

Section A-A

Section B-B

Section C-C

Top Section

Intermediate Sections

Bottom Section

Astragal Retainer

Ubar

Window may be located in section #3 or higher.

Top Fixture See detail on sheet 4

Center Hinge See detail on sheet 4

Edge Hinge See detail on sheet 4

Spring Counterbalance Spring wire individually calculated to counterbalance door. Quantity and size of spring will vary based on door size.

Windows (Optional) One row maximum 24" x 12" shown 24" x 8" available

Steel Reinforcement (1) Ubar per section, fastened to all center and end stiles using (2) self-drilling screws at each stile.

Embedded Hardware Strips

Locks required on doors not electrically operated.

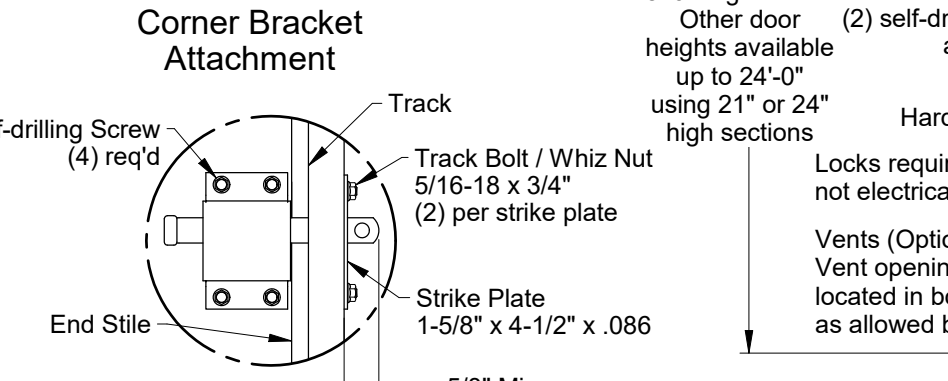
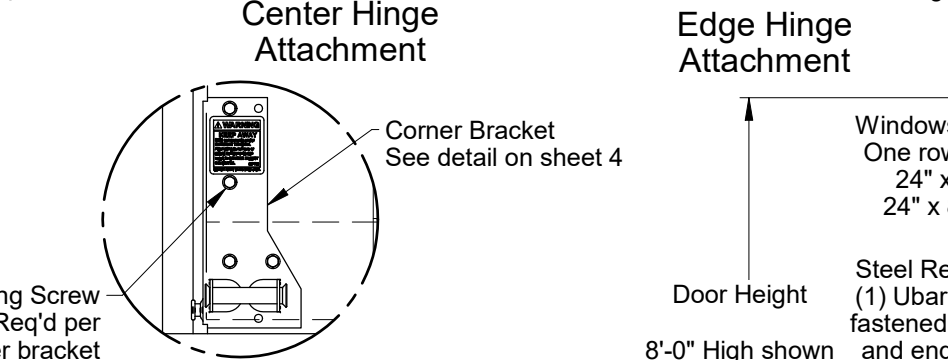
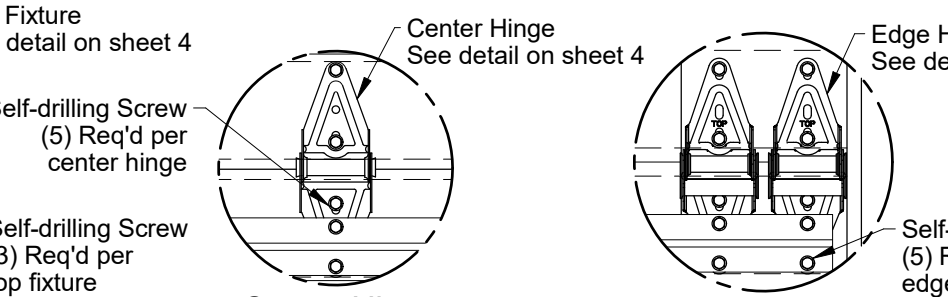
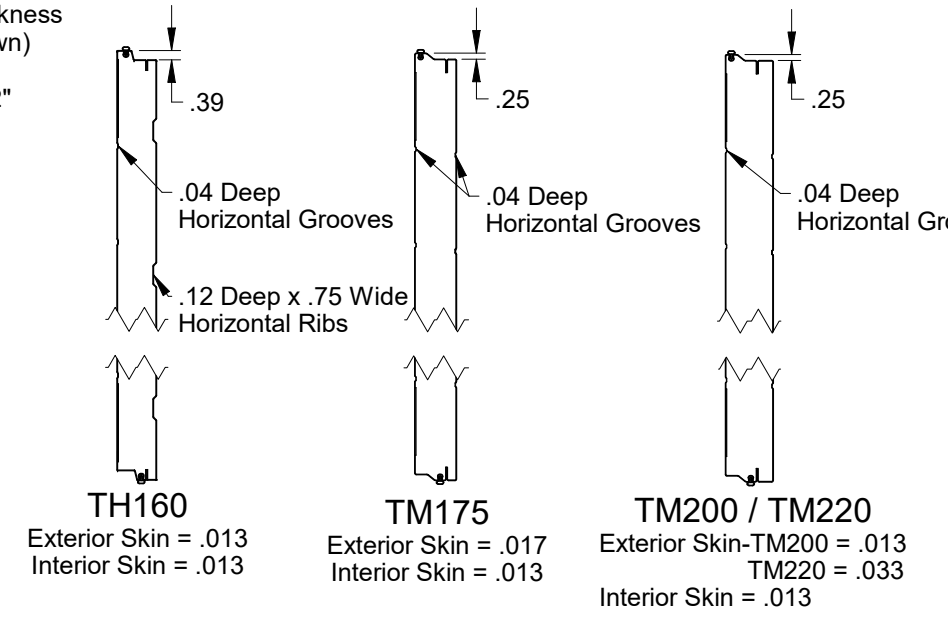
Vents (Optional) Vent openings may be located in bottom section as allowed by local code

Doors tested per ANSI/DASMA 108 for static air pressure

Door Height 8'-0" High shown Other door heights available up to 24'-0" using 21" or 24" high sections

Door Width See chart for other door widths (18'-2" shown)

Interior Elevation



TH160 / TM175 / TM200 / TM220		
Maximum Door Width	Center Hinges per Section	Design Load
17' - 2"	4	+ 16.4 - 18.2
18' - 2"	4	+ 15.5 - 17.2

Rev.	Description	ECO	Date
E	Concrete and CMU lap requirement was 2.00 on clip angle.	8517.02	09/10/21
D	Added pre-assembled track, TM220 and updated format.	8517.01	02/18/21
C	1) Was Richard A Bauman, P.E., 2) Updated jamb attachments.	7803.01	09/29/17

Scale: None	
Drawn by: G. Wedekind	Checked by: G. Wedekind
Date: 02/15/13	ECO: 6530.01

RAYNOR

1101 East River Road
 Dixon, IL 61021

Title: Spec, Wind Load TH160, TM175, TM200, TM220

No. P-2424

Sheet 1 of 4

Rev E

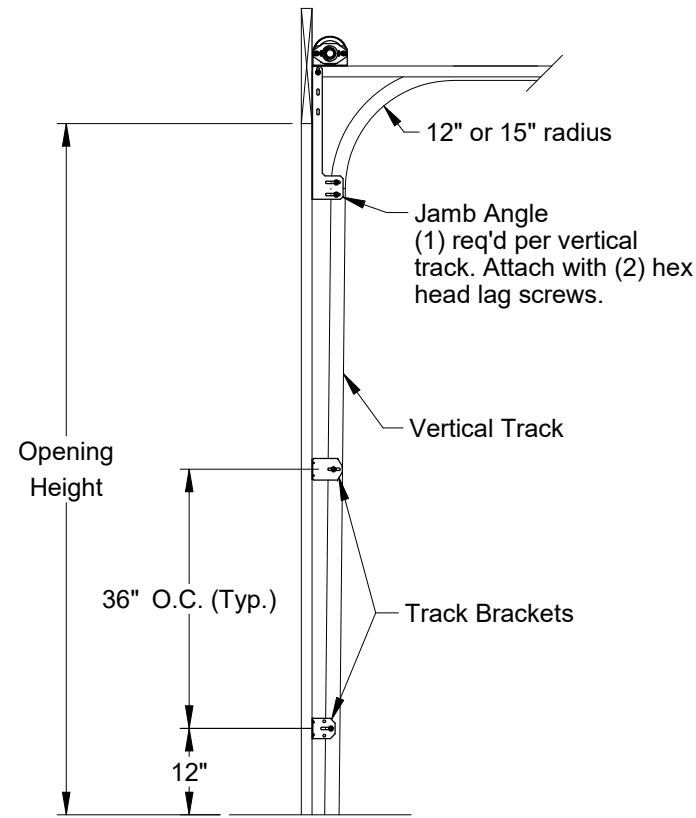
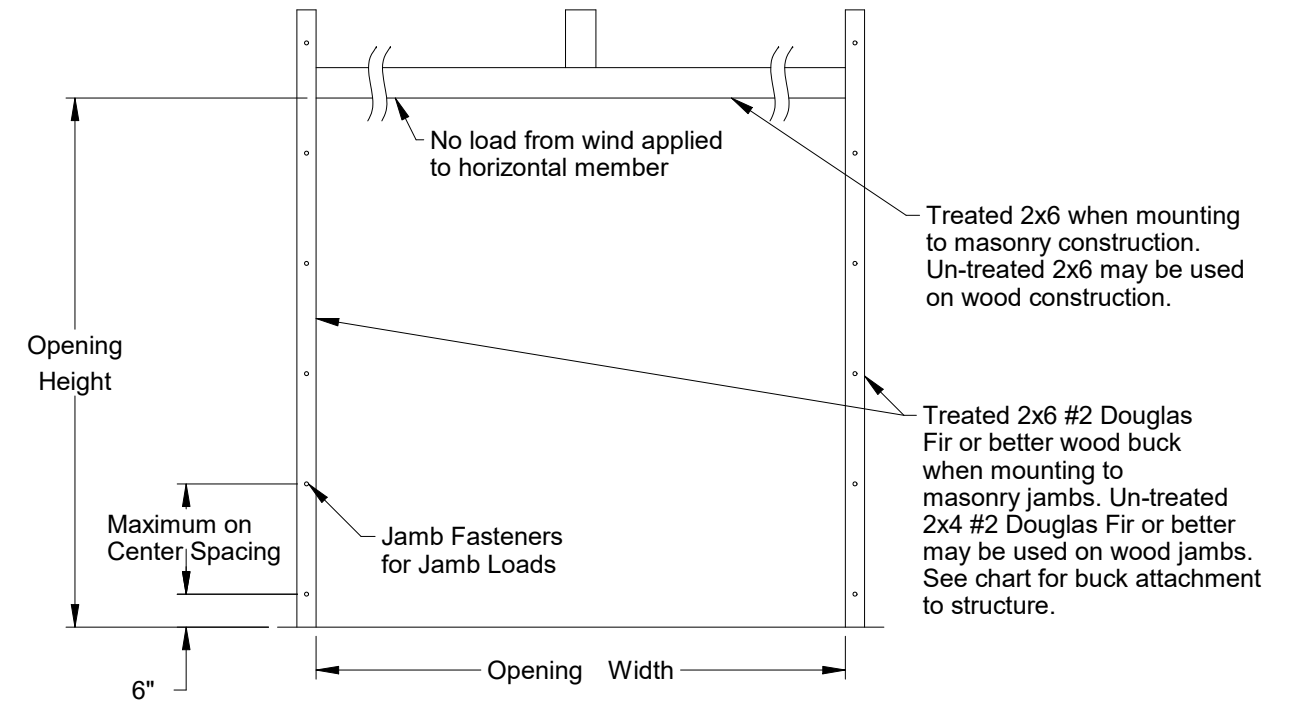


Scott A. Brown, P.E. Lic. No. 65940
 Wender Engineering Services, Inc.
 698 Timber Creek Road, Dixon, IL 61021
 FBPE CA Lic. No. 31544
 Structural Adequacy for Wind Load

Jamb Attachment Notes:

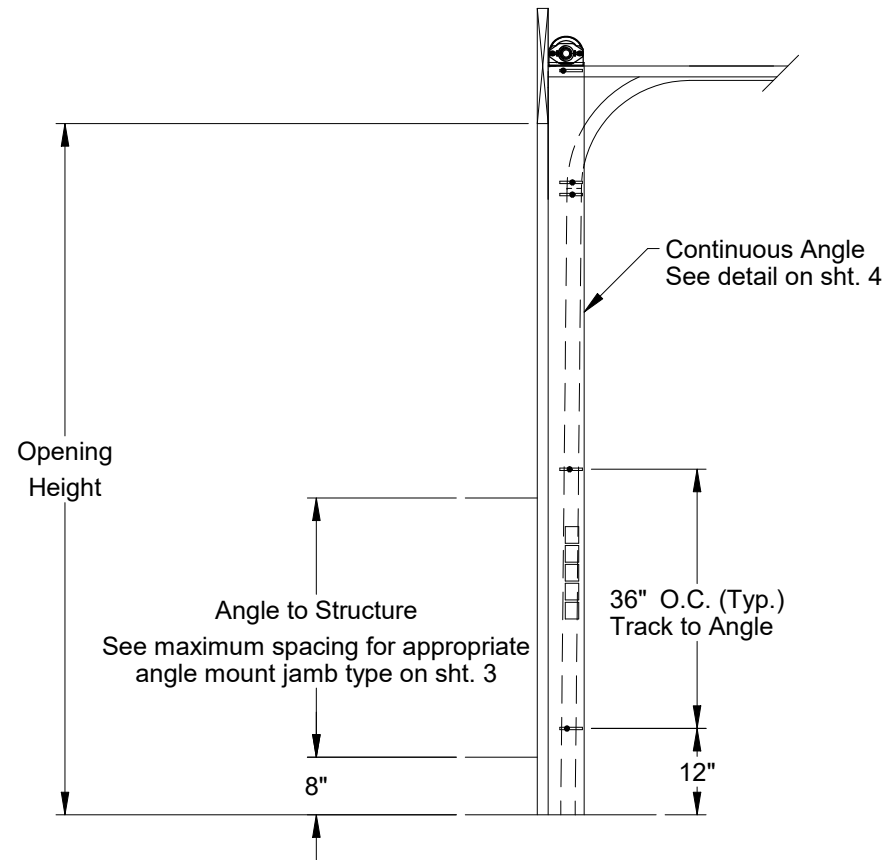
1. Maximum Positive Load per Jamb = $(18'-2" \times 15.5 \text{ PSF}) / 2 = 141 \text{ lbs. per foot.}$
2. Maximum Negative Load per Jamb = $(18'-2" \times -17.2 \text{ PSF}) / 2 = 157 \text{ lbs. per foot.}$
3. Design of the supporting structure shall be the sole responsibility of the building designer and shall be designed for the jamb loads listed in notes 1 and 2.
4. Alternate jamb attachments may be used if approved by a registered Professional Engineer.
5. DASMA Technical Data Sheet TDS-161 may be used for alternate jamb attachments.
6. 3/8" diameter lag screws required 1/4" pilot hole and 1-1/2" minimum required distance.
7. Masonry fasteners by others.

2x6 Attachment to Structure						
Structure Type	Fastener Type	Minimum Embedment	Minimum Edge Distance	Minimum on Center Spacing	Maximum on Center Spacing	Allowable Tension Load
2500 PSI Min. Concrete	1/4" Tapcon+ (Plus) with 1-1/8" OD Washer	2"	2.5"	6"	24"	526
Southern Pine	3/8" x 3" Lag with 1-1/8" OD Washer	1.50"	1.50"	1.50"	24"	655
Spruce Pine Fir	3/8" x 3" LAG with 1-1/8" OD Washer	1.50"	1.50"	1.50"	24"	482



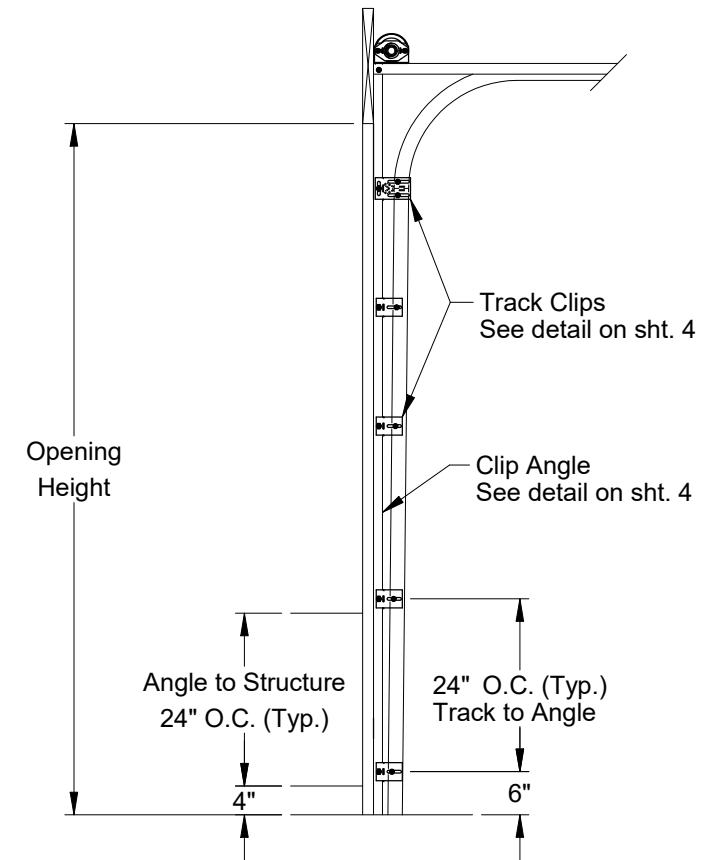
**Typical Track Installation
Bracket Mount
Wood Jamba**

Normal headroom track shown, low headroom, lift clearance and verical lift track available.



**Typical Track Installation
Angle Mount
Wood, Steel or Concrete Jamba**

Normal headroom track shown, low headroom, lift clearance and verical lift track available.



**Typical Track Installation
Pre-Assembled Clip Angle
Wood, Steel or Concrete Jamba**

Normal headroom track shown, lift clearance and verical lift track available.

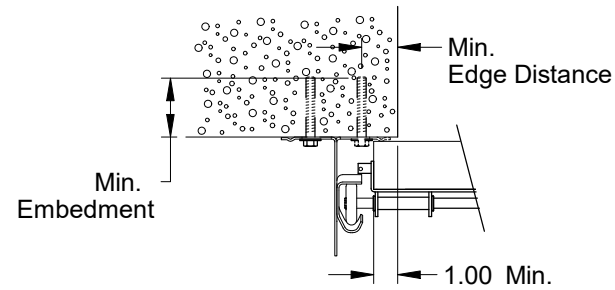


Scott A. Brown, P.E. Lic. No. 65940
Wendler Engineering Services, Inc.
698 Timber Creek Road, Dixon, IL 61021
FBPE CA Lic. No. 31544
Structural Adequacy for Wind Load

Scale: None	 1101 East River Road Dixon, IL. 61021	Title: Spec, Wind Load TH160, TM175, TM200, TM220	
Drawn by: G. Wedekind		No. P-2424	Sheet 2
Checked by: G. Wedekind			
Date: 02/15/13		Rev E	
ECO: 6530.01			

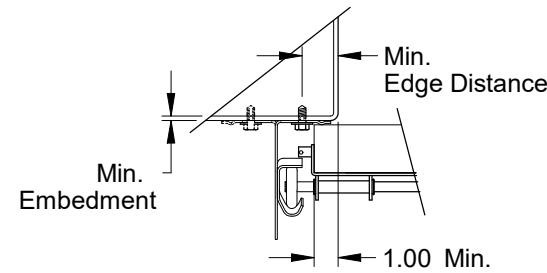
Angle Mount					
Jamb Type	Fastener Type	Minimum Embedment (in.)	Minimum Edge Distance (in.)	Maximum on Center Spacing (in.)	Allowable Tension Load (lbs.)
2500 PSI Min. Concrete	3/8" ITW Trubolt	2-1/2"	2-1/2"	36"	893
	1/4" Tapcon+ (Plus) with 1-1/8" OD Washer	2"	1-5/8"	36"	687
	1/4" x 2-5/8" Screw-Bolt+ with 9/16" OD Washer	2-1/2"	1-1/2"	36"	651
Steel	5/16" x 1" SAE J78, Min. AISI 1022 with 5/16" Washer	3/16"	1-1/2"	36"	971
Wood	5/16" x 1-3/4" Lag with 5/16" Washer	1-1/2"	1-1/2"	18"	352
Grout Filled CMU Block	3/8" Simpson Titen HD	2-3/4"	4"	36"	480

Alternate fasteners may be used if approved by a registered Professional Engineer.



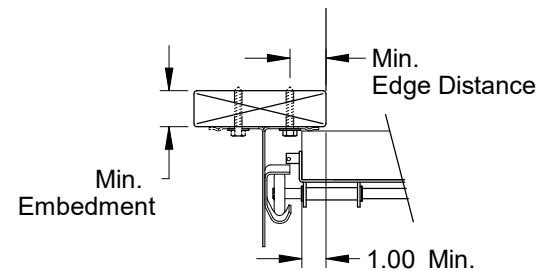
Track Assembly Attachment to 2500 PSI Min. Concrete

2" Angle mount turned-out standard (solid)
2" Angle mount turned-in optional (dashed)
3" Angle mount available



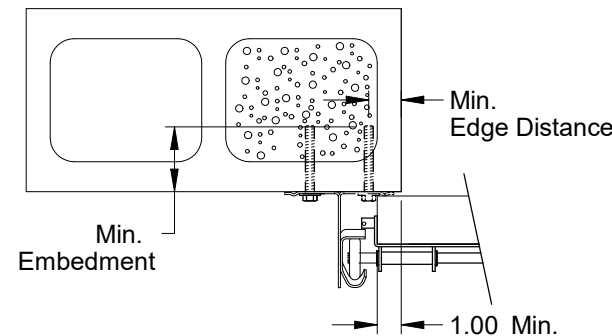
Track Assembly Attachment to 3/16" Min. Steel Jamb

2" Angle mount turned-out standard (solid)
2" Angle mount turned-in optional (dashed)
3" Angle mount available



Track Assembly Attachment to Wood Jamb

2" Angle mount turned-out standard (solid)
2" Angle mount turned-in optional (dashed)
3" Angle mount available



Track Assembly Attachment to Grout Filled CMU Block

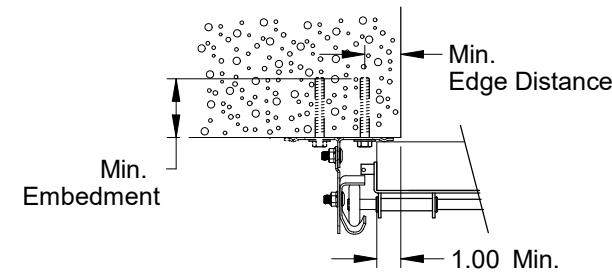
2" Angle mount turned-out standard (solid)
2" Angle mount turned-in optional (dashed)
3" Angle mount available



Scott A. Brown, P.E. Lic. No. 65940
Wendler Engineering Services, Inc.
698 Timber Creek Road, Dixon, IL 61021
FBPE CA Lic. No. 31544
Structural Adequacy for Wind Load

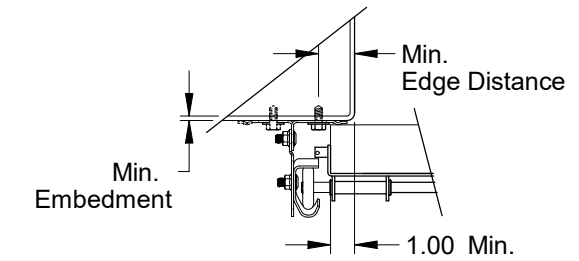
Pre-Assembled Clip Angle					
Jamb Type	Fastener Type	Minimum Embedment (in.)	Minimum Edge Distance (in.)	Maximum on Center Spacing (in.)	Allowable Tension Load (Lbs.)
2500 PSI Min. Concrete	3/8" ITW Trubolt	2-1/2"	2-1/2"	24"	893
	1/4" Tapcon+ (Plus) with 1-1/8" OD Washer	2"	1-5/8"	24"	687
	1/4" x 2-5/8" Screw-Bolt+ with 9/16" OD Washer	2-1/2"	1-1/2"	24"	651
Steel	5/16" x 1" SAE J78, Min. AISI 1022 with 5/16" Washer	3/16"	1-1/2"	24"	971
Wood	5/16" x 1-3/4" Lag with 5/16" Washer	1-1/2"	1-1/2"	24"	352
Grout Filled CMU Block	3/8" Simpson Titen HD	2-3/4"	4"	24"	480

Alternate fasteners may be used if approved by a registered Professional Engineer.



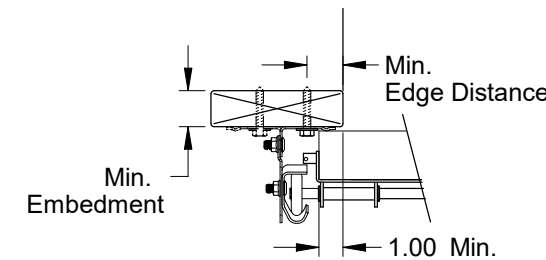
Pre-Assembled Track Assembly Attachment to 2500 PSI Min. Concrete

2" Clip angle turned-in standard (solid)
2" Clip angle turned-out optional (dashed)
3" Clip angle available



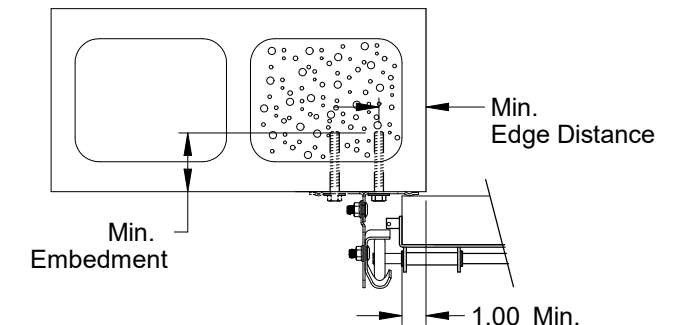
Pre-Assembled Track Assembly Attachment to 3/16" Min. Steel Jamb

2" Clip angle turned-in standard (solid)
2" Clip angle turned-out optional (dashed)
3" Clip angle available



Pre-Assembled Track Assembly Attachment to Wood Jamb

2" Clip angle turned-in standard (solid)
2" Clip angle turned-out optional (dashed)
3" Clip angle available



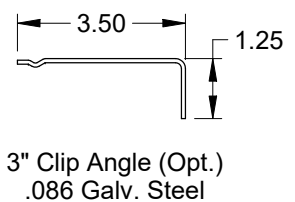
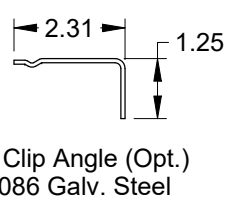
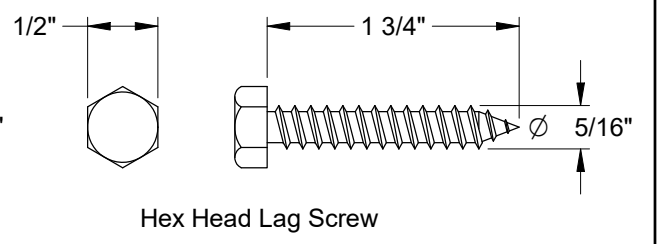
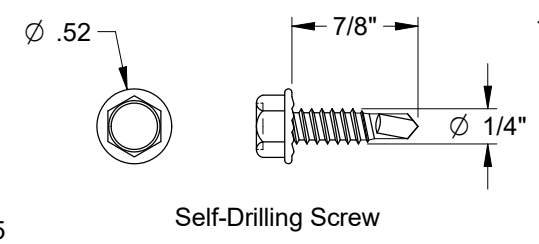
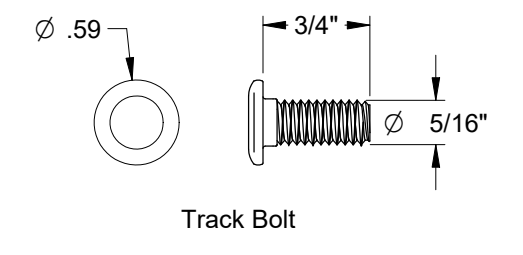
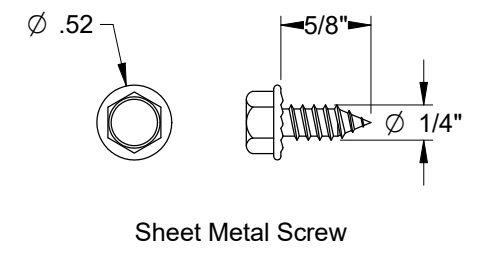
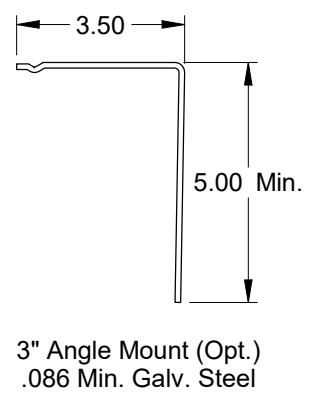
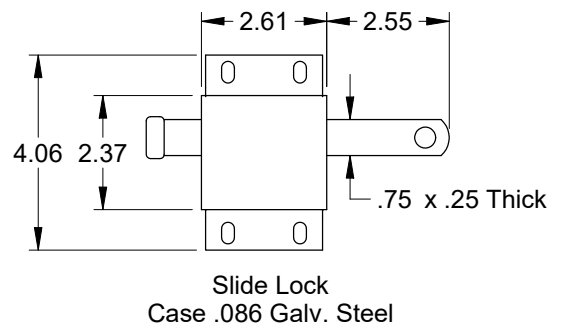
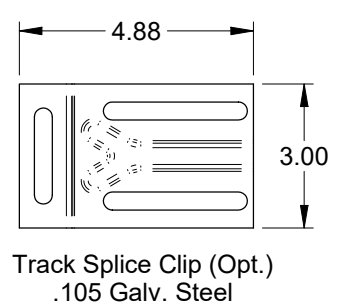
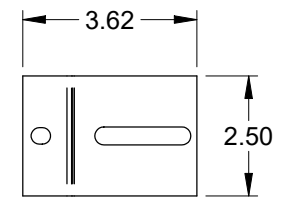
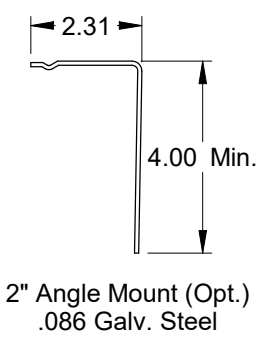
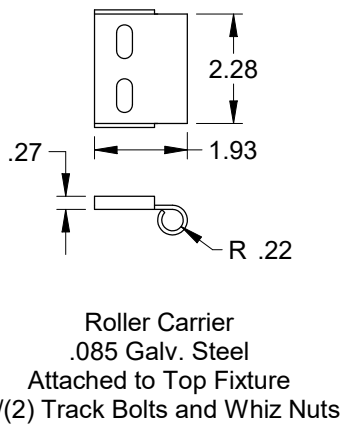
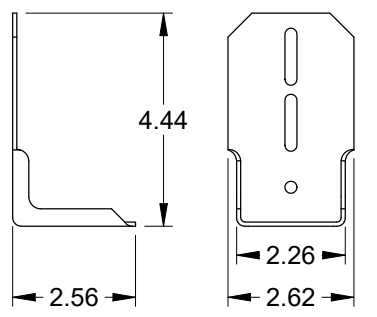
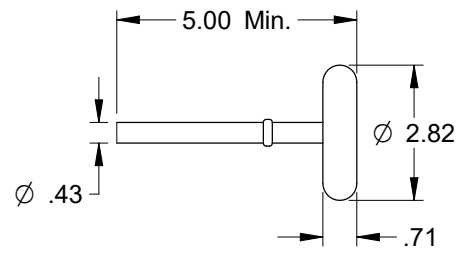
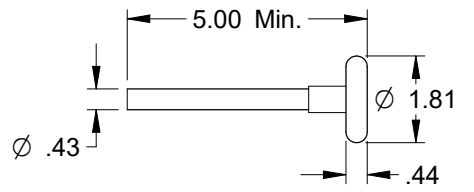
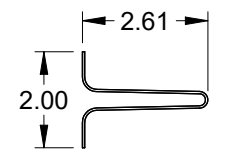
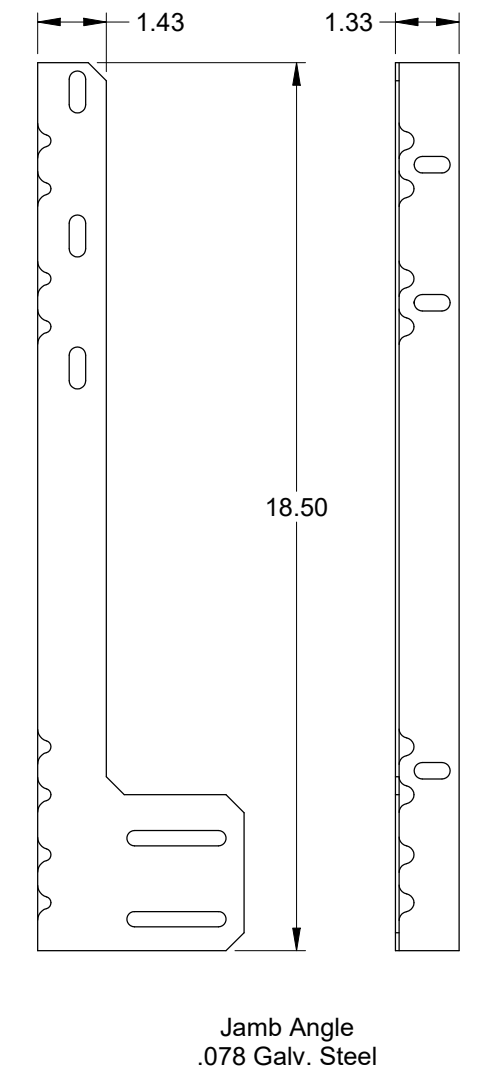
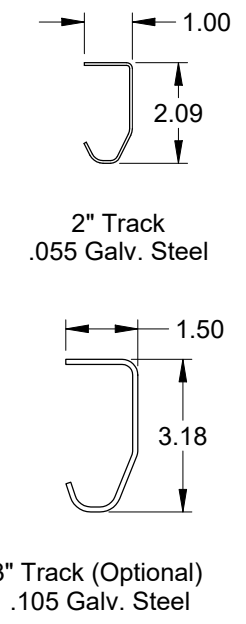
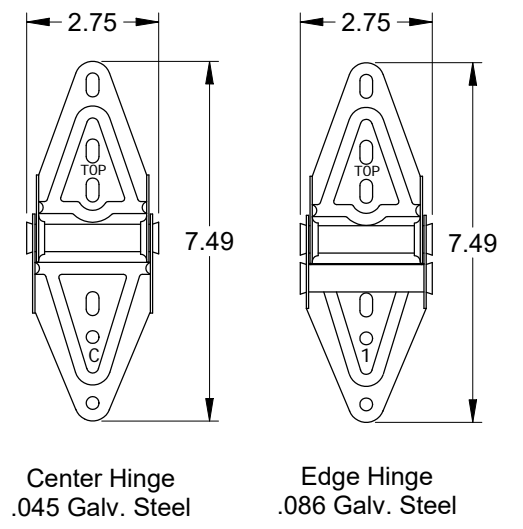
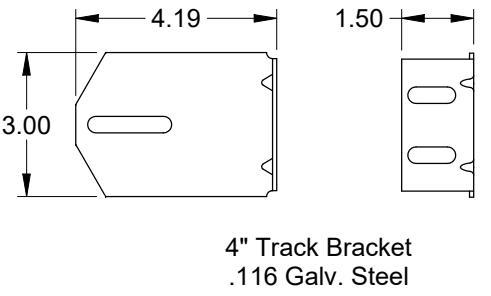
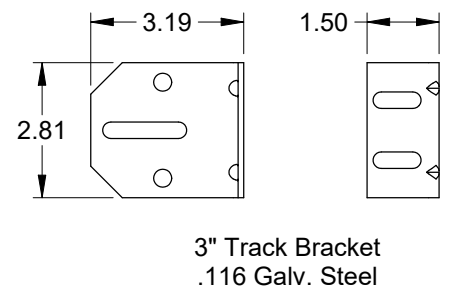
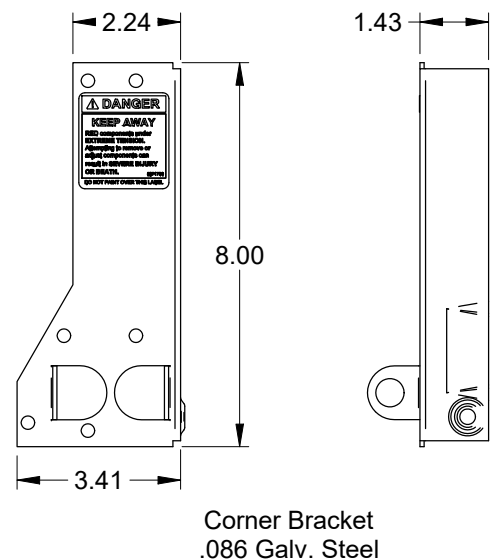
Pre-Assembled Track Assembly Attachment to Grout Filled CMU Block

2" Clip angle turned-in standard (solid)
2" Clip angle turned-out optional (dashed)
3" Clip angle available

Scale: None
Drawn by: G. Wedekind
Checked by: G. Wedekind
Date: 02/15/13
ECO: 6530.01



Title: Spec, Wind Load TH160, TM175, TM200, TM220	
No. P-2424	Rev E
Sheet 3	



Scott A. Brown, P.E. Lic. No. 65940
Wendler Engineering Services, Inc.
698 Timber Creek Road, Dixon, IL 61021
FBPE CA Lic. No. 31544
Structural Adequacy for Wind Load

Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

Scale: None	 1101 East River Road Dixon, IL. 61021	Title: Spec, Wind Load TH160, TM175, TM200, TM220	
Drawn by: G. Wedekind		No. P-2424	Sheet 4
Checked by: G. Wedekind			Rev E
Date: 02/15/13 ECO: 6530.01			