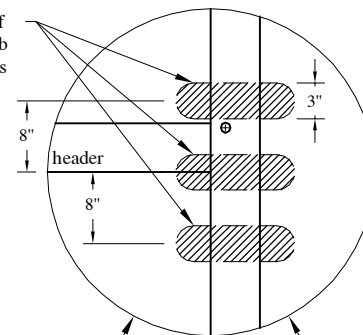
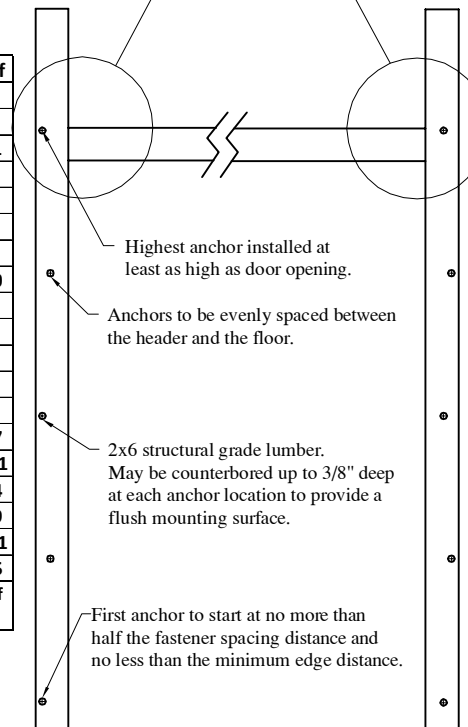


Anchor: ITW Tapcon or Tapcon LDT or Simpson Strong-Tie.  
 ITW Ramset/ Redhead Tapcon, 1/4" diameter, minimum 3.5" long with washer that conforms to ANSI B18.22.1 type B.  
 ITW Ramset/ Redhead Large Diameter Tapcon, 3/8" diameter, minimum 4" long with washer that conforms to ANSI B18.22.1 type B.  
 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 jams 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.

keep each area clear of any back jamb attachment fasteners



| FASTENER SPACING (inches) |      |      |      |      |                    |         |         |         |         |   |         |         |        |         |         |         |        |         |         |        |        |        |         |       |       |       |       |
|---------------------------|------|------|------|------|--------------------|---------|---------|---------|---------|---|---------|---------|--------|---------|---------|---------|--------|---------|---------|--------|--------|--------|---------|-------|-------|-------|-------|
| 2500 psi concrete         |      |      |      |      |                    |         |         |         |         | Filled CMU  |         |         |        |         |         |         |        |         |         |        |        |        |         |       |       |       |       |
| ITW Tapcon                |      |      |      |      | Simpson Strong-Tie |         |         |         |         | DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF) |         |         |        |         |         |         |        |         |         |        |        |        |         |       |       |       |       |
| 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   | 32'-0"  | 28'-9"  | 26'-2" | 24'-0"  | 21'-8"  | 19'-10" | 18'-3" | 16'-8"  | 15'-4"  | 14'-2" | 13'-2" | 12'-4" | 11'-7"  |       |       |       |       |
| 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     | 32'-4"  | 29'-7"  | 27'-3" | 24'-10" | 22'-10" | 21'-2" | 19'-8" | 18'-5" | 17'-5"  |       |       |       |       |
| 2500 psi concrete         |      |      |      |      | Filled CMU         |         |         |         |         | 14psf   | 17psf   | 20psf   | 24psf  | 28psf   | 32psf   | 36psf   | 40psf  | 44psf   | 48psf   | 53psf  | 58psf  | 63psf  | 69psf   | 75psf | 81psf | 87psf | 93psf |



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".

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

|   |       |           |
|---|-------|-----------|
|   | SCALE | none      |
|   | DATE  | 2-18-2015 |
| <b>Back Jamb Attachment Detail</b><br><b>Concrete Anchors</b> |       |           |
| 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)**

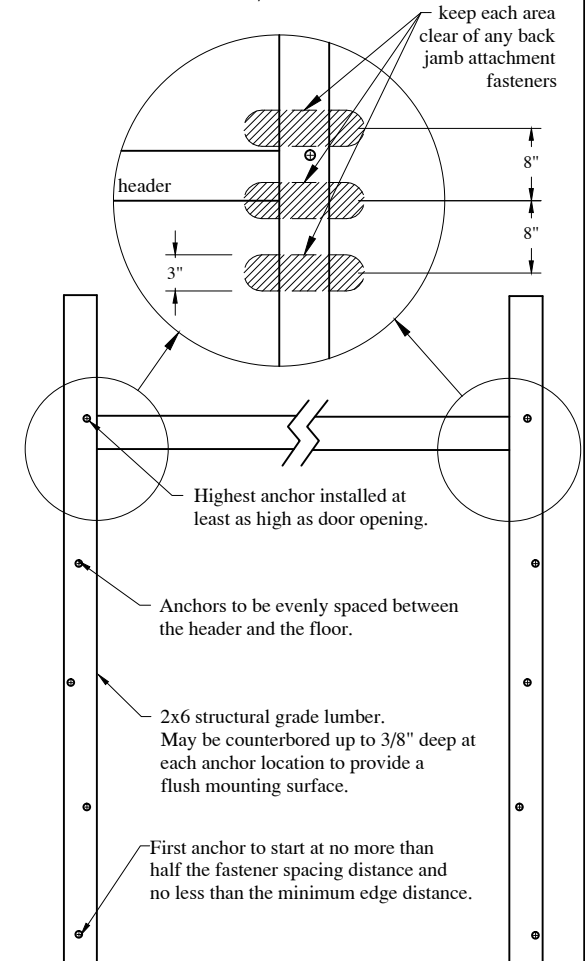
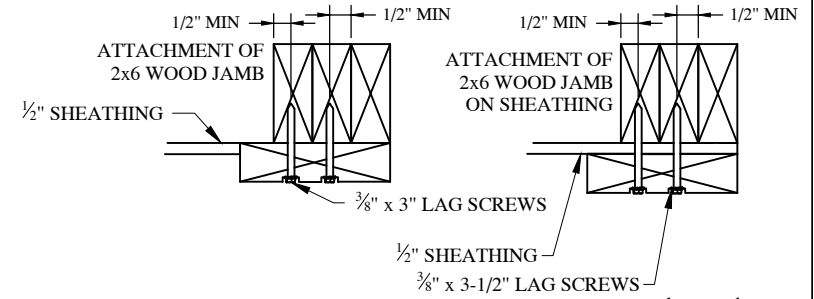
**MAX LAG SCREW SPACING (Inches) FOR DOOR WIDTH (max) vs DESIGN PRESSURE**

| MAX WIDTH<br>IN FEET | DESIGN PRESSURE IN POUNDS-PER-SQUARE-FOOT (PSF) |        |        |        |        |        |        |        |        |        |        |        |        |        |
|----------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 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<br>IN FEET | DESIGN PRESSURE IN POUNDS-PER-SQUARE-FOOT (PSF) |        |        |        |        |        |        |        |        |        |        |        |        |        |
|----------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                      | 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.

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

|  |       |           |
|--|-------|-----------|
|  | SCALE | none      |
|  | DATE  | 4-25-2017 |
| <b>Back Jamb Attachment Detail</b><br><b>Lag Screw</b> |       |           |
| C.H.I. Drawing: BJA-102                                |       | Rev.-06   |



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".

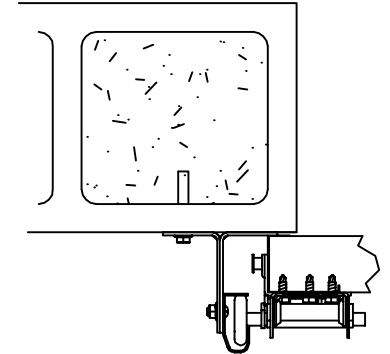
See chart for minimum edge distance required.

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" FASTENER DIAMETER**

**2.75" EMBEDMENT LENGTH**

**4" EDGE DISTANCE**

**480# 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.

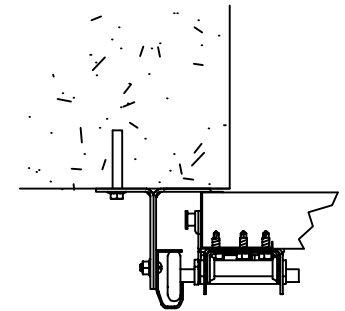
This drawing does not address the wall design, but only door attachment. Wall construction is shown only for illustration purposes. The building designer is responsible for ensuring that the wall is sufficient to carry the door live and static loads.

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

|   |       |           |
|---|-------|-----------|
|   | SCALE | none      |
|   | DATE  | 2-18-2015 |
| <b>CMU Block Wall Attachment Detail</b> |       |           |
| 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**

|             |             |                       |
|-------------|-------------|-----------------------|
| <b>1/4"</b> | <b>3/8"</b> | <b>3/8" Wedge-All</b> |
| 24          | 36          | 24                    |
| 24          | 36          | 22                    |
| 24          | 36          | 20                    |
| 24          | 36          | 18                    |
| 24          | 36          | 16                    |
| 22          | 34          | 15                    |
| 21          | 32          | 14                    |
| 19          | 30          | 13                    |
| 17          | 26          | 11                    |
| 15          | 24          | 10                    |
| 13          | 20          | 8                     |
| 10          | 16          | n/a                   |
| 9           | 14          | n/a                   |
| 8           | 12          | n/a                   |

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

| 14psf  | 17psf   | 20psf   | 24psf   | 28psf  | 32psf   | 36psf   | 40psf   | 44psf   | 48psf   | 53psf  | 58psf  | 63psf   | 69psf  | 75psf  | 81psf  | 87psf  | 93psf  |
|--------|---------|---------|---------|--------|---------|---------|---------|---------|---------|--------|--------|---------|--------|--------|--------|--------|--------|
| 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    |
| 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" |
| 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"  |
| 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" |
| 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"  |
| 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"  |
| 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"  |
| 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"  |
| 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"  |
| 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"  |
| 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" |
| 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" | 12'-3" |
| 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" | 14'-0" |
| 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 |
|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|--------|-------|--------|-------|-------|-------|-------|
| 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   |

|              |             |              |
|--------------|-------------|--------------|
| <b>1/4"</b>  | <b>3/8"</b> | <b>3/8"</b>  |
| <b>1.75"</b> | <b>2.5"</b> | <b>2.68"</b> |
| <b>2.5"</b>  | <b>3"</b>   | <b>4"</b>    |
| <b>508#</b>  | <b>764#</b> | <b>340#</b>  |

|  |
|--|
| <b>DOOR WIDTH (feet and inches) at a given DESIGN PRESSURE (PSF)</b> |
| <b>FASTENER DIAMETER</b>   |
| <b>EMBEDMENT LENGTH</b>  |
| <b>EDGE DISTANCE</b>   |
| <b>FASTENER LOAD CAPACITY</b>  |

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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 Florida P.E. # 51737  
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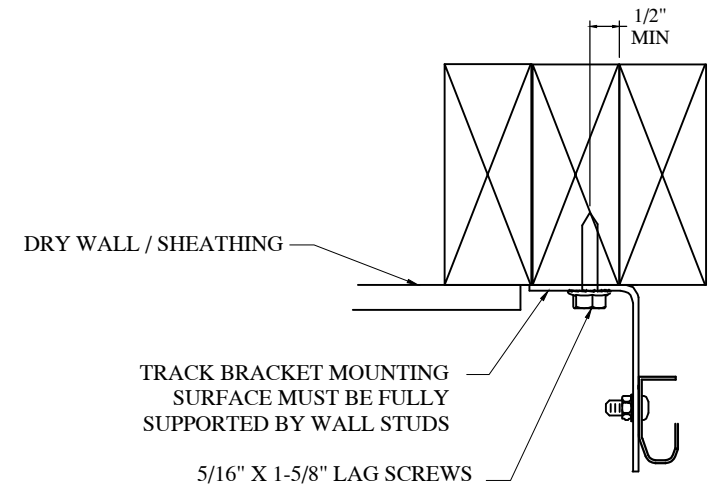
|  |       |           |
|--|-------|-----------|
|  | SCALE | none      |
|  | DATE  | 2-18-2015 |

**Concrete Wall Attachment Detail**

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

|                         |         |
|-------------------------|---------|
| 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<br>IN FEET | DESIGN PRESSURE IN POUNDS PER SQUARE 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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Professional Engineer's seal provided only for  
 verification of windload construction details.

|   |       |           |
|---|-------|-----------|
|   | SCALE | none      |
|   | DATE  | 4-20-2017 |
| <b>Track Bracket Attachment Detail<br/>         Spruce Pine Fir (SPF) Jambs</b> |       |           |
| C.H.I. Drawing: BJA-106   |       | Rev.-04   |