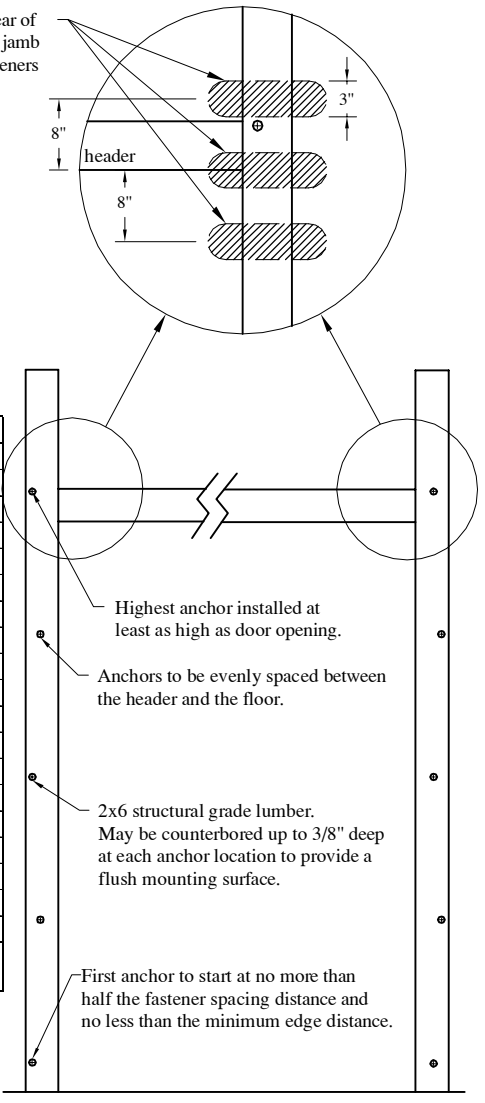
Anchor: ITW Tapcon or Tapcon LDT or Simpson Strong-Tie.
ITW Ramset/ Redhead Tapcon, 1/4" diameter, minimum 3.5" long with washer that conforms to ANSI B18.22.1 type B.
ITW Ramset/ Redhead Large Diameter Tapcon, 3/8" diameter, minimum 4" long with washer that conforms to ANSI B18.22.1 type B.
Simpson 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)						DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)															
2500 psi concrete				Filled CMU																	
ITW Tapcon				Simpson Strong-Tie																	
1/4"	1/4"	3/8"	3/8	3/8"	3/8"	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
24	24	24	24	24	24	22'-9	18'-9	15'-11	13'-3	11'-4	9'-11	8'-10	7'-11	7'-3	6'-7	6'-0	5'-6	5'-0	4'-7	4'-3	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	20	24	24	24	16	26'-6	21'-9	18'-6	15'-5	13'-3	11'-7	10'-3	9'-3	8'-5	7'-8	7'-0	6'-4	5'-10	5'-4	4'-11	4'-6	4'-3	3'-11
24	18	24	22	24	16	28'-10	23'-9	20'-2	16'-10	14'-5	12'-7	11'-2	10'-1	9'-2	8'-5	7'-7	6'-11	6'-5	5'-10	5'-4	4'-11	4'-7	4'-4
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
24	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
22	13	24	16	16	8	n/a	32'-3	27'-5	22'-10	19'-7	17'-1	15'-2	13'-8	12'-5	11'-5	10'-4	9'-5	8'-8	7'-11	7'-3	6'-9	6'-3	5'-10
21	13	24	15	16	8	n/a	33'-10	28'-9	24'-0	20'-6	18'-0	16'-0	14'-4	13'-1	12'-0	10'-10	9'-11	9'-1	8'-4	7'-8	7'-1	6'-7	6'-2
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	n/a	n/a	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
16	10	24	11	8	8	n/a	n/a	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	9'-4	8'-9	8'-2
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
12	7	20	9	8	8	n/a	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
11	7	20	8	8	8	n/a	n/a	n/a	n/a	n/a	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
10	6	17	7	8	n/a	n/a	n/a	n/a	n/a	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
9	n/a	16	6	8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	32'-0	29'-1	26'-8	24'-1	22'-0	20'-3	18'-6	17'-0	15'-9	14'-8	13'-9
8	n/a	13	6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	30'-11	28'-0	25'-7	23'-6	21'-6	19'-9	18'-3	17'-0	15'-11
n/a	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	32'-4	29'-7	27'-3	24'-10	22'-10	21'-2	19'-8	18'-5
2500 psi concrete				Filled CMU		14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
ITW Tapcon		ITW LDT		Titen HD	Wedge-All	DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)																	
1/4"	1/4"	3/8"	3/8"	3/8"	3/8"	FASTENER DIAMETER																	
1.75"	1.75"	2.5"	2.5"	2.75"	2.68"	EMBEDMENT LENGTH																	
1-1/8"	7/8"	1-1/2"	1"	1-1/8"	1-1/8"	WASHER DIAMETER																	
2-1/2"	2-1/2"	3"	3"	4"	4"	EDGE DISTANCE																	
508#	319#	859#	371#	480#	340#	FASTENER LOAD CAPACITY																	

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.

Manufacturer's installation instructions must be followed.
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".
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".

Digitally signed by John E. Scates, P.E.
Date: 2017.04.26 11:51:48 -05'00'

John E. Scates, P.E.
3121 Fairgate Drive
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Professional Engineer's seal provided only for verification of windload construction details.

C.H.I. OVERHEAD DOORS

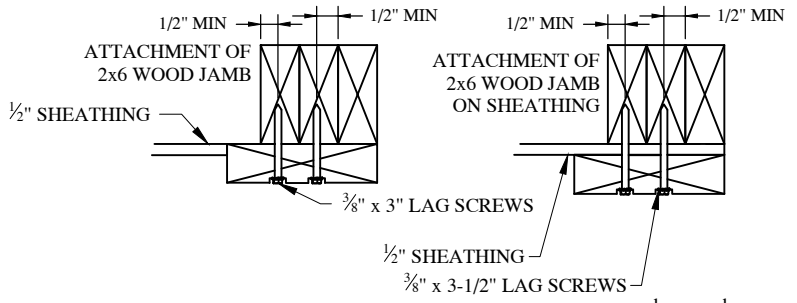
SCALE none

DATE 2-18-2015

Back Jamb Attachment Detail Concrete Anchors

C.H.I. Drawing: BJA-101 | Rev.-07

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)

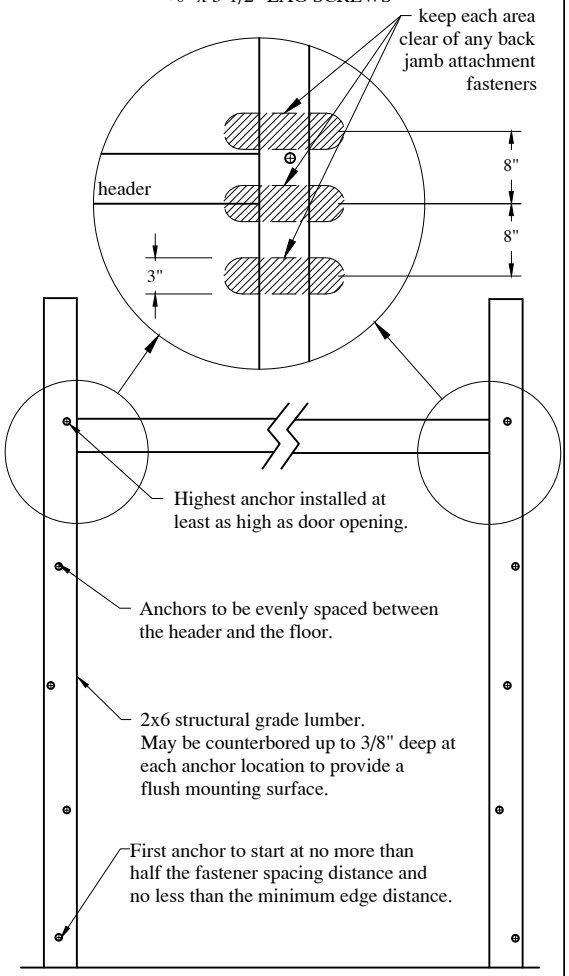
MAX LAG SCREW SPACING (Inches) FOR DOOR WIDTH (max) vs DESIGN PRESSURE

MAX WIDTH	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
≤ 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"

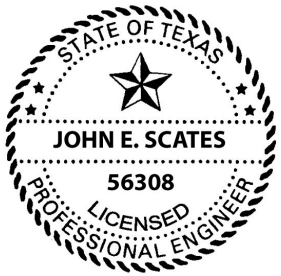
Southern Pine (SP)

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



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

John E. Scates, P.E.
3121 Fairgate Drive
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C.H.I. OVERHEAD DOORS

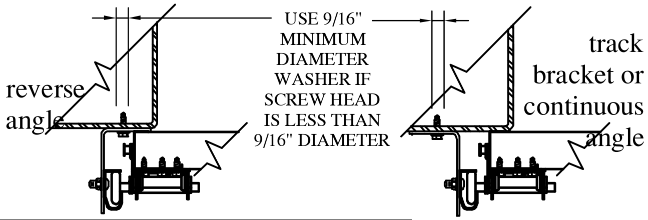
SCALE none

DATE 4-25-2017

Back Jamb Attachment Detail
Lag Screw

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

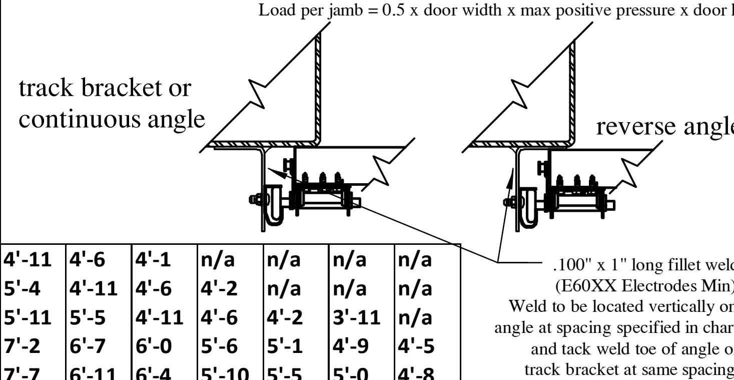
Self tapping screws (with steel)



Screw: 1/4" dia x 3/4" self tapping screw; must conform to ANSI/ASME B18.2.1.
3/16" steel Jambs; allowable load per screw= 444 lbs.
Allowable load per screw; 12 gauge = 209 lbs,14 gauge = 143 lbs, and 16 gauge = 110 lbs.
Optional Washer: 9/16" O.D. minimum; must conform to ANSI B18.22.1 type A.
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 3/16" 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 x door width x max positive pressure x door height



ATTACHMENT SPACING (inches)						DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)																	
SCREWS	SCREWS	SCREWS	WELDS	SCREWS	WELDS																		
16 ga jamb	14 ga jamb	12 ga jamb	12 ga jamb	3/16" jamb	3/16" jamb	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf							
24	31	36	36	36	36	7'-10	6'-5	5'-6	4'-7	3'-11	3'-5	3'-0	n/a	n/a	n/a	n/a							
20	26	36	36	36	36	9'-5	7'-9	6'-7	5'-6	4'-8	4'-1	3'-8	n/a	n/a	n/a	n/a							
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							
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							
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							
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							
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	3'-11	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	40'-10	33'-7	28'-7	23'-10	20'-5	17'-10	15'-10	14'-3	13'-0	11'-11	10'-9	9'-10	9'-0	8'-3	7'-7	7'-0	6'-6	6'-1
n/a	5	7	36	16	36	n/a	39'-2	33'-3	27'-9	23'-9	20'-9	18'-6	16'-7	15'-1	13'-10	12'-6	11'-5	10'-6	9'-7	8'-10	8'-2	7'-7	7'-1
n/a	n/a	6	36	12	36	n/a	n/a	41'-9	34'-10	29'-10	26'-1	23'-2	20'-10	19'-0	17'-5	15'-9	14'-4	13'-3	12'-1	11'-1	10'-3	9'-7	8'-11
n/a	n/a	5	32	11	32	n/a	n/a	n/a	39'-9	34'-0	29'-9	26'-6	23'-10	21'-8	19'-10	18'-0	16'-5	15'-1	13'-9	12'-8	11'-9	10'-11	10'-3
n/a	n/a	n/a	30	10	30	n/a	n/a	n/a	n/a	36'-4	31'-9	28'-3	25'-5	23'-1	21'-2	19'-2	17'-6	16'-1	14'-8	13'-6	12'-6	11'-8	10'-11
n/a	n/a	n/a	26	9	26	n/a	n/a	n/a	n/a	n/a	36'-8	32'-7	29'-4	26'-8	24'-5	22'-1	20'-2	18'-7	17'-0	15'-7	14'-5	13'-5	12'-7
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	26'-6	24'-0	21'-11	20'-2	18'-5	16'-11	15'-8	14'-7	13'-8
n/a	n/a	n/a	16	5	16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	32'-10	30'-3	27'-7	25'-5	23'-6	21'-11	20'-6
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 jamb	14 ga jamb	12 ga jamb	12 ga jamb	3/16" jamb	3/16" jamb	DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)																	
ATTACHMENT SPACING (inches)																							
110#	143#	209#	1272#	444#	1272#																		
ALLOWABLE LOAD PER SCREW (pounds)																							

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.

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STATE OF TEXAS
JOHN E. SCATES
56308
LICENSED
PROFESSIONAL ENGINEER

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

C.H.I. OVERHEAD DOORS

SCALE	none
DATE	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".

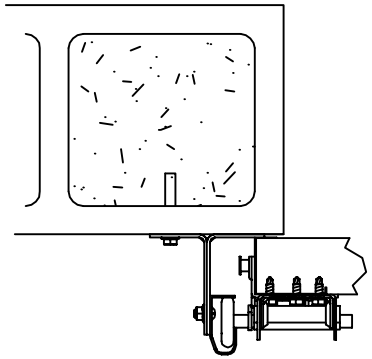
See chart for minimum edge distance required.

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

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".



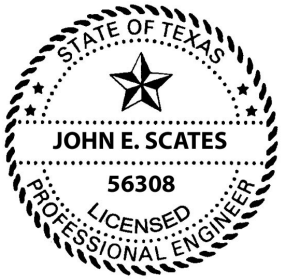
FASTENER SPACING (inches) Filled CMU		DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)																	
Simpson Titen HD	Simpson Wedge-All	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
n/a	24	24'-3	20'-0	17'-0	14'-2	12'-1	10'-7	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	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
16	16	36'-5	30'-0	25'-6	21'-3	18'-2	15'-11	14'-2	12'-9	11'-7	10'-7	9'-7	8'-9	8'-1	7'-4	6'-9	6'-3	5'-10	5'-5
16	8	n/a	n/a	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
8	8	n/a	n/a	n/a	n/a	n/a	31'-10	28'-4	25'-6	23'-2	21'-3	19'-2	17'-7	16'-2	14'-9	13'-7	12'-7	11'-8	10'-11
8	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	32'-8	30'-0	27'-2	24'-9	22'-10	20'-10	19'-2	17'-9	16'-6	15'-5
Simpson Titen HD	Simpson Wedge-All	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
		DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)																	
3/8"	3/8"	FASTENER DIAMETER																	
2.75"	2.68"	EMBEDMENT LENGTH																	
4"	4"	EDGE DISTANCE																	
480#	340#	FASTENER LOAD CAPACITY																	

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.



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

C.H.I. OVERHEAD DOORS

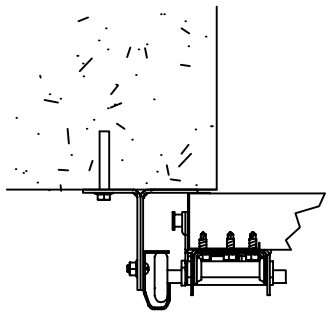
SCALE none

DATE 2-18-2015

CMU Block Wall Attachment Detail

C.H.I. Drawing: BJA-104 | Rev.-07

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 x door width x max positive pressure x door height.
Manufacturer's installation instructions must be followed.



FASTENER SPACING 2500 psi concrete

ITW Tapcon		Simpson Strong-Tie	DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)																
1/4"	3/8"	3/8" Wedge-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	27'-3	24'-8	22'-6	20'-9	18'-11	17'-5	16'-2	15'-0	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 Tapcon		Simpson Strong-Tie	14psf	17psf	20psf	24psf	28psf	32psf	36psf	40psf	44psf	48psf	53psf	58psf	63psf	69psf	75psf	81psf	87psf	93psf
			DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (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																	

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.

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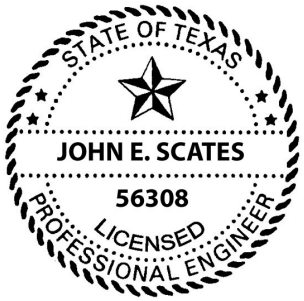


Professional Engineer's seal provided only for verification of windload construction details.

C.H.I. OVERHEAD DOORS

SCALE none

DATE 2-18-2015

Concrete Wall Attachment Detail

C.H.I. Drawing: BJA-105 | Rev.-06

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.

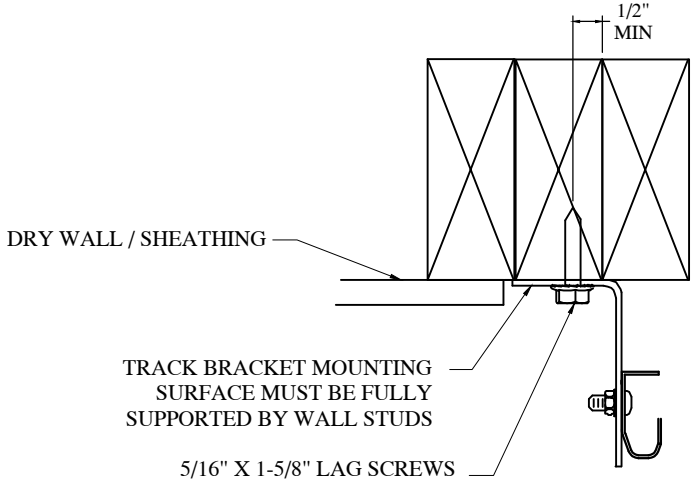
Field drilling of bracket attachment holes into the track will be required.

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"

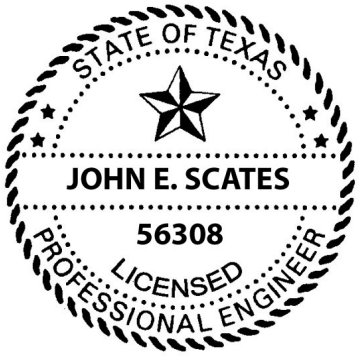
For door jambs Spruce Pine Fir (SPF), specific gravity = 0.42 or better; max load per anchor = 67% of 439 pounds.

Maximum load per jamb = 0.5 x (door height) x (door width) x (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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C.H.I. OVERHEAD DOORS

SCALE none

DATE 4-20-2017

Track Bracket Attachment Detail
Spruce Pine Fir (SPF) Jambs

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