Identifier:	Revision:	Effective Date:	**IRWIN SEATING COMPANY – TELESCOPIC DIVISION** **QUALITY POLICY** **Committed to Customer Satisfaction** Do it Right The First Time On Time and Complete Continual Improvement
VersaTract with Versadeck	**F**	10/09/2025	
Document Number:			
Author:			

VersaTract - VersaDeck Installation Manual

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Disclaimers

Privacy Information

This document may contain information of a sensitive nature. This information should not be given to persons other than those who are involved in the project or who will become involved during the lifecycle.

Typographical Conventions

This document uses the following typographical conventions:

Bold

Command and option names appear in **bold** type in definitions and examples.

- Directories, files, partitions, and volumes also appear in bold.
- Interface controls (check boxes, radio buttons, fields, folders, icons, list boxes, items inside list boxes, multicolumn lists, menu choices, menu names, and tabs)
- Keywords and parameters in text Italic

Variable information appears in *italic* type. This includes user-supplied information on command lines.

- Citations (titles of books, diskettes, and CDs)
- Emphasis of words
- Words defined in text Monospace

Who Should Read This Book?

- Those individuals who are responsible for installation of Irwin and their related components.
- **Certified Irwin Installers**
- Those individuals who plan the deployment of the telescopic system within your organization, such as maintenance staff.

Document History

Paper copies are valid only on the day they are printed. Contact the author if you are in any doubt about the accuracy of this document.

Revision History

Revision Number	Revision Date	Summary of Changes	Author
B	3/24/2022	Updated bracing hardware to Flow Drill Style	Chris Bahrns
C	4/4/2022	Added details for low rise joint securing (riser beam)	Chris Bahrns
D	5/24/23	Updated Floating Floor Anchor Detial	Steven Madden
E	8/8/23	Deleted Wade Harker and Chris Bahrns as author and updated Irwin logo	Collin baker
F	10/09/2025	Updated floating wood floor attachment details	Andrew Moeller

Approvals

This document requires following approvals:

Name	Title

Distribution

This document has been distributed to:

Name	Title

Table of Contents

Introduction

The following information has been prepared in order to assist you with the installation of telescopic seating. It has been divided into sections which relate directly to the installation sequence. For your convenience, an index has been provided to help you locate applicable sections quickly and easily.

The installation portion of our business is extremely important. In this segment, the customer usually gets the first look at the equipment they have purchased. Quality craftsmanship is imperative to the overall success of the product and its installation. We have worked especially hard at the factory in order to prepare the materials for this project. Please review all information prior to starting the assembly work and if you have, any questions concerning the work, contact the local distributor.

Thank you!

1.1 Purpose of this document

This Installation Manual has been written to aid in the installation process of the Irwin product.

1.2 Identification

1.3 Points of Contact

- Irwin
  610 E Cumberland Road
  Altamont, IL 62411
  Phone# (618) 483-6157

2 Installation Plan

This chapter includes the following sections:

- Plan
- Scope
- Environment
- Tools
- Staging the Materials

2.1 Plan

It is the sole responsibility of the Certified Irwin Installer to unload, stage, and erect the Irwin product.

It is the responsibility of the personnel unloading the materials to perform an accurate inventory at the time of unloading. For your convenience, a "bill of materials" (packet) has been provided for you. This information has been placed in box #1 and can be found at the rear of the truck. You are responsible for erecting this seating system in strict compliance with these instructions, the field installation drawings, and the bill of materials supplied with the materials.

Any shortages or discrepancies must be reported within 48 hours of receiving the final truck load of materials. **Failure to report such shortages may place the financial burden of replacement on you! (See form F403.002.02 in Appendix.)**

If you believe modification work or corrective actions are necessary, you must first obtain approval for such modifications by contacting Customer Service @ **(618) 483-6157**, 7:30 a.m. to 4:00 p.m. CST Monday through Friday.

Unauthorized modifications to the materials may place certain liabilities on the installation company.

Any extra work which has not been authorized will not be reimbursed.

2.2 Scope

Outline the scope (i.e. boundaries) of the installation plan. Clarify areas which are not part of the installation effort.

2.3 Environment

For multi-site projects, identify all installation sites, including details of the following:

- Site(s) including layout diagrams
- Arrangements for site access
- Availability to system(s)
- Environment issues

2.4 Tools

The following tools are minimum requirements for installing this telescopic seating:

- 1/4" Drive 90 Degree Reversable Drill
- Variable Speed 3/8" Drill
- Electric Hammer Drill
- Variable Torque Impact Wrench
- Tek Gun: 5/16”, 3/8”, & 7/16” Drivers
- Reciprocating Saw**:** wood & steel blades
- Circular Saw
- Remote Power light
- Extension Cords
- Ratchets: 1/4” drive & 3/8” drive
- Sockets
    - 3/8” drive: 3/8”, 7/16”, 1/2", 9/16”, 5/8”, 3/4”
    - T27, T30, T45 socket
    - 3/16 hex bit socket
    - 3/8 drive thin wall, deep well, 9/16” impact socket, Ref. Proto 7718HT
- Extensions (3” & 6” long): 1/4", 3/8”, & 1/2” drive
- Wrenches (at least 2 of each): 3/8”, 7/16”, 1/2", 9/16”, 5/8”, & 3/4"
- 3/8" to 1/2" Socket Adapter
- Drift Pins
- Chalk Line (Blue Chalk)
- Dollies for material handling. **Dollies must have non-marring wheels and not exceed the weight limits of the floor you are working over**
- Hammer & Rubber Mallet
- Driver Bits
    - #2 Phillips
    - 6” T30 Torx
- Drill Bits
    - Wood: 5/16”, 3/8”, 1/2”
    - Steel: 3/8”
    - Masonry: 3/8", 5/8", 11/16" & 3/4"
- 100’ Tape Measure
- Wire Strippers & Wire Crimpers
- Pencils & Markers

- Squares, levels (4’ & Torpedo), and Tape Measures
- Utility Knives
- Vice Grips
- Screw Drivers Assorted & #1 Phillips Bit
- Allen Wrenches
- Ohm/Voltage Meter or Tester
- Tin Snips
- 4” Hole Saw
- E-clip Installation & Removal Tool: Ref. Jonard CS-1022

Figure 2.4: E-clip Installation & Removal Tool

2.5 Staging the Material

As with any construction project, staging the material is extremely important because it helps you identify problems before they cause delays. The staging process aids in your inventory if the parts are staged as they are unloaded. It can also alert you to problems such as site conditions that have changed since the field check was performed, because proper staging places components as close to their final assembly as possible. Problems with columns and floor conditions can sometimes be seen very easily through proper staging.

Prior to sorting the material, refer to the **Plan View, Elevation, and Framing Plans** (located in the field packet) and note the section sizes and accessories (basic accessories include score's tables, end rails, end panels, power operation) and special requirements (column cut out materials). All materials related to these accessories or special applications should be counted and set aside for later use.

Refer to the **Plan View and Framing Plans** (located in the field packet) and note the extended dimensions of the bleacher. Add four feet to this dimension. This working area, occupied by the extended (open) bleacher and the added four feet, should be kept clear at all times. **The floor must be protected at all times during the installation of the bleachers.** Ram Board and Masonite can be used as flooring protection during installation.

See Figure 2.5a for layout of properly staged material.

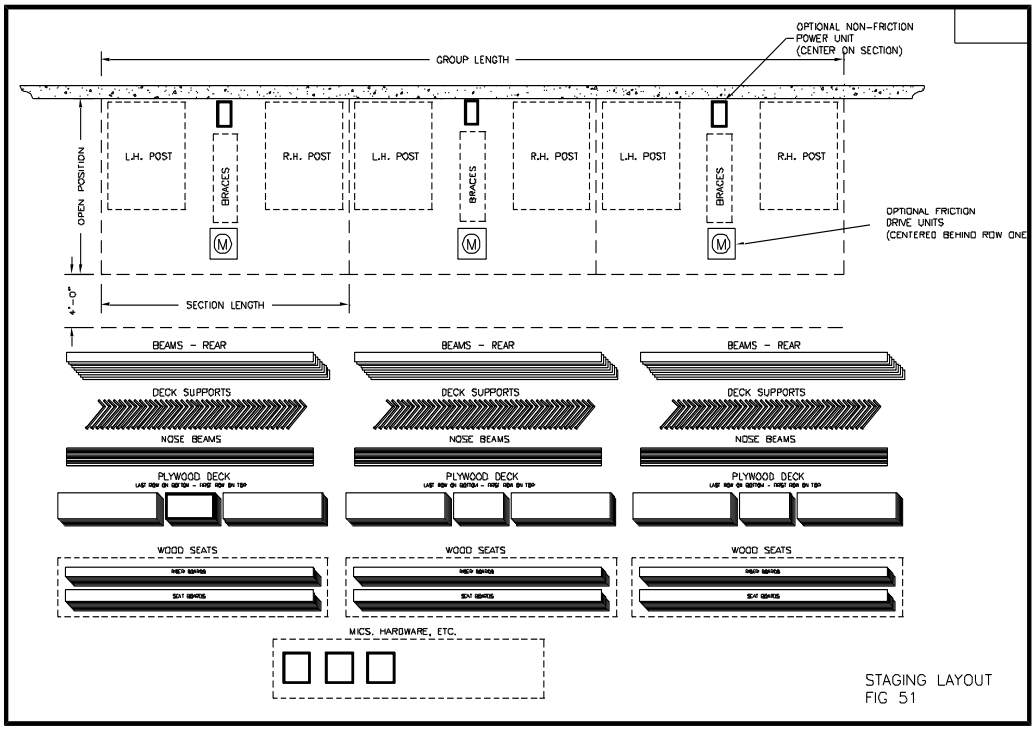


Figure 2.5a: Proper Staging Layout

Note: Nose Beams and Riser Beams are punched group, section, and row specific.

Figure 2.5b: Beam identifying label

Riser beams are labeled as seen above:

- **Part Number**
- **Job Number with Release**
- **(Taper,Release,Group Number,Section Number,Row Number,Length – XXX.XXX)**
    - Taper Designation referenced above. N = No Taper, L = LH Taper, R = RH Taper, F = Left Taper w/ Notch, G = Right Taper w/ Notch, B = Both Taper w/ Notches
    - **M in the front of row designation signifies that it is a MDU rear beam**
- **Section #,**
- **Row #**

3 Installer Requirements

It is the responsibility of the Irwin Certified Installer to obtain all tools and employees to fully assemble the Irwin product.

This chapter includes the following sections:

- Overview of installation
- Known Problems

3.1 Overview of Installation

Once the materials have been properly staged and inventoried, you are ready to begin the installation.

The first step is locating the area on the floor the bleacher occupies in its fully open or "**extended position**". Use the **Shop Drawings, Framing Plans,** and the **Plan View** drawings, ***located in the Packet*** provided with the materials, to verify the extended dimension (the distance from the rear wall to the front of the first row of seating). With a chalk line, snap a line on the floor parallel with the wall to represent the first row of seating. Next, locate the ends of the bleachers by verifying the distance from the wall to each end of the seating group using the shop drawings. Snap chalk lines perpindicular to the wall to represent the ends of the seating section or group.

WARNING:

It has been reported, and verified by us, that some red and black chalks have stained floors and walls and are not easily removed. For this reason it is highly recommended that red and black not be used.

You should now have a rectangular shape shown on the floor in chalk that represents the bleacher in its extended or open position. This operation allows you to assemble the bleachers as close to their final position as possible

3.2 Known Problems

- The Irwin office hours are 7:30 a.m. to 4:00 p.m. CST, Monday through Friday @ **(618) 483-6157 or (877) 597-1122**.
- Parts orders called in after 12:00 noon cannot be shipped the same day.
- This manual is to be left with the customer and should be used during the demonstration.
- The installer is responsible for all clean up of construction debris related to the installation of the product. **Dirt, dust, and debris may become embedded in the wheels causing damage to the floor and equipment.**
- The installer is responsible for the removal of marking tape and tags from all parts and components after product is installed (It is recommended that factory tags stay on parts during installation).
- The installer is responsible for removal of all "extra" parts from the job site upon completion of the work. The bill of materials, field installation drawings, and manual are found in hardware box #1.
- If end rails are required, they will typically start on row #3.
- Intermediate seat and riser boards are interchangeable between rows within the same section.
- Knee bracing begins on row #2.
- Typically, the seating installer is not responsible for final electrical connections on motorized projects.
- The position of parts, designated right hand (RH) and left hand (LH), is determined by facing the wall in which the bleacher is mounted.(**not sitting on the bleacher, facing the court**)
- The skirt and manual rowlock knobs (if equipped) are the last items installed, after the bleacher is in proper working order and all adjustments are made.
- Special parts and applications will be shown on field installation drawings.
- VersaDeck is easier being installed by building decks first and then placing on post when access to a fork lift is viable.

4 General Terminology & Definitions

This chapter includes the following sections:

- Decking Material
- Assembly Parts
- Post Catalog
- Electrical Components

Unless otherwise stated the following terminology and definitions shall, for purposes of this installation, have the meanings shown in this chapter.

4.1 Decking Material

Tongue & Groove

- Panelam
- C-C Plug Plywood used for Carpeted Decking
- Aluminum planks

4.2 Assembly Parts

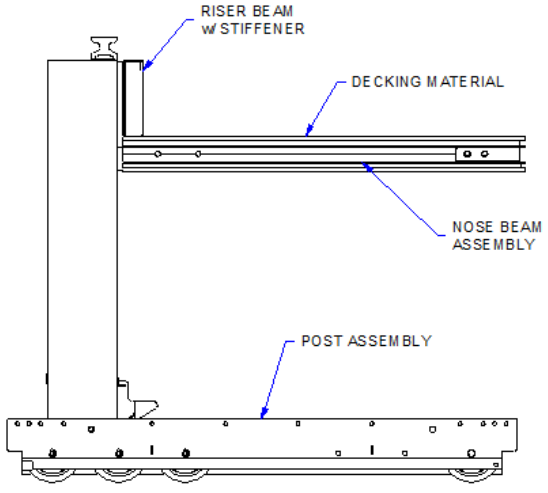


Figure 4.2a: Deck Assembly

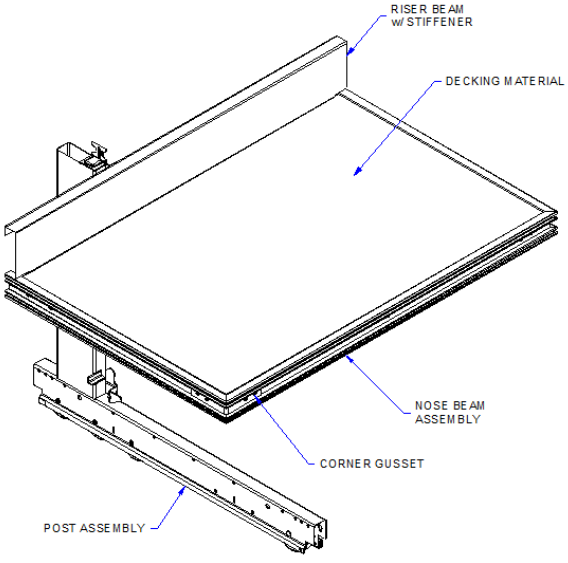


Figure 4.2b: Deck Assembly

4.3 Post Catalog

4.3.1 IDS Power Post

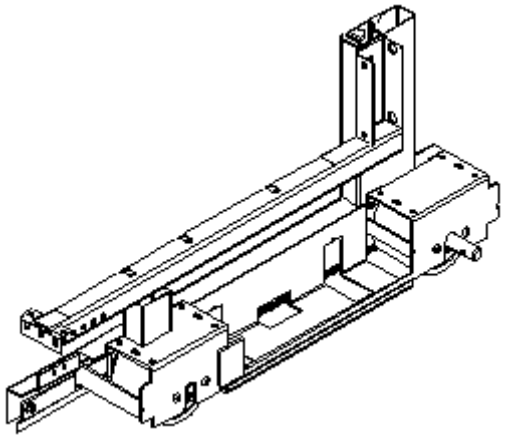


Figure 4.3.1b: Row 1 Wide Power Post

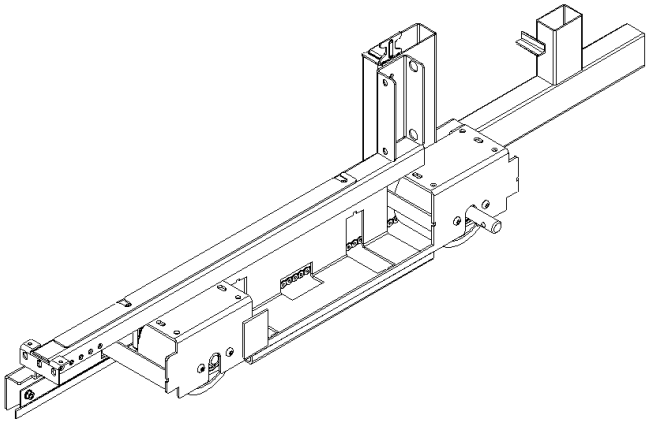


Figure 4.3.1c: Row 1 Nosemount Power Post

4.3.2 Truncation Post

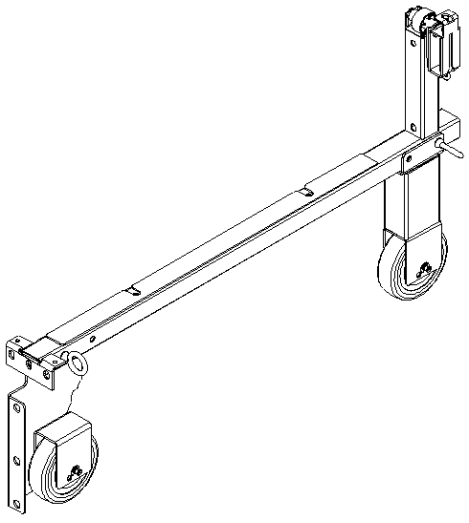


Figure 4.3.2a: Row 1 Recoverable Post

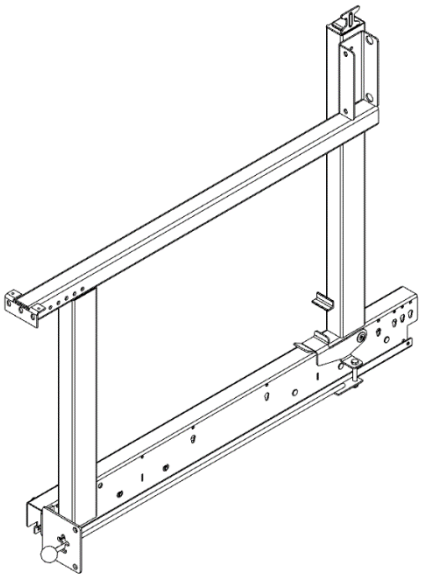


Figure 4.3.2b: Row 2 Truncation Post

4.4 Electrical Components

4.4.1 Contactor

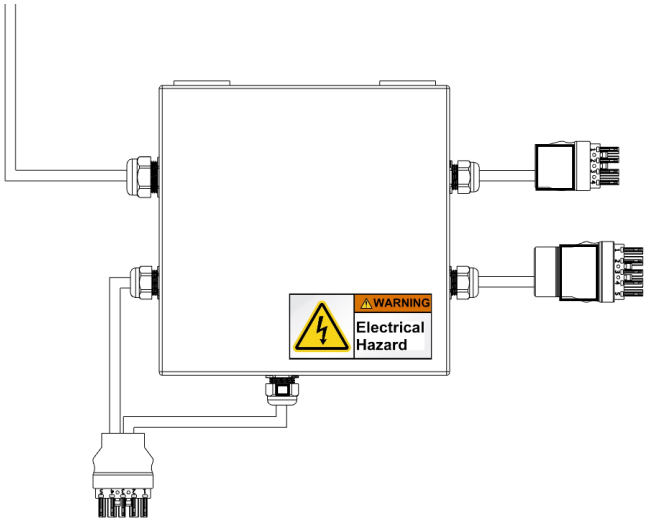


Figure 4.4.1: Contactor Box

4.4.2 Integral Drive System

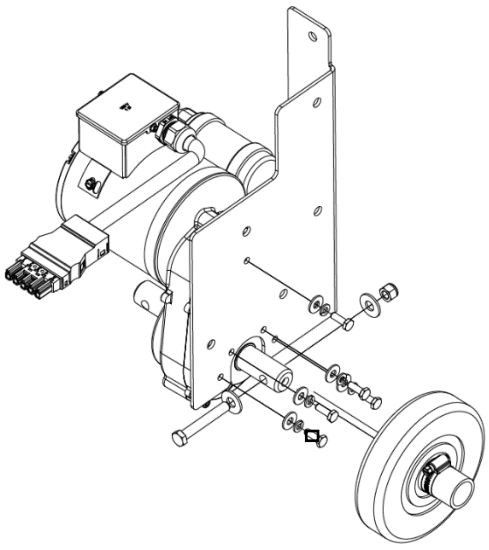


Figure 4.4.2: Integral Drive Motor (STANDARD MOUNT)

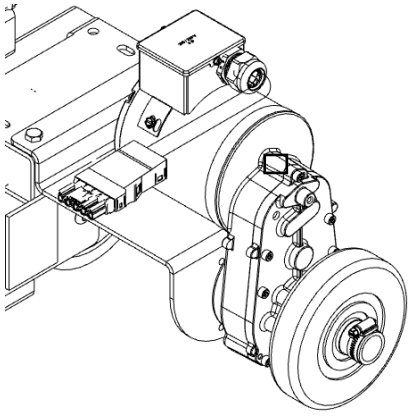


Figure 4.4.3: Integral Drive Motor (IDS MOUNT)

5 Decks Assembled Assembly

This chapter includes the following sections:

- Decks Assembled
- Attaching Rear Beam to Post
- Attaching Decking to Cantilver

5.1 Decks Assembled

Most of the time the decking portion of the product is shipped in pieces. The product may also be shipped with the decks already assembled. For decks that are shipped in pieces, please follow through all of the instructions about constructing and attaching all the components of the deck in section 6.1 through 6.3.

For jobs that are shipped with the decks assemblied (decks shipped completed from the factory), the completed deck is simply lifted onto the posts and bolted in place. The process is shown below.

5.2 Attaching Rear Beam to Post

Stand the left and right hand row 1 posts upright in the open position as indicated in the project layout. Place the deck onto the posts and guide the lower riser beam bolts into place in the post gusset. See figures 7.1a-7.1e. Place a 3/8-16 x 1 HHCS through the top hole of the post gusset into the rear beam. Attach using (2) 3/8-16 SRTD lock nuts nuts and leave loose.

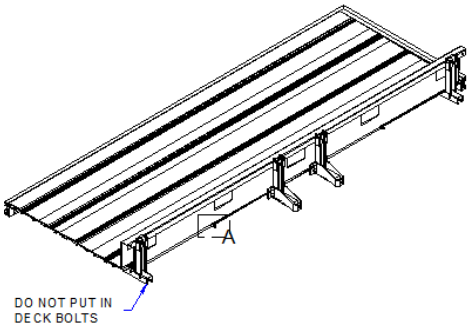


Figure 5.2a: Rear Beam Assembly

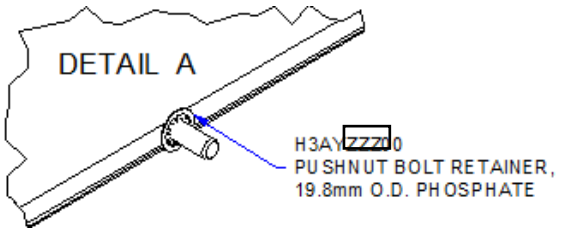


Figure 5.2b: Post Bolt Detail

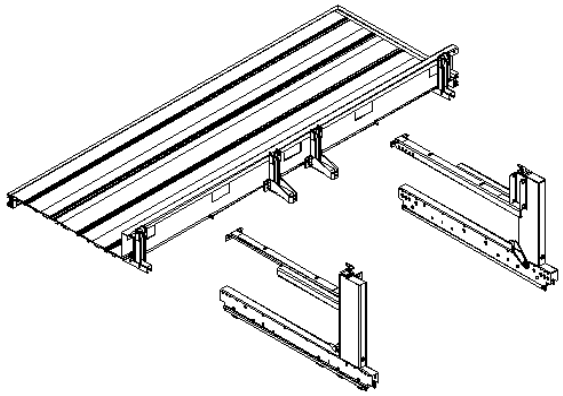


Figure 5.2c: Deck Attachment

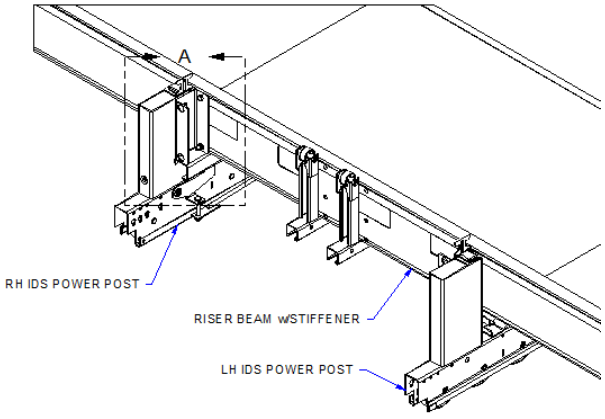


Figure 5.2d: Rear Beam Assembly

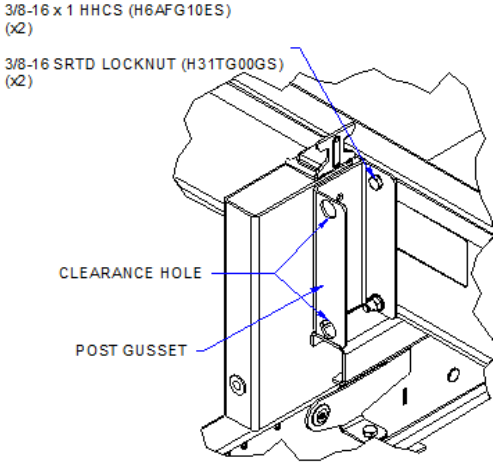


Figure 5.2e: Rear Beam Detail

5.3 Attaching Decking to Cantilever

Once the deck is secured, be sure to fasten the decking material to the cantilever. See figure 5.3a for panelam attachment to cantilever, and see figure 5.3b for attachment of aluminum decking to the cantilever.

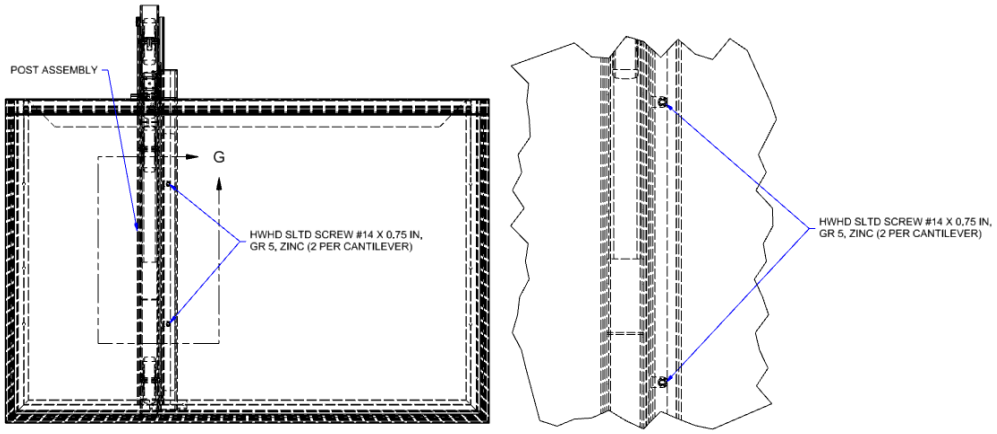


Figure 5.3a: Panel Deck Screw Locations At Post Location

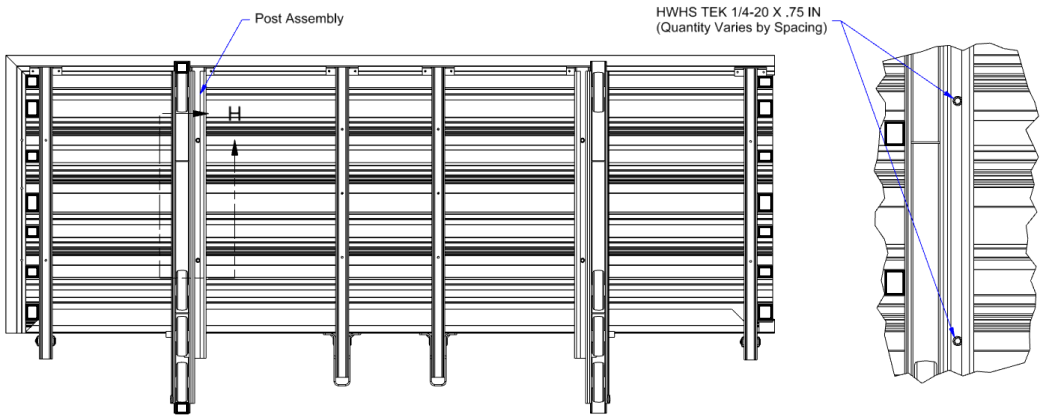


Figure 5.3b: Aluminum Deck Screw Locations on Post Cantilevers (Bottom View)

6 Deck Assembly

This chapter includes the following sections:

- Overview of Product Assembly
- Rear Beam to Post
- Nose Beam to Post
- Standard Deck Support to Beam
- Standard Deck Support to Beam – Low Rise
- Brace Deck Support
- Adding the Decking

6.1 Overview of Product Assembly

Most of the time the decking portion of the product is shipped in pieces. The product may also be shipped with the decks already assembled. For decks that are shipped in pieces, please follow through all the the following instructions about constructing and attaching all the components of the deck. As stated above, VersaDeck is easier to build and then lift onto the post **if a forklift is available.** If forklifts are available start at step 6.4 and follow through the rest of section 6 (omitting any attachment to the posts). Once decks are built, refer to step 5.3 above for instructions of how to attached a built deck to the posts.

6.2 Rear Beam to Post

Stand the left and right hand row 1 posts upright in the open position as indicated in the project layout. Place the rear beam on the posts. Place a 3/8-16 x 1 HHCS through the bottom channel of the rear beam into the bottom hole of the post gusset. Place a 3/8-16 x 1 HHCS through the top hole of the post gusset into the rear beam. Attach using (2) 3/8-16 SRTD lock nuts nuts and leave loose.

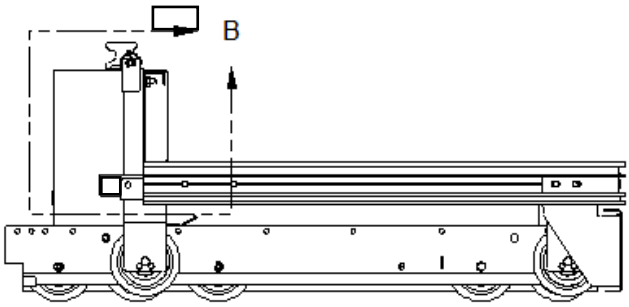


Figure 7.1f: Rear Beam Detail

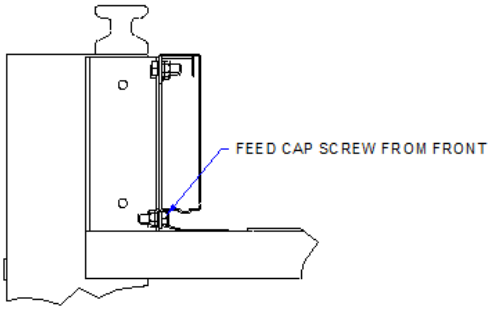


Figure 7.1g: Rear Beam Detail

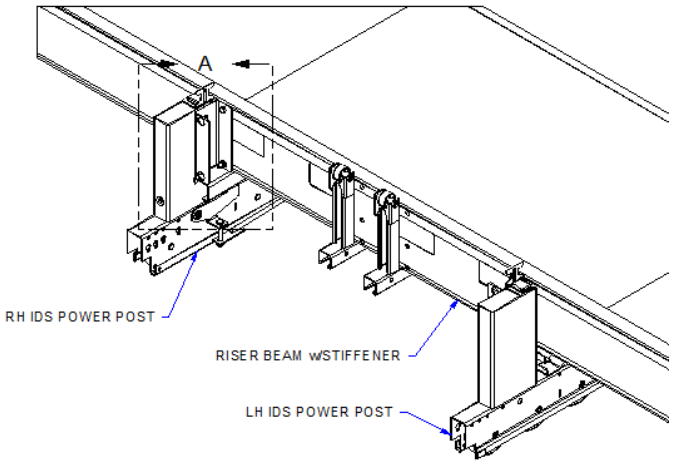


Figure 7.1d: Rear Beam Assembly

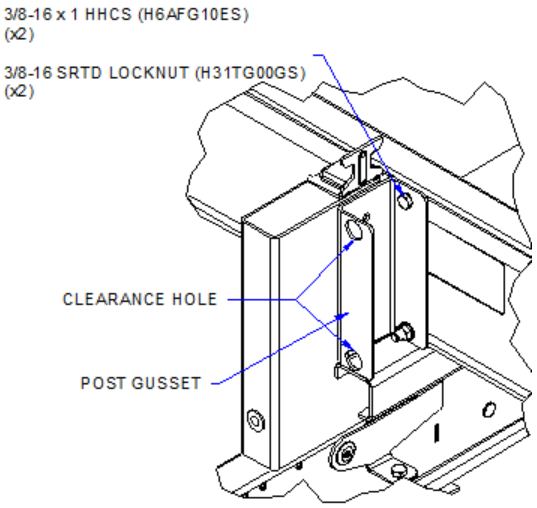


Figure 7.1e: Rear Beam Detail

6.3 Nose Beam to Post

Place nose beam on the post assembly. Square up nose beam to riser beam. Place a 3/8-16 x 1 ½" HHCS into the nose beam and post assembly respectively. Attach using 3/8-16 SRTD lock nut to cap screw and leave loose.

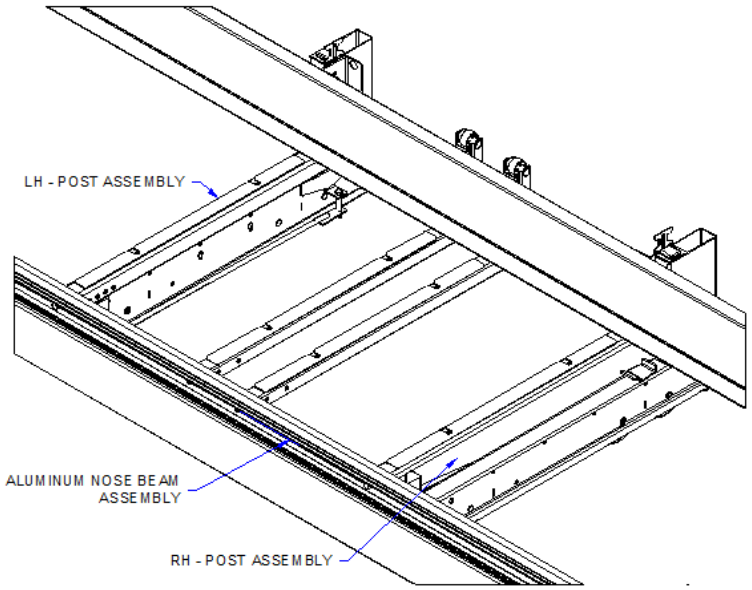


Figure 6.3a: Nose Beam Assembly

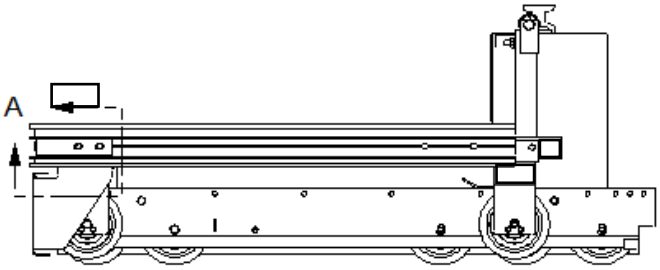


Figure 6.3b Nose Beam Assembly

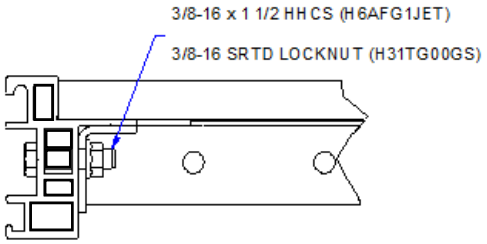


Figure 6.3c Nose Beam Detail

6.4 Standard Deck Support to Beam

Place deck supports into position using layouts. Bolt into place using 3/8-16 x 1 ½" HHCS and SRTD lock nut. Place HHCS into nose and rear beam and then deck support respectively and leave loose. Square nose beam to riser beam.

Figure 6.4a: Deck Support Assembly

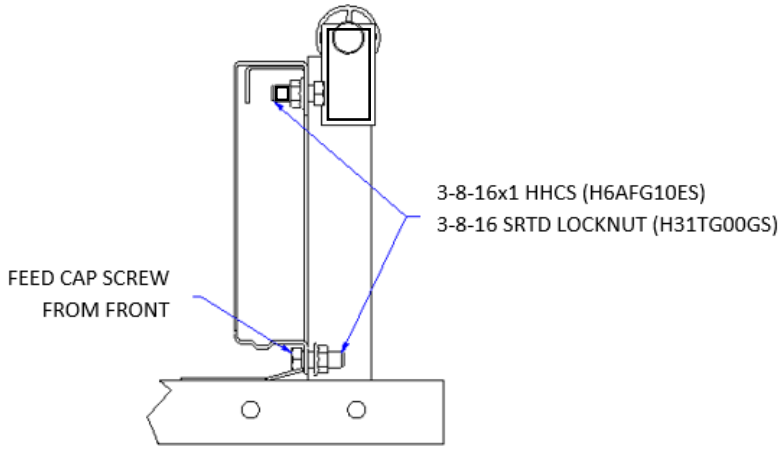


Figure 6.4b: Deck Support Detail

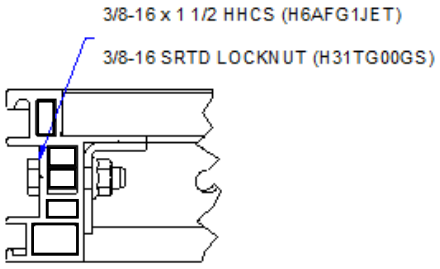


Figure 6.4c: Deck Support Detail

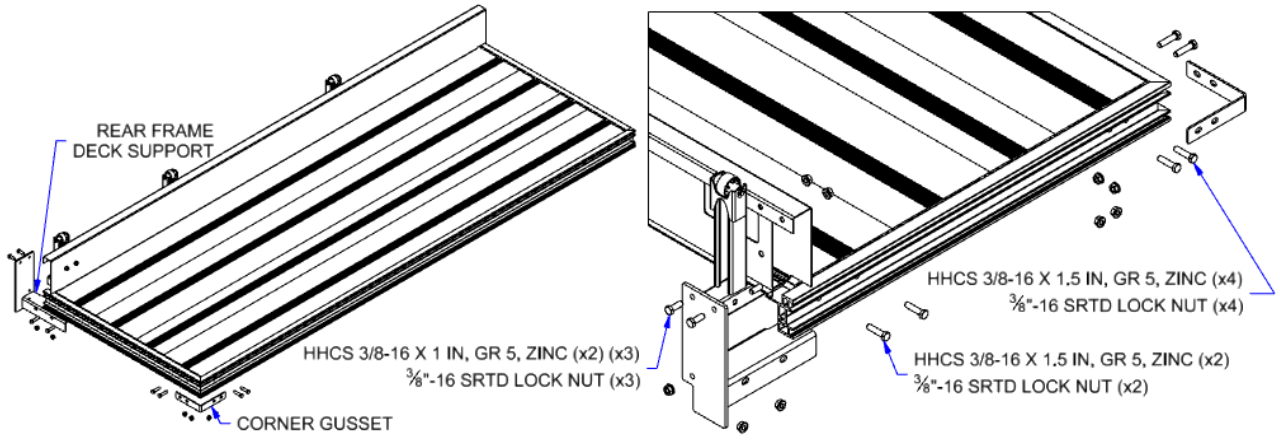


Figure 6.4d: END FRAME DECK SUPPORT

6.5 Standard Deck Support To Beam – Low Rise

For low rise systems, please refrain from inserting the tek screw into the riser beam (figure 5.3.1b) until you have plywood or aluminum planks in. This will ensure that the decking material fits in the deck.

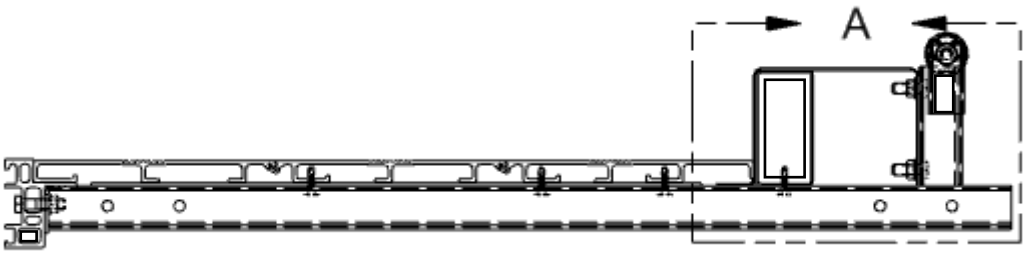


Figure 6.5a: Low Rise

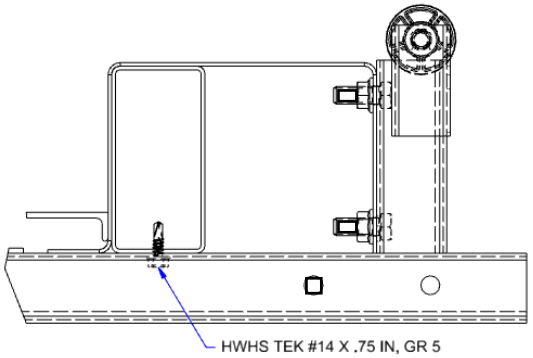


Figure 6.5b: Low Rise

6.6 Brace Deck Support

Where applicable install brace deck supports following the instructions below.

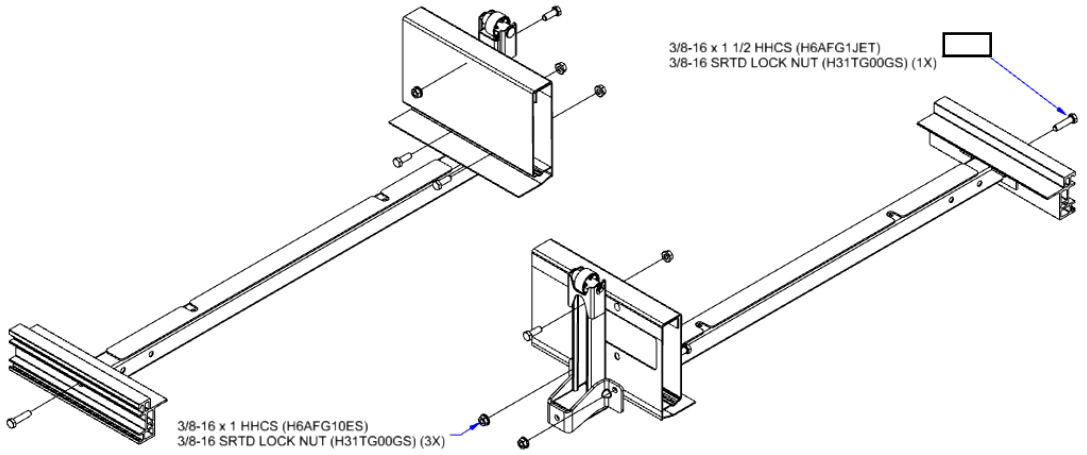


Figure 6.6a: 3” Post Column Brace Deck Support Connections

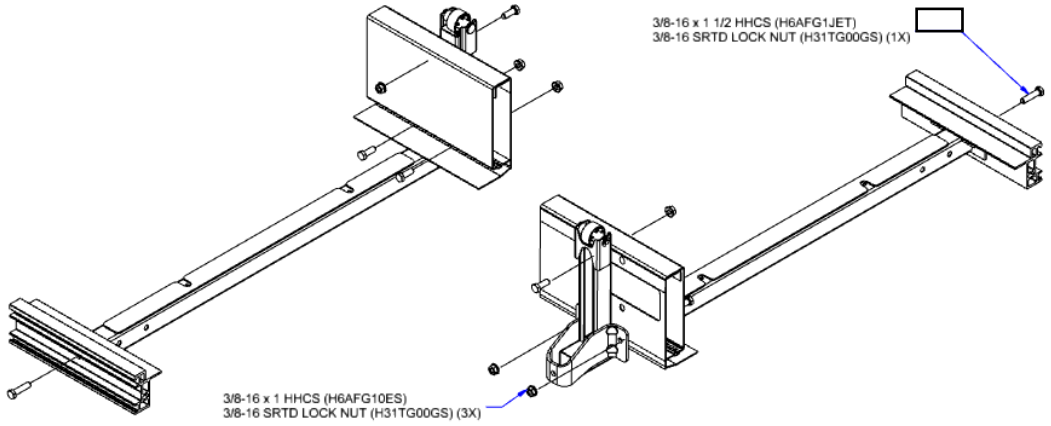


Figure 6.6b: 4” Post Column Brace Deck Support Connections

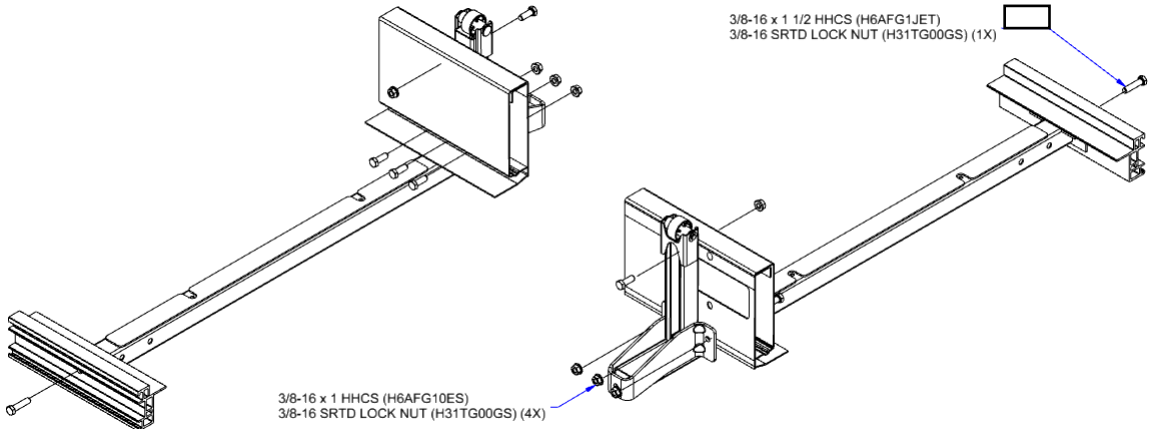


Figure 6.6c: 6” Post Column Brace Deck Support Connection

6.7 Adding the Decking

6.7.1 Plywood Decking

Step 1: Begin laying 4' sheets across an entire row from one end to the other. *Attach only the first piece of decking with #14 x ¾" HWHD SLTD SCREW through the first deck support and end nose. This deck support is typically located at 5". All other deck screws will be installed later.*

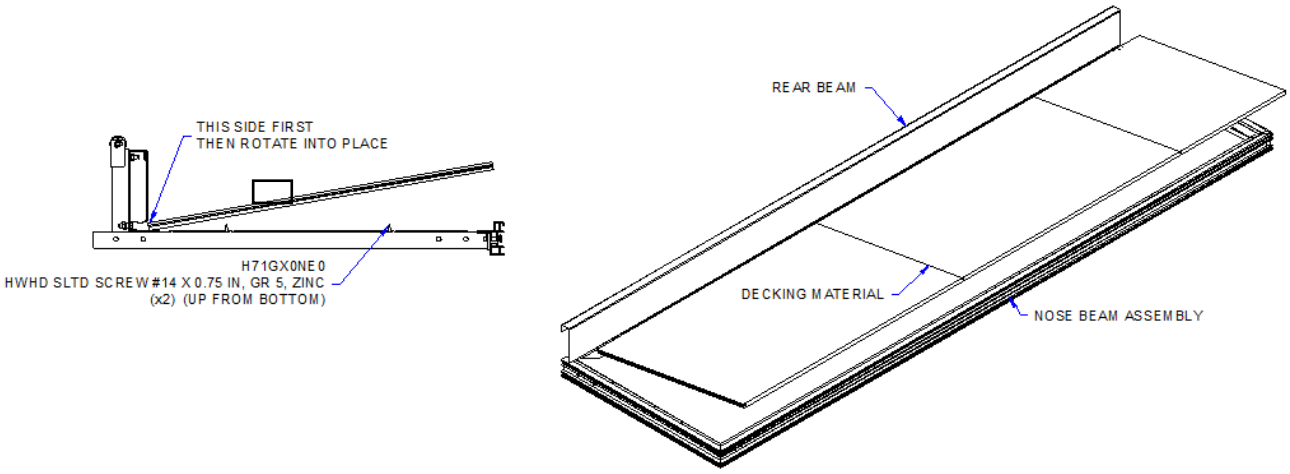


Figure 6.7.1a: Tongue & Groove First Piece Install

Step 2: Place the pieces as shown above sliding the tongue of the next piece into the groove to give a joint between the two decking pieces.

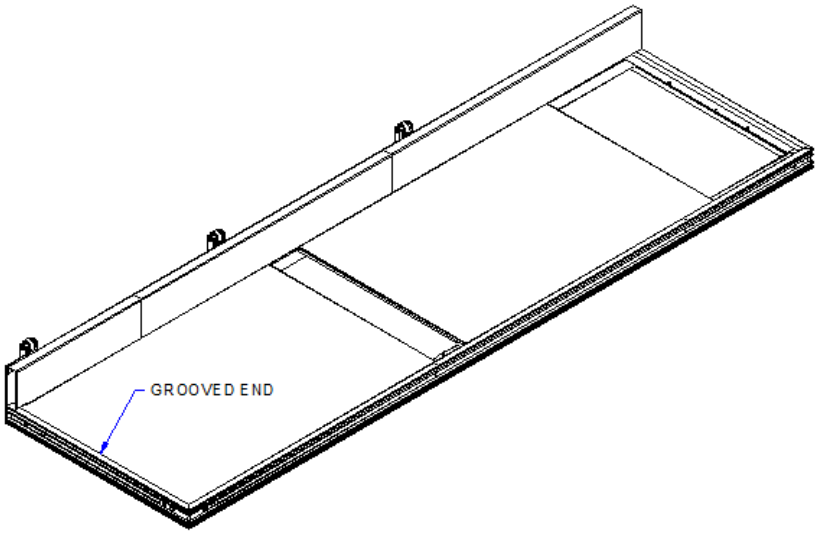


Figure 6.7.1b: Typical Install View

Step 3: Continue this process until the end of the row is reached.

Step 4: Square the deck by tapping the nose beam until flush with rear beam and starting deck board.

Step 5: Typically the last board in the row will be overhanging the deck by varying lengths. Make sure all pieces in the row are pushed tight together and the joints look good. On low rise product, use the provided holes in the lip of the low rise riser beam to secure any upheaved joints from underneath, as needed, with a hex head wood screw.

Once complete, this piece is to be cut off flush to the end of the rear beam and nose beam. ***Use this piece to start the next row of decking.***

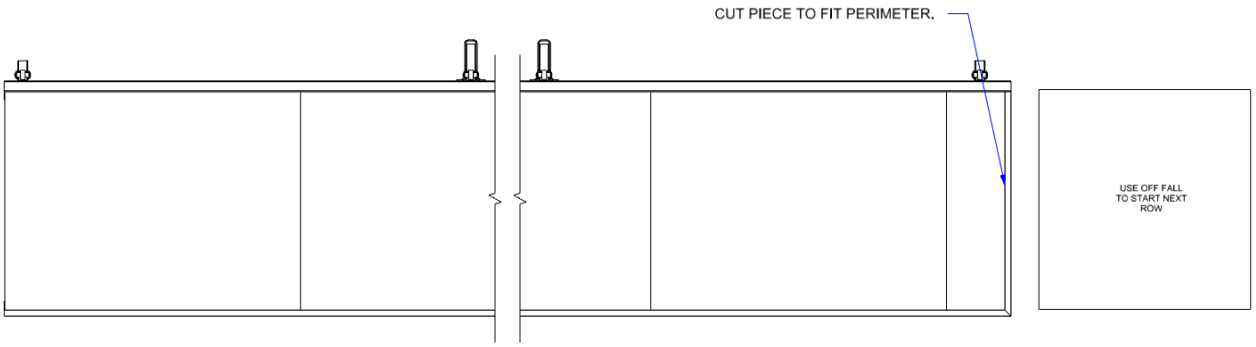


Figure 6.7.1c: Cutoff Detail

NOTE: THE STARTING PIECE AND ENDING PIECE MAY NOT BE SHORTER THAN 6" LONG. IF THIS SITUATION OCCURS, SLIDE ALL THE PIECES DOWN AND MAKE THE STARTER PIECE OVERHANG THE ROW AS WELL AS THE END PIECE. CUT BOTH PIECES FLUSH TO THE NOSE BEAM AND REAR BEAM.

Step 6: When pieces are cut and deck is square, attach #14 X ¾" HWHD SLTD SCREW to deck using the deck supports holes to locate (See boxed material report). See figure 6.7.1d and 6.7.1e for deck screw location rules for deck supports, cantilevers, and nose beams.

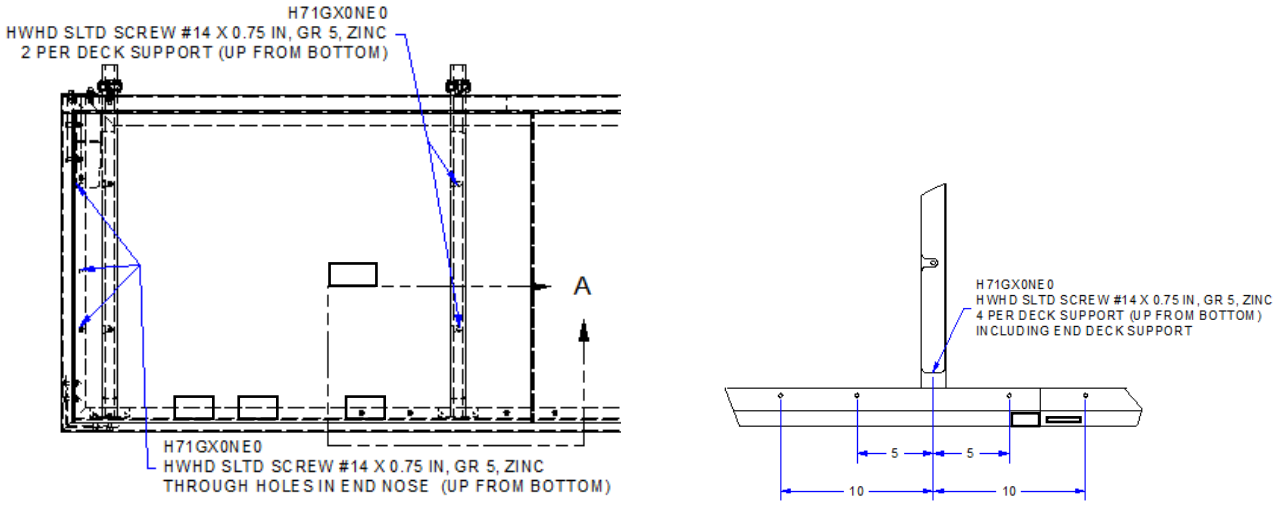


Figure 6.7.1d: Panel Deck Screw Locations

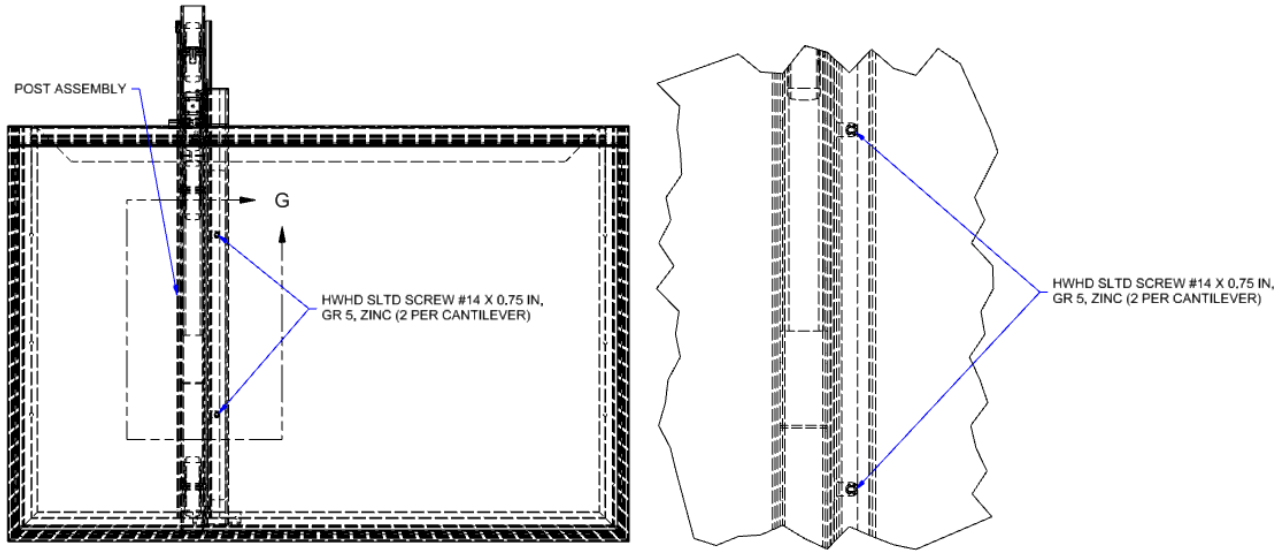


Figure 6.7.1e: Panel Deck Screw Locations At Post Location

Step 7: Tighten all hardware before moving to next row.

6.7.2 Carpet Installation

Carpet tiles typically come in 18”x36” sizes. Apply LokDots adhesive tabs to the back of each tile in the pattern shown in Figure 5.5e. We recommend starting approx 2” from the edge of the tile and moving down the tile perpendicular to the directional arrows. We recommend applying adhesive tabs in a series of 3 tabs in each corner. The 18 x 36 tiles have 3 rows in the middle due to its longer length for a total of 21 tabs per tile.

LokDots application

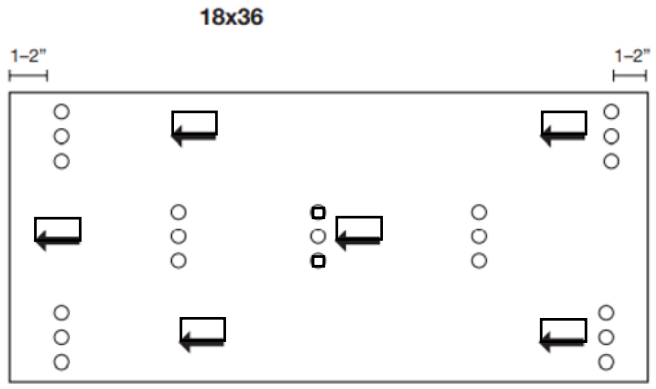


Figure 6.7.2a: Carpet Tile Installation

Directional arrows are featured on the back of the tile. Numbers within the arrows are for manufacturing purposes and are not related to installation

LokDots is a pressure sensitive adhesive. It is very important to roll the entire installation with a 75 lb or greater roller to assure the proper adhesion of LokDots to the substrate.

Tiles may be cut by measuring and cutting from the back using a straight edge. Care must be taken to assure the arrows are pointing in the correct direction. Once cut, dots may be applied to the trimmed module then put into plac

Slide modules into position to prevent yarn from being trapped between the modules. Trapped yarn will adversely affect the appearance of the installation and will cause alignment problems. Figure 3 • Modules must fit snugly, but not be compressed. Press the entire surface of the tile to ensure adhesion. Check for fit by measuring the length of ten full modules after installation. The measurement must not be less than, or exceed by more than 1/4 inch, the length of the modules being multiplied by ten. For example: if 24” X 24” modules are being installed, the measurement should be between 240 and 240 1/4 inches. LokDots is a pressure sensitive adhesive. It is very important to roll the entire installation with a 75 lb or greater roller to assure the proper adhesion of LokDots to the substrate.

Use plywood over the carpet when heavy objects are moved on or over product within 24 hours after installation

A non-staining building material paper must be placed over the carpet to protect it when additional construction activity is to take place. Do not use plastic sheeting as it will trap moisture

6.7.3 Aluminum Decking

Step 1: Place Rear Plank into deck assembly

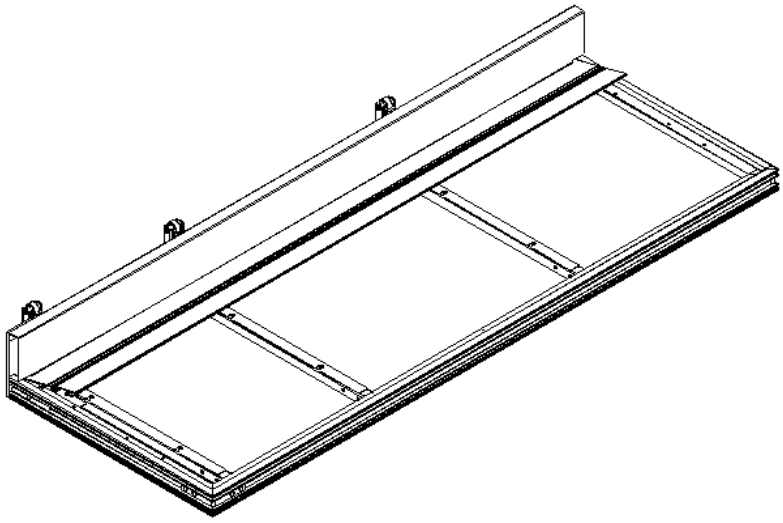


Figure 6.7.3a: Aluminum Plank First Piece Install

Step 2: Place other planks into deck assembly

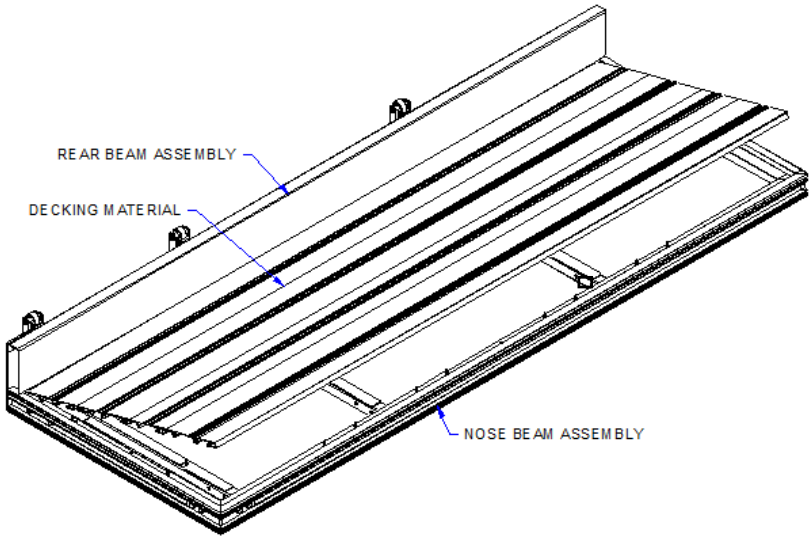


Figure 6.7.3b: Aluminum Plank Install

Step 3: Shift planks so there is a ¼" gap from end nose extrusion to decking for deck trim

Step 4: Screw down aluminum deck planks to deck supports, nose, and post cantilvers. (**Figure 6.7.3c,d,e)**

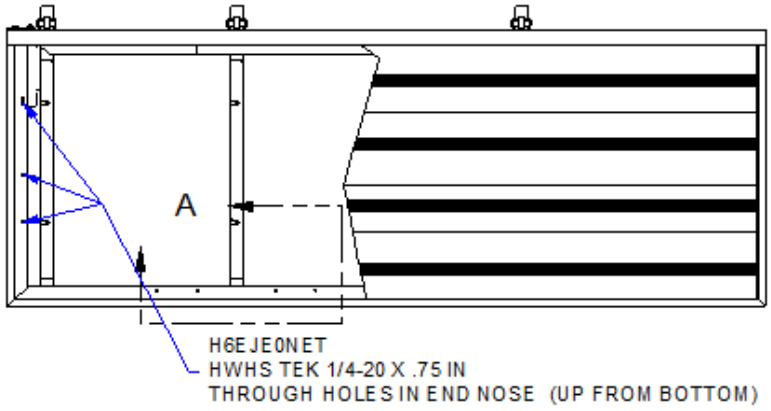


Figure 6.7.3c: Panel Deck Screw Locations

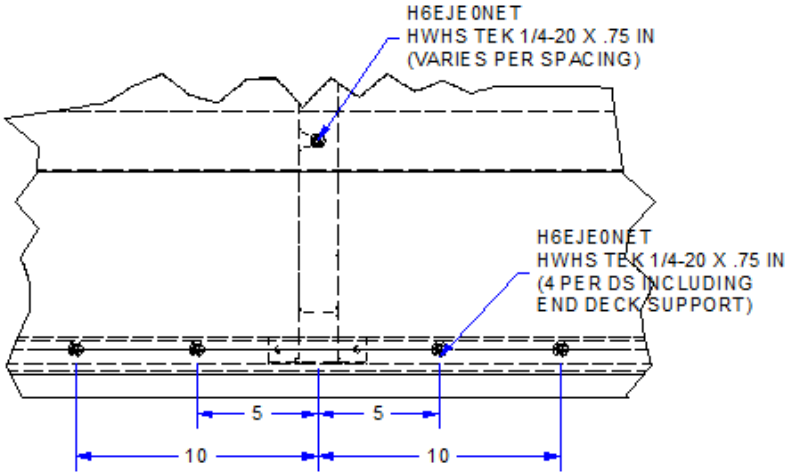


Figure 6.7.3d: Panel Deck Screw Locations

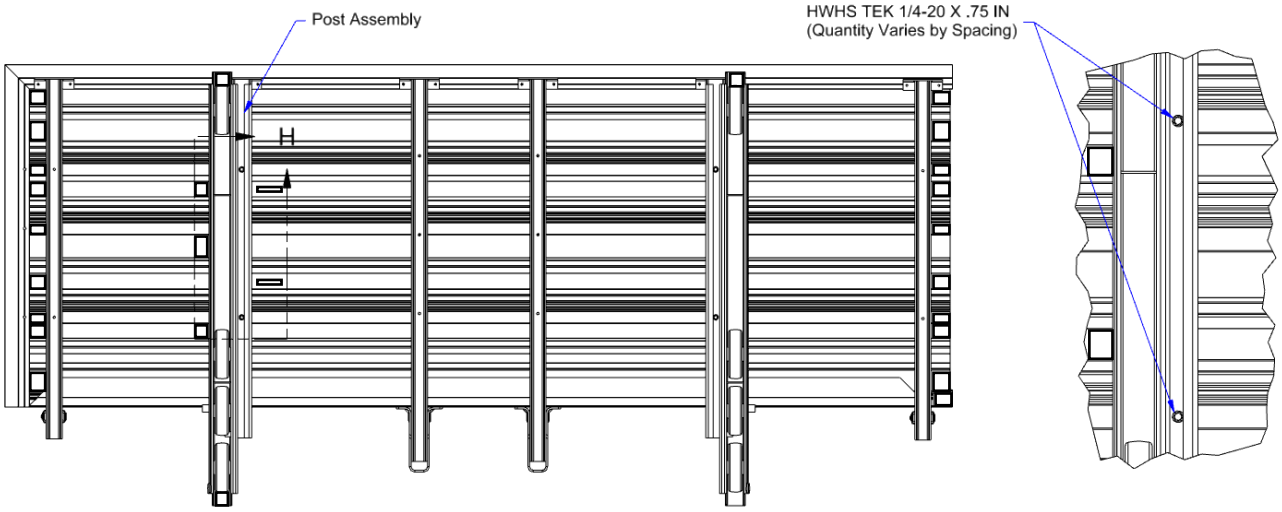


Figure 6.7.3e: Panel Deck Screw Locations on Post Cantilevers (Bottom View)

Step 5: Add ¾" aluminum trim to ends of deck and secure with glue dots. **LokDots is a pressure sensitive adhesive. It is very important to roll the entire installation with a 75 lb or greater roller to assure the proper adhesion of LokDots to the substrate.**

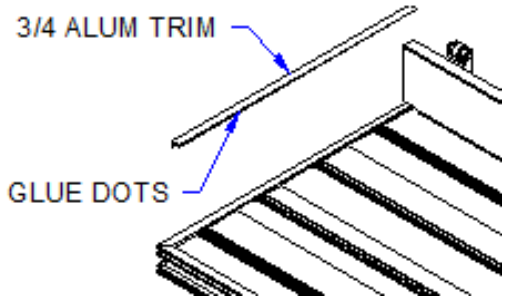


Figure 6.7.3e: Panel Deck Screw Locations

Step 6: Tighten all hardware before moving to next row.

7 Common Assembly Steps

This chapter includes the following sections:

- Skirts
- Power Section Splices

7.1 Skirts

The skirting may be installed at this time if the system is manual. If the system is powered, we recommend installing the skirts at the end of the project. Attach with 3/8-16 X 1 black hex head cap screw and body panel nuts for non-portable sections. Serrated lock nuts will be used for portable sections.

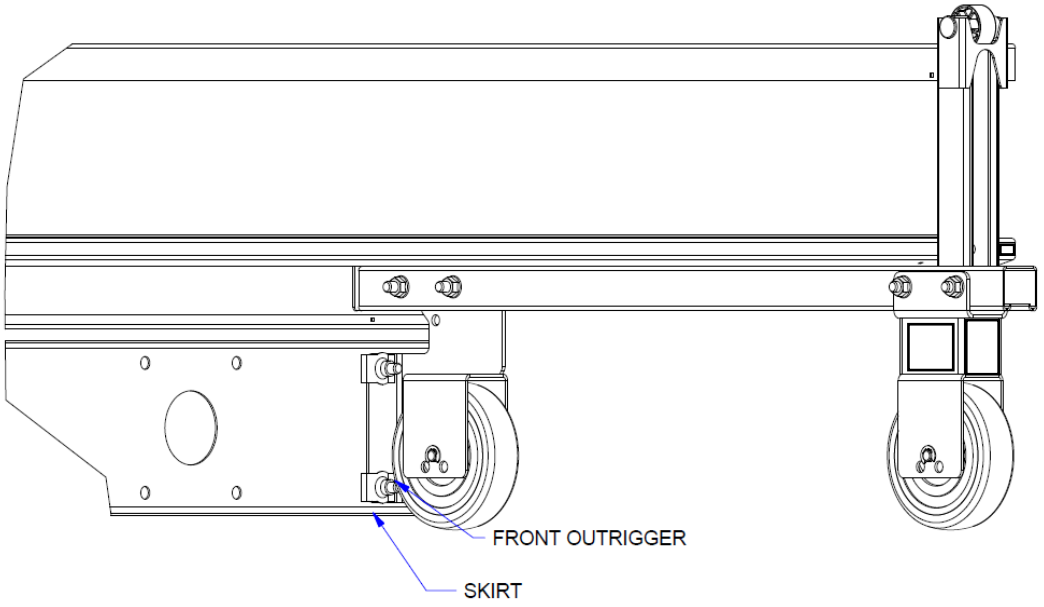


Figure 7.1a: Skirt Attachment – ALUMINUM DECK

Pictures below show outrigger and skirt attachment assemblies. These will be field assembled to the deck support.

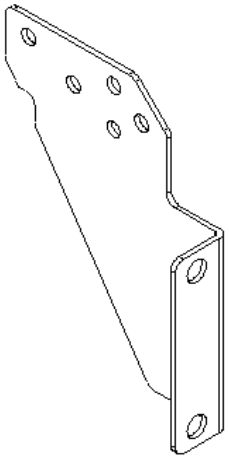


Figure 7.1b: Skirt Attachment

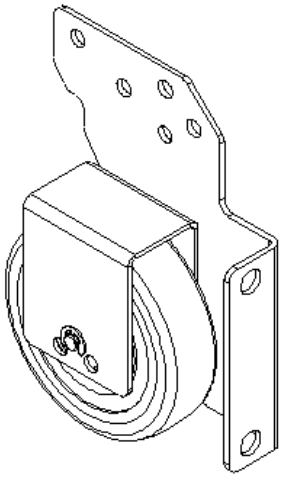


Figure 7.1c: Outrigger

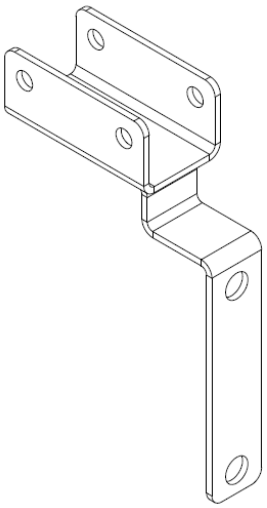


Figure 7.1d: Stub Skirt Attachment

One Irwin Logo plate (IRWINPLATE-TC) will be installed per group using pre-punched holes in the skirt. The plate will be attached using (4X) - H5RD0WAA0 -3/16” black pop rivets. If there are no pre-punched holes then a logo plate is not needed.

Figure 7.1e: Irwin Logo Plate

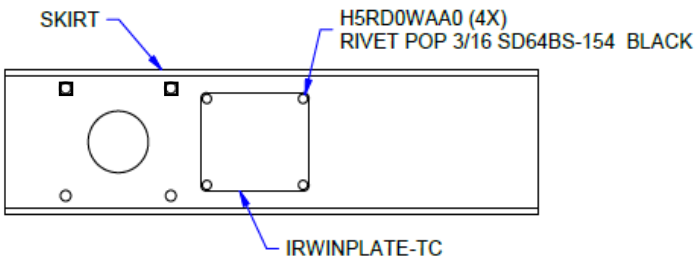


Figure 7.1f: Logo Assembly

7.2 Power Section Splices

Section splices are held together with splice plates on power operated groups. While building the left hand section of row 1, place a splice plate and standard deck support on the RH side of the LH section and attach at the 1 inch and 3 inch hole locations with (6) 3/8-16 x 1 HHCS and (6) 3/8-16 SRTD lock nut. Leave loose. When building the next section attach another deck support attach using (6) more 3/8-16 x 1 HHCS and (6) more 3/8-16 SRTD lock nuts. Before tightening, close gaps and level beams. **Rear beam splice plates must be placed between riser beam and deck support.**

DECKS ASSEMBLED: On jobs that are shipped with their decks already assembled, uninstall the end deck supports of adjacent sections to add the proper splice plates. Use the same hardware

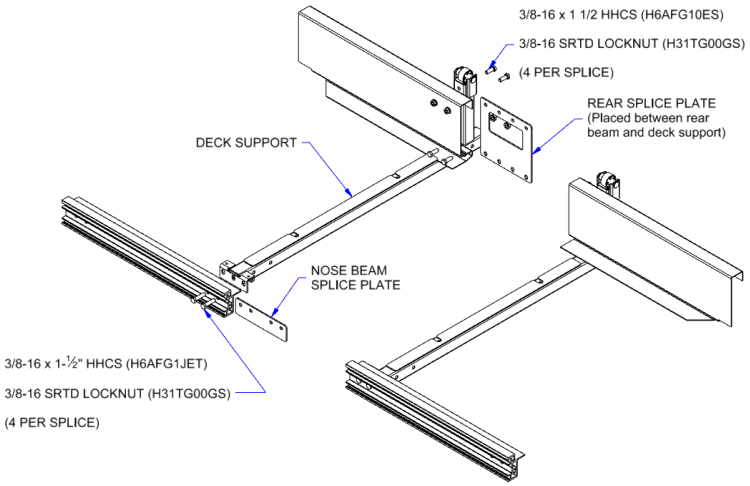


Figure 7.2a: Section Splice

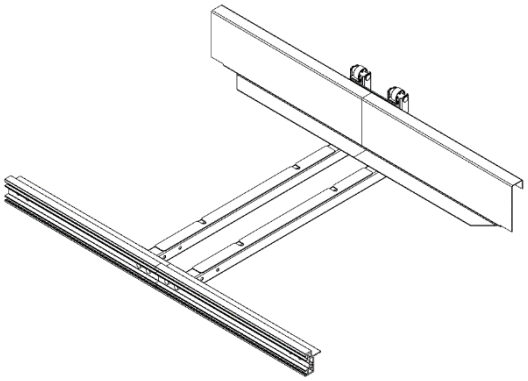


Figure 7.2b: Section Splice

7.2.1 Section Splices – Low Rise

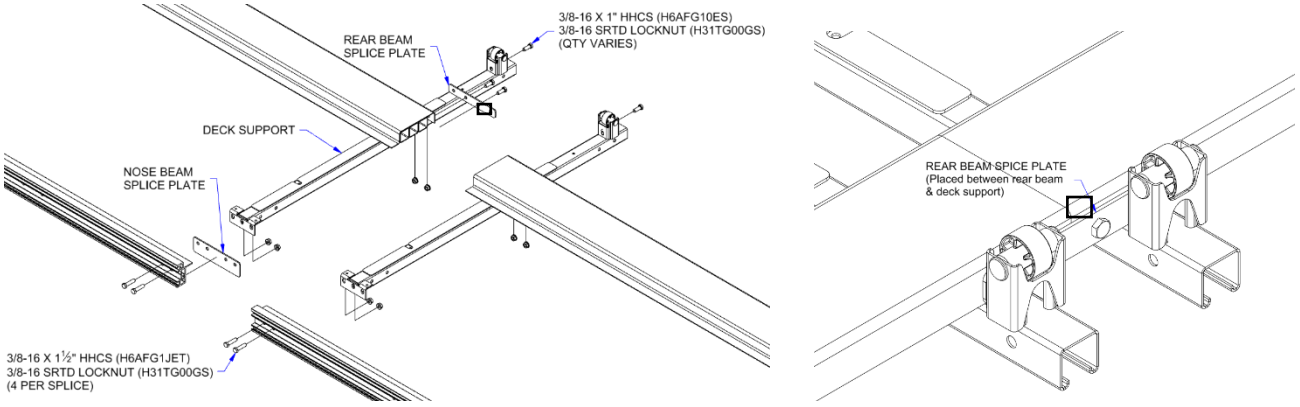


Figure 7.2.1: Low Rise Section Splice (Rear beam splice plate between rear beam & deck supports)

7.2.2 Section Splices – Aluminum Decking Threshold

Section splices for decks with aluminum planks require an aluminum threshold. It is secured with THSMS Phlp #8-18 x 3/4" screws.

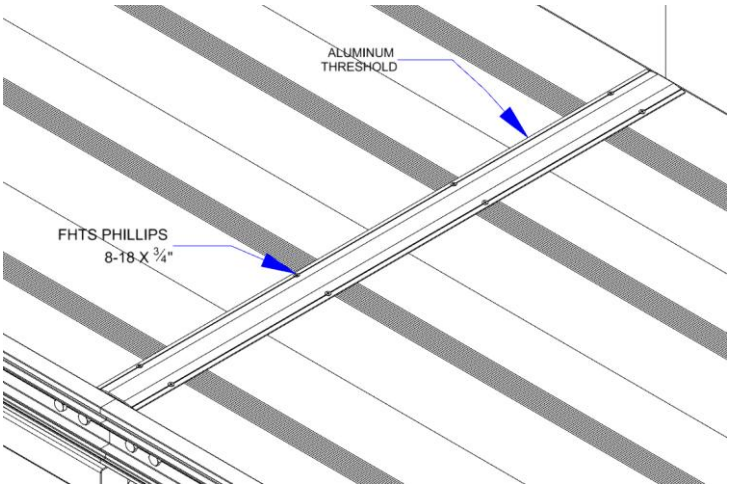


Figure 7.2.2: Aluminum Decking Threshold

7.2.3 Section Splices – Panelam Decking H Beam

Completing section splices with panelam decking requires the use of an h beam to splice the panelam when projects are shipped with decks assembled.

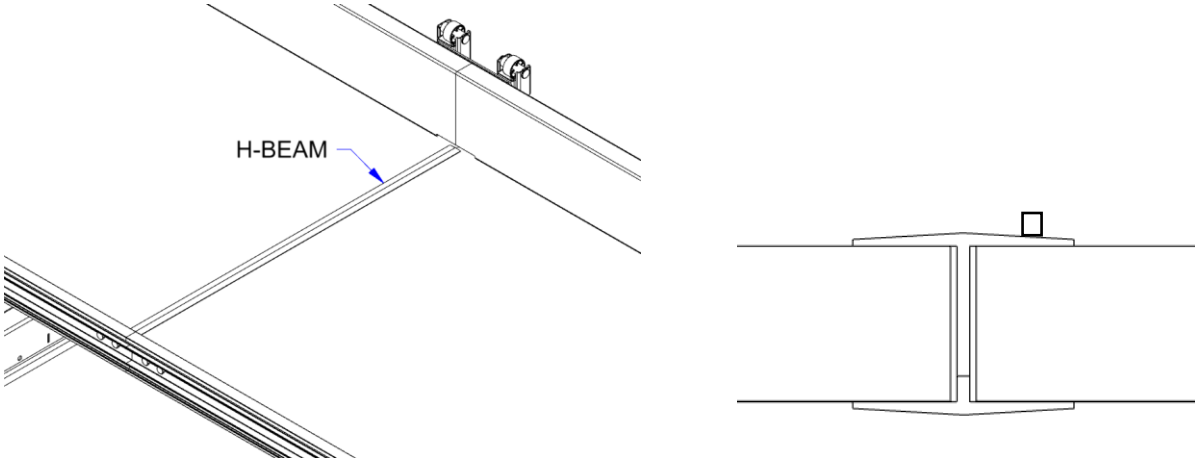


Figure 7.2.3: Panelam Decking Splice H-Beam (Decks Assembled)

8 Assembly of Subsequent Rows

This chapter includes the following sections:

- Assembly of Row 2 & Subsequent Rows
- Brace Attachment Details
- Lower Post Stop Assembly
- Top Stop Bolts
- Permanent 36 inch or 72 inch spaces
- Full Row Truncations

8.1 Assembly of Row 2 & Subsequent Rows

It is necessary to review the plan view and framing plans for the identification of the custom options (cutouts, truncations, etc.) that are required in this project. Lift rear of Row 1 post until the rear glide of Row 1 post clears front glide of Row 2 post. Drop the rear Row 1 glide into the wheel channel of Row 2 interlocking Row 1 and Row 2. Before assembling Row 2, interlock Row 3 posts with Row 2. Use a tarp strap to hold posts until framing is complete.

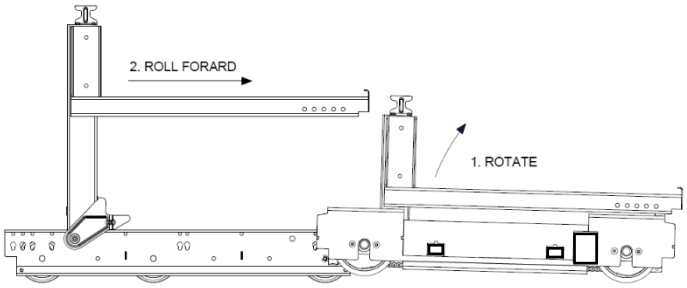


Figure 8.1a: Row 2 Assembly

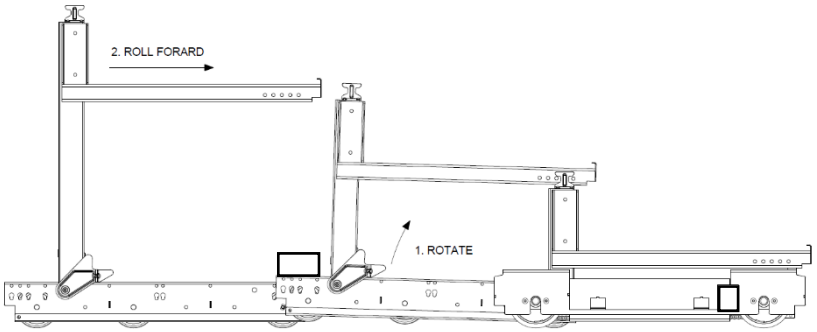


Figure 8.1b: Intermediate Row Assembly

Figure 8.1c: Tarp Strap Holding Posts

8.2 Brace Attachment Details

8.2.1 Brace Attachment Details

See framing plans for brace layouts.

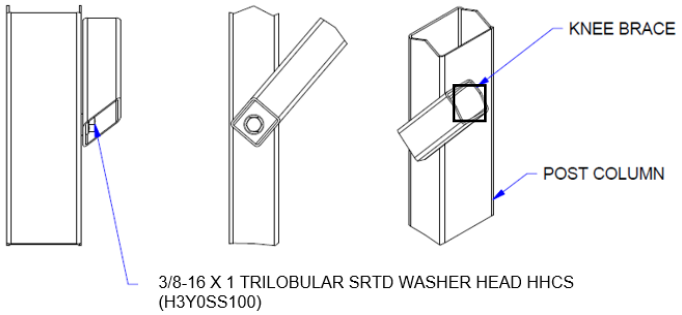


Figure 8.2.1a: Knee Brace to Post Connection

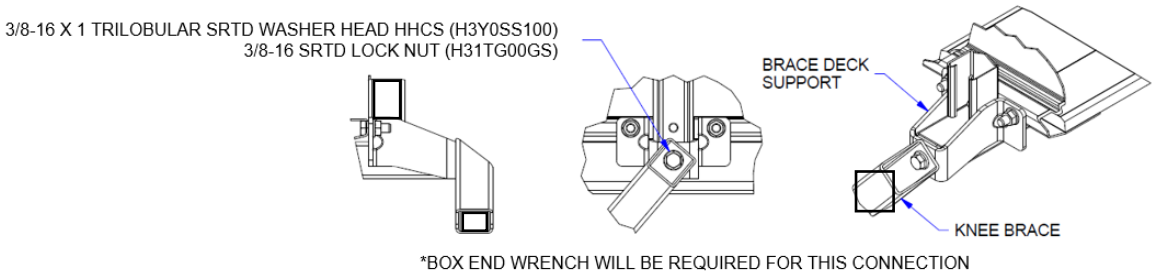


Figure 8.2.1b: Knee Brace to Brace Deck Support Connection

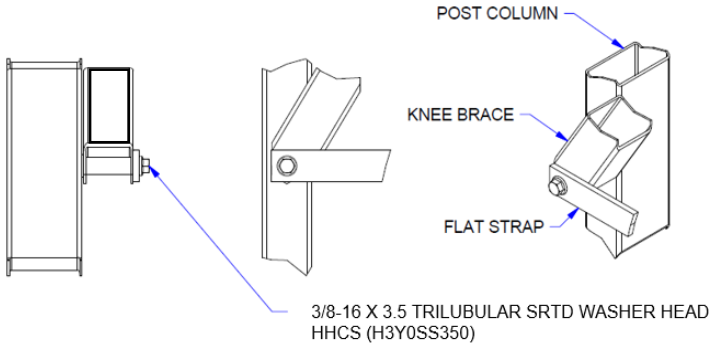


Figure 8.2.1c: Knee Brace and Horizontal Strap to Post Connection

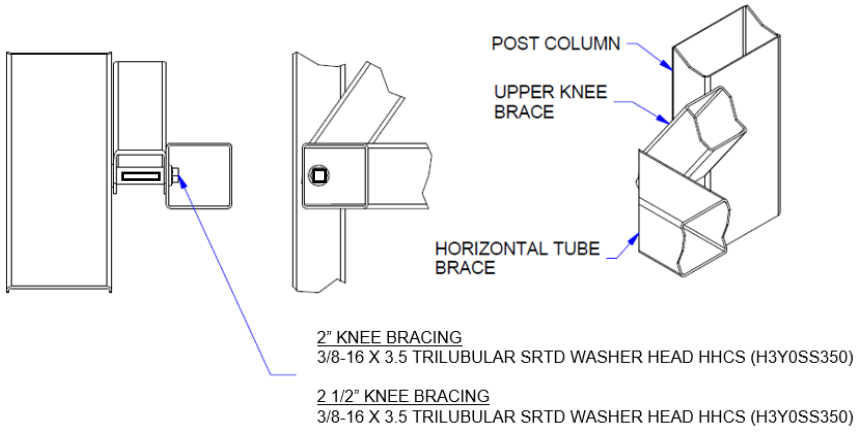


Figure 8.2.1d: Upper Knee Brace and Horizontal Tube Brace to Post Connection

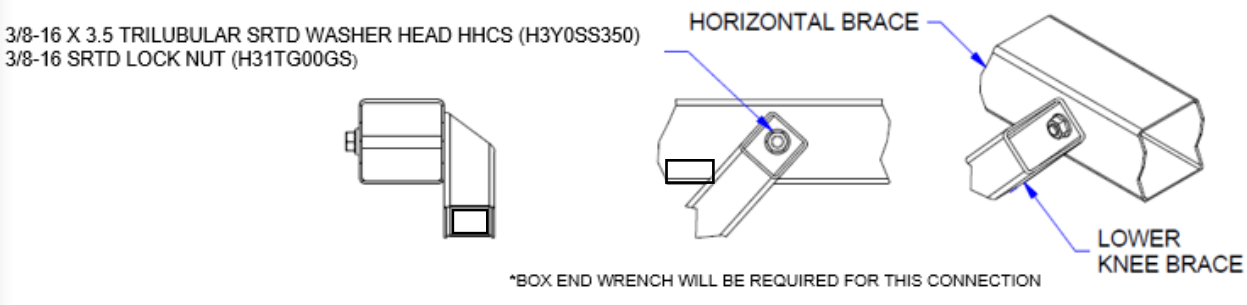


Figure 8.2.1e: Lower Knee Brace to Horizontal Tube Brace Connection

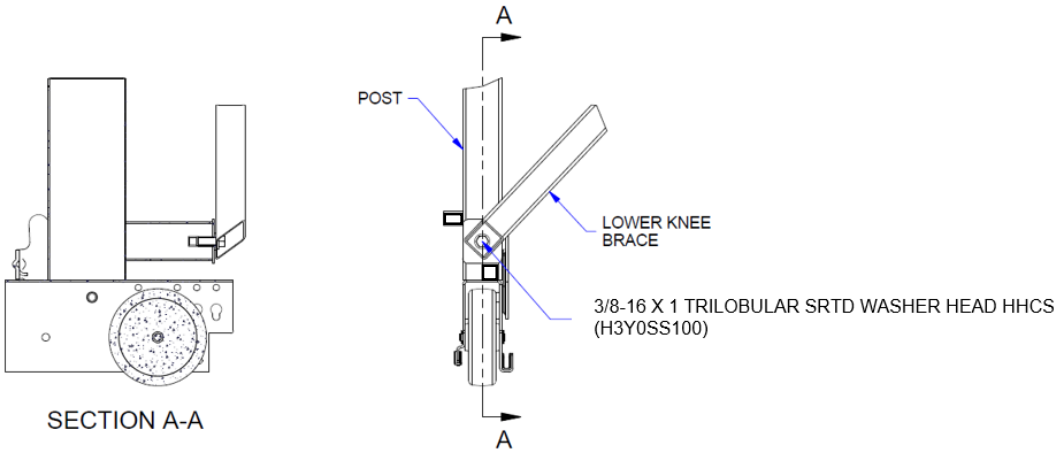


Figure 8.2.1f: Lower Knee Brace to Post Connection

8.2.2 Single Knee Brace

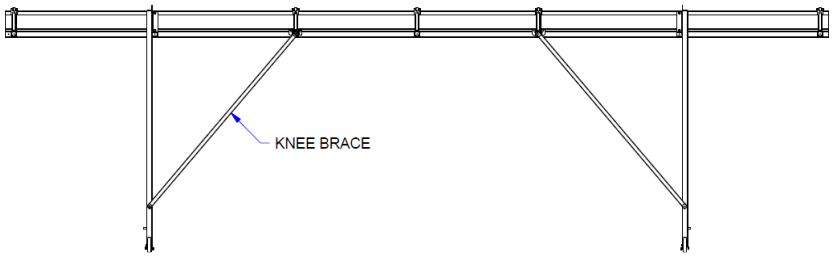


Figure 8.2.2: Single Knee Brace Layout

8.2.3 Single Knee Bracing With Horizontal Strap Brace

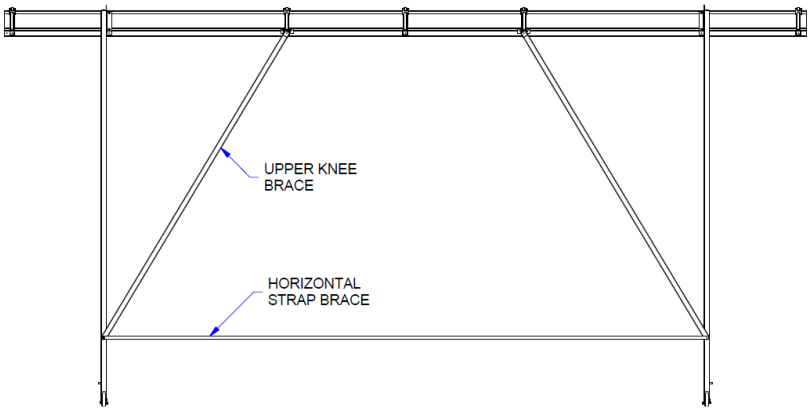


Figure 8.2.3: Single Knee Brace with Horizontal Strap Brace Layout

8.2.4 Double Knee Bracing

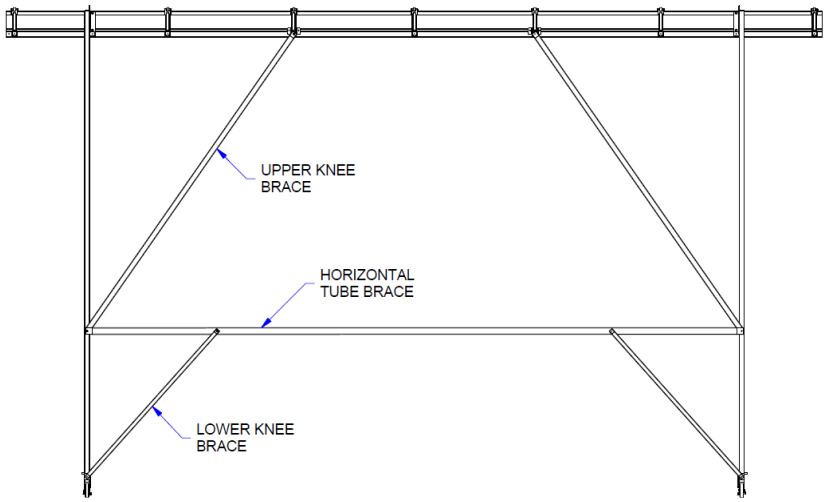


Figure 8.2.4: Double Knee Bracing Layout

8.3 Lower Post Stop Assembly

Insert lower post stop into slot in keyhole slot in wheel channel starting on Row 2. Use hole corresponding to job spacing. A hammer may be necessary to fully seat the lower post stop in the slot. Use a T27 Torx bit to tighten the lower post stop bolt. A taller lower post stop must be used for IDS power.

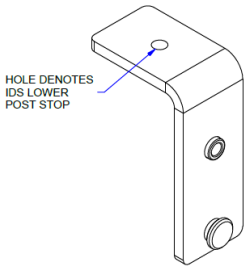


Figure 8.3a: IDS Lower Post Stop

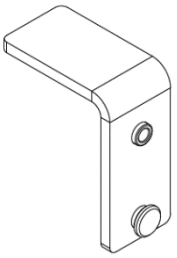


Figure 8.3b: Standard Lower Post Stop

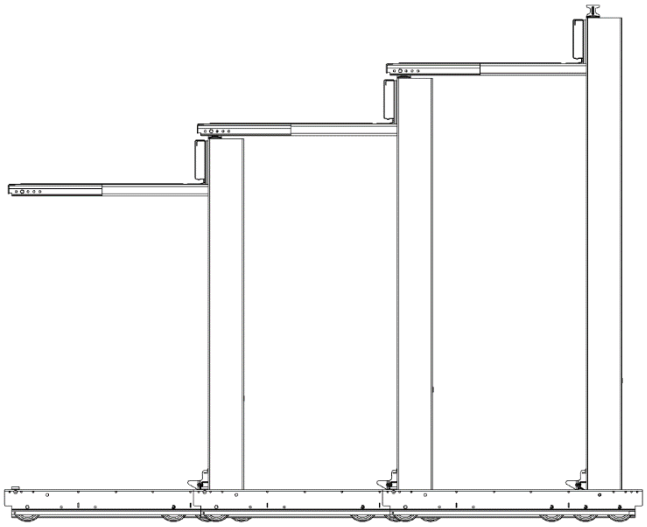


Figure 8.3c: Post Assembly With Lower Post Stops

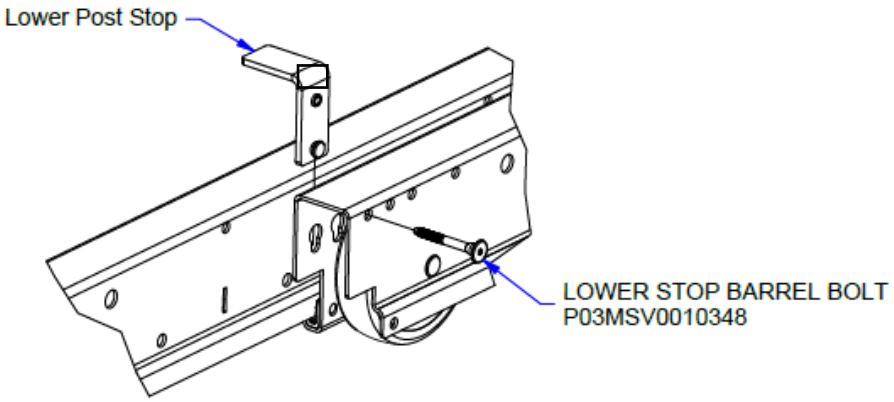


Figure 8.3d: Lower Post Stop Assembly

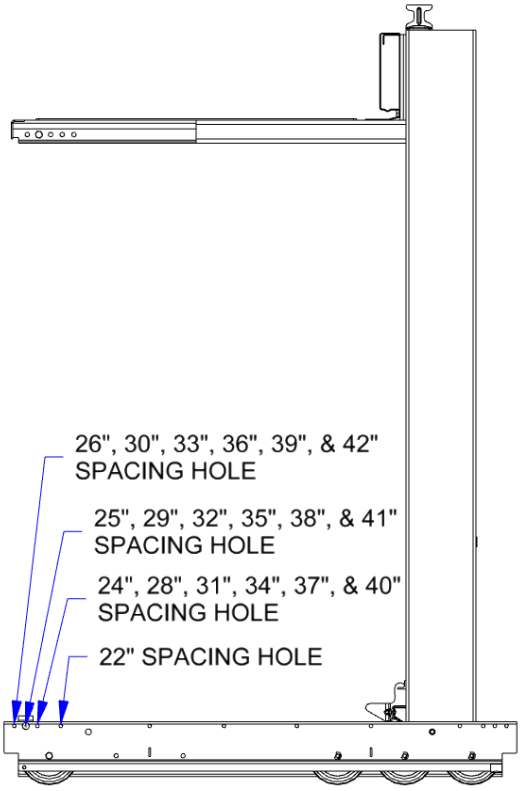


Figure 8.3e: Lower Post Stop Bolts

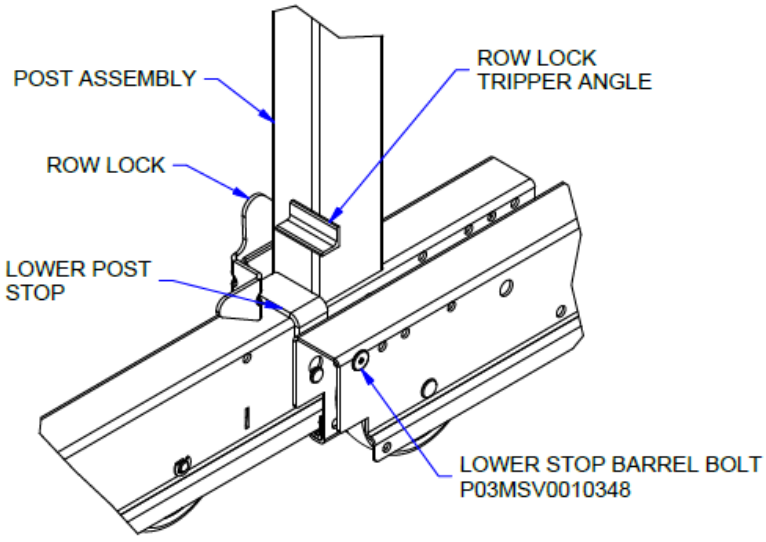


Figure 8.3f: Lower Post Stop, Row Lock, and Row Lock Tripper Angle

8.4 Top Stop Bolts

Install top stop bolts to regulate the proper spacing. Use 3/8-16 X 1 1/4 HHCS and SRTD lock nut. Reference elevation drawing for correct spacing.

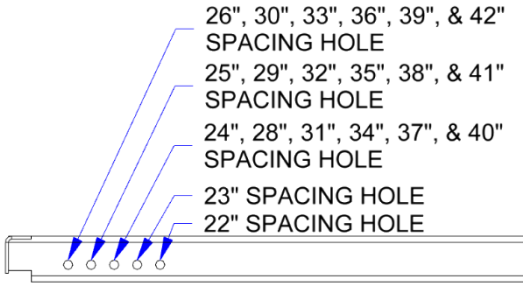


Figure 8.4a: Top Stop Bolt Location

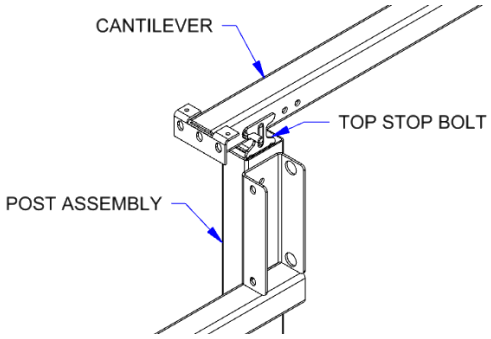


Figure 8.4b: Top stop Bolt Assembly

8.5 Permanent 36 inch or 72 inch Spaces

A permanent wheel chair space is defined as a 36 in. wide or 72 in. wide by the spacing of the project. See framing plans and drawing layouts for all locations and dimensions.

8.6 Full Row Truncations

When beginning with a truncation row (defined when the first row begins at Row 2 on a section) it should be treated as Row 1 if beginning the installation with this row. Or a continuation of one section into the next as described in section on splicing.

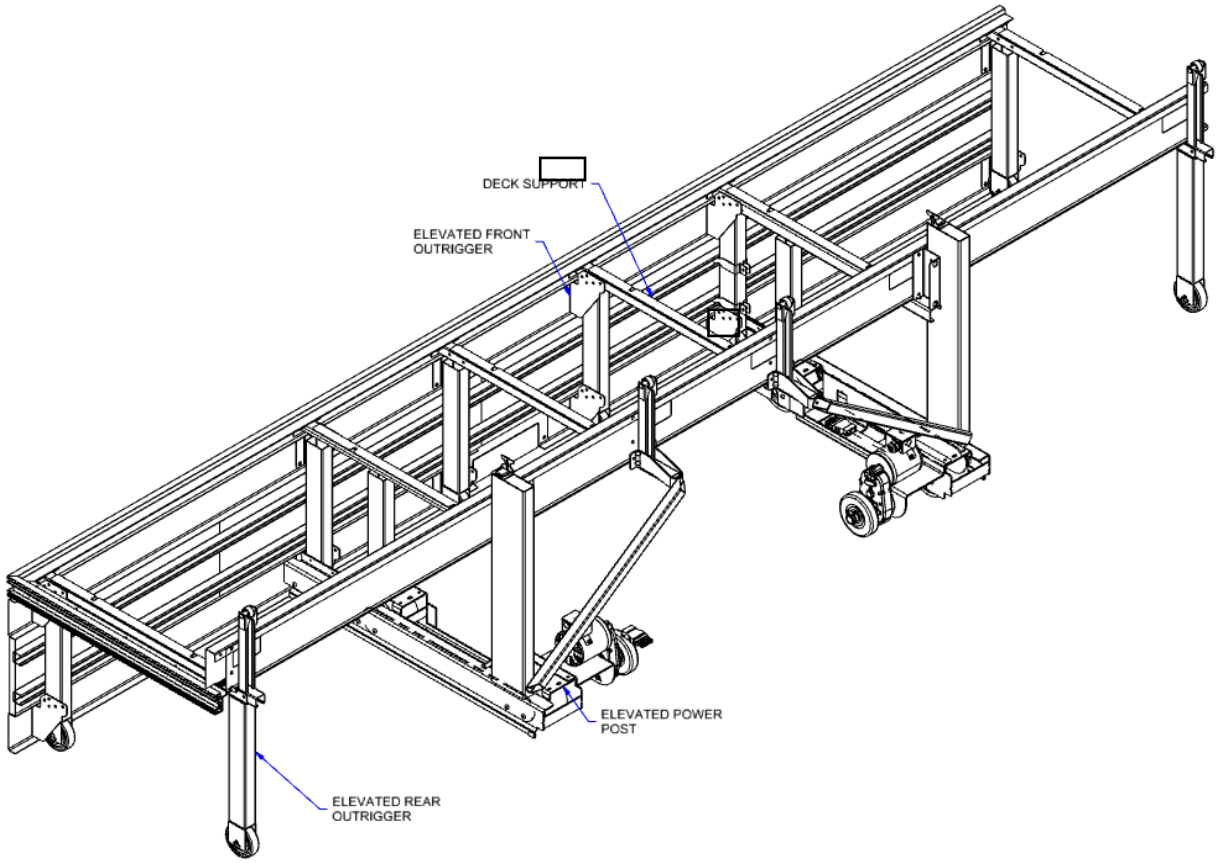


Figure 8.6: Full Row Truncation Assembly

See framing plans for correct post and deck supports assemblies for placement. Making sure all post have been squared and plumbed.(Since this row begins Row 2, knee bracing will be required see next chapter.)

Notes:

1) *Rear beams and nose beams are installed using the same sequence and instructions as row one. Follow framing plans for proper dimensions.*
2) *Deck supports are installed per framing plans when the bleachers require power. The sections will be together creating a group. Refer to the framing plans for the proper location of splice deck supports.*
3) *Add knee bracing after all deck supports are in place. It is recommended this be done before the decking is in place*

9 Intermediate Rows & Wall-Floor Attachment Details

This chapter includes the following sections:

- Intermediate Rows
- Upper Wall Attachment
- Lower Wall Attachment
- Floor Attachment
- Wall Attachments – CMU Wall
- Wall Attachments – Concrete Wall
- Wall Attachments – Steel Studs
- Wall Attachments – Wood Studs

9.1 Intermediate Rows (Row 3 up to the last row)

1. Slide post into position as in previous section keeping posts one row ahead of deck assembly.
2. Install lower post stops for the appropriate spacing, as required per elevation drawings.
3. Install top stop bolts for the appropriate spacing, as required per elevation drawings.
4. Refer to the framing plans for proper layout dimensions of Nose and Rear Beams.
5. Construct and build the row in the following order:
    1. Install rear beam on posts
    2. Install nose beam.
    3. Add deck supports per framing plans.
    4. When the bleacher is power operated and two or more sections come together, use Splice Plates per framing plans.
    5. Refer to framing plans and bracing layout guides for Knee Bracing location.
    6. When all Deck Supports are located in their proper location, begin the tightening sequence: Start on the left end of the nose beam, tighten up the nose bolts working across the group one row at a time.
    7. Once all the nose (beam) bolts are tightened, start tightening the rear beam sequence, one bolt at a time.
    8. Position the Panelam decking as in the previous rows
    9. Rest front edge of Panelam on the nose beam and the rear edge on the bottom lip of the rear beam.
    10. Refer to the framing plans for proper sizing and location of decking.
    11. Square the left edge of the Panelam with the left deck support.

12. **Caution:** Refer to shop drawings to determine if an access panel is required. if access panel is required:

6. Continue in sequence across the decking, installing deck screws whenever there is a deck support or post and at a minimum of 24” spacing. Add deck screws as needed.
7. Attach screws at rear of deck and ends of group.
8. Repeat this process to build the rest of the rows.

9.2 Upper Wall Attachment

Before attaching system to wall, it is recommended that the last seating row should be mounted at this time.

The rear row brackets are mounted by placing (1) 3/8-16 X 3 HHCS into the mounting holes on the bracket into deck support roller bracket and attaching with (1) 3/8-16 SRTD lock nut.

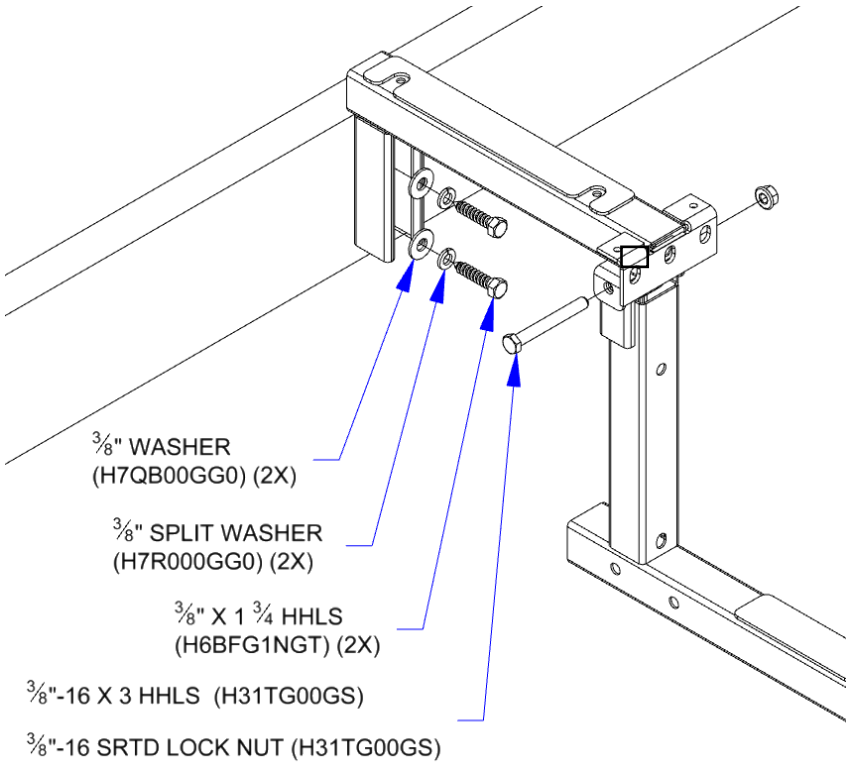


Figure 9.2: Upper Wall Attachment

The rear of the brackets is attached to the 2x6 wall stringer with (2) 3/8 X 1 3/4 lag screws, a 3/8 spring lock washer, and a 3/8 flat washer. Attach deck board as in previous sections making sure decks are flush and square with the system.

9.3 Lower Wall Attachment

Remember, always push system into place. Do not try to draw system to wall with hardware.

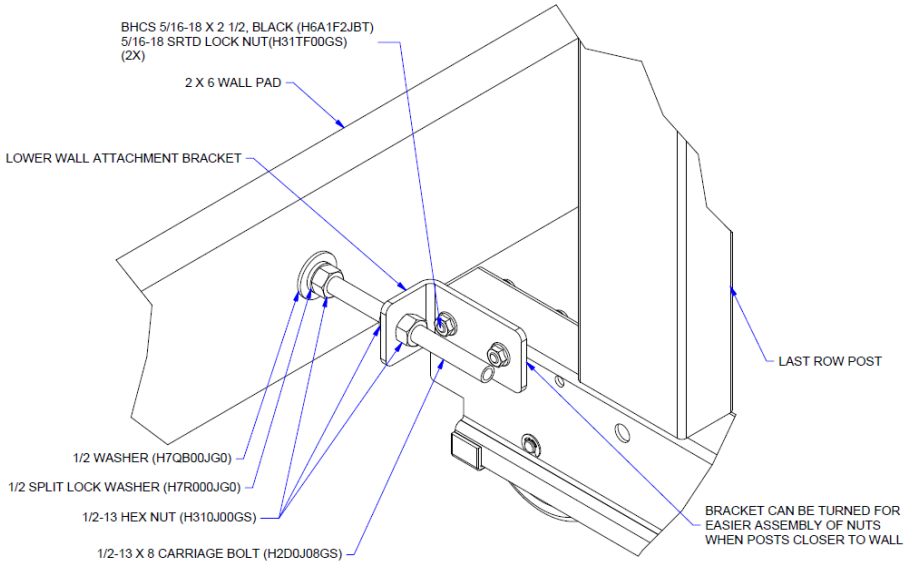


Figure 9.3: Lower Wall Attachment

9.4 Floor Attachment – Concrete floors and Wood Floors

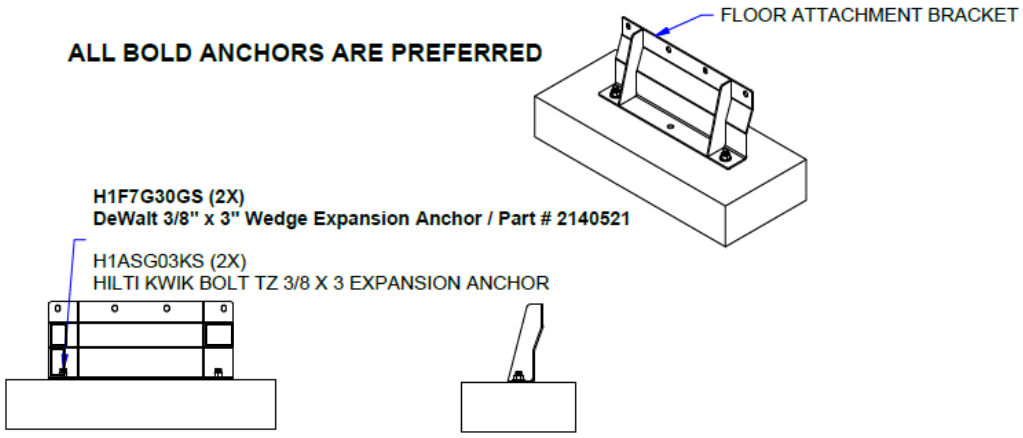


Figure 9.4a: Concrete Floor Attachment

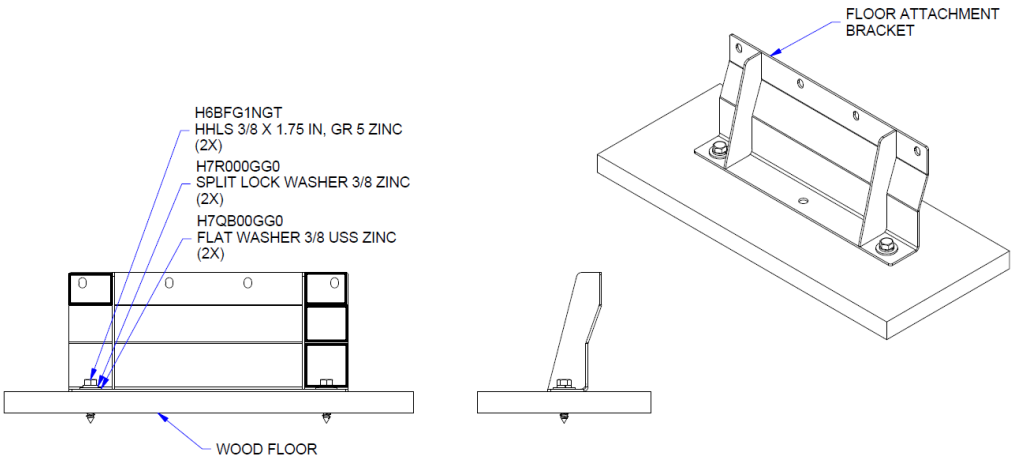


Figure 9.4b: Wood Floor Attachment

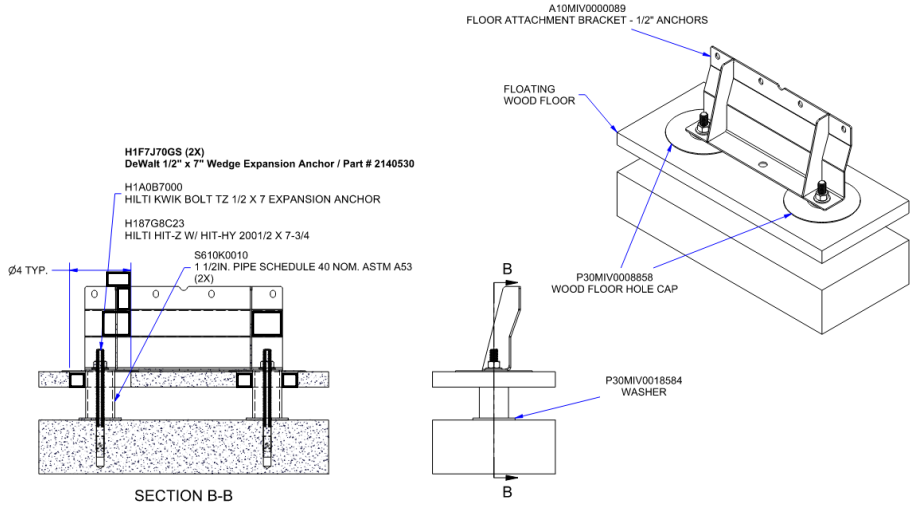


Figure 9.4c: Floating Wood Floor Attachment

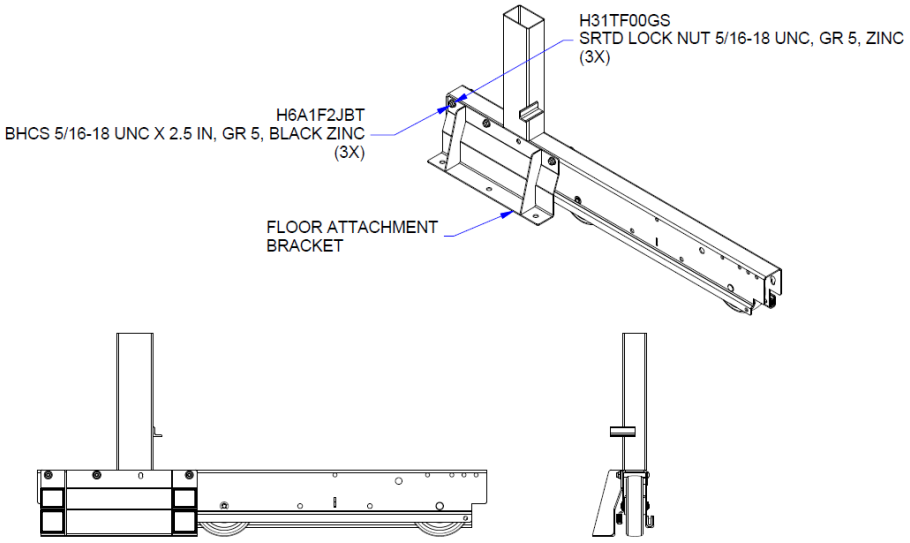


Figure 9.4d: Wall Attached Bleacher Floor Attachment Bracket Locations

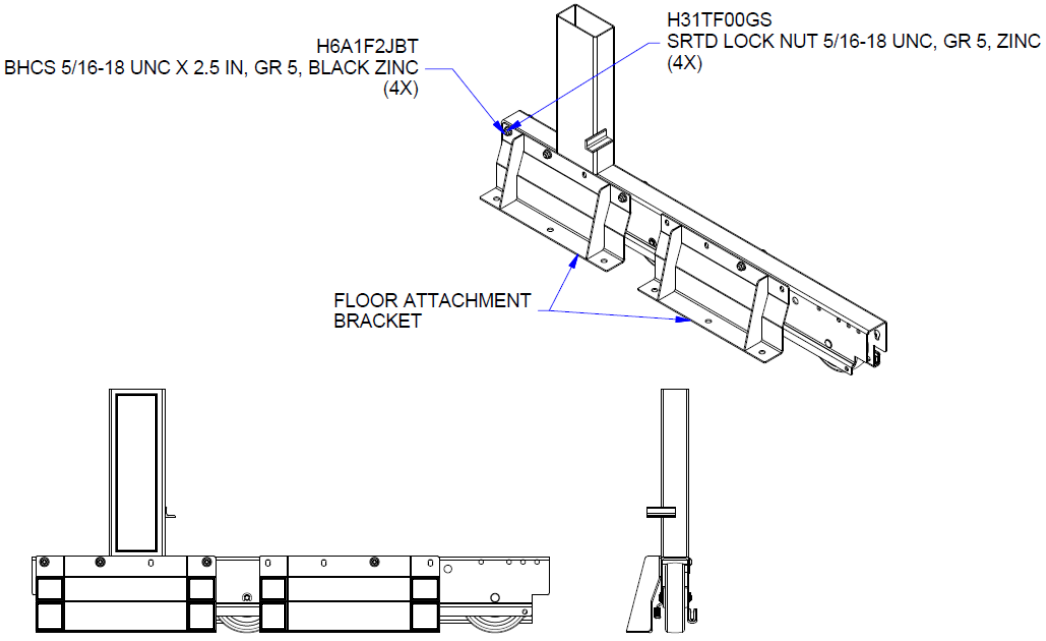


Figure 9.4e: Floor Attached Bleacher Floor Attachment Bracket Locations

9.5 Wall Attachments – CMU Wall

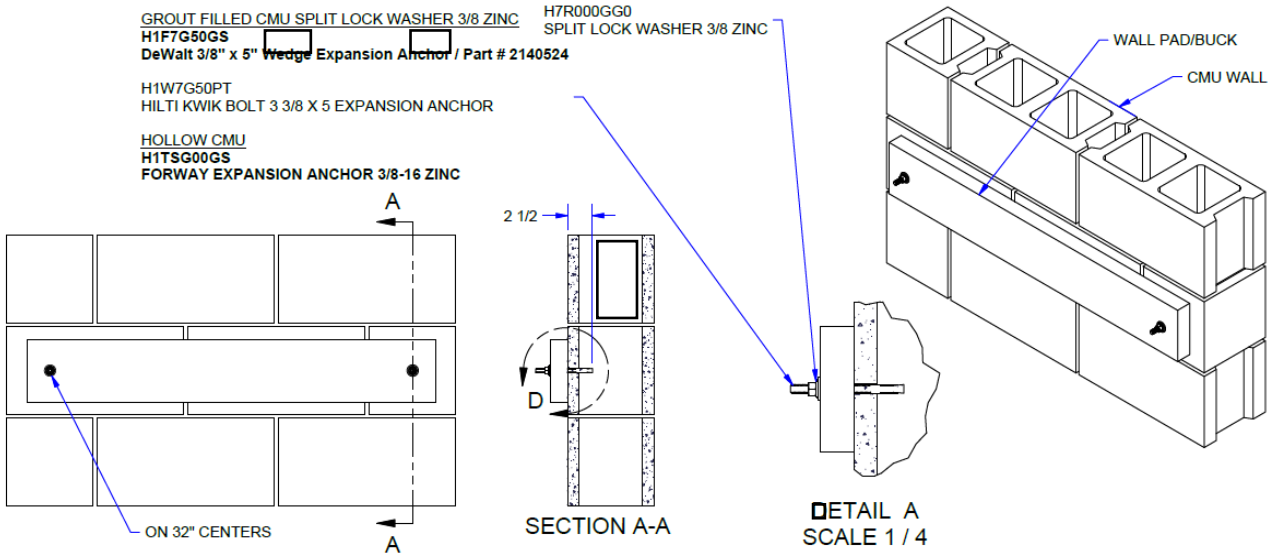


Figure 9.5: Wall Buck/Pad CMU Wall Attachment (3' Wall Pad Shown)

Field drill 3/8" holes into stringer approximately 3 feet on center. Use stringer as template for drilling 3/8" holes in CMU. Use the following hardware:

Grout Filled CMU:

- 3/8 X 5 DeWalt Wedge Expansion Anchor
- 3/8 Split Lock Washer

Hollow CMU:

- 3/8-16 four way anchors
- 3/8in flat washer
- 3/8-16 serrated lock nut
- 3/8-16 x 4 14 threaded end stud

9.6 Wall Attachments – Concrete Wall

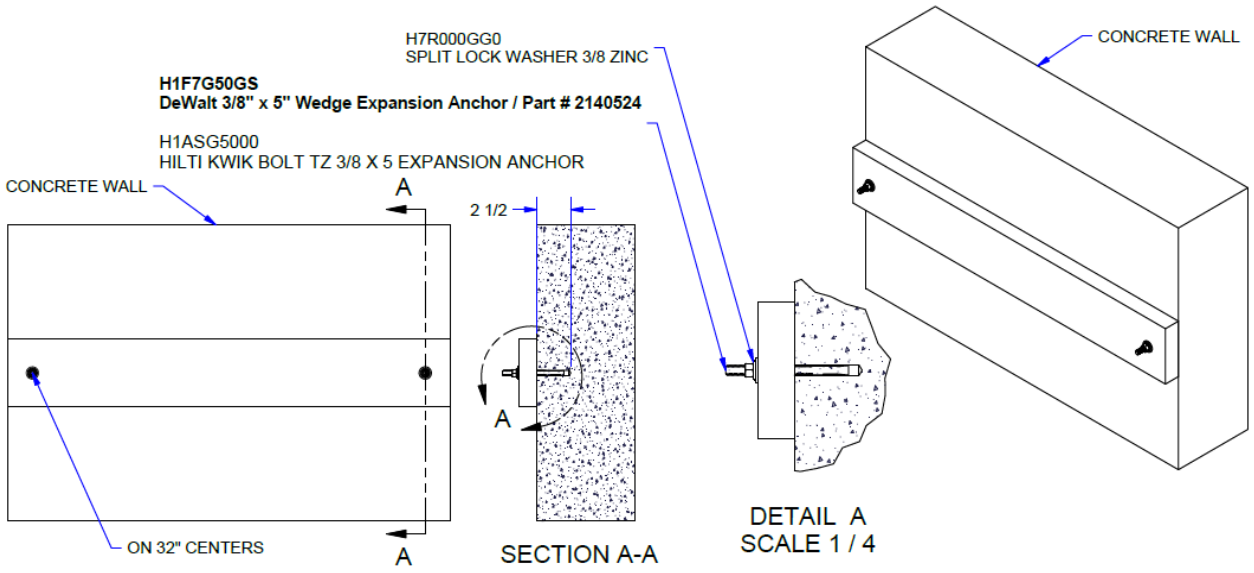


Figure 9.6: Wall Buck/Pad Concrete Wall Attachment (3' Wall Pad Shown)

Field drill 3/8" holes into stringer approximately 3 feet on center. Use stringer as template for drilling 3/8" holes in concrete. Use the following hardware:

- 3/8 X 5 DeWalt Wedge Expansion Anchor
- 3/8 Split Lock Washer

9.7 Wall Attachments – Steel Studs

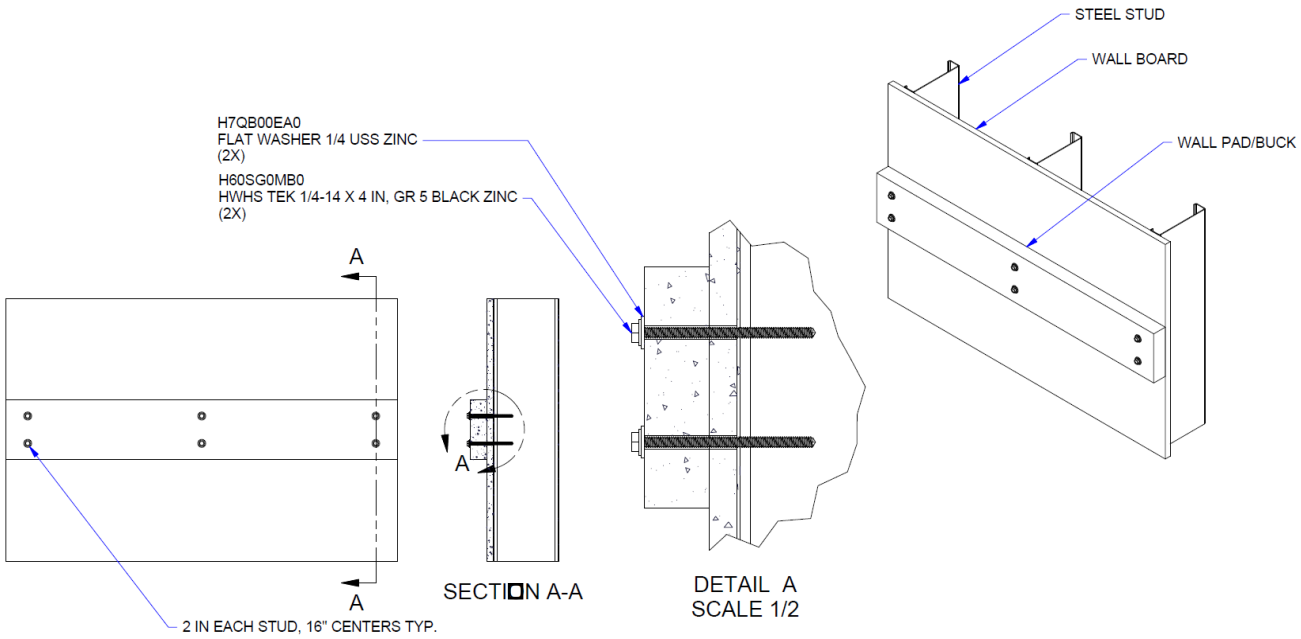


Figure 9.7: Wall Buck/Pad Steel Stud Wall Attachment (3' Wall Pad Shown)

Field drill 1/4" holes into stringer at every steel stud. Attach screws through stringer. Use the following hardware:

- #14 X 4 Tek Screw

9.8 Wall Attachments – Wood Studs

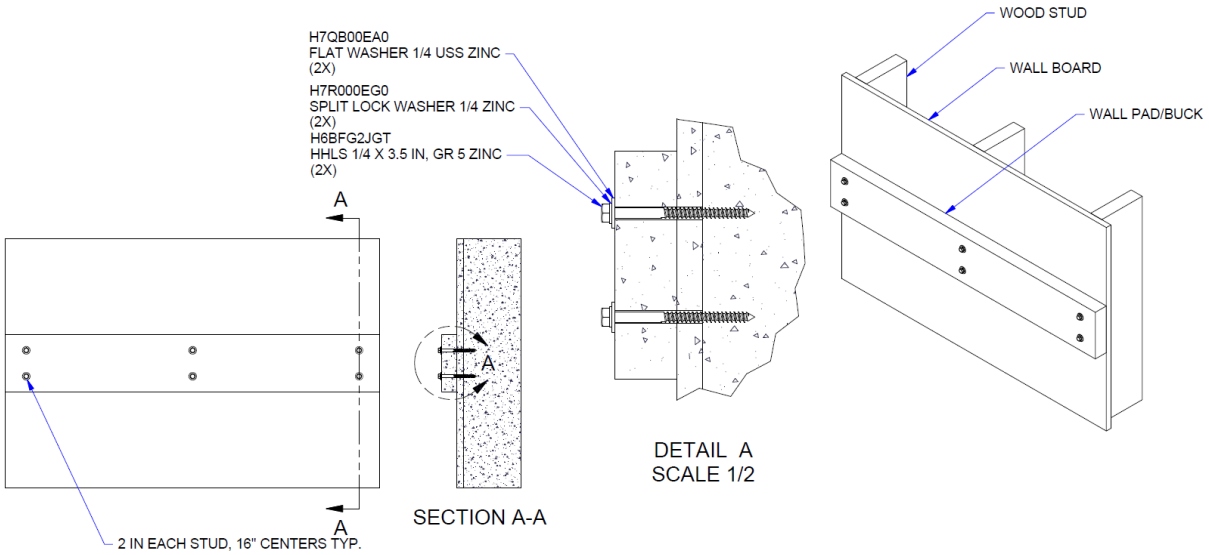


Figure 9.8: Wall Buck/Pad Wood Stud Wall Attachment (3' Wall Pad Shown)

Field drill 5/32" holes for 1/4 x 3 1/2 lag bolts into 2x6 wall stringer. Make sure holes are 16" on center. Find wall studs and drill pilot hole. Making sure you will be able to secure all lag bolts into wall studs. Use the following hardware:

- 1/4 x 3 1/2 lag screw
- 1/4 Flat Washer
- 1/4 Split Lock Washer

10 Clamp on Rail Installation

This chapter includes the following sections:

- Program Support Bracket
- Removable End Rails
- Self-Storing End Rails
- Rear Rail Installation
- Aisle Rail Attachment
- Smart Rail
- Smart Rail Ex

10.1 Program Support Bracket

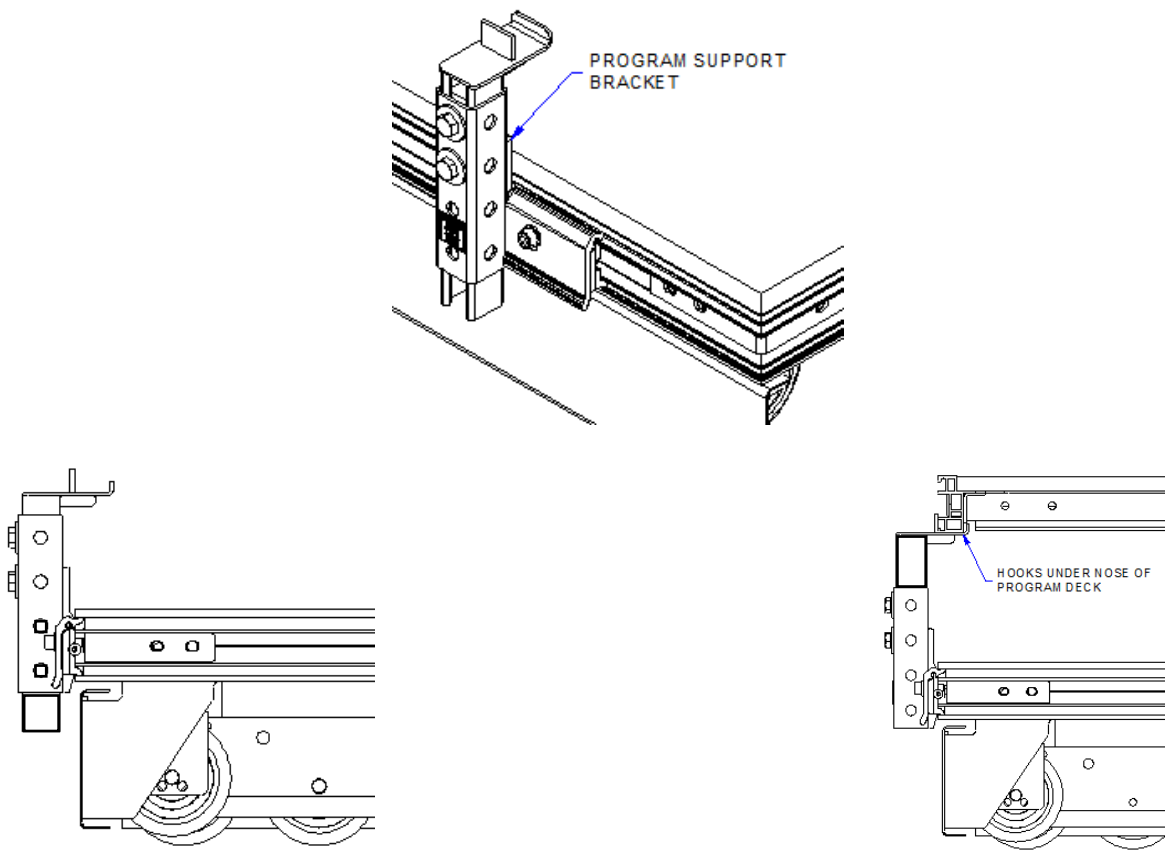


Figure 10.1a: Detail of Program Support Bracket

10.2 Removable End Rails

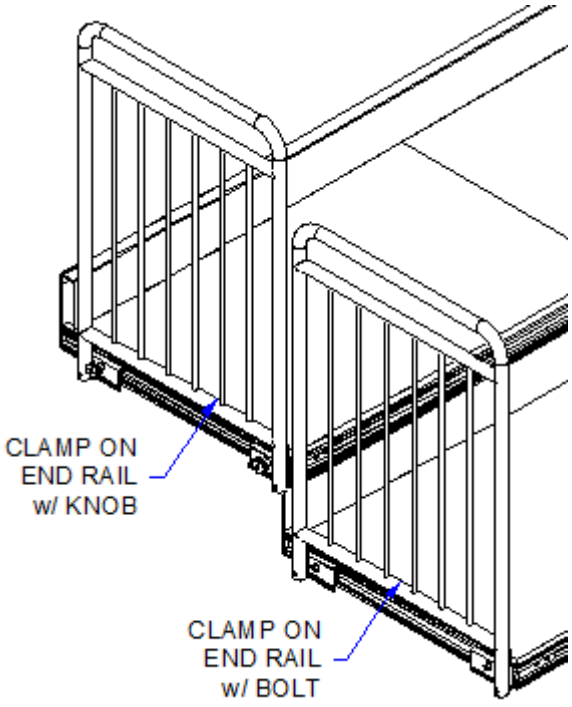


Figure 10.2a: Detail of Rails Attached to Deck

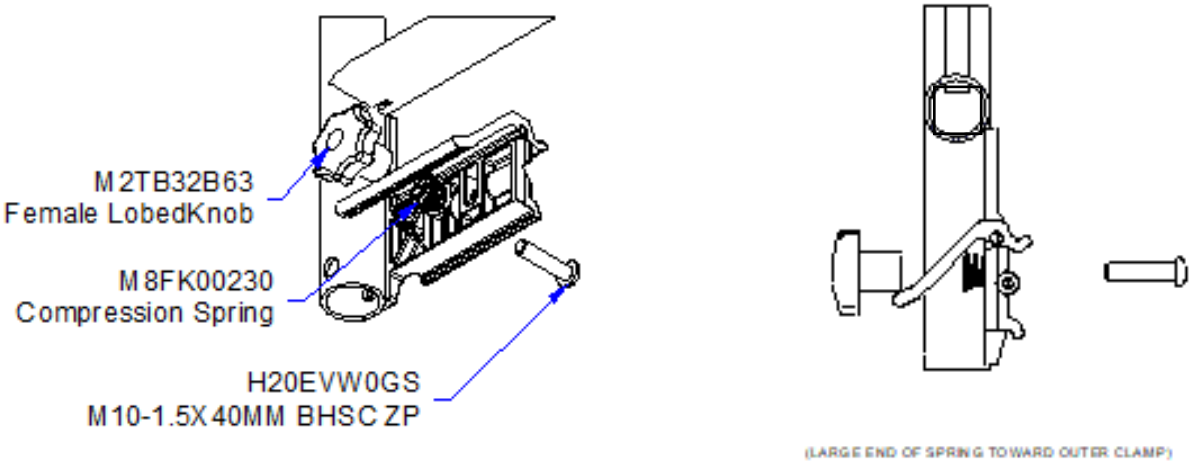


Figure 10.2b: Detail of Knob

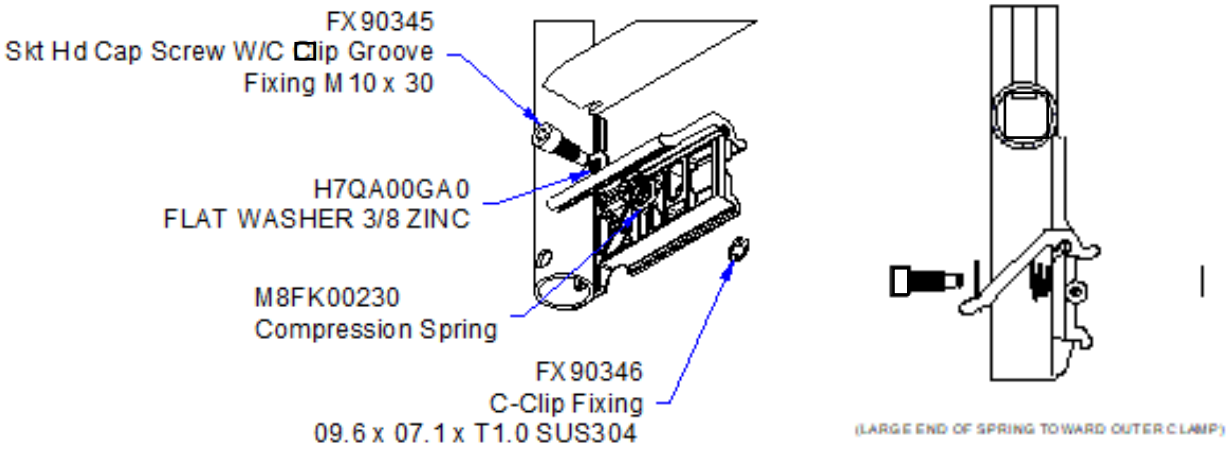


Figure 10.2c: Detail of Bolt

When system is closed the rails must be removed and pockets pushed in under the deck for operational clearance.

10.3 Self-Storing End Rails

The end rail deck support and self storing end rail plates are attached to the ends of the deck as shown. To install the clamp-on self-storing end rails:

- The clamps bolts or knobs must be loosened
- Lean the rail outward
- Set the lower clamps of the rail in the lower lip of the VersaDeck frame extrusion
- Tilt the rail back toward the deck
- Securely fasten the rail by tightening the bolts or knobs

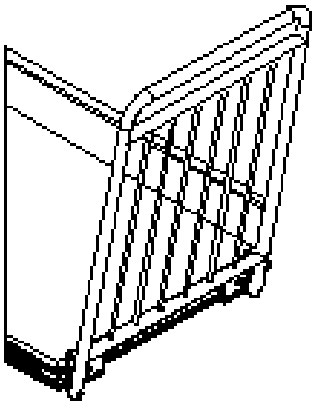


Figure 10.3a: Self-Storing End Rail Attachment

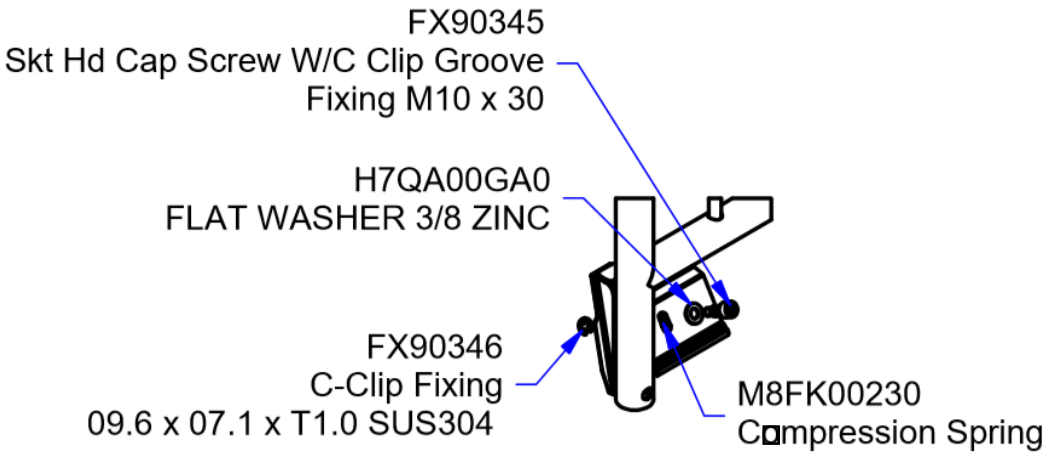


Figure 10.3b: Rail attachment

10.4 Rear Rail Installation

The rear rails are attached to the back of the deck as shown. To install the clamp-on self-storing end rails:

- The clamps bolts or knobs must be loosened
- Lean the rail outward
- Set the lower clamps of the rail in the lower lip of the VersaDeck frame extrusion
- Tilt the rail back toward the deck
- Securely fasten the rail by tightening the bolts or knobs

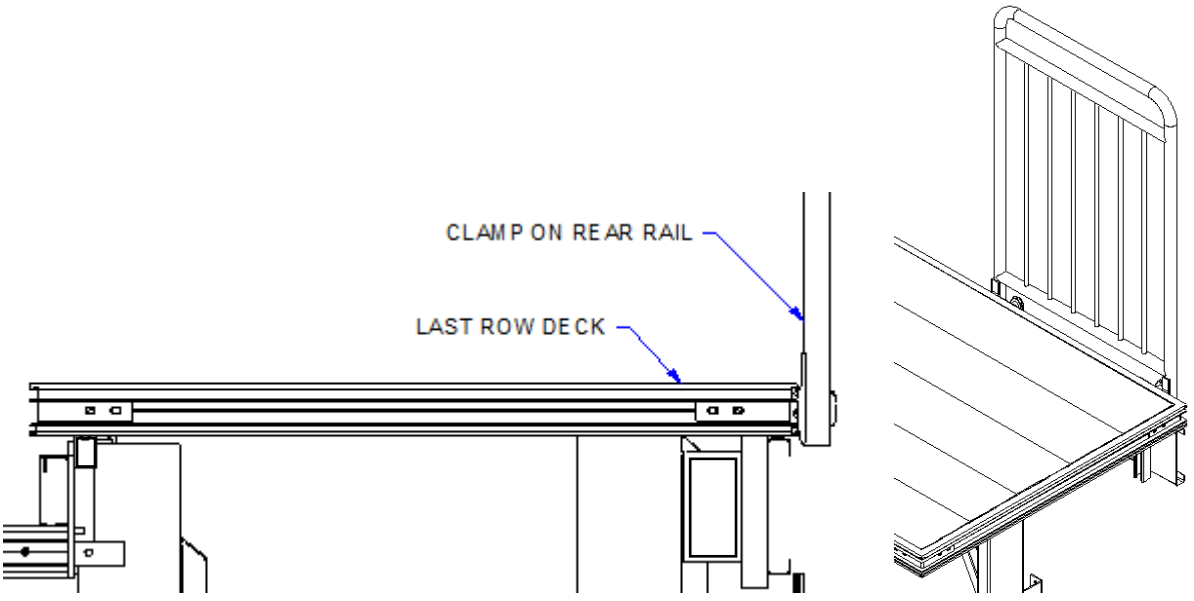


Figure 10.4a: Rear Rail Installation

10.5 Aisle Rail Attachments

Aisle rails are placed on every other deck beginning on the nose of Row 2. Except in California, where aisle rails start on the nose of Row 1. Center hand rails must be mounted through a stiffening member. This could be a deck support or a post cantilever. When neither are present, a stub deck support is added as a deck stiffener. No stiffening members are required when the center hand rail falls between two brace deck supports mounted at 6” center to center.

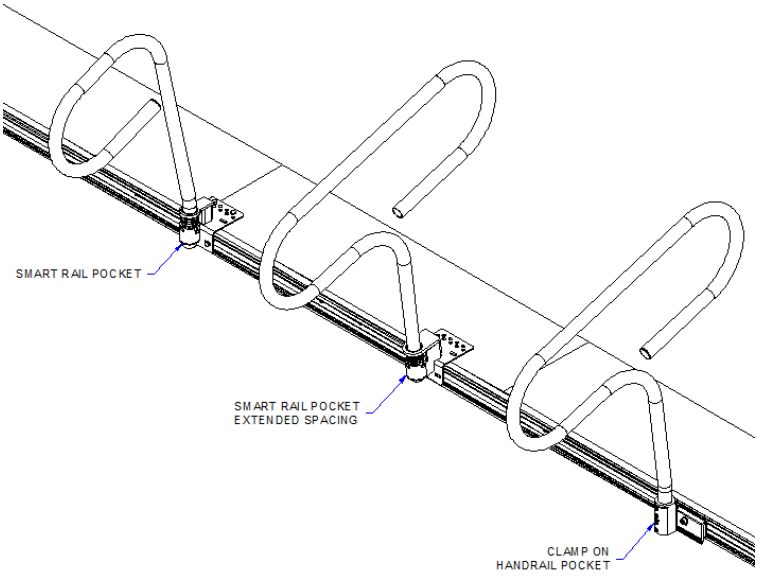


Figure 10.5a: Center Hand Rails

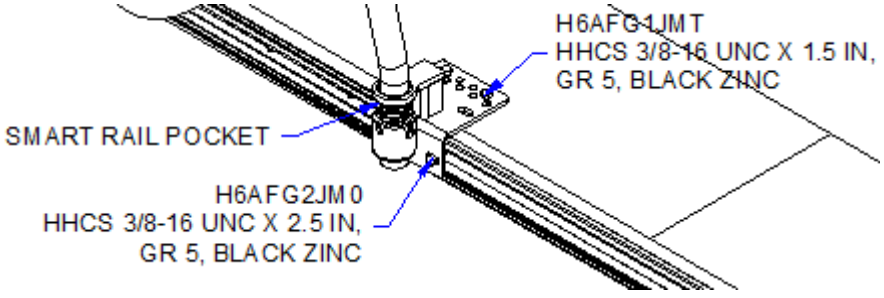


Figure 10.5b: Smart Rail Connection to Deck

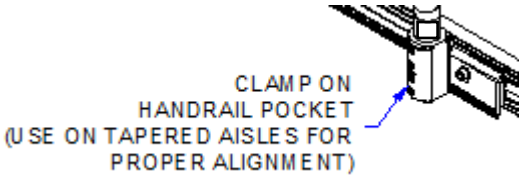


Figure 10.5c: Clamp on rail Connection to Deck

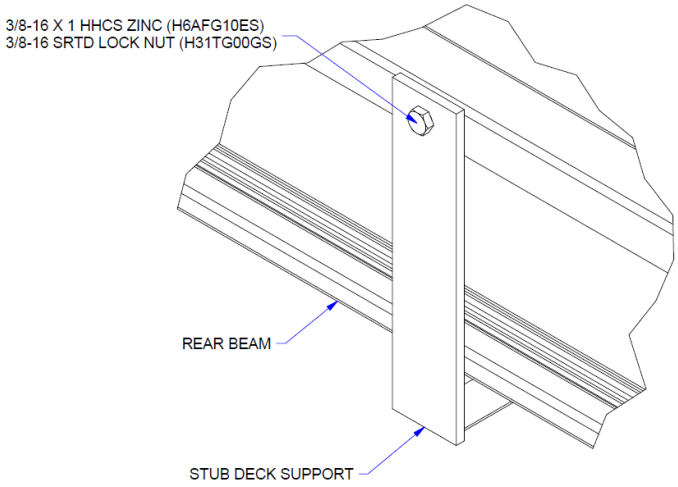


Figure 10.5d: Stub Deck Support Connection to Rear Beam

10.6 Smart Rail

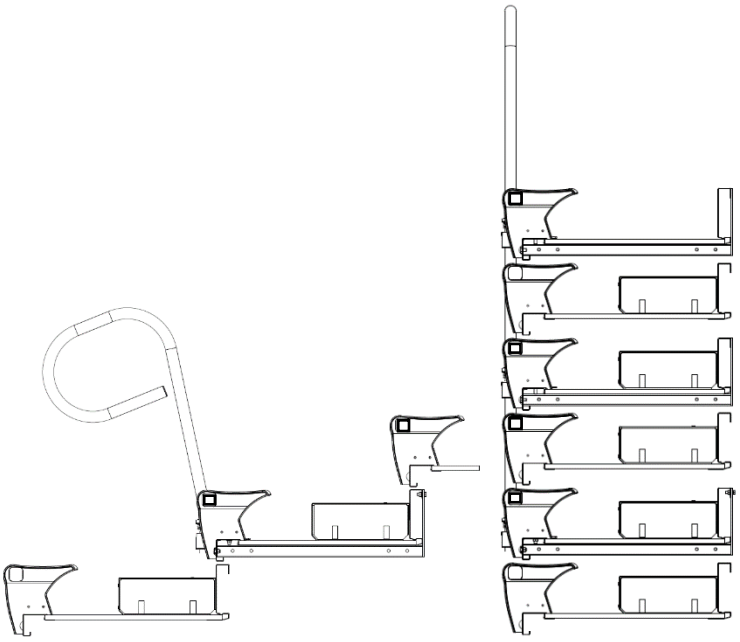


Figure 10.6a: End View of Smart Rail

The bracket allows the smart rail to rotate left or right to allow clearance when the system is closed or leave the rail in the open position.

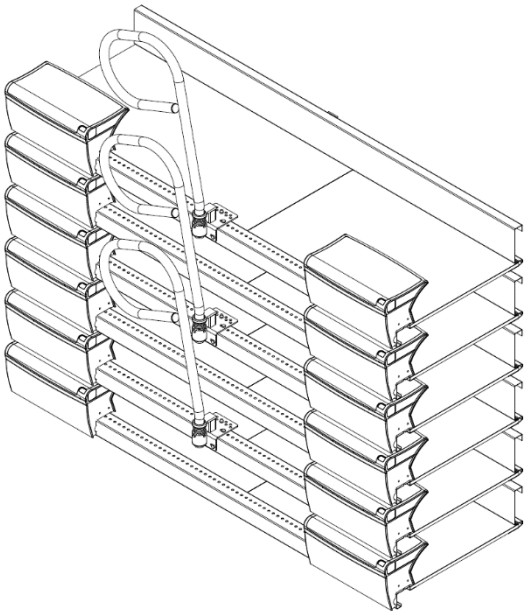


Figure 10.6b: Smart Rails Shown Rotated and Closed

Technical requirements for using the Smart Rails: 22in thru 26in spacing and 10in minimum rise.

10.7 Smart Rail-EX

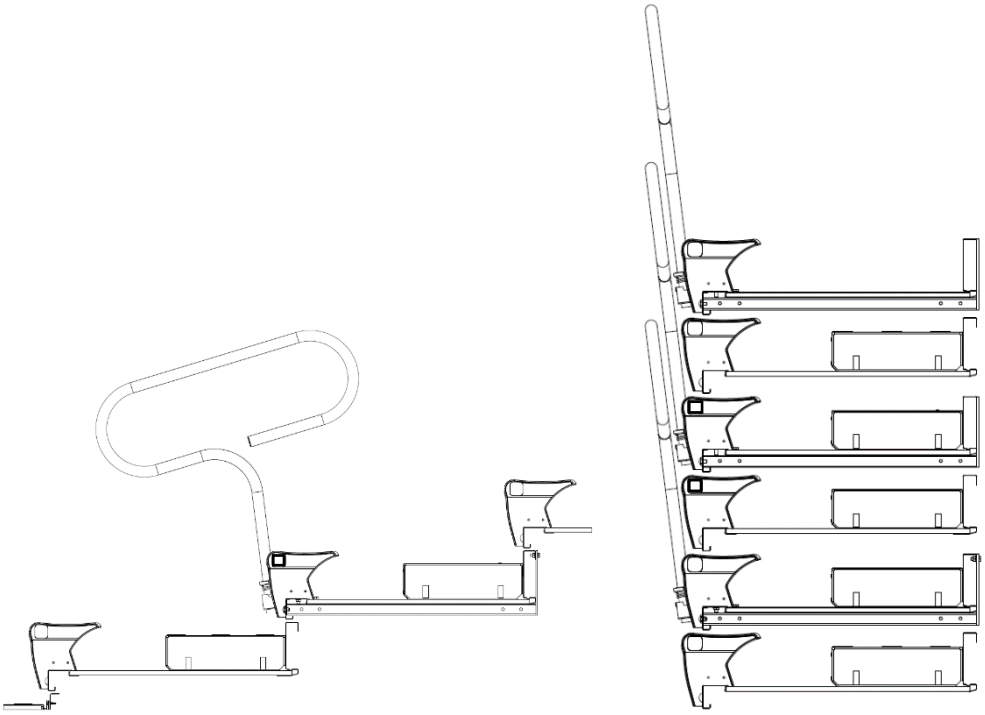


Figure 10.7a: End View of Smart Rail-EX

The bracket allows the Smart Rail-EX to rotate left or right to allow clearance when the system is closed.

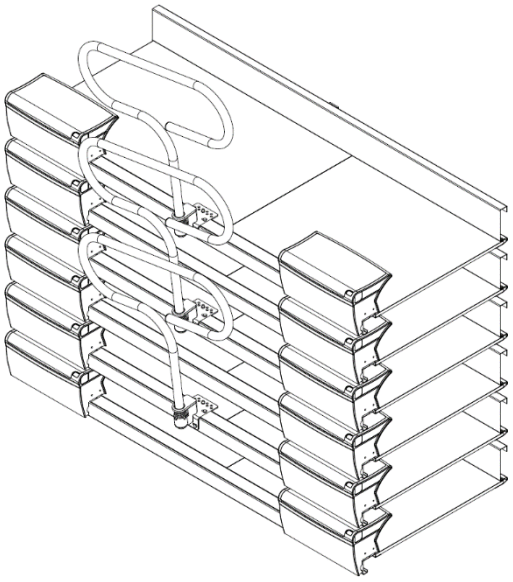


Figure 10.7b: Smart Rail-EXs Shown Rotated and Closed

Technical requirements for using the Smart Rail-EX: 31in thru 36in spacing and 8in thru 16in rise.

11 Aisle Steps

This chapter includes the following sections:

- Intermediate Steps
- Spliced Intermediate Steps
- Front Steps
- Spliced Front Step
- Non-Slip Tread Tape

11.1 Intermediate Steps

There will be an intermediate step on each deck at aisle locations.The step has (2) cut-outs on each side. Inside are mounting holes which will secure the step to the deck Use (4) #14 x 3/4 wood screws hex washer head per step when fastening into a wood substrate. Use (4) HWHS TEK 1/4-20 X .75 IN, gr. 5 zinc per step when fastening into aluminum planks. On 22”-25” & 31”-32” the kick plate should be lined up with the nose beam on the row behind.

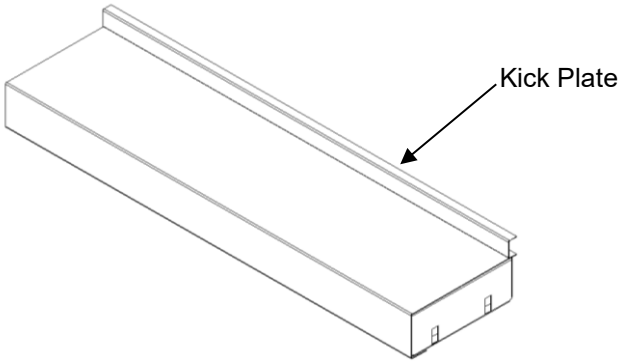


Figure 11.1a: Intermediate Step

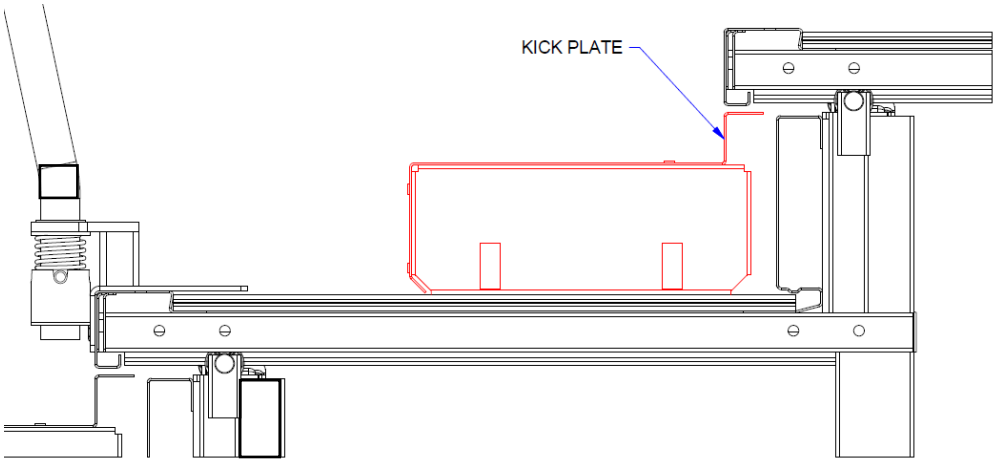


Figure 11.1b: Intermediate Step Installed

11.2 Spliced Intermediate Steps

Align and splice Intermediate step as shown in Figure 11.2 when required.

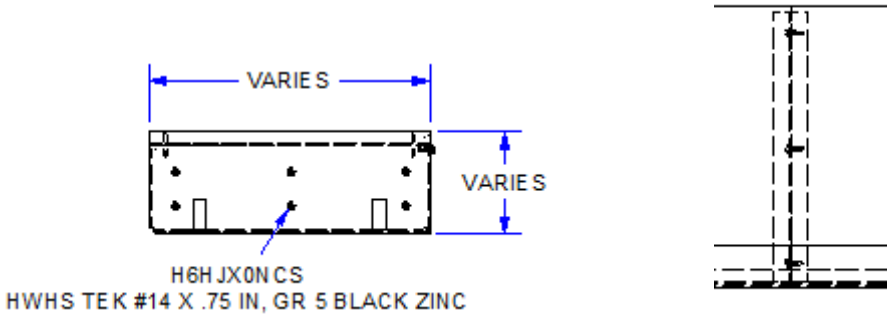


Figure 11.2a: Intermediate Step Splice

11.3 Front Step

Attach a 3/8-16 X 1 HHCS with (2) 3/8-16 SRTD lock nuts as shown in Figure 11.3a in two locations on the front step. Position of the mounts can be moved to other holes to avoid obstructions. Set the step in position with the bleacher open. Place the removable step attachment bracket on the bolt attached to the step. Lift the bracket 1/8" to give clearance for floor variances. Screw the bracket to the skirt using (4) #14 X 1 black tek screws.

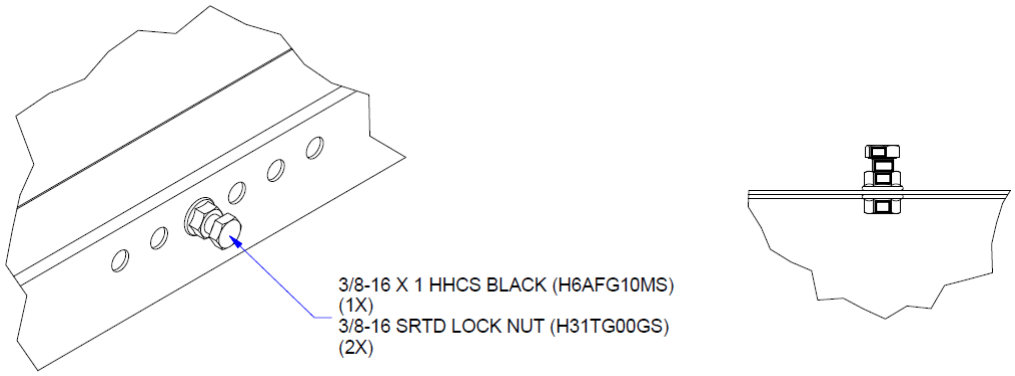


Figure 11.3a: Front Step Bolt Detail

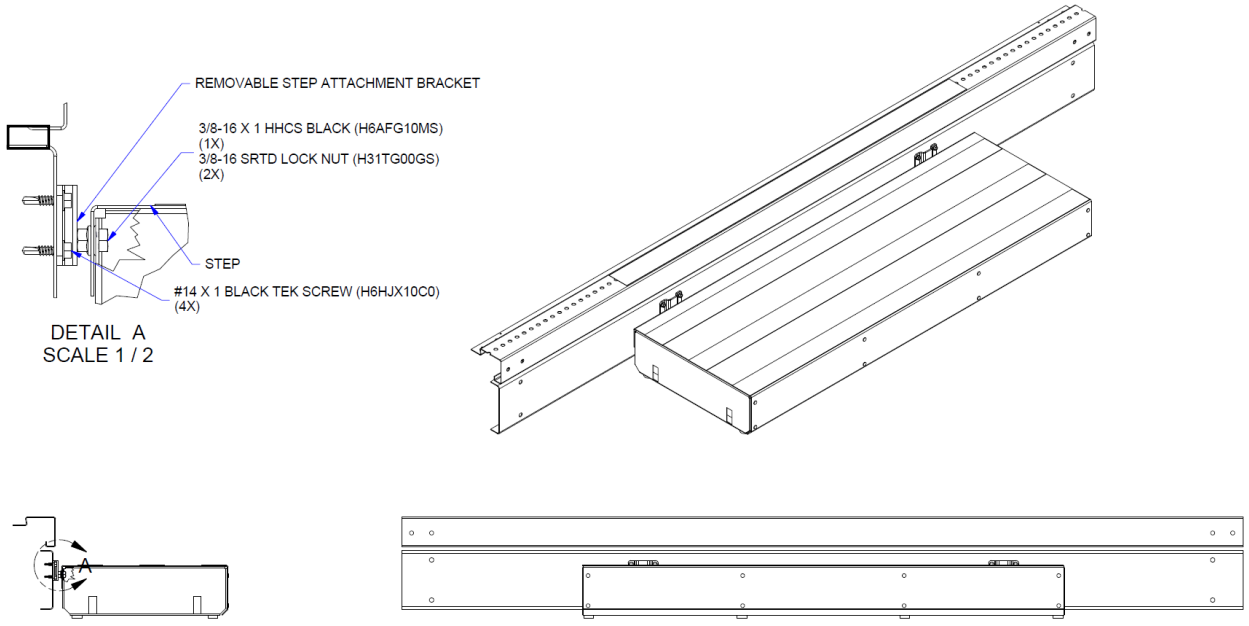


Figure 11.3b: Front Step

11.4 Spliced Front Step

Align and splice front step as shown in Figures 10.4a & 10.4b when required.

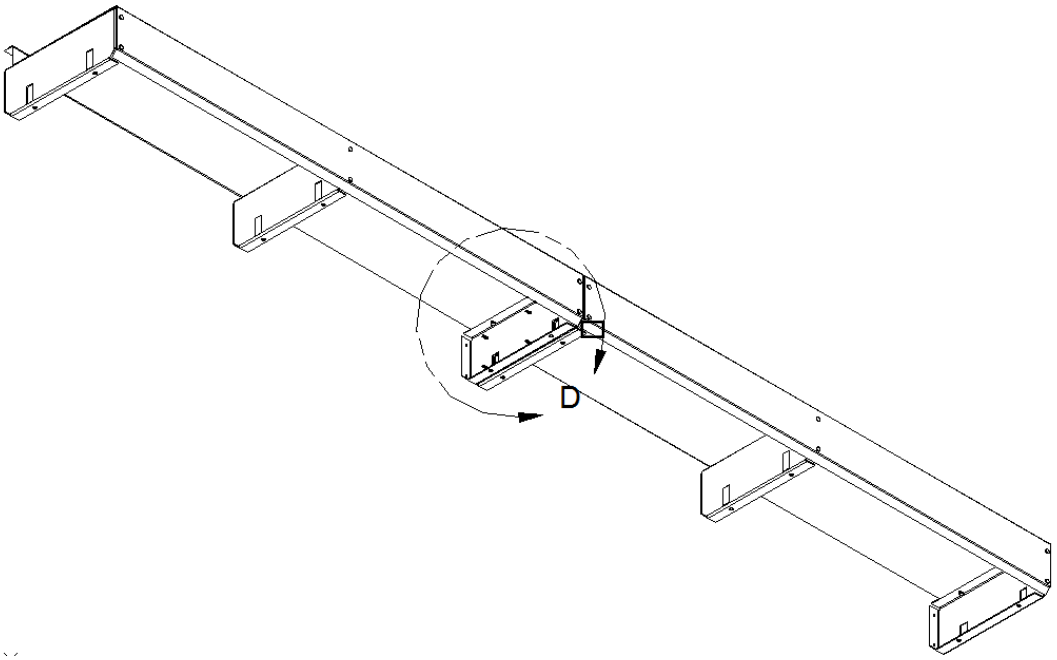


Figure 11.4a: Spliced Front Step

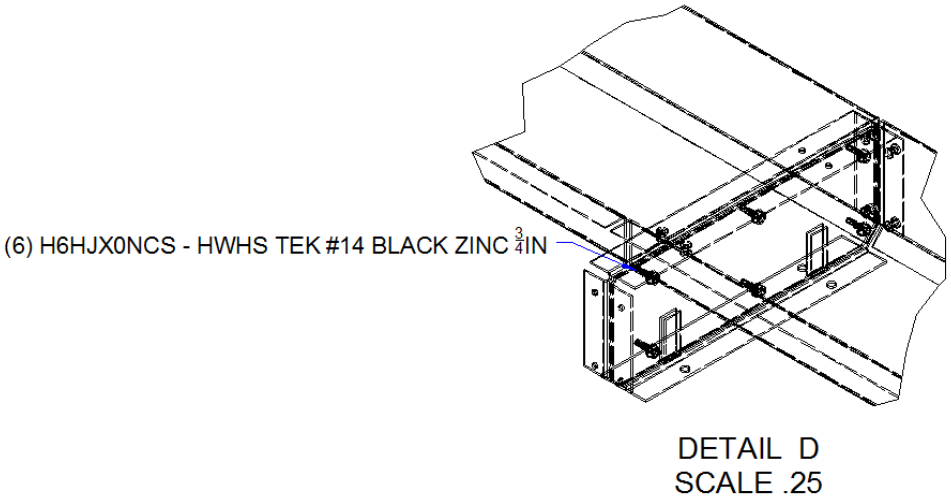


Figure 11.4b: Spliced Front Step

Important Note: The width of the intermediate step will be the same as the aisle width; the front step will be 1” narrower to allow clearance when in closed position.

11.5 Non-Slip Tread Tape

All projects are furnished with non-slip tread tape.

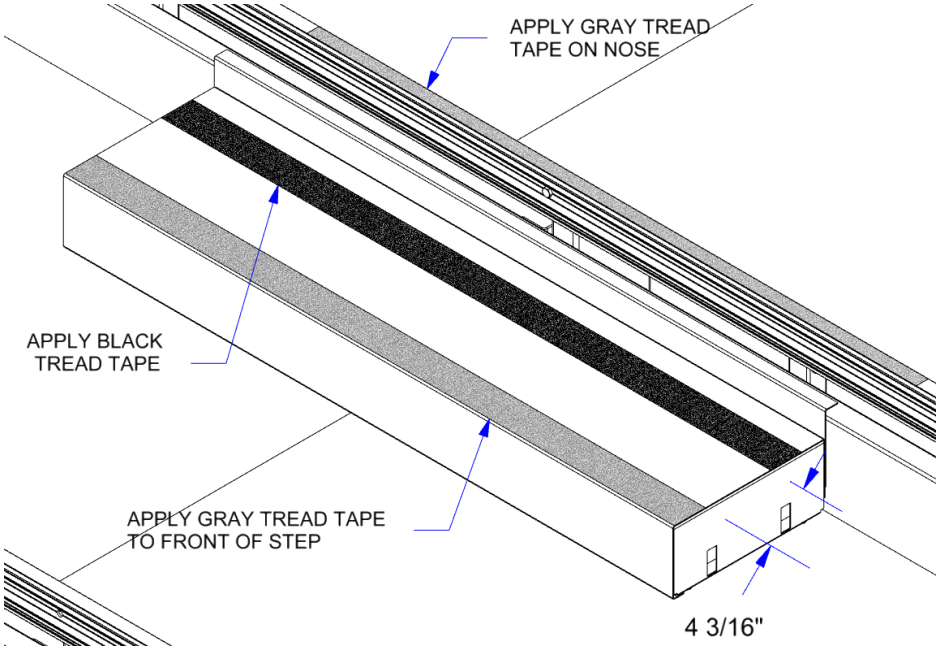


Figure 11.5a: 22-26” Spacing Front and Intermediate Step Tread Tape (Steel)

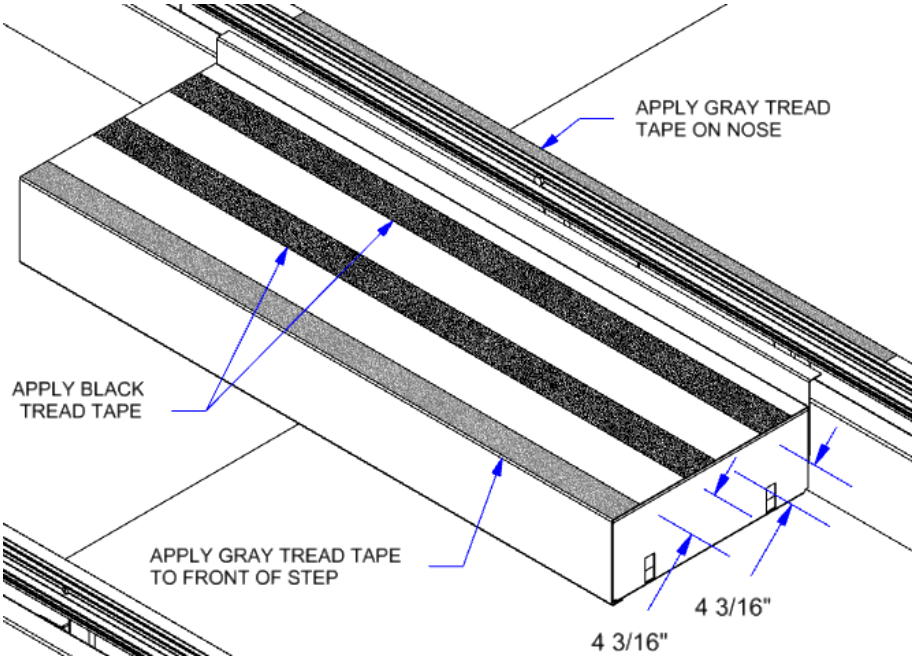


Figure 11.5b: Greater Than 26” Spacing Front and Intermediate Step Tread Tape (Steel)

To install:

1. Lay out and cut tape to length (must match aisle width). When center handrails are used, tread tape length is from the edge of seat bracket to the center rail bracket.
2. Make sure area that will be covered with non-slip tape is clean and dry.
3. Apply gray non-slip tape to the top and front edge of the nose beam. With the backing still on, position the tape where it will be placed.
4. Remove backing and apply to nose, straight and even.
5. Apply tape to front steps and intermediate steps when supplied. See Figures 11.5a and 11.5b for tape color placement. Space tape by 4 3/16 ”.

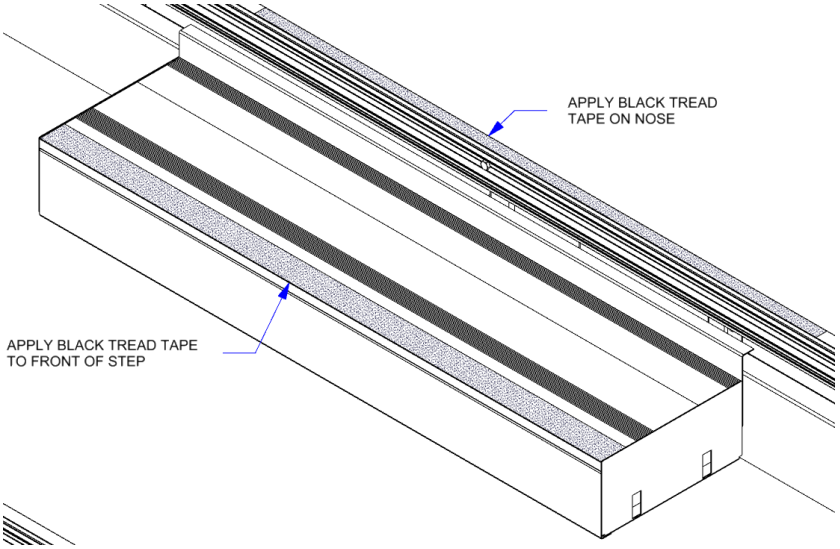


Figure 11.5c: Front and Intermediate Step Tread Tape (Aluminum)

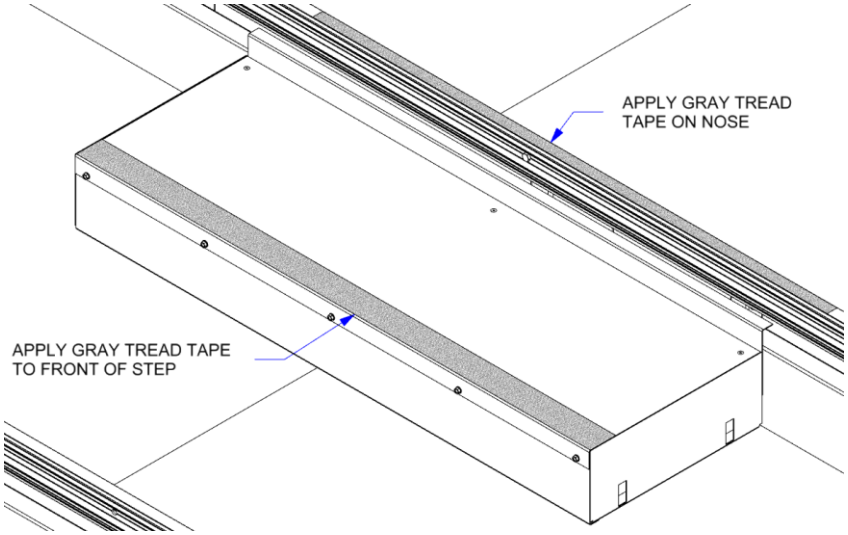


Figure 11.5d: Front and Intermediate Step Tread Tape (Panelam)

12 Moving the System

This chapter includes the following sections:

- Tug Frames
- Integral Drive System (IDS)
- Air-Lift System

12.1 Tug Frames

Tug frames are designed as a place to hook on to a system that does not have power permanently attached. This is performed with a manual tug handle or power tractor. See plan view for job requirements.

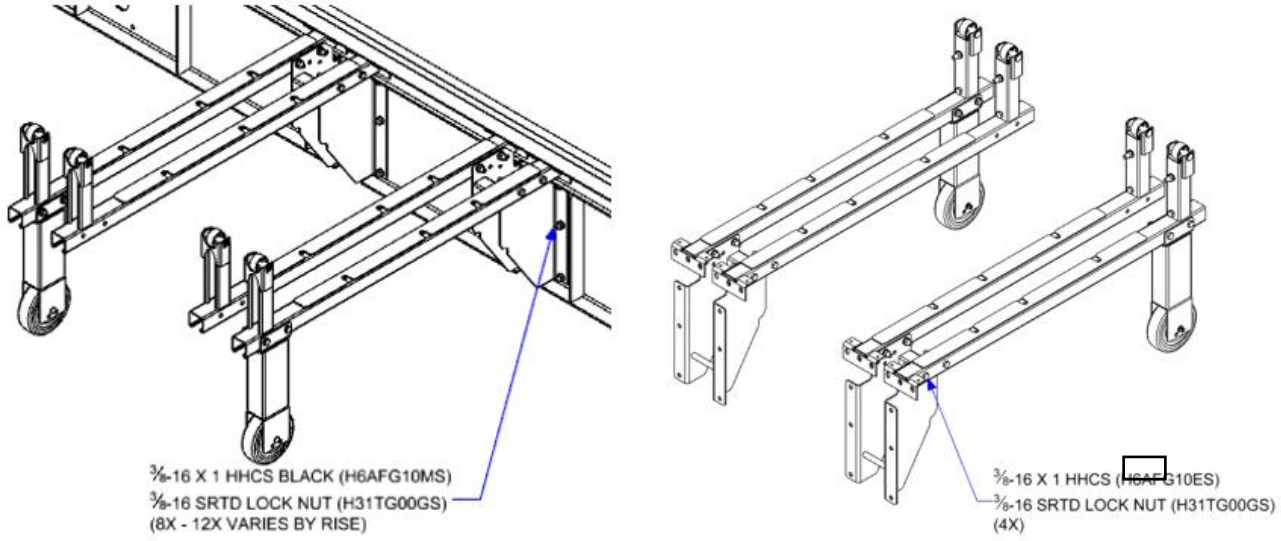


Figure 12.1: Tug Frame Assembly

Mount tug frame and skirt as shown in Figure 12.1 using standard decking and skirting hardware, starting with attachment of frames, moving on to the center and then the end skirts. See framing plans for proper location.

12.2 Integral Drive System (IDS)

The Integral Drive System (IDS) is an integral part of the bleacher understructure and acts not only as the drive system, but also as the support for the row of which it is attached. Therefore, the system will be installed very similar to that of a typical row post.

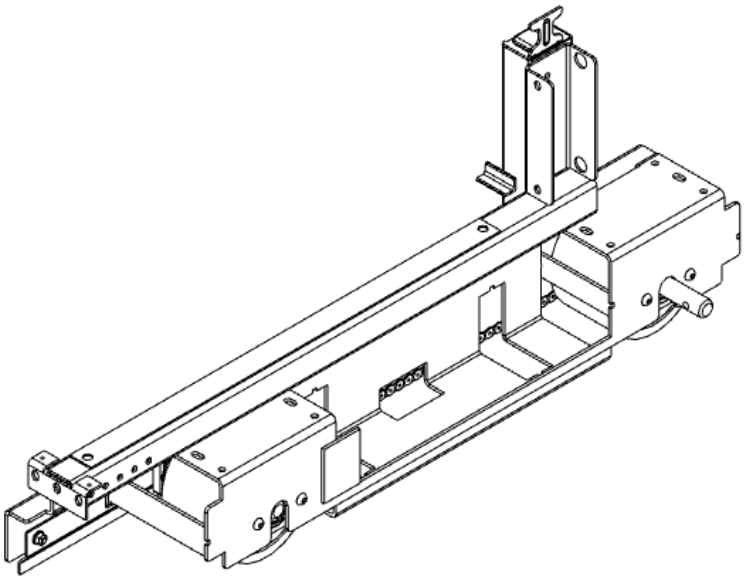


Figure 12.2a: IDS-1 Post Assembly (4” Roller)

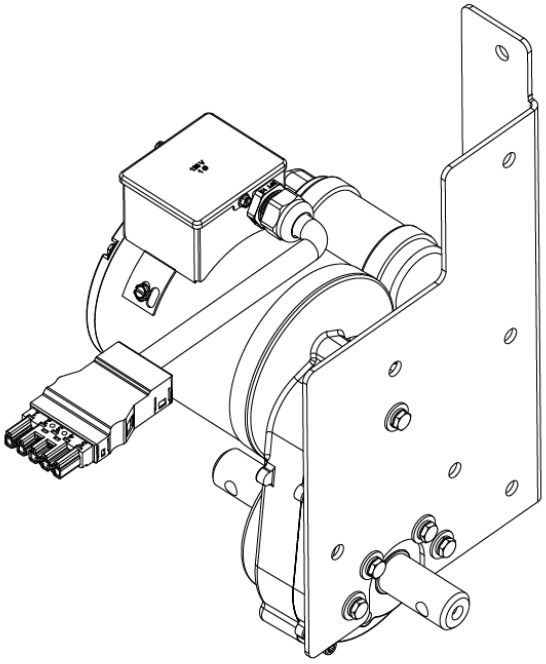


Figure 12.2b: Single Phase Motor Assembly

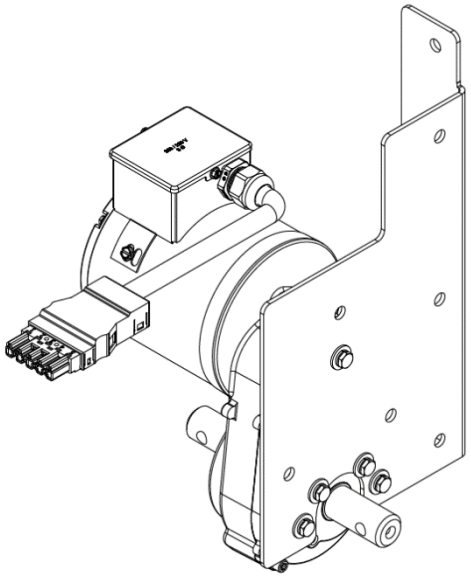


Figure 12.2c: 3 Phase Motor Assembly

12.2.1 Installation

Step 1: Locate the framing plans which will identify the location of the attachment points of the IDS posts and motor mounts. SEE(SECTION 5.1)

Step 2: Attach the nose beam and rear beam to the IDS posts as described in Section 12. Leave hardware loose.

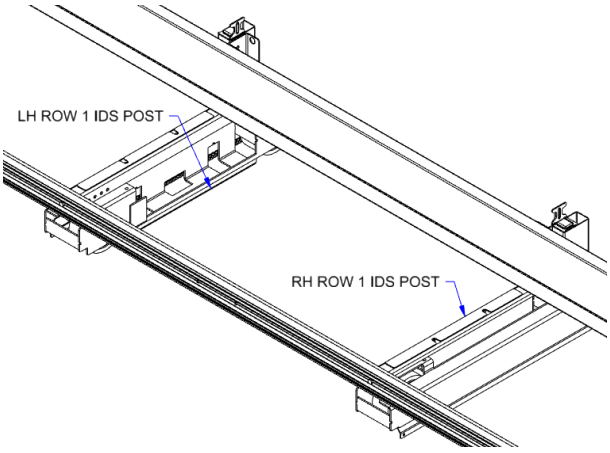


Figure 12.2.1a: IDS Posts With Nose Beam and Rear Beams Installed

Step 3: Attach the motor mount deck support per deck support installation instructions described in Section 12. (SEE SECTION 5.3)

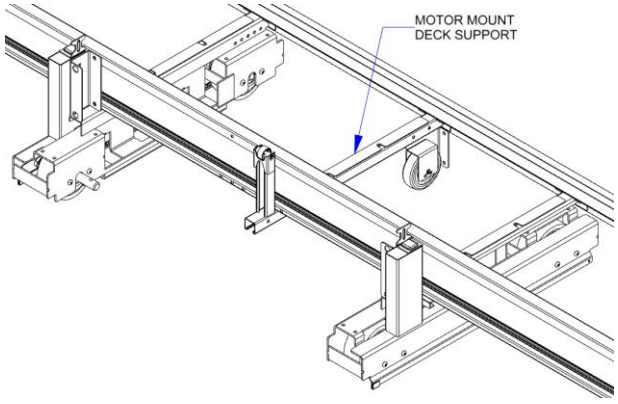


Figure 12.2.1b: Motor Mount Deck Support

Step 4: Locate the drive tubes. Assemble drive tubes loose without hardware to the IDS posts and motor assembly. If 562 motor is used slide on hose clamp and support wheel before sliding drive tubes onto IDS motor assembly. The hose clamp is to prevent the wheel from moving on the shaft.

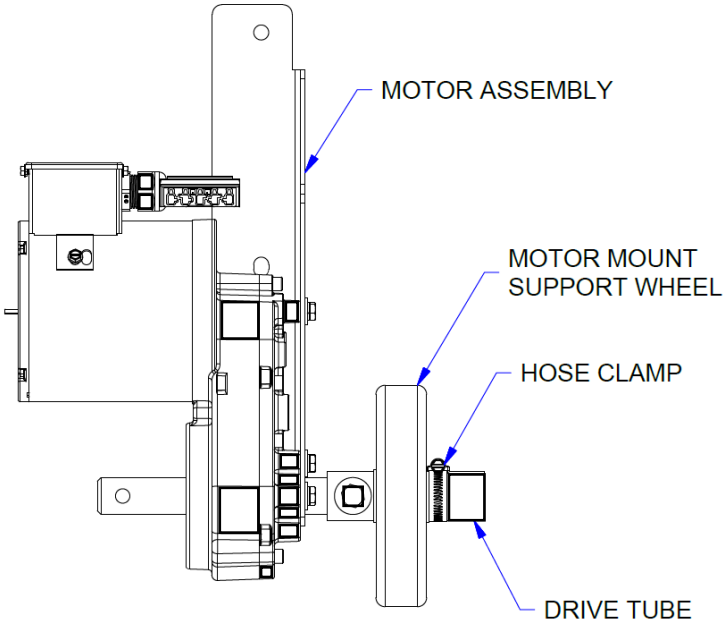


Figure 12.2.1c: Support Wheel and Hose Clamp

Step 5: Attach the motor assembly to the motor mount deck support and rear beam using (3) 3/8-16 X 1 HHCS and (3) 3/8-16 SRTD lock nuts. Leave hardware loose.

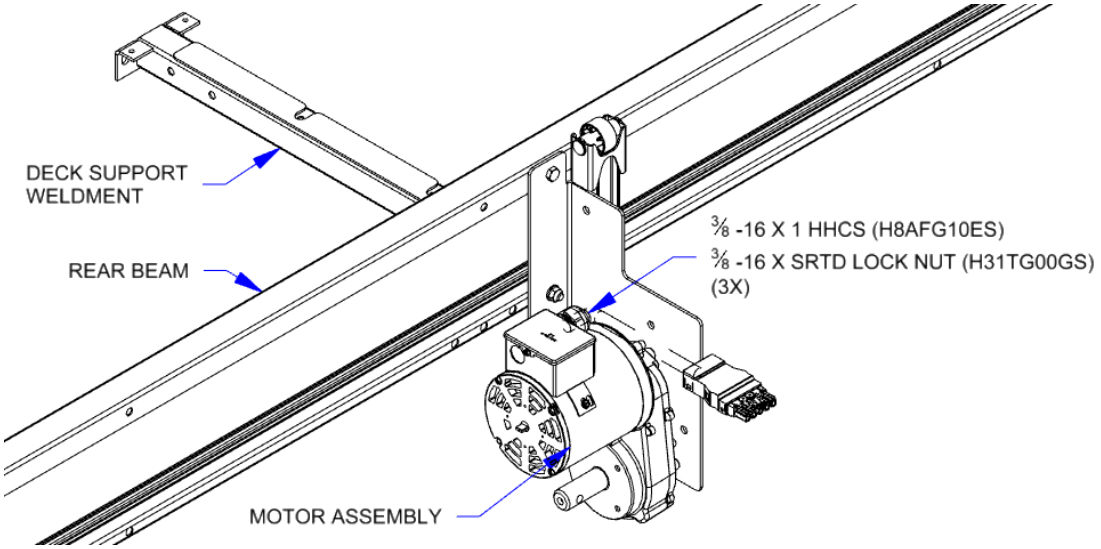


Figure 12.2.1d: Motor Assembly Attachments

Step 6: Attach the drive tubes using (1) 3/8-16 X 2 1/2 HHCS, (2) 3/8 washers and (1) nylon lock nut.

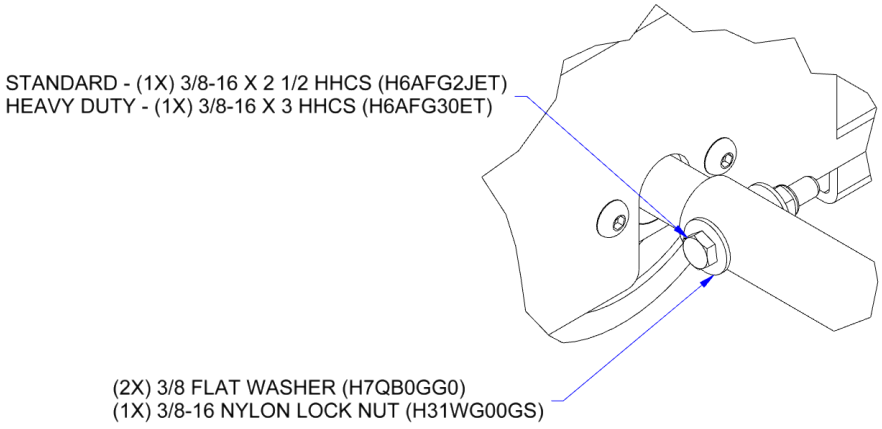


Figure 12.2.1e: Drive Tube Hardware

Step 7: Tighten all Hardware

12.2.2 Exploded Parts Views

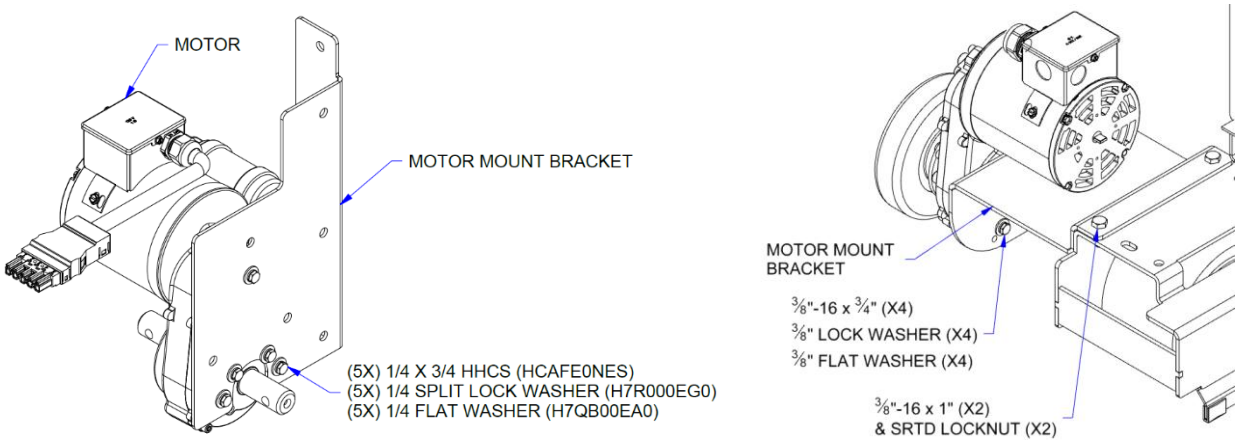
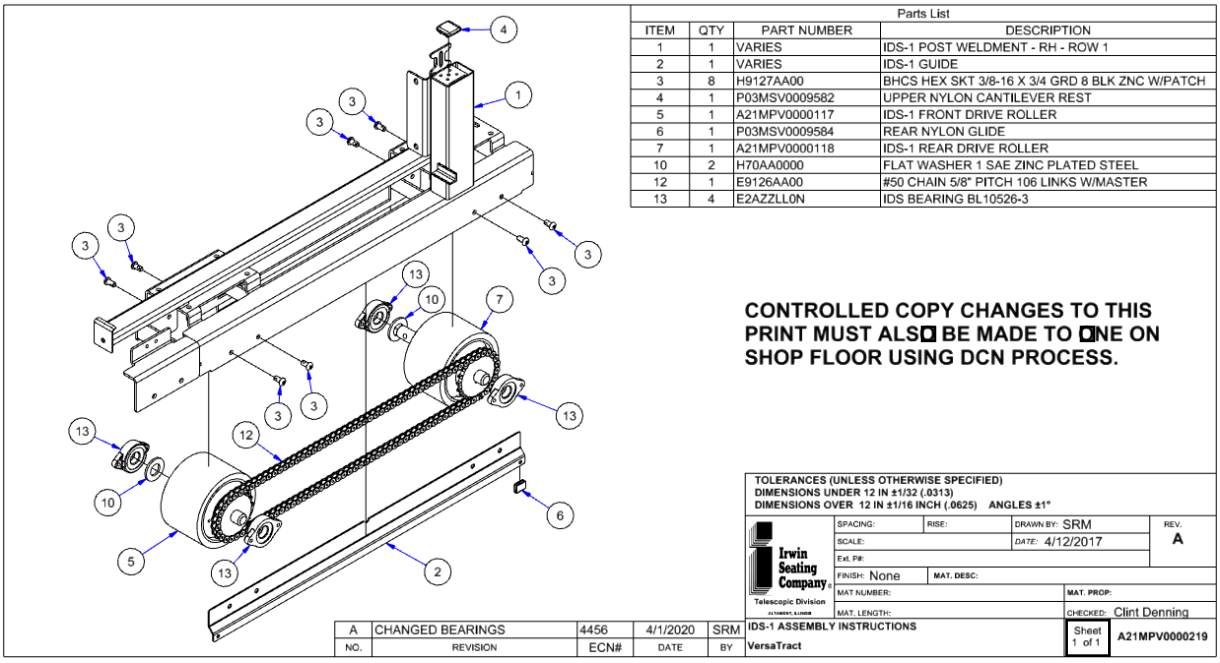


Figure 12.2.2a: 562 Series Motor Mount Detail



Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	VARIES	IDS-1 POST WELDMENT - RH - ROW 1
2	1	VARIES	IDS-1 GUIDE
3	8	H9127AA00	BHCS HEX SKT 3/8-16 X 3/4 GRD 8 BLK ZNC W/PATCH
4	1	P03MSV0009582	UPPER NYLON CANTILEVER REST
5	1	A21MPV0000117	IDS-1 FRONT DRIVE ROLLER
6	1	P03MSV0009584	REAR NYLON GLIDE
7	1	A21MPV0000118	IDS-1 REAR DRIVE ROLLER
10	2	H70AA0000	FLAT WASHER 1 SAE ZINC PLATED STEEL
12	1	E9126AA00	#50 CHAIN 5/8" PITCH 106 LINKS W/MASTER
13	4	E2AZZLL0N	IDS BEARING BL10526-3

Figure 12.2.2b: IDS-1 Assembly Detail

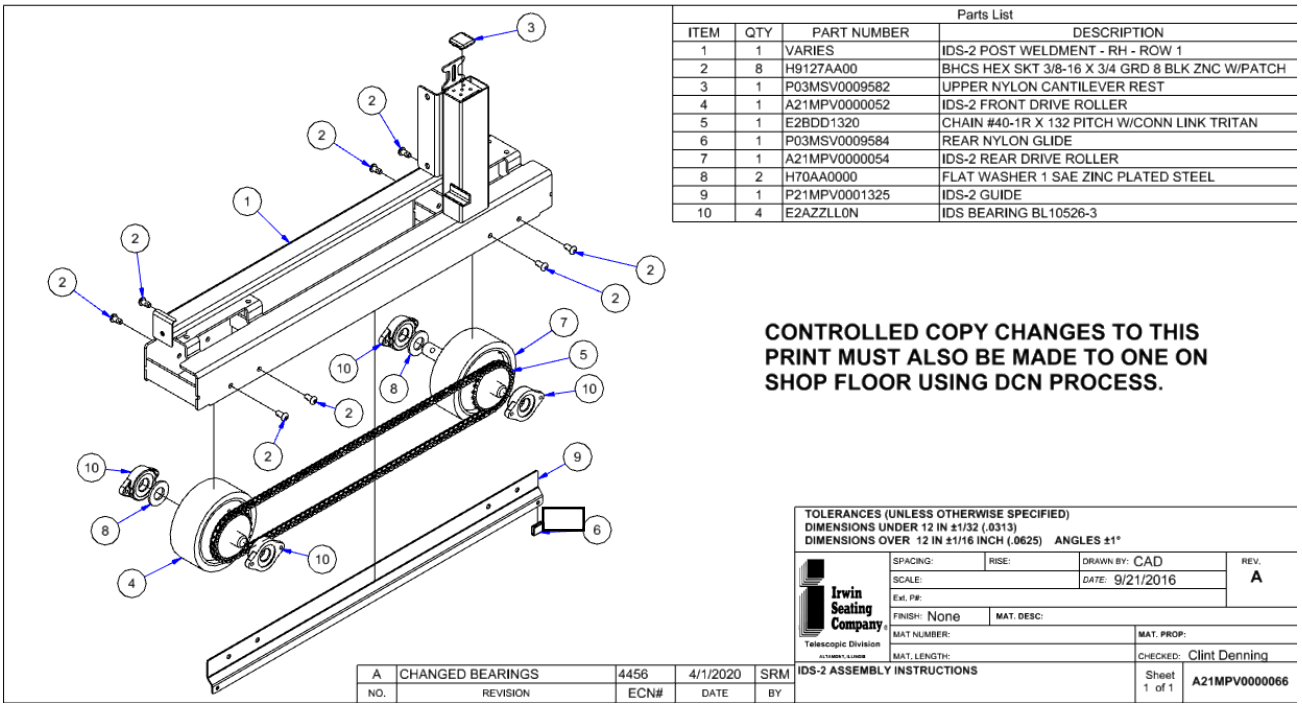


Figure 12.2.2c: IDS-2 Assembly Detail

12.3 Air-Lift System

12.3.1 Air-Lift Installation

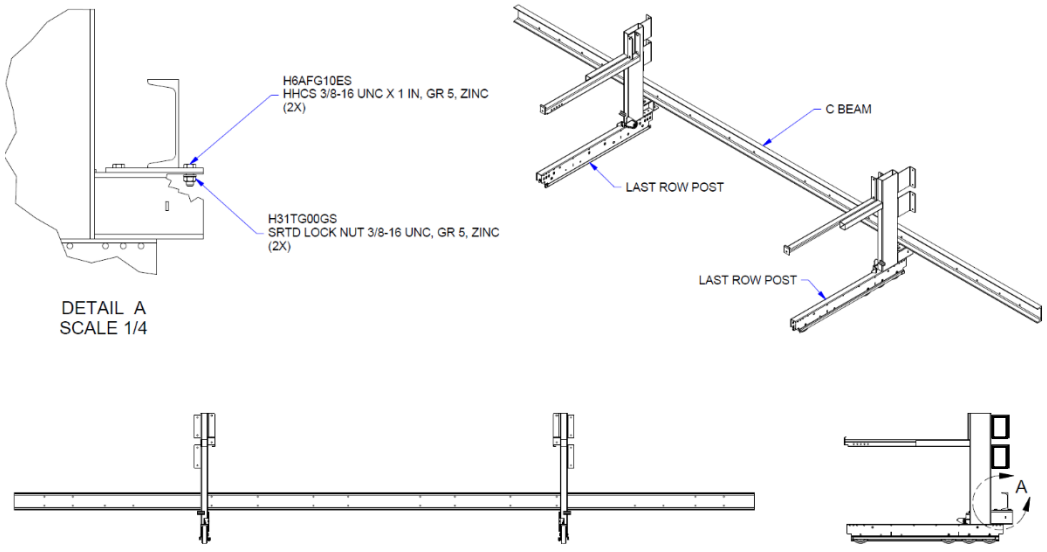


Figure 12.3.1a: C Beam Connection to Last Row Post

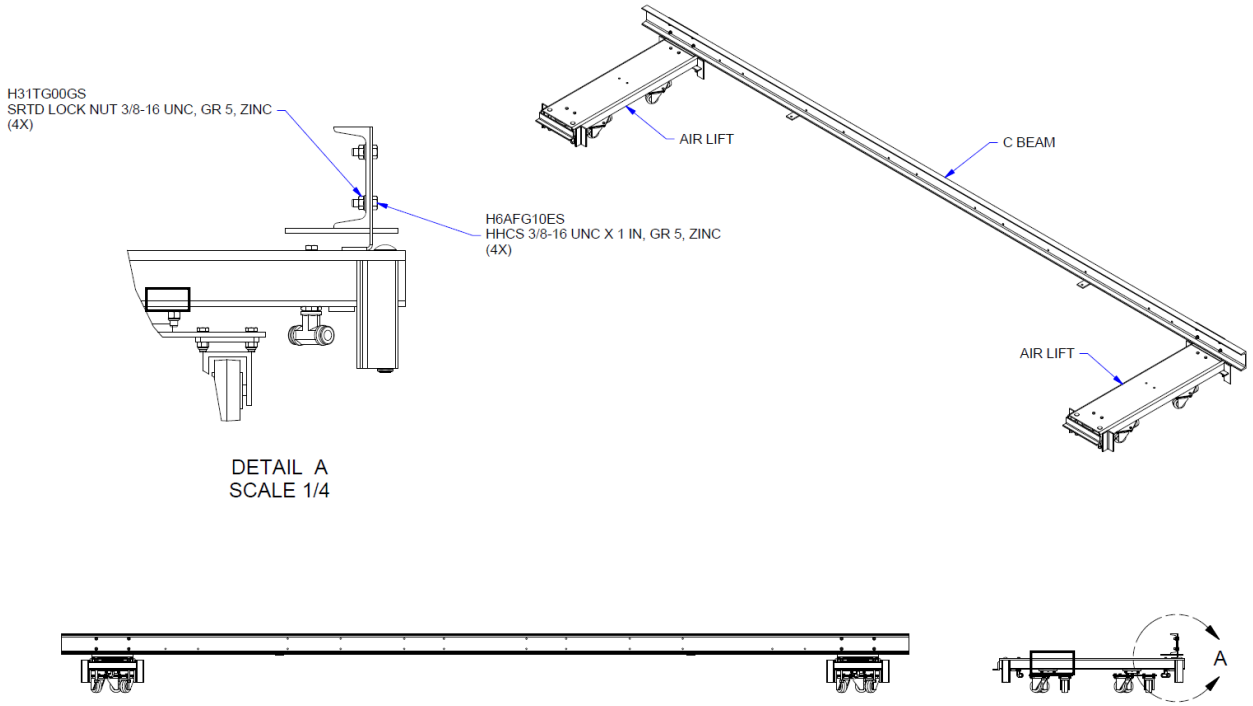


Figure 12.3.1b: Air Lift Connection to C Beam

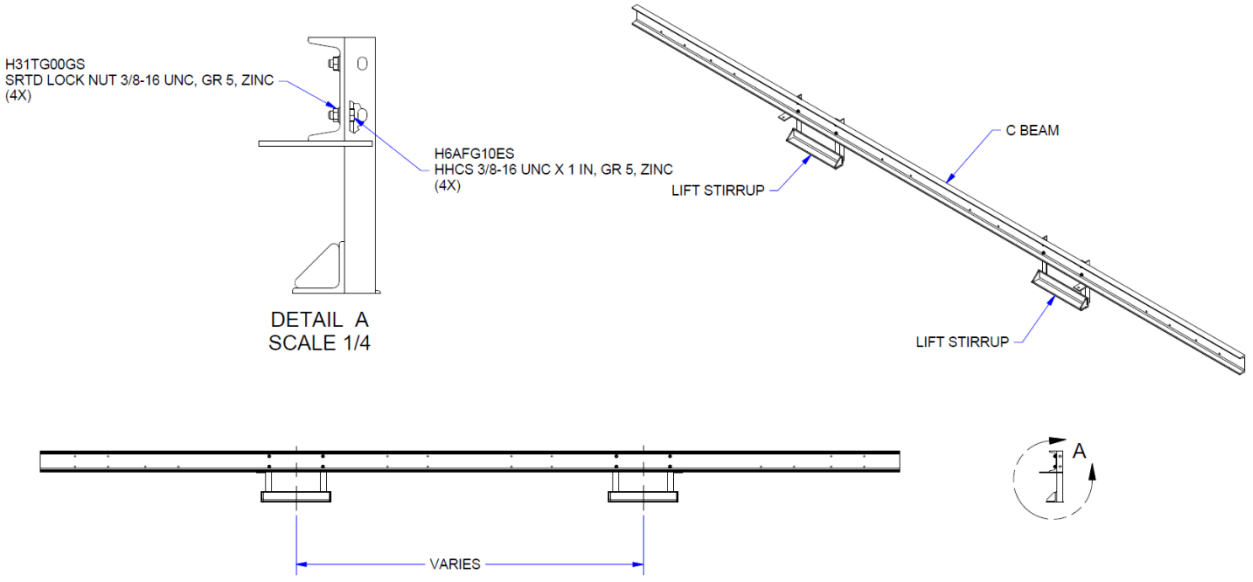


Figure 12.3.1c: Lift Stirrup Connection to C Beam

12.3.2 Air-Bag & Plumbing

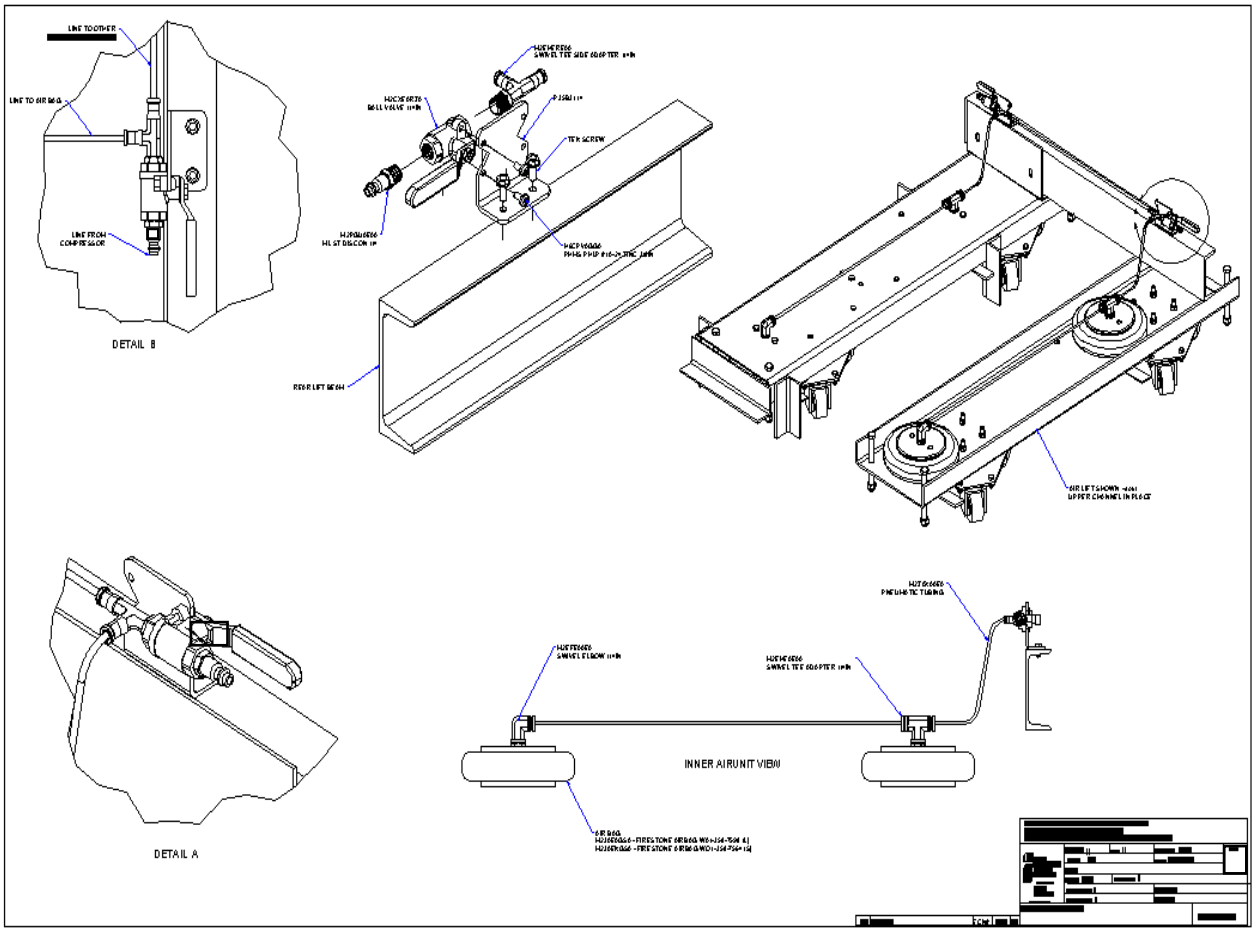


Figure 12.3.2a: Lift Stirrup Connection to C Beam

13 Electrical Components

- Wiring Harness
- Limit Switches
- Typical Wiring Diagram
    - Single Phase
    - Three Phase

13.1 Wiring Harness

Care must be used to avoid routing power cables around moving parts of the understructure. Failure to follow this procedure may result in personal injury or damage to the electrical system.

Step 1: Refer to the electrical lay out drawing that has been included with the packing list. This drawing has been prepared in a plan view format showing the location and routing of the motors, contractors cords and receptacles.

Step 2: Locate panels per electrical plan drawing and install.

IMPORTANT!

When routing the power supply cord to the source at the rear wall, a minimum of 6” of free play or slack is required while the bleacher is in the fully open or extended position. Verify all attaching points and free play requirements before proceeding to the next step. Mount the contactor box to the rear beam as shown in Figure 13.1a. 1/4" holes must be drilled in the rear beam for contactor box mounts. Holes are spaced at 5”, 7”, 9”, and 13” depending on box size. If the brace deck supports are too close together for the contactor to fit, mount the contactor box to the knee bracing using (2) #14 X 1 black tek screws.

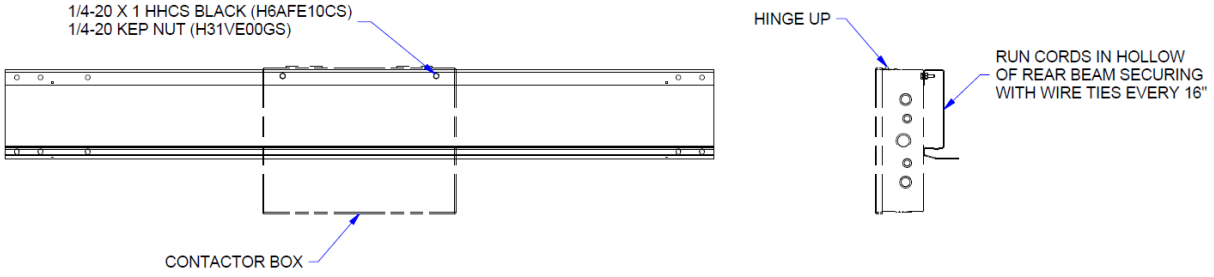


Figure 13.1a: Contactor Box Attachment to Rear Beam

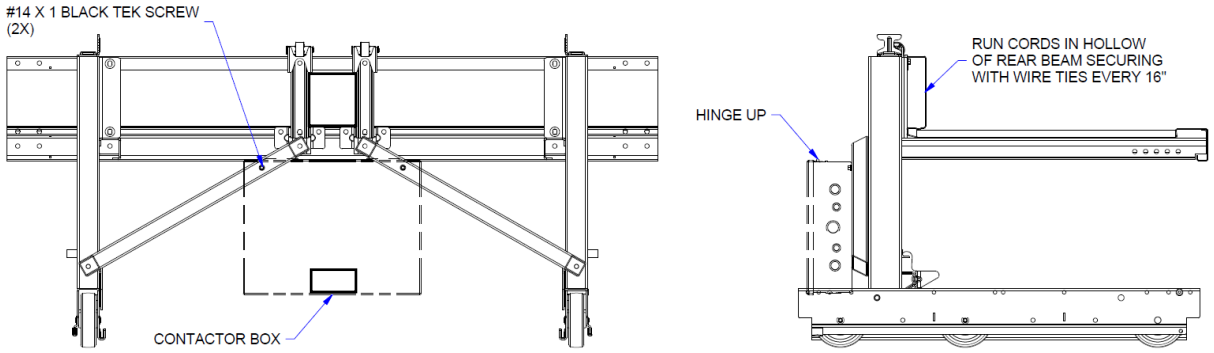


Figure 13.1b: Contactor Box Attachment to Knee Bracing

Step 3: Route the electrical cords in the hollow of the rear beam as described in figure 14.1a.

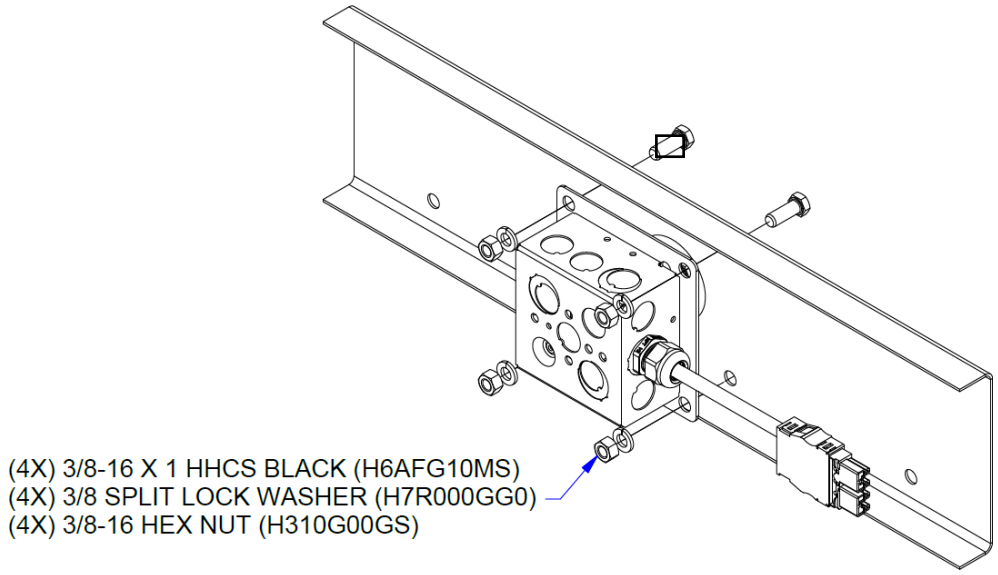


Figure 13.1c: Pendant Box Mounting

Step 4: The pendant switch receptacle is to be located in the front of the group as shown on the plan view and electrical layout drawing. Attach receptacle box with (4) 3/8-16 x 1 HHCS, (4) 3/8 Split Lock Washers, and (4) 3/8-16 Hex Nuts.

Step 5: Connect connectors between components being installed as indicated by the electrical layout. It is important to match plugs to and receptacles by their labels. The following figures show some typical connections.

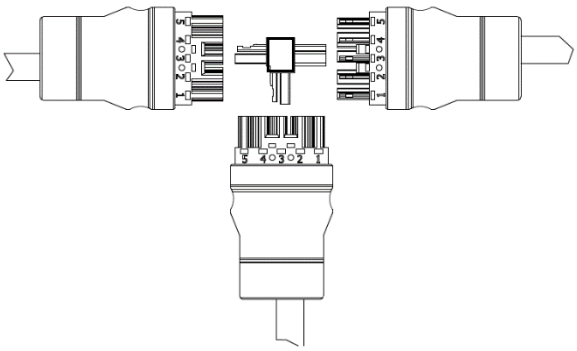


Figure 13.1d

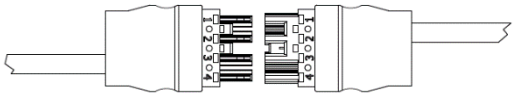


Figure 13.1e

To verify voltage requirements, refer to the plan view drawing and/or the electrical lay out drawing. To verify motors on site refer to the component information plate located on every motor.

Step 6: Final connection at the disconnect switch or junction box located on the wall or floor is the responsibility of the Owner, General Contractor, or Electrical Contractor.

Step 7: Once the final connection at the power source is completed, the electrical system may be tested. To test, insert the pendant switch (yellow rubber coated cord set) into one of the receptacles located at the pendant control box, located at the end of the group. Depress the switch and verify that all motors start, then reverse the position of the switch and check in opposite direction.

13.2 Limit Switches

Insert pendant into the pendant receptacle. Actuate one of the limit switches. Have an assistant press and release the close direction button on the pendant. Did truncated motor start with the other motors? If the truncated motor started with the rest of the motors, then this is your close sequence limit switch.

Step 1: Pull limit switches per electrical plan.

Step 2: Position limit switches on appropriate offset bracket using the following figures.

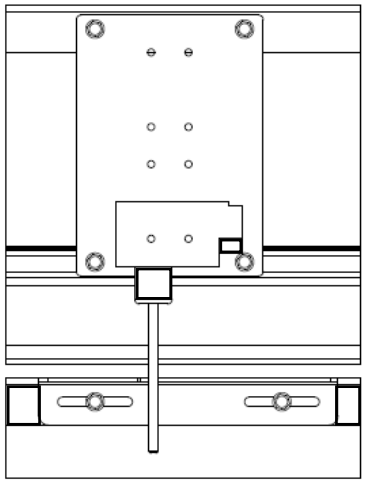


Figure 13.2a

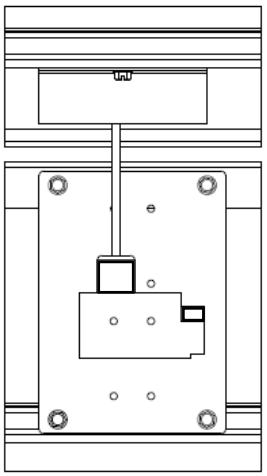


Figure 13.2b

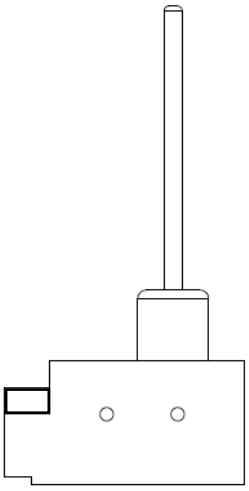


Figure 13.2c

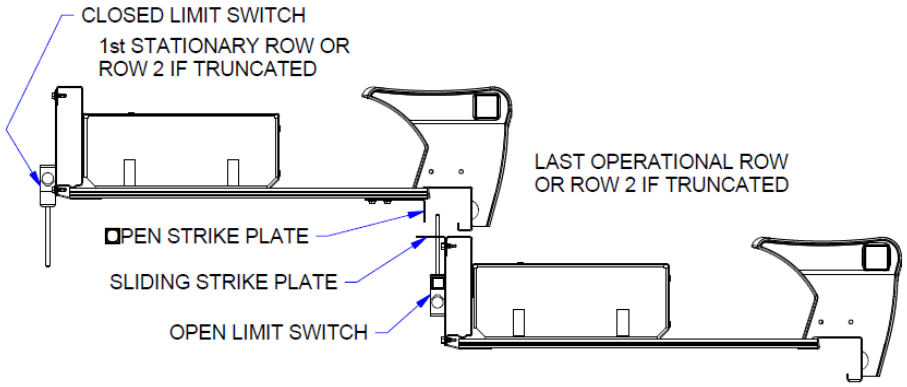


Figure 13.2d

The last operational row is defined as the last row of the recoverable truncated rows. This could be row 1 if a single row is being truncated or it could be on the row 3 beam if a single row is being truncated. Make sure you are familiar with the requirements on the Shop Drawings that are included in the packet.

Step 3: Install open limit switch.

a. Attach limit switch and bracket to rear beam of non-truncated section using #14 X 1 tek screw.
b. Open non-truncated section until Row 1 is fully open.
c. Position Limit Switch Strike plate to underside of Row 2 deck. Strike plate is properly positioned by sliding the strike plate rearward until the limit switch clicks indicating that it has been tripped. Slide the the bracket rearward an additional 1/4". The Strike Plate should be centered on the Limit Switch when viewed from the rear.
d. Secure with 2-#6 X 1/2 sheet metal screws.

Step 4: Install closed limit switch The installation of the closed system is similar to the open switch except for the following:

a. The sliding striker attaches to the rear beam just below the closed switch.
b. Slide striker along rear beam until the limit switch activates (clicks).
c. Install with #14 X 1 tek screw.
d. Slide striker until rat tail has traveled 1/4" in past tripped.

The open sequence limit switch should turn on the truncated motor when row one of the adjacent non-truncated section is fully extended. The next few pages give several pieces of information on how to read and use the Contactor Box.

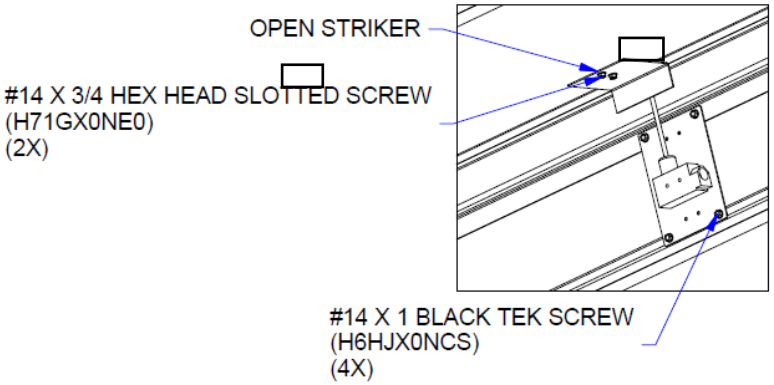


Figure 13.2e

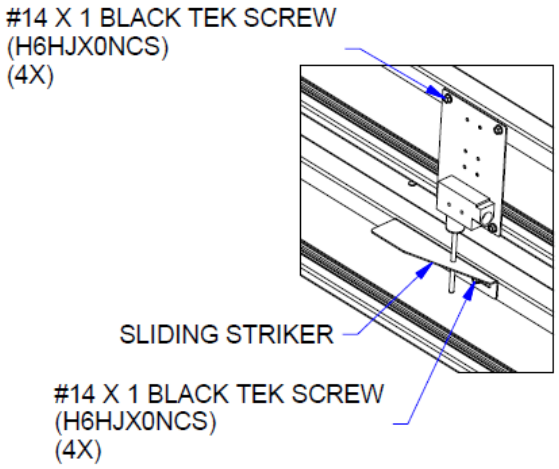
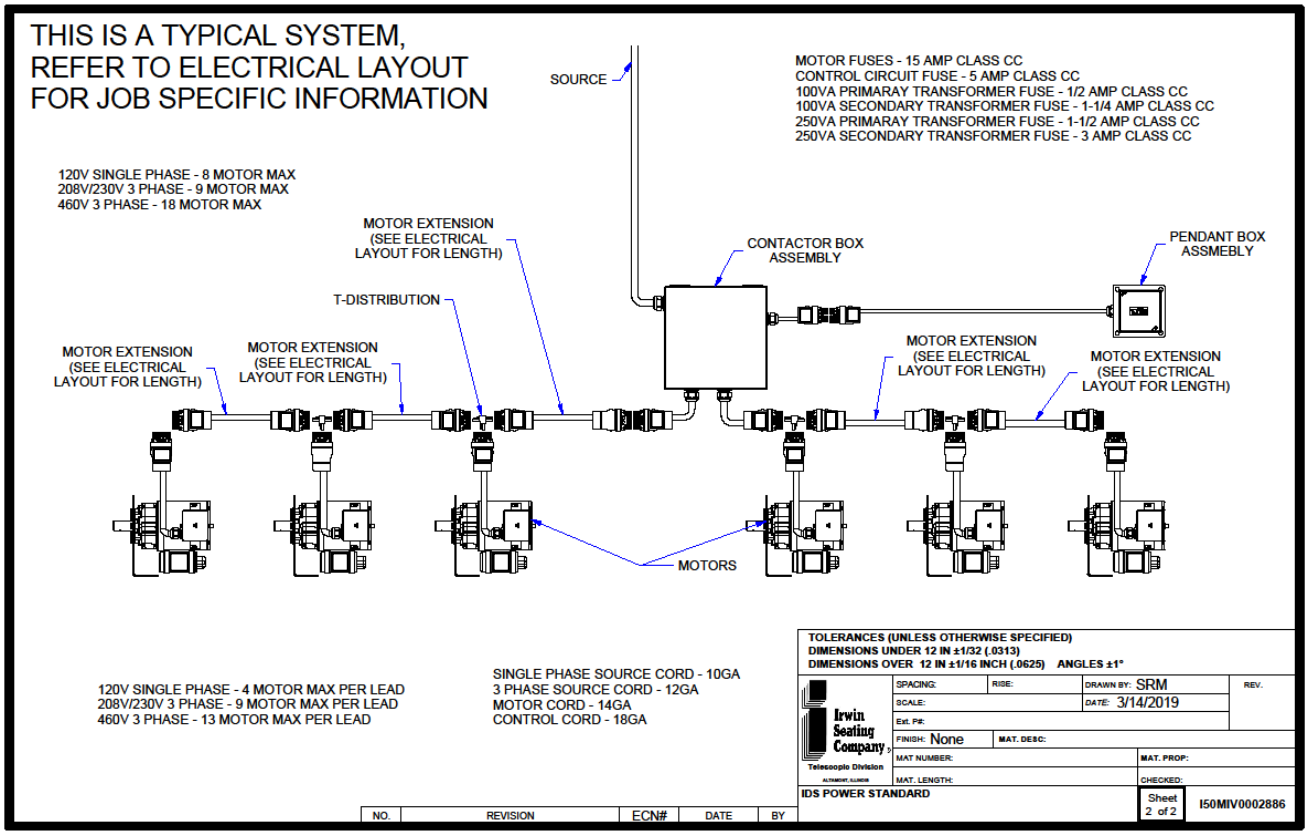


Figure 13.2f

13.3 Typical Wiring Diagram

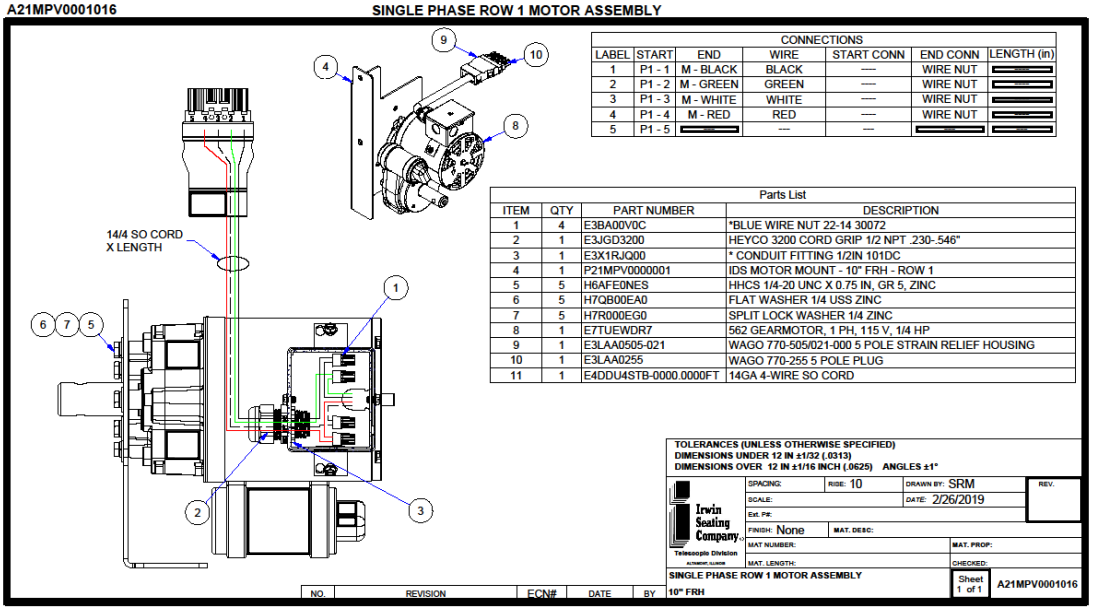
13.3.1 Typical System Plug & Play



13.3.2 Single Phase Motor & Pigtail

Enter Quantities and Intial Operation completed											
straighten/Shear	☐	Drilling	☐	Forming	☐	Stock	☐	Welding	☐	Assembly	☐
Cutting	☐	Punching	☐	Forming	☐	Welding	☐	Welding	☐	Electric	☐
Notching	☐	Punching	☐	Forming	☐	Welding	☐	Paint Line	☐	Shipping	☐
Drilling	☐	Stamping	☐	Laser	☐	Welding	☐	Color =			☐

A21MPV0001016 **SINGLE PHASE ROW 1 MOTOR ASSEMBLY**



CONNECTIONS						
LABEL	START	END	WIRE	START CONN	END CONN	LENGTH (in)
1	P1 - 1	M - BLACK	BLACK	----	WIRE NUT	
2	P1 - 2	M - GREEN	GREEN	----	WIRE NUT	
3	P1 - 3	M - WHITE	WHITE	----	WIRE NUT	
4	P1 - 4	M - RED	RED	----	WIRE NUT	
5	P1 - 5		---	---		

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	E3BA00V0C	*BLUE WIRE NUT 22-14 30072
2	1	E3JGD3200	HEYCO 3200 CORD GRIP 1/2 NPT .230-.546"
3	1	E3X1RJQ00	* CONDUIT FITTING 1/2IN 101DC
4	1	P21MPV0000001	IDS MOTOR MOUNT - 10" FRH - ROW 1
5	5	H6AFE0NES	HHCS 1/4-20 UNC X 0.75 IN, GR 5, ZINC
6	5	H7QB00EA0	FLAT WASHER 1/4 USS ZINC
7	5	H7R000EG0	SPLIT LOCK WASHER 1/4 ZINC
8	1	E7TUEWDR7	562 GEARMOTOR, 1 PH, 115 V, 1/4 HP
9	1	E3LAA0505-021	WAGO 770-505/021-000 5 POLE STRAIN RELIEF HOUSING
10	1	E3LAA0255	WAGO 770-255 5 POLE PLUG
11	1	E4DDU4STB-0000.0000FT	14GA 4-WIRE SO CORD

TOLERANCES (UNLESS OTHERWISE SPECIFIED)
DIMENSIONS UNDER 12 IN ±1/32 (.0313)
DIMENSIONS OVER 12 IN ±1/16 INCH (.0625) ANGLES ±1°

Irwin Seating Company – Telescopic Division – Automotive, Illinois

SPACING: RISE: 10 | DRAWN BY: SRM | SCALE: | DATE: 2/26/2019 | Ext. P#: | FINISH: None | MAT. DESC: | MAT NUMBER: | MAT. PROP: | MAT. LENGTH: | CHECKED:

SINGLE PHASE ROW 1 MOTOR ASSEMBLY
10" FRH

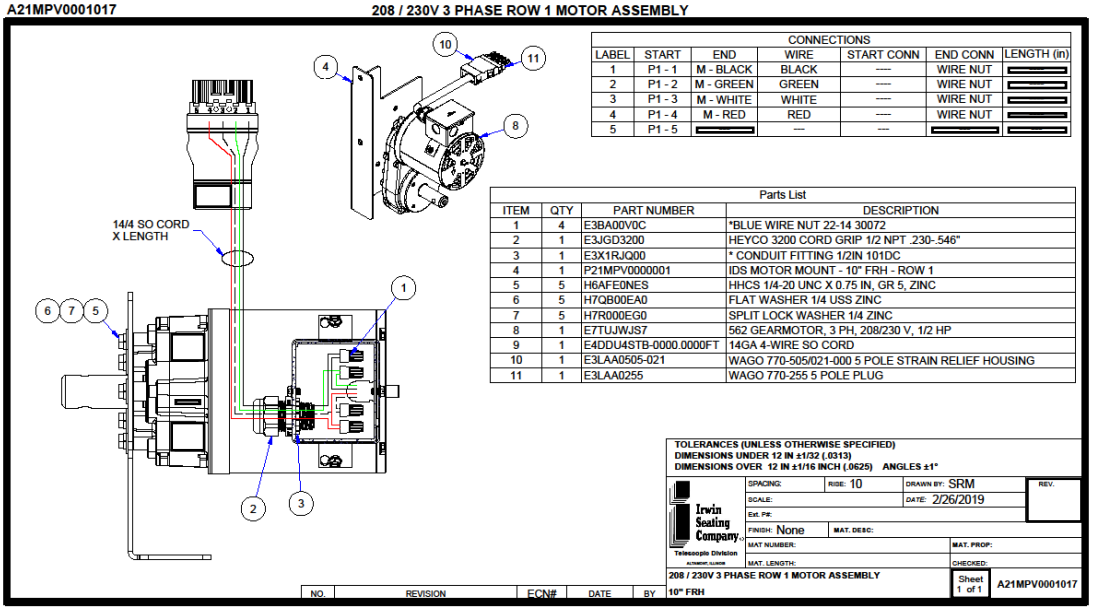
Sheet 1 of 1 — A21MPV0001016

NO.	REVISION	ECN#	DATE	BY

13.3.3 Three Phase Motor & Pigtail

Enter Quantities and Intial Operation completed											
straighten/Shear	☐	Drilling	☐	Forming	☐	Stock	☐	Welding	☐	Assembly	☐
Cutting	☐	Punching	☐	Forming	☐	Welding	☐	Welding	☐	Electric	☐
Notching	☐	Punching	☐	Forming	☐	Welding	☐	Paint Line	☐	Shipping	☐
Drilling	☐	Stamping	☐	Laser	☐	Welding	☐	Color =			☐

A21MPV0001017 **208 / 230V 3 PHASE ROW 1 MOTOR ASSEMBLY**



CONNECTIONS						
LABEL	START	END	WIRE	START CONN	END CONN	LENGTH (in)
1	P1 - 1	M - BLACK	BLACK	----	WIRE NUT	
2	P1 - 2	M - GREEN	GREEN	----	WIRE NUT	
3	P1 - 3	M - WHITE	WHITE	----	WIRE NUT	
4	P1 - 4	M - RED	RED	----	WIRE NUT	
5	P1 - 5		---	---		

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	4	E3BA00V0C	*BLUE WIRE NUT 22-14 30072
2	1	E3JGD3200	HEYCO 3200 CORD GRIP 1/2 NPT .230-.546"
3	1	E3X1RJQ00	* CONDUIT FITTING 1/2IN 101DC
4	1	P21MPV0000001	IDS MOTOR MOUNT - 10" FRH - ROW 1
5	5	H6AFE0NES	HHCS 1/4-20 UNC X 0.75 IN, GR 5, ZINC
6	5	H7QB00EA0	FLAT WASHER 1/4 USS ZINC
7	5	H7R000EG0	SPLIT LOCK WASHER 1/4 ZINC
8	1	E7TUJWJS7	562 GEARMOTOR, 3 PH, 208/230 V, 1/2 HP
9	1	E4DDU4STB-0000.0000FT	14GA 4-WIRE SO CORD
10	1	E3LAA0505-021	WAGO 770-505/021-000 5 POLE STRAIN RELIEF HOUSING
11	1	E3LAA0255	WAGO 770-255 5 POLE PLUG

TOLERANCES (UNLESS OTHERWISE SPECIFIED)
DIMENSIONS UNDER 12 IN ±1/32 (.0313)
DIMENSIONS OVER 12 IN ±1/16 INCH (.0625) ANGLES ±1°

Irwin Seating Company – Telescopic Division – Automotive, Illinois

SPACING: RISE: 10 | DRAWN BY: SRM | SCALE: | DATE: 2/26/2019 | Ext. P#: | FINISH: None | MAT. DESC: | MAT NUMBER: | MAT. PROP: | MAT. LENGTH: | CHECKED:

208 / 230V 3 PHASE ROW 1 MOTOR ASSEMBLY
10" FRH

Sheet 1 of 1 — A21MPV0001017

NO.	REVISION	ECN#	DATE	BY

14 Accessories

This Chapter will include Accessories available for the VersaTract System.

- End Panels
- Back Panels
- Access Panels
- End Curtains

14.1 End Panel

End panels are installed at the rear of each exposed end of seating. They act as fillers between the rear riser beams of the bleacher and the wall that the product is attached to.

Note: Use 3/8-16 x 1 ¾ lag for wood floor, attachment, 3/8-16 x 2 ¼ wedge anchor for concrete floor attachment and 3/8 x 1-7/8 sleeve anchor for block wall attachment.

Note: When special end panels are required to cover the entire end of the bleacher in the closed position, details will be included with the packing list.

Step 1: Locate the end panels on the **plan view** drawing and stage parts accordingly.

Step 2: Mark panel location on the wall, by placing the panel in the installed position and marking on the outside of panel. Now measure 5/8" from your marks toward the section of seating.

Step 3: Plumb a reference line on the wall; this line represents the **inside** edge of the panel in the "installed" position.

Step 4: Locate support angles along this line and mark hole location on wall using the angles as a template. **The support angles are to be spaced evenly, based on the height of the panel.**

Step 5: Drill hole locations on the wall using hole diameter specified by anchor.

Step 6: Hold end panel against support angles and mark hole locations through angles onto the panel.

Step 7: Hold panel in place and attach to support angles using #10-24 x 1 7/16 PLYMETAL TEK SCREWS (H6HCV1HJS). If forward fold, install support wheels using (4) #10-24 x 1 7/16 PLYMETAL TEK SCREWS (H6HCV1HJS.

Step 8: Attach Aluminum trim angle, with pre-drilled holes, to end panel using #6 X 1/2 truss head screws (H6GXSOJES).

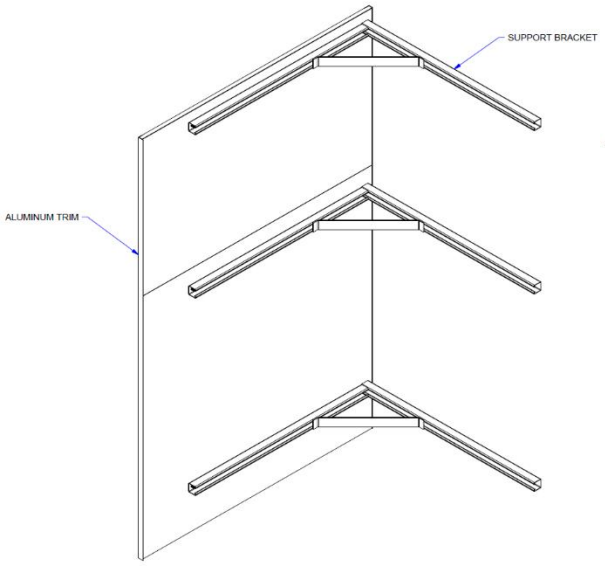


Figure 14.1a: Wall Attachment

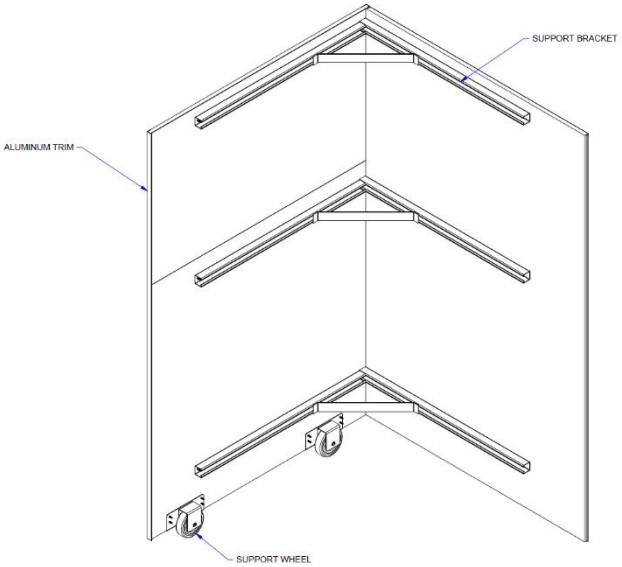


Figure 14.1b: Panel Attachment

14.2 Back Panel Installation

14.2.1 Framing

On forward fold and portable units support framing will be required.

Step 1: A frame must be installed first for rear row bracket support. This frame consists of strut bolted to Z-Brackets welded to the last row post. See Figures 14.3.1a through 14.3.1e for hardware and connection details.

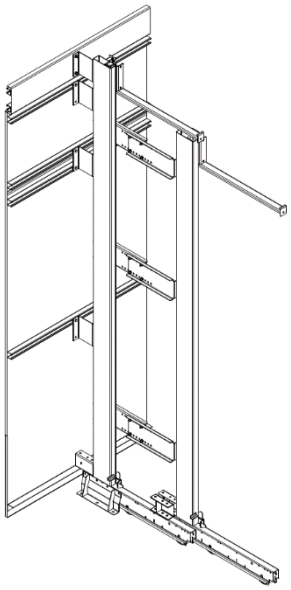


Figure 14.2.1a: ISO Back Panel

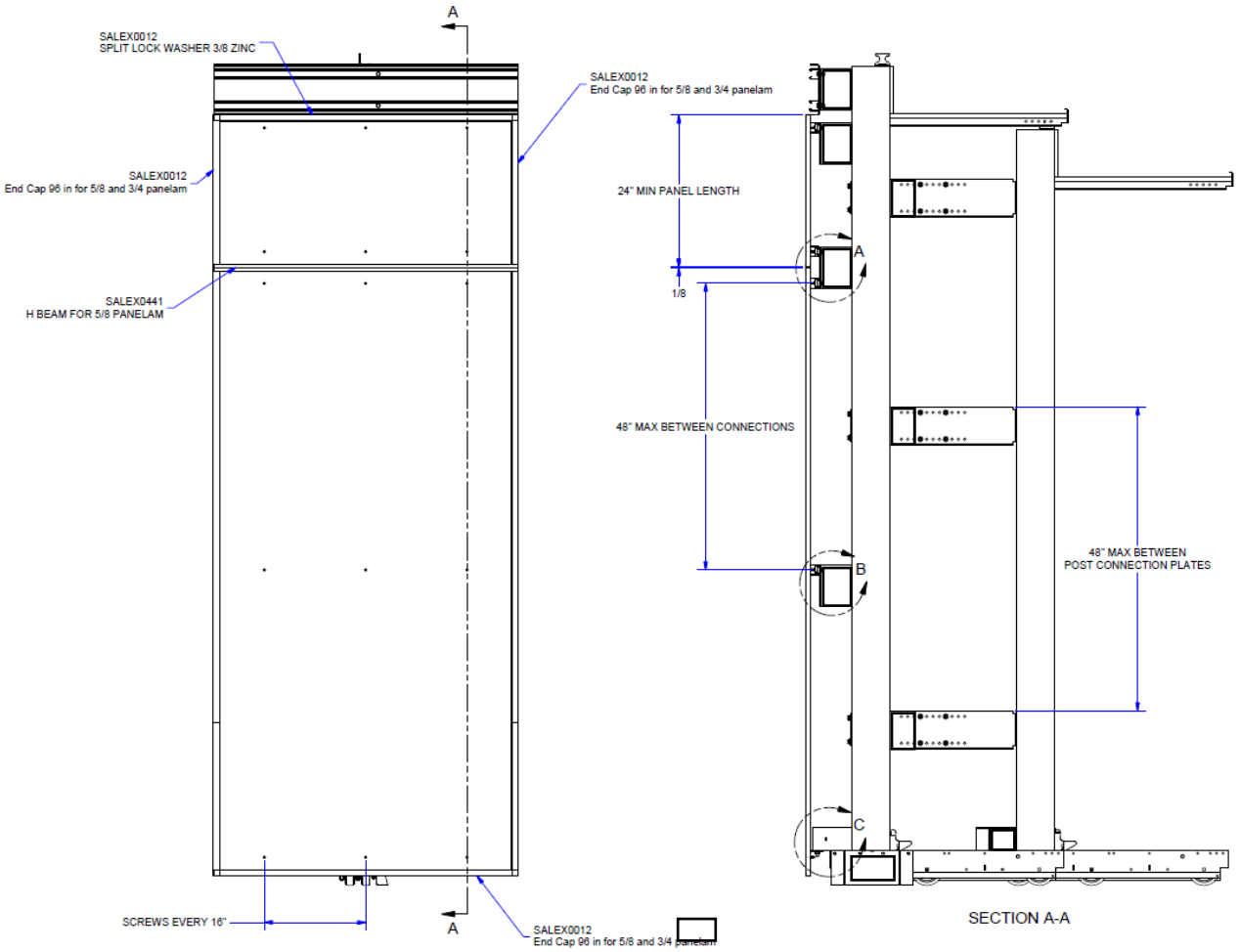


Figure 14.2.1b: ISO Back Panel Connections

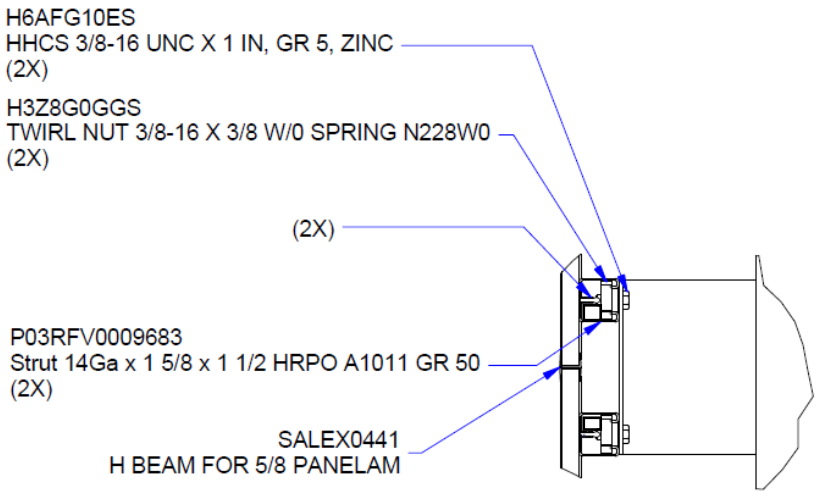


Figure 14.2.1c: Back Panel Splice

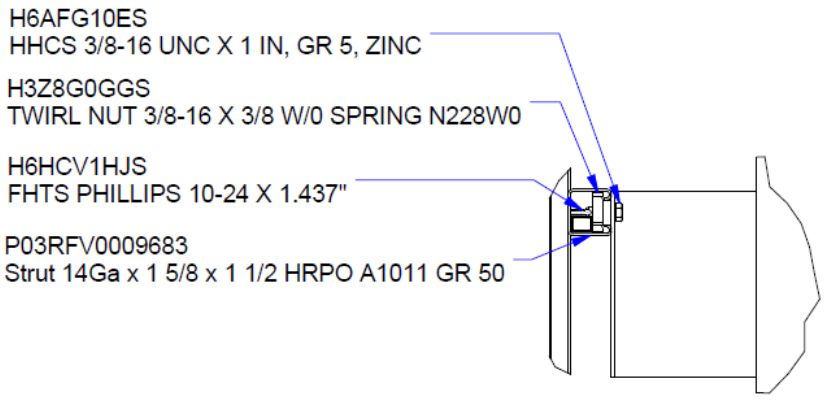


Figure 14.2.1d: Back Panel Plywood Connection

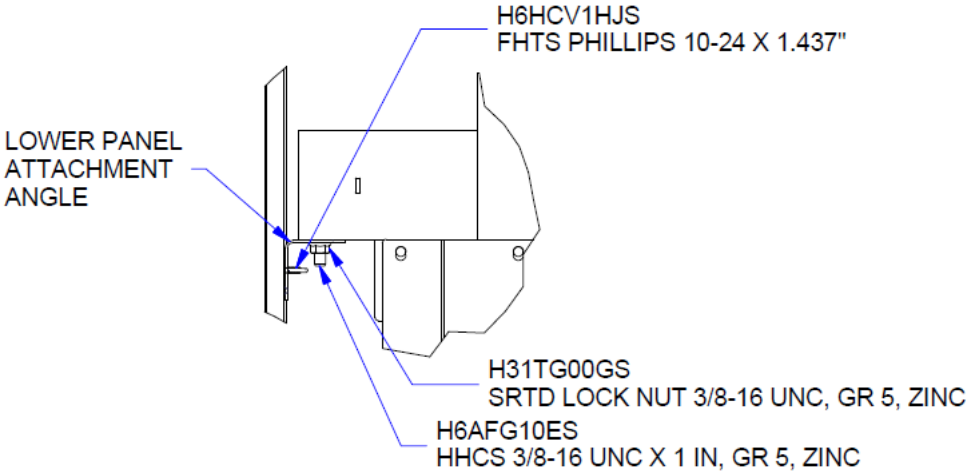


Figure 14.2.1e: Lower Back Panel Connecion

Step 2: Attach lower panel attachment angle using 3/8-16 X 1 HHCS and SRTD lock nuts.

14.2.2 Adding Panels

Place panels in configuration shown in back panel layouts sent with project. The above and below views will show attachment information.

Step 1: Use our #10-24 X 1 7/16 plymetal tek screws. for panel attachment. Mount panel 1.5” from ground with screws every 16”. Note: A clamp faced to protect the finish, to hold panel in place, may be helpful when aligning and screwing. If clamp is not equipped with a protective cover use a clean scrap piece of wood between the clamp and the finished product to prevent indention.

Step 2: H-beam will be used between each panel and Aluminum trim will be used to cap off each end and the bottom using #6 x ½ sheet metal screws at minimum 18” centers to secure.

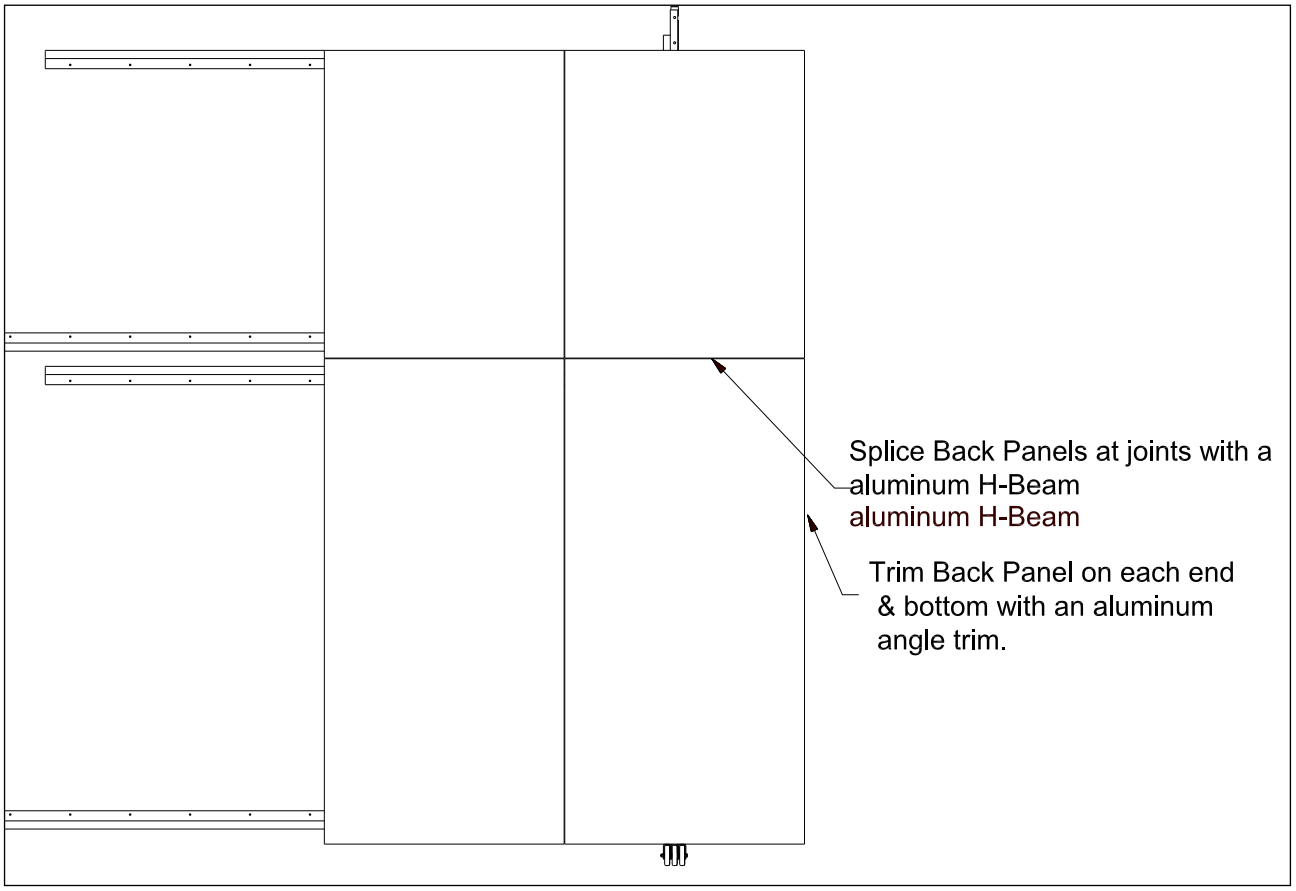


Figure 14.2.2a: H-Beam Location Detail

Note: Since lengths and heights of our product vary with size, refer to job packet for specific layout and back panel requirements.

14.3 Access Panel

Access panels are optional. Typically, they will be used when the sections of seating (power operated) run from wall-to-wall or have other obstructions preventing access to the understructure. The **shop drawings** will indicate this requirement. When front row section(s) have non-recoverable Handicap Cut-outs, the Access panels are built into the front railings. See Section 4.

Step 1: Locate an area on Row 4 where the deck understructure has at least 50" of unobstructed decking. This area can not be in an aisle-way, and must be without any deck supports, posts, or aluminum splice beam

Step 2: Pre-assemble two deck supports and the access panel support weldment and bolt together as described in Figures 14.5a and 14.5b.

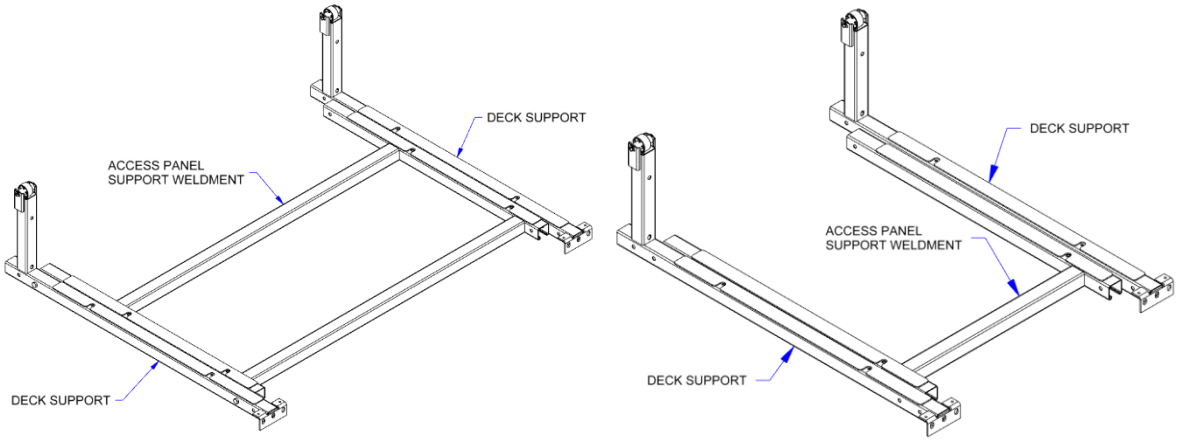


Figure 13.3a: Deck Support Details

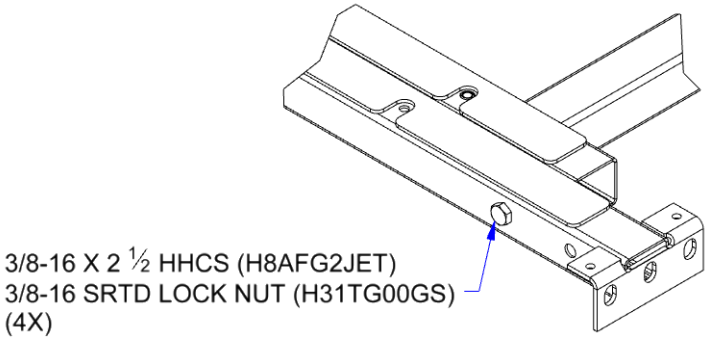


Figure 14.3b: Attachment Detail

Step 3: Bolt this sub-assembly to the nose and rear beam as you would any other deck supports.

Step 4: The front nose bolts hole to hole dimension will vary job to job.

Step 5: Install the deck as you would any other section

Step 6: However, do not screw down the decking until the access panel is installed.

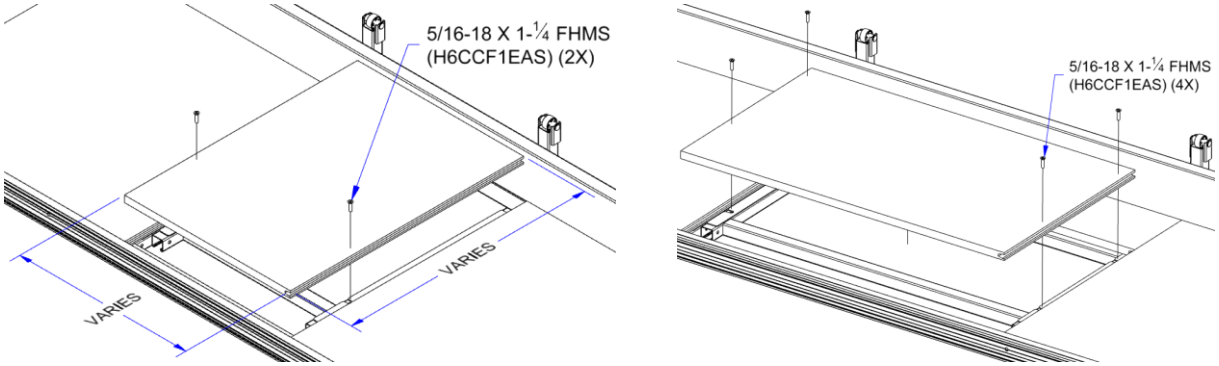


Figure 14.3c: Access Panel

Step 7: Remove this section of deck paneling and cut the access panel out. Depending on the seating selected for the job either a full access panel will be used, or the paneling will need cut to leave decking for forward fold or integra mounting.

Step 8: Drill the two or four 3/8” holes (varies based off of style of access panel) for the retainer screws depending on the style required.

Step 9: Rip cut ½” off the back edge of the access panel to allow clearance for the removal of the access panel.

Step 10: Install the deck section with the deck screws.

Step 11: Try the installation and removal of the access panel, if the panel is removable and the holes line up the Panelam deck, the section can be installed.

14.4 End Curtain

Curtains are hung either by aluminum extrusions on each deck or by carabiners on each end rail.

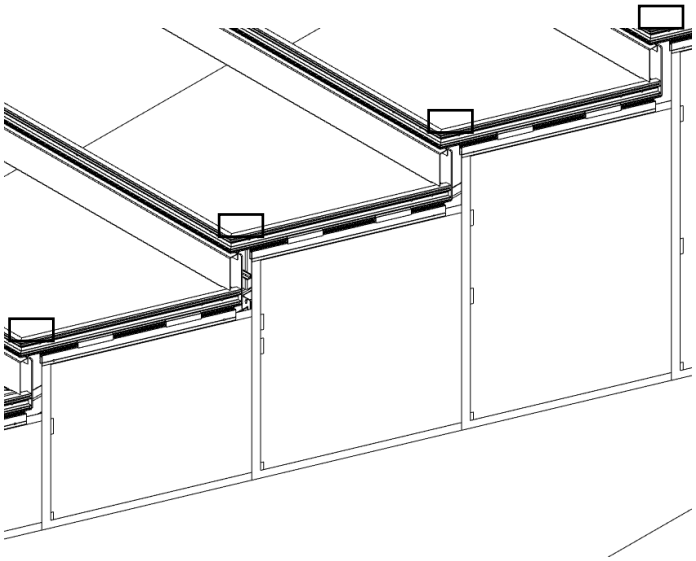


Figure 14.4a: Complete Curtain Installation

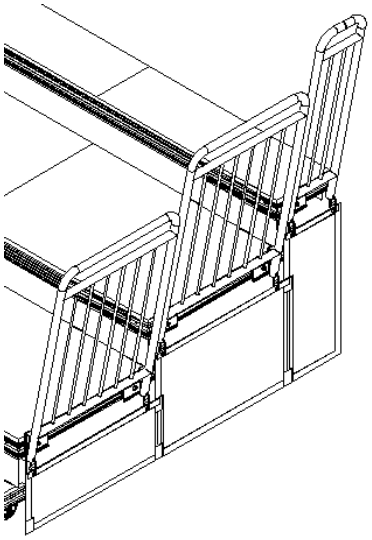


Figure 14.4b: Complete Curtain Installation

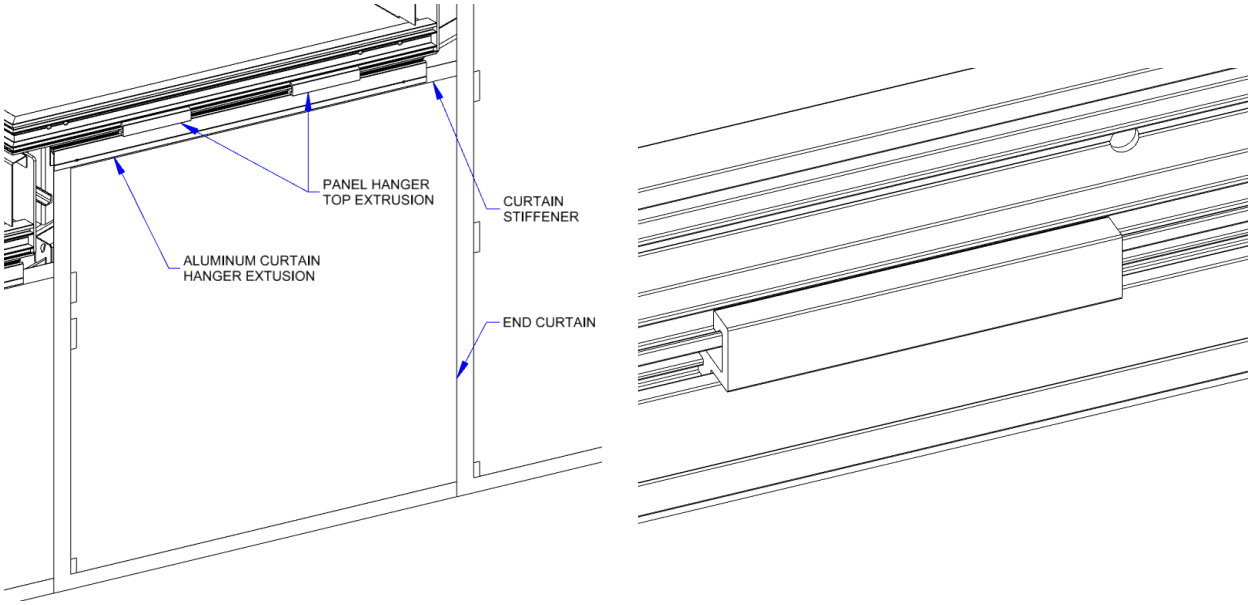


Figure 14.4c: Complete Curtain Installation

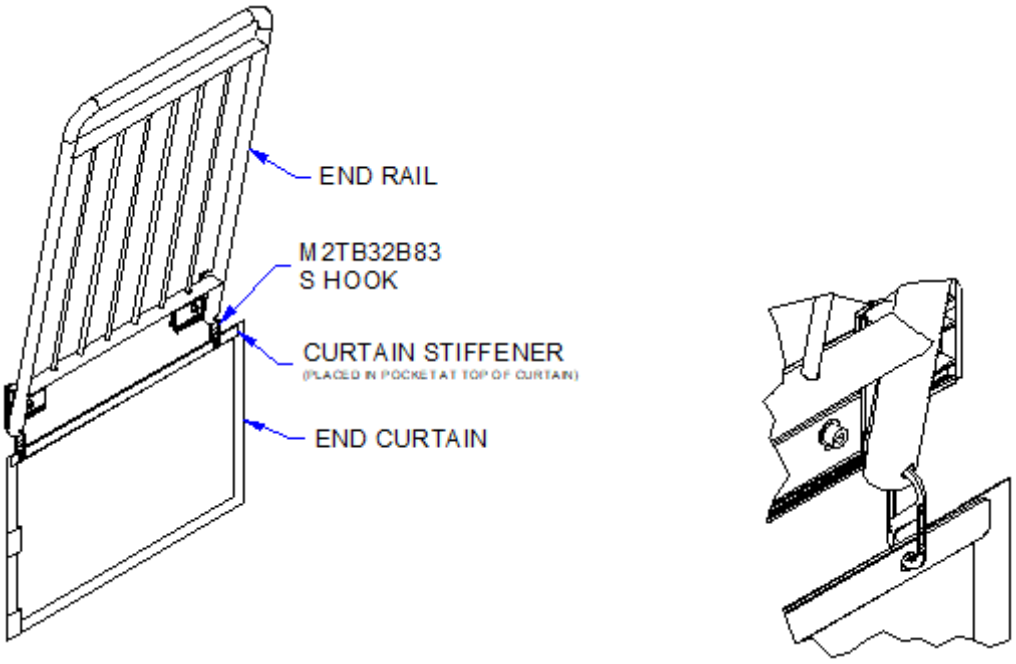


Figure 14.4d: Complete Curtain Installation

15 Installation Forms

This Chapter includes all forms needed during the Installation process.

- Parts Shortage
- Certificate of Completion
- Project Evaluation

15.1 Parts Shortage

Any shortages or discrepancies must be reported within 48 hours of receiving the final truck load of materials. **Failure to report such shortages may place the financial burden of replacement on you! (See form F403.002.02 in the Appendix.)**

15.2 Certificate of Completion

Once the Installation is complete this form must be filled out, signed and returned to the factory. Please see Certificate of Completion form in the Appendix at the back of the installation manual.

15.3 Project Evaluation

This form must be filled out by the Installation Manager and returned to Irwin.

16 Final Installation Steps

In this chapter are the final steps of the Installation process before the system can be handed over to the Project Manager or School.

- Name Plates
- Caution Labels

16.1 Name Plates

The name plates and caution plates are an often over looked but extremely important portion of the installation. Match Your System Type with one of the next figures below for installation.

Failure to complete this step may result in personal injury and cause damage to the equipment, causing unnecessary liability to the Installation Company.

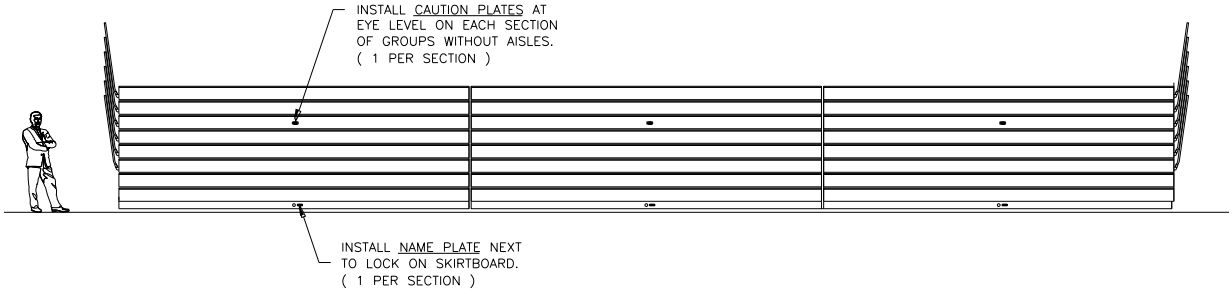


Figure 16.1a: Manual System

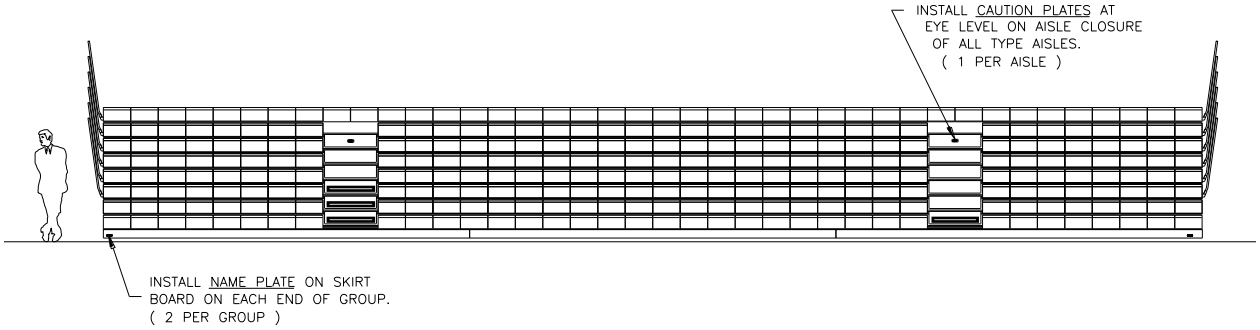


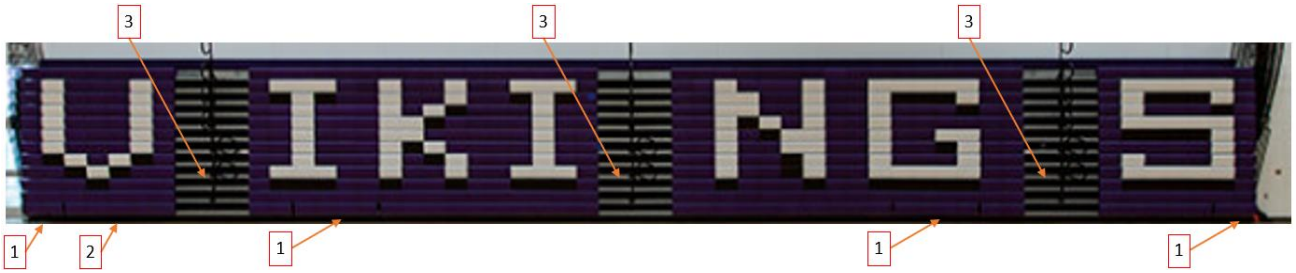
Figure 16.1b: Power Operated System

Figure 16.1c Name Plate

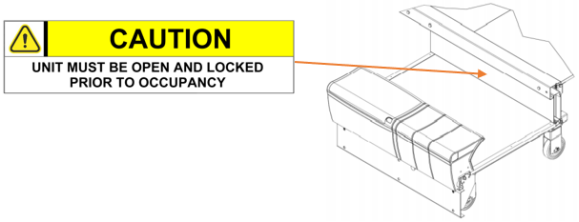
16.2 Caution Labels

What to label on the bleacher & in manual;

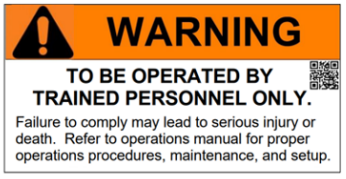
1. Label at MDU locations/recoverables – locking/aisle notes
2. Label on the system to be operated by trained personne l- At pendant or tug frame.
3. Do not climb in closed position – Eye level at all aisles on nose beam.
4. Removable rails –
   - Guard Rails – Location to be on riser on row (2) – Located at each end of each operating group.
   - Front Rails – (2) labels per operating group. We will put them on each end of bleacher as well at the skirt
5. Authorized Personnel Only – On Deck Support at end of unit on rows 2, 4, & 6.



Item #1: Place on Riser of MDU/Recoverable



Item #2: Trained Personnel Next to Pendant/Tug Frame



Item #3: DO NOT CLIMB ON BLEACHER

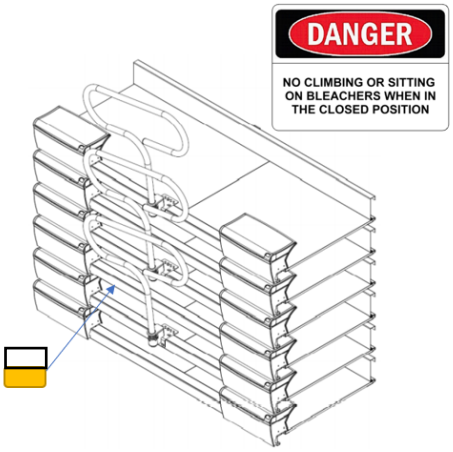


Figure 16.2d - Label Placements

Item #4: Removable Rails

Figure 16.2e - Item #4: Removable Rails

Item #5: Authorized Personnel Only

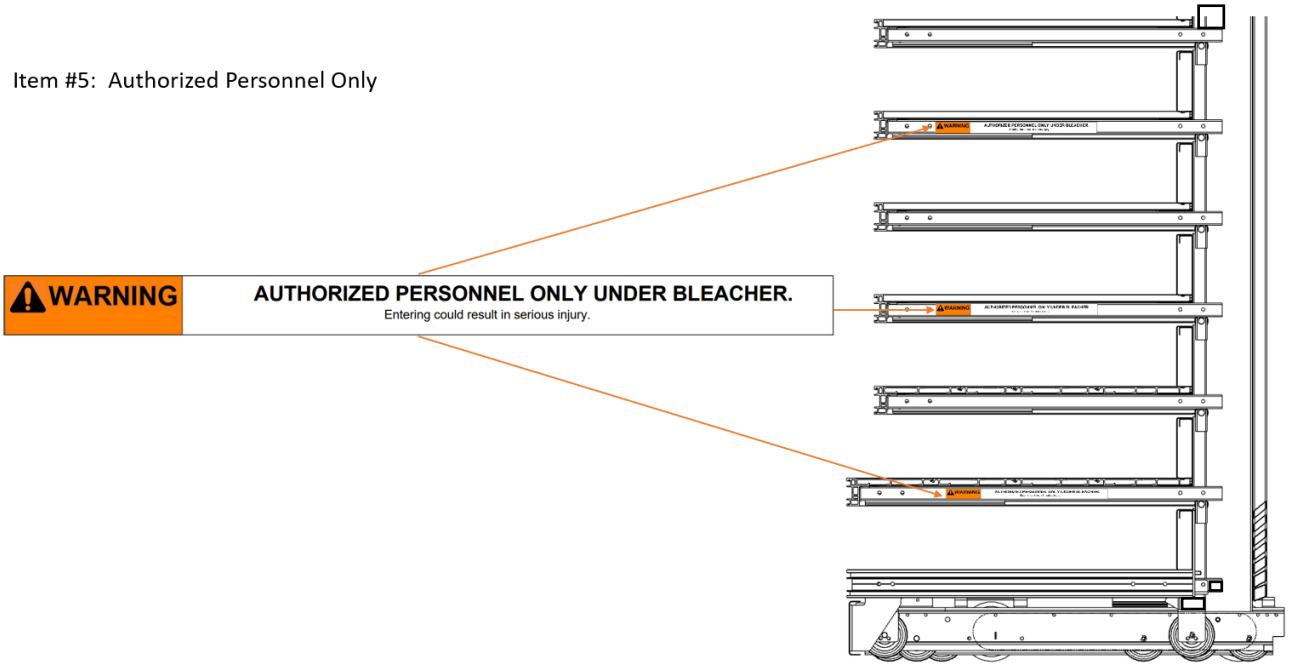


Figure 16.2f - Item #5: Authorized Personnel Only Under Bleacher

Appendix A

Glossary of Terms and Abbreviations that are listed in this Installation Manual.

Glossary of Terms

List and define all terms that establish meaning within the context of the installation plan.

Term	Meaning
Rise	Vertical distance between any common points on sequential rows.
Spacing	Horizontal distance between any common points on sequential decks.
Seating Row	Seating Rows are defined as the number of rows of plastic seat modules or wood seat boards.
Left Hand Side	Left Hand Side of he bleacher is defined when viewed from front facing the rear of the bleacher.

Abbreviations

Provide a list of the acronyms and abbreviations used in this document.

Acronym	Meaning
LH	Left Hand
RH	Right Hand

Appendix B

Fastener Torque Table

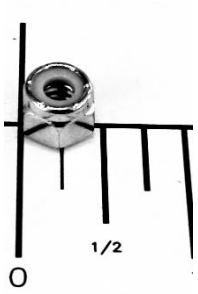
The following are the recommendations by Irwin for all structural connections within our bleacher products. Below is a table of our recommended torque values.

It should be noted that applying full effort by a worker with an ordinary spud wrench may cause damage to fasteners, or in the case of wood members, damage to the members itself.

Materials	Diameter(in)	Torque(lb-ft)	Torque(lb-in)	Torque (N-m)
Steel to Steel	1/4	8.8	106.2	12
	5/16	18.4	221.3	25
	3/8	34.6	415	47
	7/16	51.6	619.5	70
	1/2	77.4	929.3	105
Wood to Steel	1/4	2.0	24	2.7
	5/16	2.5	30	3.4

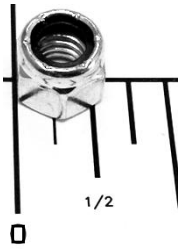
Appendix C

Hardware:

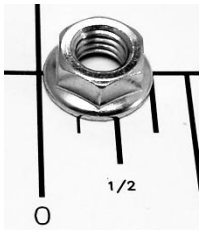


1/4 -20 Nyloc Nut

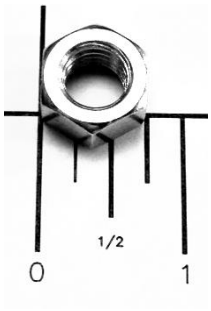
3/8-16 Hex Nut



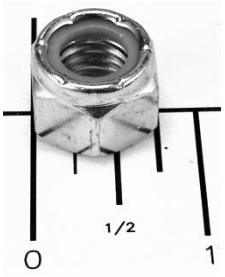
3/8-16 Nyloc Nut



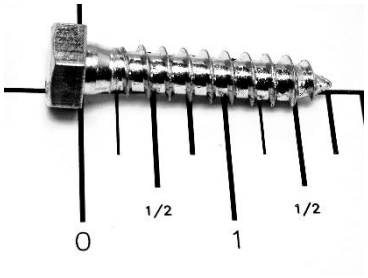
3/8-16 Serrated Flange Nut



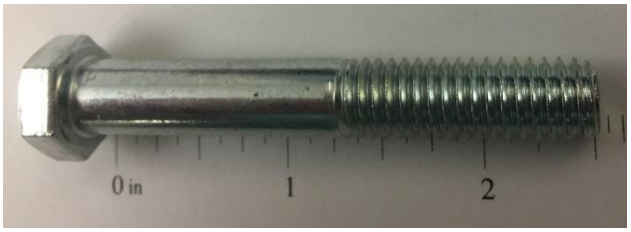
1/2 -13 Hex Nut



1/2 – Nylon Lock Nut



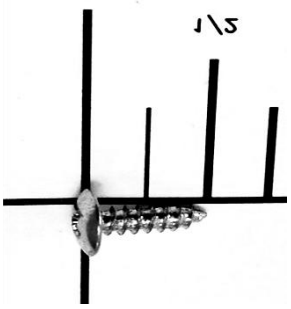
3/8 x 1 3/4” Lag Screw



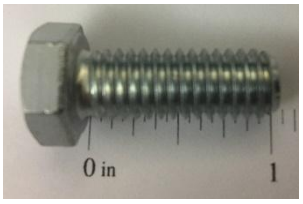
3/8-16 X 2 1/2 HHCS

Hardware Continued:

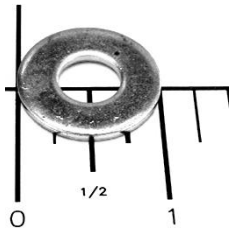
1/4-20 X 3/4 TSCREW



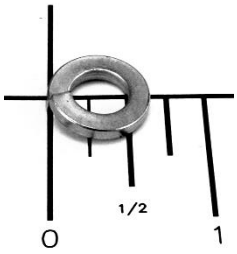
#6x1/2 Sheet Metal Screw



3/8-16 X 1 HHCS

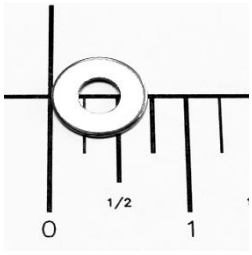


3/8 Flat Washer

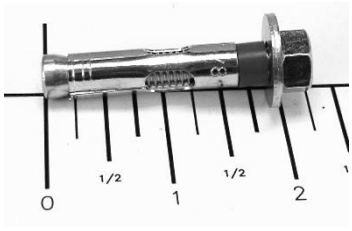


3/8 Split Lock Washer

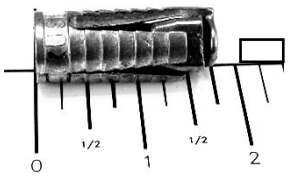
1/2 Split Lock Washer



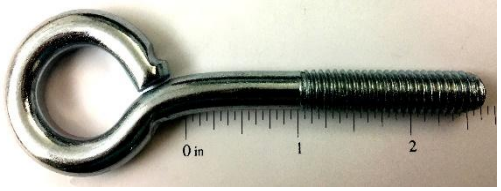
1/4 Flat Washer



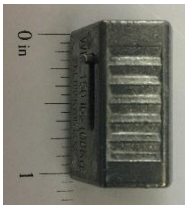
3/8 x 1 7/8 Sleeve Anchor



3/8 Four Way Anchor



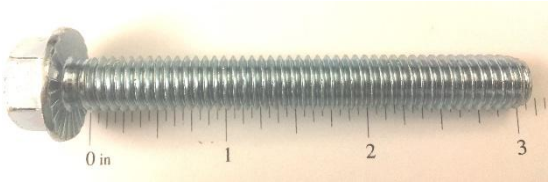
3/8-16 X 2 1/2 Eye Bolt



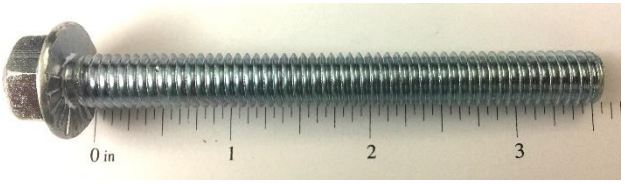
Self-Locking Cable Joiner

3/8-16 X 1 SRTD Washer Head HHCS

Hardware Continued:

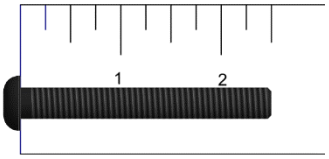


3/8-16 X 3 SRTD Washer Head HHCS

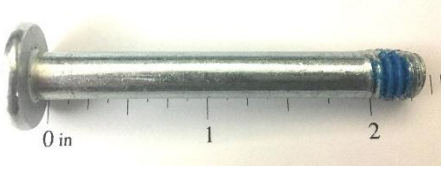


3/8-16 X 3 1/2 SRTD Washer Head HHCS

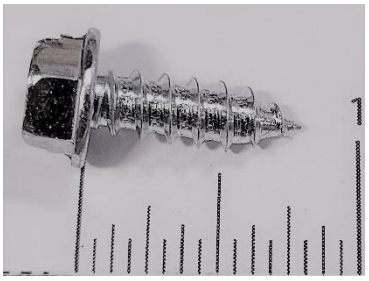
#10-24 X 1 7/16 Plymetal Tek Screw



5/16-18 X 2 1/2 BHCS

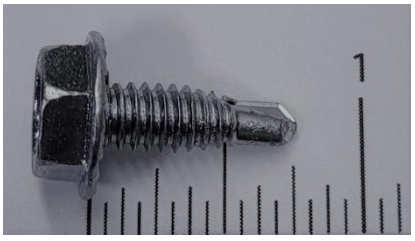


Lower Post Stop Bolt



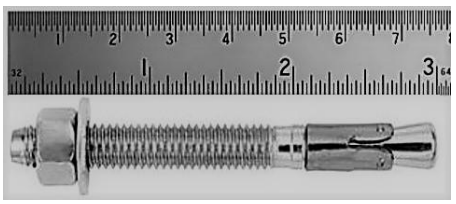
#14 x 0.75 IN HWHD SLTD, GR 5 ZINC

3/8-16 UNC x 1.5 IN, GR 5, ZINC



¼-20 x 0.75 IN Tec Screw , GR 5 ZINC

3/8” x 5” Screw-Bolt + Screw Anchor



3/8” x 3” Screw-Bolt + Screw Anchor

Certificate of Completion

THIS CERTIFICATE OF COMPLETION relates to the work performed by

_____

Installation Contractor

Owner: _____

_____

Project: _____

_____

Work: Installation of Telescopic Seating.

1. Certificate of Completion. Owner hereby certifies that _____

_____

Installation Contractor

has completed its performance of the Work as specified in the Contract and any change orders to the satisfaction of the Owner.

2. Instruction on Maintenance and Operation. Owner further certifies that the Installation Contractor has provided to the Owner and its designated representatives instructions on the maintenance and operation of any seating or products related to the work performed by the Installation Contractor.

THIS CERTIFICATE has been executed on behalf of the Owner by its authorized representatives on the date indicated.

Dated: _____ **OWNER:** _____

By: _____

ISC: _____

Dated: _____ **By**:_____

ISC:_____

ACKNOWLEDGMENT: _____

Installation Contractor

Dated: _____ **By**:_____ **ISC:** _____

Project Evaluation

Project Name: _____ Location:_____

Date: _____ Job #:_____ Installer: _____

Please complete the following questionnaire and return to the Irwin Attention: INSTALLATION MANAGER. Your input is very helpful and appreciated.

- Were drawings and instructions furnished with original shipment **Yes No**
- Were the instructions and drawings furnished adequate? **Yes No**
- Was the shipment complete? **Yes No**
- Keys, operating handles, pendant switches, furnished and operable. **Yes No**
- Row locks (if applicable) operating properly. **Yes No**
- All bolts and hardware checked for proper tightness. **Yes No**
- All sections open and close properly. **Yes No**
- End panels fit properly. **Yes No**
- End rails fit properly. **Yes No**
- Was the shipment packaged well? **Yes No**

CUSTOMER SERVICE

- If extra parts were required were they shipped in a timely manner? **Yes No**
- Technical support provided. **Yes No**

FINISHES

- Rate the seat or riser boards. **Good Fair Poor**
- Rate the deck boards. **Good Fair Poor**
- Rate finish on rails. **Good Fair Poor**
- Rate finish on understructure. **Good Fair Poor**

COMMENTS

_____

_____

_____

_____

_____