

Modernfold[®] Truss System[™]

Installation Manual

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Modernfold Truss System™

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Introduction:

This Installation Manual has been provided as a technical resource for installers and distributors for the proper installation of Modernfold product.

The information presented is for reference only for the proper installation and verification of accuracy.

The design values, products or references listed are subject to change at Modernfold's discretion without notice. Detailing, material compositions, references, etc. contained herein are intended to reflect general in-field conditions based upon common construction practices.

As a result, the shown detailing are suggested formats for general installation reference only and are subject to override by the design professional of record if and when required.

Disclaimer:

Modernfold is a manufacturer of partition doors and applicable components. Modernfold utilizes engineers for the design, manufacture, and marketing of its products alone and does not accept the responsibility as the design professional of record for any base structure. Modernfold accepts the delegation of engineering responsibility only for the products it manufactures and does not evaluate the impact their product will have on a base structure. It is understood that the responsibility of reviewing and verifying the complete load path of components within a base structure are the sole responsibility of the design professional of record.

Engineered Design Assumptions/Notes/Limitations:

Since building configurations vary widely, it is necessary to make engineering assumptions that are used to develop a baseline of product performance and design. Such assumptions include:

1. The design and fabrication of the listed partition door support system is a proprietary product distributed and produced by Modernfold. As a result, specific engineering properties and values may not be published.
2. The calculated gravity loads for proprietary products have been calculated based on material properties, laboratory tests, and or a combination there of.
3. The lateral bracing specified in this guide is specific to the partition door track system. ***Additional lateral bracing may be required for the base structure which supports the track system.*** For these situations, the designer of record for the base structure is to verify.
4. Modernfold is not responsible for the design of the bearing supports for the Modernfold Truss System™. It is recommended that a design professional with adequate experience and/or understanding of the base structure be engaged to determine the adequacy of the existing structure and load path. Should a deficiency be identified during the analysis, the design professional is responsible for developing appropriate strengthening procedures capable of supporting the required loads.
5. Modernfold is not responsible for the anchorage design of the Modernfold Truss System™. It is recommended that a design professional be engaged to determine the appropriate anchorage for the proposed loading requirements.

Procedure for installing Modernfold Truss System™

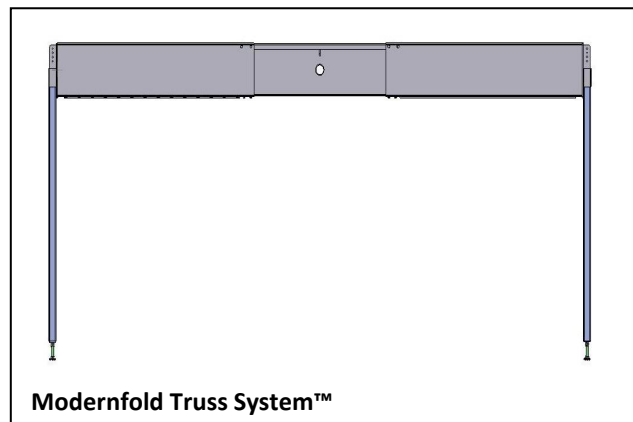
Purpose

To properly document the correct methods and processes required for the installation of Modernfold Truss System™.

Before Beginning Installation

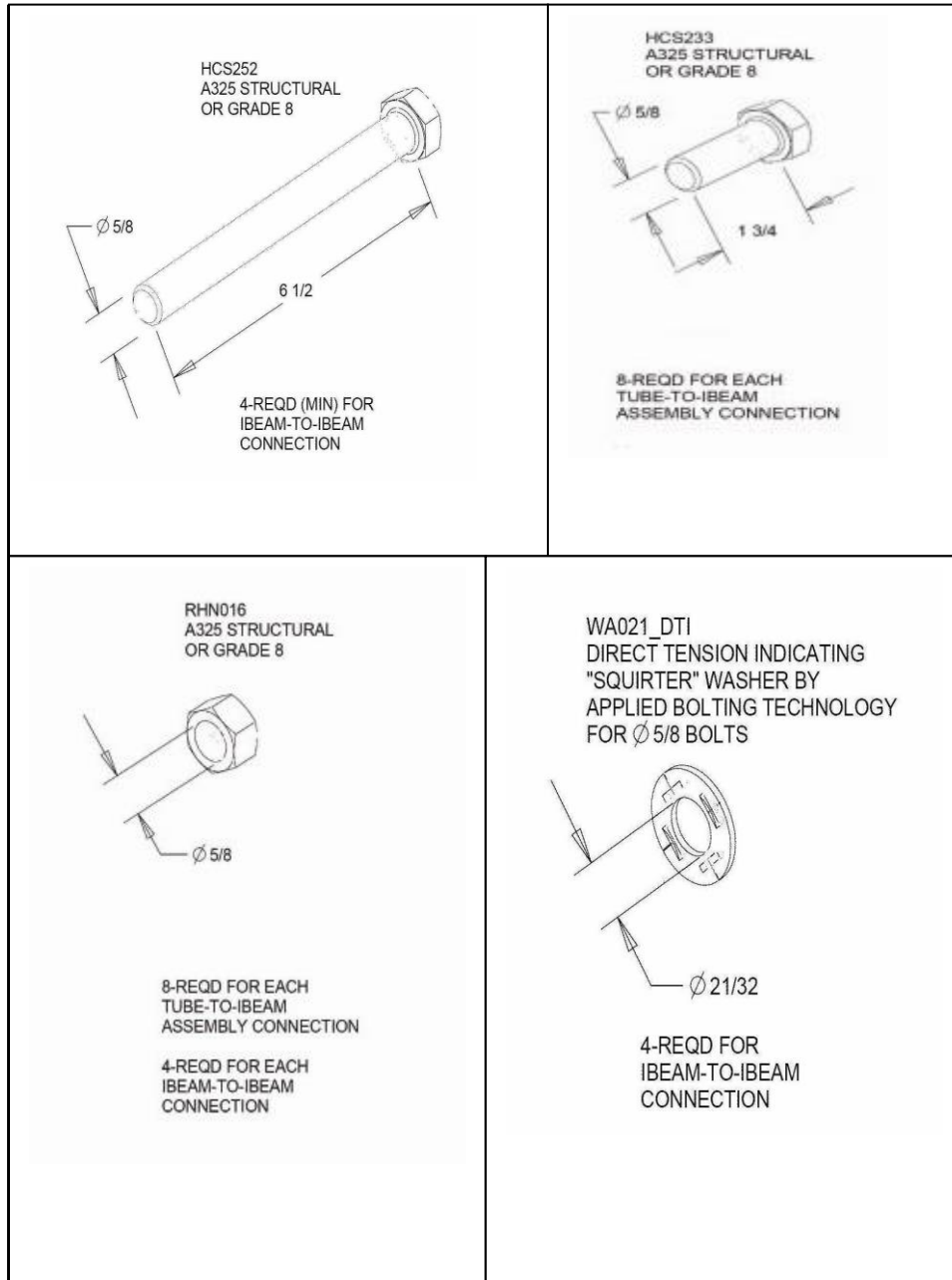
Review drawing and field Conditions

- Make sure you have the Customer Layout Drawings, not approval drawings.
- Verify opening dimensions against drawings.
- Make sure existing building walls are properly reinforced at each end of the opening.
- Look for any job site conditions that could interfere with installation or operation of the Modernfold Truss System™.



- **All discrepancies must be corrected before installation can begin**
- **Read installation instructions completely**
- **Contact a Modernfold Resource if you have problems or questions with installation at 1-866-561-8324**
- **Verify all parts against the packing list**
- **Locate and lay out all pieces**
- **Be prepared to verify I-beam and Track level and straightness with laser or other leveling instruments. Finished installation must be straight and level.**

Common Hardware Items



- Also Required: 1 1/16" Wrench

Modernfold Truss System™ Installation

About Modernfold Truss System™

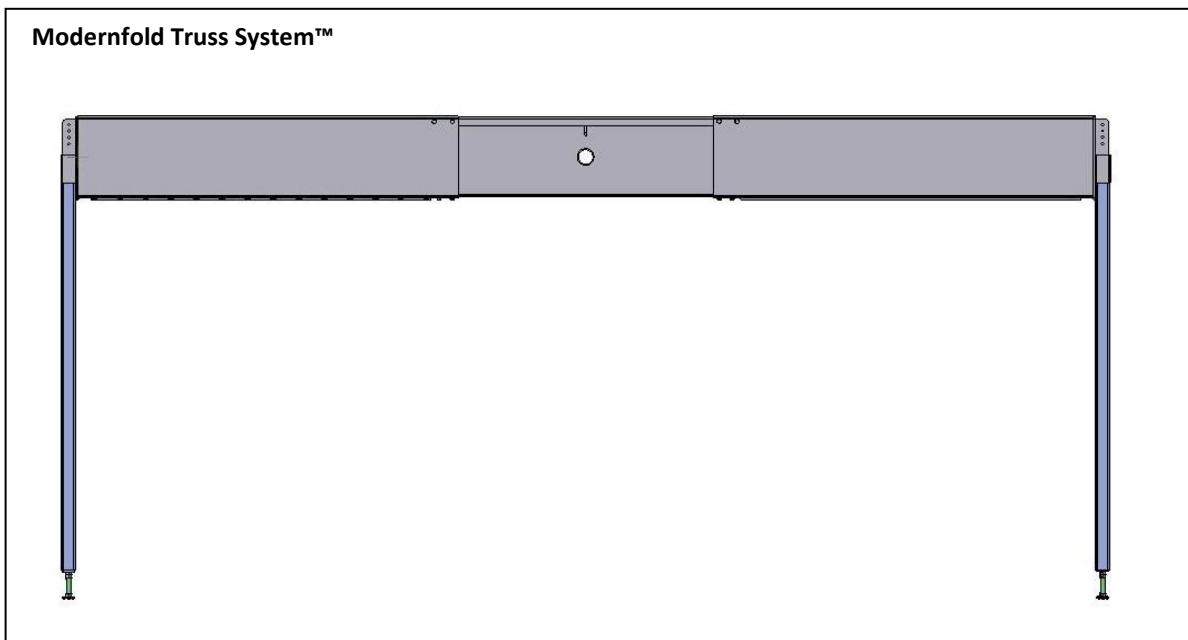
Modernfold Truss System™ is a support system for #17 suspension system and partitions to be used where supporting structure is not present.

Modernfold Truss System™ is attached to existing structure only for the lateral stability required.

Modernfold Truss System™ consists of an overhead horizontal truss and heavy-duty vertical posts independent of building structure and unaffected by buildings deflection.

Weight is transferred through the heavy-duty posts to floor where it is dispersed by floor pads.

Modernfold Truss System™ is shipped in components for easy assembly and handling. All components have been prepared for the #17 suspension system. Each **Base End Tube** component is pre-drilled and tapped with 3/8-16 (0.375) diameter holes and 5/8" pilot holes. All center component **I-beams** are pre-punched with 7/16" (0.44) thru-holes, all in accordance with the Customer Layout Drawing. Spacing width is 4.50".



Each Modernfold Truss System™ assembly consists of two Base End Tubes (**See figure 2**) and one to two center component I-beams (**See figure 3**) depending on width of layout.

The center component I-Beams are sized at 78" and 120". The length and number of the center component I-beams is dependent on width requirement for the layout.

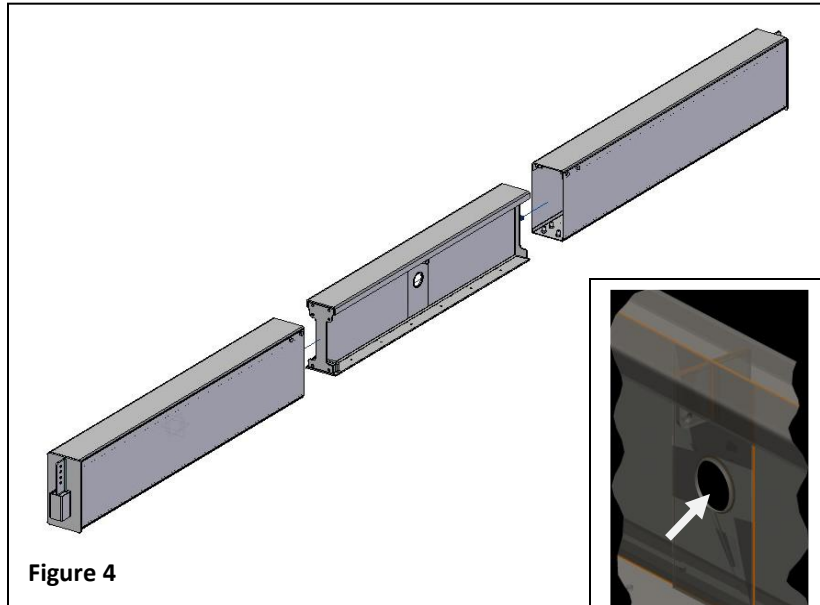
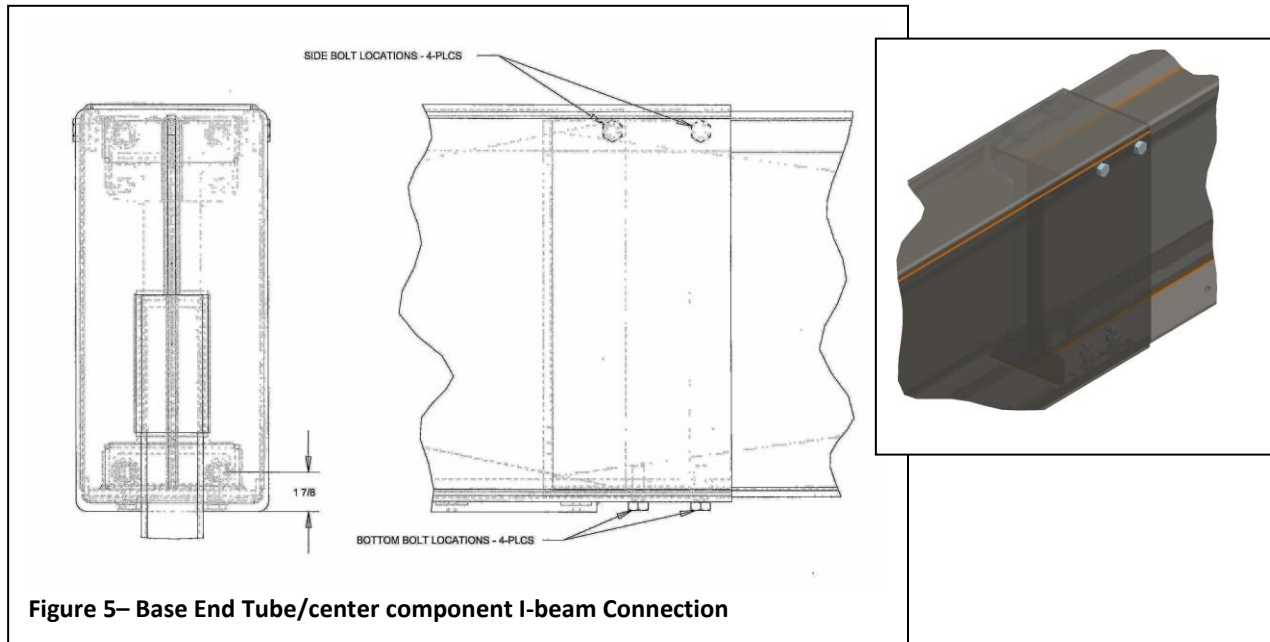


Figure 4

NOTE: Slide both Base End Tubes equally onto the I-beam to maintain balance and beam integrity. Assure that the final assembly is straight both vertically and horizontally. The pass-thru located in the center component I-beam is designed for building wiring or duct lifts that should transect the beam/tube system. With layouts requiring two center component I-beams, at least one pass-thru should be fully visible. (See Inset arrow)

5. Assure that the inside surfaces of the Base End Tube and the outside surfaces of the center component I-beam (top, bottoms and sides) are clean and free of debris.
6. Dry fit components by inserting both Base End Tubes equally onto the I-beam with a minimum 9 1/16" overlay. (See figures 1 & 4) Assure that the assembly is straight both vertically and horizontally. Extend to final width per layout drawing and actual field measurement. Mark drilling locations on center component I-beam.
7. Reassure straightness of remaining I-beam/Base End Tube and secure temporarily with c-clamps or wedges.
8. Using the existing 5/8" pilot holes located in the bottom and sides of the Base End Tube sections. Unless using a Mag drill, step drill to achieve the 5/8" holes through the **bottom first**, and then **sides of the Tube** and through the **I-beam flange**. This should help to prevent binding. **Cutting fluid will be necessary when step drilling.** These holes will be used for **the tube to beam** connection. (See Note Below)

Note: Measure the fabrication width in accordance with the Customer Layout Drawings prior to drilling 5/8" holes. - Use 5/8" drill bit only.



9. After each hole is drilled, install each of the eight (8) bolts and nuts supplied as shown in **figure 5** and tighten to “snug-tight” condition.
10. Tighten each bolt/nut by securing the nut with a wrench or deep well socket and turn the bolt with other wrench. Sequentially tighten each bolt relative to nuts by 1/12 turn increments (30°) until each has reached 1/3 turn (120°) beyond the “snug-tight” condition.

Modernfold Truss System™ is now ready to be raised to the fabrication height.

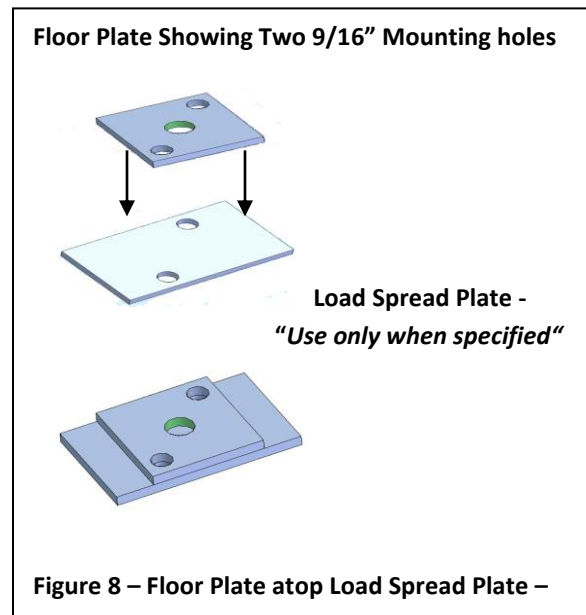
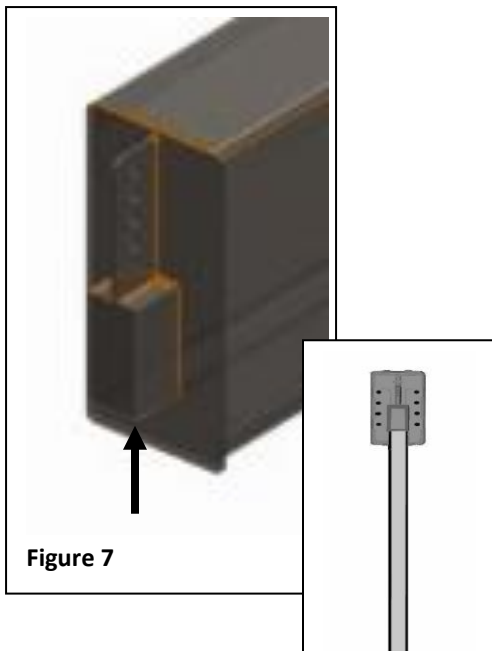
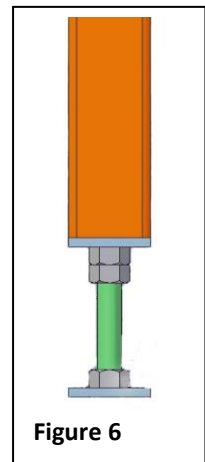
Notes: The center component I-beam is to be seated into End Base Tubes by at least 9 1/16” inches minimum.

The pass-through hole should be situated near the middle of the span.

With Systems requiring two center component I-beams, at least one pass-through should be fully visible.

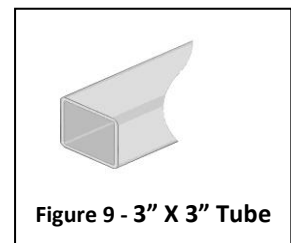
Step 2 – Assemble Column Tubes to Base End Tubes

1. Raise Horizontal Modernfold Truss System™ to the fabrication height. Secure the support system assembly to the existing structure for lateral support and check for level. **See Step 3 - Lateral Support Bracing**
2. The **Column Tube Assembly (See Figure 6)** consists of an adjustable leg assembly and a column tube. Insert the 3"x 3" tubes into the **Base End Tubes (See Figure 7)**. The 3"x 3" tube rests on the **Adjustable Leg**.
3. Two 9/16" holes are provided in each Floor Plate for mounting purposes. **(Figure 8)** (Bolts (.50 min.) supplied by others – not Modernfold.)

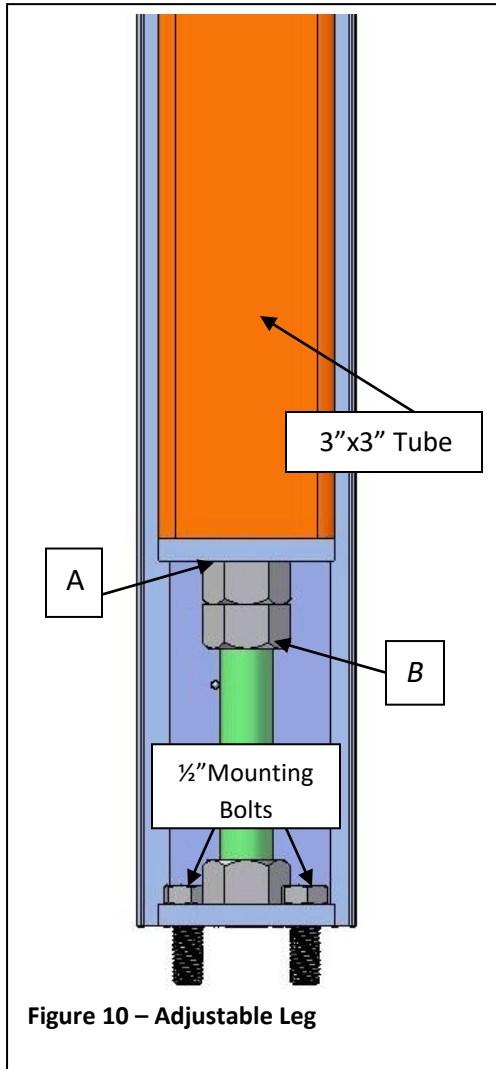


NOTE: Reducing fabrication

should be achieved by cutting 3"x 3" tube & 15)



4. Adjust Column Tubes using the 7/8" nuts located on the base of the adjustable leg. (**See Figure 10**) Loosen nut "B" and adjust nut "A" until proper height is desired. Retighten nut "B".



Bearing Support:

It is intended that the Modernfold Truss System™ be supported by new or existing concrete floors which would include slab on grade or suspended slabs. Modernfold is not responsible for the design of the bearing support. It is recommended that a design professional with adequate experience and/or understanding of the base structure be engaged to determine the adequacy of the existing structure and load path. Should a deficiency be identified during the analysis, the design professional is responsible for developing appropriate strengthening procedures capable of supporting the required loads.

During the design process, the Modernfold Truss System™ base structure must be capable of supporting the following loads:

- Maximum Column Load: 3,200 lbs
- Storage Column Load: 5,200 lbs

Additionally, the base plates are to be anchored to the base structure. Two 9/16" diameter holes have been provided for anchorage as shown in **Figure 8**. It is required that the column anchorage be capable of horizontally resisting 15% of the column's vertical load.

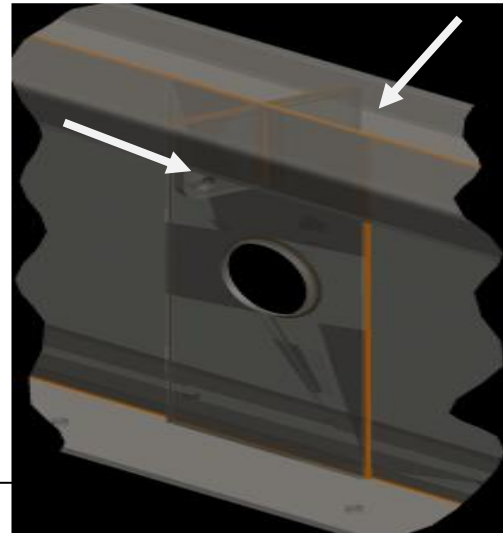
Mounting bolts (1/2") are not supplied by Modernfold. It is recommended that a design professional determine proper bolt/fastener required.

Step 3 – Lateral Support Bracing

Note: *The details included in this section should not be used as pre-engineering submittals on any proposals. They are provided as a guide only. Modernfold does not recommend or endorse special support alternatives. It is the responsibility of each Modernfold Distributor to have header/support and overhead structure designed, evaluated, approved and stamped by a licensed professional.*

Note: *The Modernfold Truss System™ is designed to support the #17 track and panel components.*

Figure 11 – Lateral Bracing Attachment Points



Minimal Column Bracing

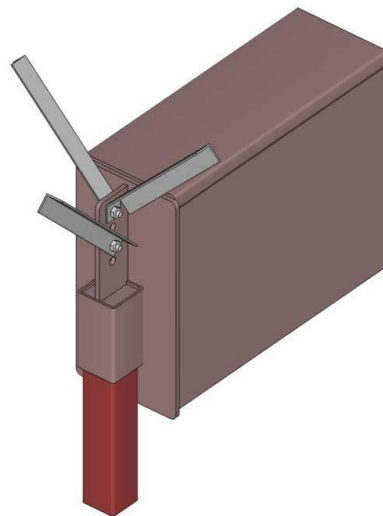
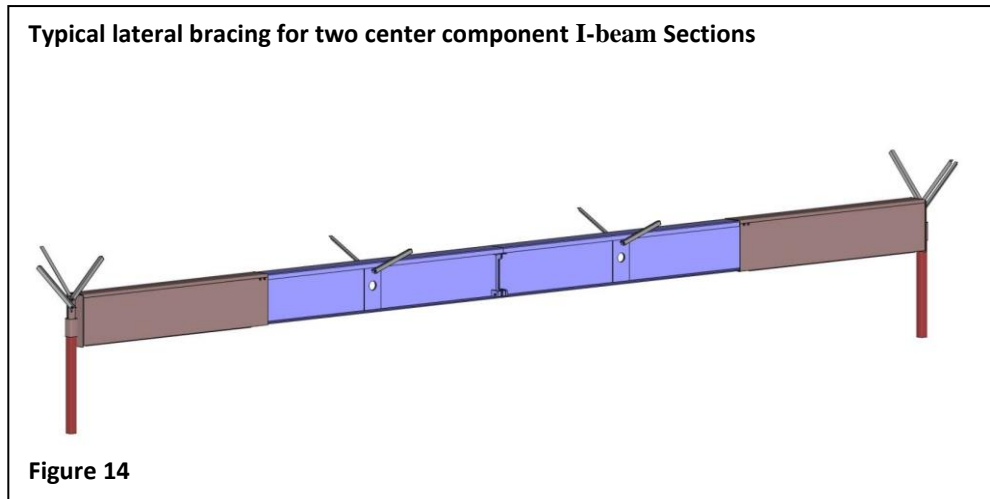
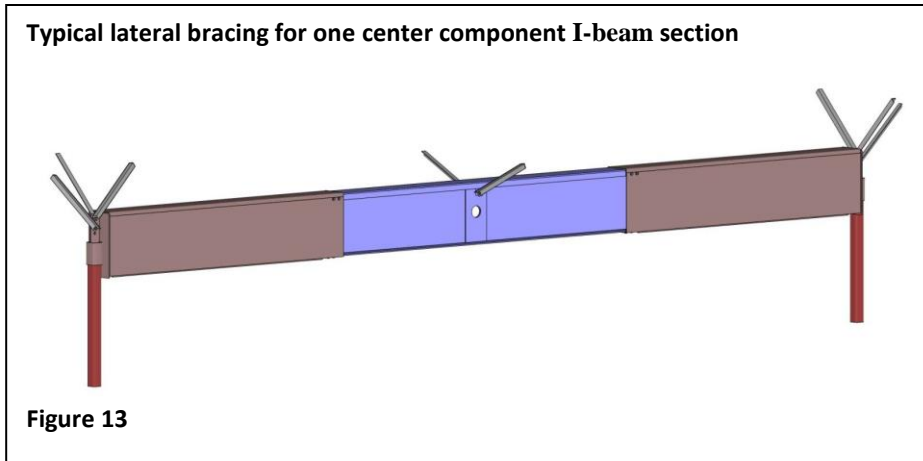


Figure 12

Note: *For Track bracing instruction see Step 8*



Column Bracing:

To provide adequate operational stability to the Modernfold Truss System™, lateral bracing is required.

This would include bracing the top of each principal column in three directions (if possible).

Figure 12 shows a common means for bracing the column using 1 ½" x 1 ½" x 1/8" angle iron, however, additional materials may be used. Acceptable bracing would include, but is not limited to:

- 1 ½" x 1 ½" x 1/8" angle iron or larger
- 1/2" diameter rigid metal conduit or larger
- 1 5/8" Metal strut framing (Unistrut, Hilti-Strut, etc.)
- 350S162-33 Light gauge metal framing

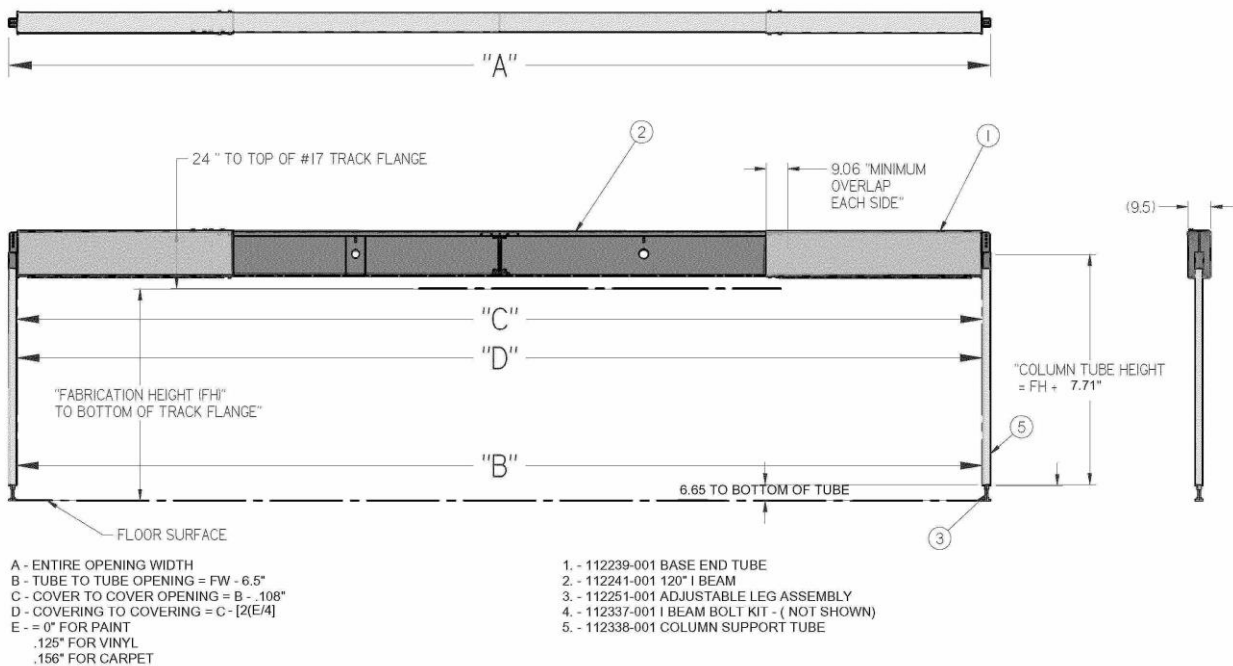
The braces are to be installed at an angle between 30° and 60° relative to the hanging rods.

The installing distributor is responsible for all brace connection to the base structure.

Additionally, the installing distributor is also responsible for the brace connection at the hanging bracket for alternative brace connections not shown in **Figures 13 & 14**.

Step 4 – Assembly of the Center Component I-beam

Figure 15



Modernfold Truss System™ Layout detail showing two 120” center component beams

I-beam to I-beam Assembly

Layouts which require more than one I-beam must be assembled in the following manner:

1. Assure that beam end plate surfaces are flat and clean. **(See figure 16)**

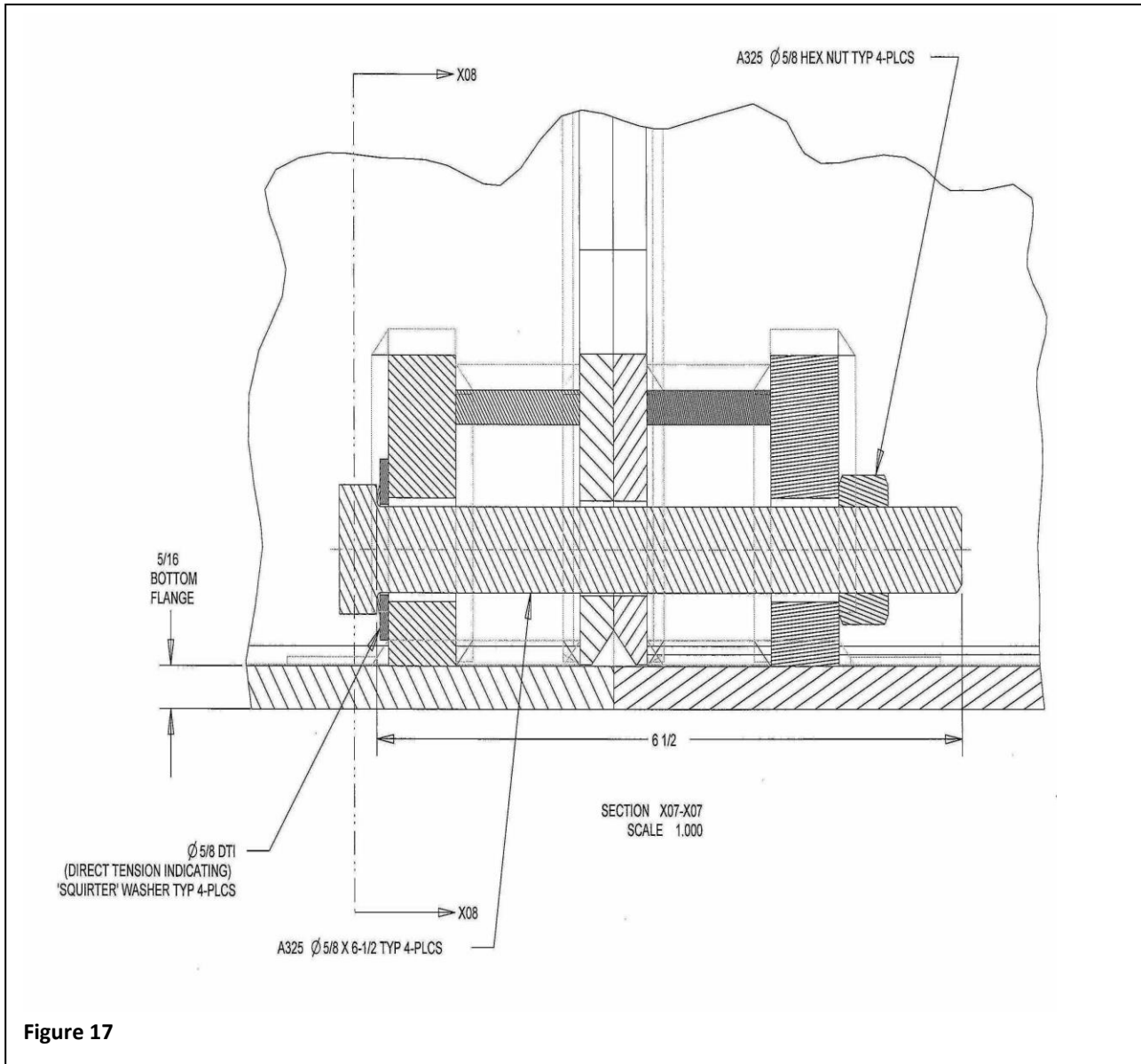


Figure 17

2. Align and mate surfaces and install 6-1/2" long A325 5/8" bolts and direct tension indicating (DTI) washer with its red "Squirtter" indicators against I-beam surface.
Using the A325 nut, assemble in 4 places as shown to "snug-tight" condition. Install all bolts heads in opposing directions. **(See figures 17 thru 23)**

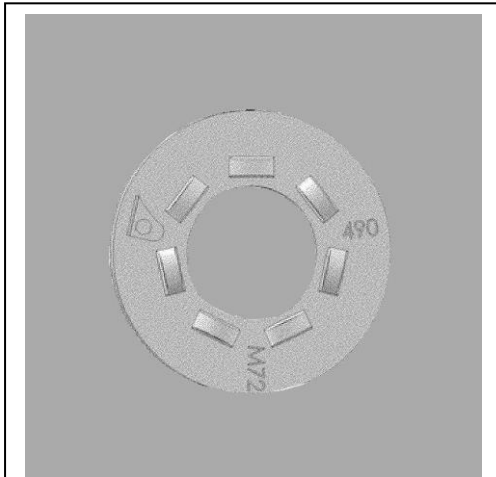


Figure 18 –
DTI Squirter Washer (Front Side)

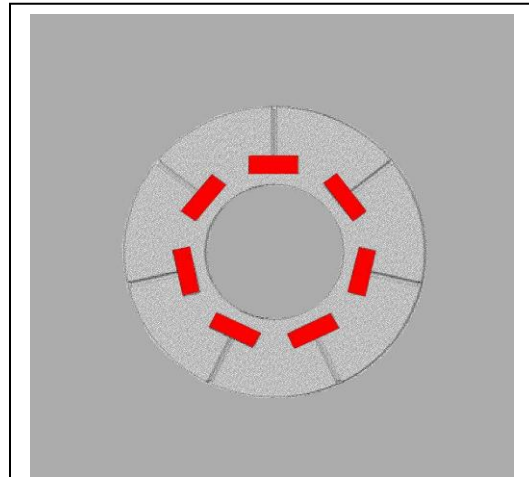


Figure 19 –
DTI Squirter Washer (Back Side)

**DIRECT TENSION INDICATING "SQUIRTER" WASHER FOR 5/8 BOLTS
(4-required for I-beam-to-I-beam connection)**

3. Tighten each of 4 bolts by securing each bolt head with a wrench or socket and turn with other wrench. Sequentially (4 times) increase torque by 20 lbs increments or turn nut relative to bolt by 1/12 turn (30°) till "Squirter Washer" reveals adequate tension.
(See below - figure 20)

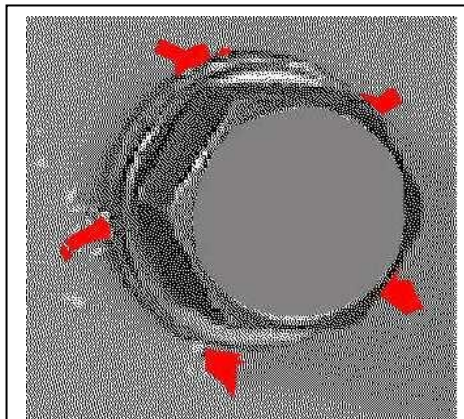


Figure 20

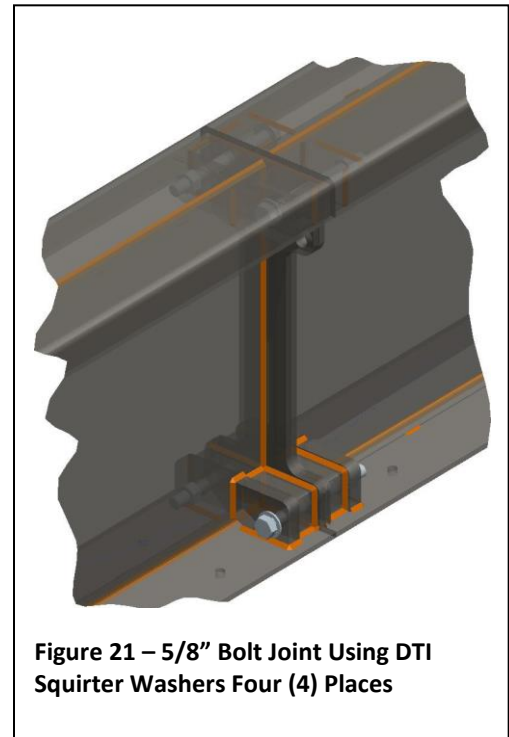
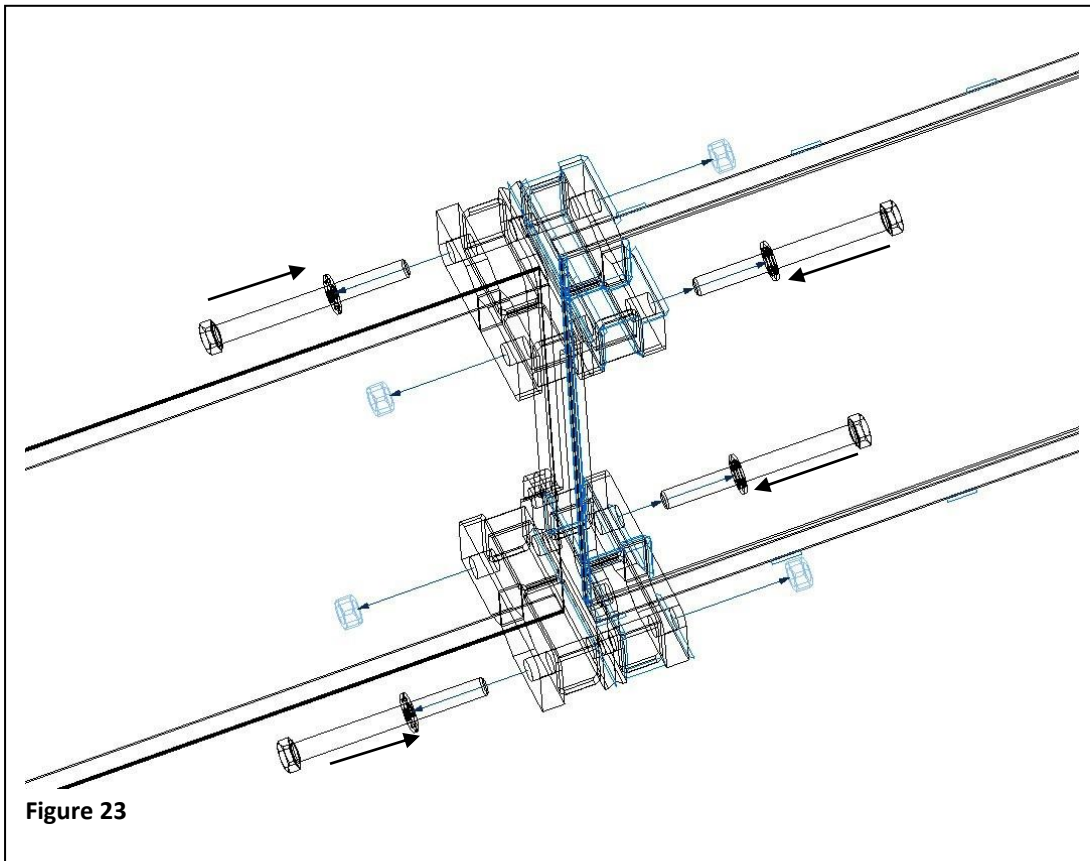
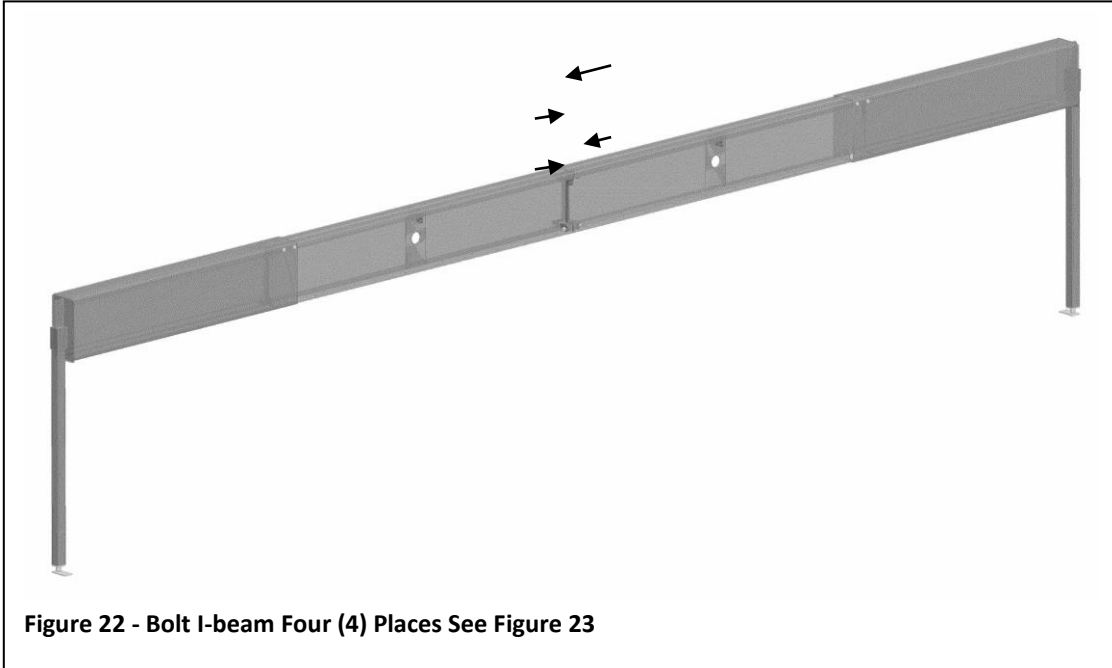


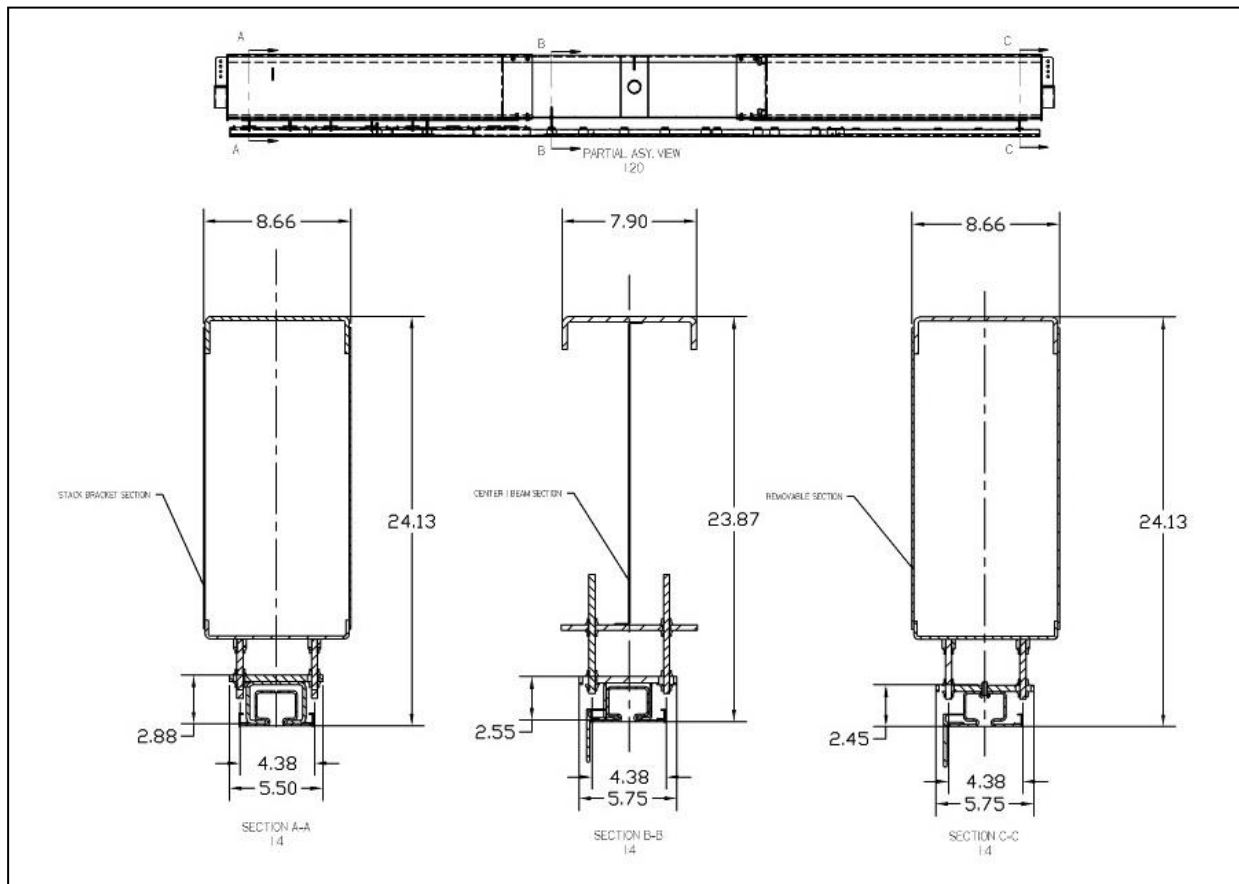
Figure 21 – 5/8" Bolt Joint Using DTI Squirter Washers Four (4) Places



Step 5 – #17 Drop Soffit Trim Installation

Drop Ceiling & Spring Clips

To fill the gap in the opposite side of the track, you need to insert the drop ceiling support and spring clip between the top of the track flange and the ceiling. Insert the spring clip into the track above the flange and push firmly until it snaps into place. Then insert the drop ceiling support and push it in firmly, until it is captured by the spring clip.



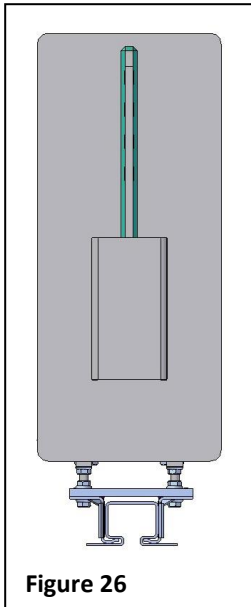


Figure 26

NOTE: The Base End tubes are pre-drilled and tapped for their respective hanger brackets. Tapped holes are 1/2" in depth. Thread the hanger rods into the tapped holes until tight and then lock into place using the 3/8"-16 flange nuts. Because these sections support the weight of the entire partition in a small area, the mounting holes are located closer together. Refer to the Hanger Rod Layout drawing for proper spacing.

Installing Hanger Rods

Attach the first two pairs of hanger rods to the structural support using a 3/8"-16 flange nut (#17) on both sides of the support. (Tapped holes are 1/2" in depth. Thread the hanger rods into the tapped holes until tight and then lock into place using the 3/8"-16 flange nuts) Then attach a pair of hanger rods at or near the lead end of the first section of track. This procedure will allow you to hang each end of the track section, next install the remaining intermediate hanger rods. Alternatively, you can install all of the hanger rod pairs at the same time. This will allow you to attach the brackets sequentially, which may be easier for some job site conditions **NOTE: See Figures 29, 30 & 31 for the bracket types required.**

Track Bracing:

In addition to the minimal bracing listed in **Step 4**, additional lateral bracing may be required due to earthquake design criteria specified in the American Society of Civil Engineers (ASCE) Standard "Minimum Design Loads for Buildings and Other Structures" or ASCE 7. Such bracing is a direct result of panel weights and track configurations as defined within the respective track design guides. For the purpose of this design guide, it is sufficient to note that when the required track bracing as listed in the corresponding design guide is installed, the Modernfold Truss System™ is adequately braced for earthquake loads.

Figure 27 shows a common means for bracing the track system, namely 1 1/2" x 1 1/2" x 1/8" angle iron; however, additional materials may be used. Acceptable minimum bracing would include, but is not limited to:

- 1 1/2" x 1 1/2" x 1/8" angle iron or larger
- 1/2" diameter rigid metal conduit or larger
- 1 5/8" Metal strut framing (Unistrut, Hilti-Strut, etc.)
- 350S162-33 Light gauge metal framing
- 5/8" All-thread rod

The braces are to be installed at an angle between 30° and 60° relative to the hanger rods. The installing distributor is responsible for all brace connection to the base structure. Additionally, the installing distributor is also responsible for the brace connection at the hanging bracket for alternative brace connections not shown in **Figure 27 & 28**.

Typical Track Bracing with Angles

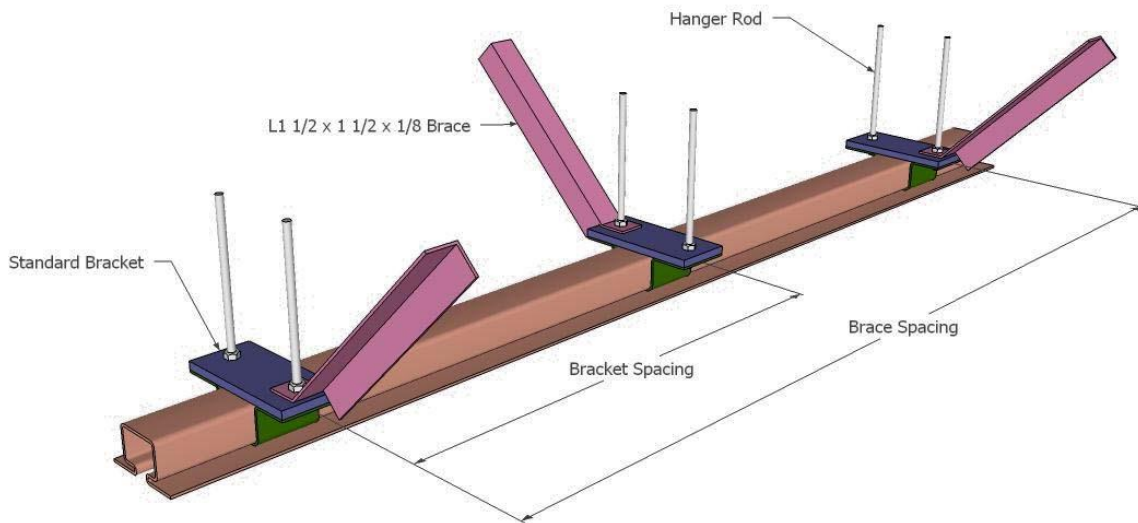


Figure 27

Note: The details included in this section should not be used as pre-engineering submittals on any proposals.

They are provided as a guide only.

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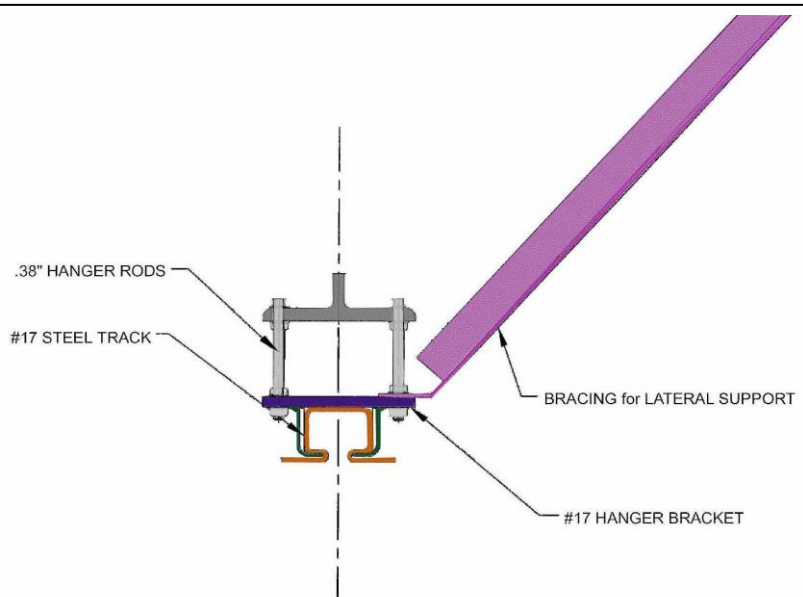
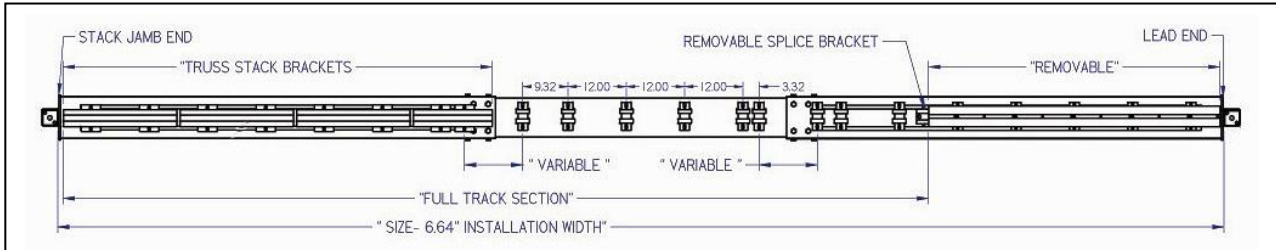


Figure 28 – Lateral Support Bracing

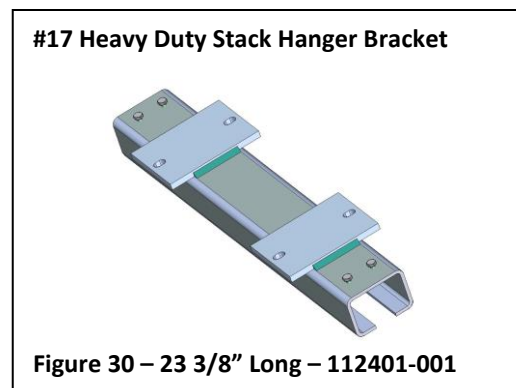
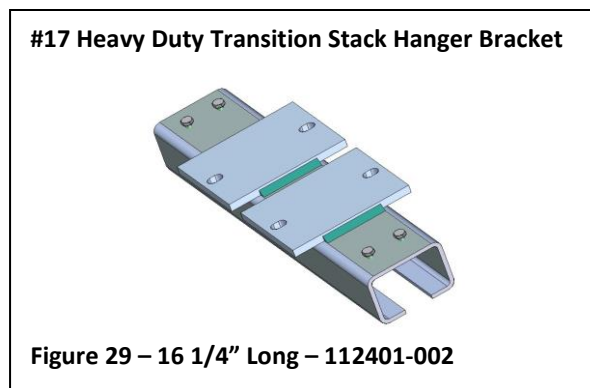
Note: For additional Bracing & Column loading – See “Truss Design Guide”

A/S 932 Only Option - Hanging Track Sections



Attach the Hanger Brackets

Start at the stack end; slide brackets onto the track to fill every possible set of holes. Do not yet tighten any screws that may be present on the bracket; you may want to adjust each bracket’s position as the sections of track are hung.

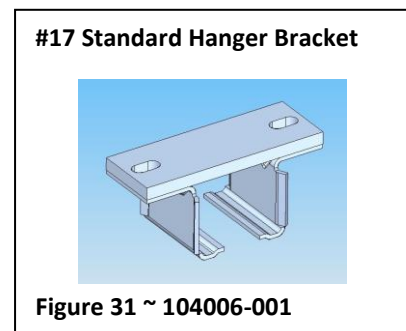


First Section

Lift the track into place and slide the brackets over the hanger rods, either at each end or sequentially, depending upon which method of hanger rod installation you use. Again, be sure to use a flange nut in **“both”** sides of the hanger bracket. Do not completely tighten the flange nuts at this time. You will be adjusting them as each section is installed.

Intermediate Sections

Each track section is hung in the same manner as the first section. Attach a pair of hanger rods near each end of the section (or for each bracket), securing to the structural support with a flange nut on both sides. (If the attachment at the structure is not a thru-hole connection, only one flange nut is required).



Final Section

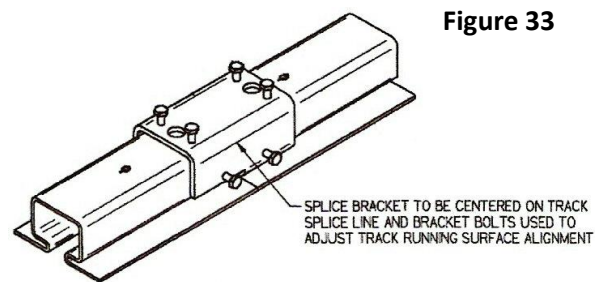
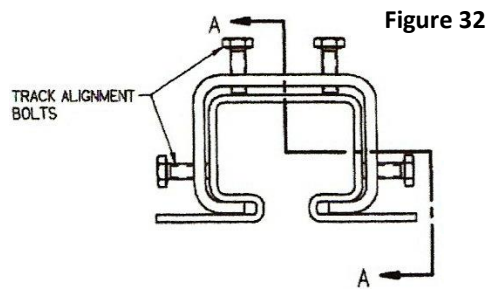
The final (removable) track section is also hung by attaching the hanger rods to the structural support and to the removable track hanger brackets (100906-001) on the track. However, when using the # 17 suspension systems, the track itself can be removed from the brackets to allow for the panel installation.

INSTALLATION INSTRUCTIONS FOR #17 SPLICE BRACKET FOR INDIRECT MOUNT

Joining Indirect Mount #17 Track Sections Using Splice Brackets

#17 Track sections are joined together by splice brackets. Each bracket also has eight (8) bolts that when tightened, will securely join each section of track. Slide and center each end of the track sections into the splice bracket and finger tighten the bolts as with the #14 splice covers. The four (4) top bolts should be used as stops to adjust the level of the running surface. The side adjustment screws should then be used to adjust the horizontal alignment of the track gap and interior track walls.

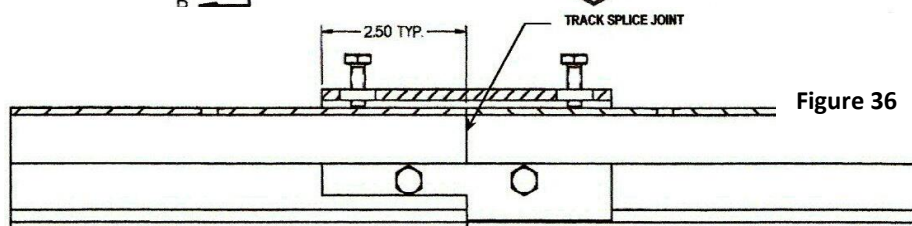
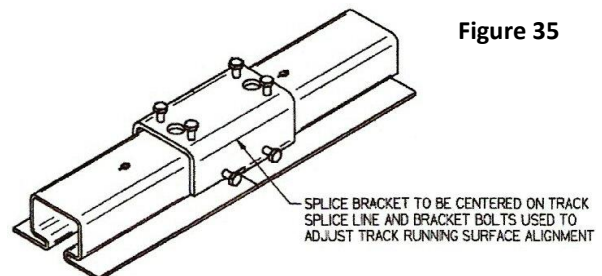
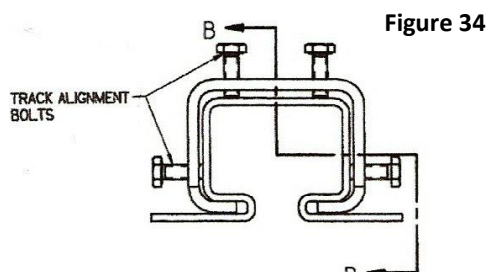
(See Figure 32 & 33)



Joining Indirect Mount #17 Removable Track Sections Using Splice Brackets

There is one removable splice bracket required at the removable section. It is recommended that it be installed at the end of the section nearest the stack weldment. The notched end of the removable splice bracket is to engage the removable track section as shown in the cut away view. The top two adjustment screws should be used as stops to adjust the level of the removable sections running surfaces. The side adjustment screws should then be used to adjust the horizontal alignment of the track gap and interior track walls. (See Figure 34, 35 & 36)

Note: Access the horizontal adjustment bolts from above on drywall ceilings. In this case the four (4) horizontal access bolts should not be over tighten so as to allow the removable section to drop down when the fasteners are removed. Also notching may be required to provide side bolt clearance on the drop ceilings and dry wall ceilings where soffit ceiling support is used.



SECTION B-B

Step 6 – Install Column Covers

Installing Column Covers over Column Tubes.

Note: Follow Step 8 prior to installing lead or trail jamb

Each column cover is generally covered to match the panel finish. Take precautions when handling the column covers as not to compromise the covering or finish.

1. Measure the fabrication height of the column tube and column cover. Cover should fit snugly around column and from ceiling to floor.
2. Extend the panels across the opening and check alignment and plumb of the jamb against the panel. Adjust the jamb as necessary to achieve a continuous seal against the panel.
3. Locate the lead Jamb Channel by aligning its center with the centerline of the partition. Hold 1/16" clearance from the track at the top of the channel and from the finished floor at the bottom. Also, make sure the jamb channel is plumb.

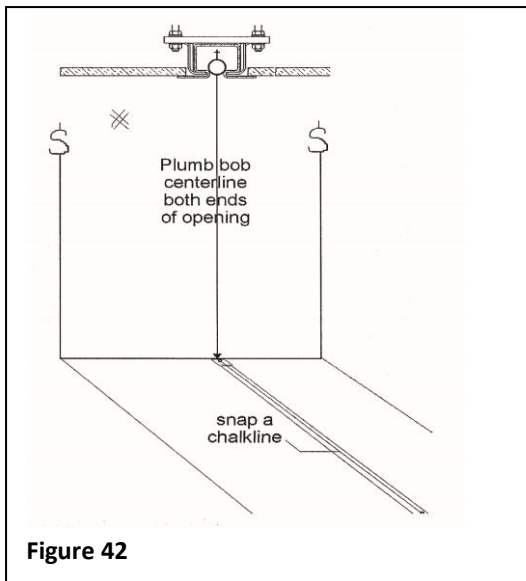


Figure 42

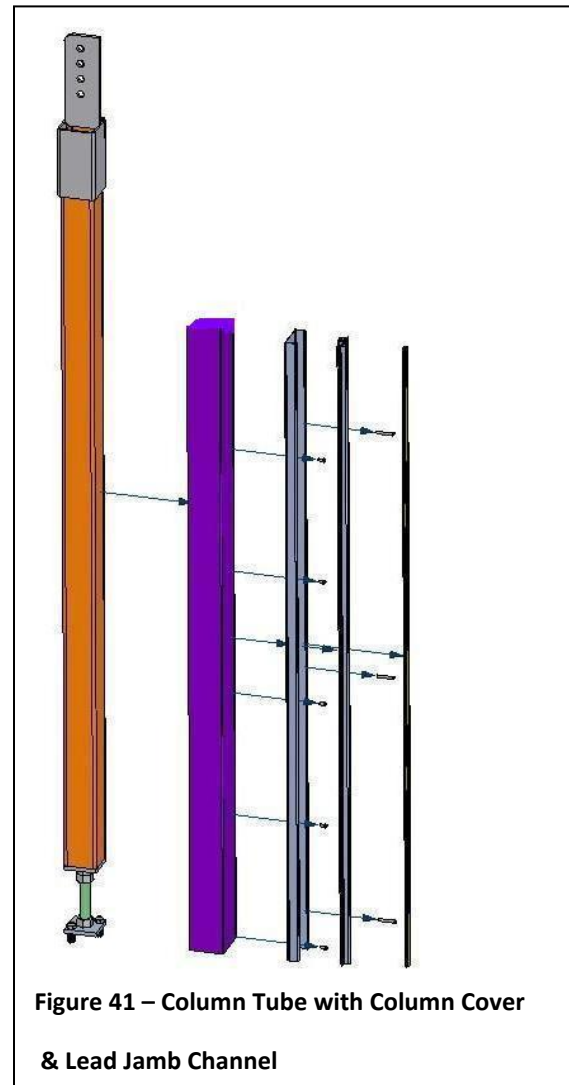
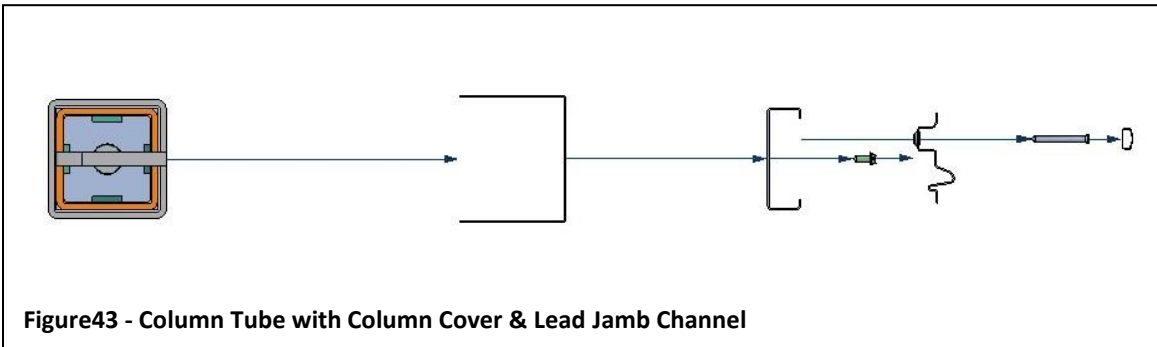


Figure 41 – Column Tube with Column Cover & Lead Jamb Channel

ce the jamb is satisfactorily positioned, drill #25 pilot holes in the top and bottom of the jamb channel on both sides, using the predrilled

jamb as a template. **See figures 41 & 43**

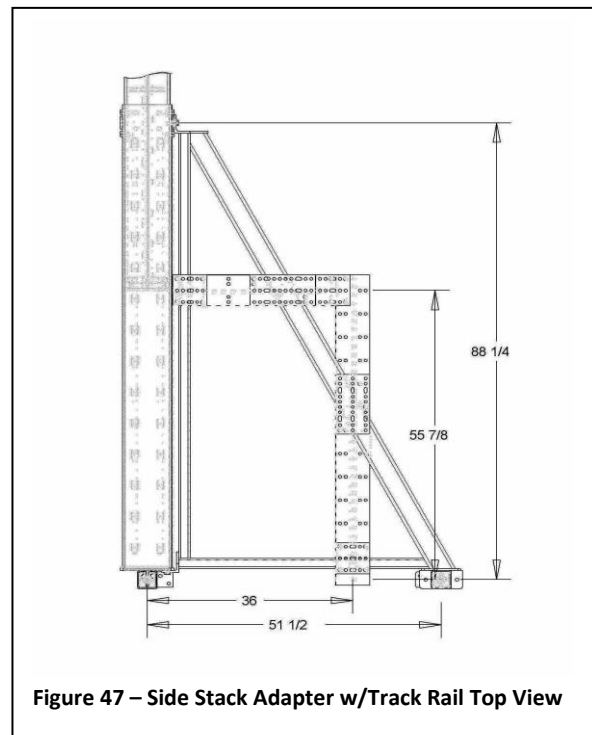
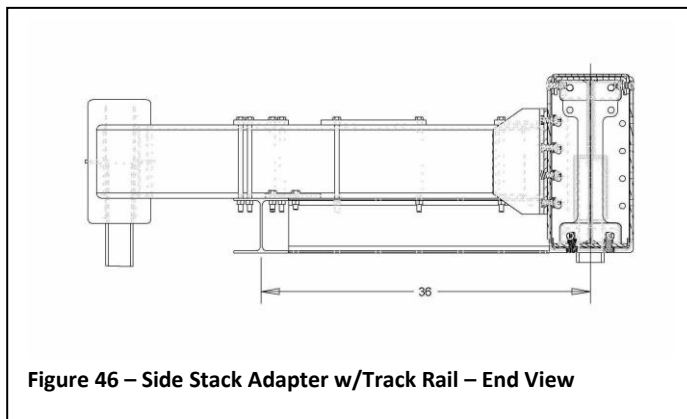
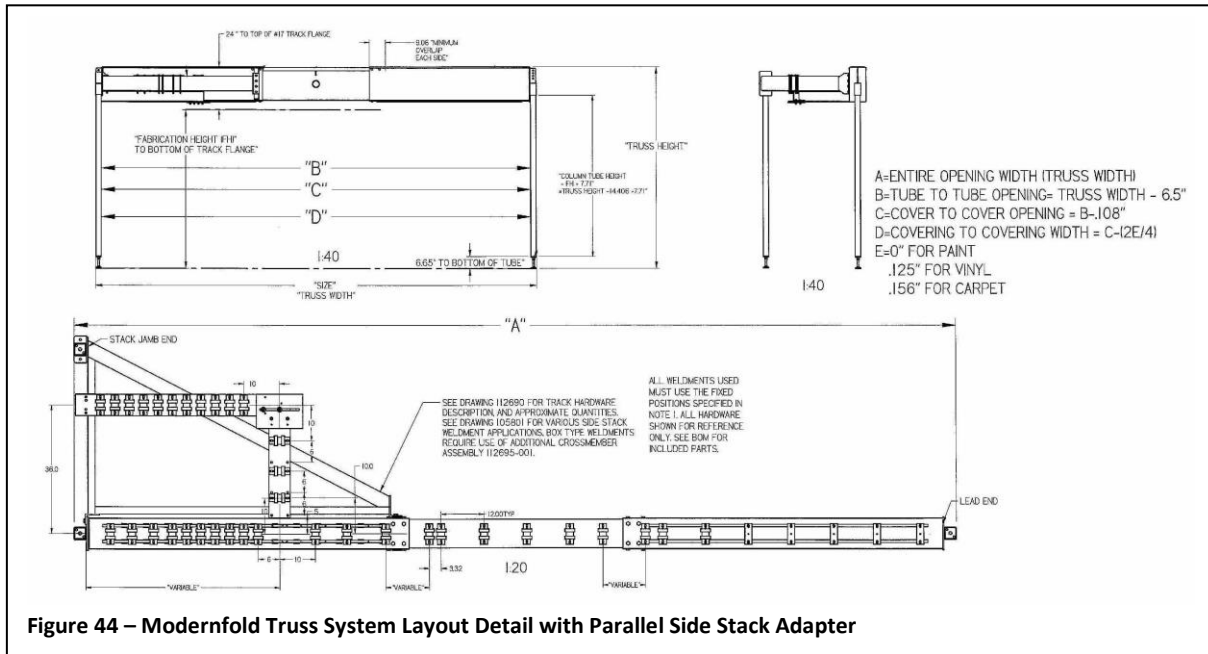
5. Using the supplied #8 – 18 x 3/4" self drilling screws install the column tube/ jamb channel to the 3" x 3" tube. Do not over tighten screws.
6. Dry fit the astragal into the jamb channel. Using the holes provided in the astragal as a template, drill 1/8" pilot holes. **See figure 41 & 43**

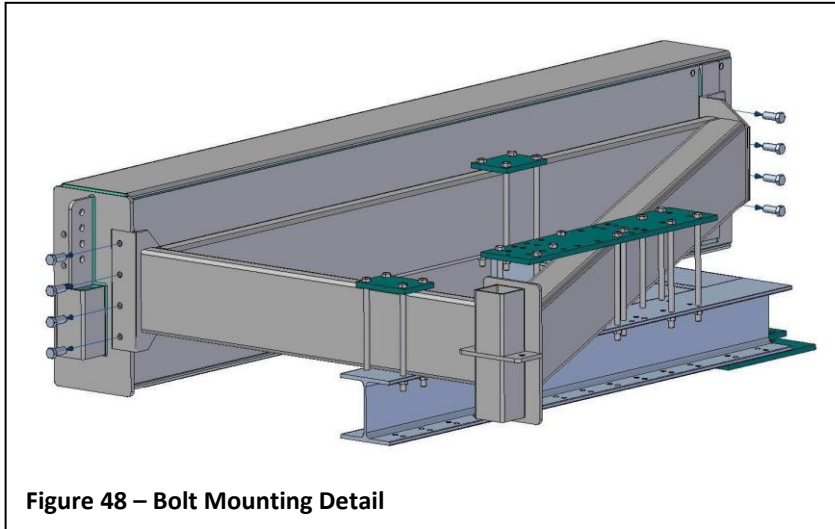


7. Install the astragal using the supplied #6 – 20 x 1 5/8" self drilling screws and finishing washers. Do not over tighten screws.
8. Run a continuous bead of silicone caulk on each side of the jamb channel, where the jamb channel mounts to column tube.

Step 7- Side Stack Installation

After completing the installation of the truss, the side stack can now be installed. At this point of installation, the truss must be raised, leveled and braced.





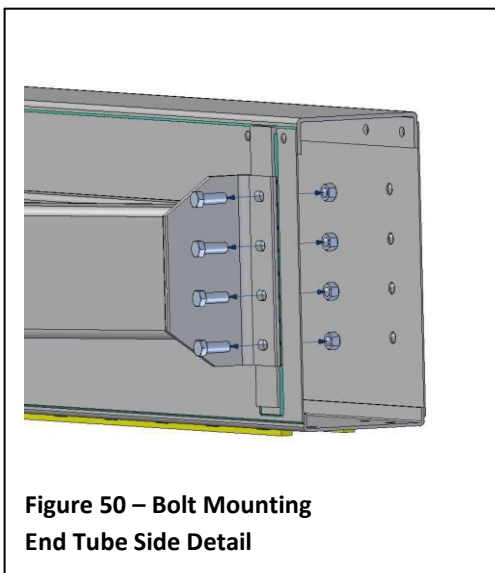
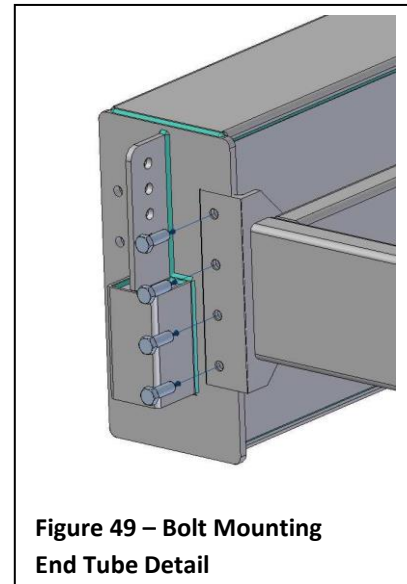
Note: Review drawings to determine the location of the Side Stack Assembly. The Side Stack Assembly is uniquely designed to be installed on either side or either end of the layout.

1. Raise Side Stack Assembly to the mounting height. Secure the Side Stack assembly to the existing Modernfold Truss System and check for level. Lift will remain supporting the side stack assembly until installation is completed.

See Step 3 - Lateral Support Bracing – Page 11

2. Align the bolt holes located at the each end of the side stack assemble and the truss system. At the end face of the truss, using the 4 bolts provided, thread the bolts into the pre-tapped holes provided.

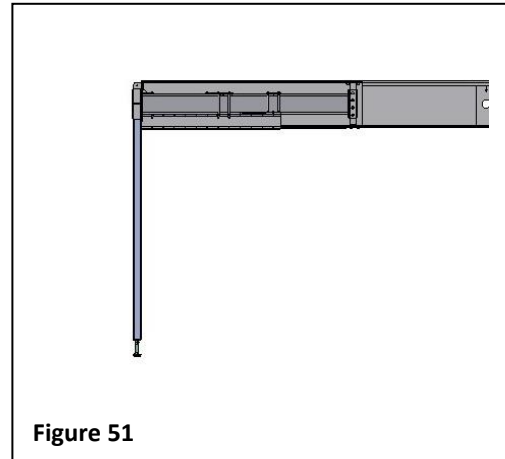
See Figure 49



3. Locate the 4 holes located at the opposite end of the side stack assembly. Align the holes to match up with the 4 holes located on the truss face. Using the 4 bolts and nuts provided, insert bolts through the holes, and then apply the nuts. All 8 bolts can now be tightened using the same method as Squirter washer on page 15.

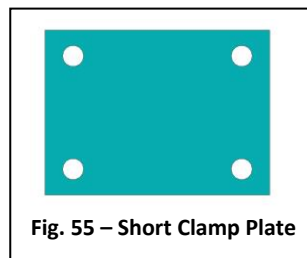
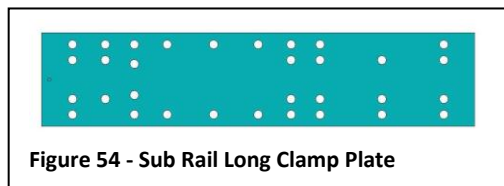
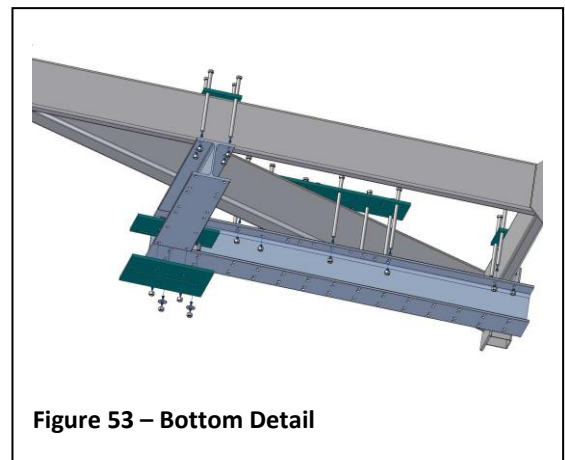
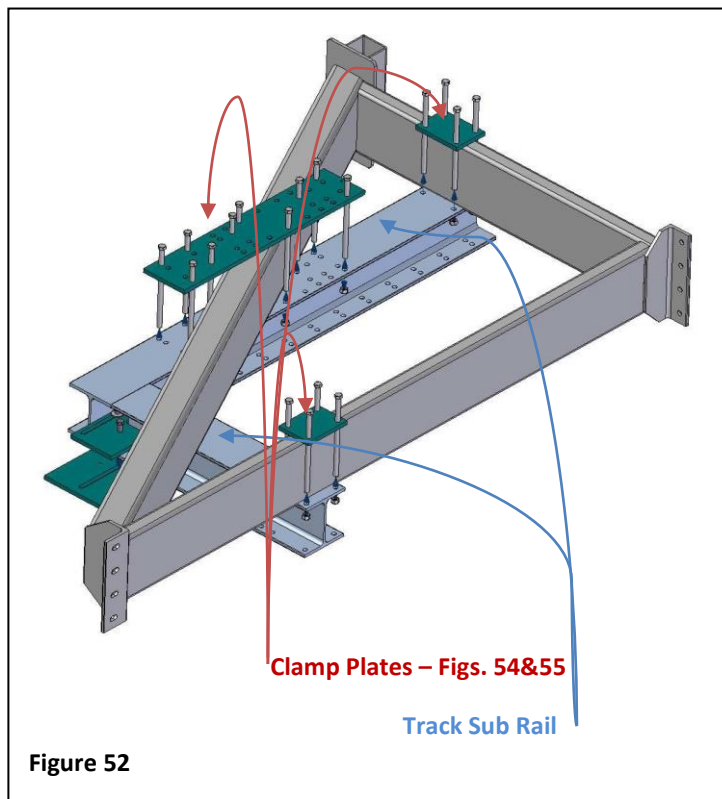
See Figure 50

4. Follow the directions listed in **Step 2** for installation of the **Column Tube Assembly**.
Note: Plumb column tube and level and side stack in all directions



Step 8 - Track Hanger Attachment Installation

The Track Hanger Attachment is mounted to the Stack Adapter frame by use of both the Sub Rail Clamp plate and the Short Clamp Plates. **Follow Figures 52 thru 55**



Track Hanger Attachment Installation Cont.

The Track sub Rail is connected at the corner using a top reinforcement plate and a Stack Reinforcement Plate. **Follow Figures 56 thru 59**

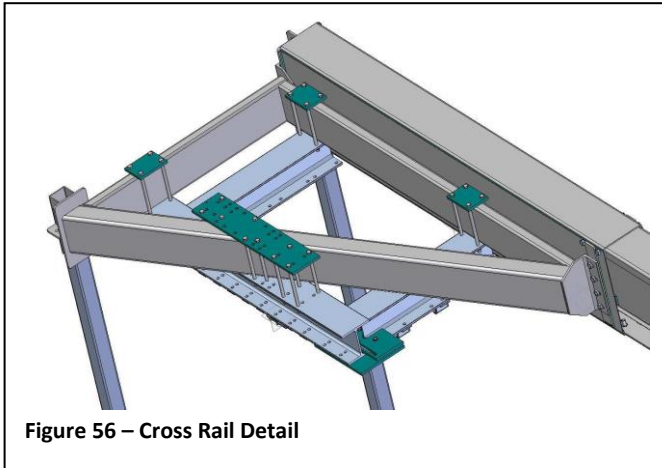


Figure 56 – Cross Rail Detail

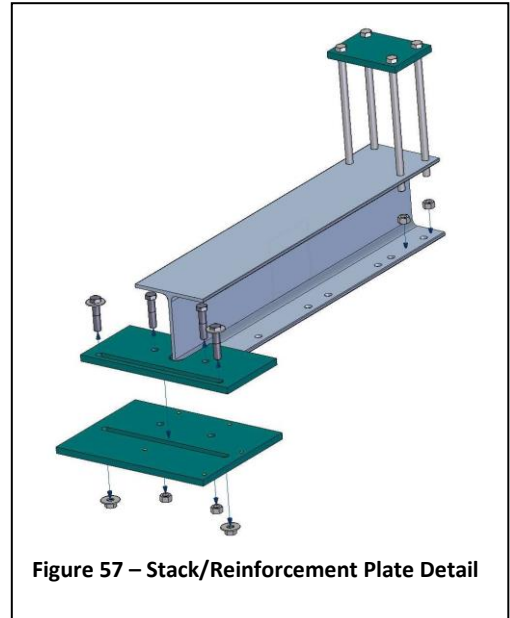


Figure 57 – Stack/Reinforcement Plate Detail

Note: (Figure 57) This assembly is only required when implementing 90-degree stacking

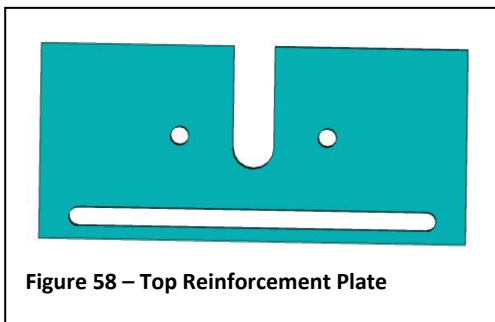


Figure 58 – Top Reinforcement Plate

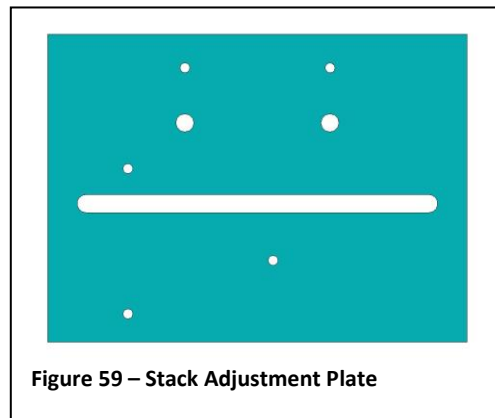


Figure 59 – Stack Adjustment Plate

Note: After completing Sub Rail installation, track can now be installed.



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