When applying back jambs over dry wall or other non-structrual wall covering, use longer fasteners to insure minimum embedment required.
This chart applies to 2x6 wood species with specific gravity of 0.55 (Southern Pine) or better.
Each anchor requires a 1-1/2" diameter washer that complies with ANSI B18.22.1 type B.

**2500 PSI CONCRETE**

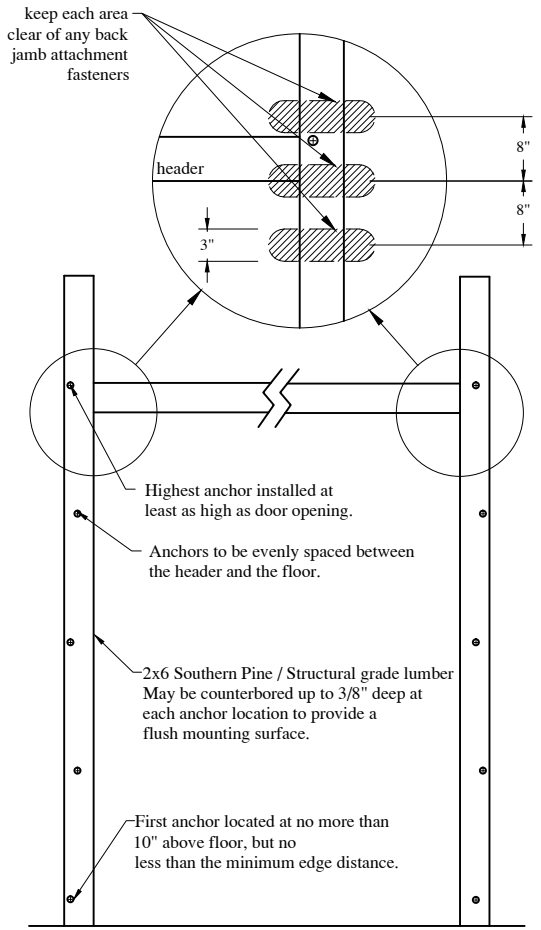
| | |
|---|---|
| 3/8" DeWALT Screw-Bolt+ | Embed 3.5", Min Edge Dist 3.5", Min spacing 9" |
| 3/8" POWERS Wedge-Bolt+ | Embed 3.5", Min Edge Dist 3.5", Min spacing 9" |
| 3/8" Hilti KwikBolt3 | Embed 2.5", Min Edge Dist 3", Min spacing 6" |

| 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" | 24" | 24" |
| 12' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 14' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 15' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 16' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 18' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 20' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 22' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 24' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 23" | 22" |
| 26' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 23" | 21" | 20" |
| 30' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 23" | 22" | 20" | 18" | 17" |

**CMU FILLED W/ 2000 PSI GROUT**

| | |
|---|---|
| 3/8" DeWALT Screw-Bolt+ | Embed 3.25", Min Edge Dist 1.5", Min spacing 3" |
| 3/8" Hilti KwikBolt3 | Embed 2.5", Min Edge Dist 4", Min spacing 8" |

| 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" | 24" | 24" |
| 12' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| 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" | 24" | 22" | 20" | 19" |
| 16' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 22" | 20" | 19" | 18" |
| 18' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 23" | 21" | 20" | 18" | 17" | 16" |
| 20' | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 23" | 21" | 19" | 18" | 16" | 15" | 14" |
| 22' | 24" | 24" | 24" | 24" | 24" | 24" | 23" | 21" | 19" | 18" | 16" | 15" | 14" | 13" |
| 24' | 24" | 24" | 24" | 24" | 24" | 23" | 21" | 19" | 17" | 16" | 15" | 14" | 13" | 12" |
| 26' | 24" | 24" | 24" | 24" | 24" | 21" | 19" | 18" | 16" | 15" | 14" | 13" | 12" | 11" |
| 30' | 24" | 24" | 24" | 24" | 21" | 19" | 17" | 15" | 14" | 13" | 12" | 11" | 10" | 9" |




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 8".
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.
Fastener spacing distance may vary +/-1".

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C.H.I. OVERHEAD DOORS

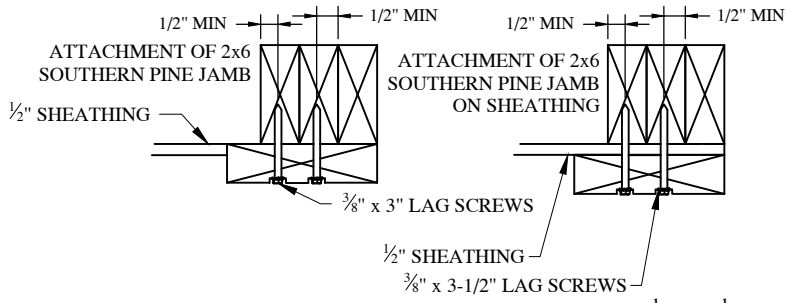
SCALE none

DATE 03-26-2020

# Back Jamb Attachment Detail Concrete Anchors

C.H.I. Drawing: BJA-101R8

Use Southern Pine table only if both structure and jamb are Southern Pine.
Use (SPF) table if the structure is Spruce-Pine-Fir or unknown, 2x6 jambs must always be Southern Pine.
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 on 2x6.




## Spruce-Pine-Fir (SPF) STRUCTURE

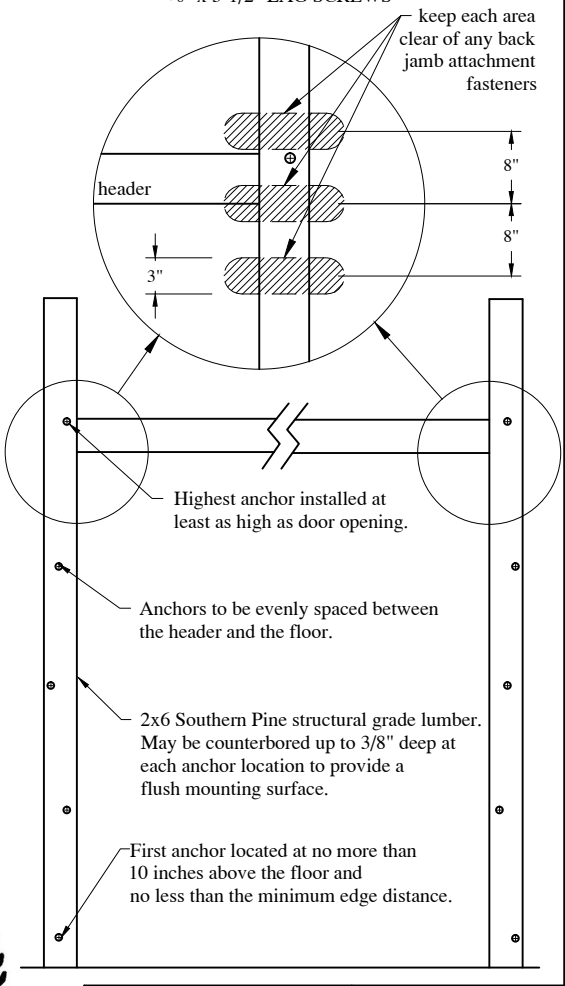
### MAX LAG SCREW SPACING (Inches) FOR DOOR WIDTH (max) vs DESIGN PRESSURE

| 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" |

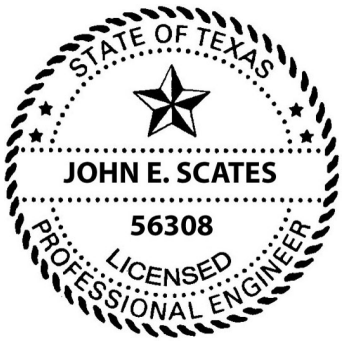
## Southern Pine (SP) STRUCTURE

### 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
Spruce-Pine-Fir (SPF) specific gravity = 0.42
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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C.H.I. OVERHEAD DOORS

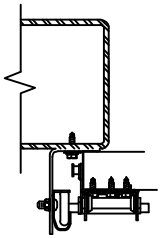
SCALE none

DATE 03-26-2020

Back Jamb Attachment Detail
Lag Screw

C.H.I. Drawing: BJA-102R7

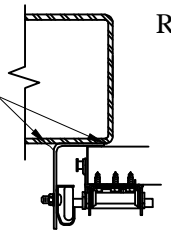
## Self tapping screws (with steel) Reverse Angle Only



Screw: 1/4" dia x 3/4" self tapping screw; must conform to ANSI/ASME B18.2.1.
Washer: 9/16" O.D. minimum; must conform to ANSI B18.22.1 type A.
Lowest fastener to be within 10-inches of the floor
For 3/16 jambs, locate screws as shown on door drawing.
For 12ga jambs, use (2) screws at each location shown on door drawing.
Add holes to continuous angle as required to satisfy fastener quantity.
This document does not address spring pad connections to the building.

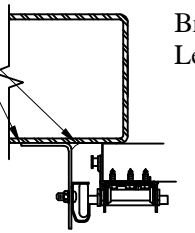
## .100" x 1" fillet welds

### Reverse Angle



.100" x 1" long fillet weld (E60XX Electrodes Min). Weld to be located vertically on heel of angle and toe of angle at same locations as jamb brackets on door drawing.

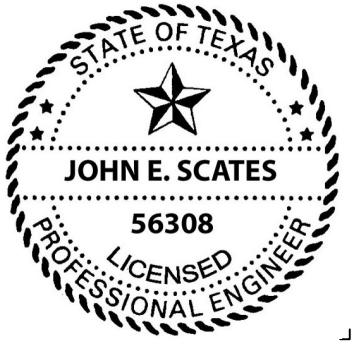
### Bracket Mount or Leg Out Angle



.100" x 1" long fillet weld (E60XX Electrodes Min). Weld to be located vertically on heel of angle and toe of angle at same locations as jamb brackets on door drawing.

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.
Locate welds in same location as jamb brackets on door drawing.

Minimum of 3 welds per jamb allowed.
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.
This document does not address spring pad connections to the building.

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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 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.

C.H.I. OVERHEAD DOORS

SCALE none

DATE 3-26-2020

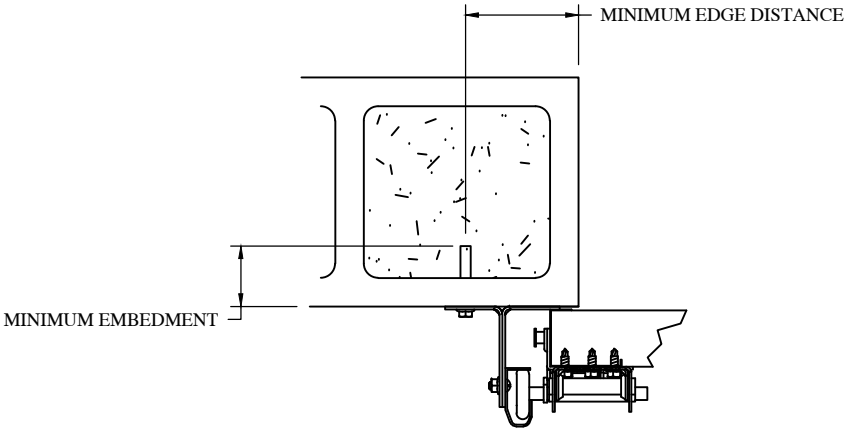
# Steel Attachment Detail

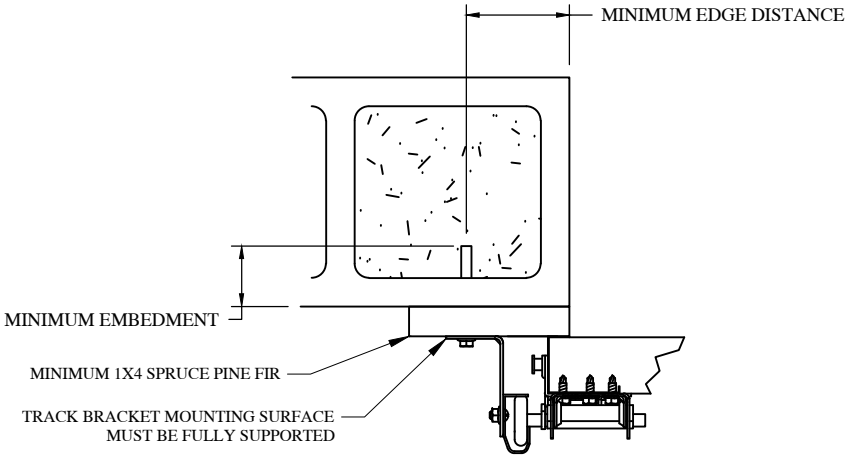
C.H.I. Drawing: BJA-103R8

3/8" DeWALT Screw-Bolt+ Minimum Embedment 3.25", Minimum Edge Distance 1.5", Minimum spacing 3"
3/8" Hilti KwikBolt3 Minimum Embedment 2.5", Minimum Edge Distance 4", Minimum spacing 8",
Hilti KwikBolt3 not applicable when minimum track bracket spacing is less than 8". If expansion anchors are required, see wall buck mounting instruction BJA-101.

Locate anchors as shown on door drawing.
Lowest anchor to be greater than the minimum edge distance up from the floor and less than 10-inches from the floor.
Load per jamb = 0.5 x door width x max positive pressure x door height
This document does not address spring pad connections to the building.

8" CMU block walls shall comply with ASTM C-90 and shall be filled with minimum 2000 psi grout or concrete.
Move track brackets up or down up to 1-1/2" to avoid installing anchors into grout lines

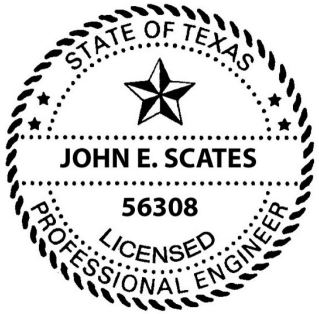



Alternative design may be approved by a registered professional engineer.

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 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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C.H.I. OVERHEAD DOORS

SCALE none

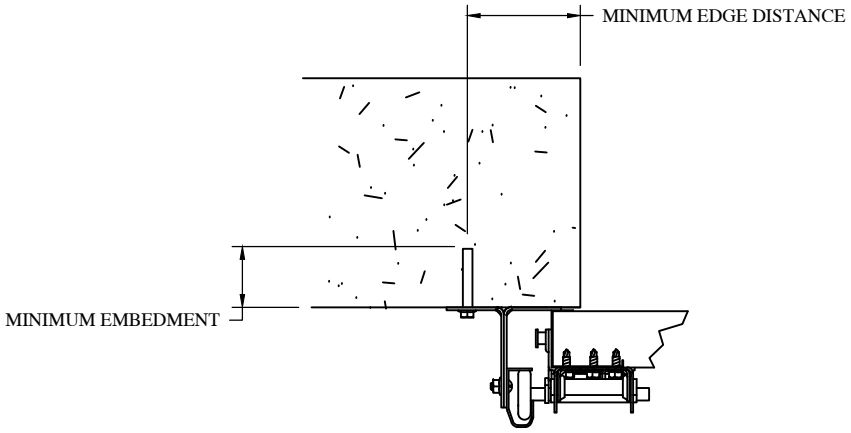
DATE 03-26-2020

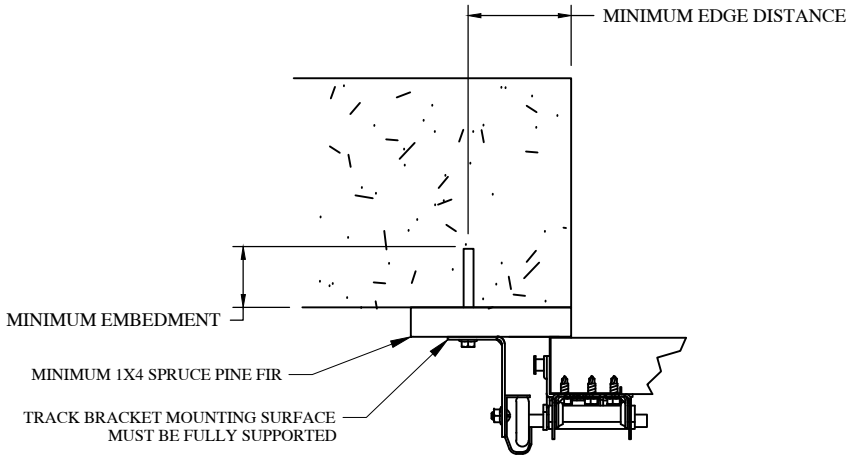
# CMU Block Wall Attachment Detail

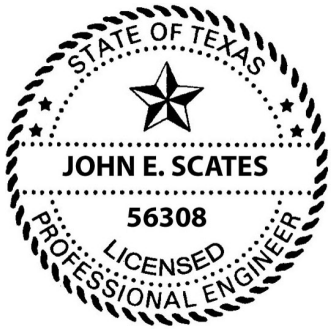
C.H.I. Drawing: BJA-104R8

1/4" Tapcon+ (PLUS) Minimum Embedment 2.0", Minimum Edge Distance 1.63", Minimum spacing 3"
1/4" Hilti KwikBolt3 Minimum Embedment 2.0", Minimum Edge Distance 2.63", Minimum spacing 6",
Hilti KwikBolt3 not applicable when minimum track bracket spacing is less than 6". If expansion anchors are required, see wall buck mounting instruction BJA-101.
Each anchor requires a minimum 9/16" O.D. washer that conforms to ANSI B18.22.1 type A
Locate anchors as shown on door drawing.
Lowest anchor to be greater than the minimum edge distance up from the floor and less than 10-inches from the floor.
Load per jamb = 0.5 x door width x max positive pressure x door height
This document does not address spring pad connections to the building.

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

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

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 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.

C.H.I. OVERHEAD DOORS

SCALE none

DATE 03-26-2020

# Concrete Wall Attachment Detail

C.H.I. Drawing: BJA-105R7

Refer to door drawing installation instructions for bracket spacing.

To avoid splitting wood, drill pilot holes with 3/16" sized drill bit.

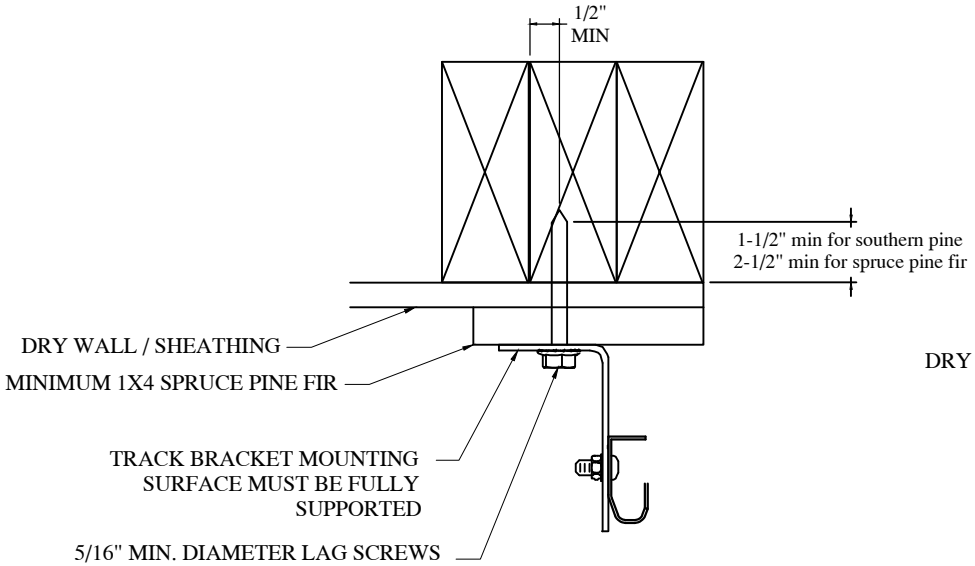
Lag screws must conform to ANSI/ASME B18.2.1:
use 5/16" diameter x 1-5/8" minimum long when mounting directly to 2x4 southern pine jambs,
longer lag screws required when mounting through wood and drywall or directly to spruce-pine-fir;

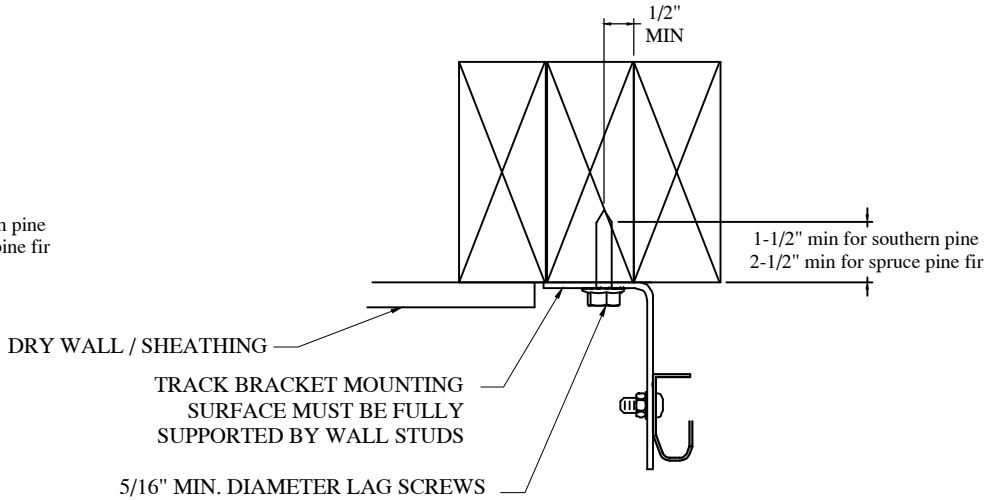
1-1/2" minimum lag screw embedment into southern pine.

2-1/2" minimum lag screw embedment into spruce-pine-fir.

1/2" minimum lag screw edge distance required.

Lag screws must be seated in full height frame members.




For door jambs structural southern pine (SP), specific gravity = 0.55 or better;
spruce-pine-fir (SPF), specific gravity = 0.42 or better.

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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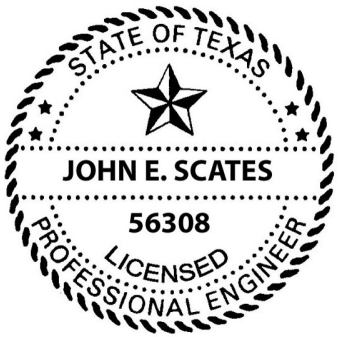


Professional Engineer's seal provided only for verification of windload construction details.

C.H.I. OVERHEAD DOORS

SCALE none

DATE 03-26-2020

# Track Bracket Attachment Detail Wood Jambs

C.H.I. Drawing: BJA-106R5