon, 3/8" diameter, 2-3/4" long (minimum)

Simpson Wedge-All; 3/8" diameter x 2" long (minimum).

Use a fastener for every track bracket unless the quantity of fasteners determined from this chart is more than the quantity of track brackets specified on the door drawing.

Add track brackets as required to satisfy fastener spacing in these charts. Maximum spacing shown in chart.

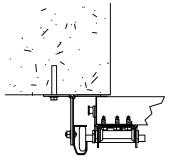
Lesser spacing may be used to avoid interference with door hardware and or fastening system, but not less than 6".

See chart for minimum edge distance required.

Concrete walls shall be minimum 2500 psi concrete and shall be of sufficient strength to resist loads.

Load per jamb =  $0.5 \times 10^{-5} \times 10$ 

Manufacturer's installation instructions must be followed.



		Wedge-	DOOR	OOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)																
1/4"	3/8"	All	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
24	36	24	24'-3	20'-0	17'-0	14'-2	12'-1	10'-7	9'-5	8'-6	7'-8	7'-1	6'-4	5'-10	5'-4	4'-11	4'-6	4'-2	n/a	n/a
24	36	22	26'-5	21'-9	18'-6	15'-5	13'-2	11'-7	10'-3	9'-3	8'-5	7'-8	6'-11	6'-4	5'-10	5'-4	4'-11	4'-6	4'-3	3'-11
24	36	20	29'-1	24'-0	20'-4	17'-0	14'-6	12'-9	11'-4	10'-2	9'-3	8'-6	7'-8	7'-0	6'-5	5'-10	5'-5	5'-0	4'-8	4'-4
24	36	18	32'-4	26'-8	22'-8	18'-10	16'-2	14'-2	12'-7	11'-4	10'-3	9'-5	8'-6	7'-9	7'-2	6'-6	6'-0	5'-7	5'-2	4'-10
24	36	16	36'-3	29'-10	25'-4	21'-2	18'-1	15'-10	14'-1	12'-8	11'-6	10'-7	9'-7	8'-9	8'-0	7'-4	6'-9	6'-3	5'-10	5'-5
22	34	15	n/a	31'-8	26'-11	22'-5	19'-3	16'-10	14'-11	13'-5	12'-3	11'-2	10'-2	9'-3	8'-6	7'-9	7'-2	6'-7	6'-2	5'-9
21	32	14	n/a	33'-8	28'-7	23'-10	20'-5	17'-10	15'-11	14'-3	13'-0	11'-11	10'-9	9'-10	9'-1	8'-3	7'-7	7'-0	6'-7	6'-1
19	30	13	n/a	35'-11	30'-6	25'-5	21'-9	19'-1	16'-11	15'-3	13'-10	12'-8	11'-6	10'-6	9'-8	8'-10	8'-1	7'-6	7'-0	6'-6
17	26	11	n/a	n/a	35'-3	29'-4	25'-2	22'-0	19'-7	17'-7	16'-0	14'-8	13'-3	12'-1	11'-2	10'-2	9'-4	8'-8	8'-1	7'-6
15	24	10	n/a	n/a	n/a	31'-9	27'-3	23'-10	21'-2	19'-1	17'-4	15'-11	14'-4	13'-2	12'-1	11'-0	10'-2	9'-5	8'-9	8'-2
13	20	8	n/a	n/a	n/a	n/a	32'-8	28'-7	25'-5	22'-11	20'-10	19'-1	17'-3	15'-9	14'-6	13'-3	12'-2	11'-3	10'-6	9'-10
10	16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	31'-9	28'-7	26'-0	23'-10	21'-7	19'-9	18'-2	16'-7	15'-3	14'-1	13'-2	12'-3
9	14	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	32'-8	29'-9			22'-6		18'-11		16'-2		14'-0
8	12	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	31'-9	28'-9	26'-3	24'-2	22'-1	20'-3	18'-9	17'-6	16'-4
ITW T	apcon	Simpson	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
		Strong- Tie	DOOR	WIDTH	d (feet	and inc	hes) at	a give	n DESIG	ON PRE	SSURE	(PSF)								

1/4"	3/8"	3/8"	FASTENER DIAMETER
1.75"	2.5"	2.68"	EMBEDMENT LENGTH
2.5"	3"	4"	EDGE DISTANCE
508#	764#	340#	FASTENER LOAD CAPACITY

**FASTENER SPACING** 

2500 psi concrete

**ITW Tapcon** 

Simpson

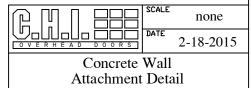
Strong-

Tie

3/8"

John E. Scates, P.E. 2560 King Arthur, Ste 124-54 Lewisville, Tx 75056 Florida P.E. # 51737 TXPE 56308, F-2203

Supporting structural elements shall be designed by a registered professional engineer for wind loads in addition to other loads. This drawing does not address the wall design, but only door attachment. Wall construction is shown only for illustration purposes. The building designer is responsible for ensuring that the wall is sufficient to carry the door live and static loads. This drawing does not address the spring pad connections. Registered professional engineer may approved an alternative design.



C.H.I. Drawing: BJA-105

Rev.-06

Professional Engineer's seal provided only for verification of windload construction details.

Place as many track brackets as necessary at an on-center (O.C.) spacing no greater than the distance shown on chart for appropriate pressure and width combination.

Refer to door drawing installation instructions for floor to first bracket spacing.

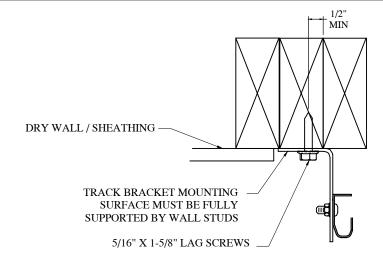
Field drilling of bracket attachment holes into the track will be required.

Lag screw: 5/16" diameter x 1-5/8" minimum long; must conform to ANSI/ASME B18.2.1

Lag screws must be seated in full height frame members.

1-1/2" minimum lag screw embedment into structural wood.

1/2" minimum lag screw edge distance required.



# MAX TRACK BRACKET SPACING (Inches) FOR DOOR WIDTH vs DESIGN PRESSURE FOR SPRUCE-PINE-FIR

WIDTH		DESIGN PRESSURE IN POUNDS PER SQUARE FEET														
IN FEET	12 PSF	15 PSF	18 PSF	21 PSF	24 PSF	27 PSF	30 PSF	33 PSF	36 PSF	39 PSF	42 PSF	46 PSF	50 PSF	53 PSF		
≤ 7'	28"	28"	28"	28"	28"	28"	28"	28"	28"	25"	24"	21"	20"	19"		
8'	28"	28"	28''	28''	28"	28"	28"	26''	24''	22"	21"	19"	17''	16"		
9'	28"	28"	28''	28''	28"	28"	26"	23"	21"	20"	18"	17"	15''	14"		
10'	28"	28"	28''	28''	28"	26"	23"	21"	19''	18''	16"	15''	14"	13"		
12'	28"	28"	28''	28''	24"	21"	19"	17''	16''	15''	14"	12"	11"	11"		
14'	28"	28"	28''	24''	21"	18"	16''	15''	14''	12"	12"	10"	10"	9''		
15'	28"	28"	26''	22"	19''	17''	15''	14''	13''	12"	11"	10"	9''	8''		
16'	28"	28"	24''	21''	18''	16"	14"	13"	12''	11"	10"	9''	8''	8''		
18'	28''	26"	21''	18''	16''	14"	13"	11"	10''	10''	9''	8''	7''	7''		
20'	28"	23"	19''	16''	14"	13"	11"	10''	9"	9''	8"	7''	7''	6"		

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For door jambs Spruce Pine Fir (SPF), specific gravity = 0.42 or better; max load per anchor = 67% of 439 pounds.

Maximum load per jamb =  $0.5 \times (door height) \times (door width) \times (maximum positive pressure)$ 

Alternative design may be approved by a licensed professional engineer.

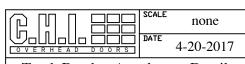
Supporting structural elements shall be designed by a licensed professional engineer for wind loads in addition to other loads.

The suitability of the structural building components must be verified by the engineer of record for the building.

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TXPE 56308, F-2203

Professional Engineer's seal provided only for verification of windload construction details.



Track Bracket Attachment Detail Spruce Pine Fir (SPF) Jambs

C.H.I. Drawing: BJA-106 | Rev.-04