Handicare Ceiling Lift

Installation Guide

5 December 2023

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Making everyday life easier

CONTENTS

ABOUT THIS MANUAL

This manual is only intended for use by trained professionals who have completed Handicare training and are qualified to install Handicare ceiling lift products properly and safely. Read all labels and directions before beginning installation.

STRUCTURAL REVIEW DISCLAIMER

The methods for attaching to building structures described in this manual are for informational purposes only and do not constitute a site-specific structural review and calculation package performed by a licensed engineer. These methods for attaching to building structures assume an adequate building structure that will sustain point weight loads, stresses, and testing capacities. Struts, hardware, fasteners, and rods differ in specification and tolerances for each manufacturer. Hardware/struts have various span and load capacities that must be determined and adhered to, based on original manufacturer's specifications. Structural review and site-specific plans created by a licensed engineer will always supersede the attachment methodology in this manual. Installers are strongly advised to have building structure capacity professionally reviewed and be fully aware of all relevant manufacturer's material and product specifications. Handicare USA Inc., its parent, or affiliate companies are not liable for improper building structure review or improper hardware/strut usage.

INSTALLATION

Planning

Critical to the success of a ceiling lift installation, Planning is the first phase and consists of four stages:

- **Client Consultation,** where the client's needs are determined
- **Site Survey,** where the particulars of the site of the installation are determined
- **Track Layout Design,** where the particulars of the client and site are applied to draw up the track system that meets the needs of the client in that setting
    - Shop Drawings can be requested from Handicare by emailing the track layout design and site survey to **Quotes NorthAmerica@handicare.com**
- **Order Submission,** where Purchase Orders for track, ceiling lifts, and accessories can be submitted to **CustomerService.NorthAmerica@handicare.com**

Client Consultation

The first step in any ceiling lift installation is a consultation with the client in order to understand the client's circumstances and needs. The Site Assessment Form (Page 214) is as guide for this process.

Although this consultation can require some interviewing skills, there are specific questions that can be asked in order to gather the necessary information for a successful, functional installation that will meet the client's needs:

- Is the lift for short-term or long-term use?
- What type of transfers will the lift be used for?
    - Bed to chair/stretcher
    - Bed to toilet/bathroom
    - Gait training/ambulation
- How much weight will the lift need to carry (i.e., how heavy is the client?)
- Will the lift be needed to weigh client?
- Who will be using the ceiling lift?
- How much support will the client require during a transfer?
- How much strength does the client have in his or her limbs? In his or her torso?
- Any specific health issues relevant to the transfer process?
- How are the client's cognitive abilities?
- Will the client require assistance when using the lift?

Use the answers to these questions to identify the features and capabilities required of the ceiling lift to be of proper benefit to the client and caregiver.

Site Survey

Once the consultation has helped create a clear picture of the requirements for the client, inspect the space where the ceiling lift is to be installed and record information by using the Site Assessment Form (see Appendix D: Forms):

1. Identify all pick-up points in the room or rooms that the client needs the lift to travel to.
    - Pick-up points are any point along the ceiling where a client will be lifted up from below (for example, the bed and the toilet).
    - The ceiling track must intersect with each of the pick-up points.

2. Identify any obstructions to the ceiling track path (such as door frames or ceiling fans or a shower curtain rod), or obstructions to the client or operator (an armchair, dresser, or lights, for example) along the path.
    - When the track layout requires a doorway pass-through, special considerations will be required, such as modification to the door frame by a licensed contractor or use of a Handicare Transpoint system (Page 201).

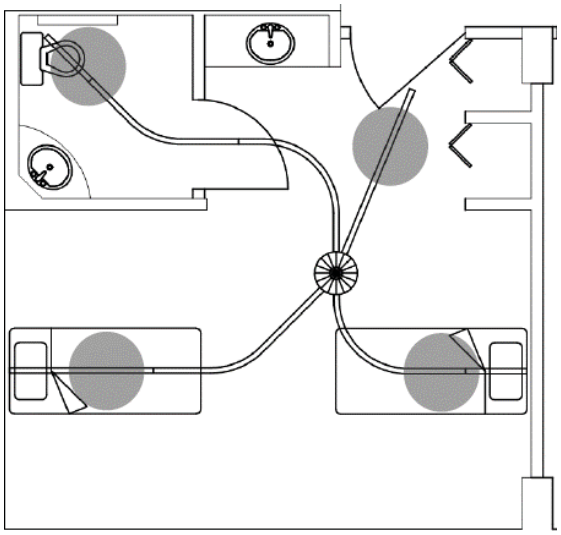


Figure 1: ***Ceiling lift path with pick up points***

3. Determine the structures the track will be mounted to:
    a. Examine the ceiling, attic, joists, walls, and floor.
    b. Determine if wall mount installation is an applicable option.
4. Dimension the drawings so that accurate tracks can be ordered for the layout.
    - Provide all relevant dimensions on the Site Assessment form.
5. Identify where the power source for the ceiling lift charger will be located.
    - The unit requires a non-dedicated standard electrical outlet (See “Appendix B: Ceiling Lift Power Requirements”).
    - The unit has an 8-foot long electrical cord.
    - Ideally, locate the outlet near the end of the track where the lift will be parked.
    - In some situations, depending on the distance from where the lift will be parked and the nearest outlet, installing a new outlet near the ceiling and adjacent to where the lift will be parked is the best power solution and should be performed by a licensed electrician.
6. Take measurements of the rooms where the ceiling lift is to be installed.
    - Note the dimensional locations of the pick-up points.
7. Decide the best way for the track to be mounted, based on the setting of the installation (either Home care or Institutional (hospital or other care center)):
    - ***In a home care setting,*** a Handicare ceiling lift track is typically installed to wood framing using a Top-Down or Bottom-Up installation or Wall method. “Home Care Settings (Wood Framing Installations)” (Page 81).
        - ***Top-Down Installation -*** The most common installation method, Top-Down mounting requires access to an attic space above the room or rooms where the ceiling lift track is to be installed. For detailed instructions, “Top-Down Installation” (Page 81).
        - ***Bottom-Up Installation -*** If there is no attic access (for example, a first-floor installation in a two-story home), then mount the ceiling lift track using Bottom-Up installation. “Bottom-Up Installation” (Page 89).
        - ***Wood blocking Installation -*** Optionally, when installing in new construction or whenever attaching to TJI joists, mount the ceiling lift track using a wood blocking installation. “Wood Blocking Installation” (Page 100).
        - ***Wall Mount Installation -*** If the track system cannot be mounted to the building structure, then mount to a wall. “Wall Mount Installation” (Page 115).
        - ***In an institutional setting,*** Handicare ceiling lift track is typically installed for concrete or structural beam/open web joist.
    - ***Concrete -*** “Concrete Slab Installation” (Page 134).
    - ***Structural Beam/Open Web Joist -*** “Structural Beam/Open Web Joist Installation” (Page 148).

TRACK LAYOUT DESIGN

With the Site Survey complete, the layout of the ceiling lift the client requires can be designed.

1. Using the measurements from the Site Survey, on the Site Assessment Form, draw a plan of the room or rooms where the ceiling lift is to be installed.
    - Indicate locations of:
        - Pick-up points
        - Obstacles
        - Equipment such as turntables
        - Charger

    For example, if the lift must take the client from a bed to a toilet, begin the layout with those points.
2. Draw the path the ceiling lift will require to connect all those points and equipment while avoiding the obstacles.
    - Determine the most effective path (the path with the shortest distance and fewest curves).

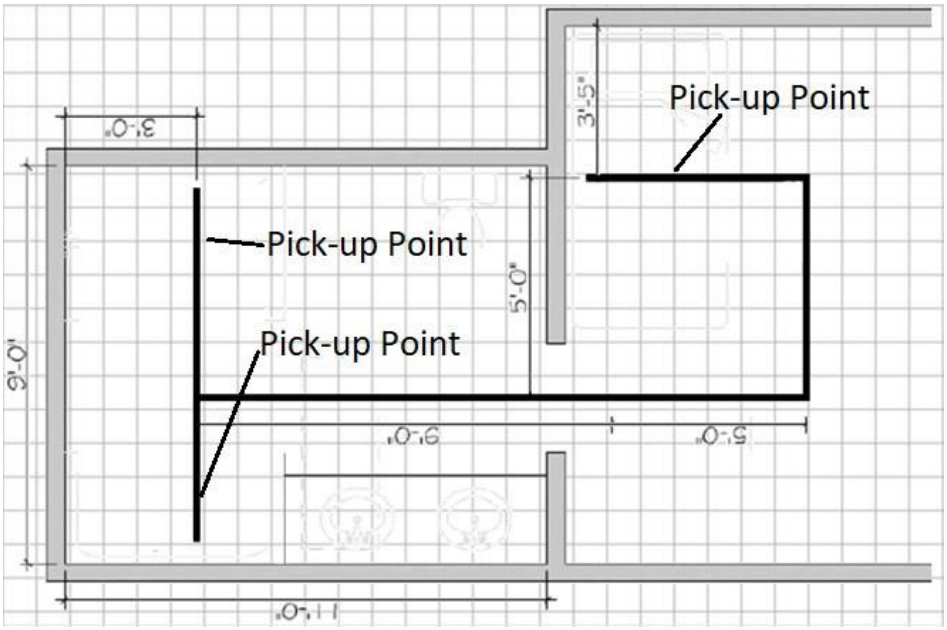


Figure 2: ***Sample Track Layout Drawing with Pick-up Points Noted***

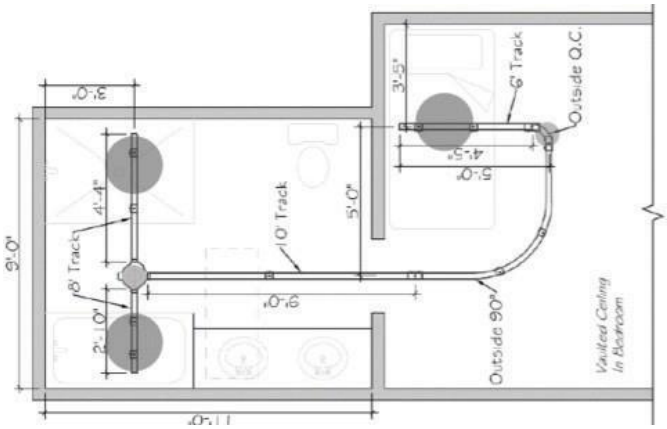
NOTE:	**Be sure to refer to the Span and Cantilever charts (Appendix A: Span and Cantilever Details) when creating the layout to ensure compliant span lengths and attachment point dimensions.**

Need Help?

Please email **Quotes.NorthAmerica@Handicare.com** with a completed Handicare Site Assessment Form that includes:

- The dimensions of the room, in as much detail as possible
- The ceiling track layout, with all applicable measurements

With that information, our team will produce a drawing of the track, along with a Bill Of Material (BOM) and quote:



Order Submission

When ready to place the order for a Handicare ceiling track system, simply email the Purchase Order to

CustomerService.NorthAmerica@Handicare.com or contact Handicare Customer Service at 1-866-891-9502.

SAFETY

When installing a ceiling track system, it is recommended to use proper safety equipment in accordance with local regulations, jobsite-specific safety requirements, and in accordance with the safety equipment manufacturer's standards and guidelines. These may include:

- Safety gloves
- Safety goggles
- Ear protection
- Respirator Mask
- Steel-Toe Boots
- Hard Hat
- High Visibility Clothing

PREPARATION

Prior to leaving for the client site, make sure to have all the tools and parts needed to install the ceiling lift system. These may include:

Manual Tools

- Pencil
- Ladders
- Blue Painter's Tape
- Ratchet Driver (with Extension)
- Standard- and Deep-Socket Set
- Hex Key Set
- Screwdriver with multiple bits
- Plumb Bob (Laser preferred)
- Drywall T-Square
- Level (Laser Line Level preferred)
- Chalk line
- 4' Level
- Tape Measure
- Drill Bit Set
- Wrenches
- Masonry Drill Bits equivalent to anchor size (concrete installation only)
- Blue Loctite 243
- Drop Cloths
- Anchor Setting Tool (concrete installation only)
- Portable Trolley and Chain Fall
- Vacuum
- Dust wand

Power Tools

- Chop Saw with blade suitable for cutting aluminum
- Battery Powered Drill
- Hammer Drill (for concrete applications)
- Impact Driver
- Band Saw
- Extension Cords

Supplies

- Homecare Hardware Kit (360704
- Weights equal to at least 150% of the SWL
- Mild abrasive bleach

TRACK LAYOUT AND INSTALLATION

Basic Track Systems

A basic track system is a single path for transporting a client from one point to another and may consist of straight and curved track.

1. Lay out the track:

i	**Layout is crucial to a proper ceiling track system installation. At this step in the process, it is established exactly where and how the track is to be installed.**

a. Identify and mark on the ceiling or floor the starting point and end point of the track.

- For example, the pick-up point over a bed to the pick-up point over a chair or toilet (see Figure 3).

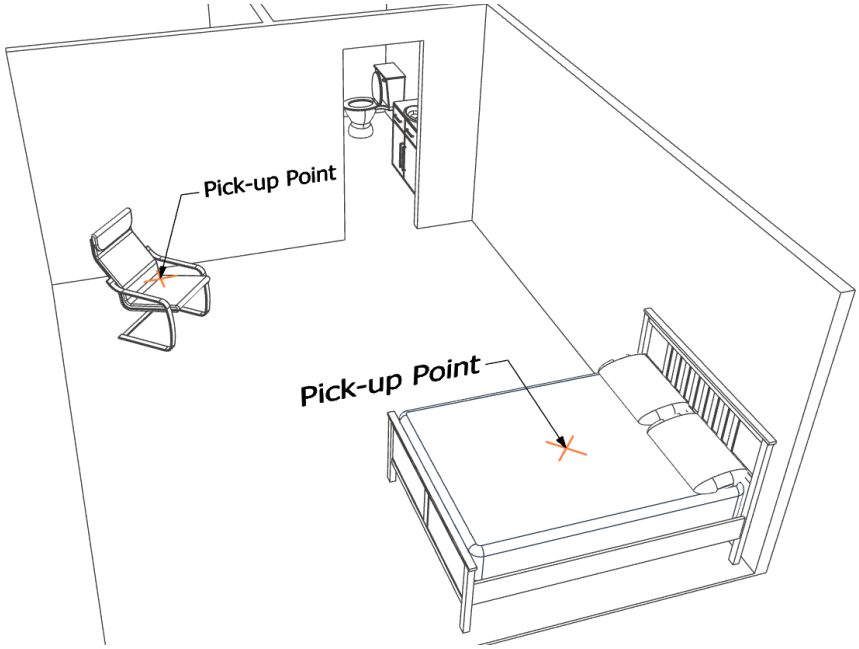


Figure 3: ***Sample Layout (Pick-up Point)***

b. For the straight sections of the track layout, use a laser line or chalk line to project a straight line between points.
   - This line represents the center line of the track.

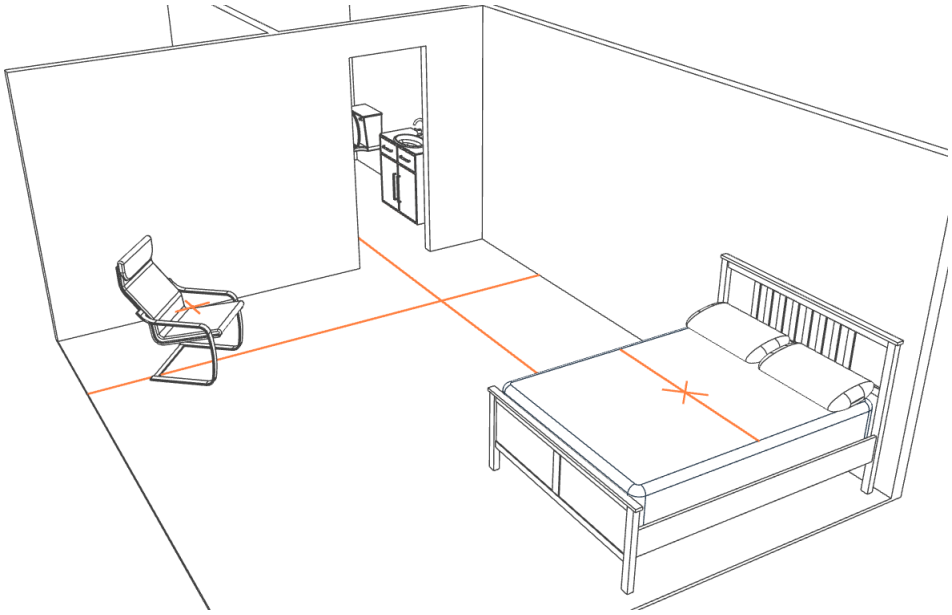


Figure 4: ***Sample Layout (Center Line)***

c. For the curved sections of the track layout, it's easiest to lay the track on the floor and use it as a guide to identify the attachment locations.
   - Make sure the ends of the straight track sections are square with the ends of the curved track sections.

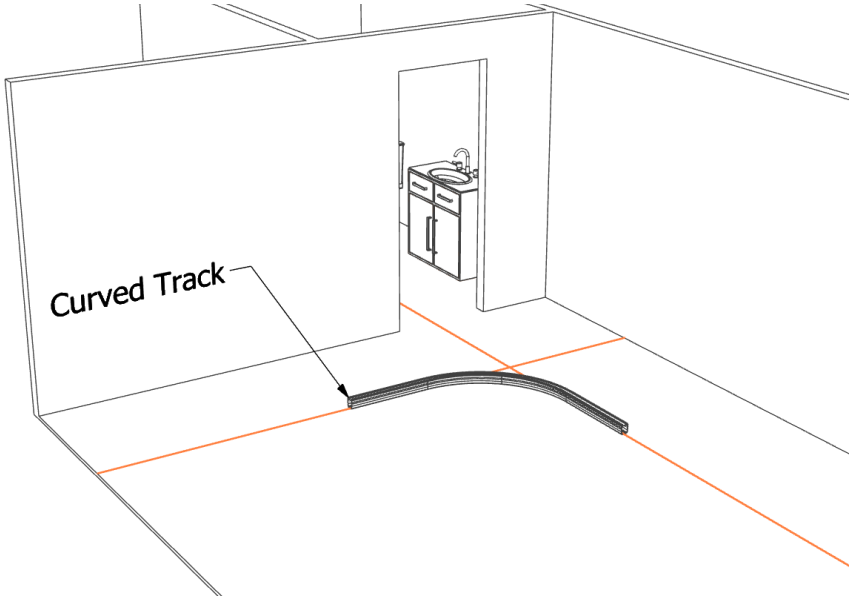


Figure 5: ***Sample Layout (Curved Track)***

d. Along the track system's center line, including the center line of any curves, mark the drop locations for the ceiling brackets to attach the ceiling track to the building structure.

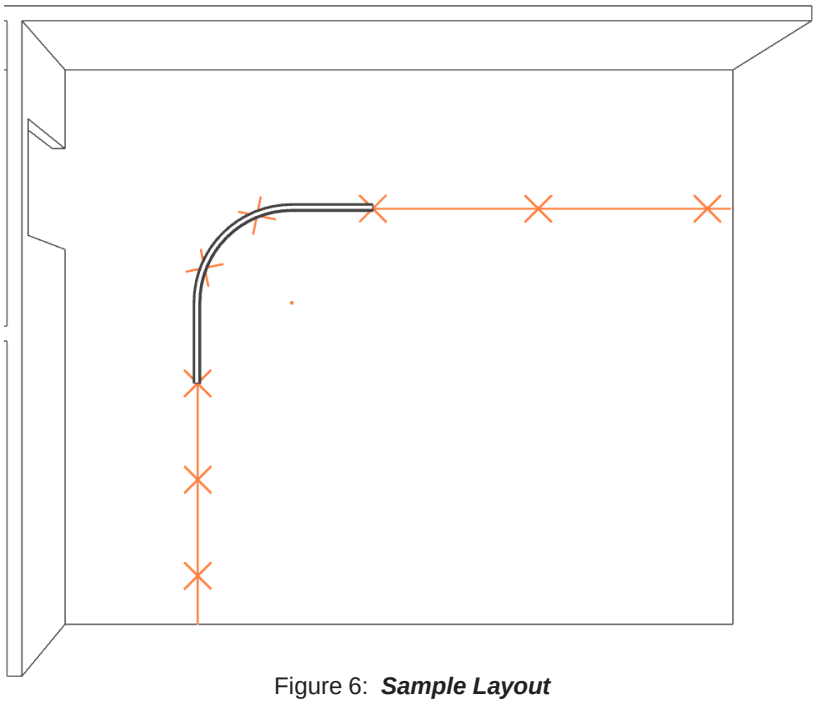


Figure 6: ***Sample Layout***

e. Transfer drop locations to ceiling using a plumb bob.

- Make sure to mark at least three connection points for each straight track segment (or more as needed, based on the span chart in Appendix A). For curves:
  - A full sized 90° curve requires four attachment points, one at each end and two equally spaced along the curve.
  - A full sized 45° curve requires three attachment points, one at each end and one at the center of the curve.
  - A 90° quick curve requires two attachment points, one at each end.

2. Attach the ceiling brackets to the building structure.

- To determine the appropriate attachment method and procedure, “Attaching To Structure” (Page 81).

a. Determine the heights for the ceiling brackets.

- Use a laser level to determine the lowest ceiling elevation point where the ceiling brackets will be installed.

NOTE: **Ceilings may not be consistently level. Therefore, it’s important to determine which ceiling bracket location is at the lowest elevation.**

b. Install the first ceiling bracket starting at the lowest ceiling elevation.

c. Install all remaining ceiling brackets.

- Use a level to ensure all ceiling brackets are level with the first installed ceiling bracket.

3. Install the track

a. If necessary, using a chop saw with a blade suitable for cutting aluminum, cut the track to size.

- Keep cuts at 90°.
- When cutting a curve, only cut the straight section of the track—Never cut into the curve.
- Clean all cut edges to remove burrs and aluminum shavings that can damage the ceiling lift.

b. At all terminal ends of the track system (the far points where the track system ends), drill a hole in preparation for installing a clevis pin and ring.

1. At the terminal end, on each side of the track, mark a point 1 1/2” from the end of the track and 1 1/8” from the bottom of the track.
2. Use a 5/16” bit to drill a hole at the marked spots for the clevis pin (see Figure 7).
3. Remove burrs and aluminum shavings that can damage the ceiling lift.

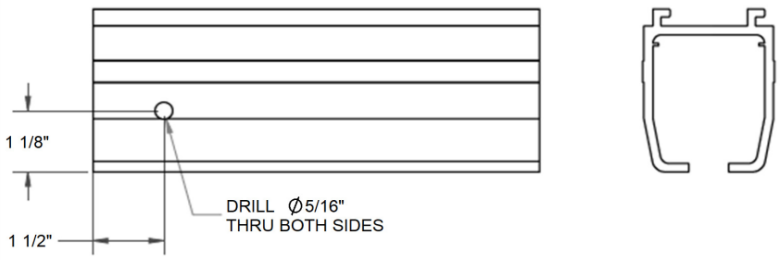


Figure 7: ***Clevis Pin Hole Location***

c. Hang the track in the brackets.

- Make sure the alignment tabs are fully seated, as shown in Figure 8.

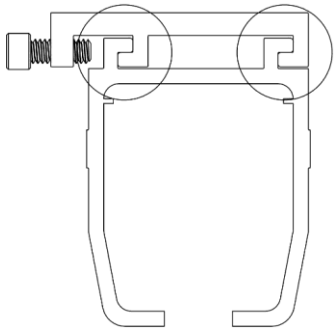


Figure 8: ***Track alignment tabs, fully seated in bracket***

- If multiple pieces of track are being connected,
- Use a 6” bracket where the track sections butt against each other.
- Make sure there is no gap between the track sections (Figure 9).

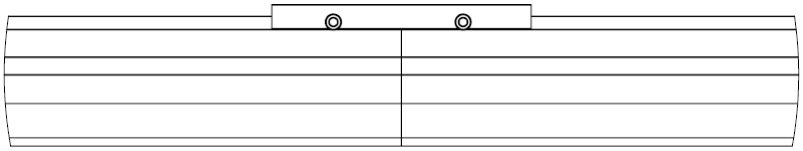


Figure 9: ***Track Sections Butted Together with No Gap***

d. As each section is hung, tighten the set screws on the brackets until finger tight.

e. Once all sections are hung, aligned properly, and level, for each bracket set screw:

1. Apply Blue Loctite 243 to each.
2. Torque each to 40–45 in lbs.

ⓘ	**Never force the track into the bracket. If the track does not easily install into the grooves, something is out of level or out of square.**
⚠	**Never use the set screw to get the track to slide into the grooves. The set screw should freely spin into the face of the track without resistance.**

f. Install the ceiling lift. “CEILING LIFT INSTALLATION” (Page 169).

g Install the power supply. “POWER SUPPLY INSTALLATION” (Page 165).

h. At all terminal ends,

- Install the standard endstop and torque bolts to 12–14 ft lbs.
- Install the clevis pin and ring as shown in Figure 10.

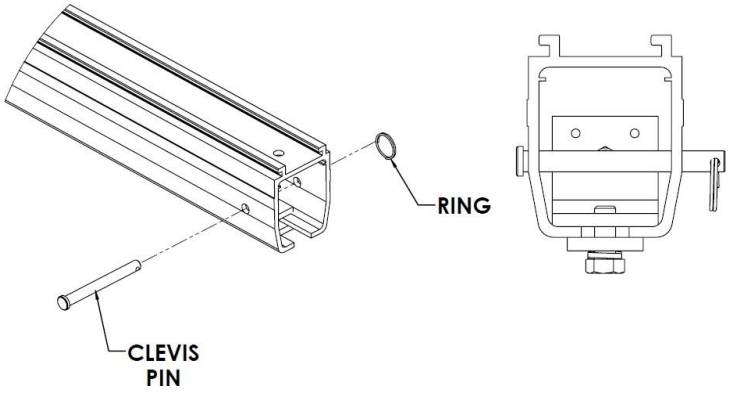


Figure 10: ***Clevis Pin and Ring Installed***

i. Test the system. Follow the steps in “Testing and Inspection” (Page 170).

Full Room Covering Systems (X/Y)

A full room covering system (also called a traverse track system, X/Y system, or H system) covers a rectangular area of a room so a client can be transferred anywhere within the system’s footprint. Figure 11 illustrates a typical traverse track (X/Y) system set-up.

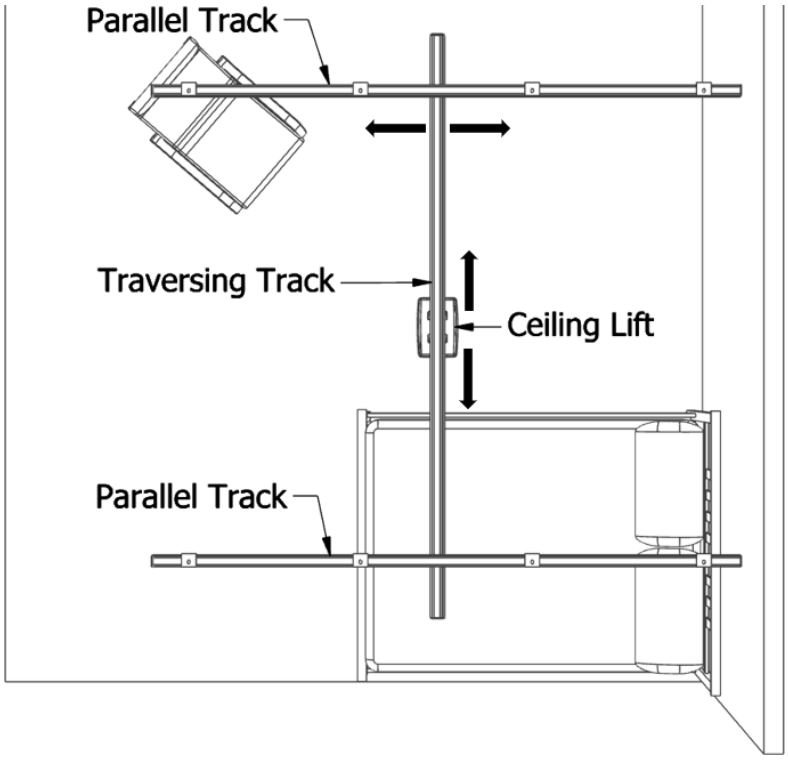


Figure 11: ***Typical Traverse Track (X/Y) System Set-Up***

As shown in Figure 12, a traverse track system consists of two fixed, parallel tracks on opposite sides of a room that are spanned by a third track (the traversing track) that travels the length of the two parallel tracks, with a ceiling lift running along the traversing track. This configuration allows the ceiling lift to be operated in all locations between the fixed tracks.

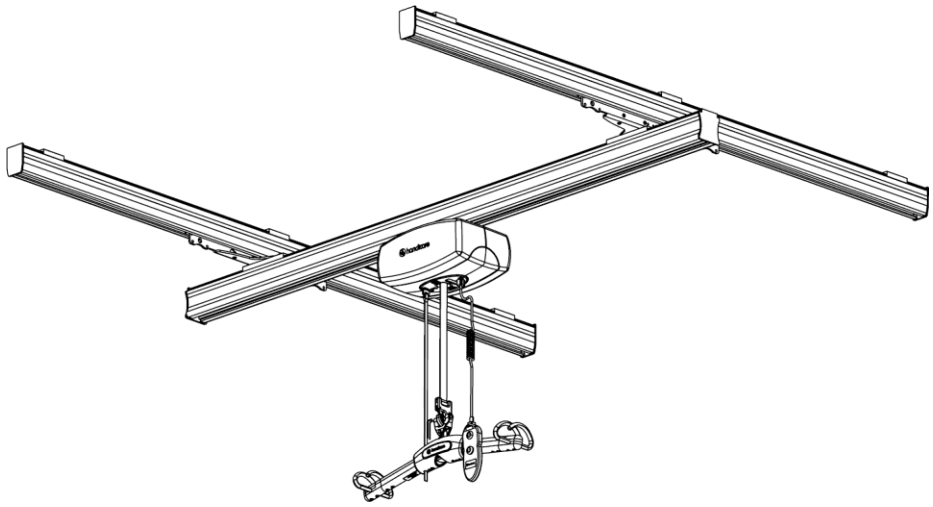


Figure 12: ***Traverse Track (X/Y) System***

Lay Out X/Y System

NOTE: **If the X/Y system being installed includes a transition gate, start at "Transition Gate System (TGS)" on Page 46.**

1. Select a wall to use as a reference to position the system (that is, a wall the system should be parallel or square to).

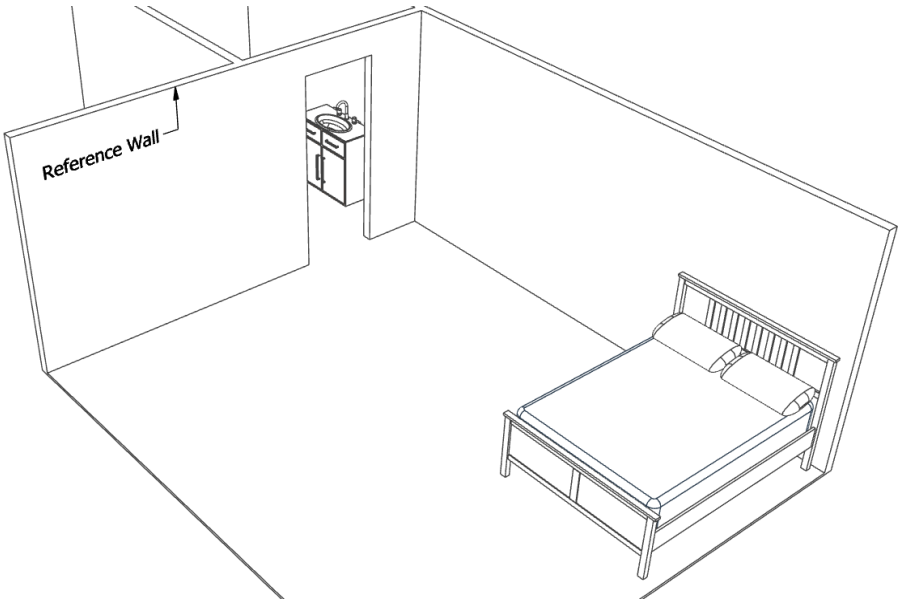


Figure 13: ***Reference Wall***

2. Use a laser line to project where the first fixed track runs parallel or square with the reference wall.

- The line represents the center of the track.
- Verify the distance between the wall and the laser line is consistent along the length of the wall.

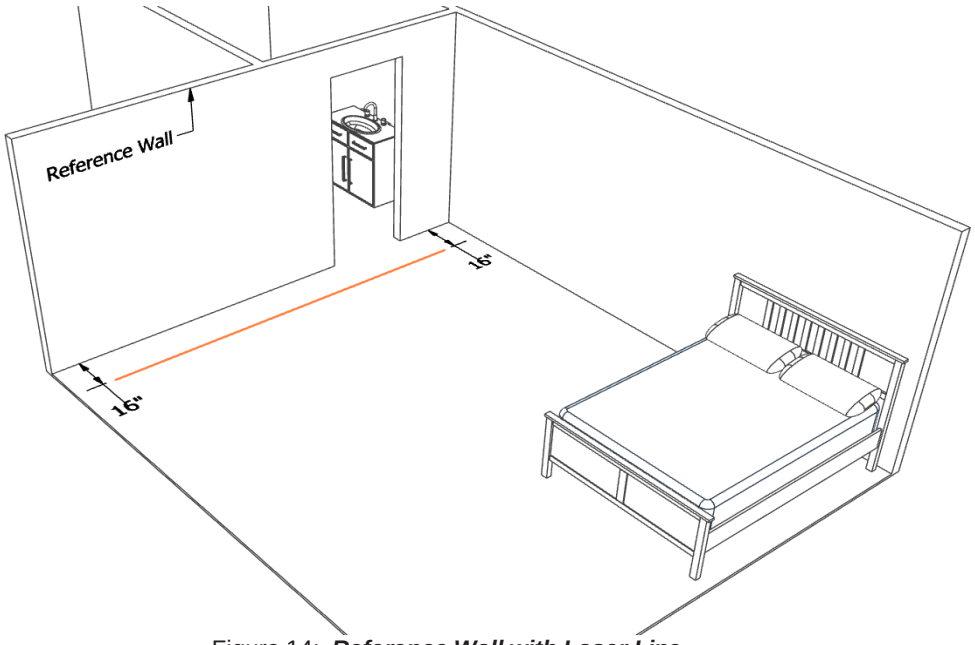


Figure 14: ***Reference Wall with Laser Line***

3. Determine where the ends of the fixed track will be located along the laser line.

- Consider leaving enough space between the end of the track and the wall to insert or remove the X/Y gantry trolleys.
- The minimum clearance needed between the end of the track and a wall or obstruction is 15”.

4. Mark the bracket locations, either on the floor using a plumb bob to transfer bracket locations to the ceiling or directly on the ceiling itself.

- Regardless of length, each segment of fixed track must attach to at least three brackets.
- Use the cantilever and bracket spacing requirements “Input Characteristics” (Page 212). and “Cantilever Details” (Page 210).“ to strategically place supports to avoid as many conflicts as possible while staying within the span allowances from the span chart.

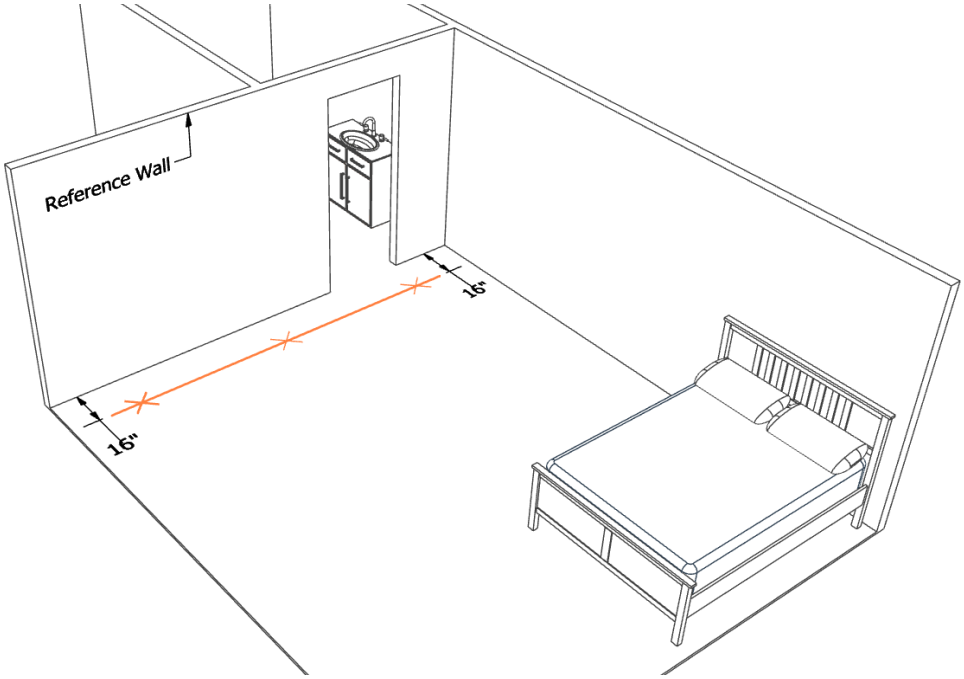


Figure 15: ***Bracket Locations Marked***

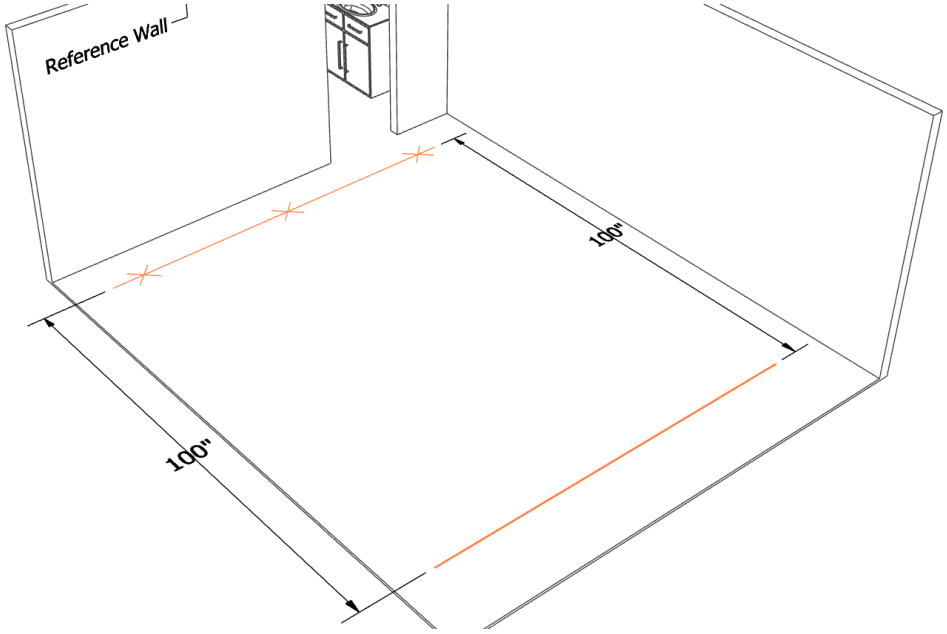


Figure 16: ***Center Line for Parallel Track***

- Verify that the distance between endpoints of the first parallel track and the laser line for the second parallel track are equal at both ends.
- This ensures both tracks are parallel to each other.

6. Repeat step 4 for the second parallel track.

⚠	**Make sure tracks are exactly parallel to ensure no functional issues.**

Install X/Y System Track

1. Install the ceiling brackets:
    a. Attach the ceiling brackets to the building structure.
        - To determine the appropriate attachment method and procedure, see step 7 of “Site Survey.”

    b. Determine the heights for the ceiling brackets:
        - Use a laser level to determine the lowest elevation point where the ceiling brackets will be installed.

NOTE:	**Ceilings may not be consistently level. Therefore, it’s important to determine which ceiling bracket location is at the lowest elevation.**

    c. Install the first ceiling bracket starting at the lowest elevation.
        - Make sure the top surface of the bracket is tight against the ceiling.

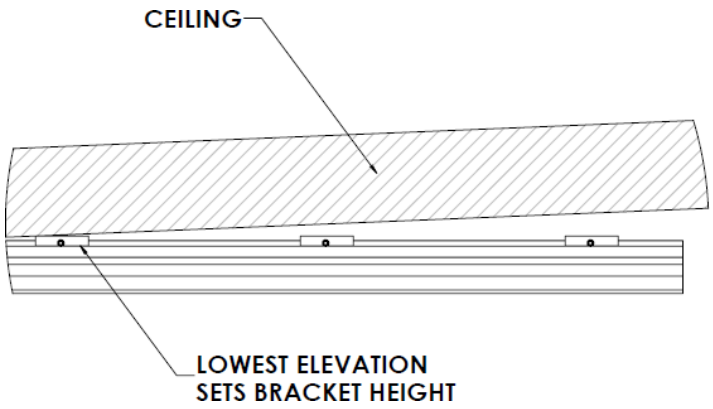


Figure 17: ***Figure 17: Bracket Elevations for Level Track***

    d. Install all remaining ceiling brackets.
        - Use a level to ensure all ceiling brackets are level with the first installed ceiling bracket.

2. Install the parallel tracks:
    a. If necessary, using a chop saw with a blade suitable for cutting aluminum, cut the track to size.
        - Keep cuts at 90°.
        - Clean all cut edges to remove burrs and aluminum shavings that can damage the ceiling lift.

    b. At all terminal ends of the track (the far points where the track ends), drill a hole in preparation for installing a clevis pin and ring.
        1. At the terminal end, on each side of the track, mark a point 1 1/2” from the end of the track and 1 1/8” from the bottom of the track.
        2. Use a 5/16” bit to drill a hole at the marked spots for the clevis pin (see Figure 18).
        3. Remove burrs and aluminum shavings that can damage the ceiling lift.

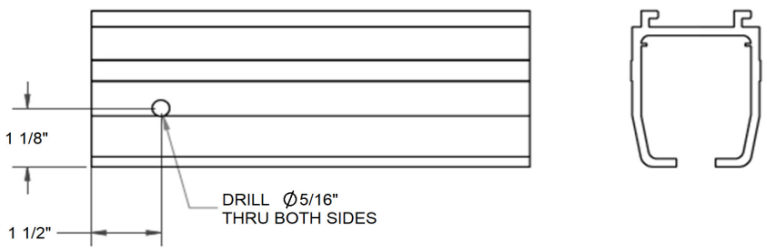


Figure 18: ***Clevis Pin Hole Location***

c. Hang the track in the brackets.

- Make sure the alignment tabs are fully seated, as shown in Figure 19.

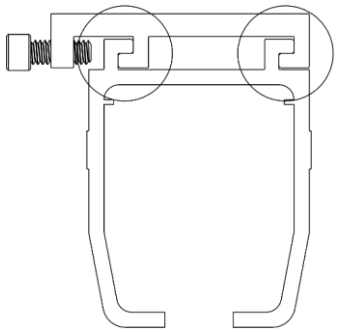


Figure 19: ***Track alignment tabs, fully seated in bracket***

- If multiple pieces of track are being connected,
  - Use a 6” bracket where the track sections butt against each other.
  - Make sure there is no gap between the track sections (Figure 20).

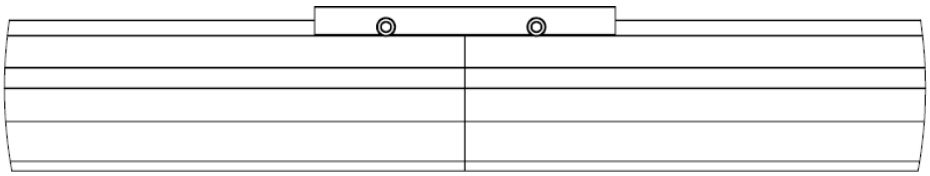


Figure 20: ***Track Sections Butted Together With No Gap***

d. As each section is hung, tighten the set screws on the brackets until finger tight.

e. Once all sections are hung, aligned properly, and level, for each bracket set screw:

1. Apply Blue Loctite 243 to each.
2. Torque each to 40–45 in lbs.

	Never force the track into the bracket. If the track does not easily install into the grooves, something is out of level or out of square.
	Never use the set screw to get the track to slide into the grooves. The set screw should freely spin into the face of the track without resistance.

3. Install the traversing track and X/Y gantry:

   The X/Y Gantry Trolley is available with the following charging systems:

   - "Standard Docked Charging" (Page 19).
   - "Omni/Constant Charging" (Page 22).
   - Portable/No Charging (for use with portable ceiling lift motors)

   Optional accessories for the X/Y Gantry Trolley include:

   - X/Y Gantry Above Mount 31
   - X/Y Gantry Power Traverse 34
   - X/Y Gantry Transition Gate 46

The charging systems and accessories can be used in the combinations shown in Figure 21.

Accessories	Charging System		
	Standard Docked Charging	Omni/Constant Charging	Portable/No Charging
X/Y Gantry Above Mount	✓	✓	✓
X/Y Gantry Power Traverse	✓		✓
X/Y Gantry Gate	✓		✓

Figure 21: ***Handicare Charging Systems and Accessories***

Install XY Gantry Trolleys

X/Y Gantry Charging Systems

Standard Docked Charging

To install a standard docked charging X/Y gantry trolley:

1. Connect the charging contact to the gantry, according to the instructions provided with the gantry.
2. Determine where the nearest outlet is relative to where the track will be installed.
   - The charger can be mounted to the wall near the end of the track closest to the outlet.
   - Make sure the charger cord is long enough to reach between the outlet and the end of the track.
   - The end of the track closest to the outlet will become the docking location for the ceiling lift to charge.
3. Insert the gantry trolleys onto the parallel tracks.
   a. Make sure the charging trolley goes in the previously determined charging track.
   b. For endstop charging, make sure the charging contacts face the charging end of the track (Figure 22).

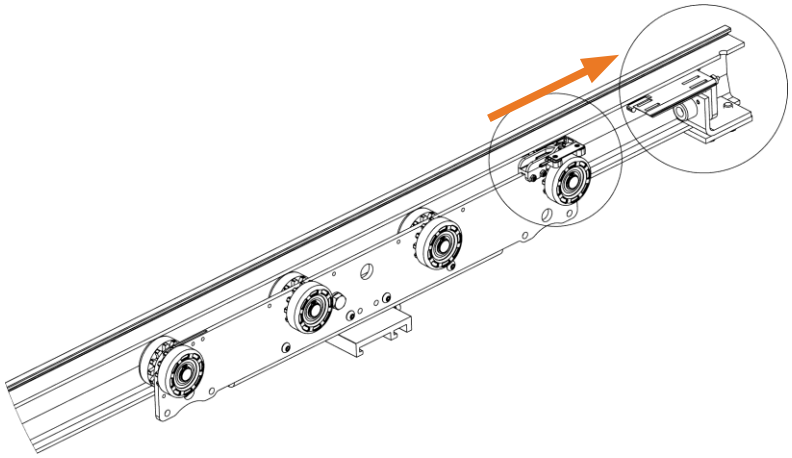


Figure 22: ***Charging Contacts Facing the Charging End of the Track***

⚠	**Make sure that wires are not touching the trolley wheels, especially with four-wheeled gantries.**

4. Hang the traversing track by inserting it into the track brackets on the gantry.
5. Tighten the set screws on the gantry brackets.
6. On both gantry brackets, install the included bracket strips (360449) between the track channel and the set screws, as shown in Figure 23. To insert the bracket strip:
    a. Loosen one set screw on the gantry bracket.
    b. Slide the bracket strip into the channel until it contacts the tightened set screw.
    c. Make sure the bracket strip is seated in between the two set screws.
    d. Apply Blue Loctite 243 to all the set screws and torque each to 40–45 in lbs.

ⓘ	**Make sure that the 6” ceiling bracket strip is properly installed between the screws of the gantry trolley bracket.**

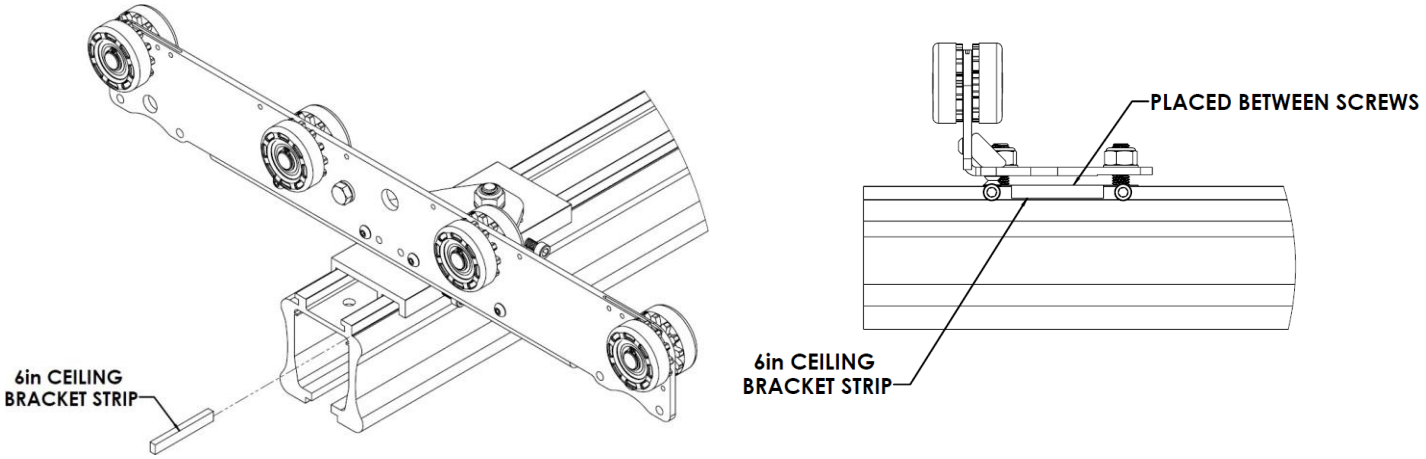


Figure 23: ***Bracket Strip Installation***

7. Hang the ceiling lift in the traversing track. “CEILING LIFT INSTALLATION” (Page 169).
    - Make sure the charging contacts are facing the charging location nearest the power supply.
8. On the charger endstop assembly of the parallel track, exchange the finger guard with the track endstop plate supplied with the X/Y Gantry Trolley (Figure 24).

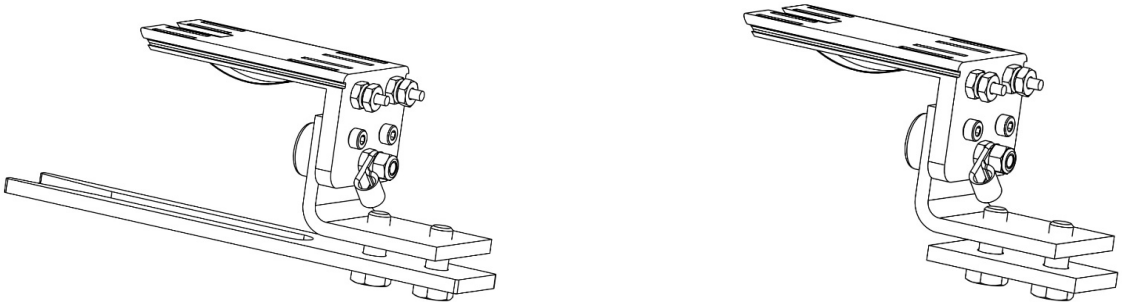


Figure 24: ***Configuration for Ceiling Lift Charging Contact (Left) and Configuration for Gantry Charging Contact (Right)***

9. Install the endstop with finger guard into the traversing track.
    - Use the wire clip and cable ties supplied to route the wires along the side of the X/Y Gantry Trolley assembly.
10. Install the charger endstop with standard plate into the parallel track nearest the power supply.

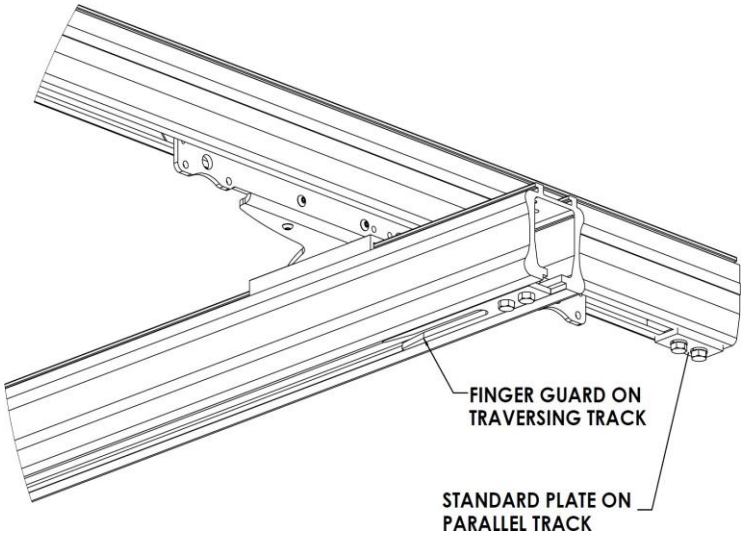


Figure 25: ***Traversing Track Finger Guard and Parallel Track Standard Plate***

11. Install the power supply. “POWER SUPPLY INSTALLATION” (Page 165).
12. Install all remaining standard endstops at all end terminals of the parallel and traversing tracks.
    - For all endstops and endstop chargers:
        - Use a 13mm wrench to torque the endstop bolts and lock washers to 12–14 ft lbs.
        - Make sure that the endstop clevis pins and rings are installed behind all endstops as shown in Figure 26.

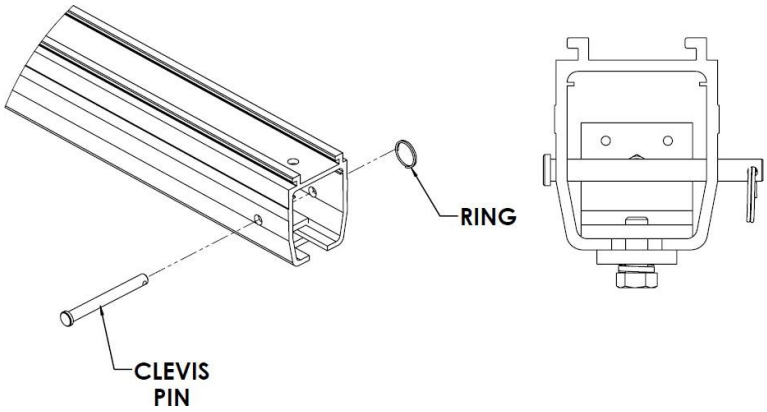


Figure 26: ***Clevis Pin and Ring Installed***

13. Insert end caps at all terminal ends of the parallel and traversing tracks.
14. Install the carry bar. Follow the instructions included with the carry bar.
15. Test and verify the system. “Testing and Inspection” (Page 170).

Omni/Constant Charging

To install an Omni/Constant Charging X/Y Gantry Trolley:

1. Determine where the nearest outlet is relative to where the track will be installed.
    - The charger can be mounted to the wall near the end of the track closest to the outlet.
    - Make sure the charger cord is long enough to reach between the outlet and the end of the track.
    - The end of the track closest to the outlet will be where the charger connects to the TransStrip.

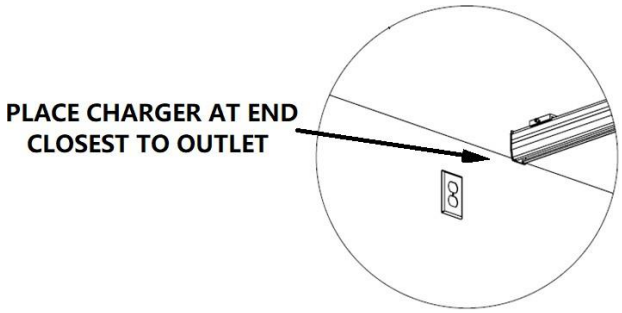


Figure 27: Omni/Constant Charger Location

2. Install the TransStrip in the parallel track nearest the power supply.
    - Make sure the TransStrip's male terminal tabs are facing the power supply.
    - Follow steps 2–7 in "Omni/Constant Charging" (Page 165).
3. Connect the charging contact to the gantry, per the instructions provided with the gantry.
    - This is where the power supply connects to the end of the fixed track.
4. Insert the gantry trolleys onto the parallel tracks.
    - Make sure the charging trolley goes in the previously determined charging track that contains the TransStrip.
    - Notate the positive and negative orientation on top of the X/Y gantry trolley contacts (Figure 28).

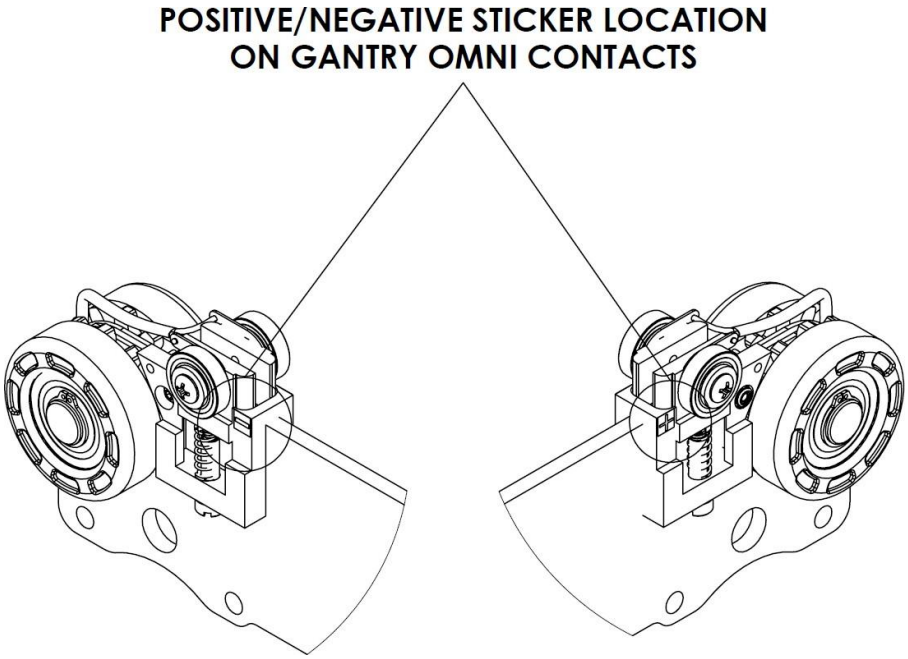


Figure 28: ***X/Y Gantry Trolley Contacts Positive and Negative Orientation***

⚠	**Make sure that wires are not touching the trolley wheels, especially with four-wheeled gantries.**

5. Unroll and cut the TransStrip to fit the traversing track:

a. Push in the protruding male terminal tabs on the TransStrip so they're flush with the plastic insulator (Figure 29).

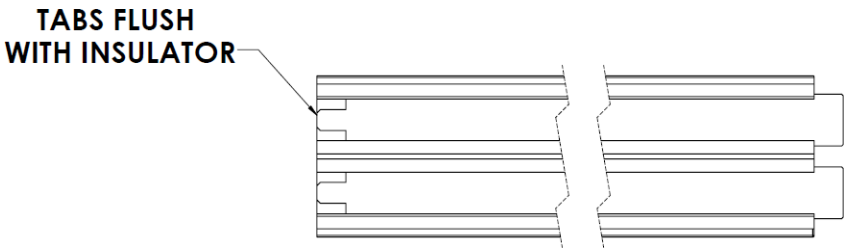


Figure 29: ***Male Terminal Tabs Flush with the Plastic Insulator***

b. Measure from the flush end of the male terminal tabs the length of the track minus 4".

- This leaves 2" of space at each end to allow room for electrical connection and end caps.

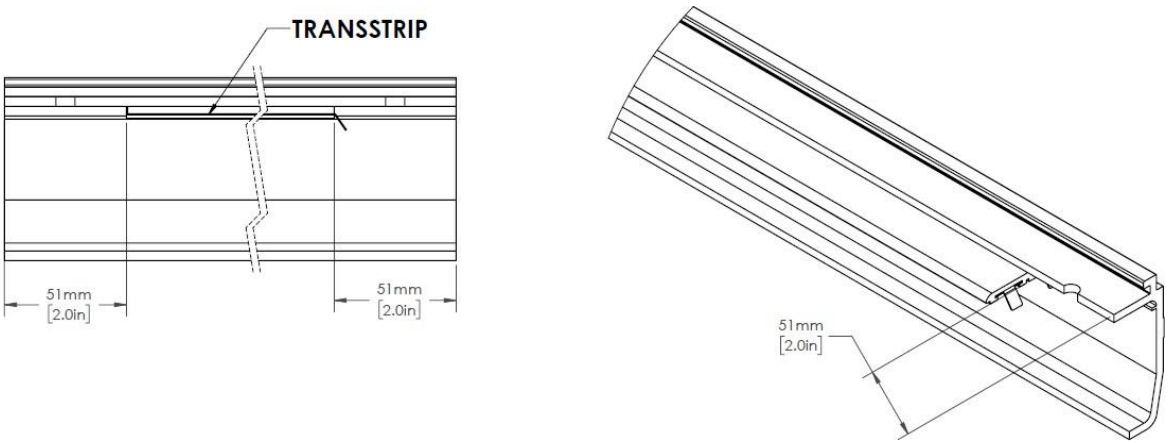


Figure 30: ***2"of Space at Each End of the TransStrip***

c. Use a band saw to cut the end of the TransStrip opposite the male terminal tabs.

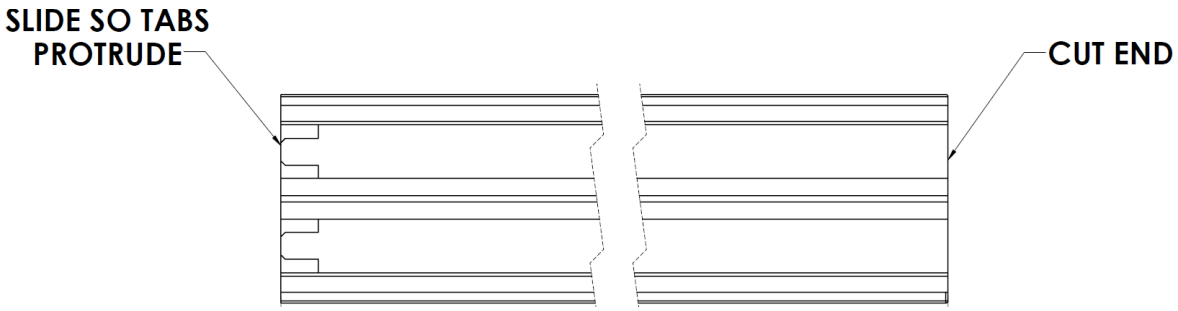


Figure 31: ***Cut TransStrip the Length of the Traversing Track Minus 4" on the Side Opposite the Tabs***

d. Slide the metal strips inside the TransStrip back, so the male terminal tabs protrude from the plastic insulator (Figure 32).

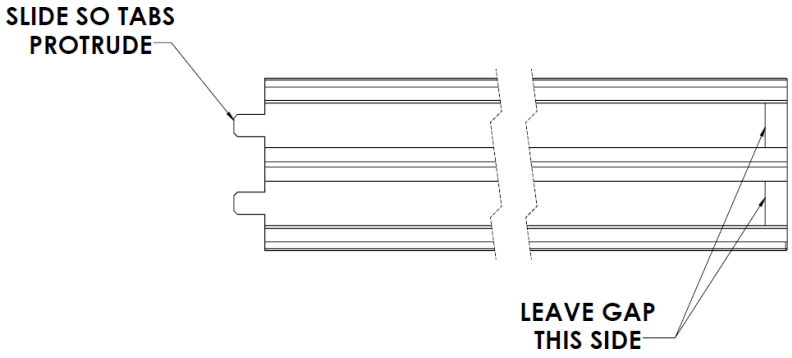


Figure 32: ***Slide Metal Strips 1/2" Out of Plastic Insulator***

e. Use pliers to bend the male terminal tabs approximately 45° (Figure 33).

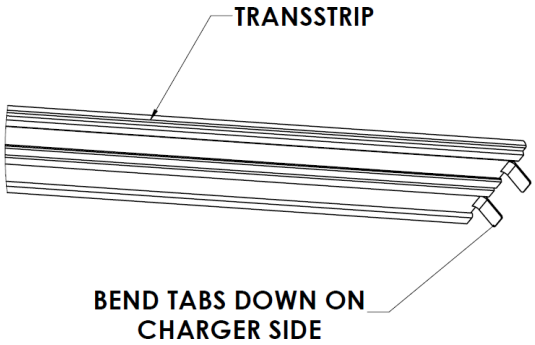


Figure 33: ***Bend the Male Terminal Tabs Approximately 45°***

6. Insert the TransStrip into the traversing track.
    - Leave 2" between the ends of the TransStrip and the ends of the track.

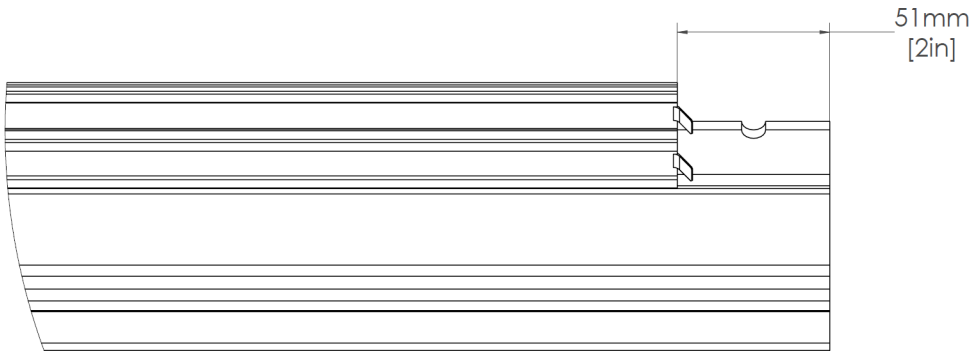


Figure 34: ***TransStrip Metal Strips Must Not Contact the Metal Strips of the Endstop Charger***

- The male terminal tabs on the TransStrip must be installed on the same side as the previously-determined charging parallel track.

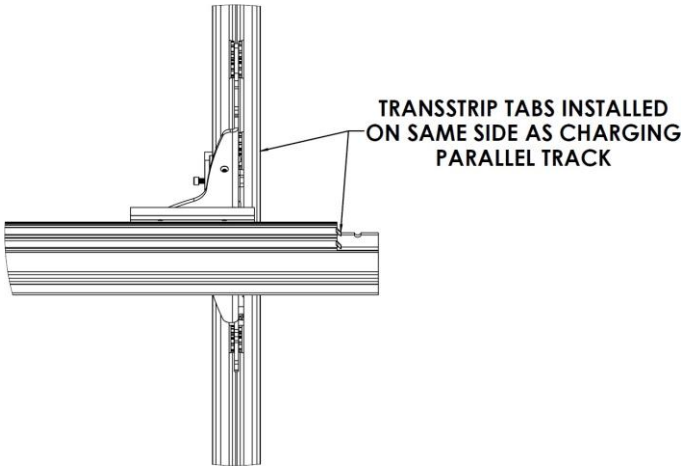


Figure 35: ***TransStrip Tabs Installed on Same Side as Charging Parallel Track***

7. Approximately 12” from each end of the track and centered relative to the width of the track, use a long 5/32” bit to drill a hole through the TransStrip and out the top of the track at each end.
    - As shown in Figure 36, drill from the bottom up, through the channel, to ensure to drill between the metal segments of the TransStrip.

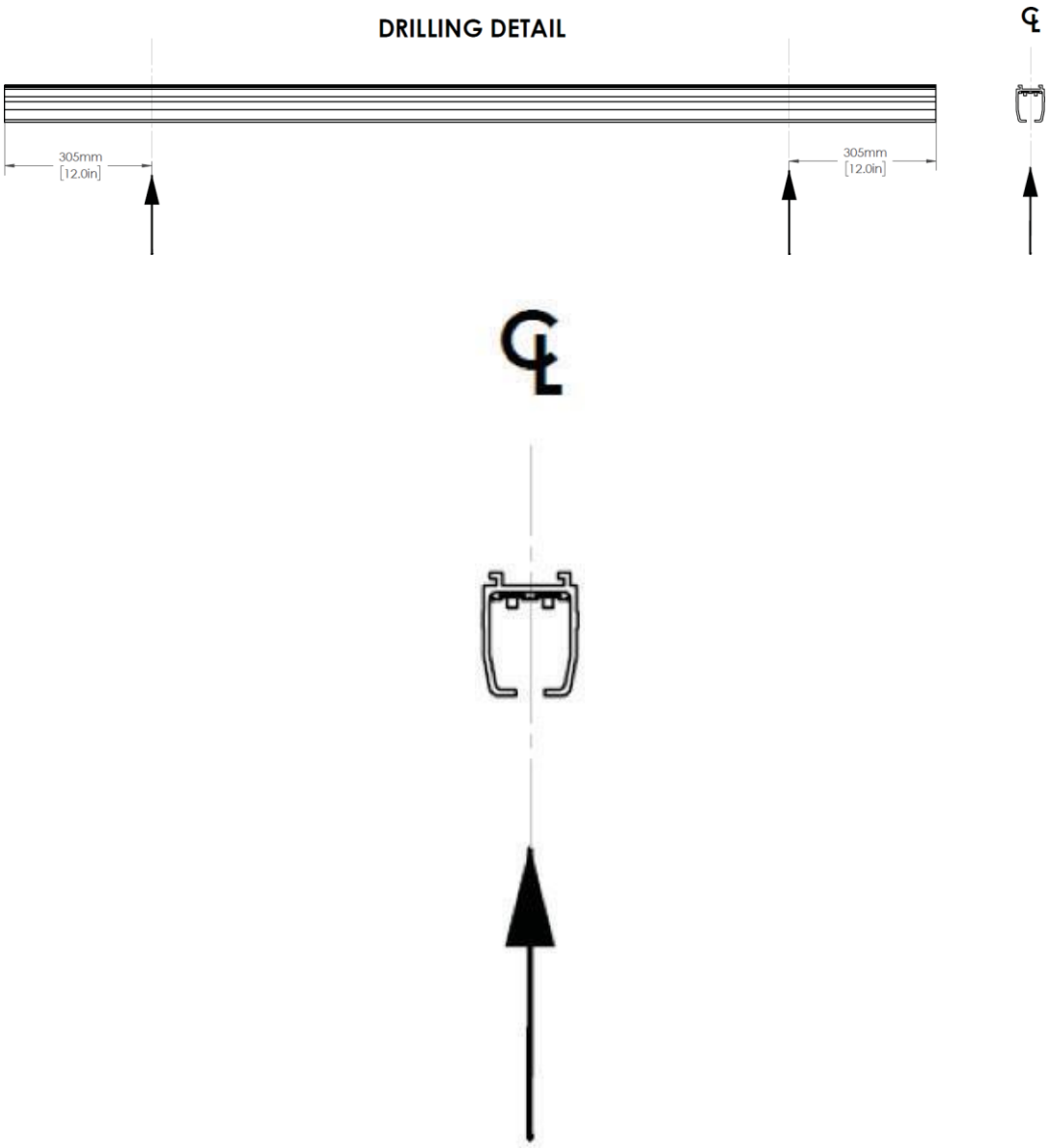


Figure 36: ***Drilling Detail***

8. Secure the TransStrip.
    a. Use needle-nose pliers to insert the plastic rivets included with the TransStrip through the ceiling lift channel and through the holes that was just drilled.
    b. Insert the wide, split end of the rivet until it seats, then snap off the protruding tab inside the track.
9. Hang the traversing track by inserting it into the track brackets on the gantry (Figure 37)
    - Make sure the male TransStrip tabs on the traversing track are facing the charging parallel track as shown in Figure 37.

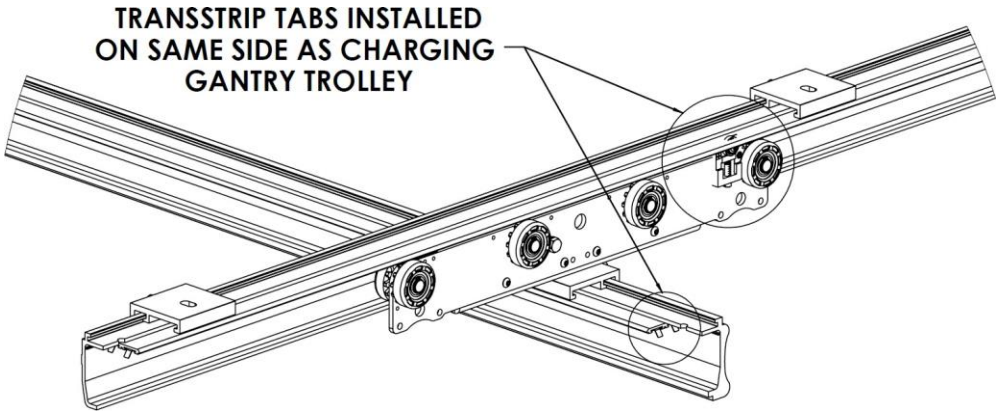


Figure 37: ***Traversing Track Mounted to Parallel Track***

10. Tighten the set screws on the gantry brackets.
11. On both gantry brackets, install the included bracket strips (360449) between the track channel and the set screws, as shown in Figure 38. To insert the bracket strip:
    a. Loosen one set screw on the gantry bracket.
    b. Slide the bracket strip into the channel until it contacts the tightened set screw.
    c. Make sure the bracket strip is seated in between the two set screws.
    d. Apply Blue Loctite 243 to all the set screws and torque each to 40–45 in lbs.

i	**Make sure that the 6” ceiling bracket strip is properly installed between the screws of the gantry trolley bracket (see Figure 38).**

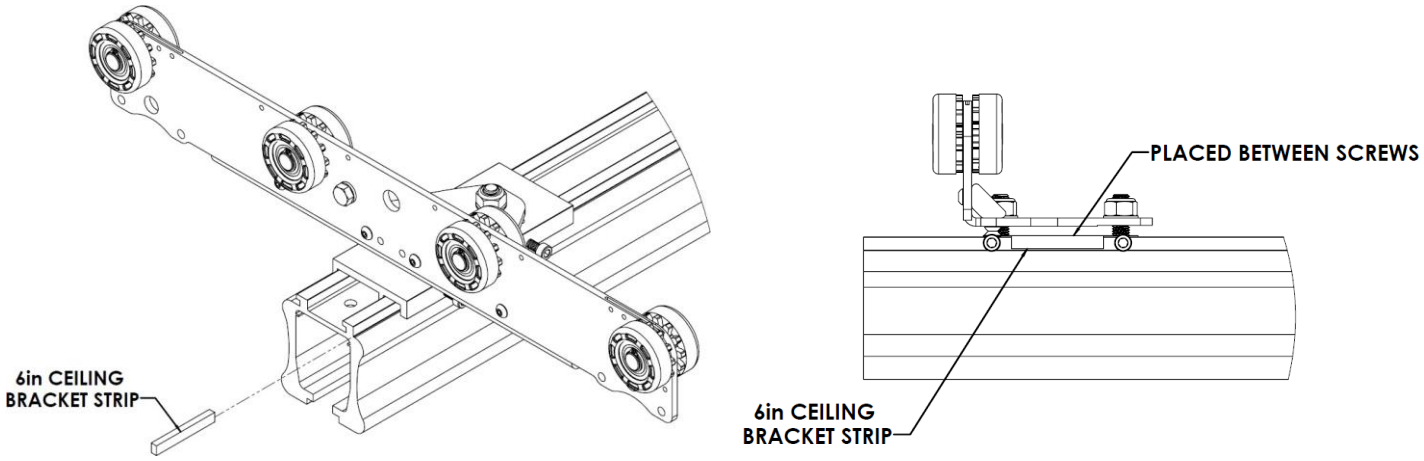


Figure 38: ***Bracket Strip Installation***

12. Connect the wires from the X/Y gantry to the traversing track TransStrip contacts (see Figure 39).
    - Make sure positive and negative wire orientation matches that of the ceiling lift, as noted in step 9.
    - Use the wire clip and cable ties supplied to route the wires along the side of the X/Y Gantry Trolley assembly.

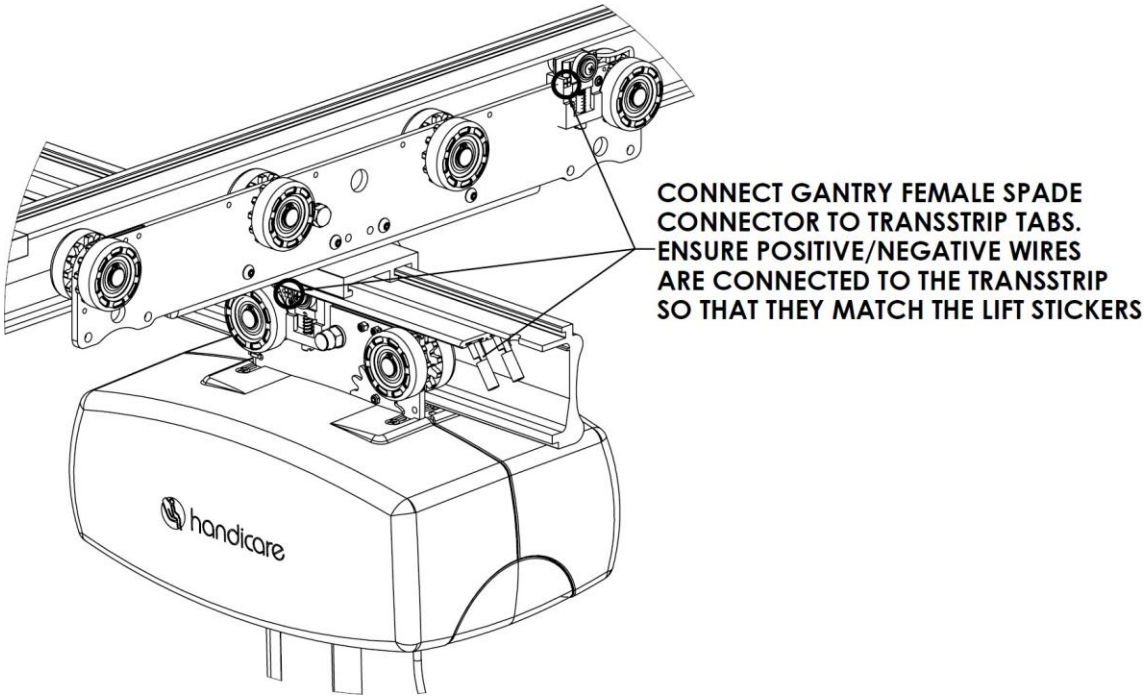


Figure 39: ***Ensure Female Spade Connector and TransStrip Tabs are Connected to Match the Lift Stickers***

13. Connect the wires from the power supply to the parallel track TransStrip contacts (Figure 40).
    - Make sure positive and negative wire orientation matches that of the X/Y gantry trolley.

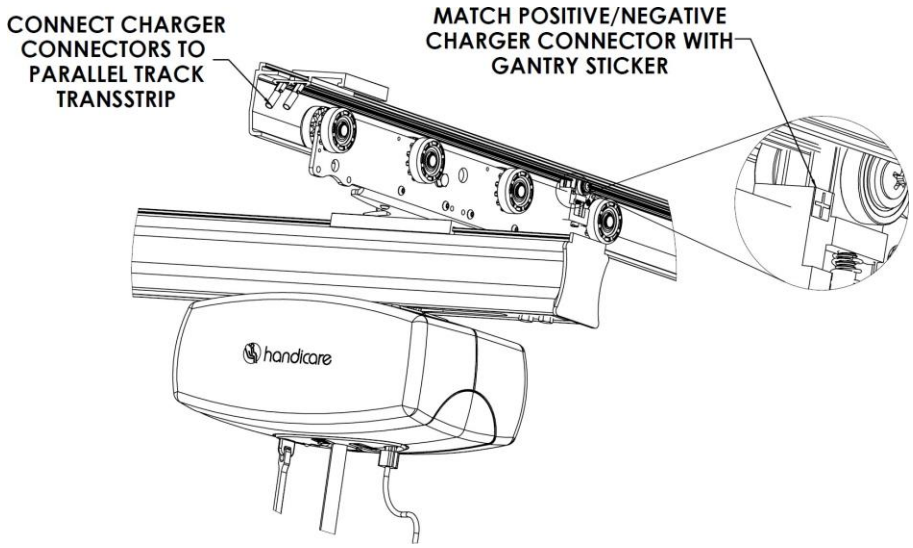


Figure 40: ***Ensure Spade Connectors are Connected to the Corresponding Positive/Negative Gantry Contact***

14. Hang the ceiling lift in the traversing track. “CEILING LIFT INSTALLATION” (Page 169).
    - Notate the positive and negative orientation on top of the ceiling lift charger contacts.
15. Install the power supply. Follow the steps in “POWER SUPPLY INSTALLATION” (Page 165).

16. Install all remaining standard endstops at all end terminals of the parallel and traversing tracks.
    - For all endstops and endstop chargers:
        - Use a 13mm wrench to torque the endstop bolts and lock washers to 12–14 ft lbs.
        - Make sure that the endstop clevis pins and rings are installed behind all endstops as shown in Figure 41.

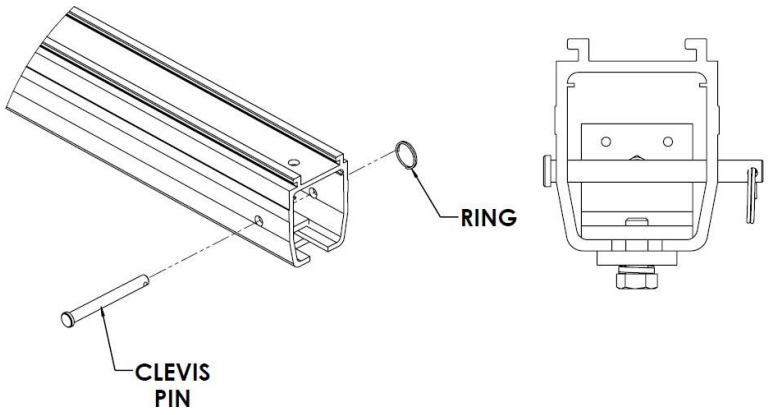


Figure 41: ***Clevis Pin and Ring Installed***

17. Insert end caps at all terminal ends of the parallel and traversing tracks.
18. Install the carry bar, following the instructions included with the carry bar.
19. Test and verify the system. Follow the steps in “Testing and Inspection” (Page 170).

NOTE: **If necessary to improve contact with the TransStrips, adjust the spring-loaded screws (Figure 42 and Figure 43) on the gantry trolley and/or the ceiling lift.**

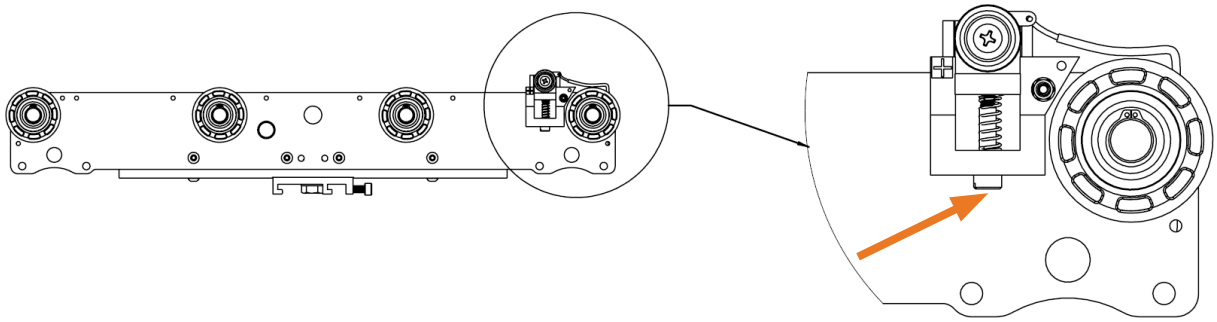


Figure 42: ***Gantry Trolley Spring-Loaded Screw to Adjust TransStrip Contact***

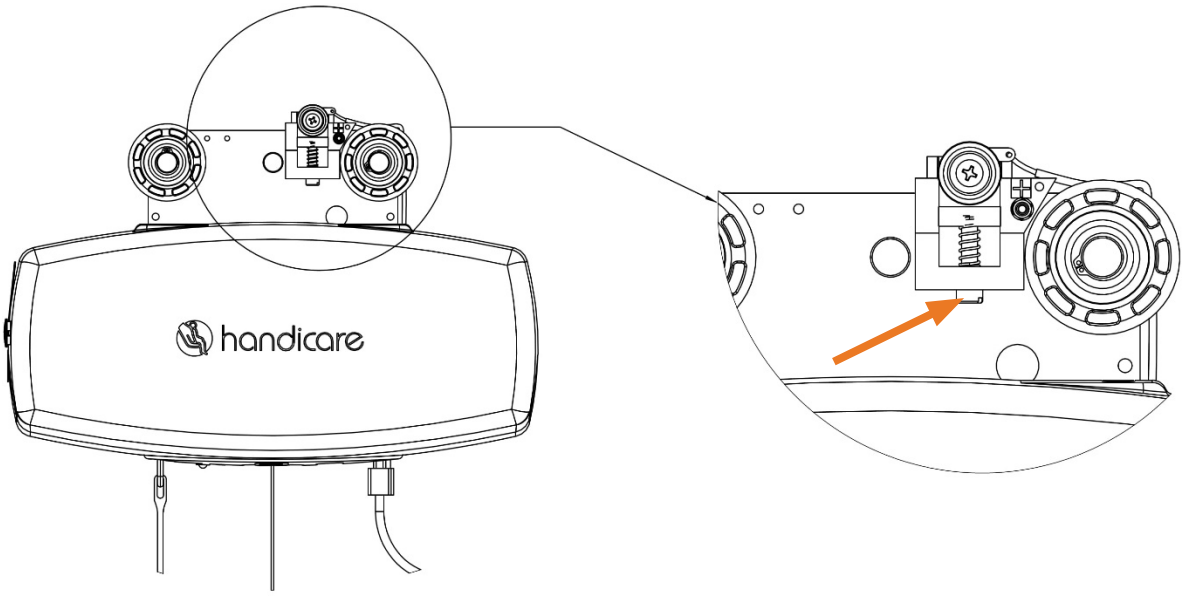


Figure 43: ***Ceiling Lift Spring-Loaded Contact Screw***

X/Y Gantry Accessories

Above Mount Gantry

If the traversing track needs to be mounted on top of the gantry blade, install an above mount gantry (Figure 44).

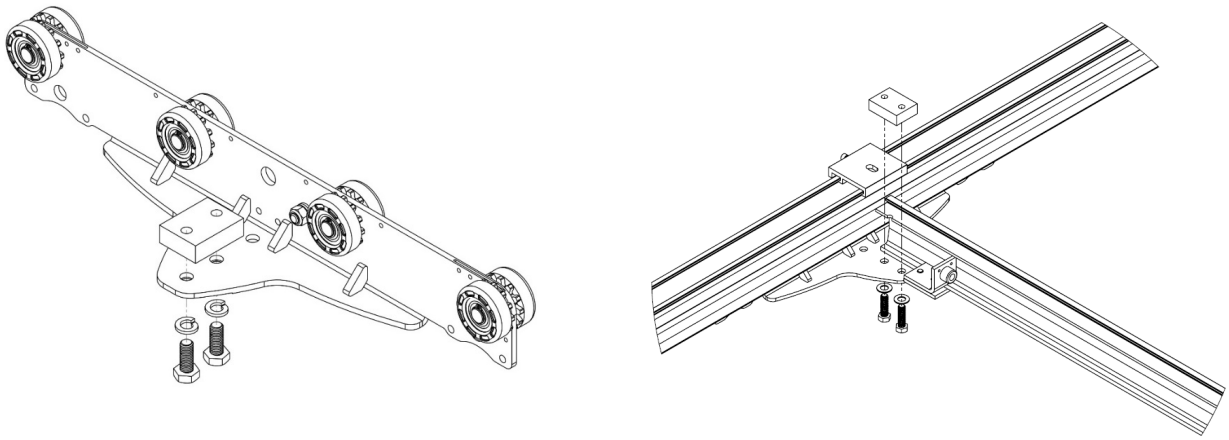


Figure 44: ***Above Mount Gantry***

1. Remove the current gantry trolley brackets from the trolley blade assembly.

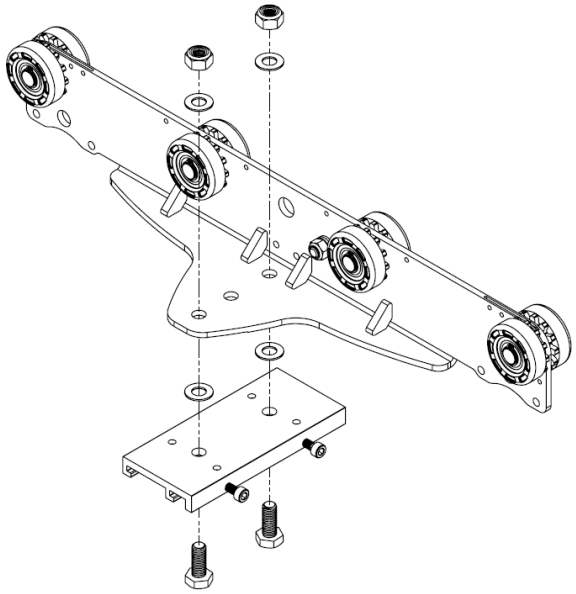


Figure 45: ***Remove Bracket and Hardware***

2. Measure and cut the traversing track so that, on each end, the above mount gantry mounting blocks sit completely inside the track once installed (Figure 46).

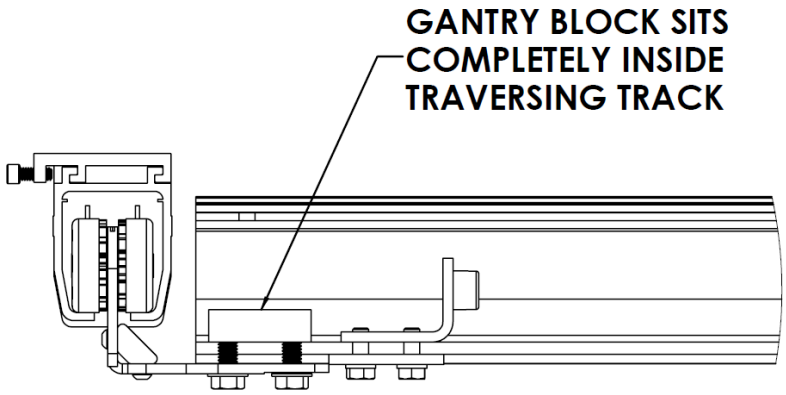


Figure 46: ***Gantry Blocks Inside Traversing Track***

3. Insert the X/Y gantry trolleys into the parallel tracks, with the blades facing each other.
4. If installing a standard docked charging system,
   a. Make sure the gantry charging contacts face the charging end of the track.
   b. Make sure the charging contacts on the lift are facing the charging location nearest the power supply.
   c. On the charger endstop assembly of the parallel track, exchange the finger guard with the track endstop plate supplied with the X/Y Gantry Trolley (Figure 47).

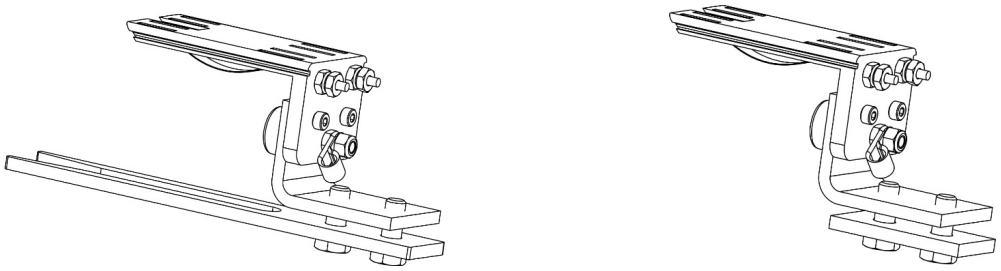


Figure 47: ***Configuration for Ceiling Lift Charging Contact (Left) and Configuration for Gantry Charging Contact (Right)***

d. Install the endstop with finger guard into the traversing track.
    - Use the wire clip and cable ties supplied to route the wires along the side of the X/Y gantry trolley assembly.

e. Install the charger endstop with standard plate into the parallel track nearest the power supply.

5. If installing an omni/constant charging system, follow steps 2–7 in “Omni/Constant Charging” (Page 165).
6. Hang the ceiling lift in the traversing track. “CEILING LIFT INSTALLATION” (Page 169)..
    - Notate the positive and negative orientation on top of the ceiling lift charger contacts.
7. Install all remaining standard endstops at all end terminals of the parallel and traversing tracks.
    - Make sure to leave enough space in the traversing track to install above mount gantry blocks behind the endstops.
    - For all endstops and endstop chargers:
        - Use a 13mm wrench to torque the endstop bolts and lock washers to 12–14 ft lbs.
        - Make sure that the endstop clevis pins and rings are installed behind all endstops as shown in Figure 48.

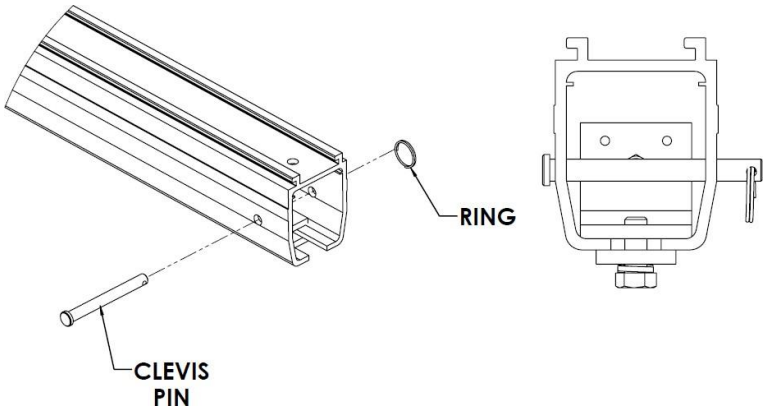


Figure 48: ***Clevis Pin and Ring Installed***

8. Insert the above mount gantry mounting blocks into the ends of the traversing track.
9. Place the traversing track on top of the gantry plate.
10. Secure the above mount gantry bracket to the gantry plate using the 1/2”-16 x 1.25” hex head bolts and lock washers provided with the above mount gantry kit.
    - Make sure the traversing track is square to the parallel track and that there is no binding when operating.

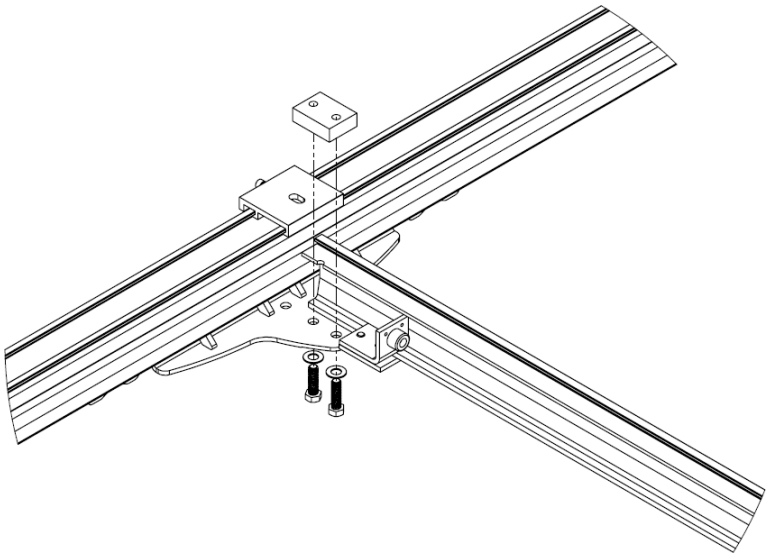


Figure 49: ***Traversing Track Square to the Parallel Track***

11. Install the power supply. Follow the steps in “POWER SUPPLY INSTALLATION” (Page 165).
12. Insert end caps at all terminal ends of the parallel tracks only.
    - Endcaps are not used on the traversing rail in an above mount system.
13. Install the carry bar, following the instructions included with the carry bar.
14. Test and verify the system. Follow the steps in “Testing and Inspection” (Page 170).

Power Traversing System

A power traversing X/Y system uses a six-button hand control to move the system’s ceiling lift forward/backward, left/right, and up/down (Figure 50).

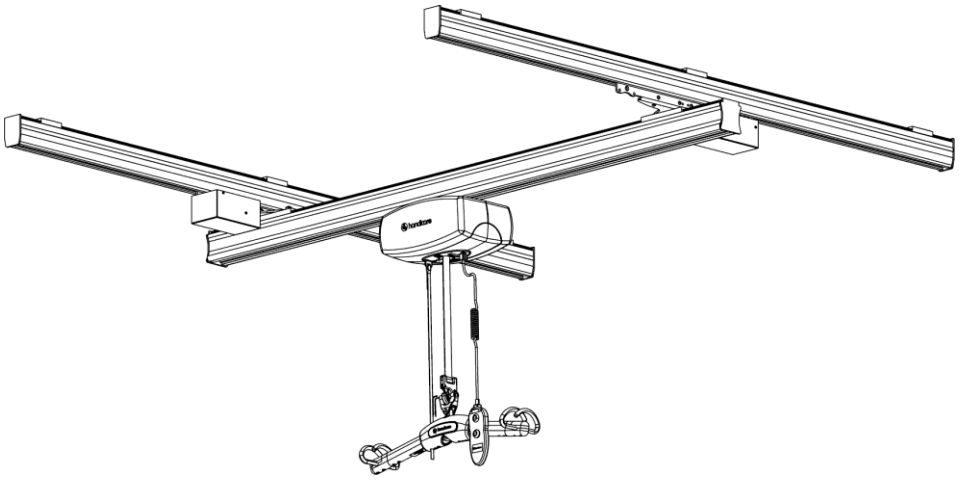


Figure 50: ***Power Traversing X/Y System***

The ceiling lift batteries power the ceiling lift and gantry (Figure 51).

- The ceiling lift sends power to the gantry along any point on the traversing track; to enable this, the traversing track uses a TransStrip (similar to an Omni system) while the power supply connects to the parallel track.
- A standard endstop charger is used in the traversing track to charge the lift; the TransStrip is only used to send power to the X/Y gantry.

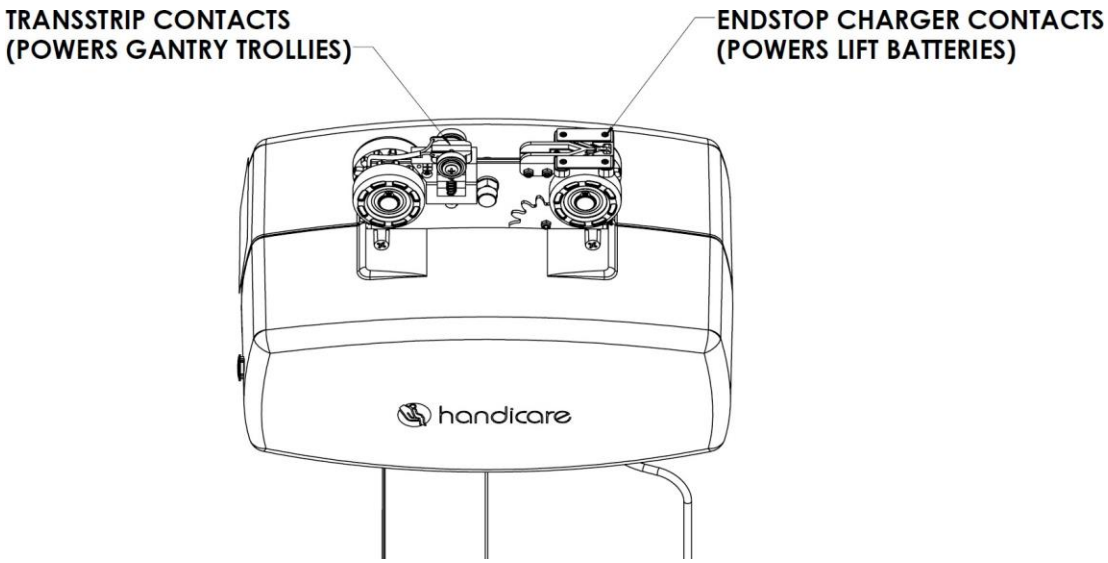


Figure 51: ***Ceiling Lift Contacts***

To install a power traversing X/Y system:

1. Insert the powered X/Y gantry into the parallel rails.
    - Make sure the charging contacts on the gantry face the power supply, and that the positive/negative stickers on the endstop charger and gantry charging contacts align (Figure 52).

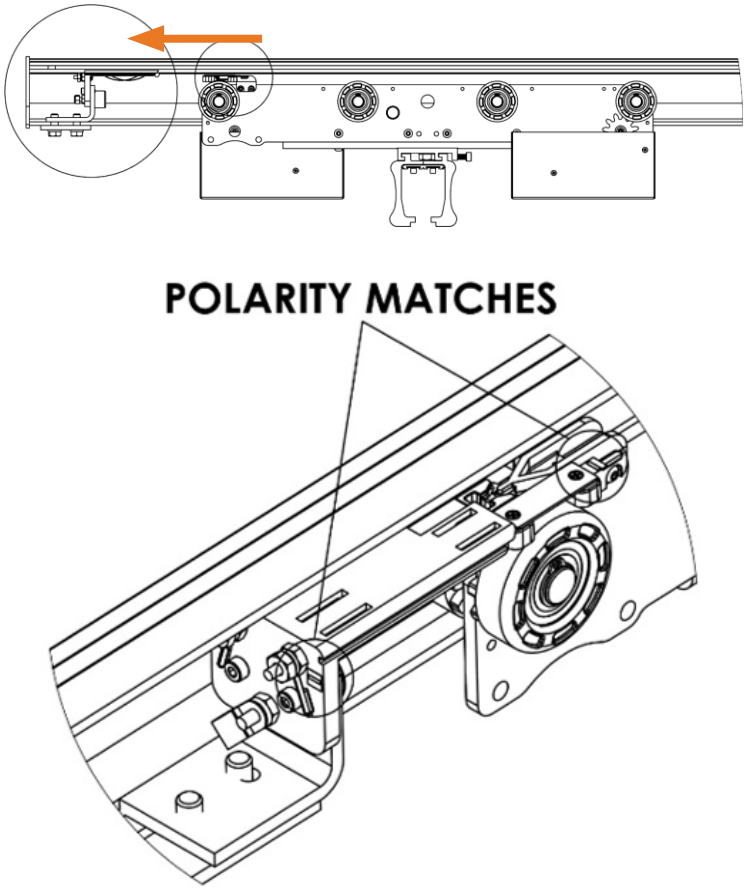


Figure 52: ***Make Sure Polarity Aligns by Matching the Positive/Negative Stickers***

2. Hang the traversing track on the gantry.
3. On the charger endstop assembly of the parallel track, exchange the finger guard with the track endstop plate supplied with the X/Y Gantry Trolley (Figure 53).

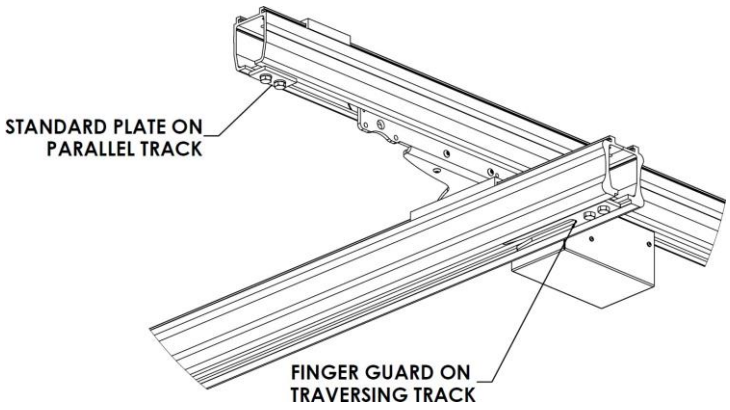


Figure 53: ***Exchange the Finger Guard with the Track Endstop Plate***

4. Install the endstop charger with finger guard into the end of the traversing track nearest the charging parallel track.
5. Unroll and cut the TransStrip to fit the traversing track:

    a. Push in the protruding male terminal tabs on the TransStrip so they're flush with the plastic insulator (Figure 54).

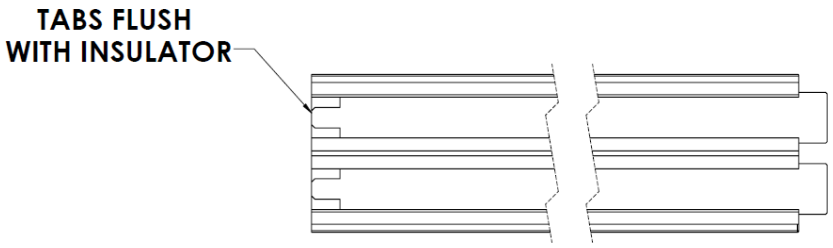


Figure 54: ***Male Terminal Tabs Flush with the Plastic Insulator***

b. Measure from the flush end of the male terminal tabs the length of the traversing track minus 8 1/2” (Figure 55).
c. Use a band saw to cut the end of the TransStrip opposite the male terminal tabs.

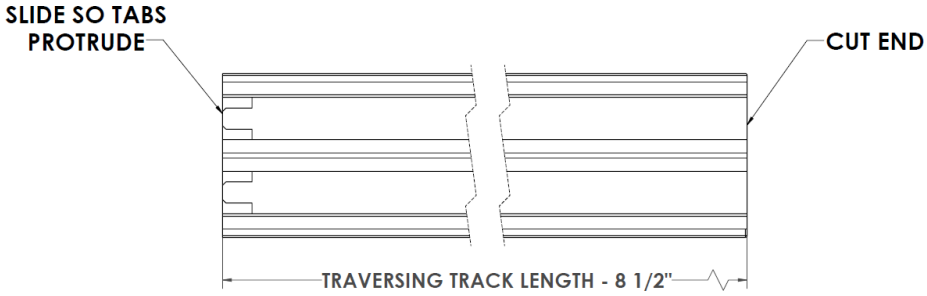


Figure 55: ***Cut TransStrip the Length of the Traversing Track Minus 8 1/2” on Side Opposite the Tabs***

d. Slide the metal strips inside the TransStrip back so the male terminal tabs protrude from the plastic insulator (Figure 56).

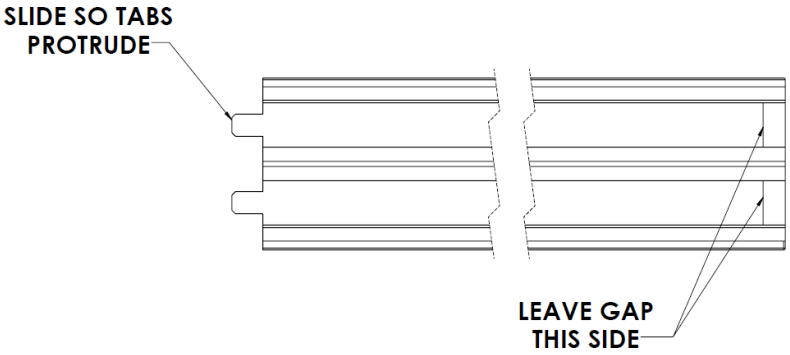


Figure 56: ***Slide Metal Strips 1/2” Out of Plastic Insulator***

e. Use pliers to bend the male terminal tabs approximately 45° (Figure 57).

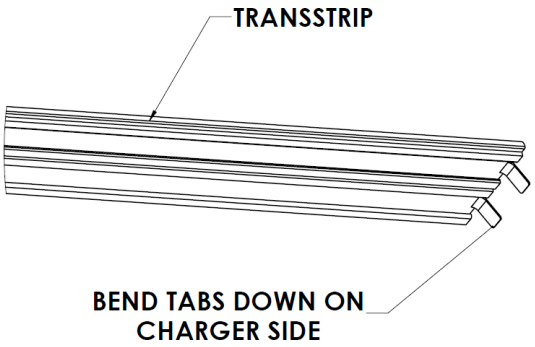


Figure 57: ***Bend the Male Terminal Tabs Approximately 45°***

6. Insert the TransStrip into the traversing track until it contacts the endstop charger.
    - Make sure the metal strips in the TransStrip do not contact the metal strips of the endstop charger (Figure 58).

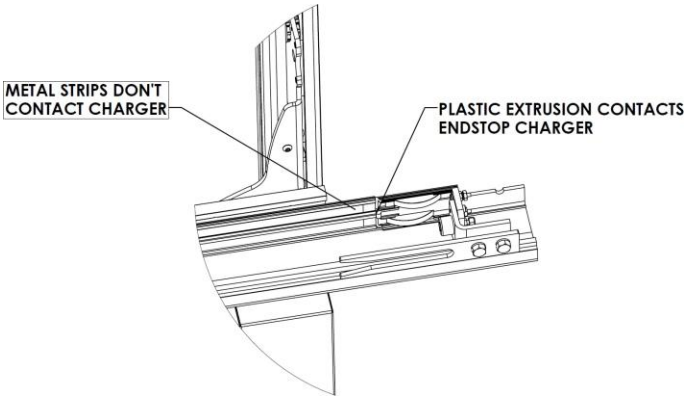


Figure 58: ***TransStrip Metal Strips Must Not Contact the Metal Strips of the Endstop Charger***

- Make sure the male terminal tabs on the TransStrip are opposite the endstop charger (Figure 59).

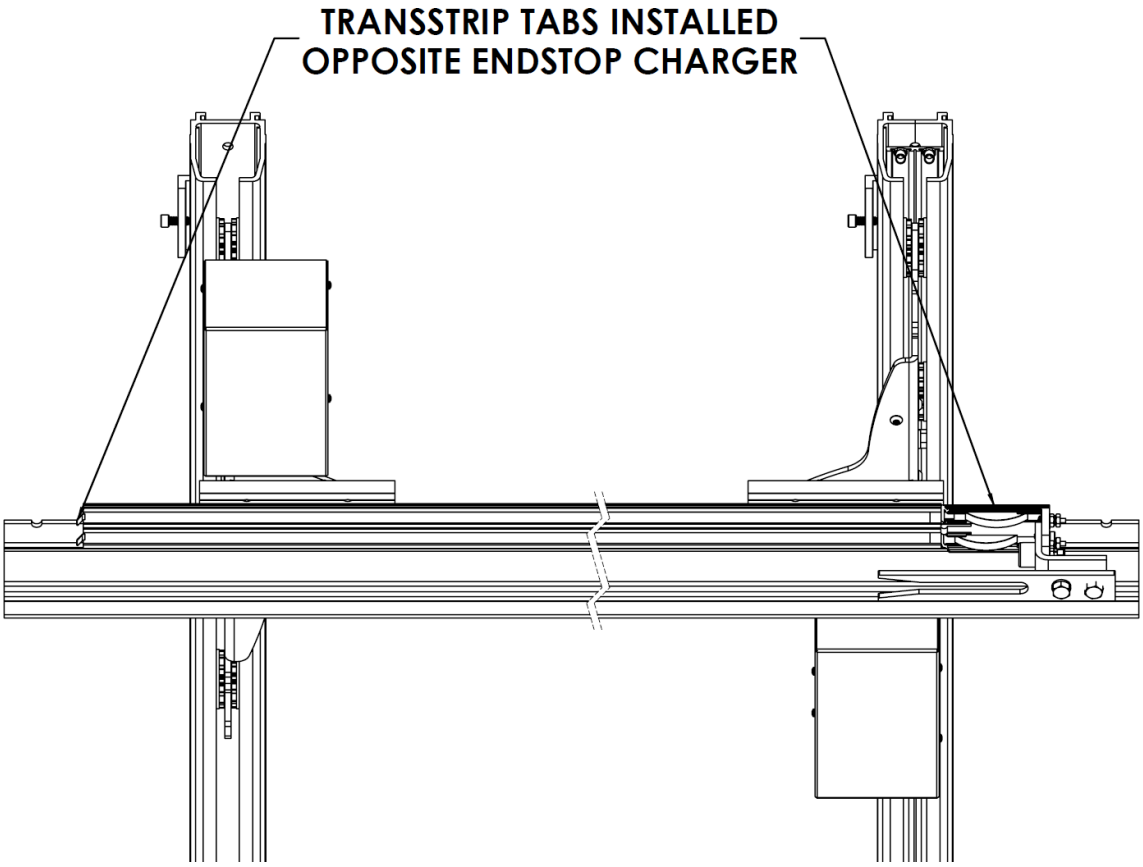


Figure 59: ***TransStrip Male Terminal Tabs***

7. Connect the short wired piggyback connectors to the male terminal tabs on the TransStrip (Figure 60).

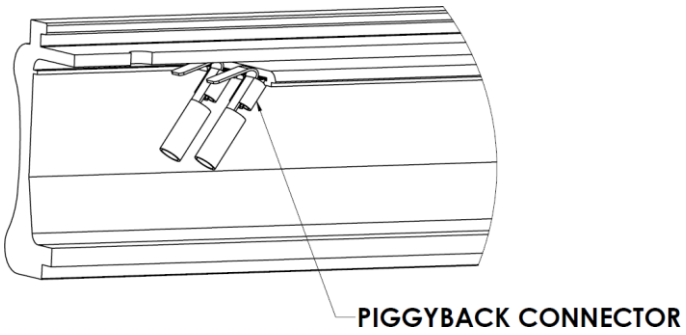


Figure 60: ***Short-Wired Piggyback Connectors Attached to the Male Terminal Tabs on the TransStrip***

8. On the traversing (X/Y) track, route the short wire across the top of the traversing track, beneath the gantry bracket (Figure 61).

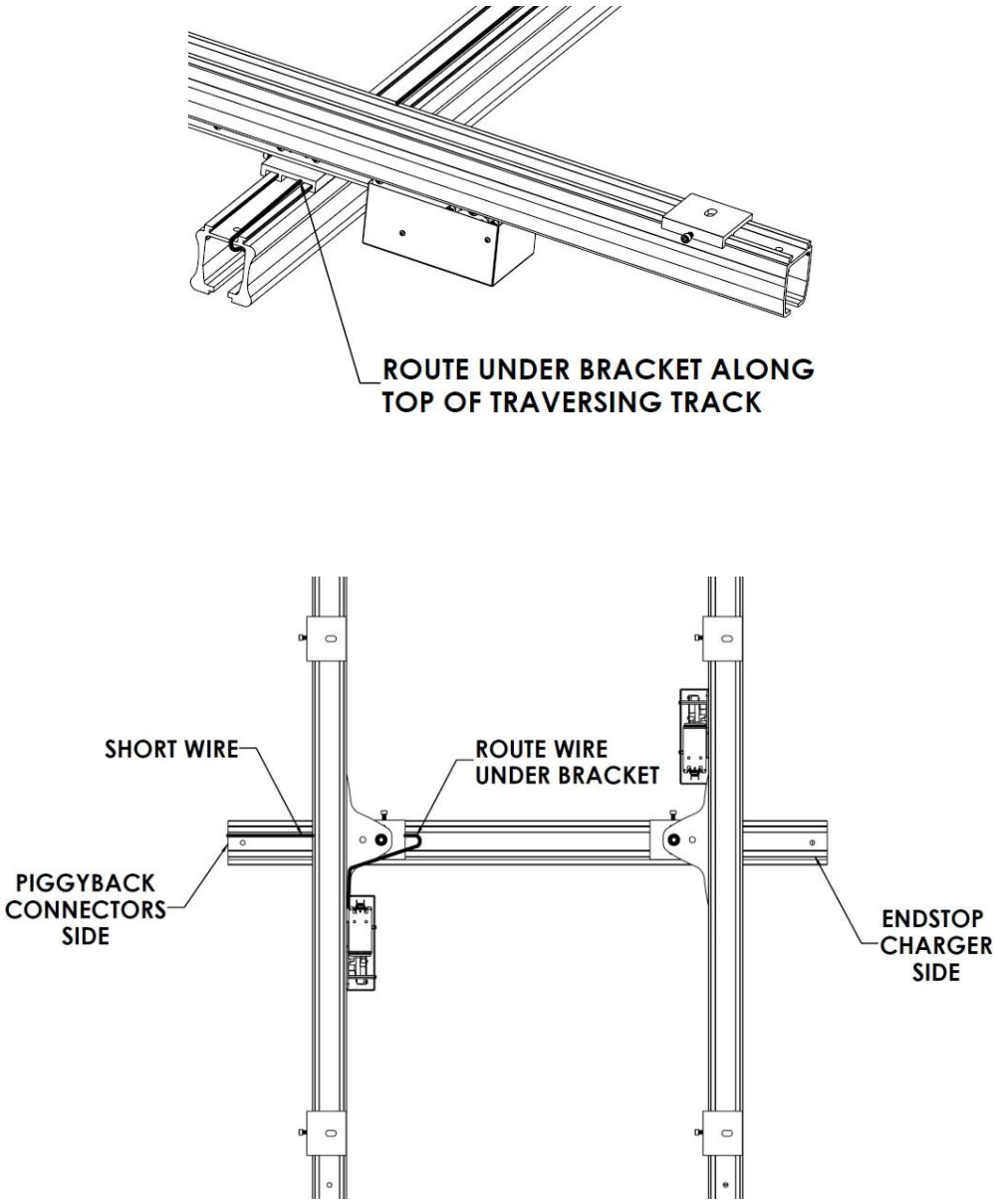


Figure 61: ***Short Wire Placement***

9. Connect the short wire female spade connectors to the gantry motor (Figure 62).
    - Connect the blue connector (black wire) to the “small” terminal.
    - Connect the red connector (white wire) to the “large” terminal.

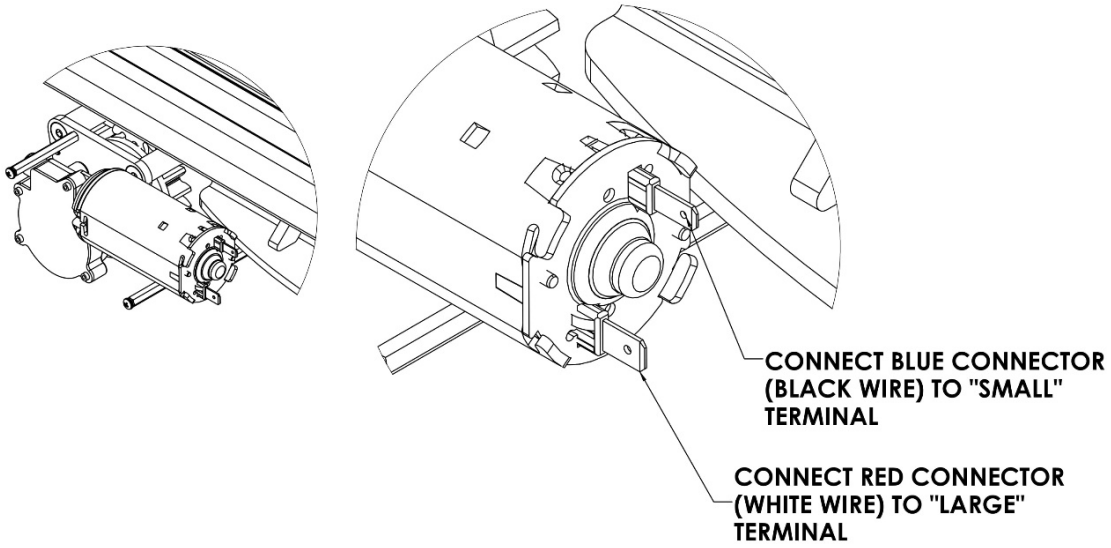


Figure 62: ***Short Wire Gantry Motor Connections***

10. Connect the long wire female spade connectors to the male terminal of the piggyback connector (Figure 63).

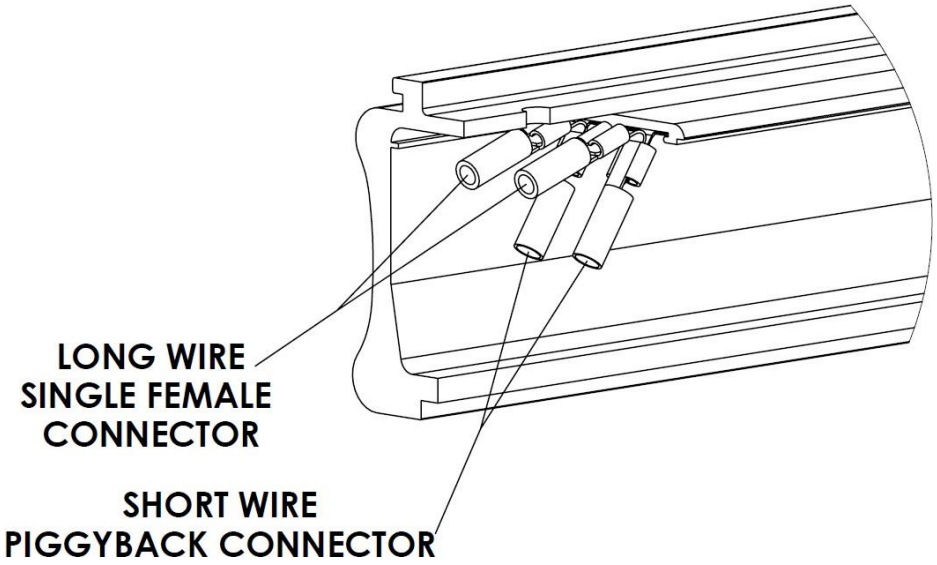


Figure 63: ***Long Wire Female Spade Connectors Attached to the Male Terminal of the Piggyback Connector***

11. On the traversing (X/Y) track, route the long wire across the top of the traversing track, beneath the gantry bracket (Figure 64).
    - Use the provided wire clips to secure the long wire to the top of the traversing track.
    - If the long wire must be cut to length, additional spade connectors are supplied with the power X/Y gantry and can be reattached.

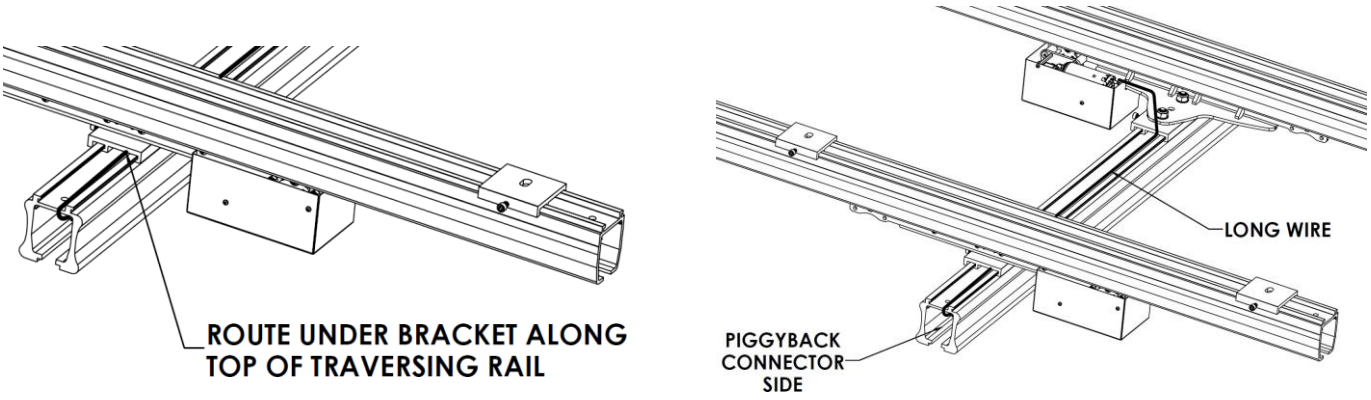


Figure 64: ***Long Wire Placement***

12. Connect the other end of the long wire to the gantry motor (Figure 65.):
    - Connect the red connector (white wire) to the “small” terminal.
    - Connect the blue connector (black wire) to the “large” terminal.

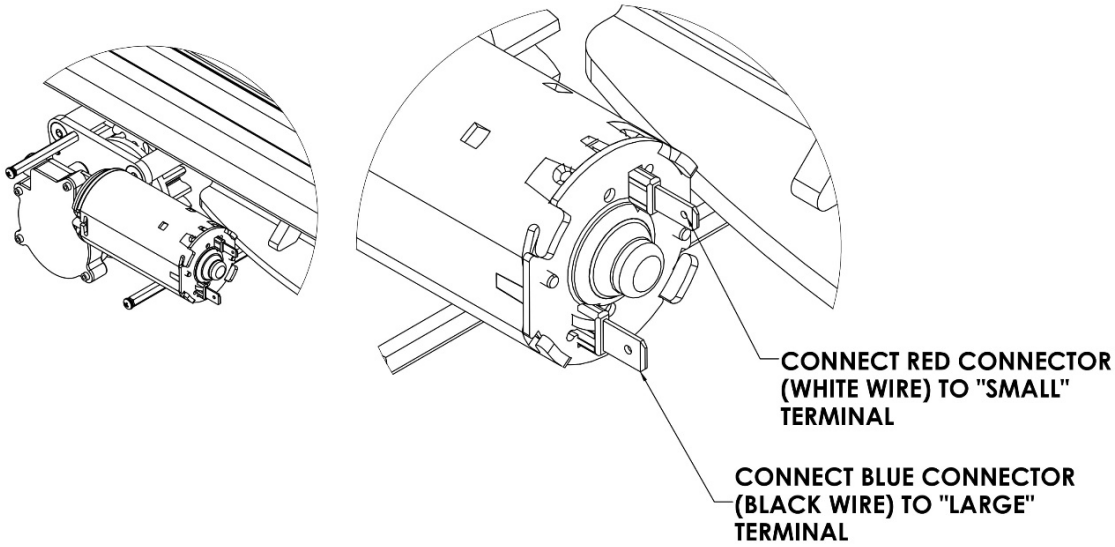


Figure 65: ***Long Wire Ceiling Lift Connections***

13. Insert the ceiling lift with the endstop charger side facing the endstop charging bracket (Figure 66).

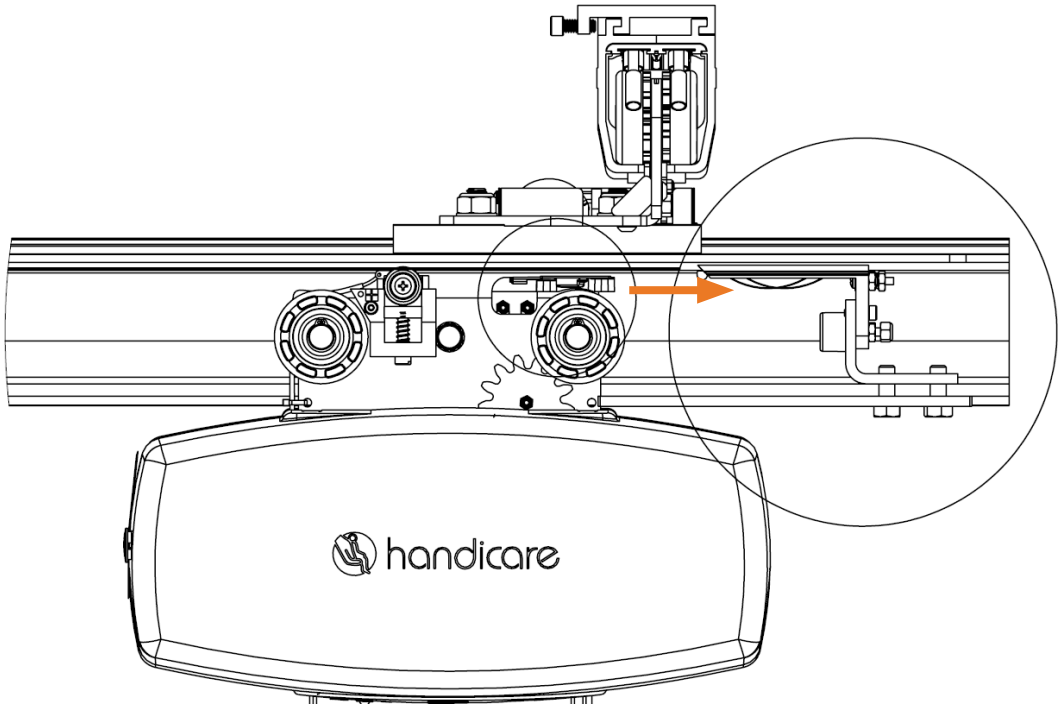


Figure 66: ***Ceiling Lift Contacts***

- Make sure the polarity of the ceiling lift unit and the TransStrip matches throughout the ceiling track system (Figure 67).
- If the polarity is connected incorrectly, the power X/Y gantry trolleys will spin their wheels in opposite directions.

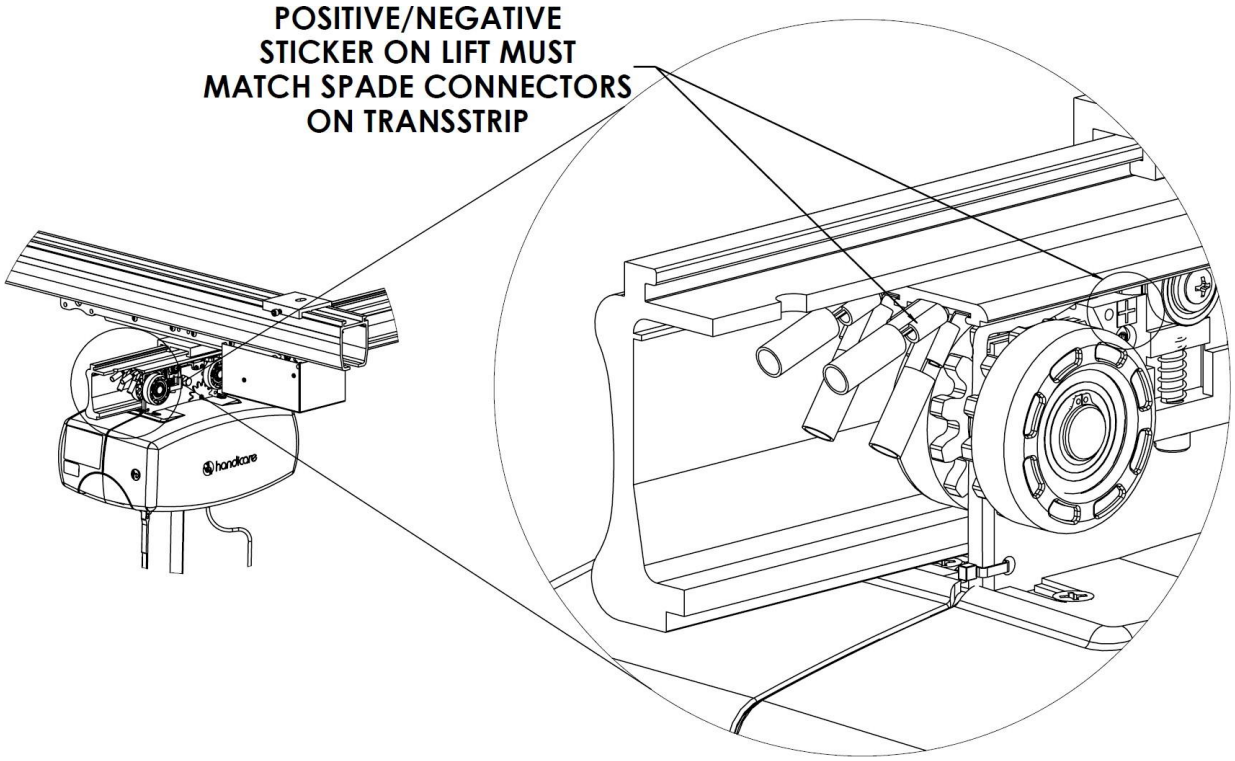


Figure 67: ***Ceiling Lift Unit Polarity***

14. Install all remaining standard endstops at all end terminals of the parallel and traversing tracks.
15. For all endstops and endstop chargers:
    - Use a 13mm wrench to torque the endstop bolts and lock washers to 12–14 ft lbs.
    - Make sure that the endstop clevis pins and rings are installed behind all endstops (Figure 68).

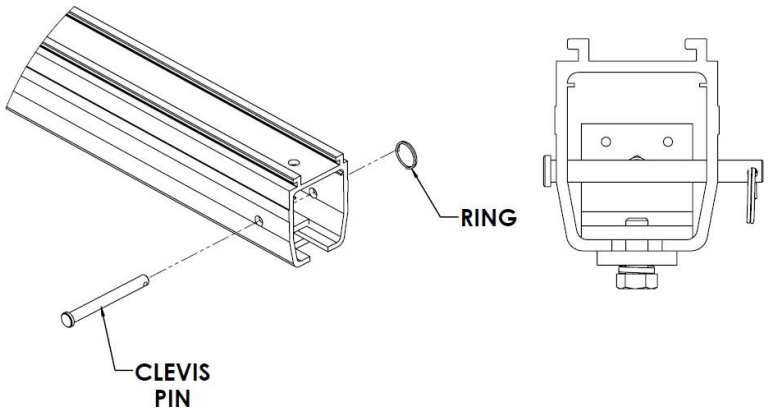


Figure 68: ***Clevis Pin and Ring Installed***

16. Insert end caps at all terminal ends of the parallel and traversing tracks.

17. Use the hand control to operate the ceiling lift unit through the entire track to make sure it functions in all directions (left/right, front/back, up/down).
    - Drive the lift into the endstop charger to ensure the light on the ceiling lift turns solid orange.
    - If necessary to improve contact with the TransStrip, adjust the spring-loaded screw (Figure 69) on the ceiling lift.

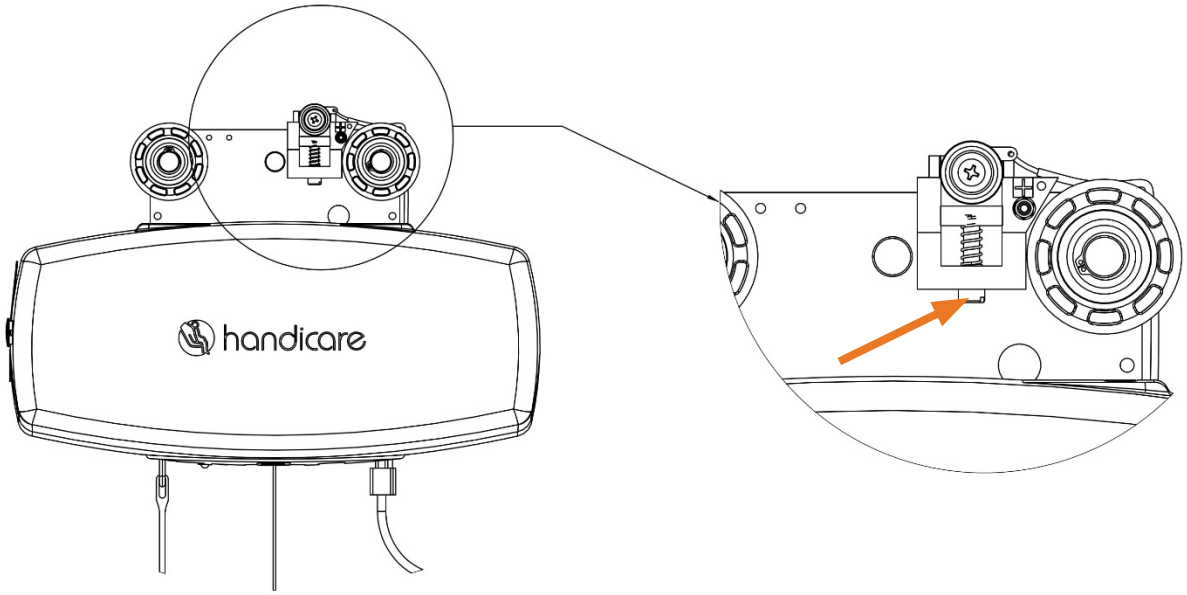


Figure 69: ***Ceiling Lift Spring-Loaded Contact Screw***

Transition Gate System (TGS)

Figure 70 diagrams the parts of an X/Y Gantry Transition Gate System (TGS) ceiling lift system.

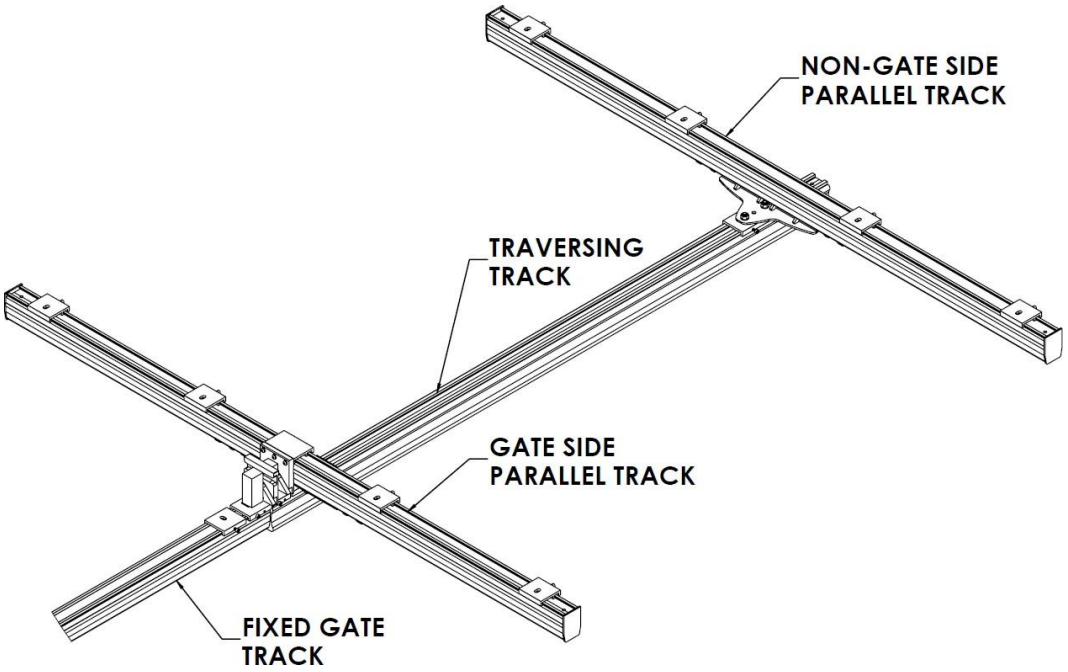


Figure 70: ***Parts of an X/Y Gantry Transition Gate Ceiling Lift System***

Lay Out TGS

1. Define the center line for the fixed gate track:
   a. Identify and mark on the ceiling or floor the starting point and end point of the track.
      - For example, the pick-up point over a bed to the pick-up point over a chair or toilet, or the center line of a doorway (Figure 71).

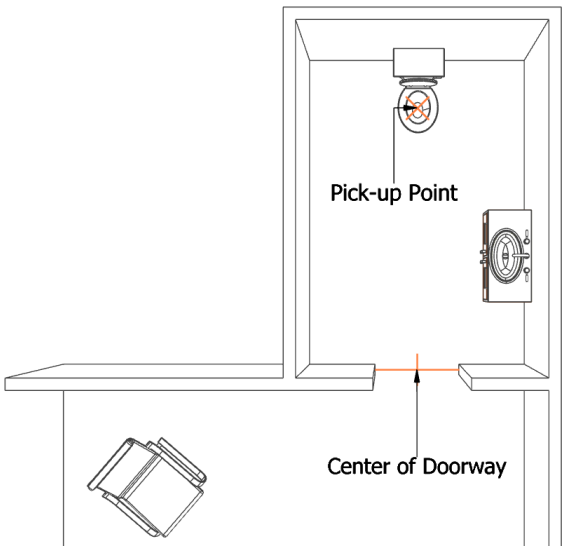


Figure 71: ***Track Pick-up Points***

b. For the straight sections of the track layout, use a laser line or chalk line to project a straight line between points.

- This line represents the center line of the fixed gate track (Figure 72)

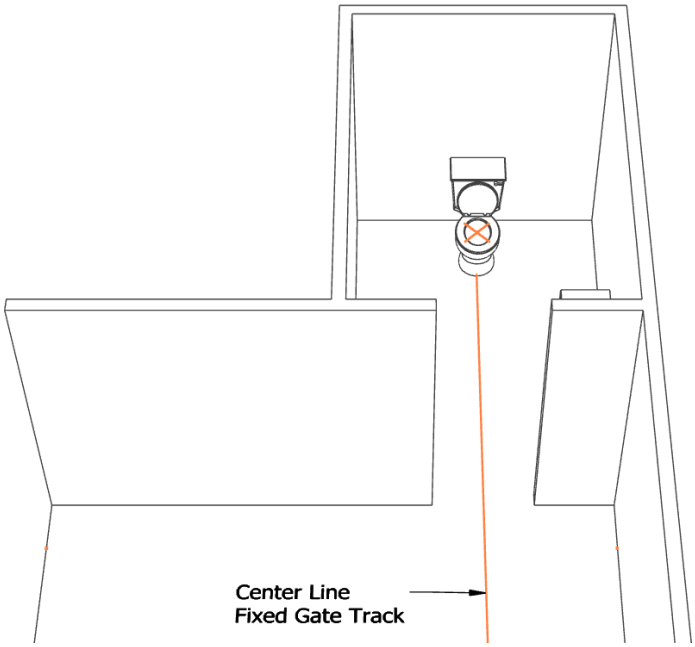


Figure 72: ***Straight Line Between Points***

2. Define the center line for the gate side parallel track (Figure 73):
    - Use a drywall T-square or square laser line to ensure the gate side parallel track intersects the fixed gate track at 90°.
    - The center line of the gate side parallel track can be shifted to avoid conflicts in the ceiling, if necessary, as long as the 90° intersection is maintained.

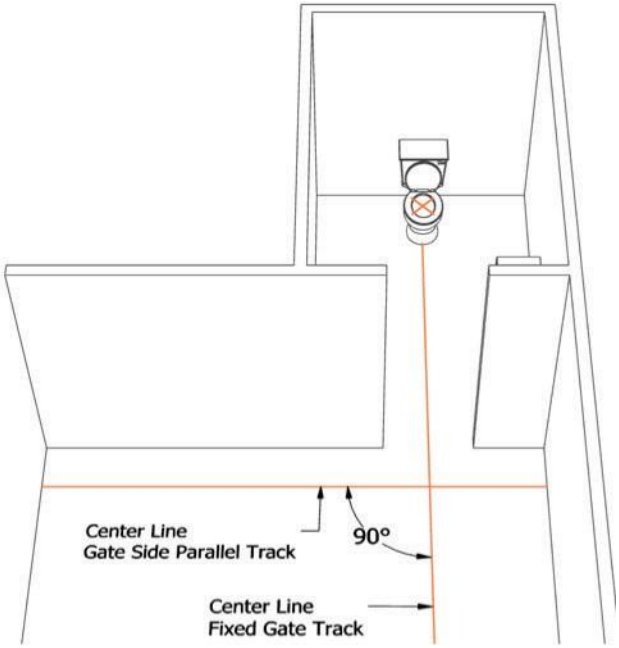


Figure 73: ***Gate Side Parallel Track Center Line***

3. Identify and mark the first attachment point along the fixed gate track center line (Figure 74).
    - **For a TGS up to 625 lbs capacity,** from the intersection of the two lines just created, mark a point 8 3/4" over along the fixed gate track line.

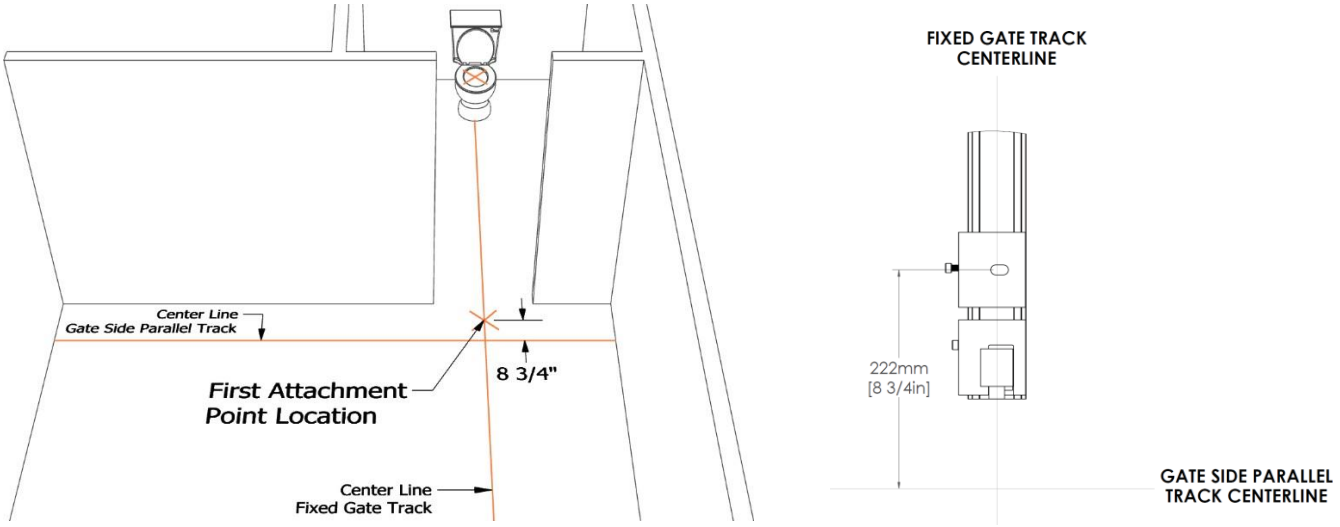


Figure 74: ***First Attachment Point Along the Fixed Gate Track Center Line***

- **For a TGS 1000 lbs capacity** (used for any ceiling lift greater than 625 lbs capacity), from the intersection of the two lines just created, mark a point 7 11/16" over along the fixed gate track line (Figure 75).
    - The 1000 lbs capacity transition gate requires three total attachment points—the one noted above is the only one that falls on the center line. Figure 76 shows the location of the additional required attachment points.

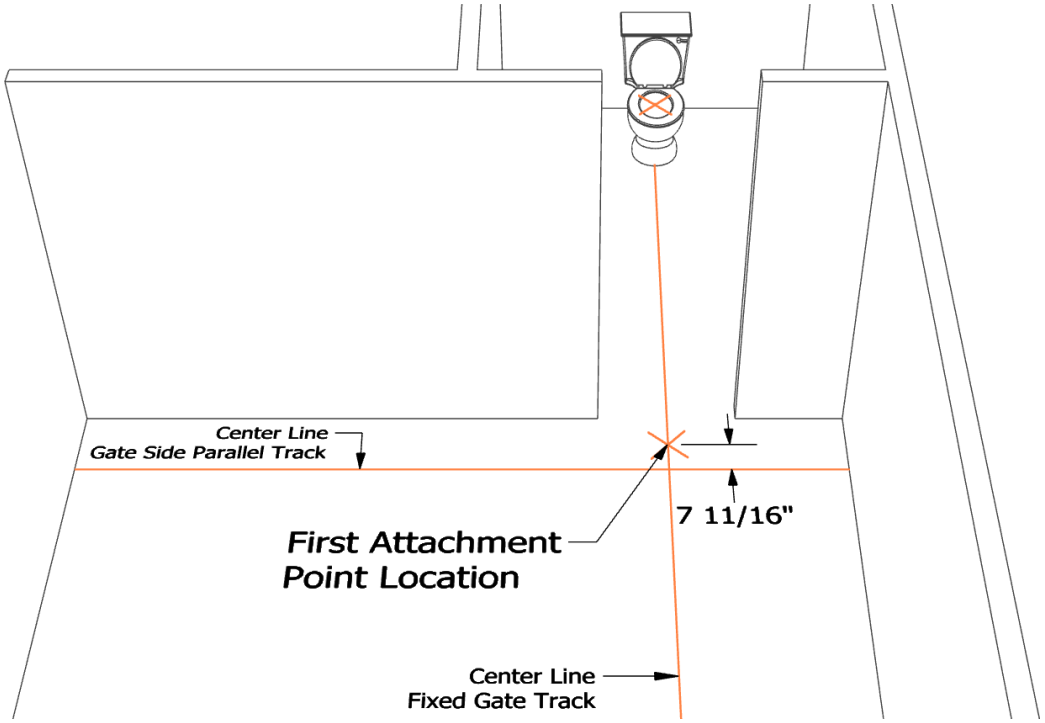


Figure 75: Point 7 11/16" Along the Fixed Gate Track Line

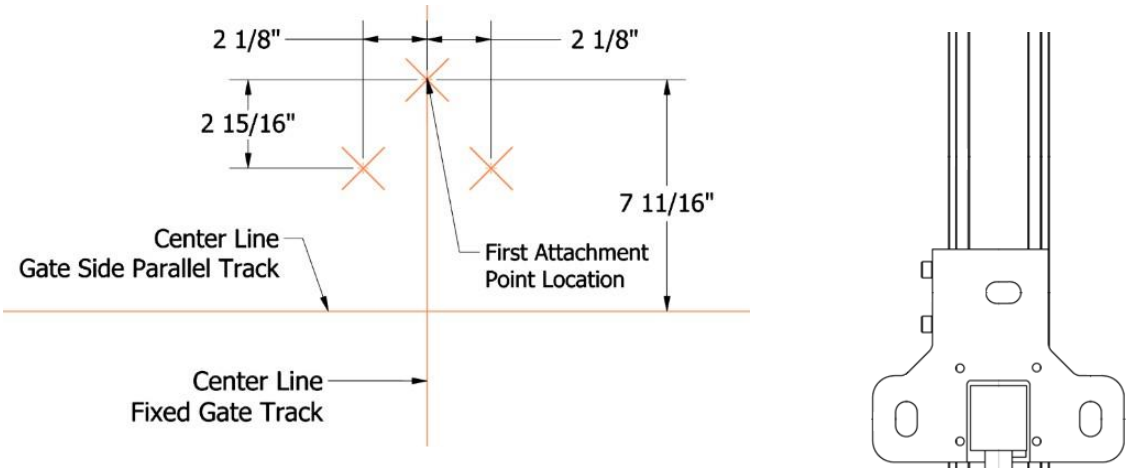


Figure 76: ***Figure 76: 1000 lbs Capacity Transition —Three Attachment Points (Left: Spacing Between Points. Right: Top View of Bracket)***

NOTE: **This attachment point location is critical to the proper layout of the system and may require parallel and perpendicular bracing for stability.**

4. Continue the layout of the fixed gate track following the instructions in steps 1c and 2d of “Basic Track Systems” (Page 8).
5. Continue to lay out the parallel tracks on the X/Y system (Gate Side Parallel Track, Non-Gate Side Parallel Track).
6. Determine and mark where the ends of the gate side parallel track will be located along the laser line.
    - Consider leaving enough space between the end of the track and the wall to insert or remove the X/Y gantry trolleys.

CRITICAL NOTE:	**A minimum distance of 14” between the endpoint on the gate side parallel track and the center line of the fixed gate track is required to allow enough space for the X/Y gantry trolley to properly engage the transition gate.**

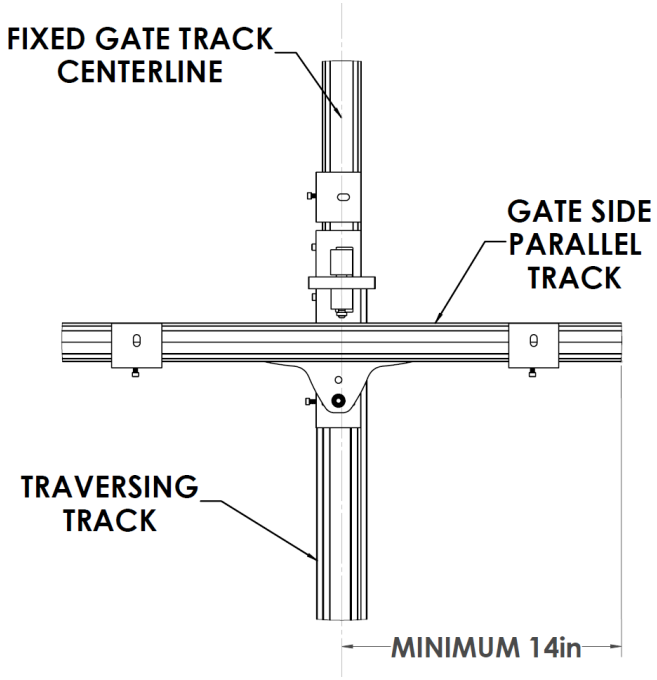


Figure 77: ***Minimum Distance Between Gate Side Parallel Track Endpoint and Fixed Gate Track Center Line***

7. Mark the bracket locations, either on the floor using a plumb bob to transfer bracket locations to the ceiling or directly on the ceiling itself.
    - Regardless of length, each segment of fixed track must attach to at least three brackets.
        - Use the cantilever and bracket spacing requirements. See “Span Details” (Page 210). and “Cantilever Details” (Page 210). to strategically place supports to avoid as many conflicts as possible while staying within the span allowances from the span chart.
8. Measure from the end points of the gate side parallel track to project a laser line for the center line of the non-gate side parallel track.
    - Verify that the distance between endpoints of the gate side parallel track and the laser line for the non-gate side parallel track are equal at both ends.
        - This ensures both tracks are parallel to each other.
9. Repeat step 7 for the second parallel track.

Install TGS Ceiling Brackets

1. Determine the type of traversing track that will be installed in the system.
    - The bracket height for the gate side and non-gate side parallel tracks will be higher than the bracket height on the fixed gate track.
    - For super track/standard track systems, the difference in bracket height is 4 1/4” (Figure 78)

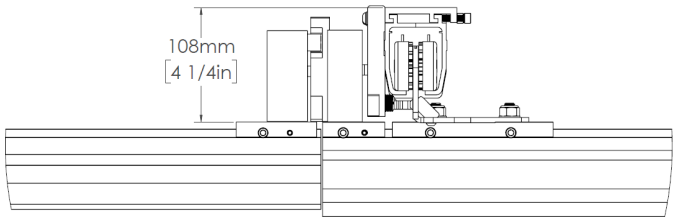


Figure 78: ***Super Track/Standard Track Systems Bracket Height Difference—4 1/4”***

    - For TrackPlus systems, the difference in bracket height is 7 3/16” (Figure 79)

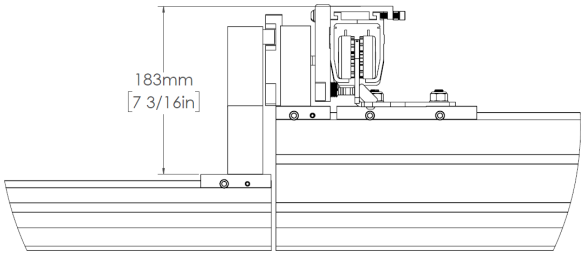


Figure 79: ***Track Plus System Bracket Height Difference—7 3/16”***

2. Determine if the ceiling height varies between the X/Y system and the fixed gate track.
    - If the ceiling heights vary, measure the difference between them.
        - **If the ceiling height variance exceeds the bracket height differences described in step 1, follow the steps in “Ceiling Height EXCEEDS Bracket Height”**
        - **If the ceiling heights do not vary or the variance is less than the bracket height differences described in step 1, follow the steps in “Ceiling Height DOES NOT EXCEED Bracket Height”**

Ceiling Height EXCEEDS Bracket Height

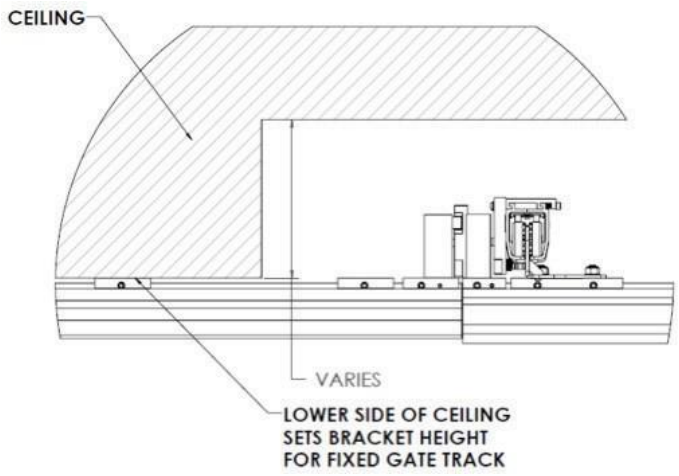


Figure 80: ***Ceiling Height EXCEEDS Bracket Height***

a. Set the ceiling bracket height for the fixed gate track at the lowest level of the lower ceiling (see Figure 81).

- Use a laser level to determine the lowest elevation point where the ceiling brackets will be installed.

NOTE: **Ceilings may not be consistently level. Therefore, it's important to determine which ceiling bracket location is at the lowest elevation.**

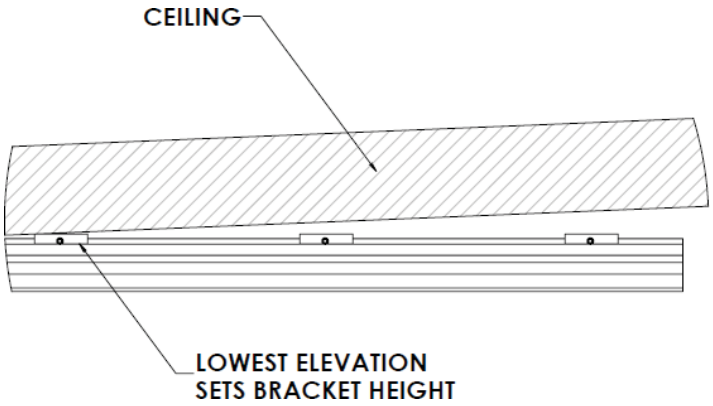


Figure 81: ***Fixed Gate Track Bracket Height Set at Lowest Level of the Lower Ceiling***

b. Attach the ceiling brackets for the fixed gate track to the building structure.

- To determine the appropriate attachment method and procedure, see "TRACK LAYOUT AND INSTALLATION" (Page 8).

1. Install the first ceiling bracket, starting at the lowest elevation along the fixed gate track.
    - Make sure the top surface of the bracket is tight against the ceiling.
2. Install all remaining ceiling brackets on the fixed gate track.
    - Use a level to ensure all ceiling brackets are level with the first installed ceiling bracket.

c. Attach the ceiling brackets for the X/Y gantry gate side and non-gate side parallel tracks.

- To determine the appropriate attachment method and procedure, see “TRACK LAYOUT AND INSTALLATION” (Page 8).

d. Use a laser level to project a horizontal line above the fixed gate track brackets, representing the bracket height of the parallel tracks.

- For super track systems, project the line for the X/Y gantry bracket height 4 1/4” above the fixed gate track brackets (see Figure 81).
- For TrackPlus systems, project the line for the X/Y gantry bracket height 7 3/16” above the fixed gate track brackets (see Figure 81).

e. Install all ceiling brackets on the parallel tracks.

- Use a level to ensure all ceiling brackets are level with the first installed ceiling bracket.

Ceiling Height DOES NOT EXCEED Bracket Height

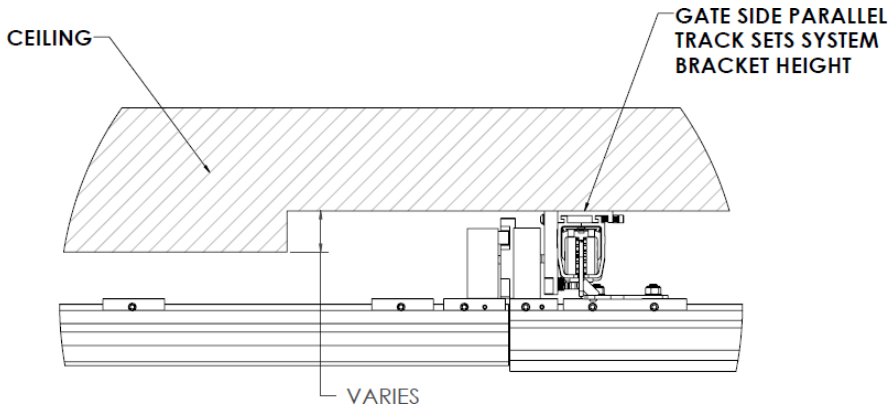


Figure 82: ***Ceiling Height DOES NOT EXCEED Bracket Height***

a. Set the ceiling bracket height for the gate side and non-gate-side parallel tracks at the lowest level of the ceiling.

b. Use a laser level to determine the lowest elevation point where the ceiling brackets will be installed.

NOTE: **Ceilings may not be consistently level. Therefore, it’s important to determine which ceiling bracket location is at the lowest elevation.**

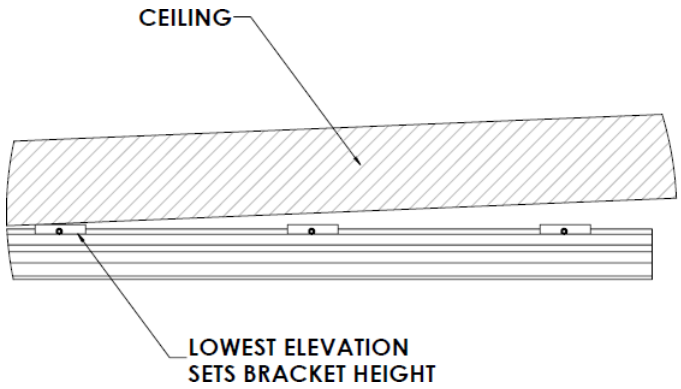


Figure 83: ***Lowest Elevation Point Where the Ceiling Brackets Will Be Installed***

c. Attach the ceiling brackets for the gate side and non-gate-side parallel tracks to the building structure.

- To determine the appropriate attachment method and procedure, see “TRACK LAYOUT AND INSTALLATION” (Page 8).

1. Install the first ceiling bracket starting at the lowest elevation along the gate side and non-gate-side parallel tracks.
    - Make sure the top surface of the bracket is tight against the ceiling.
2. Install all remaining ceiling brackets on the gate side and non-gate-side parallel tracks.
    - Use a level to ensure all ceiling brackets are level with the first installed ceiling bracket.

d. Attach the ceiling brackets for the fixed gate track.

- To determine the appropriate attachment method and procedure, see “TRACK LAYOUT AND INSTALLATION” (Page 8)..

1. Use a laser level to project a horizontal line below the gate side and non-gate-side parallel tracks, representing the bracket height of the fixed gate track.
    - For super track systems, project the line for the fixed gate track bracket height 4 1/4” below the gate side and non-gate-side parallel track brackets (see Figure 83).
    - For TrackPlus systems, project the line for the fixed gate track bracket height 7 3/16” below the gate side and non-gate-side parallel track brackets (see Figure 83).
2. Install all ceiling brackets on the fixed gate track.
    - Use a level to ensure all ceiling brackets are level with the first installed ceiling bracket.
3. Install the transition gate components
    a. Review the components of the transition gate being installed.
        - Figure 84 lists and illustrates the components of a transition gate.

Figure 84: ***Transition Gate Components***

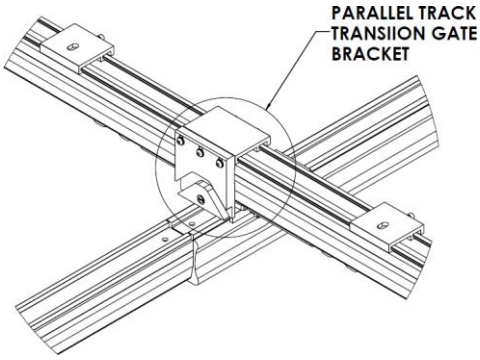
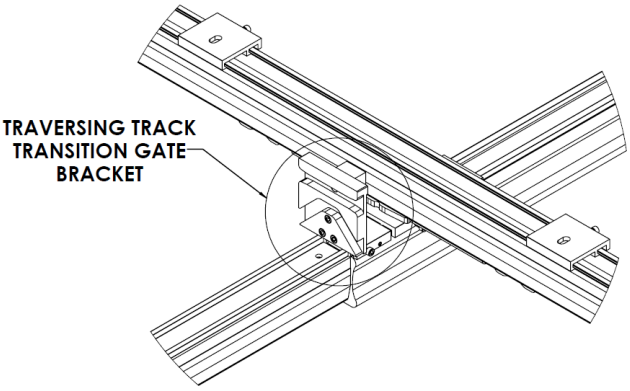
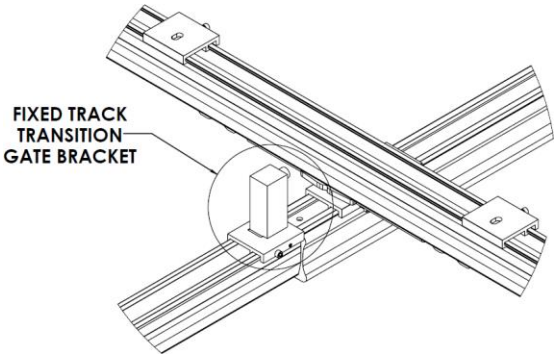
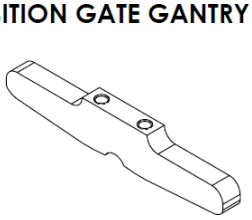
Component Name	Component Illustration
Parallel track transition gate bracket (TGB)	
Traversing track transition gate bracket (TGB)	
Fixed track transition gate bracket (TGB)	
Transition gate gantry plate	

Figure 85 shows a fully assembled transition gate.

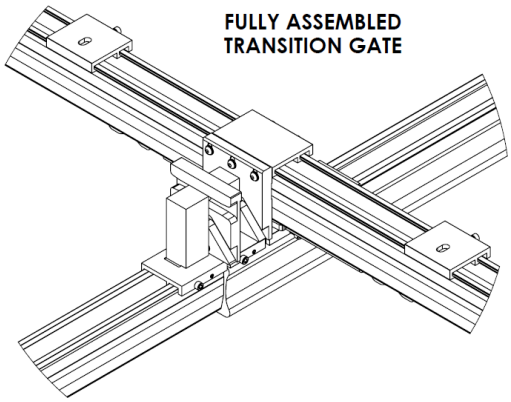


Figure 85: ***Fully Assembled Transition Gate***

4. If necessary, use a chop saw with a blade suitable for cutting aluminum to cut the track to size.
    - Keep cuts at 90°.
    - Clean all cut edges to remove burrs and aluminum shavings that can damage the ceiling lift.

NOTE:	**When cutting track to length, always cut the non-gate end of the track.**

NOTE:	**The gate side of the traversing track must cantilever 3 3/4” from the center line of the gate side parallel track.**

Prepare TGS Tracks

1. Prepare the Parallel Tracks:
    a. At all terminal ends of the track (the far points where the track ends), drill a hole to install a clevis pin and ring.
        1. At the terminal end, on each side of the track, mark a point 1 1/2” from the end of the track and 1 1/8” from the bottom of the track.
        2. Use a 5/16” bit to drill a hole at the marked spots for the clevis pin (see Figure 86).
        3. Remove burrs and aluminum shavings that can damage the ceiling lift.

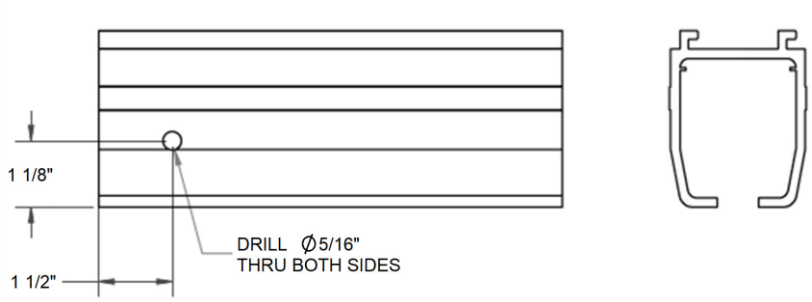


Figure 86: ***Clevis Pin Hole Location***

b. Affix the parallel track TGB to the gate side parallel track as shown in Figure 87.

- Make sure the parallel track TGB is positioned close to the location where the fixed gate track will meet the gate side parallel track.
- The parallel track TGB can be shifted as needed between ceiling brackets later.

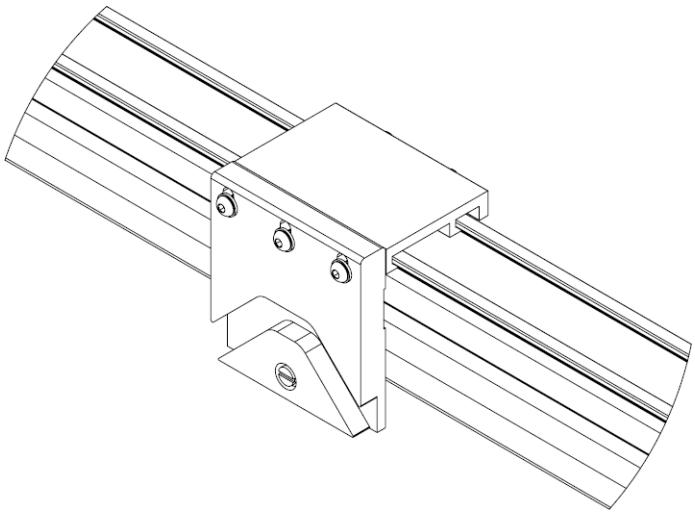


Figure 87: ***Parallel Track TGB Affixed to Gate Side Parallel Track***

2. Prepare the Traversing Track:

a. Drill a 1” diameter hole 1” from the gate side of the traversing track, centered across the width of the track, as shown in Figure 88.

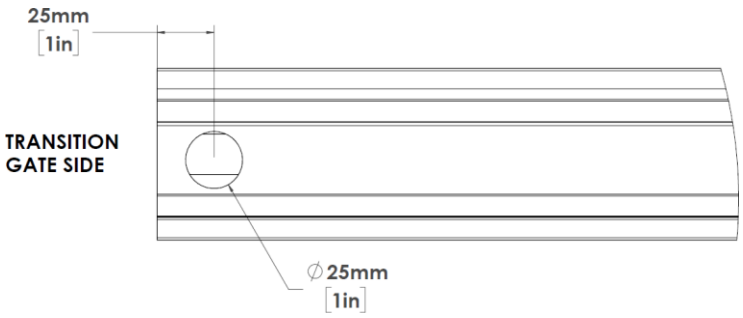


Figure 88: Traversing Track Hole

- For TrackPlus, the hole must be drilled through both surfaces (see Figure 89).

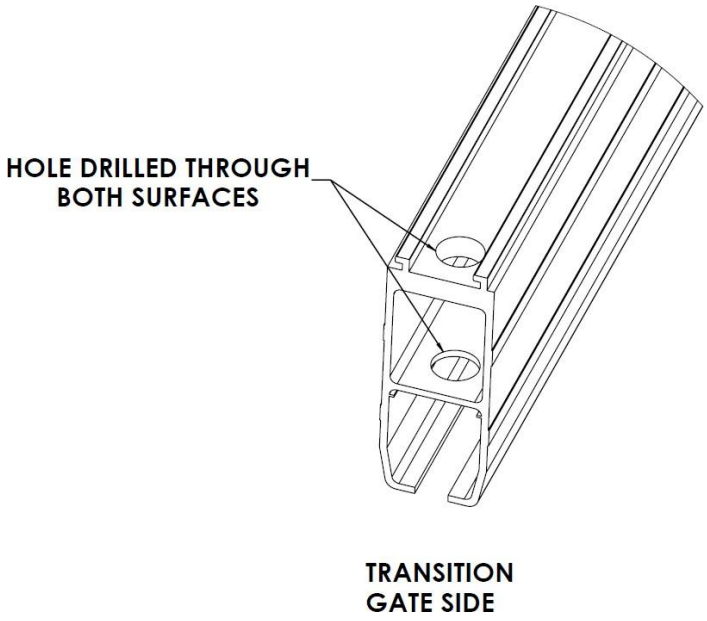


Figure 89: ***TrackPlus Track - Hole Drilled Through Both Surfaces***

- To ensure proper placement of the hole, note the direction of the L-shaped channel on top of the track and on the X/Y gantry trolley.

b. Mount the traversing track TGB to the traversing track (Figure 90).

- Make sure the bracket is flush with the end of the traversing track.
- Make sure the plunger can move up and down freely through the hole drilled in step 1.
- Tighten the set screws on the brackets until finger tight.

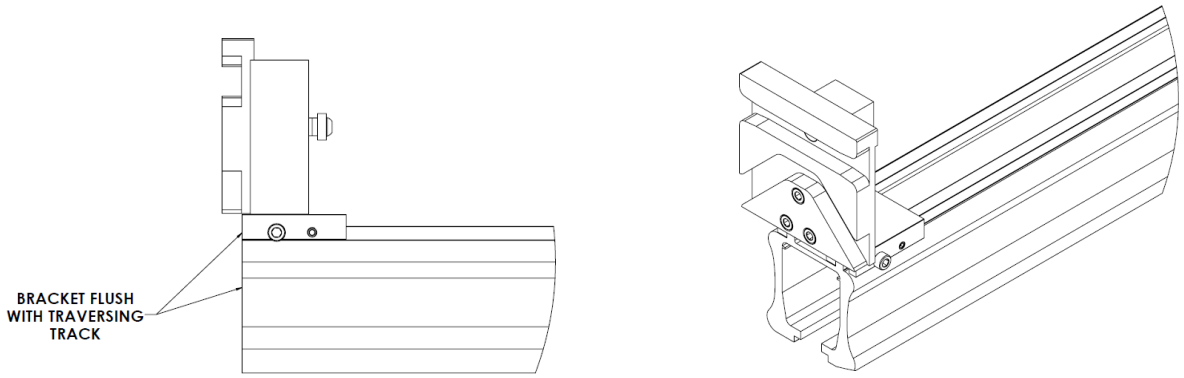


Figure 90: ***Traversing Track TGB Mounted to the Traversing Track.***

3. Prepare the Fixed Gate Track:

a. Drill a 1” diameter hole 1” from the gate side of the fixed gate track, centered across the width of the track (Figure 91).

- To ensure proper placement of the hole, note the direction of the L-shaped channel on top of the track and on the ceiling brackets for the fixed gate track.

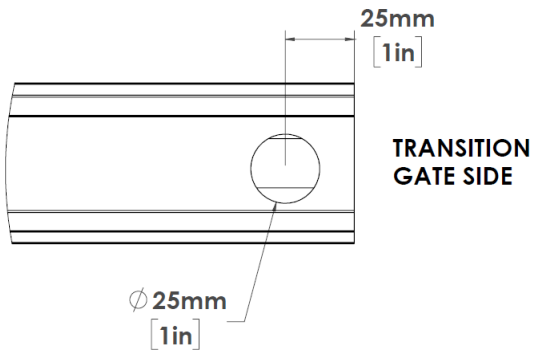


Figure 91: ***Fixed Gate Hole Position***

b. Mount the fixed track TGB to the fixed gate track (see Figure 92).

- Make sure the plunger can move up and down freely through the hole drilled in step 1.
- Tighten the set screws on the brackets until finger tight.

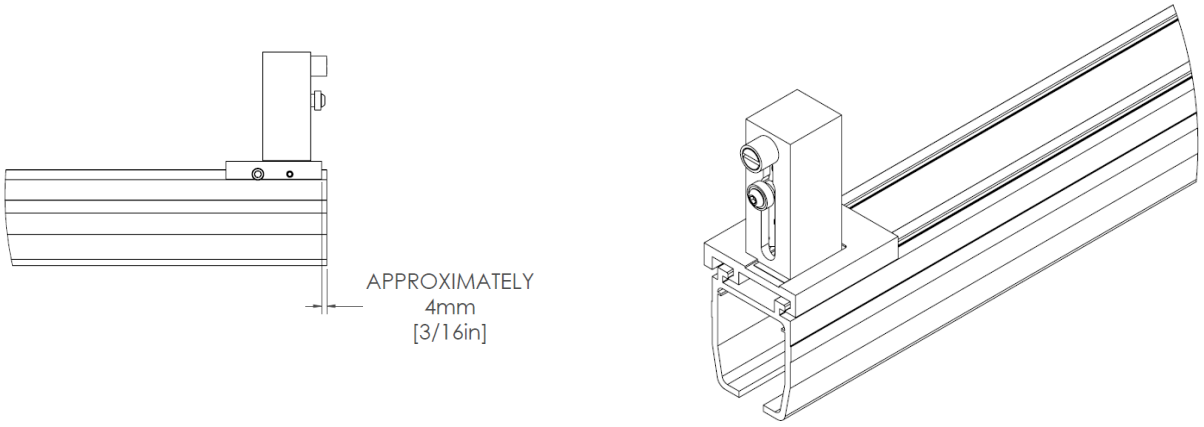


Figure 92: ***Fixed Track TGB Mounted to the Fixed Gate Track***

4. Prepare the X/Y Gantry Trolley:

a. Install the transition gate gantry plate on the X/Y gantry trolley closest to the transition gate as shown in Figure 93.

- Apply Blue Loctite 243 to each provided screw and tighten.

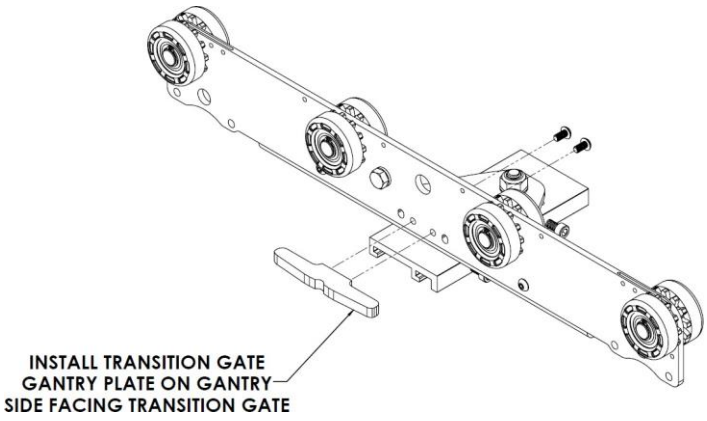


Figure 93: ***Transition Gate Gantry Plate Installation***

b. Install the charging system. See “X/Y Gantry Charging Systems” (Page 19).

Install TGS Tracks

1. Install the parallel tracks:
   - The parallel track TGB can be shifted as needed between ceiling brackets.
   - Proper alignment of the parallel track TGB and final tightening of set screws is done once all tracks and transition gate components are installed.
     a. Hang the parallel tracks in the ceiling brackets.
        - Make sure the alignment tabs are fully seated, as shown in Figure 94.

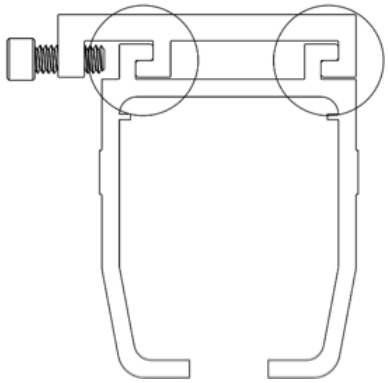


Figure 94: ***Track alignment tabs, fully seated in bracket***

- If multiple pieces of parallel track are being connected,
  - Use a 6” bracket where the track sections butt against each other.
  - Make sure there is no gap between the track sections (Figure 95).

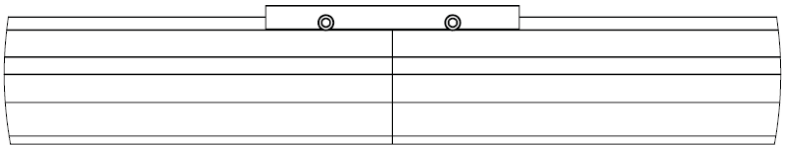


Figure 95: ***Track Sections Butted Together With No Gap***

a. As each section is hung, tighten the set screws on the brackets until finger tight.
b. Once all sections are hung, aligned properly, and level, go to each ceiling bracket set screw and:
   1. Apply Blue Loctite 243 to each.
   2. Torque each to 40–45 in lbs.

	**Never force the track into the bracket. If the track does not easily install into the grooves, something is out of level or out of square.**

	**Never use the set screw to get the track to slide into the grooves. The set screw should freely spin into the face of the track without resistance.**

2. Install the traversing track and X/Y gantry:

a. Hang the traversing track by inserting it into the track brackets on the gantry.

- Position the traversing track TGB (already mounted to the traversing track) so that the channel on the parallel track TGB aligns with the plunger bearing (Figure 96).

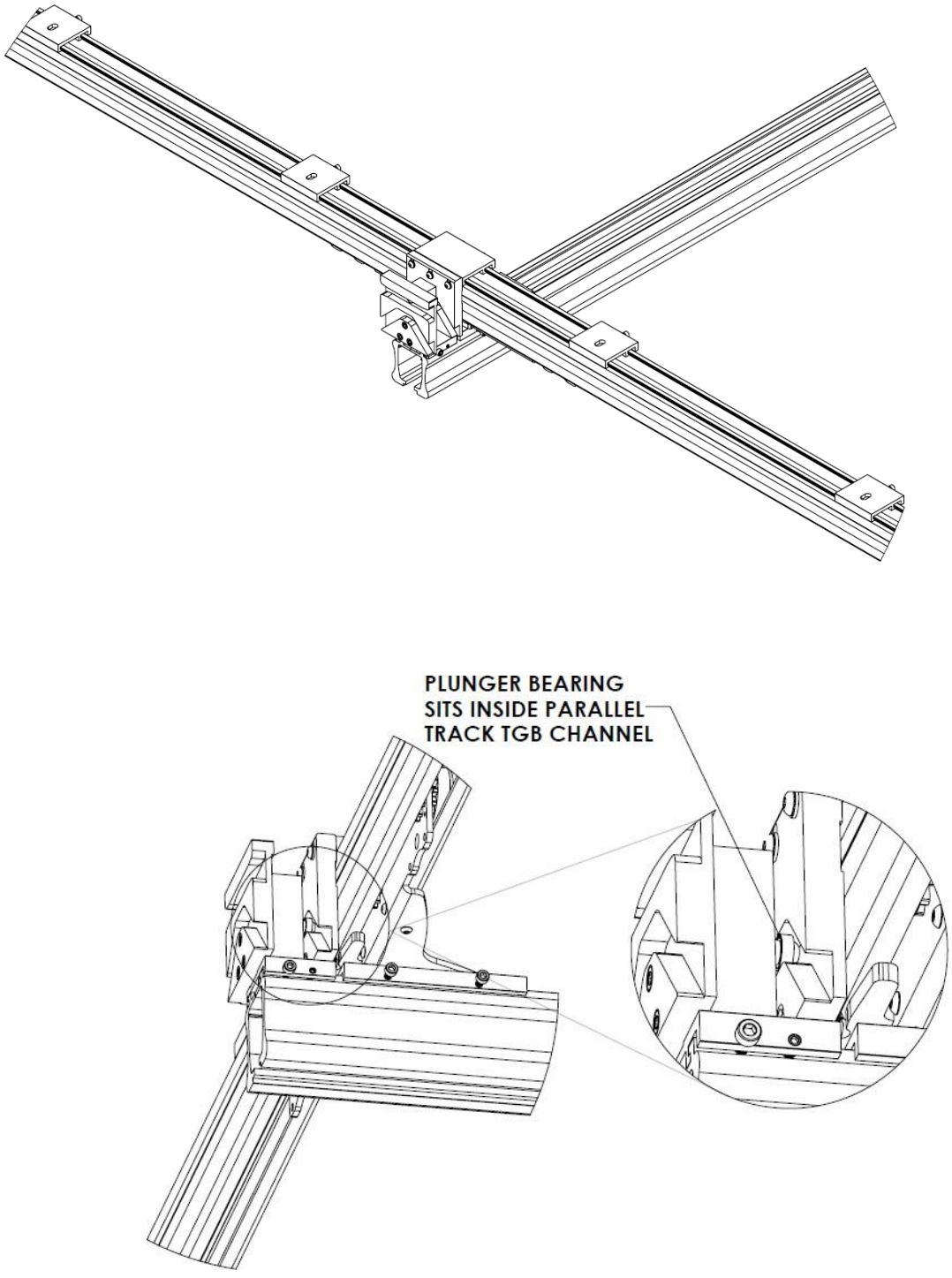


Figure 96: ***TGB Parallel Track Channel Aligns with the Plunger Bearing***

b. On both gantry brackets, install the included bracket strips (360449) within the track channel and tighten the set screws, as shown in Figure 97. To insert the bracket strip:

1. Loosen one set screw on the gantry bracket.
2. Slide the bracket strip into the channel until it contacts the tightened set screw.
3. Make sure the bracket strip is seated in between the two set screws.
4. Apply Blue Loctite 243 to all the set screws and torque each to 40–45 in lbs.

Make sure that the 6” ceiling bracket strip is properly installed between the screws of the gantry trolley bracket.

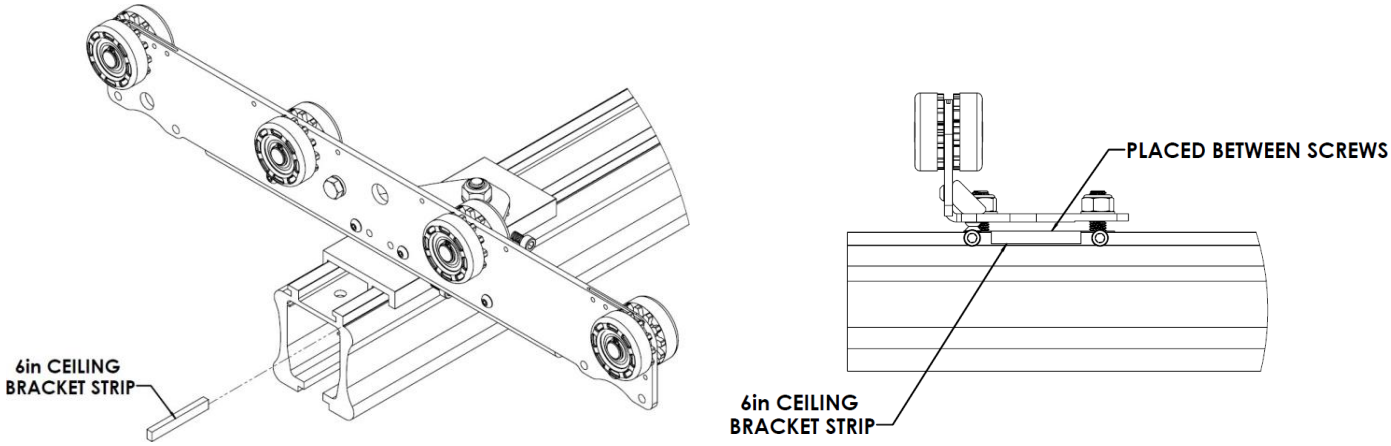


Figure 97: ***Bracket Strip Installation***

3. Install the fixed gate track:

a. Hang the fixed gate track in the ceiling brackets.

- Make sure the alignment tabs are fully seated, as shown in Figure 98.

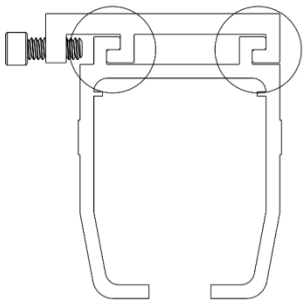


Figure 98: ***Track alignment tabs, fully seated in bracket***

b. As each section is hung, tighten the set screws on the brackets until finger tight.

c. Position the end of the track (transition gate side) so there is 1/16” gap between the fixed gate track and the end of the traversing track.

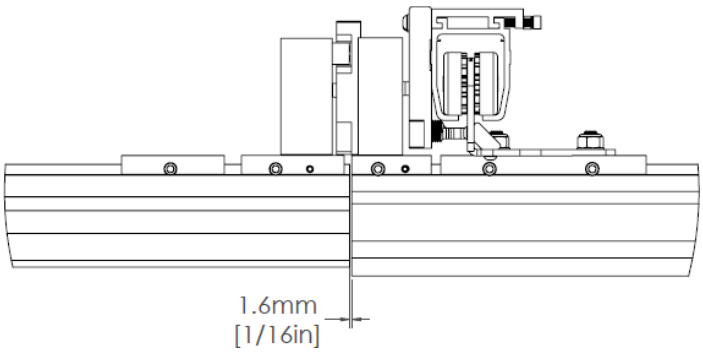


Figure 99: ***1/16" Gap Between Fixed Gate Track and the End of the Traversing Track***

- Make sure the plunger bearing aligns with the traversing track TGB channel.

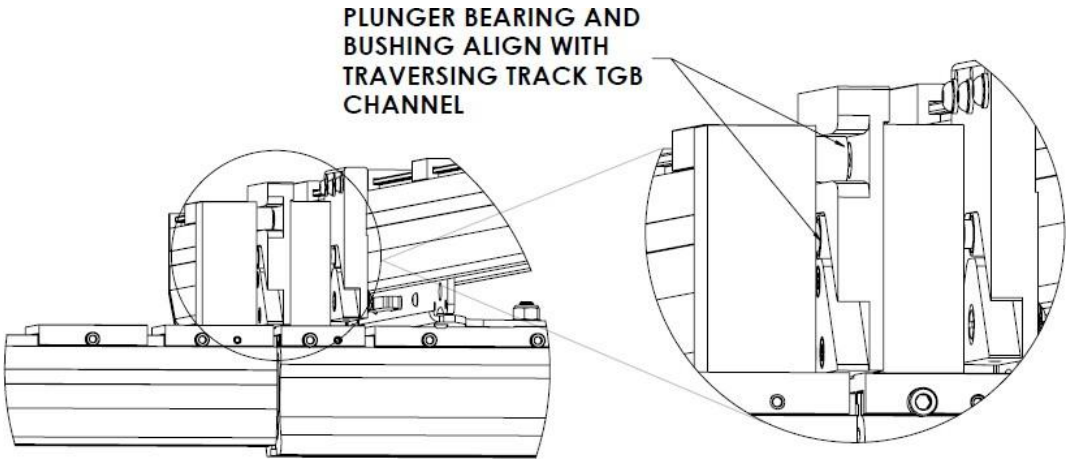


Figure 100: ***Plunger Bearing Aligns with the Traversing Track TGB Channel***

d. Once all sections are hung, aligned properly, and level, go to each ceiling bracket set screw and:
   1. Apply Blue Loctite 243 to each.
   2. Torque each to 40–45 in lbs.

ⓘ	**Never force the track into the bracket. If the track does not easily install into the grooves, something is out of level or out of square.**

⚠	**Never use the set screw to get the track to slide into the grooves. The set screw should freely spin into the face of the track without resistance.**

4. Align and tighten the transition gate components.
   a. Apply Blue Loctite 243 to the fixed track TGB set screws and torque each to 40–45 in lbs.
   b. Align the traversing track and the fixed gate track so they are centered with each other.
      - Position the parallel track TGB so the threaded spring plunger sits centered in the transition gate gantry plate.
   c. Apply Blue Loctite 243 to the parallel track TGB set screws and torque each to 40–45 in lbs.
      - The threaded spring plunger on the parallel TGB can be adjusted to increase or decrease the force required to lock the traversing rail on-center with the fixed gate track.
      - To adjust the threaded spring plunger position, loosen the 2.5mm set screw on the bottom side of the parallel track TGB (Figure 101). The threaded spring plunger can then be adjusted towards or away from the transition gate gantry plate. Lock the plunger back into place by tightening the 2.5mm set screw.

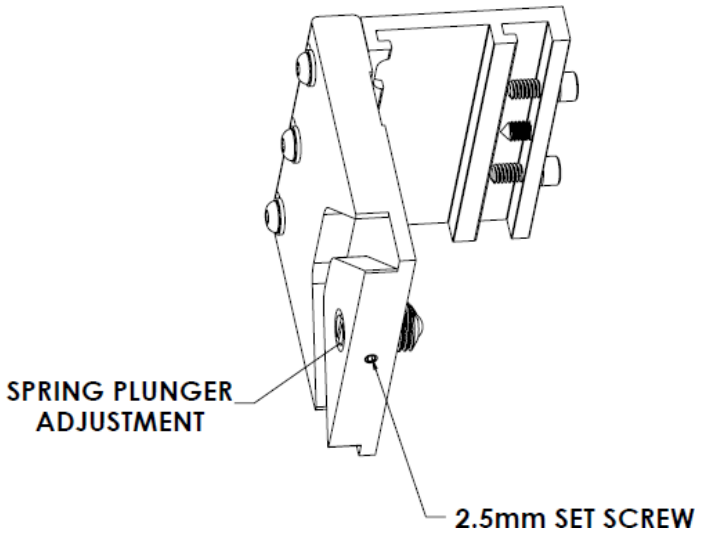


Figure 101: ***Adjust the Threaded Spring Plunger***

d. Apply Blue Loctite 243 to the traversing track TGB set screws and torque each to 40–45 in lbs.

e. Slide the traversing track and gantry along the parallel tracks through the transition gates to ensure proper alignment between all plate channels and bearing plungers.

- If necessary, use the provided shims to fine-tune the alignment.

5. Install the power supply.
   - Follow the steps in “POWER SUPPLY INSTALLATION” (Page 165).
6. Install the ceiling lift.
   - Follow the steps in “CEILING LIFT INSTALLATION” (Page 169).
   - Make sure ceiling lift can travel from the traversing track to the fixed gate and back without any issues.
7. Install the carry bar. Follow the instructions included with the carry bar.
8. At all terminal ends,
   - Install the standard endstop and torque bolts to 12–14 ft lbs.
   - Install the clevis pin and ring as shown in Figure 102.

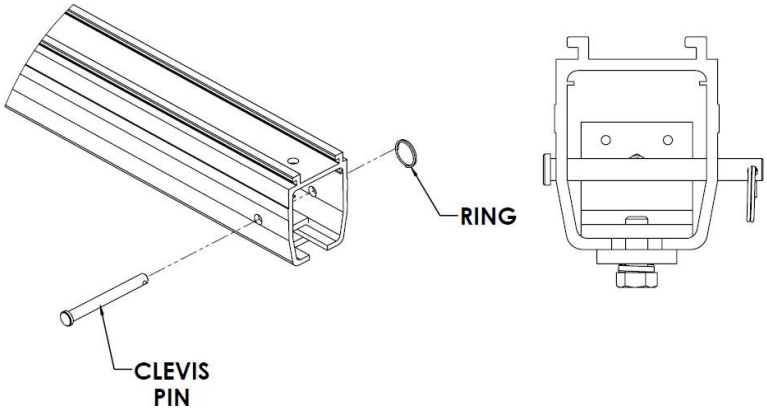


Figure 102: ***Clevis Pin and Ring Installed***

9. Test and verify the system.
    - Follow the steps in “Testing and Inspection” (Page 170).
10. Install labels 620763 and 620764
    a. Install label 620763 on the fixed gate track within 6” of the transition gate.
    b. Install label 620764 on the traversing track 24” from the transition gate.

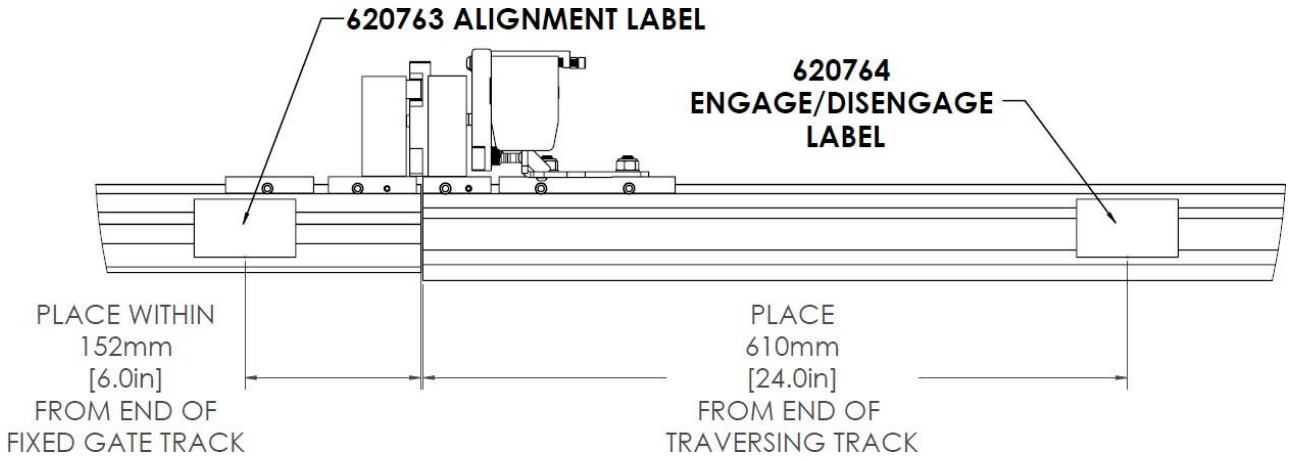


Figure 103: ***Install the Labels***

Quick Fit Turntable

A Quick Fit Turntable has four entry/exit points fixed at 90° from each other.

1. Determine the mounting points of the turntable.

    a. Use two lasers to find the 90° intersection of the two or more sections of track the turntable will connect.

i	**Because the track must meet the turntable precisely, mounting the turntable first sets the height for all other brackets in this installation, to ensure the entire track system is level throughout.**

i	**If a bracket elsewhere on the installation must be lower than the turntable, drop the turntable to that lower bracket's height to establish the height for the system throughout.**

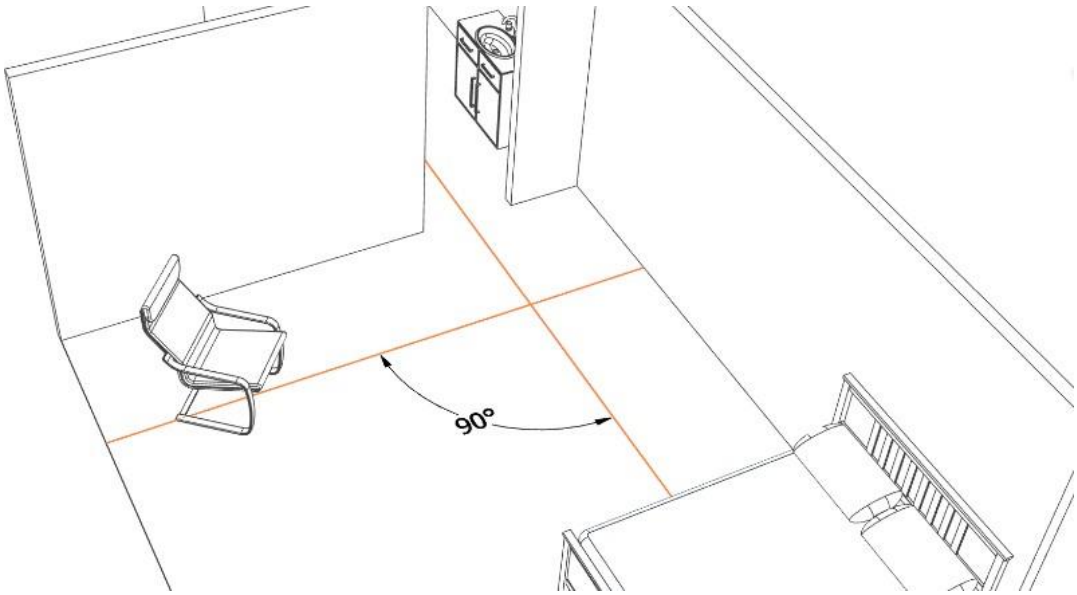


Figure 104: ***Find the 90° Track Intersection***

a. Mark the intersection of those lines as the center point of the turntable.

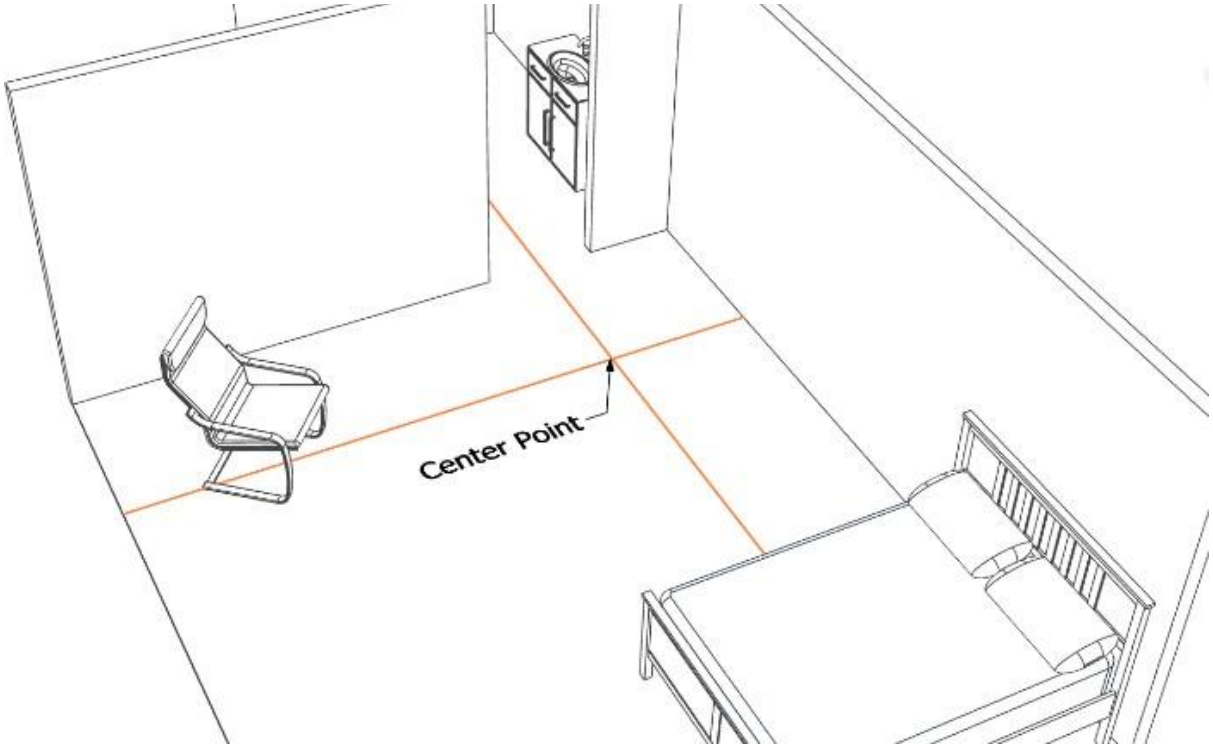


Figure 105: Mark the Center Point

b. From that center point, measure out 5 3/4” in all four directions, 90° from each other, to locate the mounting points and mark them

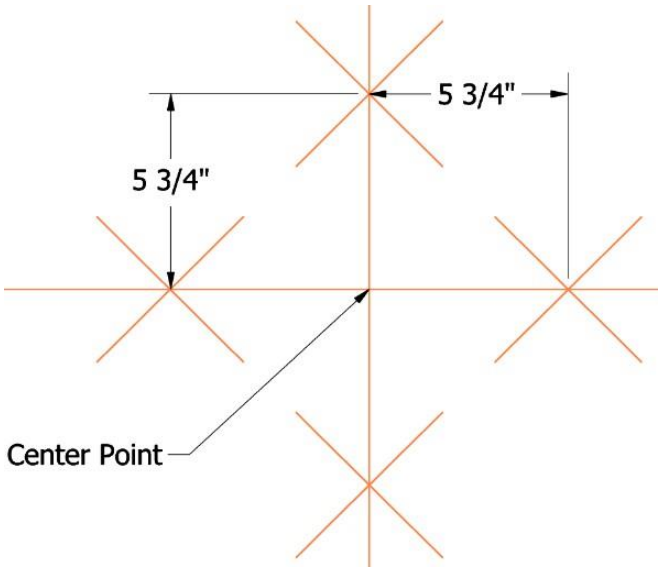


Figure 106: Locate and Mark the Mounting Points

2. Attach appropriate mounting hardware to the turntable.
    - At the mounting hole locations on the turntable:
        1. Insert a 3/8” x 1 1/2” hex bolt from beneath the turntable plate.
        2. Place a lock washer on the bolt on top side of the turntable plate.
        3. Thread a 3/8” coupling nut onto the bolt and tighten down.

- *If directly installing into wood blocking, or if the attachment point falls on center with a ceiling joist, a 3/8" structural wood screw may be used as an alternative to the mounting hardware above.*

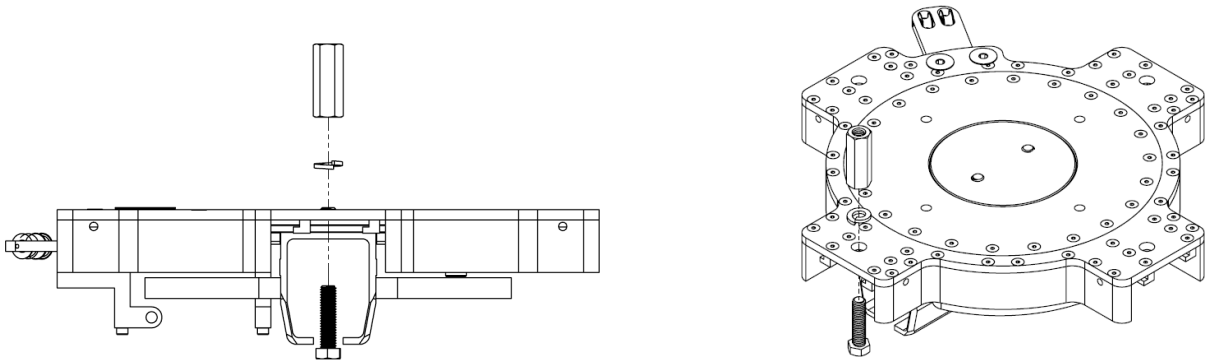


Figure 107: ***Attach Appropriate Mounting Hardware***

3. Mount the turntable to the structure. See "Attaching To Structure" (Page 81).
    - Make sure the turntable is level.
4. Using a level or laser line, install the remaining ceiling track brackets and ceiling track for the system at the same height as the turntable. See "TRACK LAYOUT AND INSTALLATION" (Page 8).

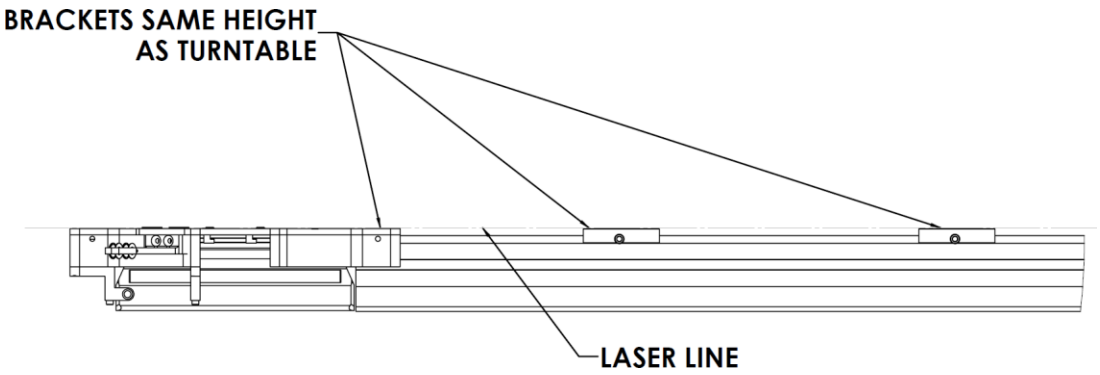


Figure 108: ***Install the Remaining Ceiling Track Brackets and Ceiling Track for the System at the Same Height as the Turntable***

- The gap between the connected fixed tracks and rotating track on the turntable should be as narrow as possible without obstructing proper rotation of the turntable. The gap should be less than 1/8".

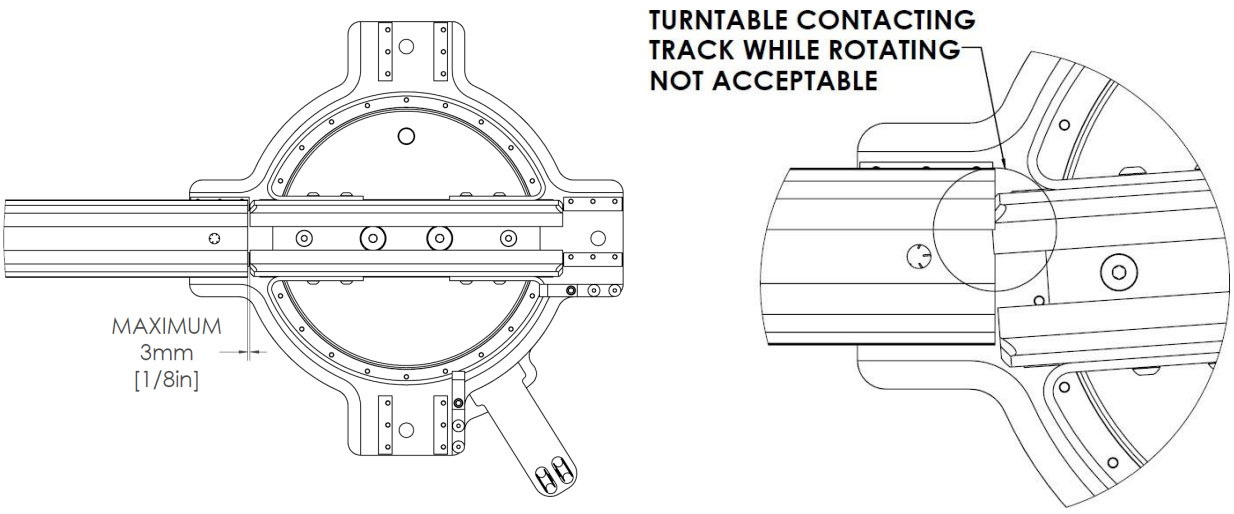


Figure 109: ***Gap Should be as Narrow as Possible Without Obstructing Proper Rotation***

- Stop brackets must be installed at all entry/exit points where there is no track connected to prevent the ceiling lift from falling.

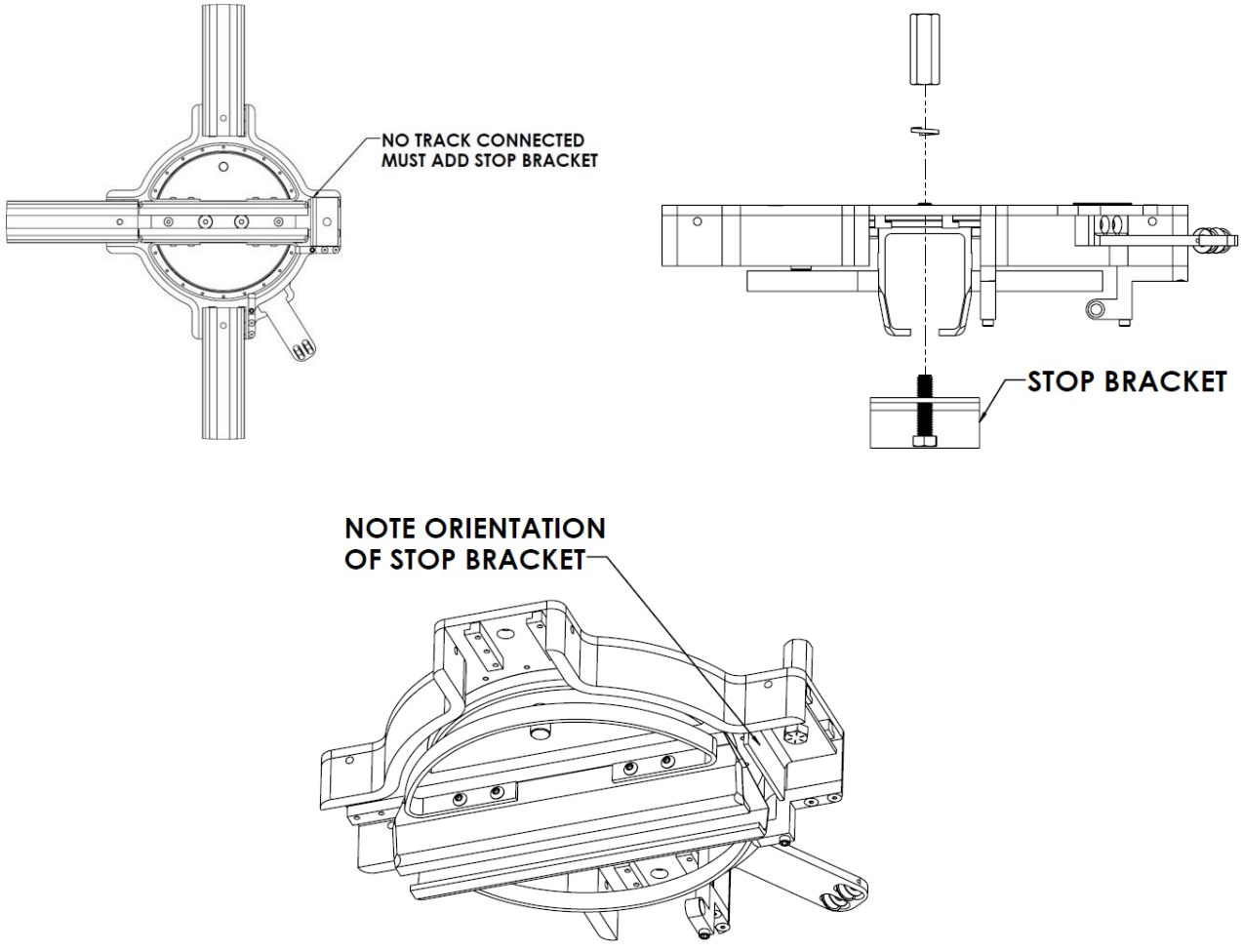


Figure 110: Install Stop Brackets at All Entry/Exit Points Where There is No Track

Multiport Manual Turntable

The multiport manual turntable has 13 entry/exit point options to accommodate virtually any angle of track path from the turntable.

ⓘ	**Because the track must meet the turntable precisely, mounting the turntable first sets the height for all other brackets in this installation, to ensure the entire track system is level throughout.**

ⓘ	**If a bracket elsewhere on the installation must be lower than the turntable, drop the turntable to that lower bracket's height to establish the height for the system throughout.**

ⓘ	**Curves that come directly from a turntable must have a minimum of 4" (100mm) of straight track between the turntable and the curve, otherwise the lift cannot pass from the turntable to the track.**

To mount the turntable to the ceiling:

1. Determine the center point of the turntable.
    a. Use two lasers to represent the intersection of the track center lines entering and exiting the turntable.
        - Because the turntable has fixed entry and exit points, the lines must intersect at increments of 22.5°.
            - This can be accomplished simply by placing the turntable on the floor and using it as a template to ensure the track center lines align with the ports on the turntable.
            - Position the turntable so the pull cord is easily accessible and doesn't interfere with the track.

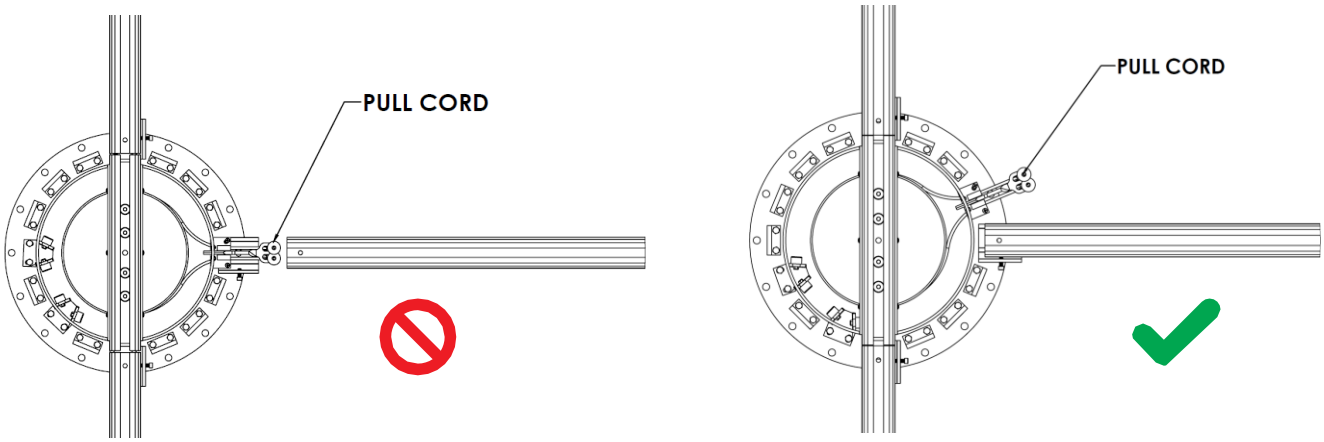


Figure 111: ***Turntable Pull Cord Easily Accessible and Doesn't Interfere with the Track***

    b. On the ceiling, mark the intersection of the laser lines as the center point of the turntable.
    c. From that center point, measure out 8 1/2" in four directions 90° from each other to locate and mark on the ceiling the four mounting points.

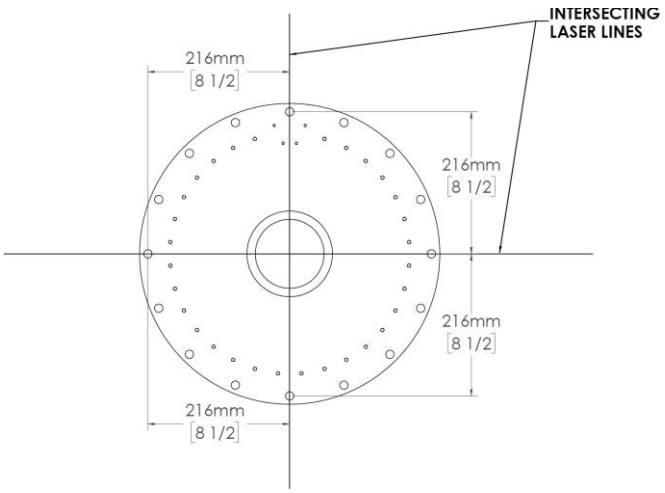


Figure 112: ***Mark the Intersection of the Laser Lines as the Center Point***

- Use a plumb bob to ensure the mounting points align with the holes on the turntable plate.
- *If the track intersects a mounting point, shift the mounting point to the next closest hole on the turntable plate.*

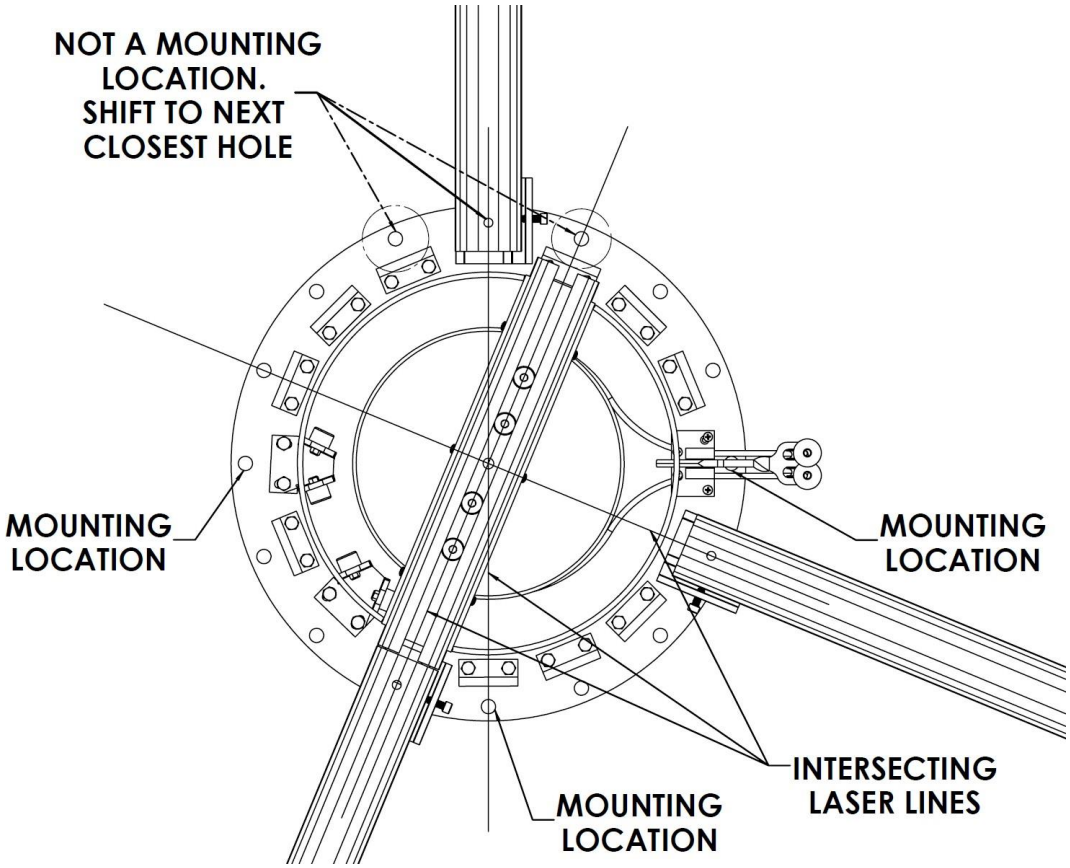


Figure 113: ***Ensure the Mounting Points Align with the Holes on the Turntable Plate***

2. If necessary, the rubber bumpers on the turntable can be moved to different ports for proper alignment of entry and exit tracks.

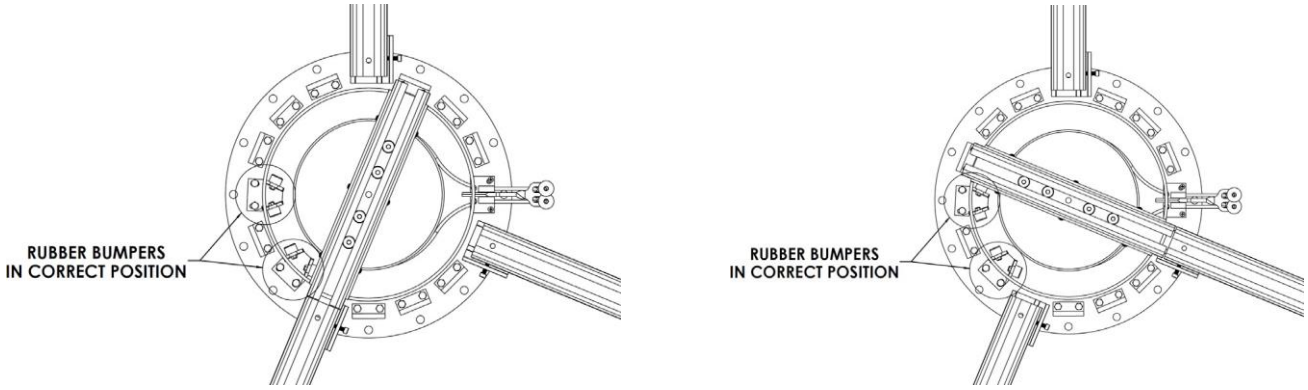


Figure 114: ***Correct Rubber Bumper Positioning***

- Stop brackets must be installed at all ports where no rubber bumper or entry/exit points are located, to prevent the ceiling lift from falling.

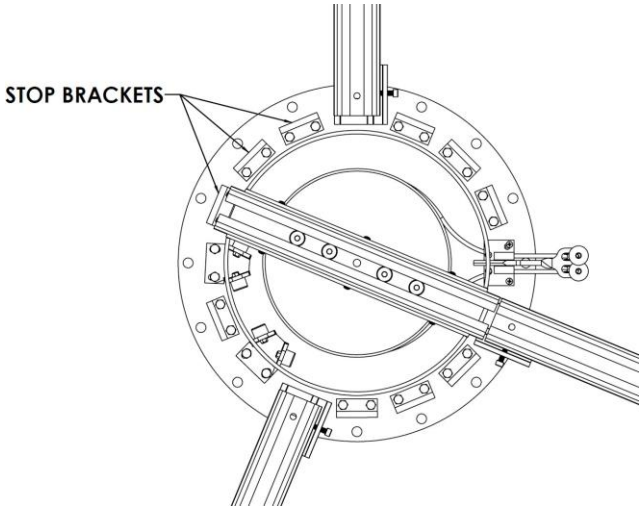


Figure 115: ***Stop Bracket Installation***

3. Attach the included track brackets directly to the turntable at the necessary take-off points (indicated by the laser lines) using the supplied nuts and bolts, with the lock washer on the top side of the turntable plate.

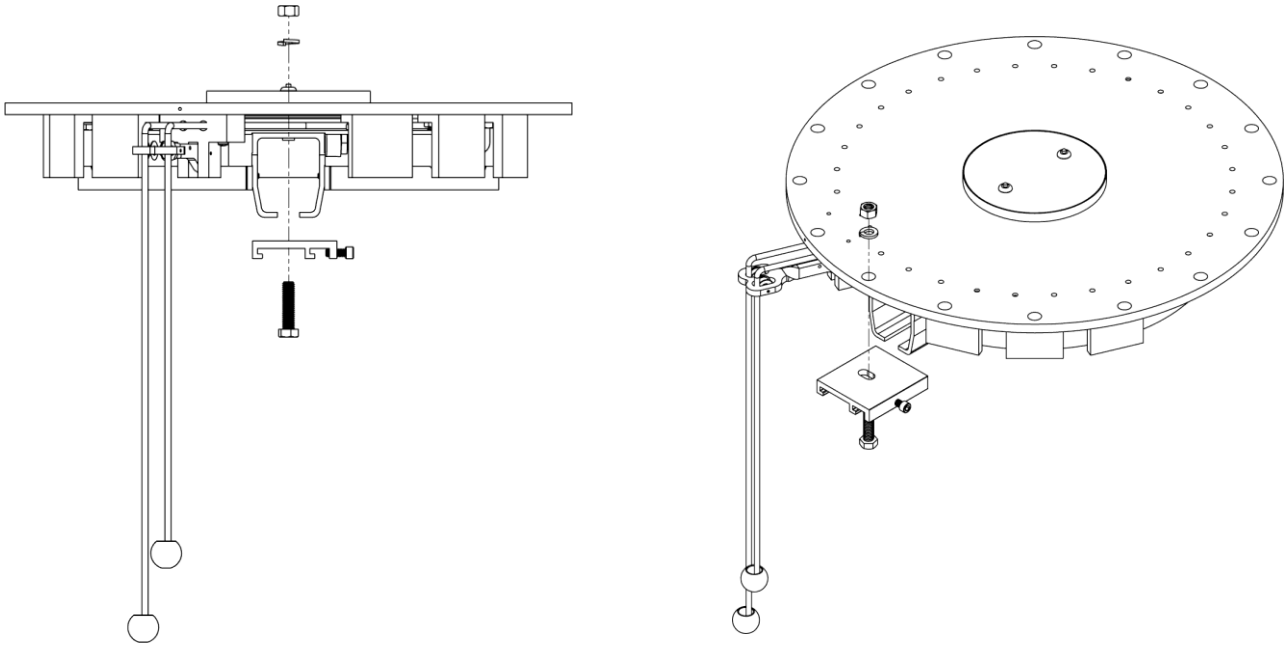


Figure 116: ***Attach the Track Brackets***

4. Attach appropriate mounting hardware to the turntable.
    - At the marked mounting hole locations,
        1. Insert a 3/8” x 1 1/2” hex bolt from beneath the turntable plate.
        2. Place a lock washer on the bolt on top side of the turntable plate.
        3. Thread a 3/8” coupling nut onto the bolt and tighten down.
            - *If directly installing into wood blocking, or if the attachment point falls on center with a ceiling joist, a 3/8” structural wood screw may be used as an alternative to the mounting hardware above.*
            - Shims (minimum 1/2”) are required for proper spacing between the turntable and the ceiling.

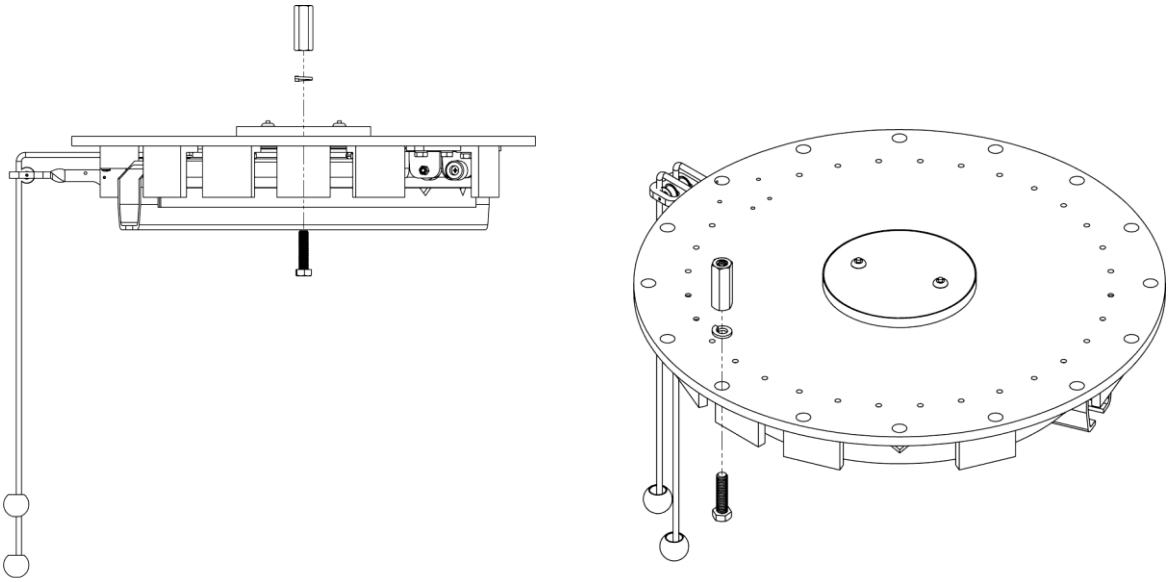


Figure 117: ***Attach Appropriate Mounting Hardware***

5. Mount the turntable to the structure. See “Attaching To Structure” (Page 81).
    - Make sure the turntable is level.
6. Using a level or laser line, install the remaining ceiling track brackets and ceiling track for the system at the same height as the turntable. See “TRACK LAYOUT AND INSTALLATION” (Page 8).

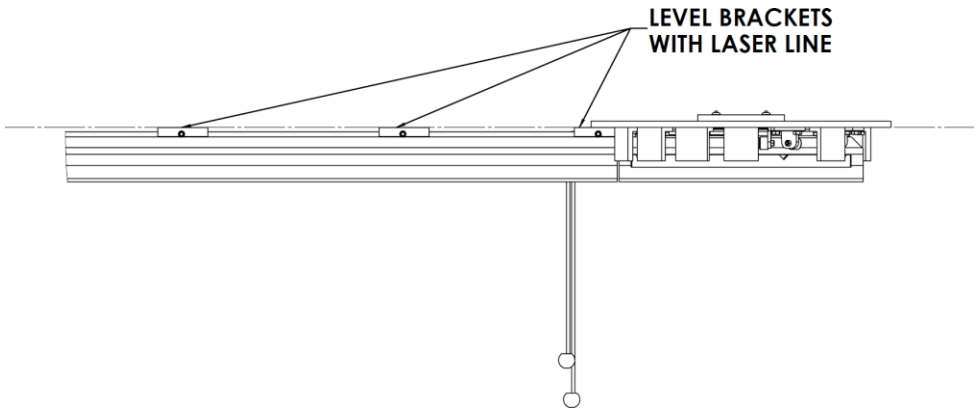


Figure 118: ***Install the Remaining Ceiling Track Brackets at the Same Height as the Turntable***

- The gap between the connected fixed tracks and rotating track on the turntable should be as narrow as possible without obstructing proper rotation of the turntable.

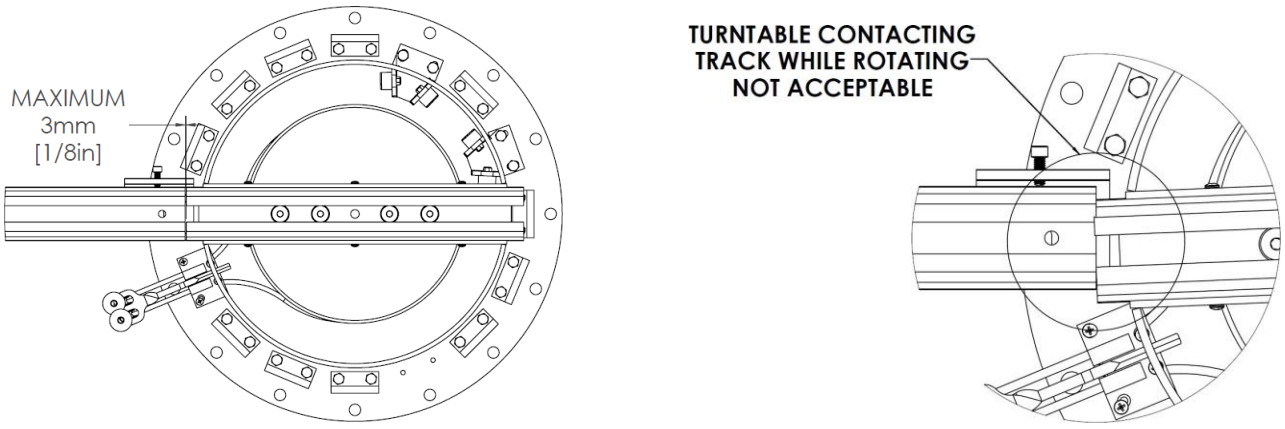


Figure 119: ***Gap Should be as Narrow as Possible Without Obstructing Proper Rotation***

Multiport Power Turntable

The multiport power turntable has 13 exit point options to accommodate virtually any angle of track path from the turntable. The turntable is powered by the ceiling lift.

i	**Because the track must meet the turntable precisely, mounting the turntable first sets the height for all other brackets in this installation, to ensure the entire track system is level throughout.**

i	**If a bracket elsewhere on the installation must be lower than the turntable, drop the turntable to that lower bracket's height to establish the height for the system throughout.**

i	**Curves that come directly from a turntable must have a minimum of 4" (100mm) of straight track between the turntable and the curve, otherwise the lift cannot pass from the turntable to the track.**

To mount the turntable to the ceiling:

1. Remove the covers from the Multiport Power Turntable and set them aside.
    - The covers consist of one outer ring and two half-circles.
2. Determine the center point of the turntable.
    a. Use two lasers to represent the intersection of the track center lines entering and exiting the turntable.
        - Because the turntable has fixed entry and exit points, the lines must intersect at increments of 22.5°.
            - This can be accomplished simply by placing the turntable on the floor and using it as a template to ensure the track center lines align with the ports on the turntable.
        - Position the turntable so its motor and PCB do not interfere with any of the entry or exit points (Figure 120).

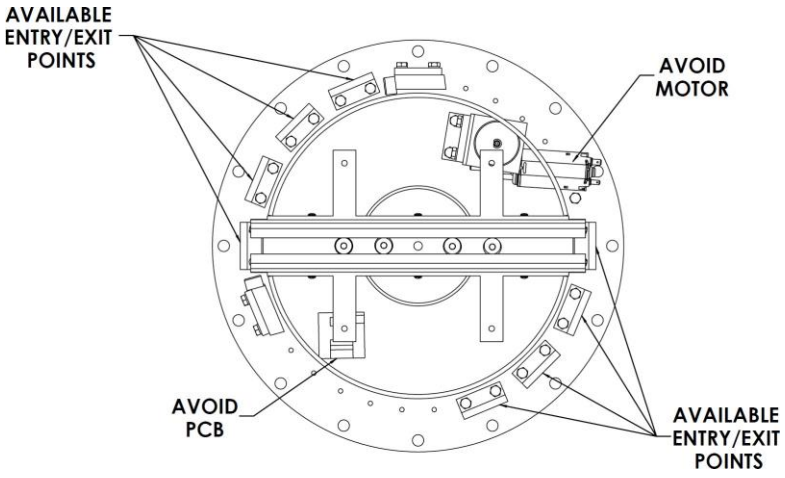


Figure 120: ***Motor Positioned to Not Interfere with Entry or Exit Points***

        - Position the turntable so the power contact inside the turntable track is farthest from where the ceiling lift will charge.
            - The power contact inside the turntable track receives power from the ceiling lift (Figure 121)
            - The contacts that send power to the turntable are located on the emergency down pull cord side of the ceiling lift.

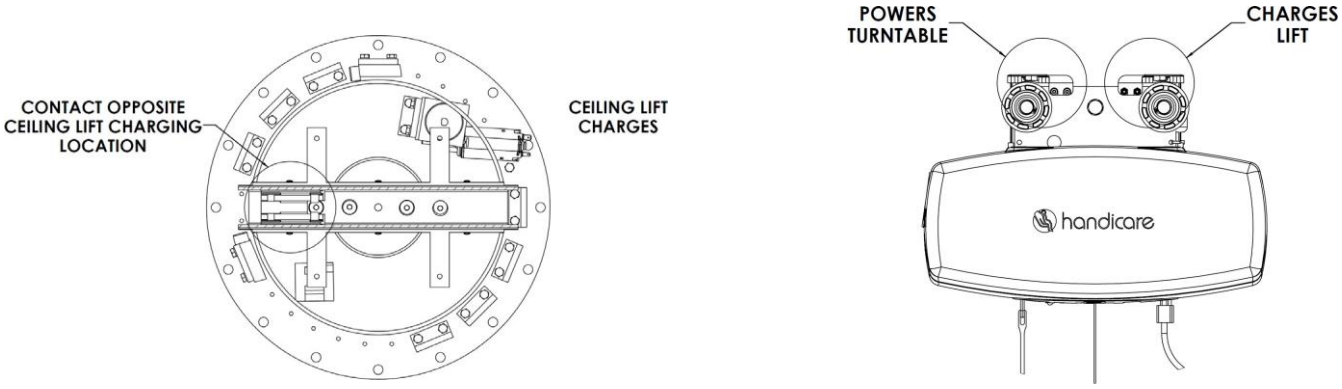


Figure 121: ***Turntable Power Contacts***

b. On the ceiling, mark the intersection of the laser lines as the center point of the turntable.

c. From that center point, measure out 8 1/2” in four directions 90° from each other to locate the four mounting points and mark them on the ceiling.

d. Use a plumb bob to ensure the mounting points align with the holes on the turntable plate.

e. If the track intersects a mounting point, shift the mounting point to the next closest hole on the turntable plate.

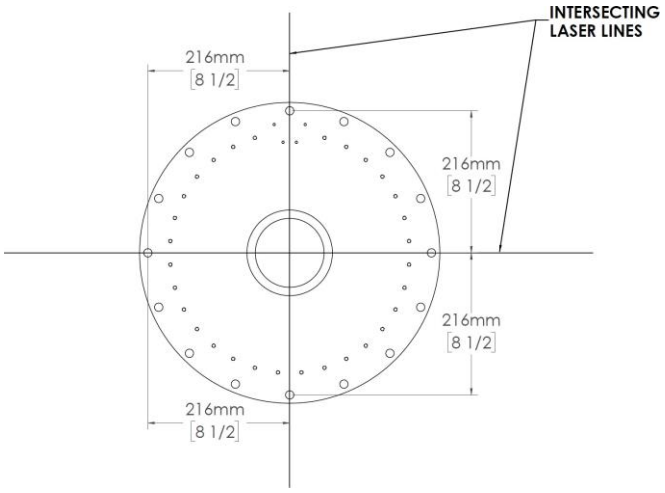


Figure 122: ***Locate the Four Mounting Points and Mark Them on the Ceiling***

3. If necessary, move the rubber bumpers on the turntable to different ports for proper alignment of entry and exit tracks.
   - Stop brackets must be installed at all possible entry/exit points to prevent the ceiling lift from falling.
   - The position of the rubber bumpers will also limit the possible entry/exit points.

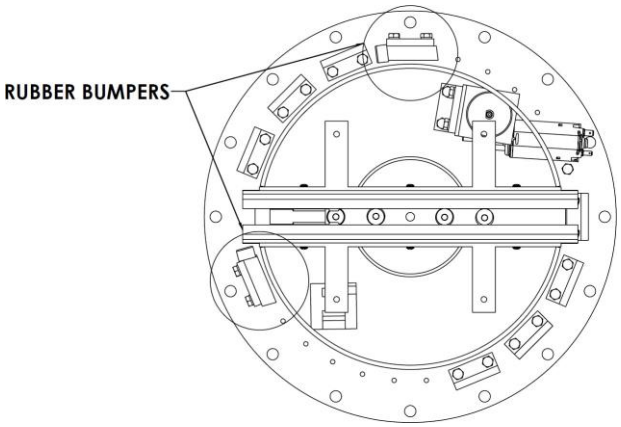


Figure 123: ***Rubber Bumper Locations***

4. Attach the track brackets directly to the turntable at the necessary take-off points (indicated by the laser lines) using 3/8” nuts and bolts, with a lock washer on the top side of the turntable plate.

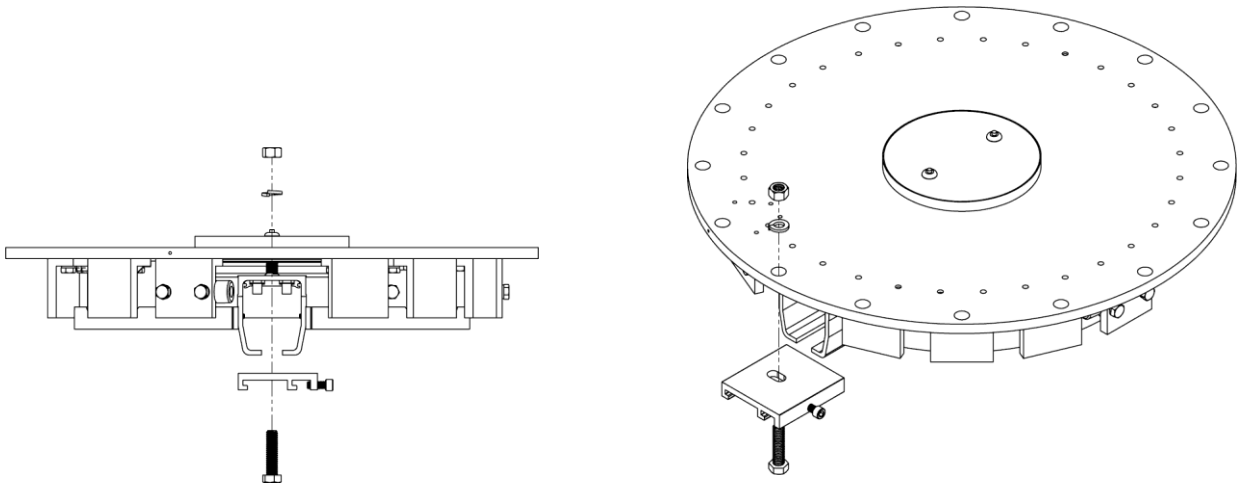


Figure 124: ***Attach the Track Brackets Directly to the Turntable***

5. Attach appropriate mounting hardware to the turntable.
    - At marked mounting hole location:
        1. Insert a 3/8” x 1 1/2” hex bolt from beneath the turntable plate.
        2. Place a lock washer on the bolt on top side of the turntable plate.
        3. Thread a 3/8” coupling nut onto the bolt and tighten down.
            - *If directly installing into wood blocking, or if the attachment point falls on center with a ceiling joist, a 3/8” structural wood screw may be used as an alternative to the mounting hardware above.*
            - Shims may be required for proper spacing between the turntable and the ceiling.

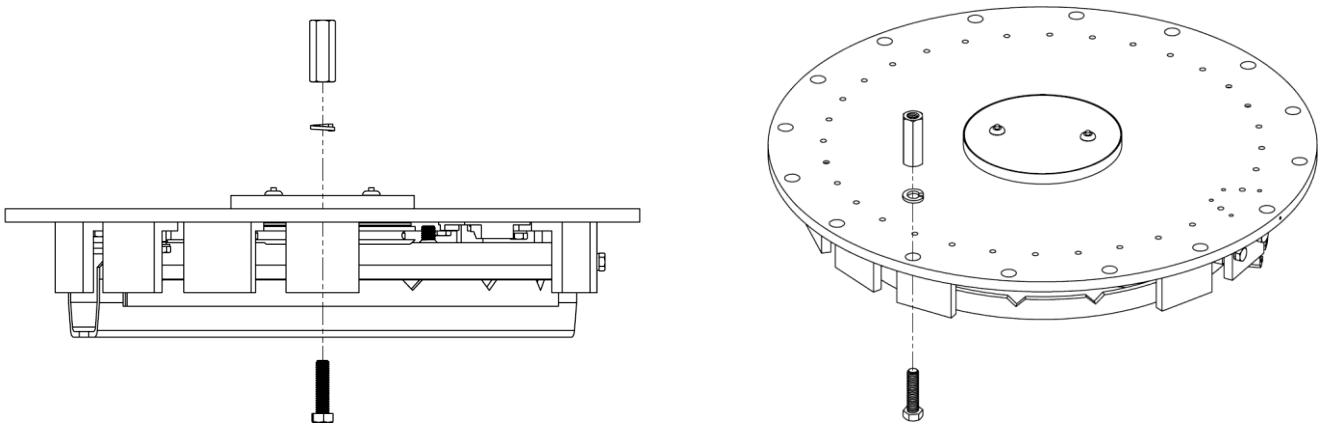


Figure 125: ***Attach Appropriate Mounting Hardware to the Turntable***

6. Mount the turntable to the structure. See “Attaching To Structure” (Page 81).
    - ***Make sure the turntable is level.***

7. Using a level or laser line, install the remaining ceiling track brackets and ceiling track for the system at the same height as the turntable. See “TRACK LAYOUT AND INSTALLATION” (Page 8).

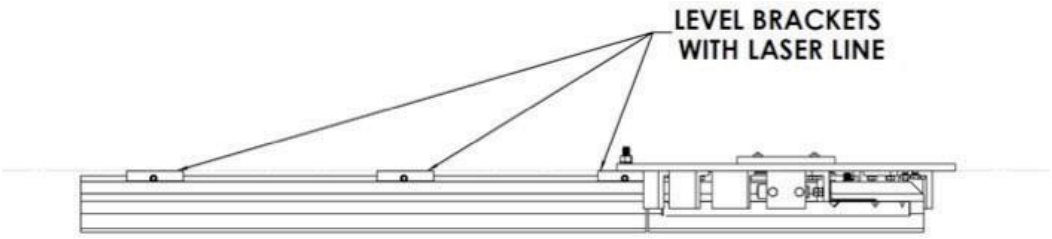


Figure 126: ***Install the Remaining Ceiling Track Brackets at the Same Height as the Turntable***

- The gap between the connected fixed tracks and rotating track on the turntable should be as narrow as possible without obstructing proper rotation of the turntable.

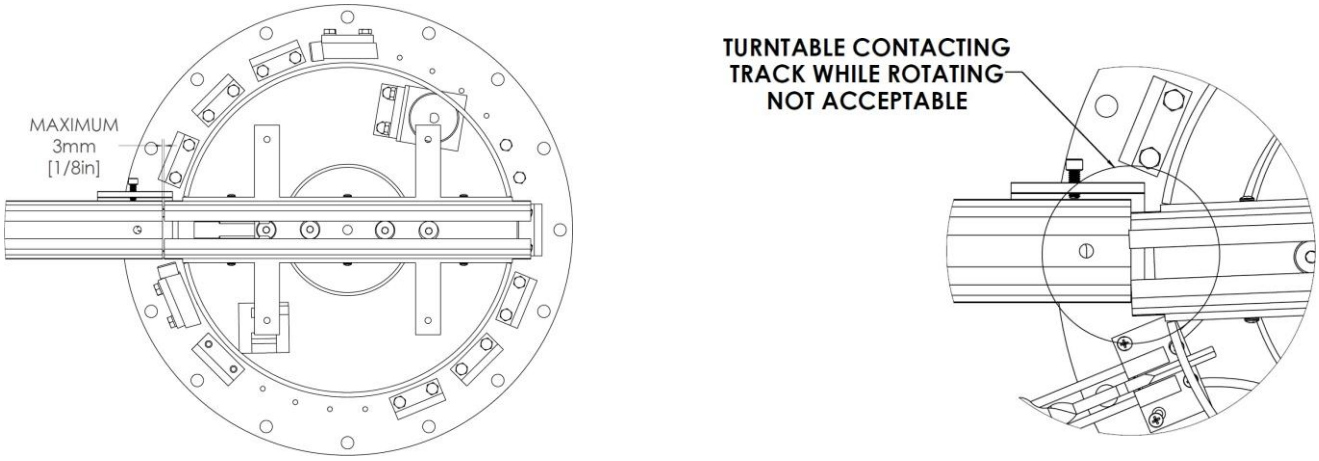


Figure 127: ***Gap Should be as Narrow as Possible Without Obstructing Proper Rotation***

8. Cut the outer ring cover at the entry and exit points.
   a. Use two screws to mount the outer ring cover on the turntable.
   b. At each entry/exit point, mark the center line of the turntable cover mounting slots (where the screws align with the turntable plate).
   c. Measure 1 9/16” to both sides of the center lines (this is where the cuts will be made on the outer ring cover).

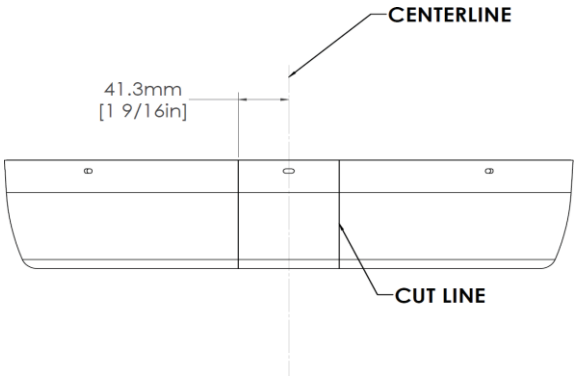


Figure 128: ***Mark the Outer Ring Cover 1 9/16” to Each Side of the Center Lines***

d. Once all entry/exit points are marked, remove the outer ring cover.

e. Use a band saw to make straight cuts at the marked locations on the outer ring cover.

9. Use mounting screws to reinstall the covers (both the half-circles and the cut sections of the outer ring cover) on the Multiport Power Turntable.

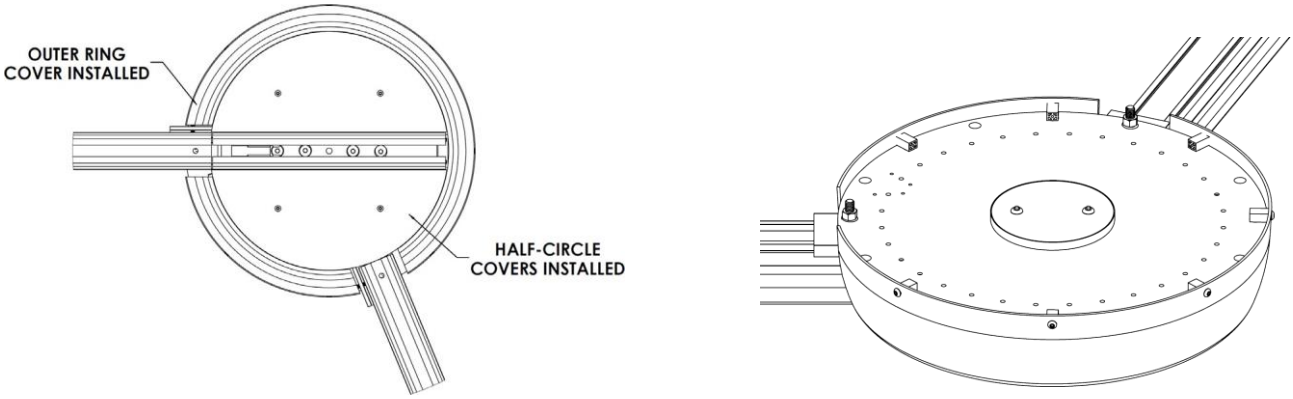


Figure 129: ***Reinstall the Covers***

10. Test to ensure the turntable still operates without obstruction.

Attaching To Structure

The Attaching to Structure section details the methods for installing Handicare ceiling lift track in

- Home Care Settings
- Institutional Settings

Home Care Settings (Wood Framing Installations)

Top-Down Installation

The most common in-home installation method, Top-Down mounting to wood framing requires access to an attic space above the room or rooms where the ceiling lift track is to be installed.

In this method, the ceiling joists are spanned from above using strut. Threaded rods are then fastened to the strut and fed through the ceiling, where the track brackets are attached and then the ceiling lift track mounted and installed.

The method for attaching to a wood structure from above involves the use of the **Homecare Hardware Kit (HHK):**

- **Homecare Hardware Kit (HHK) -** for when attachment points fall between wood joists or when the track runs parallel with wood joists

Bracket Assembly

1. Assemble the track brackets using the hardware provided in the Homecare Hardware Kit (HHK).
    - The HHK should not be used to support loads over 625 lbs. 3/8” hardware can be replaced with 1/2” hardware when loads exceed 625 lbs except for direct mount installations (1/2” lags bolts are too large for standard 2” framing).
    - Figure 130 diagrams this assembly.

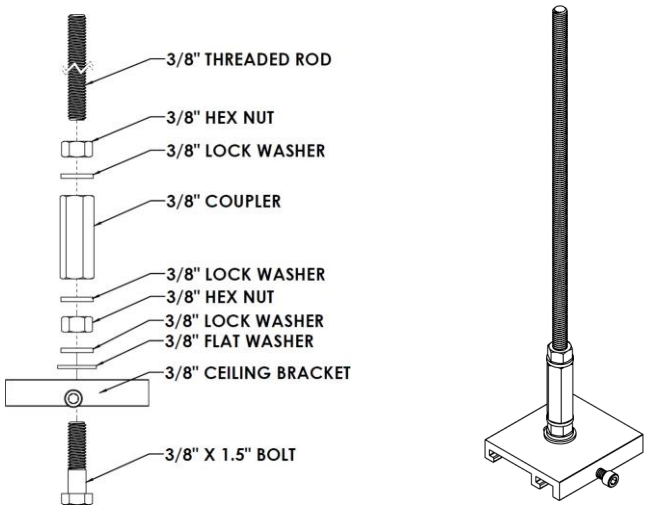


Figure 130: ***Homecare Hardware Kit (HHK)***

a. Loosen the set screw on the ceiling bracket so no threads are visible in the bracket channel (Figure 131).
    - This makes mounting the track to the bracket easier.

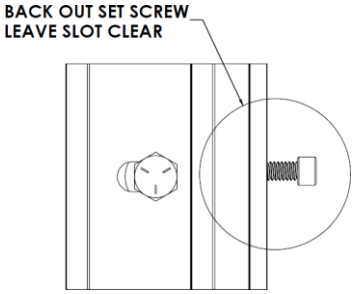


Figure 131: ***Loosen the Ceiling Bracket Set Screw So No Threads are Visible in the Bracket Channel***

b. Insert the 1 1/2” hex bolt through the slot in the bracket, with the bolt head in the underside of the bracket.

c. On top of the bolt, place in this order:

1. Flat washer
2. Lock washer
3. Hex nut

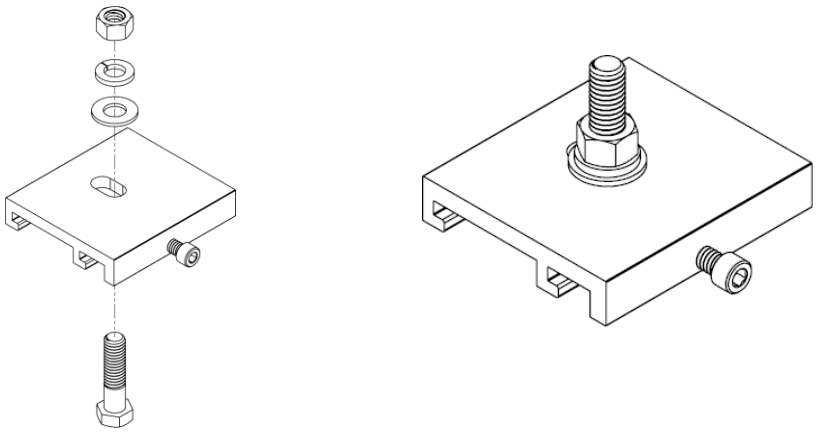


Figure 132: ***Bracket Order of Assembly***

d. Use two 9/16” wrenches to tighten this assembly.

- Make sure the hex nut on the underside of the bracket is as close as possible within the slotted bracket hole to the set screw side of the ceiling bracket.

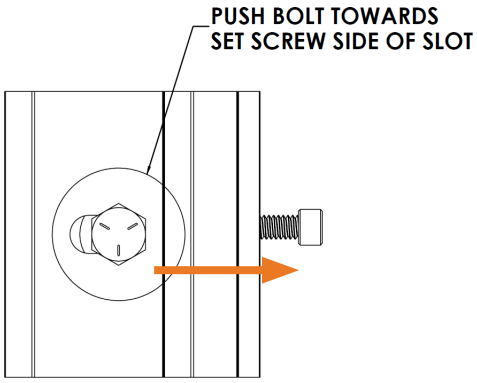


Figure 133: ***Tighten the Assembly***

e. On top of this assembly, place in this order:

1. Lock washer
2. Coupling nut

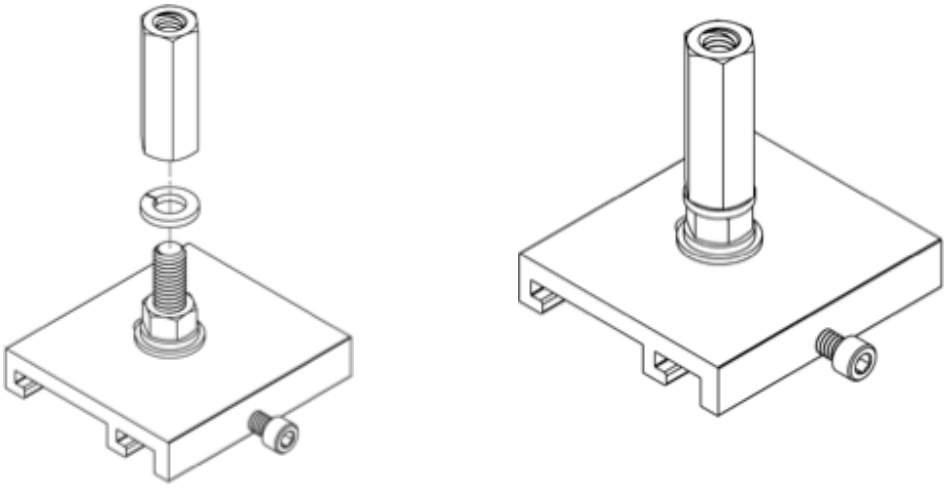


Figure 134: ***Lock Washer and Coupling Nut***

f. Tighten this assembly using a 5/8” wrench on the coupling nut while holding the bolt head under the bracket using a 9/16” wrench.
g. Thread a hex nut onto the threaded rod approximately 2” up from the end of the threaded rod that will connect to the coupling nut.
h. Place a lock washer on the threaded rod beneath the hex nut.
i. Thread the coupling nut on top of the ceiling bracket assembly onto the threaded rod a minimum of four complete rotations.
    - Level by spinning the bracket assembly to thread the coupling nut up or down on the threaded rod.

Figure 135: ***Thread the Ceiling Bracket Assembly onto the Threaded Rod a Minimum of Four Complete Rotations***

j. Tighten the hex nut on the threaded rod against the coupling nut of the ceiling bracket assembly.
    - Make sure all lock washers are fully compressed.

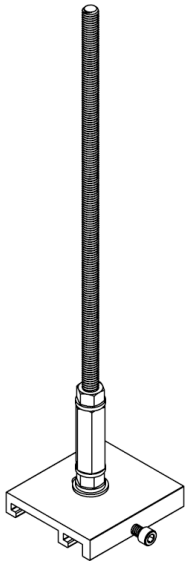


Figure 136: ***Hex Nut Tightened so Lock Washer is Fully Compressed***

Attach Ceiling Bracket Assemblies to Structure

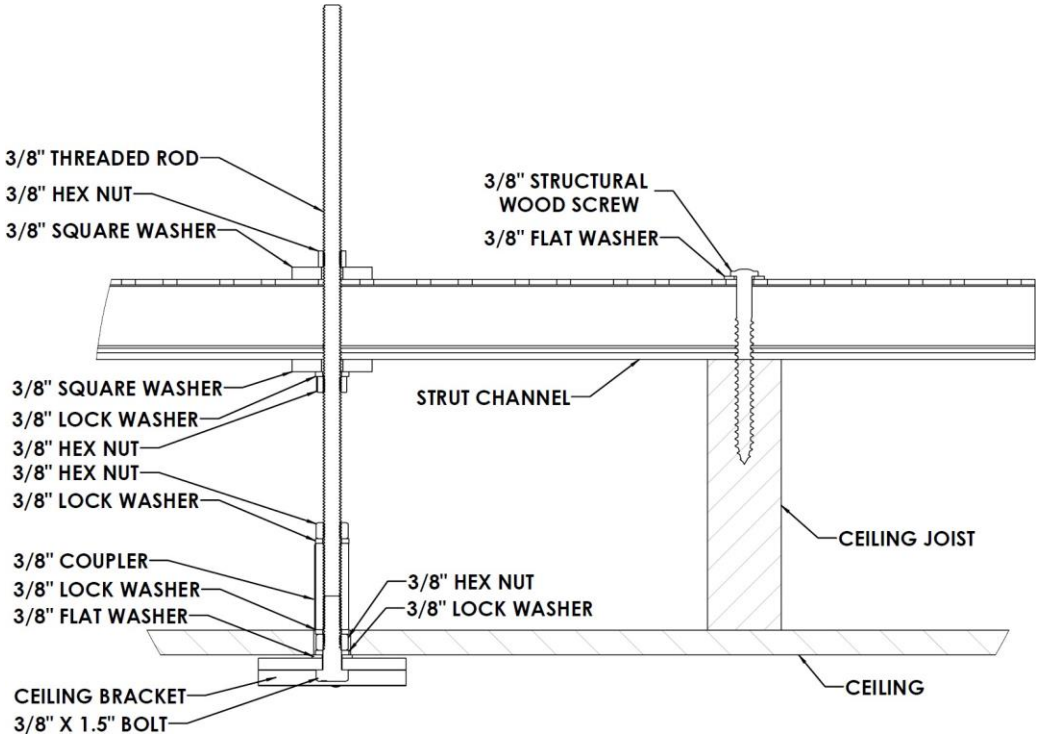
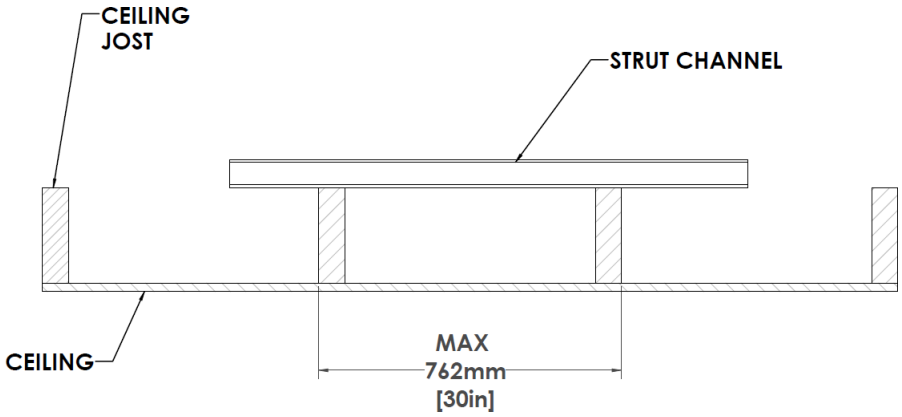


Figure 137: ***Top-Down Installation Ceiling Bracket Assemblies Ceiling Attachment***

1. At each ceiling bracket attachment location, use a stud finder or pilot bit to identify if any of the ceiling bracket drop locations intersect a ceiling joist.
    - *If a drop location intersects a ceiling joist, either*
        - Move the hole location along the center line of the track, making sure the new location is within the spans indicated in the Span and Cantilever charts in Appendix A.

        or
        - Refer to “Direct Mount Method” (Page 96).
2. At each the ceiling bracket attachment location, drill a 3/4” hole (unless direct mounting).
3. Directly above each ceiling bracket hole, place strut open channel-side down so it spans two ceiling joists as shown in Figure 138.



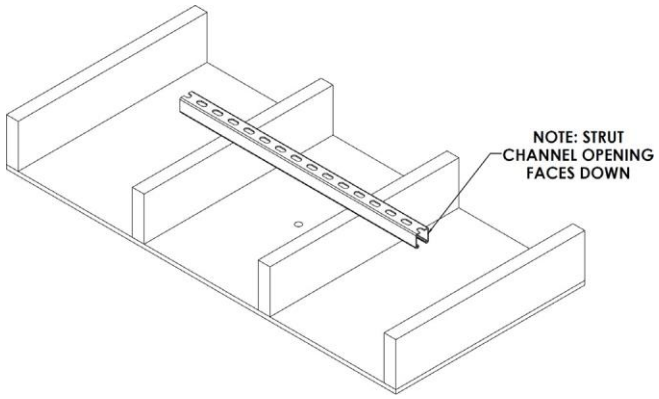


Figure 138: ***Strut Spanning Two Ceiling Joists***

4. Feed the assembled bracket with the threaded rod through the hole in the ceiling.
5. On the threaded rod below the strut, place in this order:
    1. Hex nut
    2. Lock washer
    3. Square washer
6. Above the strut on the threaded rod, place in this order:
    1. Square washer
    2. Hex nut

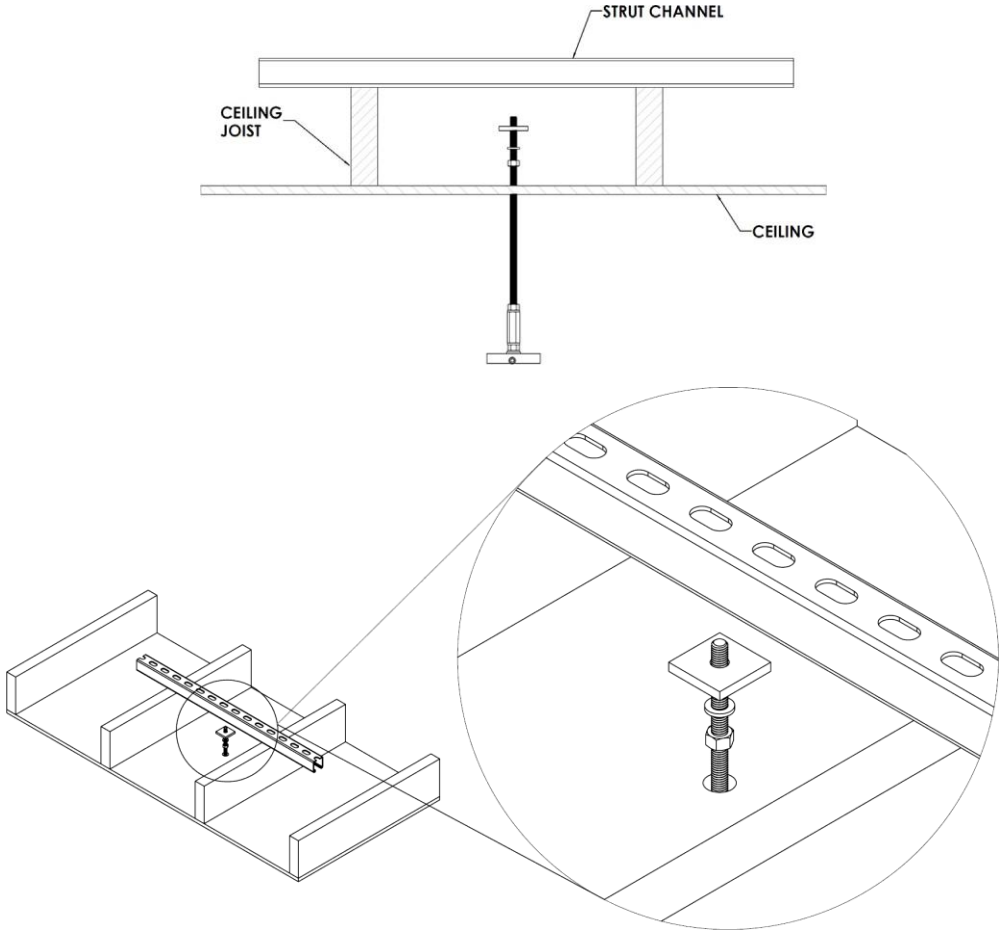


Figure 139: ***Hex Nut, Lock Washer, Square Washer Assembly***

7. Pass the threaded rod through a slot in the strut.

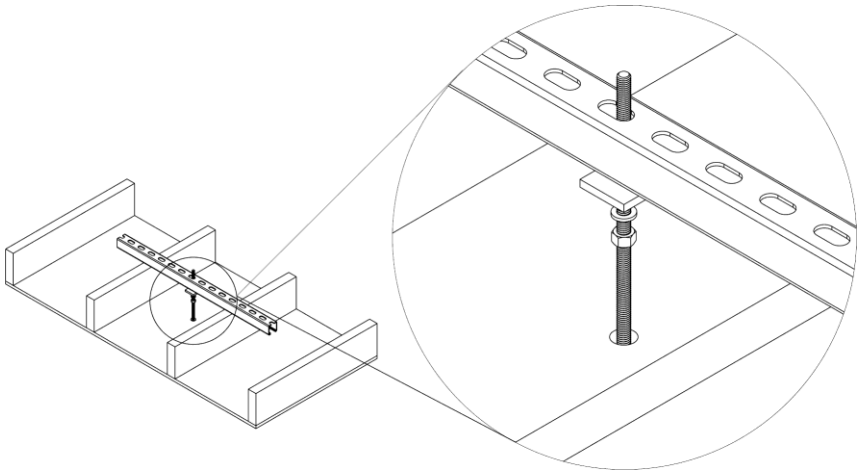


Figure 140: ***Threaded Rod Through Strut Slot***

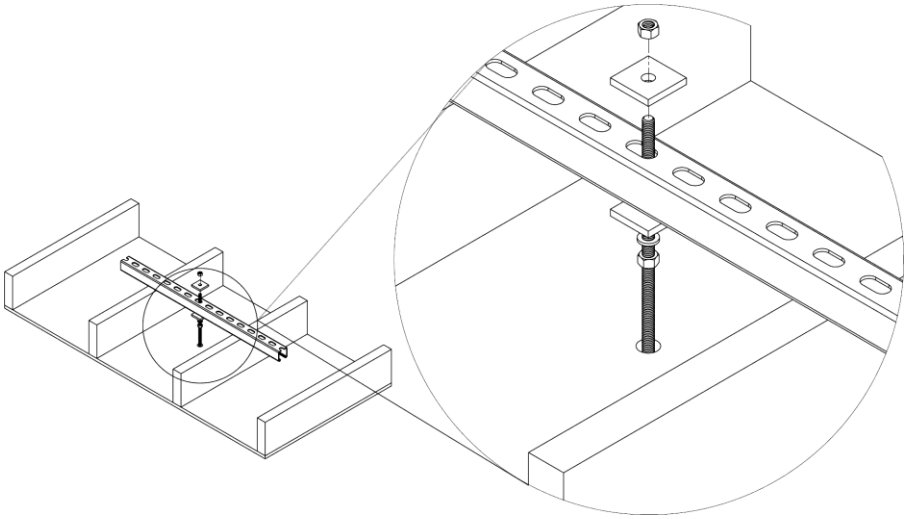


Figure 141: ***Square Washer, Hex Nut Assembly***

8. Hand tighten the hex nuts above and below the strut.
9. Repeat steps 1–8 for each ceiling bracket.
10. Determine the heights for the ceiling brackets.
    - Use a laser level to determine the lowest ceiling elevation point where the ceiling brackets will be installed.

NOTE: **Ceilings may not be consistently level. Therefore, it's important to determine which ceiling bracket location is at the lowest elevation.**

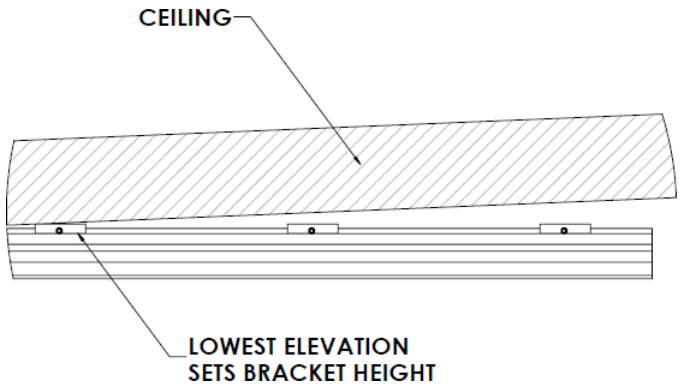


Figure 142: ***Lowest Elevation Point Where the Ceiling Brackets Will Be Installed***

11. Adjust the height of the bracket by raising or lowering the threaded rod through the strut.
12. Once the bracket is at the appropriate height, tighten all hardware to firmly secure the threaded rod in place.
    - Make sure all lock washers are fully compressed.

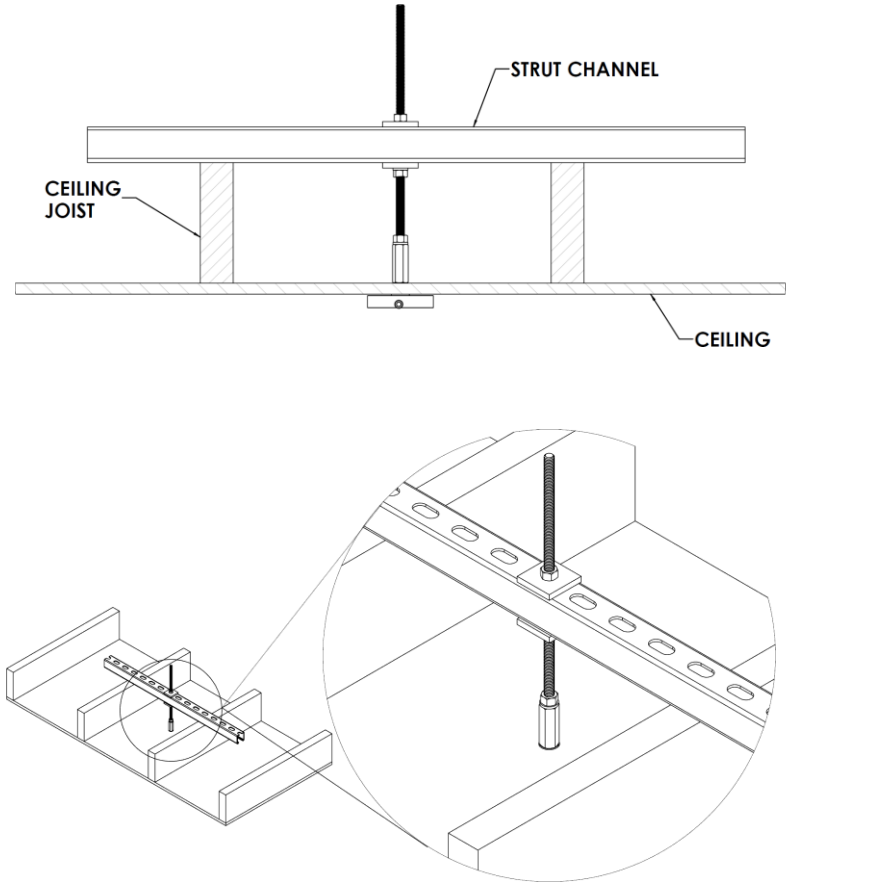


Figure 143: ***Hardware Tightened So All Lock Washers Are Fully Compressed***

13. Secure the strut to each joist it spans using the provided structural wood screws and flat washers through a slot in the strut to the center of the joists.

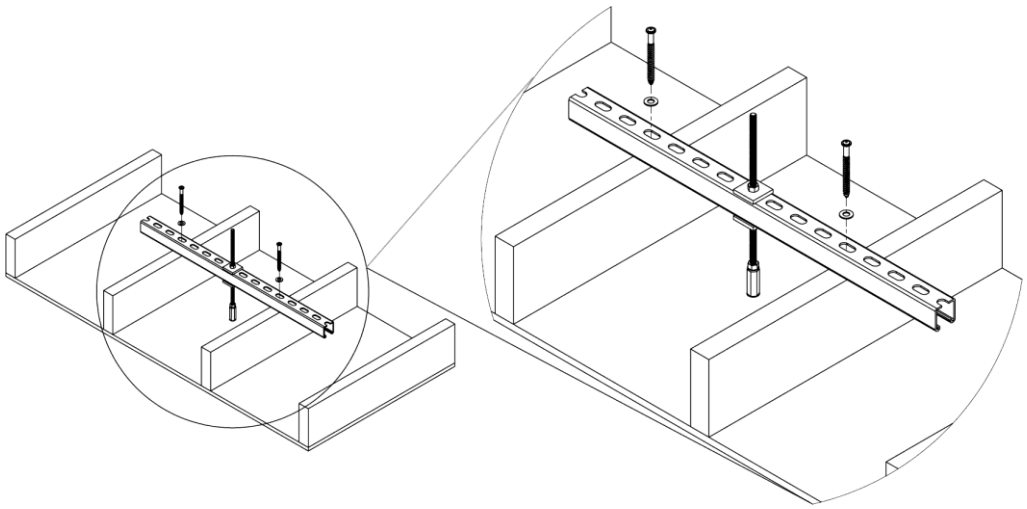


Figure 144: ***Secure the Strut to Each Joist it Spans***

14. Repeat steps 1–13 for each attachment point.

Bottom-Up Installation

If there is no attic access (for example, a first-floor installation in a two-story home), then mount the ceiling lift track using Bottom-Up installation. In this method, install from below, directly into the ceiling.

There are two methods for attaching to a wood structure from below:

- **Homecare Hardware Kit (HHK) -** for when attachment points fall between wood joists or when the track runs parallel with wood joists
- **Direct Mount -** for when the attachment points fall on center with wood joists and the track runs perpendicular to the wood joists

Bracket Assembly

1. Assemble the ceiling track brackets using the hardware provided in the Homecare Hardware Kit (HHK).
   - The HHK should not be used to support loads over 625 lbs. 3/8” hardware can be replaced with 1/2” hardware when loads exceed 625 lbs except for direct mount installations (1/2” lags bolts are too large for standard 2” framing).
   - Figure 145 diagrams this assembly.

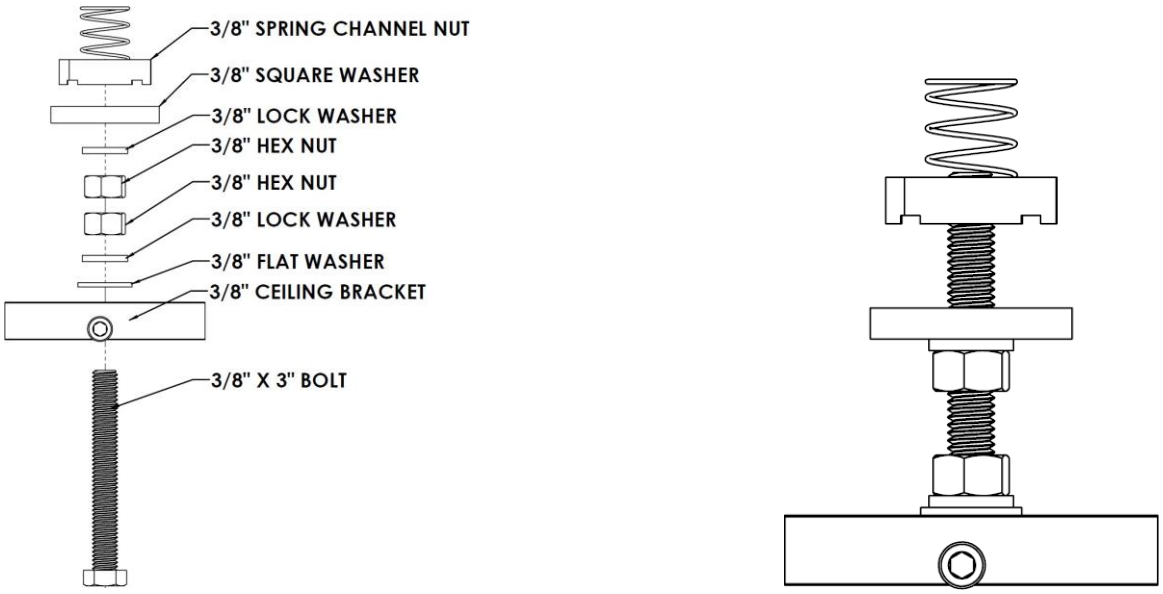


Figure 145: ***Ceiling Track Bracket Assembly***

a. Loosen the set screw on the ceiling bracket so no threads are visible in the bracket channel. This will make mounting the track to the bracket easier.

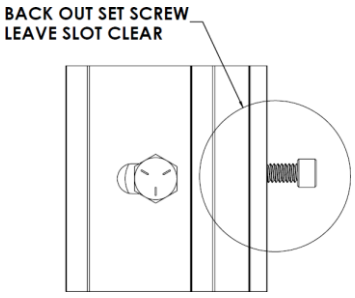


Figure 146: ***Loosen the Ceiling Bracket Set Screw So No Threads are Visible in the Bracket Channel***

b. Insert the 3” hex bolt through the slot in the bracket, with the bolt head in the underside of the bracket.

c. On top of the bolt, place in this order:

1. Flat washer
2. Lock washer
3. Hex nut

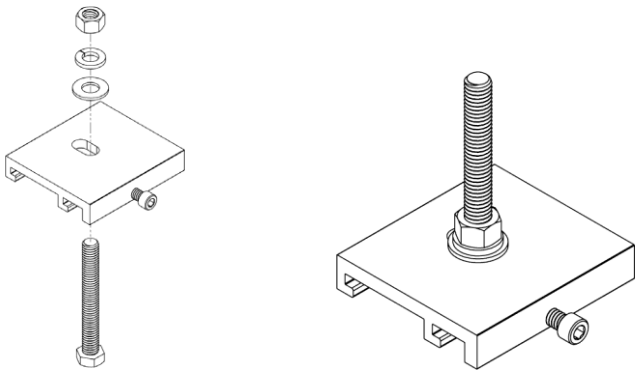


Figure 147: ***Flat Washer, Lock Washer, Hex Nut Assembly***

d. Use two 9/16” wrenches to tighten this assembly.

- Make sure the hex nut on the underside of the bracket is as close as possible within the slotted bracket hole to the set screw side of the ceiling bracket.

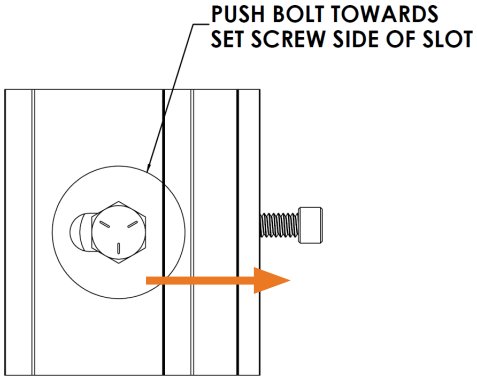


Figure 148: ***Tighten the Assembly***

e. On top of this assembly, place in this order:

1. Hex nut
2. Lock washer
3. Square channel washer
4. Spring channel nut (teeth facing down and spring facing up)

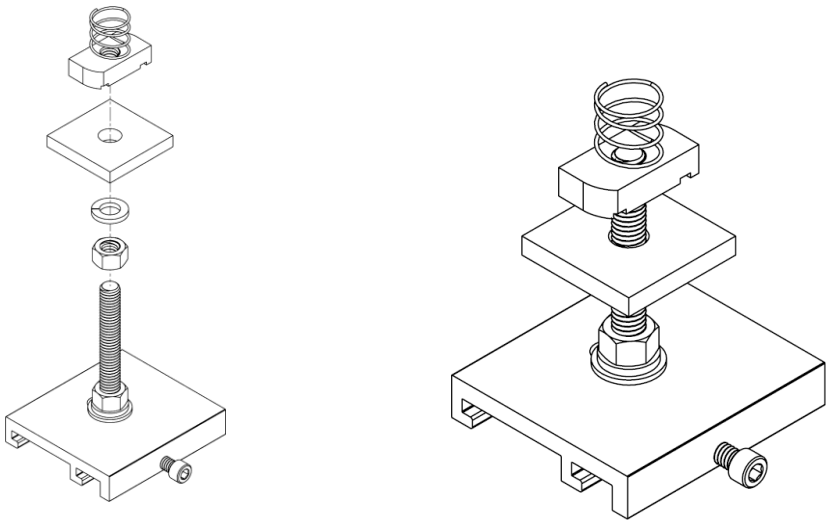


Figure 149: ***Hex Nut, Lock Washer, Square Channel Washer, Spring Channel Nut Assembly***

Attach Ceiling Brackets to Structure

1. At each ceiling bracket attachment location, use a stud finder or pilot bit to identify the centers of the wood joists that the bracket location falls between (Figure 150)

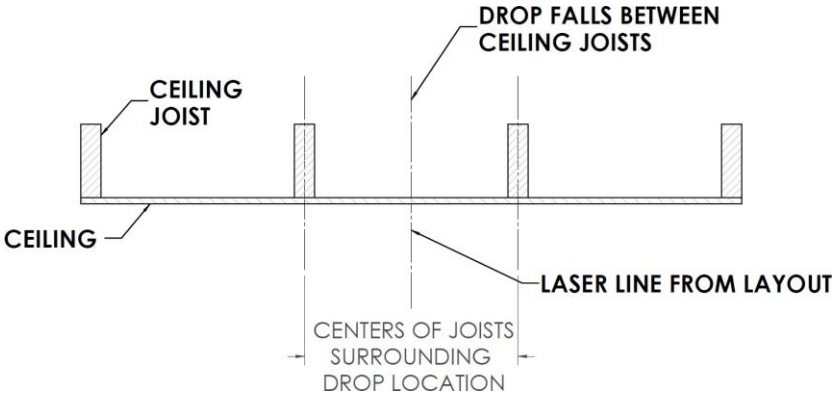


Figure 150: ***Bracket Location Between Wood Joists***

2. Secure the white plastic strut endcaps to each end of the strut.

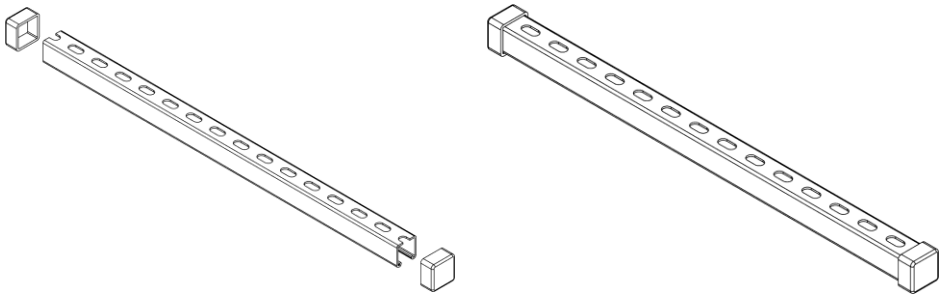


Figure 151: Plastic Strut Endcaps Secured to Each End of the strut

3. Place the strut so it spans the centers of the two wood joists identified in step 1 and intersects the bracket attachment location.

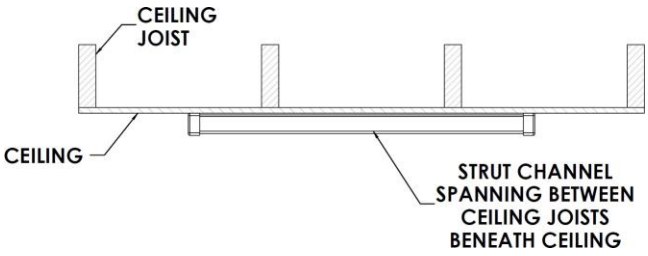


Figure 152: ***Strut Spanning the Centers of Two Wood Joists***

4. Using the structural wood screws and flat washers, secure the strut to the wood joists.
    - Make sure the structural wood screw is centered on the wood joist.
    - Make sure the 1 5/8” slotted (1/2”) strut channel opening faces down**.**

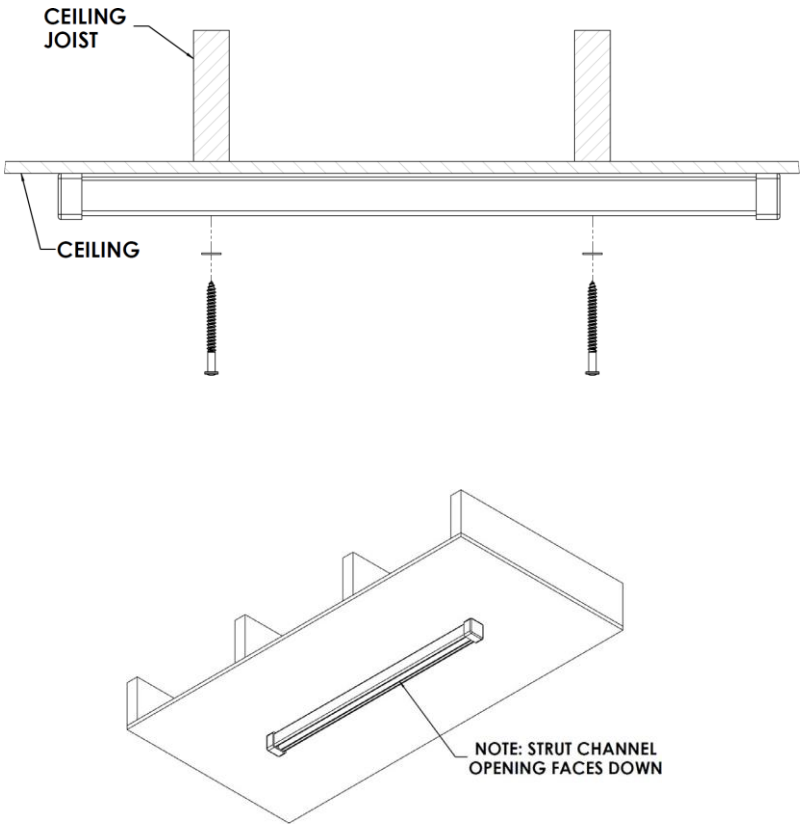


Figure 153: Secure the Strut to the Wood Joists

5. Attach the assembled track bracket assemblies to the strut:
    a. Insert the spring channel nut in the opening of the 1 5/8” slotted (1/2”) strut channel.
        - Make sure the teeth face down and the spring faces up.

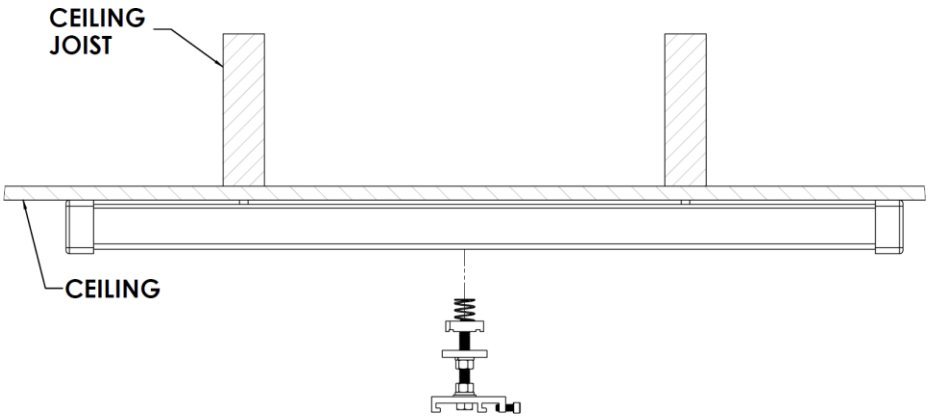


Figure 154: ***Attach the Assembled Track Bracket Assemblies to the Strut***

b. At the bracket location, turn the spring channel nut so it locks in the 1 5/8” slotted (1/2”) strut channel.

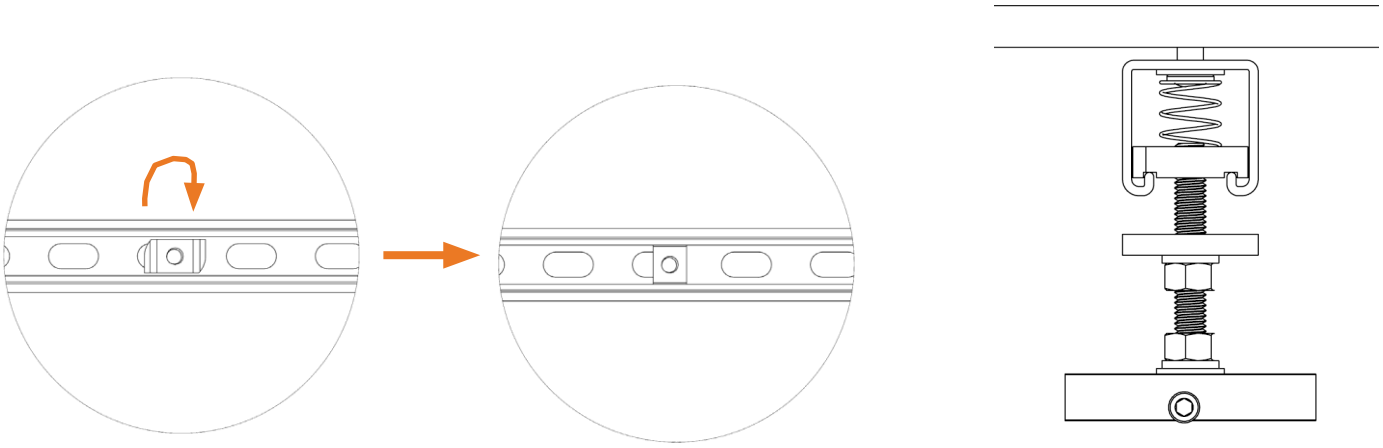


Figure 155: ***Turn the Spring Channel Nut So It Locks in the Strut Channel***

c. Finger tighten the hex nut below the square channel washer to press the square channel washer against the strut (Figure 156).

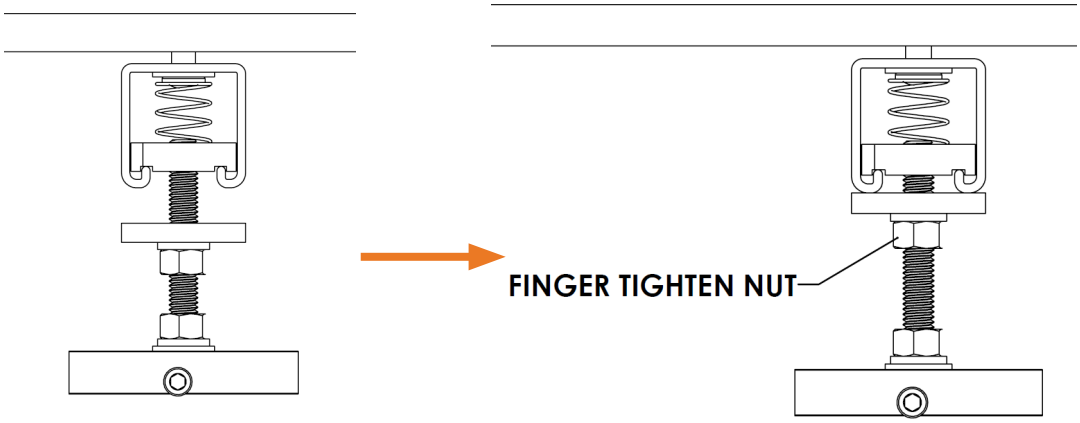


Figure 156: ***Hex Nut in Place***

6. Determine the heights for the ceiling brackets.

- Use a laser level to determine the lowest ceiling elevation point where the ceiling brackets will be installed.

NOTE:	**Ceilings may not be consistently level. Therefore, it's important to determine which ceiling bracket location is at the lowest elevation.**

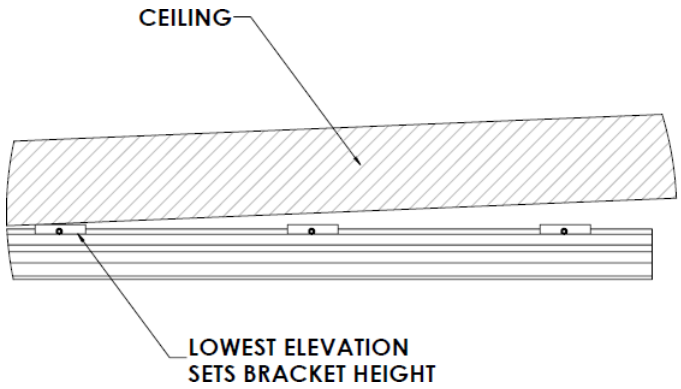
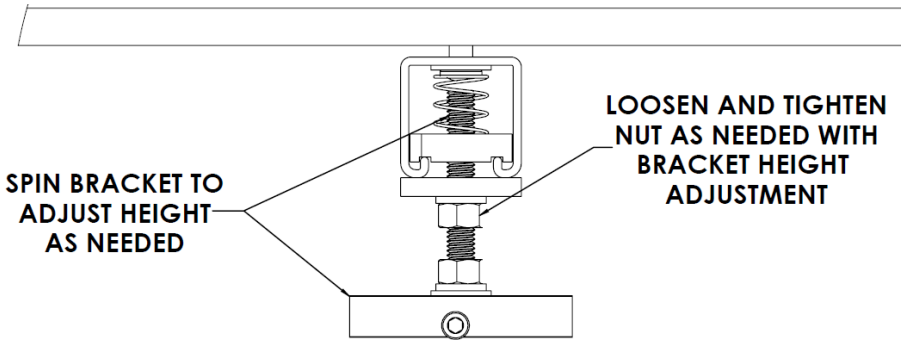


Figure 157: ***Lowest Elevation Point Where the Ceiling Brackets Will Be Installed***

7. Adjust the height of the bracket by spinning the bracket assembly, raising or lowering the threads of the hex bolt through the spring channel nut.



8. Once the bracket is at the appropriate height, tighten all hardware to firmly secure the bracket in place.
   - Make sure all lock washers are fully compressed.
   - Make sure the spring channel nut is fully seated and locked into the 1 5/8" slotted (1/2") strut channel.
   - Make sure the square channel washer is square with the 1 5/8" slotted (1/2") strut channel.

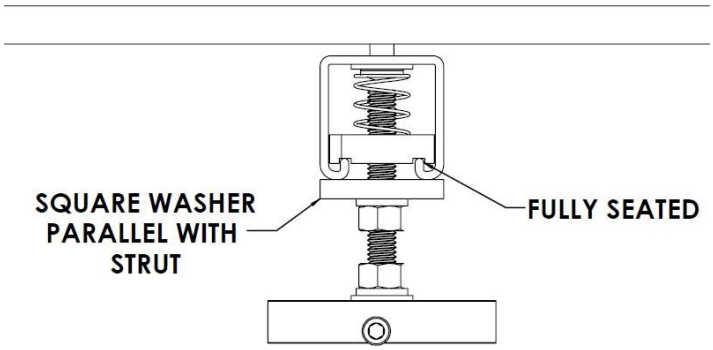


Figure 158: ***Spring Channel Nut Fully Seated and Locked into the Strut Channel***

9. Install the white plastic strut strip:

a. Measure the distance from the side of the square channel washer to the edge of the strut endcap on both sides.

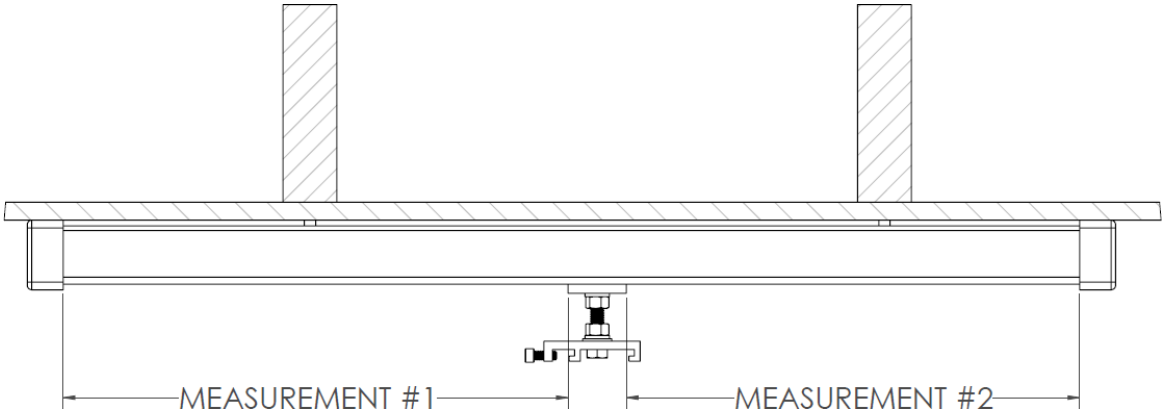


Figure 159: ***Measure the Distance from the Side of the Square Channel Washer to the Edge of the Strut Endcap (Both Sides)***

b. Cut the white plastic strut strip to the measurements from step a.

c. Snap the cut sections into the 1 5/8” slotted (1/2”) strut channel.

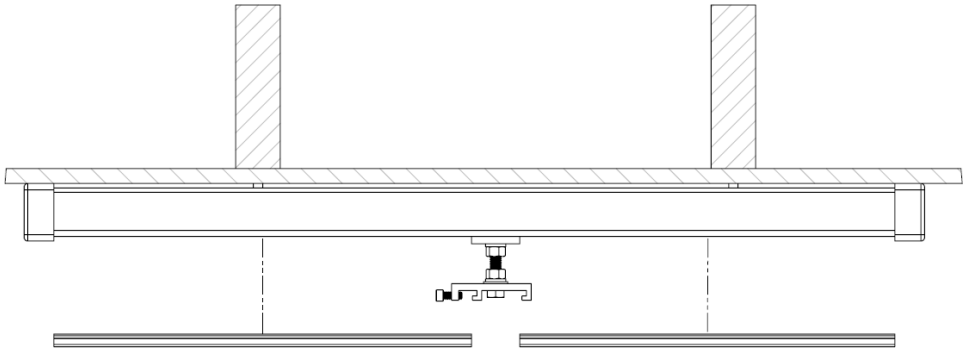


Figure 160: ***Snap the Cut Sections into the Slotted Strut Channel***

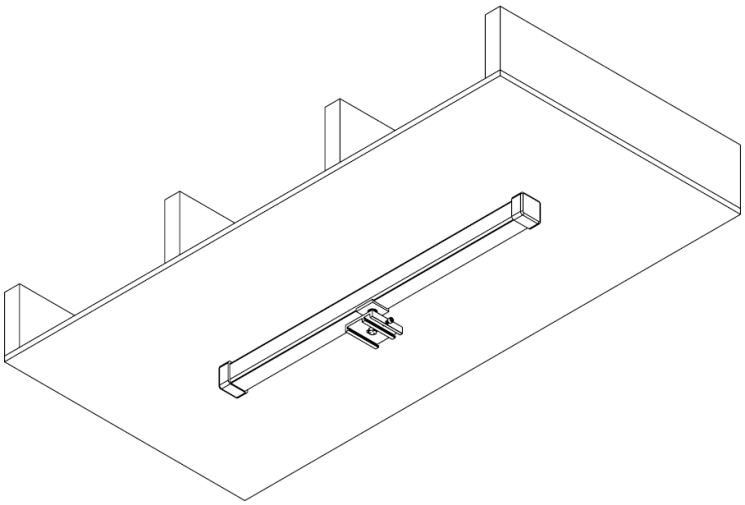


Figure 161: ***Assembled Slotted Strut Channel***

10. Repeat all steps for each attachment point location.

Direct Mount Method

In a Direct Mount installation, the brackets mount directly to the wood joists. The structural wood screws and flat washers described in this section are included with the HHK.

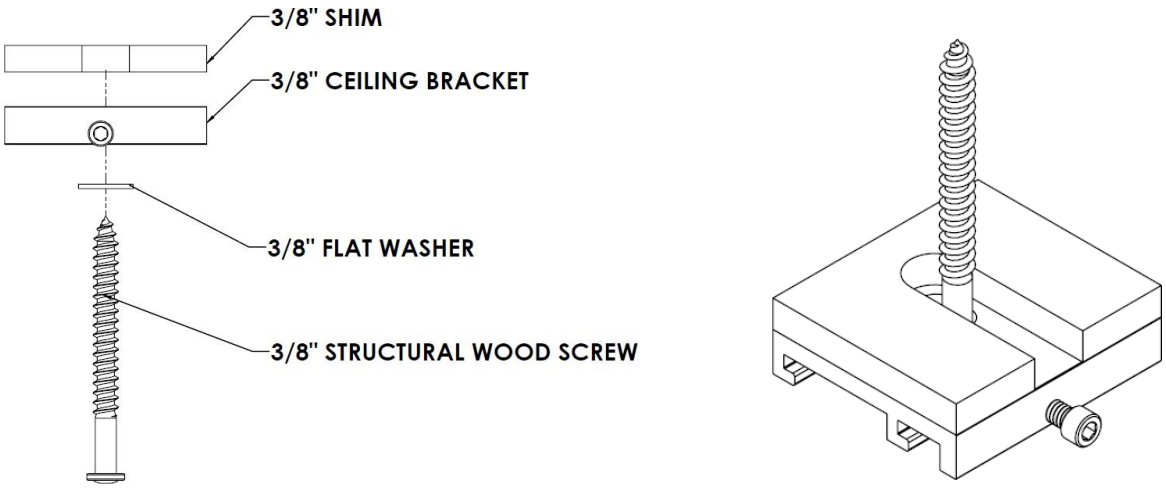


Figure 162: ***Wood Framing Bottom-Up Installation, Standard Mount—Structural Wood Screws and Joists (Detail)***

NOTE: **No one section of track can have more than one attachment to the same joist (see Figure 163).**

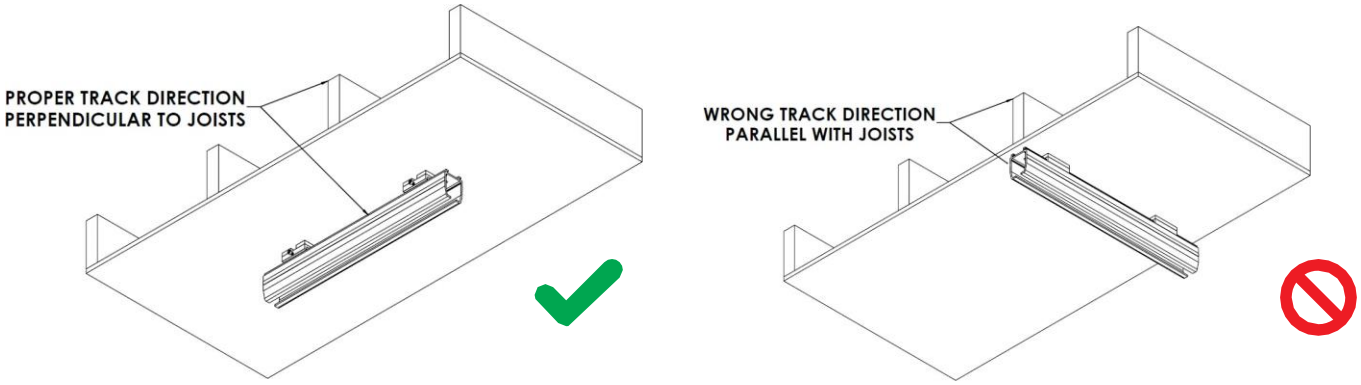


Figure 163: ***Track-to-Joist Attachment***

1. Identify the track bracket locations:
    - The attachment points must fall on center with wood joists.
    - The track must run perpendicular to the wood joists.
    - Make sure the space between the connection points is within the allowable spans indicated in the Span and Cantilever charts in Appendix A.

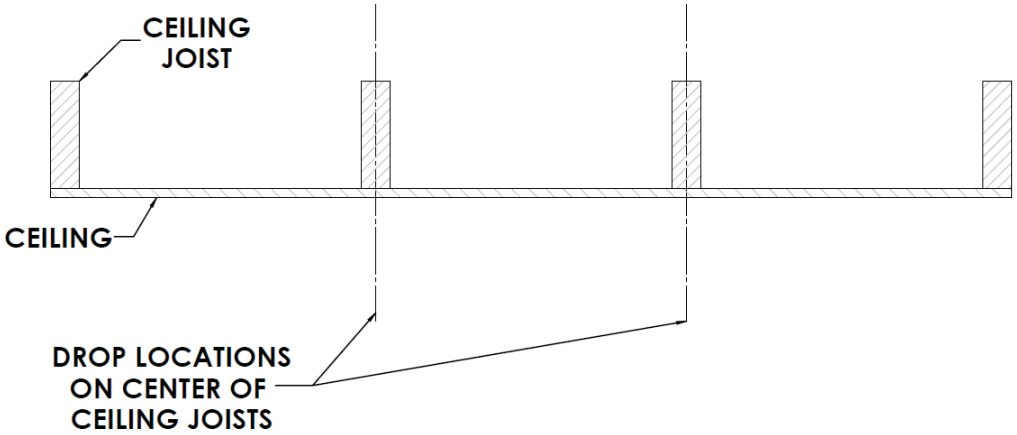


Figure 164: ***Ceiling Lift Track Bottom-Up installation***

2. Identify the lowest ceiling elevation point of the track system.
    a. Set a laser level on a ladder or a stand to project a laser line on the wall.
    b. Use a tape measure to measure from the ceiling to the laser line to identify the lowest point on the ceiling.
        - This is the height to set all the brackets to.
        - The bracket at this spot can be mounted flush to the ceiling.

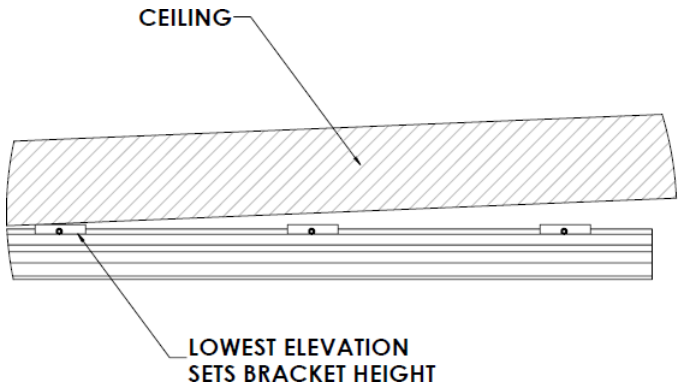


Figure 165: ***Bracket Elevations for Level Track***

NOTE:	**The track must be level, which means it may not be flush with the ceiling if the ceiling isn't level. If shims are required for the space between the bracket and the ceiling, use Handicare shims of various sizes, or create your own using stacked flat washers or other shimming material.**

3. Insert the structural wood screw and flat washer through the bottom of the bracket.

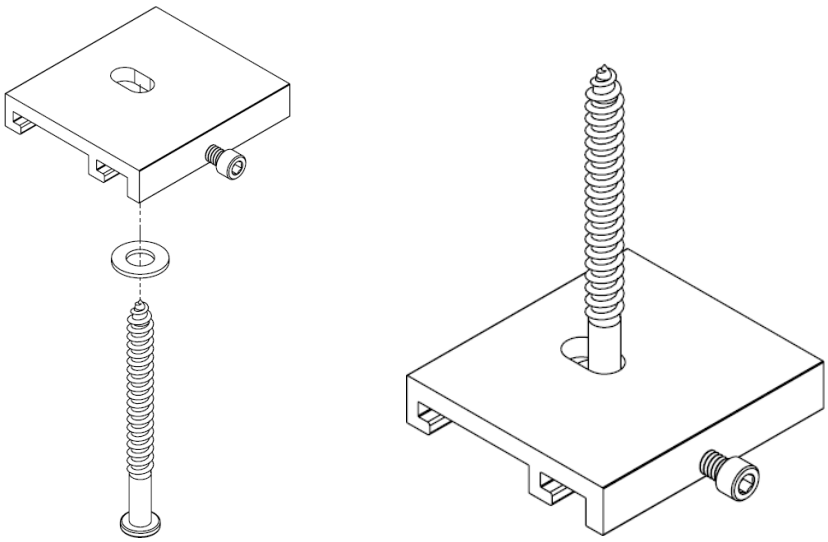


Figure 166: ***Structural Wood Screw, Flat Washer, and Bracket Assembly***

4. On top of this assembly, add any necessary shims onto the shank of the structural wood screw.

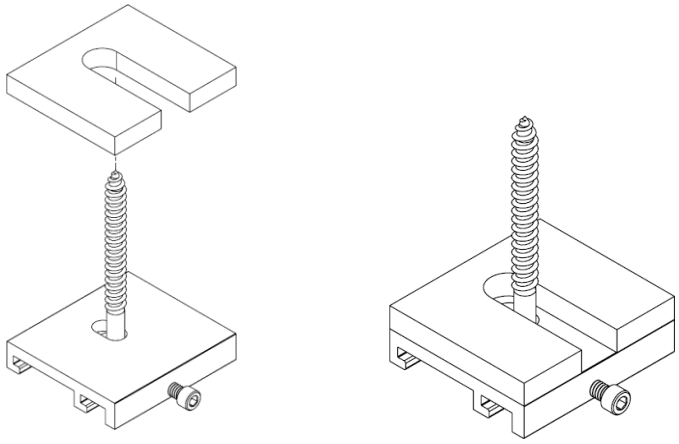


Figure 167: ***Add Shims to the Assembly as Required***

5. Drive the structural wood screw into the center of the wood joist until the bracket or shims are tight against the ceiling.
6. Be sure to follow the hardware manufacturer's guidelines for proper installation procedures (e.g., pilot hole, etc.).
    - Make sure to drive the screw perpendicular to the bottom of the joist and not at an angle.
    - Make sure the brackets are all oriented to align with the track.

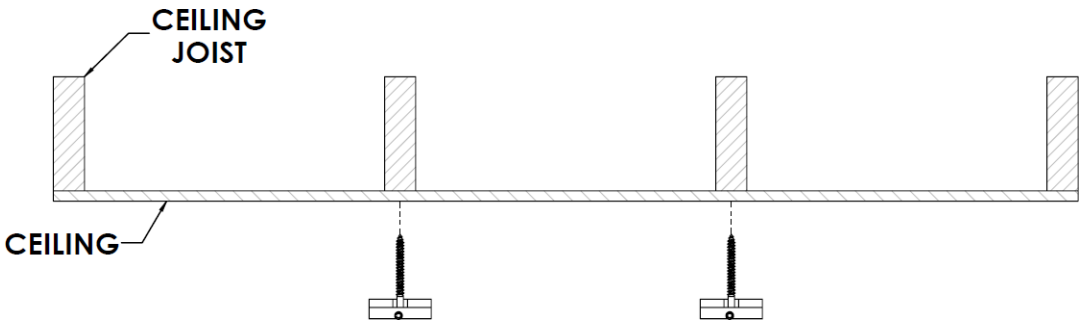


Figure 168: ***Screws Perpendicular to the Ceiling and Joists***

7. Repeat for each attachment location.

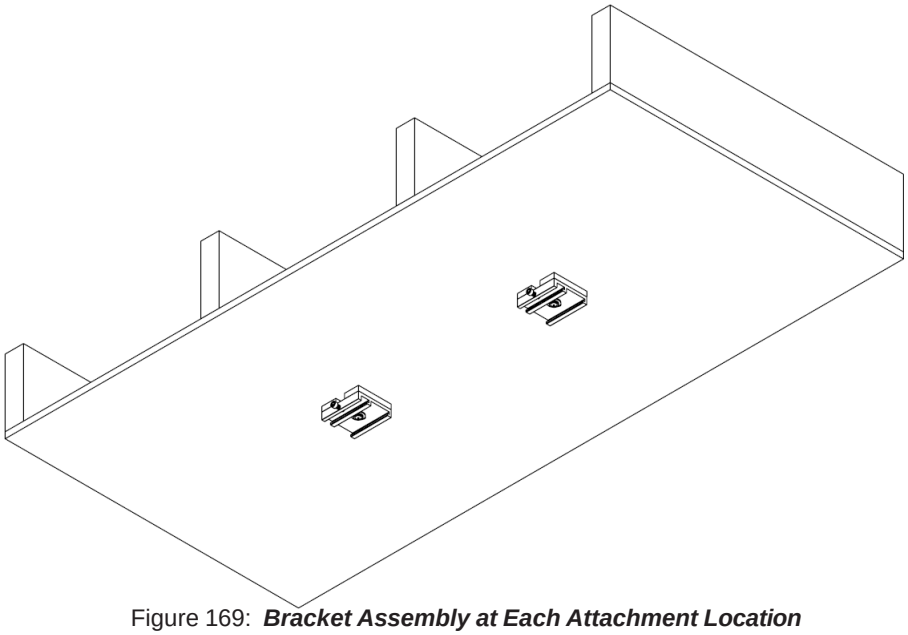


Figure 169: ***Bracket Assembly at Each Attachment Location***

Wood Blocking Installation

Standard Wood Joist Blocking Installation

In a standard wood joist blocking installation, wood blocks (2x6, 2x 8, or 2x10, as required to match the joist dimension) are installed between ceiling joists, perpendicular to the ceiling joists and secured with joist hangers, as shown in Figure 170.

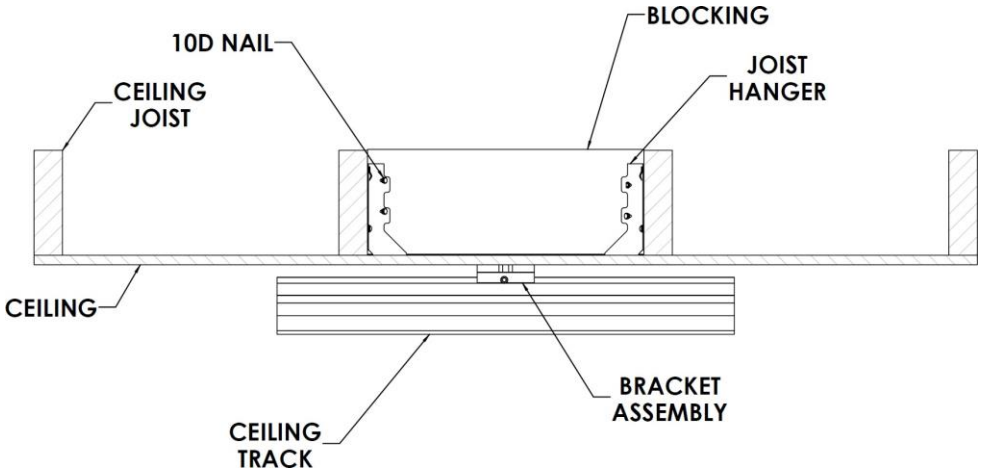


Figure 170: ***Blocking Installation Diagram***

Typically used during the construction of a wood framed building, a blocking installation begins when wood framing is installed and the ceiling is open (i.e., no drywall is installed yet).

1. Complete step 1 of “Basic Track Systems” (Page 8)..
    - Mark all attachment points on the floor (since there is no ceiling in place to mark on).
    - Identify attachment points using a plumb bob laser, projecting the beam up from the marked locations on the floor.
    - The target for each attachment location where blocking will be installed should fall between ceiling joists.
    - Where attachment locations fall on center with the existing wood joists, Direct Mount Method (Page 96) may apply.
2. In the space between the joists where the plumb bob laser is projected, measure the distance between the ceiling joists.

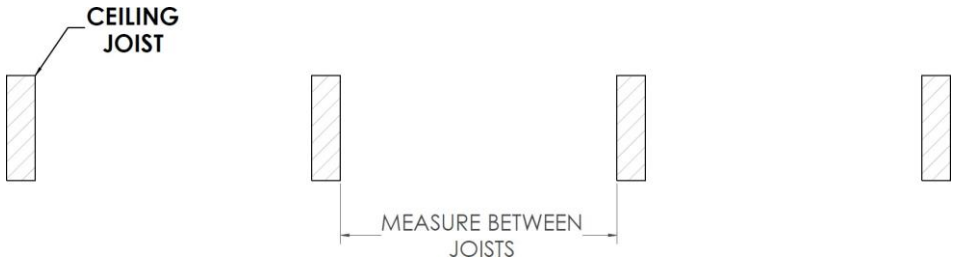


Figure 171: ***Measure the Distance Between the Ceiling Joists***

3. Cut a length of 2x6, 2x8, or 2x10 lumber (whatever height matches the joist height dimension) to the length measured in step 2.

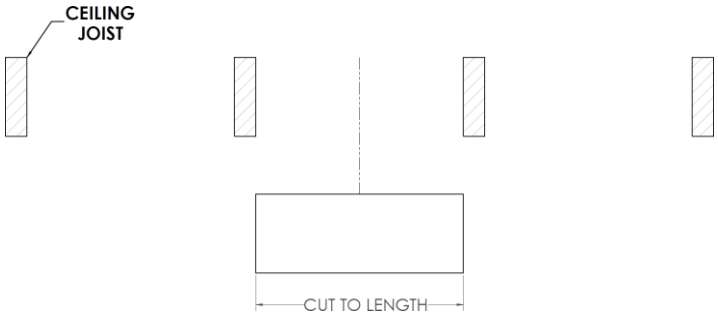


Figure 172: ***Cut a Length of Lumber to the Length Measured in Step 2***

4. Place the cut wood blocking in between the ceiling joists (perpendicular) so the laser is positioned in the block's center.

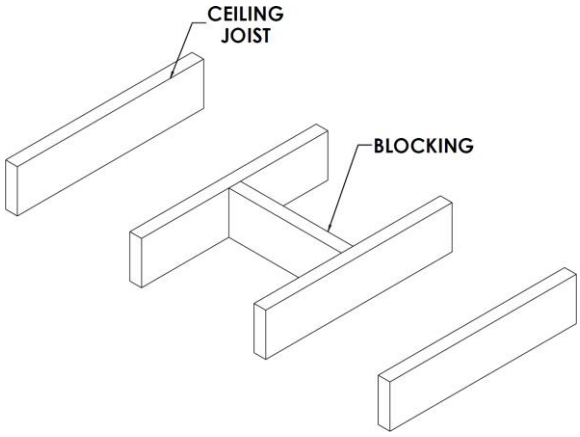


Figure 173: ***Wood Blocking Positioned Between Ceiling Joists***

5. Pinch the joist hangers around the blocking and use a hammer to drive the joist hangers' metal tabs into the joists, holding the joist hangers in place.

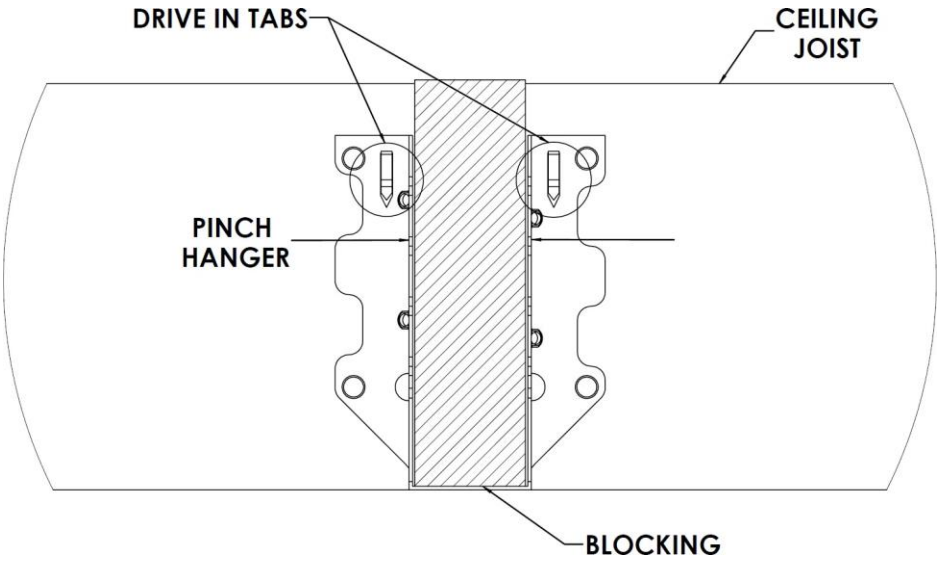


Figure 174: ***Joist Hanger Tabs Holding Joist Hanger in Place***

- Make sure that the bottom side of the joist hanger is level with the bottom side of the joist (so that when drywall is installed over it, it will be level across the ceiling).

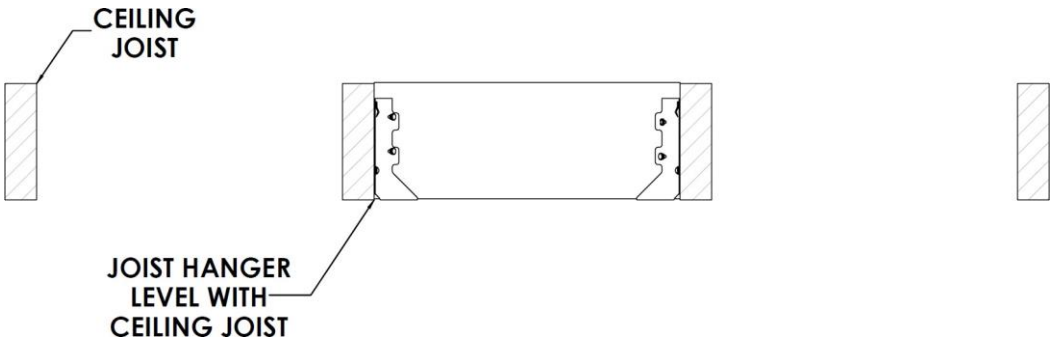


Figure 175: ***Joist Hanger Level with the Bottom of the Joist***

6. On both sides of the blocking, use appropriately sized joist hangers (to match the wood blocking dimensions) with 10D nails to attach the blocking to the joists, as shown in Figure 176.

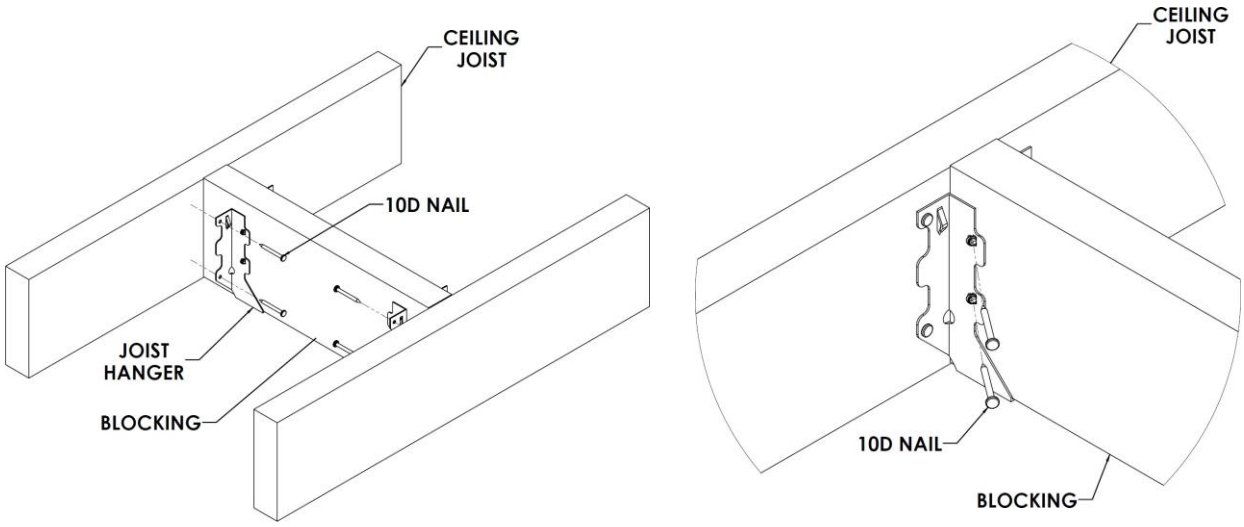


Figure 176: ***Joist Hangers and Nails***

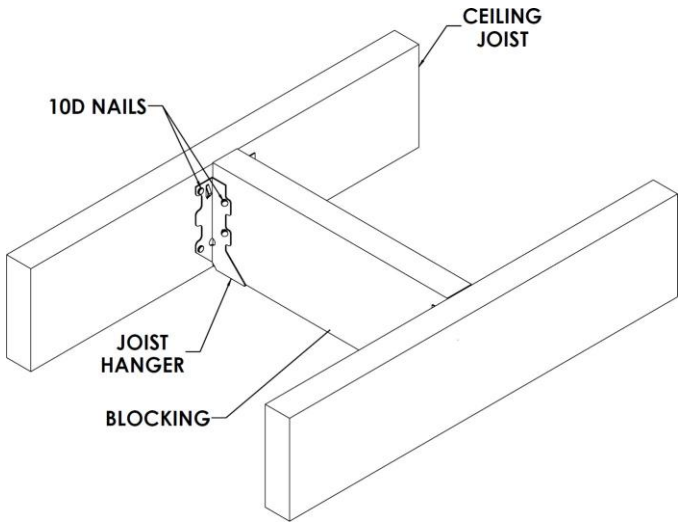


Figure 177: ***Joist Hanger Properly Nailed in Place***

7. Use the plumb bob laser and a pencil to mark the ceiling bracket attachment point on the installed blocking.
8. Drive a 3/8” structural wood screw or 3/8” lag bolt at the marked location on the wood blocking.

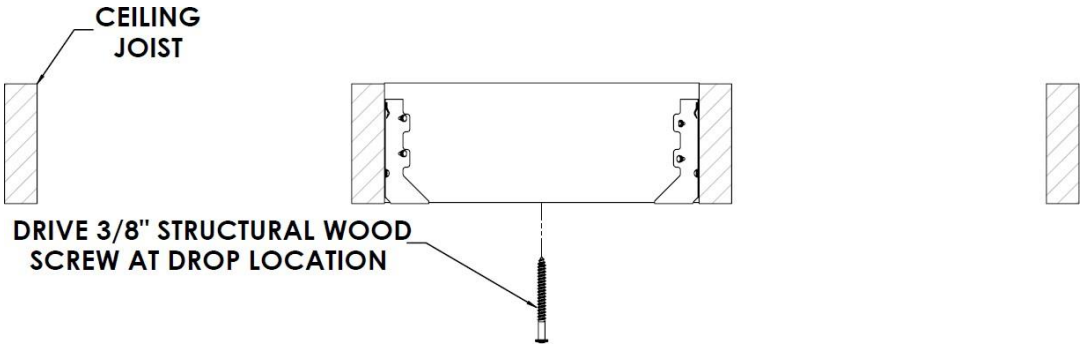


Figure 178: ***Structural Wood Screw or Lag Bolt at the Marked Location on the Wood Blocking***

9. Be sure to follow hardware manufacturer's guidelines for proper installation procedures (e.g., pilot hole, embedment depth, etc.).
10. Make sure the structural wood screws or lag bolts exceed the testing load capacity requirements of the system (150% SWL).
11. Leave the structural wood screw or lag bolt extending 2"–3" below the joist, so that ceiling drywall can be installed around them.

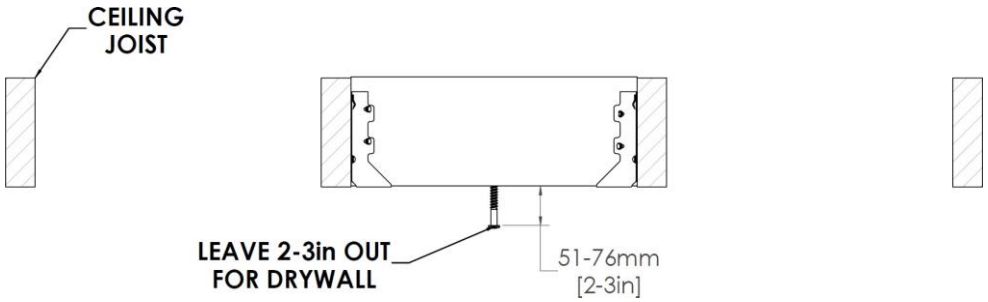


Figure 179: ***Structural Wood Screw or Lag Bolt Extending 2"–3" Below Joist, so Ceiling Drywall Can Be Installed Around Them***

12. Repeat for each attachment point.
13. Explain to the drywall installer that the screws/lags are not to be removed and that the drywall must be installed around them.
14. Wait for the drywall to be installed on the ceiling and painted.
15. Unscrew the structural wood screws or lag bolts from the blocking in the ceiling.
16. Identify the lowest ceiling elevation point of the track system
    a. Set a laser level on a ladder or stand to project a laser line on the wall.
    b. Use a tape measure to measure from the ceiling to the laser line to identify the lowest point on the ceiling.
        - This is the height to set all the brackets to.
        - The bracket at this spot can be mounted flush to the ceiling.

NOTE: **The track must be level, which means it may not be flush with the ceiling if the ceiling isn't level. If shims are required for the space between the bracket and the ceiling, use Handicare shims of various sizes, or create your own using stacked flat washers or other shimming material.**

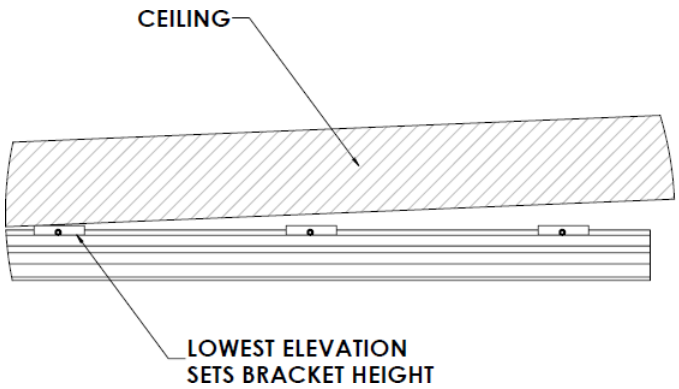


Figure 180: ***Lowest Elevation Point Where the Ceiling Brackets Will Be Installed***

17. Insert the structural wood screw or lag bolt and flat washer through the bottom of the bracket.

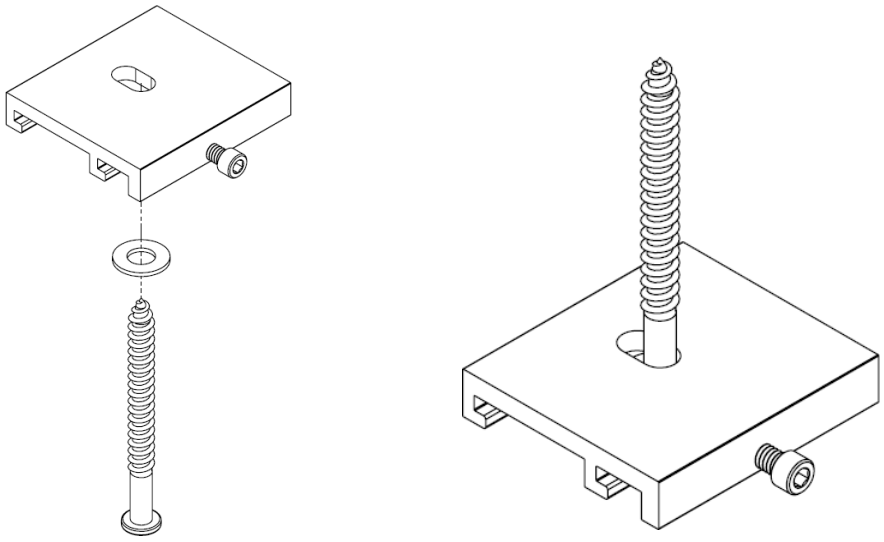


Figure 181: ***Structural Wood Screw or Lag Bolt and Flat Washer Inserted Through the Bottom of the Bracket***

18. On top of this assembly, add any necessary shims onto the shank of the structural wood screw or lag bolt.

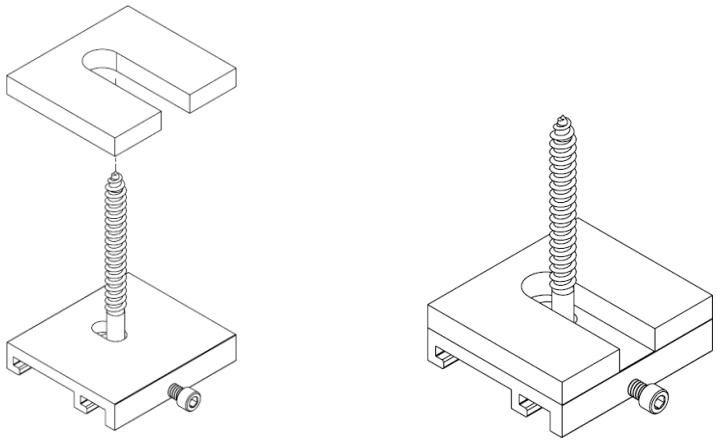


Figure 182: ***Shims Added, if Necessary***

19. Drive the structural wood screw or lag bolt into the center of the wood blocking until the bracket or shims are tight against the ceiling.

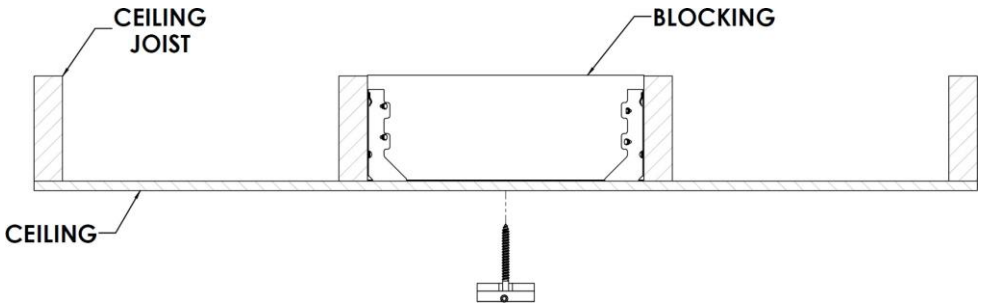


Figure 183: ***Structural Wood Screw or Lag Bolt Driven into Center of Wood Blocking***

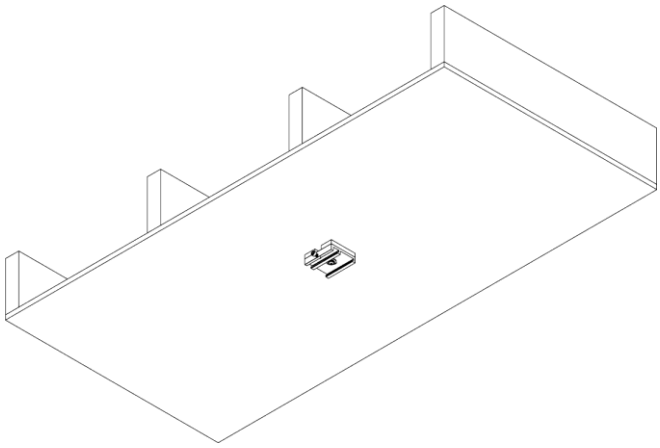


Figure 184: ***Bracket (or Shims) Tight Against the Ceiling***

- Make sure to drive the screw or lag bolt perpendicular to the bottom of the blocking and not an angle.
- Make sure the brackets are all oriented to align with the track.

20. Repeat steps 15–19 for each bracket.

TJI Joist Packing Installation

In a TJI joist packing installation, Oriented Strand Board (OSB) is installed (“packed”) to the sides of the ceiling joists so wood blocks can be installed between ceiling joists, perpendicular to the ceiling joists and secured with joist hangers, as shown in Figure 185.

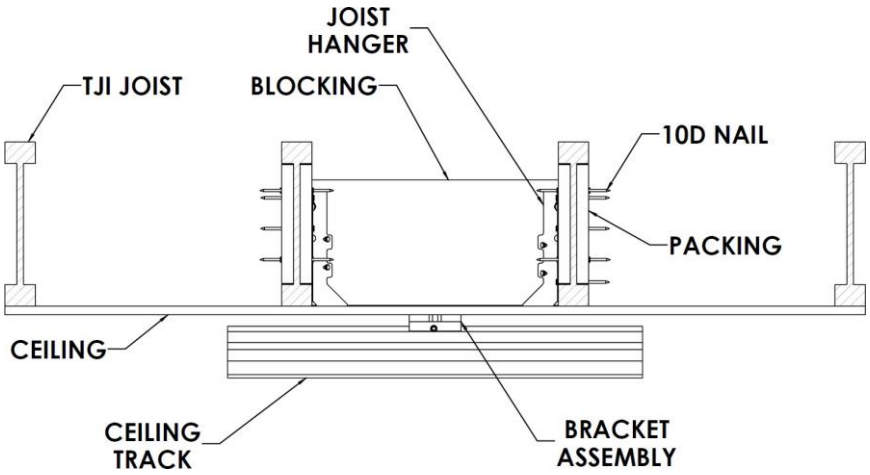


Figure 185: ***TJI Joist Packing Installation***

TJI joists consist of a top and bottom lumber channel flange with a vertically connected (OSB) web between the flanges (Figure 186).

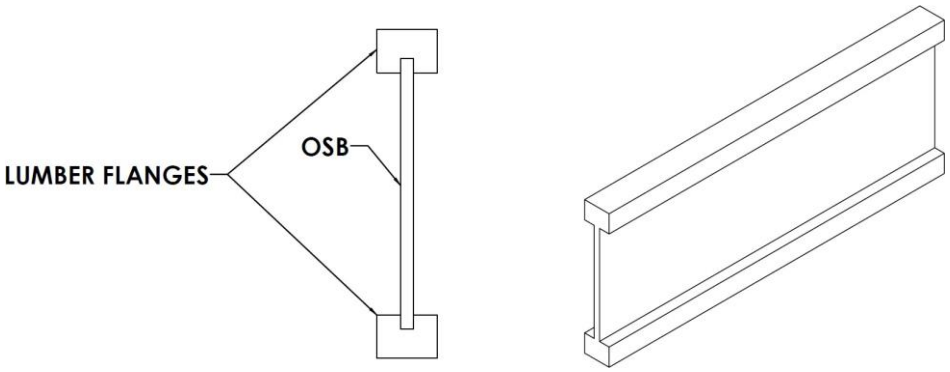


Figure 186: ***TJI Joist***

1. Complete step 1 of “Basic Track Systems” (Page 8).
2. Mark all attachment points on the floor (since there is no ceiling in place to mark on).
3. Identify attachment points using a plumb bob laser, projecting the beam up from the marked locations on the floor.
    - The target for each attachment location must fall between TJI joists.

NOTE: **The Direct Mount method is not possible when installing into TJI joists because the bottom flange is only held to the center TJI board with glue.**

4. Measure the distance between the side of the TJI joist OSB board and the edge of the flange (measurement A in Figure 187).
5. Measure the interior distance between the top and bottom of the TJI joist flanges (measurement B in Figure 187).

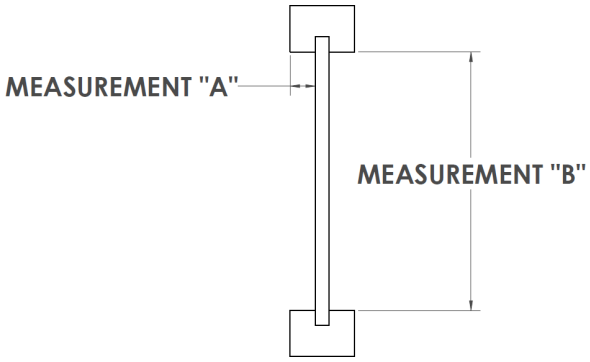


Figure 187: ***TJI Joist Measurements***

6. Cut 4 sections of OSB for each attachment location:
    - Thickness: match measurement A from step 2, minimum 3/4” thickness
    - Height: match measurement B in step 3, minus 1/8”
    - Length: 18”

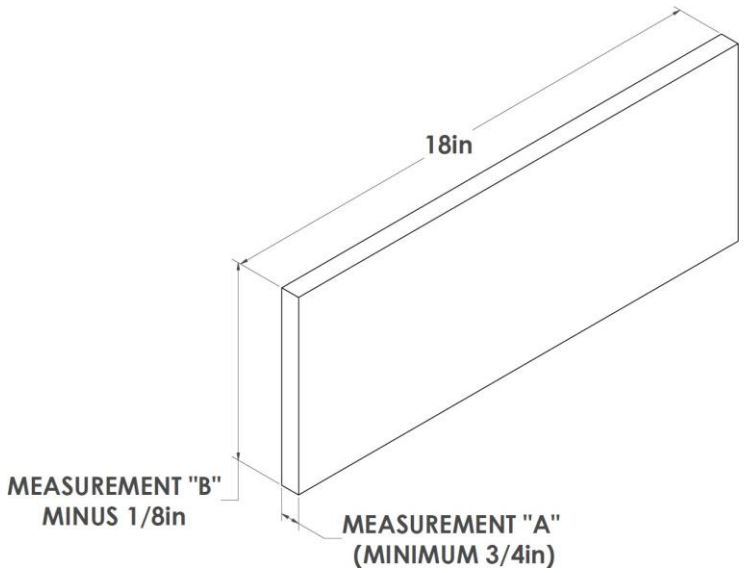


Figure 188: ***Cut Packing***

7. Pack the TJI joist:

    a. Place the cut OSB boards on both sides of each joist, on center with the identified ceiling bracket attachment location.

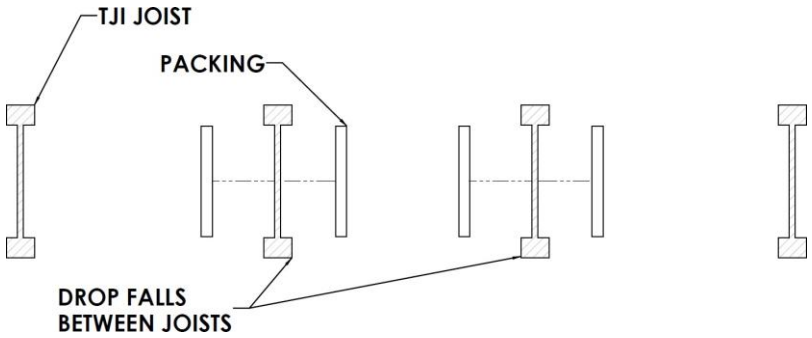


Figure 189: ***Ceiling Bracket Attachment Locations***

    b. Use 10D nails (.148”) long enough to drive through both boards to secure the packing to the TJI joists.
        - Evenly space 12 nails on each packing board, alternating both sides of each TJI joist, as shown in Figure 190.

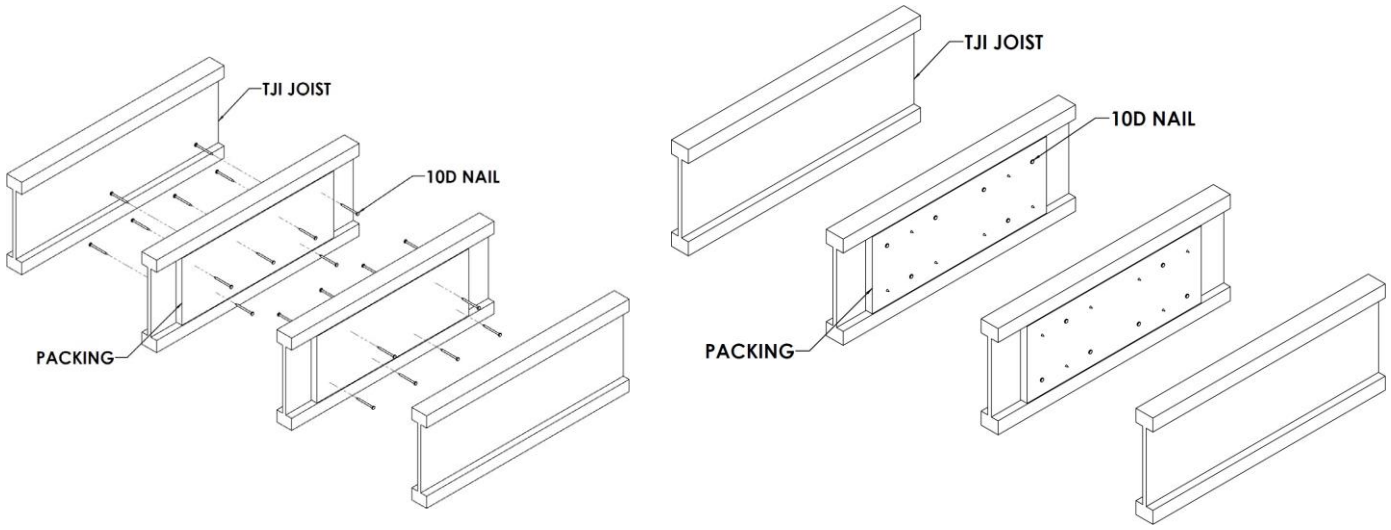


Figure 190: ***Nail Placement***

- Avoid the center of the board where the joist hangers will be attached, as shown in Figure 191.

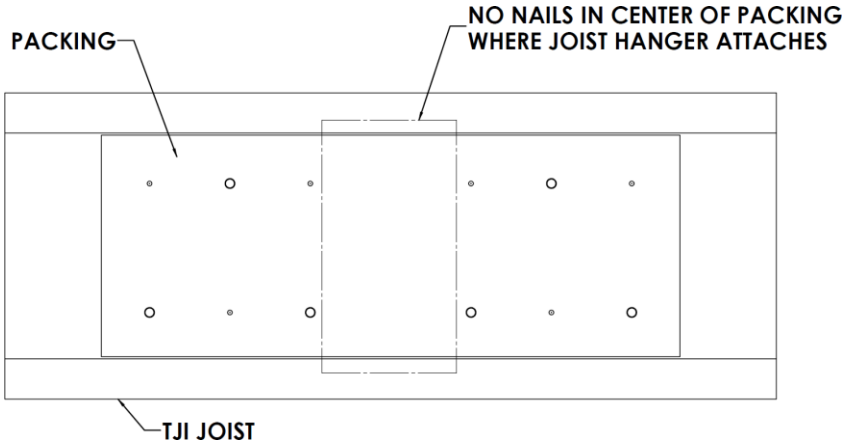


Figure 191: ***Avoid Placing Nails in the Center of the Board***

8. Install the blocking

   a. In the space between the packing where the plumb bob laser is projected, measure the distance between the OSB boards.

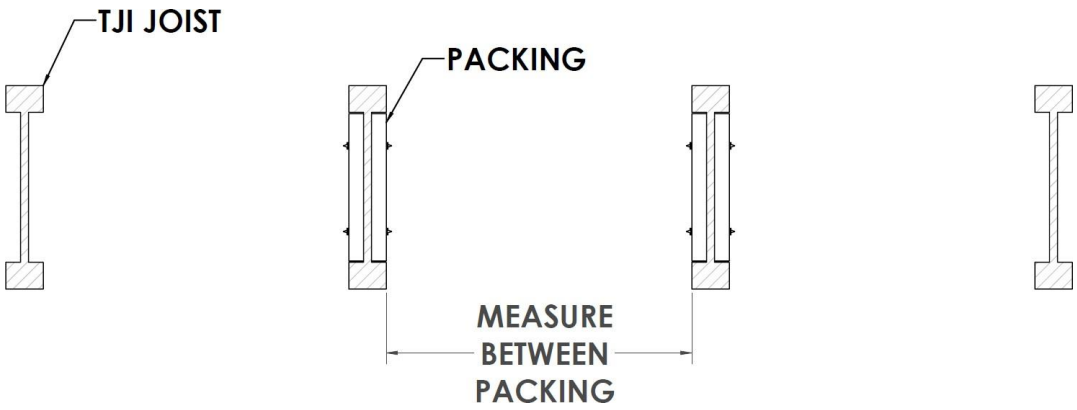


Figure 192: ***Measure the Space Between the Installed Packing***

b. Cut a 2x8 framing lumber board to the length measured in step a to make the wood blocking.

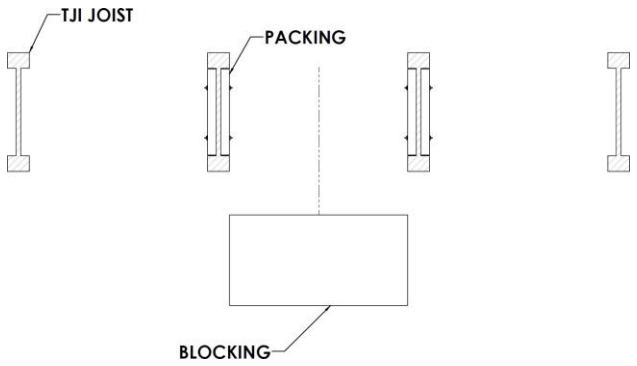


Figure 193: ***2x8 Framing Lumber Board to the Length Measured In Step a***

c. Place the cut wood blocking in between the packed TJI joists (perpendicular) so the plumb bob laser is positioned in the block's center.

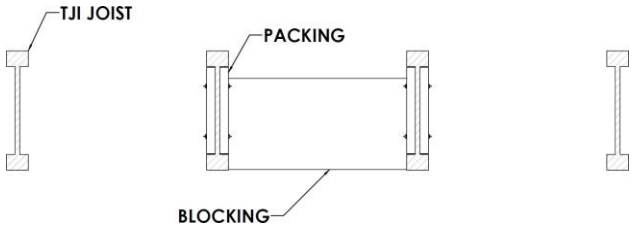


Figure 194: ***Cut Wood Blocking In Between the Packed TJI Joists***

d. On both sides of the blocking, use LUS28 joist hangers with 8 10D nails each (.148") to attach the blocking to the packed TJI joists.

- Make sure that the bottom side of the joist hanger is level with the bottom side of the TJI joist flange (so that when drywall is installed over it, it will be level across the ceiling).

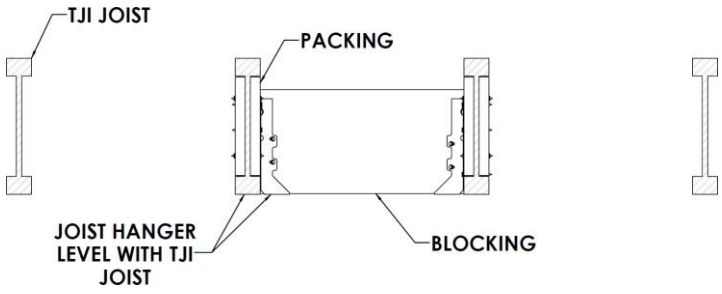


Figure 195: ***Bottom Side of the Joist Hanger Level with the Bottom Side of the TJI Joist Flange***

- Pinch the joist hanger around the blocking and use a hammer to drive the joist hanger's metal tabs into the packing, holding the joist hanger in place.

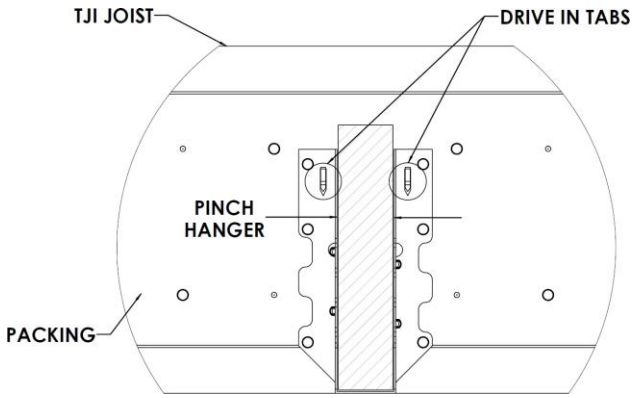


Figure 196: ***Joist Hanger Metal Tabs Hammered into the Packing***

- Drive nails through only the top four holes of each joist hanger into the packing.
- Avoid using the bottom two holes of the joist hangers, where nails would be driven into the bottom flange of the TJI joist (Figure 197).

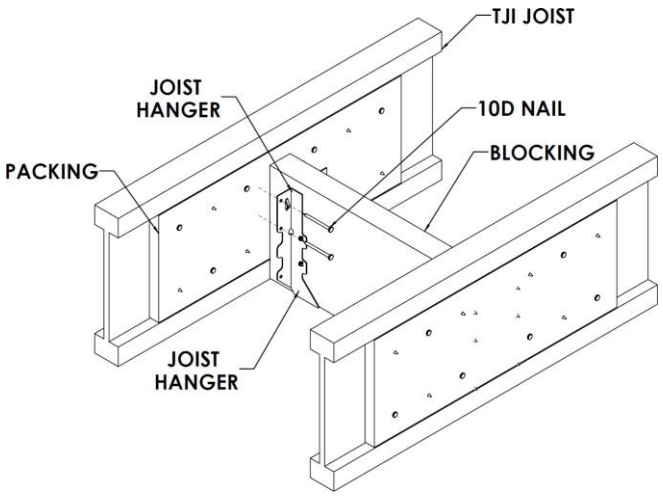


Figure 197: ***Joist Hangers Attaching Blocking to Packed TJI Joists***

- Drive four nails through the angled holes on each joist hanger into the blocking, (Figure 198).

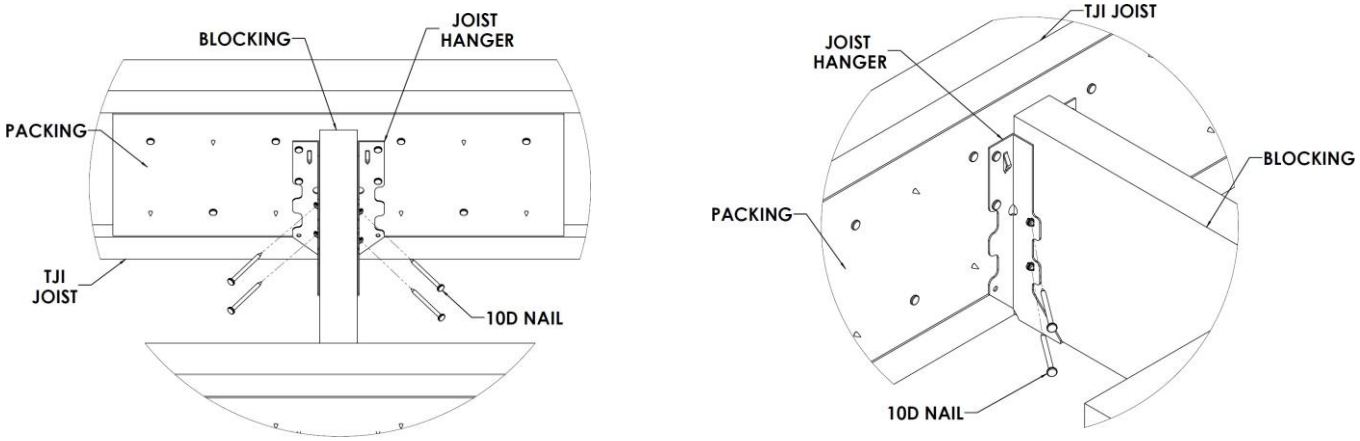


Figure 198: ***Joist Hanger Nail Positions***

9. Use the plumb bob laser and a pencil to mark the ceiling bracket attachment point on the installed blocking.
10. Drive a 3/8” structural wood screw (length must allow for minimum 3 1/4” final embedment) or 3/8” lag bolt at the marked location on the wood blocking.

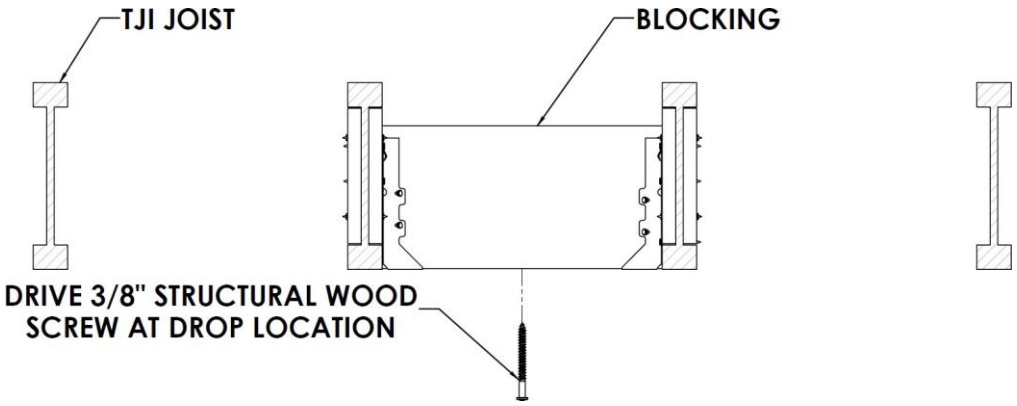


Figure 199: ***Position for Structural Wood Screw or Lag Bolt***

- Be sure to follow hardware manufacturer’s guidelines for proper installation procedures (e.g., pilot hole, etc.).
- Make sure the structural wood screws or lag bolts exceed the testing load capacity requirements of the system (150% SWL).
- Leave the structural wood screw or lag bolt extending 2”–3” below the joist, so that ceiling drywall can be installed around it.

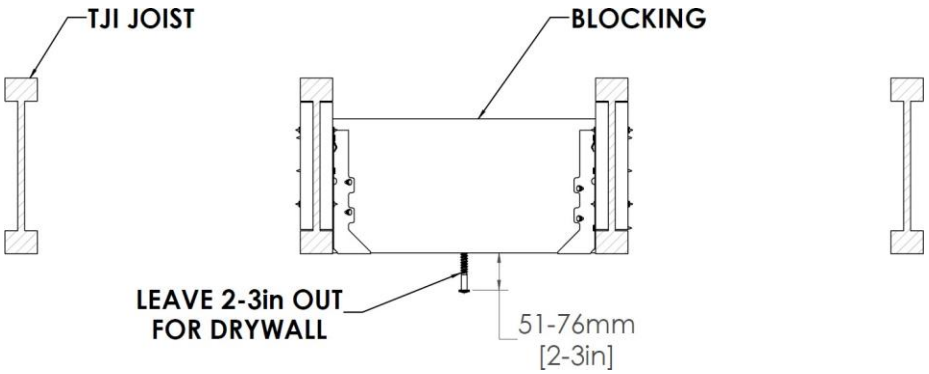


Figure 200: ***Structural Wood Screw or Lag Bolt Extending 2”–3” Below the Joist, so Ceiling Drywall Can be Installed Around It***

11. Repeat steps 5–10 for each attachment point.
12. Explain to the drywall installer that the screws/lags are not to be removed and that the drywall must be installed around them.
13. Wait for the drywall to be installed on the ceiling and painted.
14. Unscrew the structural wood screws or lag bolts from the blocking in the ceiling.
15. Identify the lowest ceiling elevation point of the track system
    a. Set a laser level on a ladder or stand to project a laser line on the wall.
    b. Use a tape measure to measure from the ceiling to the laser line to identify the lowest point on the ceiling.
        - This is the height to set all the brackets to.
        - The bracket at this spot can be mounted flush to the ceiling.

NOTE: **The track must be level, which means it may not be flush with the ceiling if the ceiling isn't level. If shims are required for the space between the bracket and the ceiling, use Handicare shims of various sizes, or create your own using stacked flat washers or other shimming material.**

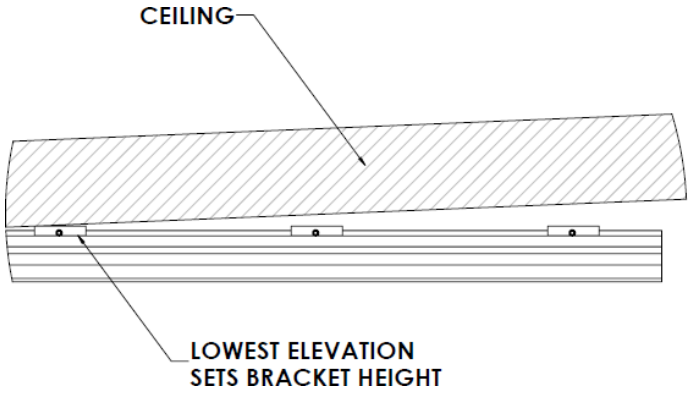


Figure 201: ***Lowest Elevation Point Where the Ceiling Brackets Will Be Installed***

16. Insert the structural wood screw or lag bolt and flat washer through the bottom of the bracket.

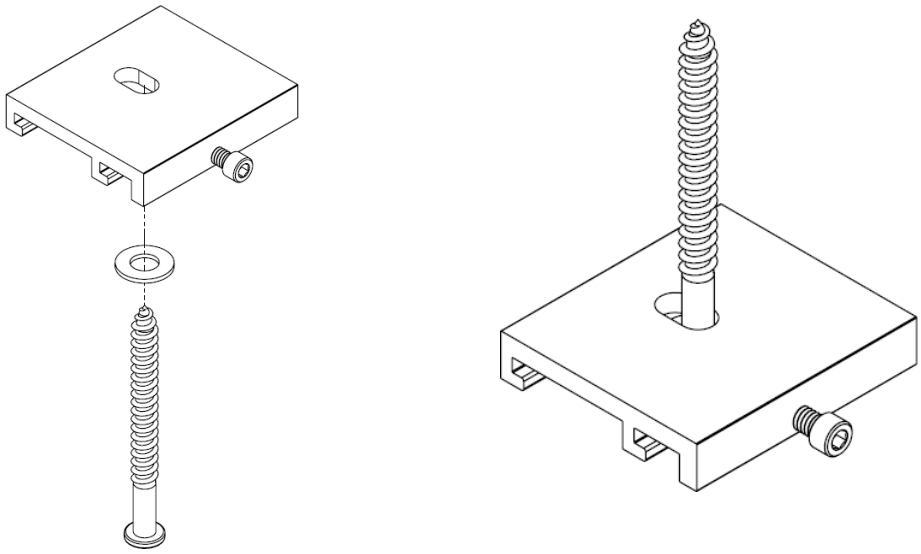


Figure 202: ***Insert the Structural Wood Screw or Lag Bolt and Flat Washer Through the Bottom of the Bracket***

17. On top of this assembly, add any necessary shims onto the shank of the structural wood screw or lag bolt.

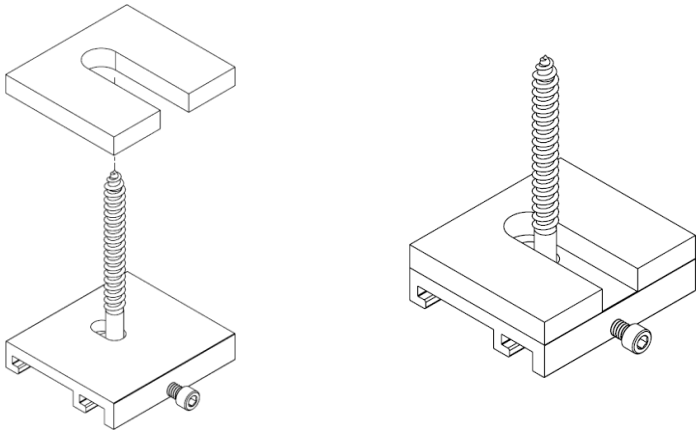


Figure 203: ***Add Any Necessary Shims***

18. Drive the structural wood screw or lag bolt into the center of the wood blocking until the bracket or shims are tight against the ceiling.

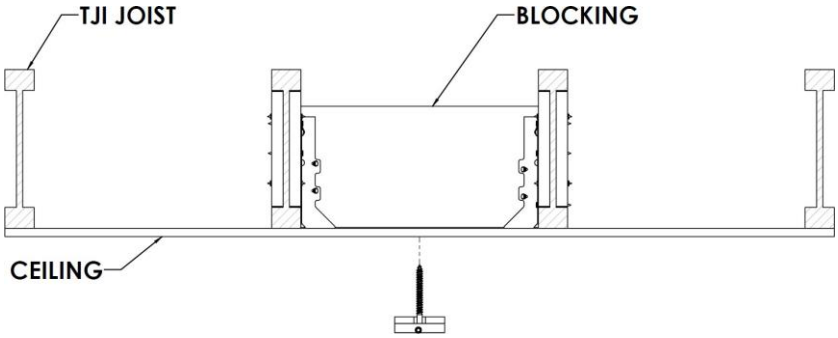


Figure 204: ***Structural Wood Screw or Lag Bolt in the Center of the Wood Blocking***

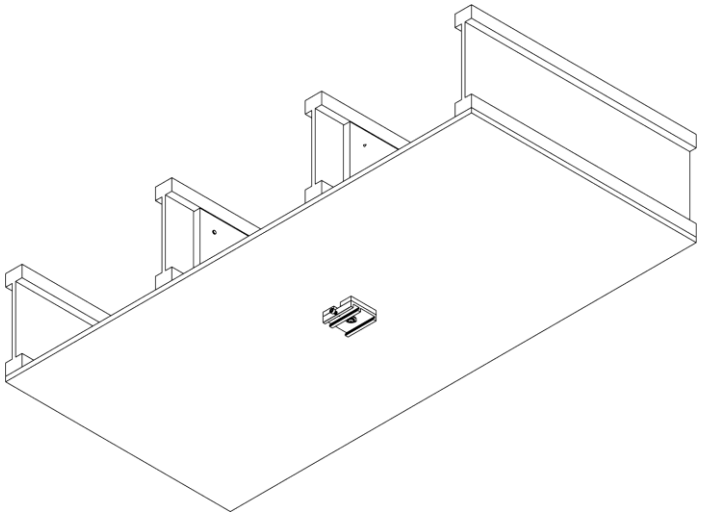


Figure 205: Bracket (with Shims If Required) Tight Against the Ceiling

19. Make sure to drive the screw or lag bolt perpendicular to the bottom of the blocking and not at an angle.
20. Make sure the brackets are all oriented to align with the track.
21. Repeat steps 14–20 for each attachment point location.

Wall Mount Installation

Wall Post System Installation

A wall mount installation consists of support posts that attach to the walls and transfer the weight load to the floor as an alternative to attaching to an overhead structure. Wall mount systems are only utilized for straight track or X/Y configurations.

A two-post wall mount system is comprised of:

- Foot plate (2)
- Post sections (4)
- Shelf bracket (2)
- Post coupler (2)
- Steel connecting plate, bolt, and lock washer assembly (2)
- Hole caps (20)
- Flip Toggles and screws (20)
- Bolt head cap (2)

1. Use a laser line to project where the track will be placed from wall to wall.
    - The laser line should intersect all pick-up points.
    - Where possible, the laser line should square with the room.
    - If installing an X/Y wall mount system, each fixed track is represented by a laser line and must be square to each other.
    - The wall post must be installed flat against a wall; it cannot be installed in front of windows, doors, or other obstructions.

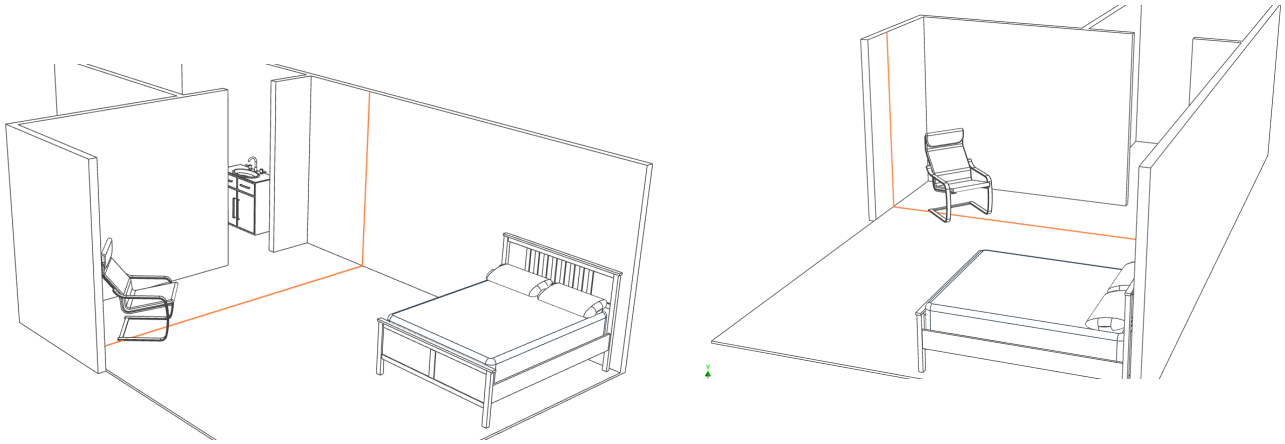


Figure 206: ***Laser Line Projects Track Path from Wall to Wall***

2. Where the laser line is projected, make a vertical mark on the wall representing the center line of the wall post.
3. Use a laser line level to determine the lowest point in the ceiling.
    - This is the maximum height for the top of the track.
4. From the lowest point of the ceiling, measure down the height of the track, plus an additional 1/2":
    - Regular Track 3" (plus 1/2")
    - Super Track 3" (plus 1/2")
    - TrackPlus 6" (plus 1/2")
5. On center with one of the wall post positions, make a horizontal mark on the wall at the measurement determined in step 4.
    - This point indicates where the track will sit on top of the shelf bracket.
6. Set the laser line level at the mark made in step 5.

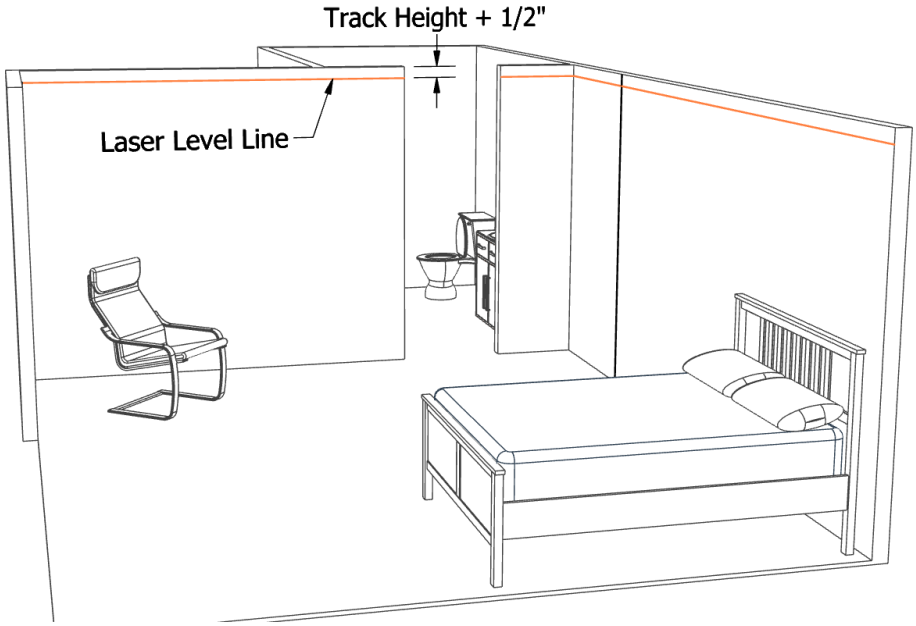


Figure 207: ***Set the Laser Line Level at the Mark Made in Step 5***

7. Mark all other wall post positions at this laser line level height.
8. At each post location, calculate the total height of the assembled wall post:
    a. Measure from the floor to the marks made in steps 6 and 7.
    b. From that measurement, subtract 6 1/4” (the combined height of the foot plate and shelf bracket).
        - Keep in mind that measurements for the posts may vary depending on the levelness of the floor.

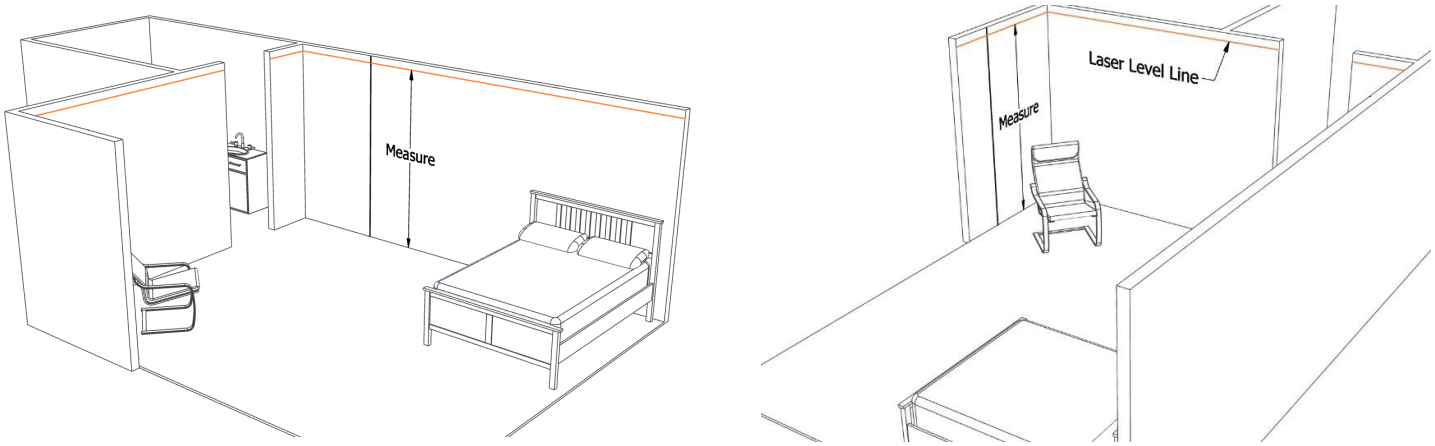
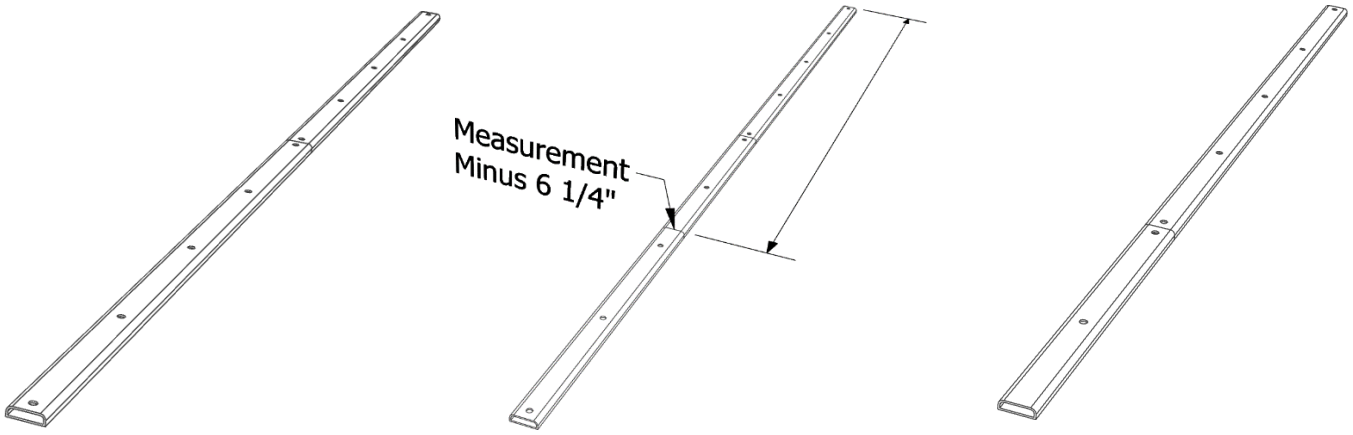


Figure 208: ***Calculate the Total Height of the Assembled Wall Post***

9. Cut each post to length:
    a. Lay two posts on the floor, butted together.
    b. Measuring from one end of the combined post, mark the post length measurement from step 8.
    c. Use a chop saw with a blade suitable for cutting aluminum to cut the post to size at the mark.



a. Post sections butted together

b. Mark location where bottom post will be cut to size

c. Post sections after cut

Figure 209: ***Measure and Cut Posts to Length***

10. Repeat steps 8 and 9 for each post.
11. Insert the foot plate into the cut end of the post.
    - The cut end of the post must be on the bottom.
12. Center the post and foot plate on the wall line marked for the post.
    - Use a level to make sure the post is perpendicularly level.
13. On the wall, mark each hole location for the lower wall post.

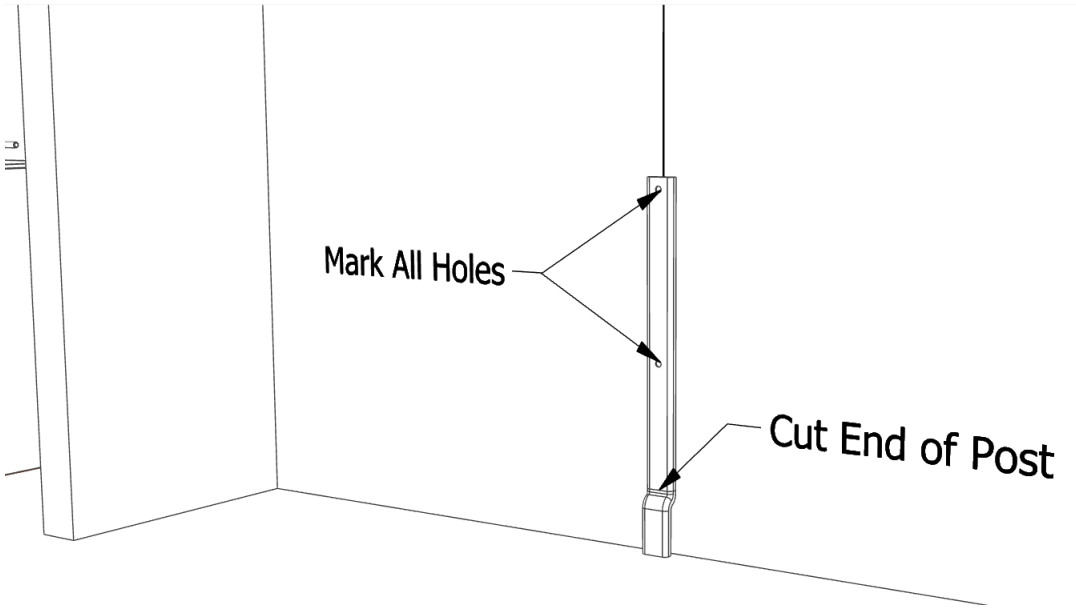


Figure 210: ***Each Hole Location for the Lower Wall Post Marked on the Wall***

14. Insert the post coupler and align with the top hole of the lower post.
    a. Mark the upper hole of the post coupler on the wall.

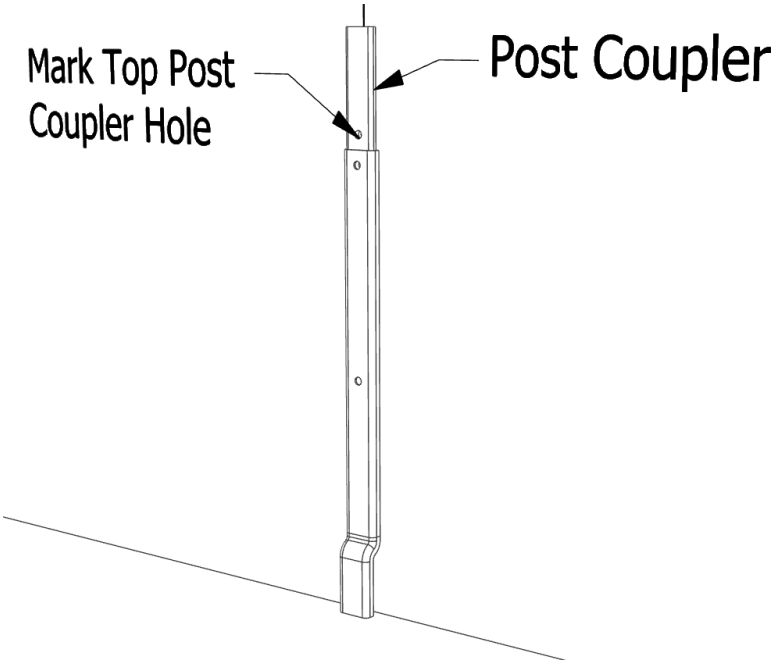
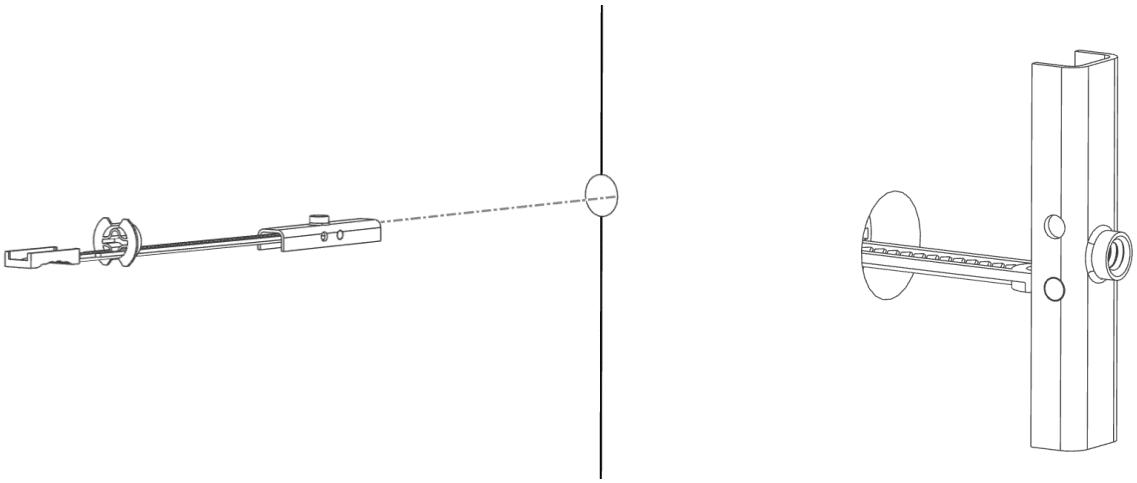


Figure 211: ***Insert the Post Coupler and Align with the Top Hole of the Lower Post.***

15. Remove the post and use a 1/2” drill bit to drill a hole at each marked hole location.
16. In each hole,
    a. Insert a flip toggle into the drilled hole.
    b. When completely inserted, pull the strap to flip the toggle flat against the back of the wall.



Outside of wall view *Inside of wall view*

Figure 212: ***Flip Toggle***

    c. Push the cap into the drilled hole until it’s flush with the wall.
    d. Hold the cap against the wall and pull the strap towards you until tight.

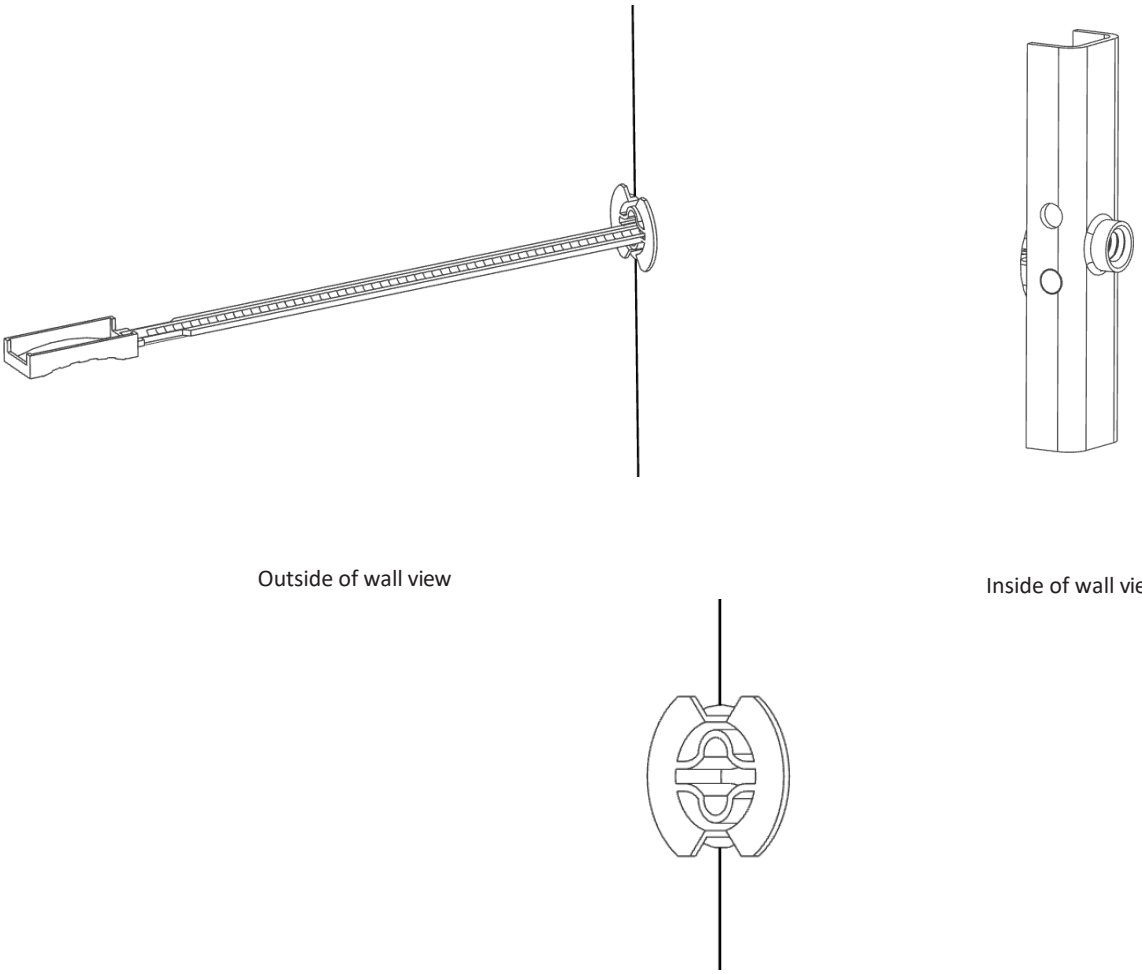


Figure 213: ***Installing the Flip Toggle***

17. With the foot plate inserted into the post, align the lower post so its holes align with the installed flip toggles.
18. Insert the post coupler into the top channel of the lower post until the bottom hole of the plate aligns with the top hole of the lower post.

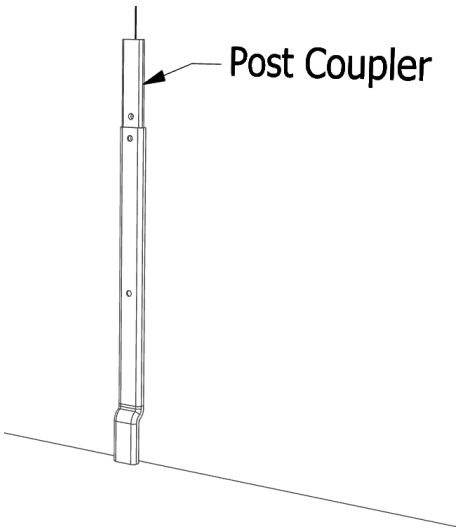


Figure 214: ***Insert the Post Coupler***

19. Insert one of the flip toggle screws into the wall through the aligned top hole of the lower post and the bottom hole of the post coupler (Position 1 in Figure 215).
20. Thread the flip toggle screw into the flip toggle and tighten.
21. Insert flip toggle screws into the remaining holes on the lower post and tighten. (Position 2 in Figure 215).

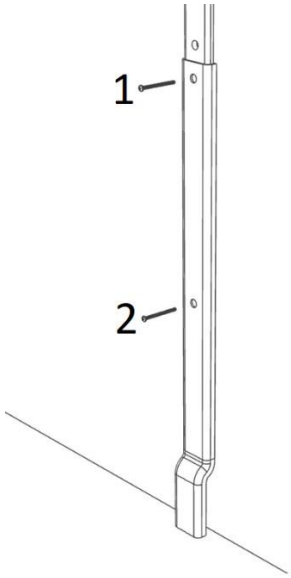


Figure 215: ***Insert Flip Toggle Screws into the Remaining Holes on the Lower Post***

22. Slide the upper portion of the wall post onto the wall mount connection plate.
    - Use a level to make sure the post is perpendicularly level.
23. Mark each hole location for the upper wall post on the wall.

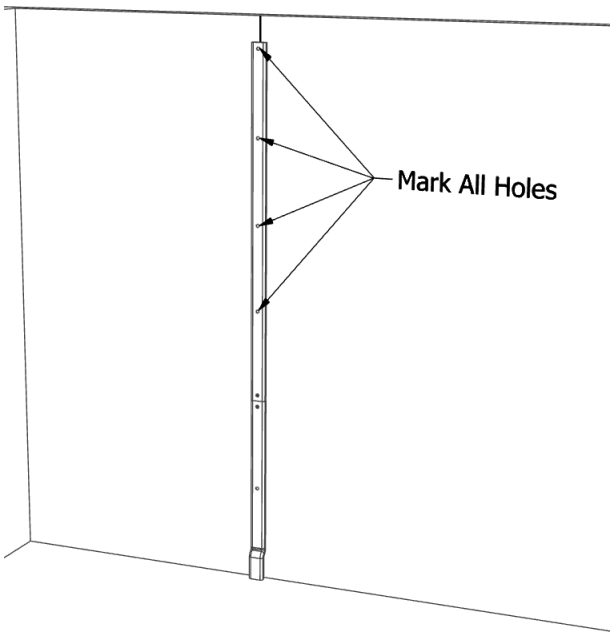


Figure 216: ***Mark All Holes***

24. Remove the post and use a 1/2” drill bit to drill a hole at each marked hole location.
25. In each hole,
    a. Flip the head of the flip toggle so it’s in line.
    b. Insert the flip toggle into the drilled hole.
    c. When completely inserted, pull the strap to flip the toggle flat against the back of the wall.
    d. Push the cap into the drilled hole until it’s flush with the wall.
    e. Hold the cap against the wall and pull the strap towards you until tight.
    f. Snap off the excess of the strap flush with the wall.
26. Insert the shelf bracket into the top of the upper wall post.

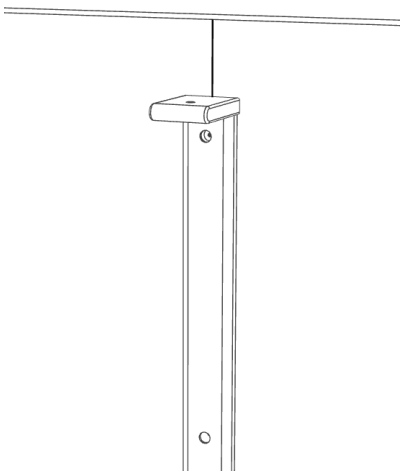


Figure 217: ***Shelf Bracket Inserted***

27. Slide the upper post onto the post coupler.
28. Align the upper post so its holes align with the installed flip toggles.
29. Insert one of the flip toggle screws into the wall through the aligned bottom hole of the upper post and the top hole of the post coupler (Position 1 in Figure 218).
30. Thread the flip toggle screw into the flip toggle and tighten.
31. Insert one of the flip toggle screws into the wall through the aligned top hole of the upper post and the hole of the shelf bracket. (Position 2 in Figure 218).
32. Thread the flip toggle screw into the flip toggle and tighten.
33. Insert flip toggle screws into the remaining holes on the upper post and tighten. (Position 3 in Figure 218).

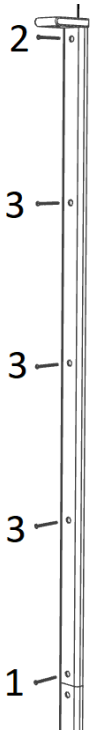


Figure 218: ***Flip Toggle Installation***

34. Insert the supplied hole caps into all post holes.
35. Repeat steps 11–34 for each wall post.
36. Determine the length of track that will rest on top of the wall posts:
    a. From the center of the posts, measure from wall to wall.
    b. Subtract 1/2” to provide space to set the track in place

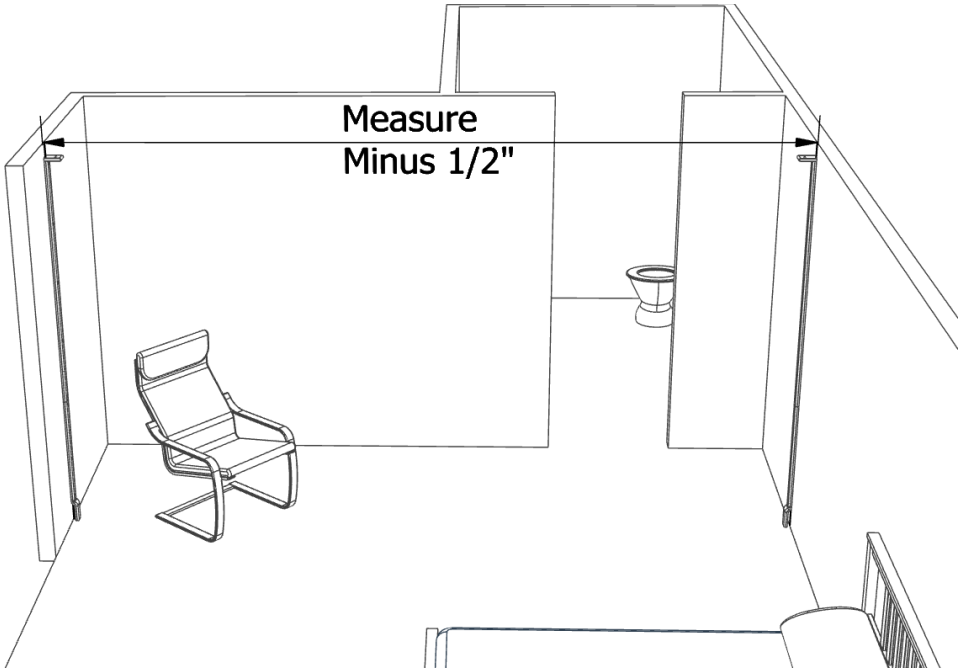


Figure 219: ***Wall to Wall Measurement from the Center of the Posts***

37. Use a chop saw with blade suitable for cutting aluminum to cut the track to size.
38. At the ends of the track, drill a hole in preparation for installing a clevis pin and ring:
    a. At each end of the track, on each side of the track, mark a point 1 1/2” from the end of the track and 1 1/8” from the bottom of the track.
    b. Use a 5/16” bit to drill a hole at the marked spots for the clevis pin (Figure 220).
    c. Remove burrs and aluminum shavings that can damage the ceiling lift.

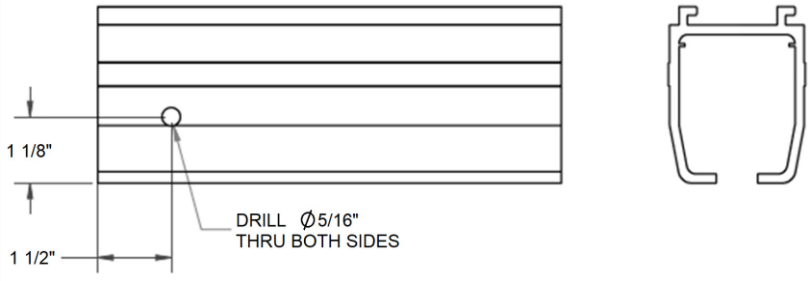


Figure 220: ***Clevis Pin Hole Location***

NOTE:	**All internal track components (clevis pins, chargers, endstops, trolleys, ceiling lift, omni components, etc.) must be inserted prior to hanging the track on the wall post. Endcaps do not need to be installed in a wall post system.**

39. Install the internal track components:
    a. Install the ceiling lift or trolley. Follow the steps in “CEILING LIFT INSTALLATION” (Page 169).
    b. At the ends of the track, install the standard endstops and charging endstop (if applicable) and torque the bolts to 12–14 ft lbs.

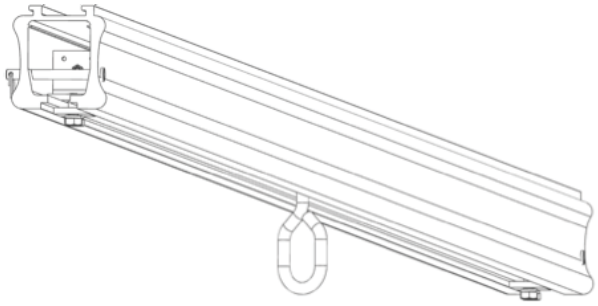


Figure 221: ***Endstops Installed at the Ends of the Track***

- Leave 4 1/2” between the end of the track and endstop to allow the track to sit flat on the shelf bracket.

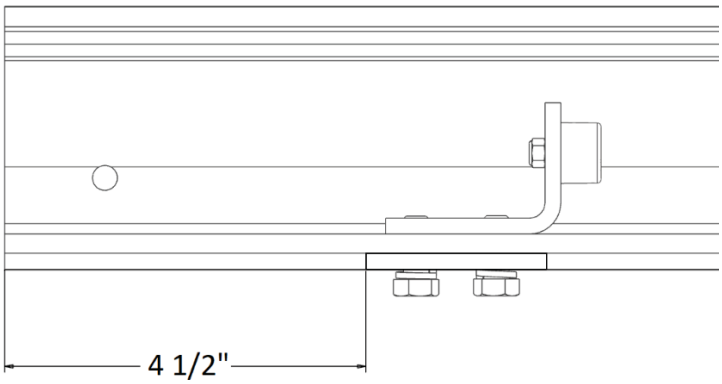


Figure 222: ***Leave 4 1/2” Between the End of the Track and Endstop***

- Install the clevis pin and ring as shown in Figure 223.

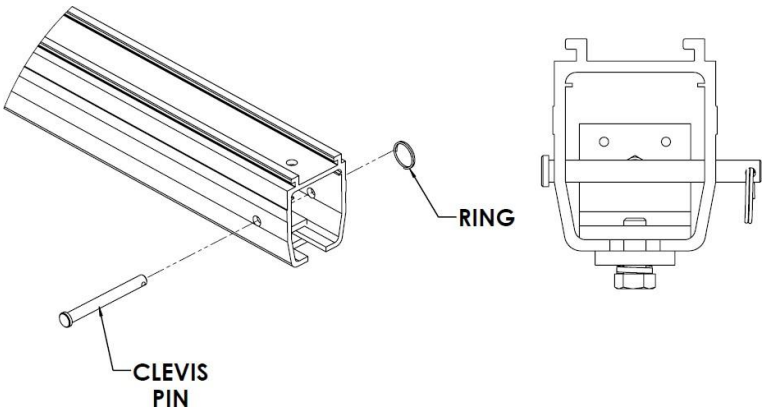


Figure 223: ***Clevis Pin and Ring Installed***

40. Insert the steel connecting plate into each end of the track (Figure 224).
    - The round edge of the steel plate faces down to match the contour of the track.

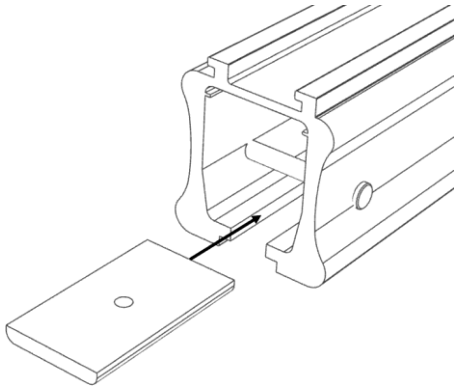


Figure 224: ***Insert the Steel Connecting Plate***

41. Place the track on top of the wall post shelf brackets.

- Make sure both ends of the track are held in place by hand until they are secured to prevent the track from falling**.**

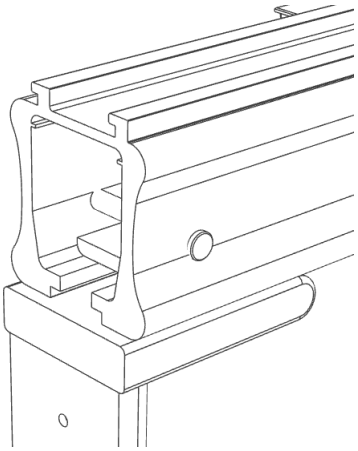


Figure 225: ***Track on Top of the Wall Post Shelf Brackets***

42. Align the steel connecting plate to the hole in the shelf brackets.
    - Make sure the steel connecting plate is fully inserted into the track channel so no portion of the plate protrudes from the track.
43. Use the bolt and lock washer to secure the track and connecting plate to each shelf bracket.
    - Torque each bolt to 25 ft lbs and make sure the lock washer is fully compressed.

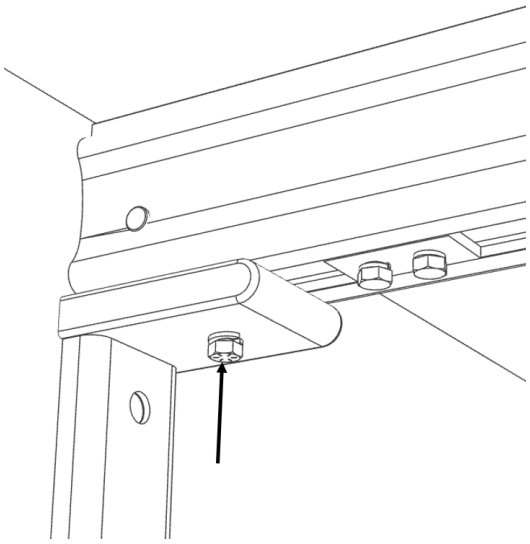


Figure 226: ***Secure the Track and Connecting Plate to Each Shelf Bracket***

44. Install the bolt head caps on the bolts at each end of the track.
45. Test the system. Follow the steps in “Testing and Inspection” (Page 170).

Heavy Duty Wall Mount Installation

For each heavy duty wall mount attachment point, these components will be required:

- Wall Mount Bracket Kit Heavy Duty (360809)—Kit Contains:
  - 360463 - Wall Mount Bracket (2)
  - 360466 - Wall Mount Ceiling Bracket (2)
  - 360449 - 6 inch Ceiling Bracket Strip (2)
  - 690200 - 3/8”-16 x 1” Hex bolt (4)
  - 690212 - 3/8” Lock washer (4)
  - 690211 - 3/8”-16 Hex Nut (4)
- 10” x 1 5/8” hardwood board long enough to span three wall studs with a 4” overhang on each side
- 3/8” lag bolts and washers long enough to penetrate hardwood board, drywall and embed 2” into the wall stud (9 per attachment point)

To install a track system using a heavy duty wall mount:

1. Follow the steps in “PREPARATION” (Page 8). to make sure to have all necessary tools and supplies.
2. Use a laser line to project where the track will be placed from wall to wall.
   - The laser line should intersect all pick-up points.
   - The laser line should be square with the room.
   - If installing an X/Y wall mount system, each fixed track is represented by a laser line and must be square to each other.

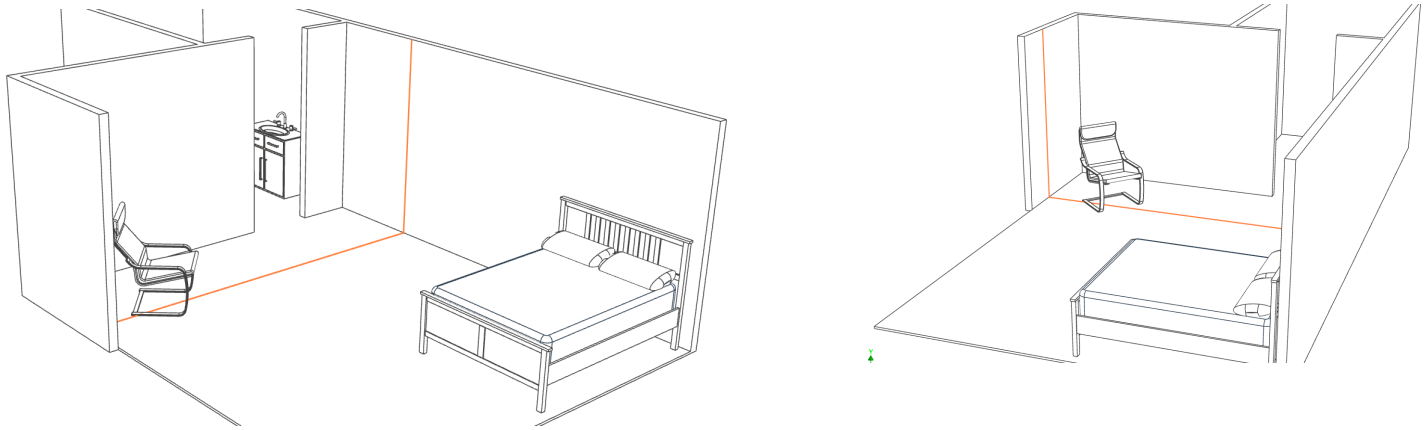


Figure 227: ***A Laser Line Projects Where the Track Will be Placed from Wall to Wall***

3. Use a laser line level to determine the lowest point in the ceiling.
    - This is the maximum height for the hardware on top of the assembled connector bracket.
4. Near the ceiling, locate the centers of the three wall studs where the board will be mounted to the wall.

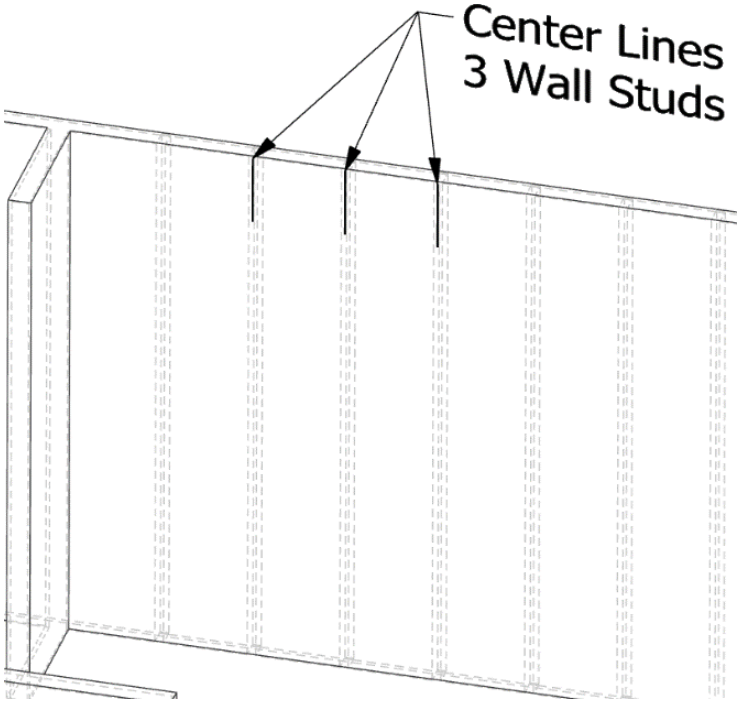


Figure 228: ***Locate the Center of Three Wall Studs Near the Ceiling***

- Make sure the laser line representing the center line of the track intersects the board location.
- The line must be at least 4” from either end of the board.

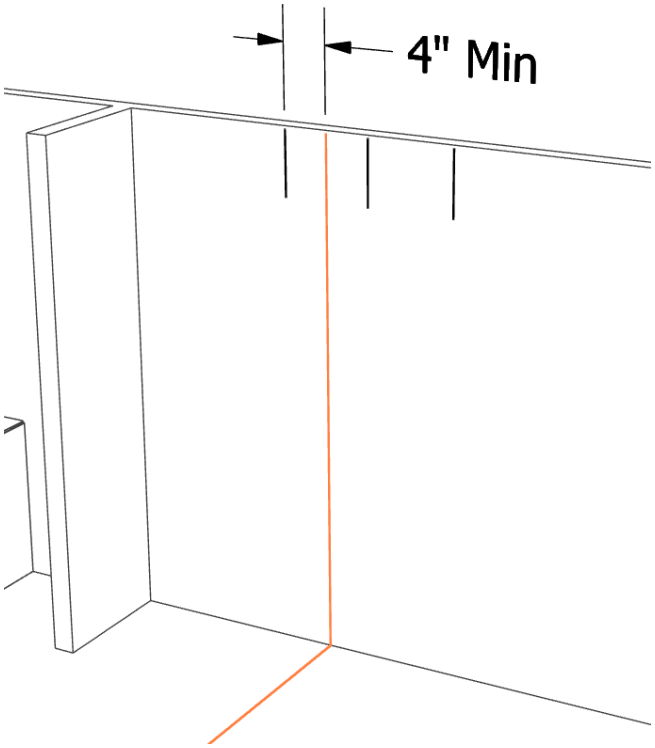


Figure 229: ***Center Line Intersecting the Board Location at Least 4" from Either Side of the Board***

- The width of the wall mount bracket is 5 1/8"; make sure it is clear of the stud locations.

5. Cut the 10" x 1 5/8" hardwood board so that there is a minimum of 4" past the outer joists on both sides.

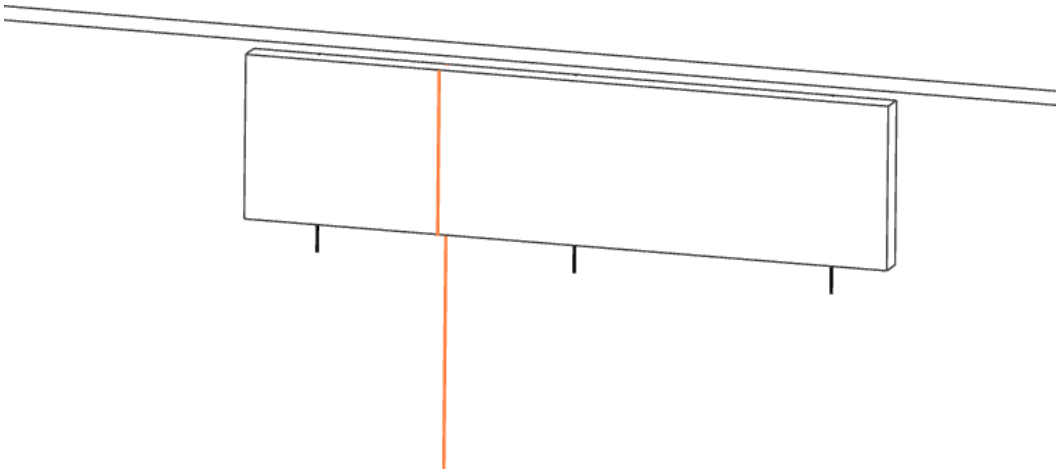


Figure 230: ***Board Cut to Size***

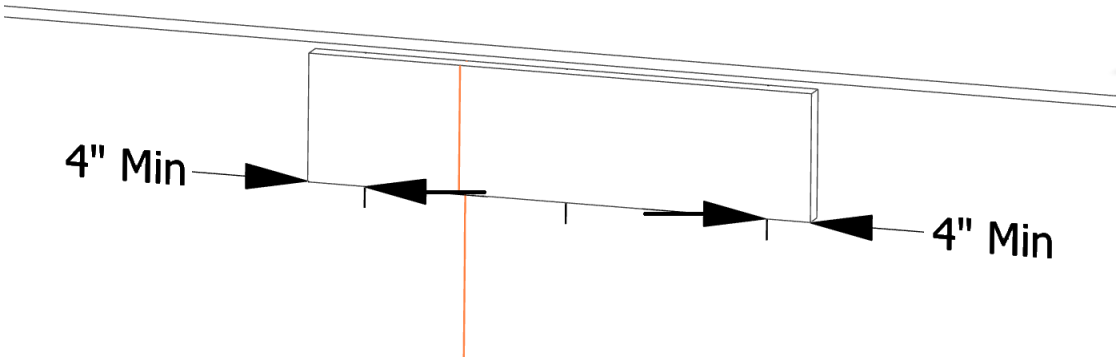


Figure 231: ***Minimum of 4” Past the Outer Joists on Both Sides***

6. Use a 1/4” bit to drill six pilot holes through the hardwood board and into the center of each wall stud (two holes in each stud).

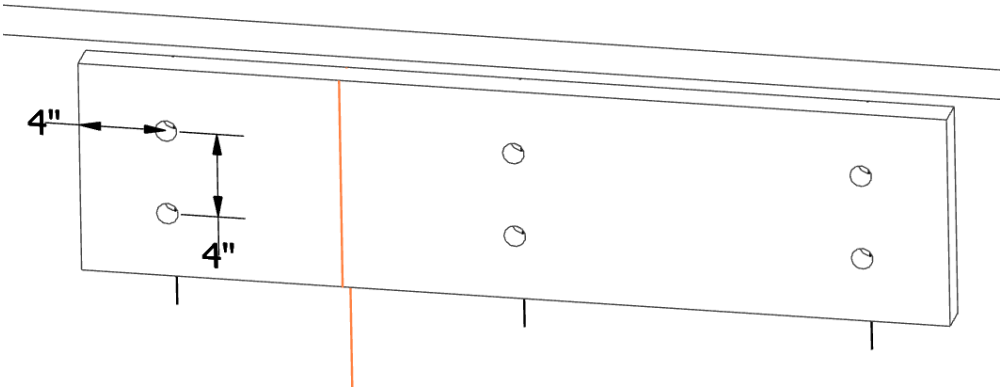


Figure 232: ***Six Pilot Holes***

- This will prevent splitting the studs with the 3/8” lag bolts.

7. Secure the board to the wall.

- Use six 3/8” lag bolts and flat washers to attach the hardwood board into the wall studs at all six hole locations.
- Make sure the bracket is square and level.

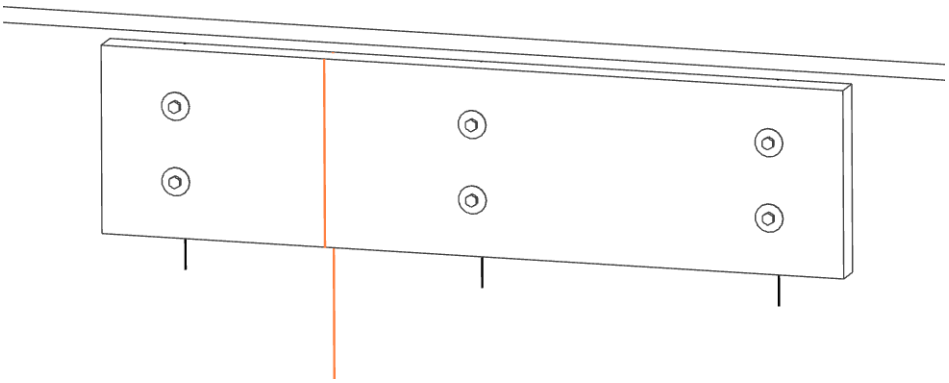


Figure 233: ***Board Secured to the Wall with six 3/8” Lag Bolts and Flat Washers***

- Embed the 3/8” lag bolts into the wall studs to 2”.

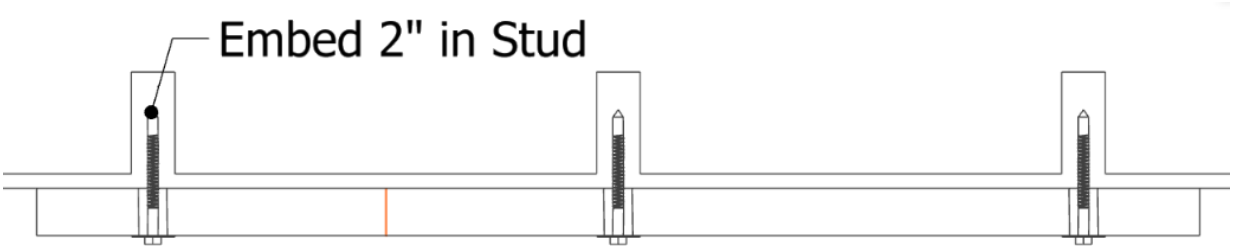


Figure 234: ***Embed the 3/8" lag Bolts into the Wall Studs to 2"***

- Paint the hardwood board to match the wall for best appearance and finish.

8. Attach the 6" connector bracket to the heavy duty wall mount bracket using 3/8" diameter hex bolts, lock washers, and hex nuts.

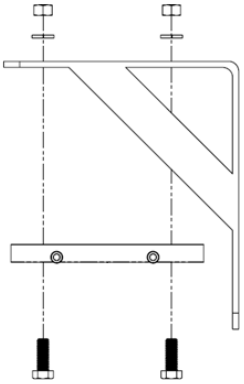


Figure 235: ***Attach the 6" Connector Bracket to the Heavy Duty Wall Mount Bracket***

- Make sure the connector bracket is oriented to align with the track.

9. Position the wall mount bracket assembly onto the hardwood board on center with the laser line and mark the three hole locations for attaching the bracket to the board.
   - Make sure the wall mount bracket assembly is oriented as shown in Figure 236.
   - Make sure the bracket is square and level.

10. Using a 1/4” bit, drill three pilot holes at the marked locations.

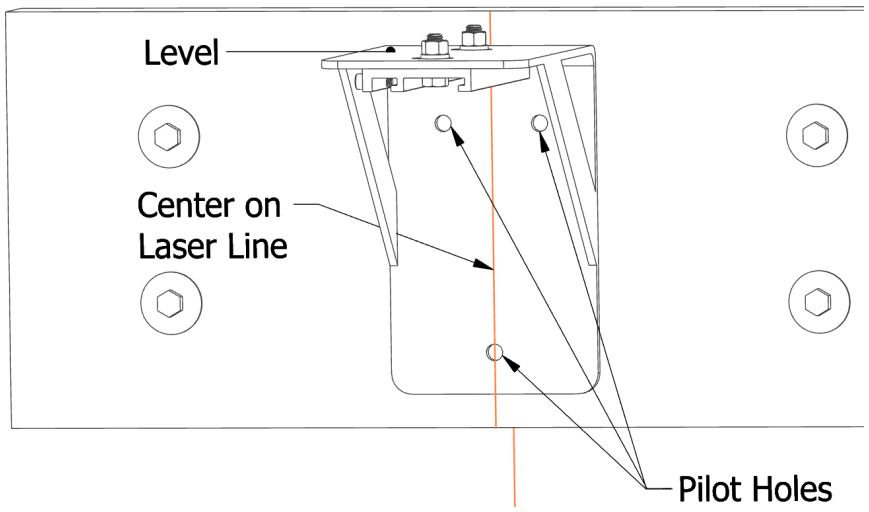


Figure 236: ***Wall Mount Bracket Assembly: Proper Orientation***

11. Using three 3/8” lag bolts and flat washers, connect the bracket to the hardwood board.
    - Make sure the bracket is square and level.

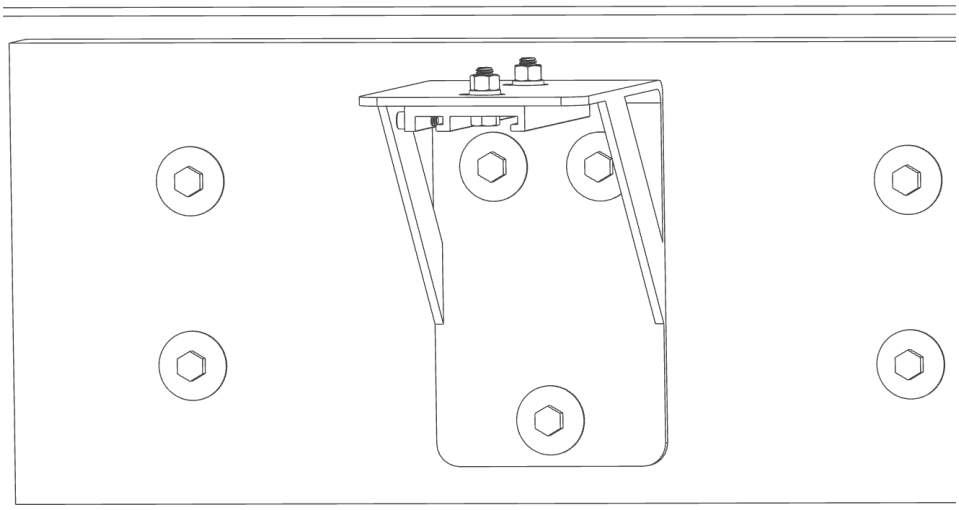


Figure 237: ***Bracket Positioning Square and Level***

12. Repeat steps 4–11 for the second wall mount bracket.
    - Make sure all wall mount brackets are level to each other.
13. Determine the length of track that will mount to the brackets.
    a. Measure the distance between boards.
    b. Subtract 2” to provide space to set the track in place.

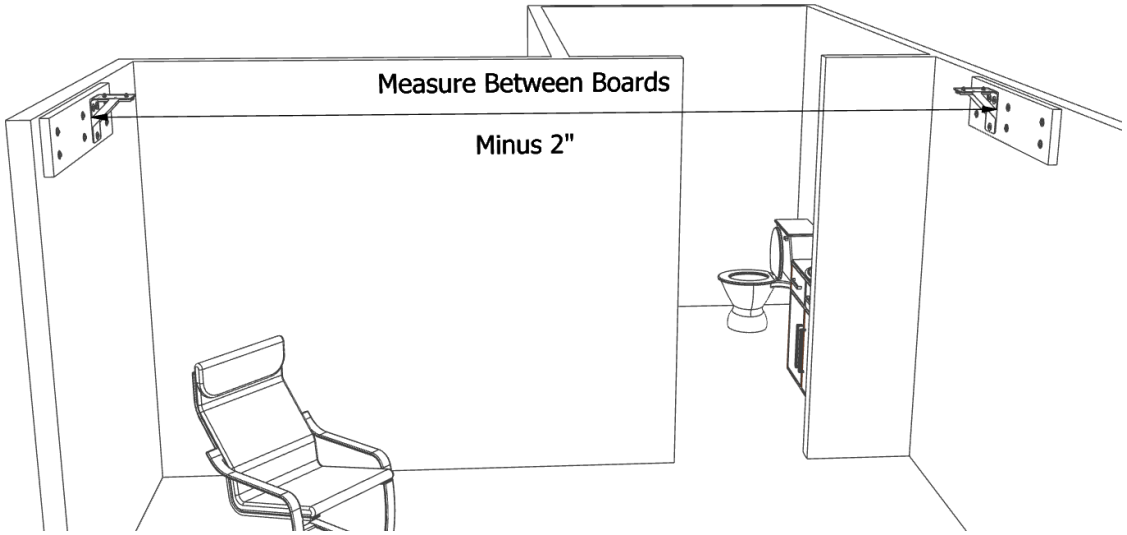


Figure 238: ***Measure the Distance Between Boards***

14. Use a chop saw with blade suitable for cutting aluminum to cut the track to size.
15. At the ends of the track, drill a hole in preparation for installing a clevis pin and ring:
    - At each end of the track, on each side of the track, mark a point 1 1/2” from the end of the track and 1 1/8” from the bottom of the track.
    - Use a 5/16” bit to drill a hole at the marked spots for the clevis pin (Figure 239).
    - Remove burrs and aluminum shavings that can damage the ceiling lift.

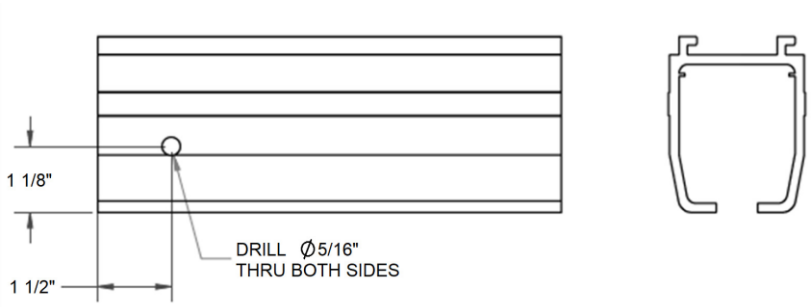


Figure 239: ***Clevis Pin Hole Location***

NOTE:	**All internal track components (clevis pins, chargers, endstops, trolleys, ceiling lift, omni components, etc.) must be inserted prior to hanging the track on the wall post. Endcaps do not need to be installed in a wall post system.**

16. Install the internal track components.
    a. Install the ceiling lift or trolley. Follow the steps in “CEILING LIFT INSTALLATION” (Page 169).
    b. At the ends of the track, install the standard endstops and charging endstop (if applicable) and torque the bolts to 12–14 ft lbs.
    c. Install the clevis pin and ring at ends of track as shown in Figure 240.

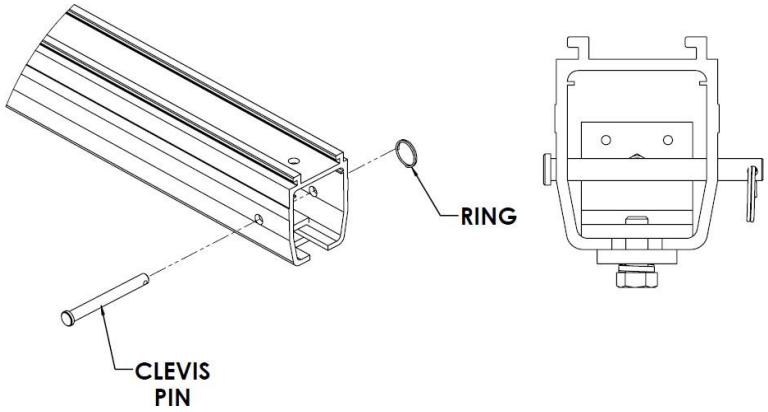


Figure 240: ***Clevis Pin and Ring Installed***

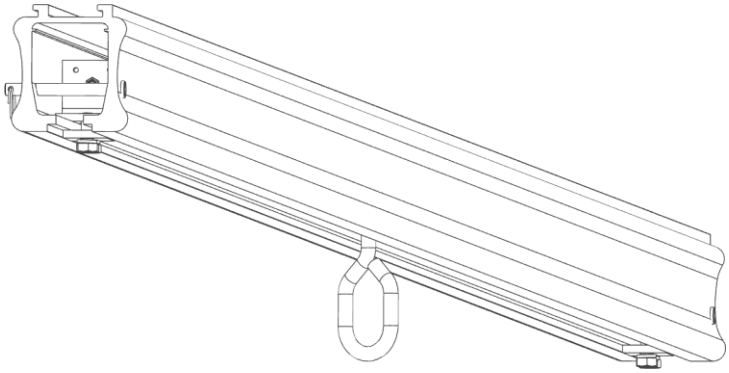


Figure 241: ***Endstops, Clevis Pins and Trolley Installed in the Track***

17. Hang the track into the 6” track brackets on the wall mounts

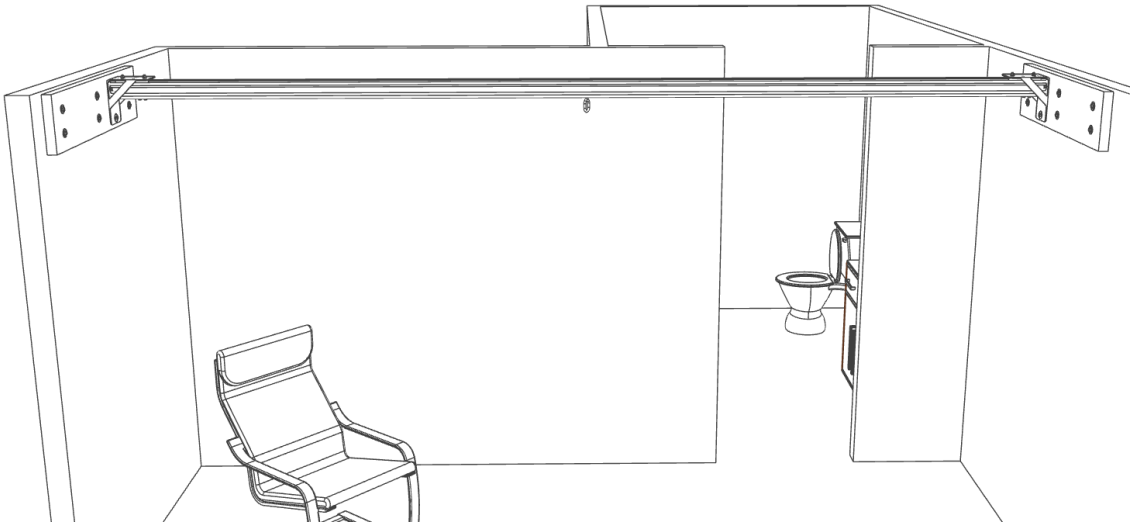


Figure 242: Hang the Track

a. Make sure the track is fully seated in the bracket channel.
b. Tighten the set screws.

18. On both wall mount 6” brackets, install the included bracket strips (360449) between the track channel and tighten the set screws. To insert the bracket strip:
    a. Loosen one set screw on the 6” bracket.
    b. Slide the bracket strip into the channel until it contacts the tightened set screw.
    c. Make sure the bracket strip is seated in between the two set screws.
    d. Apply Blue Loctite 243 to all the set screws and torque each to 40–45 in lbs.
19. Test the system. Follow the steps in “Testing and Inspection” (Page 170).

Institutional Settings

Concrete Slab Installation

In institutional settings where the ceiling is supported by concrete slab, mounting involves attaching sections of strut directly to the concrete structure using 1/2” diameter seismic wedge anchors embedded directly into the concrete at the required embedment depth. Threaded rods are then fastened to the strut between the two seismic wedge anchors and dropped to the height where the track will be mounted. Figure 243 shows a concrete structure attachment.

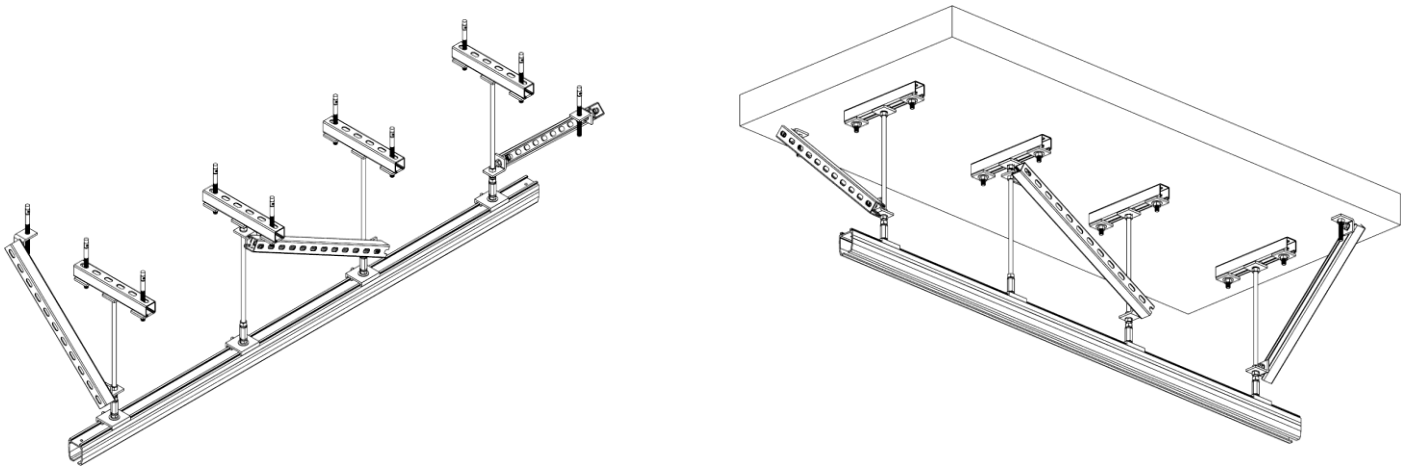


Figure 243: ***Concrete Installation***

Concrete structure attachment consists of:

- A vertical attachment point to connect track to the structure vertically
- Lateral bracing to secure the track from side-to-side movement
- A ceiling bracket assembly

See Figure 244.

- A vertical attachment point to connect track to the structure vertically
- Lateral bracing to secure the track from side-to-side movement
- A ceiling bracket assembly

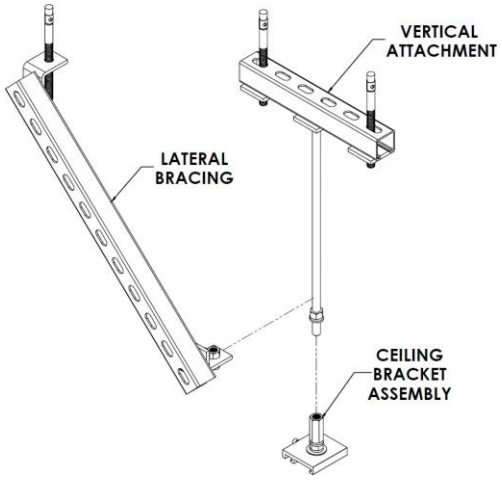


Figure 244: ***Concrete Structure Attachment***

For each vertical attachment point (one per ceiling track bracket), the following components are required:

- 1 5/8” slotted (1/2”) strut channel
- 1/2” seismic wedge anchors (2)
- 1/2” square strut washers (3)
- 1/2” strut channel nut
- 1/2” lock washers (2)
- 1/2” hex nuts (2)
- 1/2” threaded rod

See Figure 245

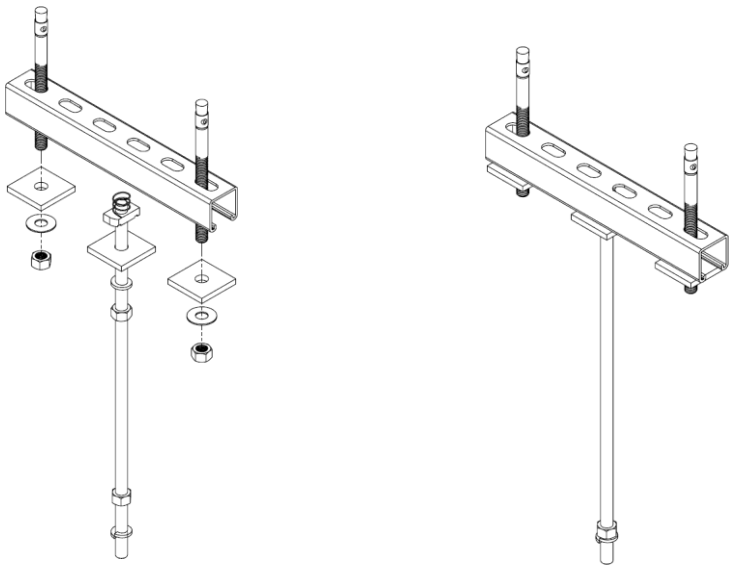


Figure 245: ***Vertical Attachment***

For each lateral bracing point (typically three per track section), the following components are required:

- 1 5/8” slotted (1/2”) strut channel
- 1/2” seismic wedge anchor
- 1/2” two-hole 90° strut fitting (2)
- 1” x 1/2” bolt (2)
- 1/2” strut channel nut (2)
- 1/2” lock washers (3)
- 1/2” hex nuts (2)

See Figure 246.

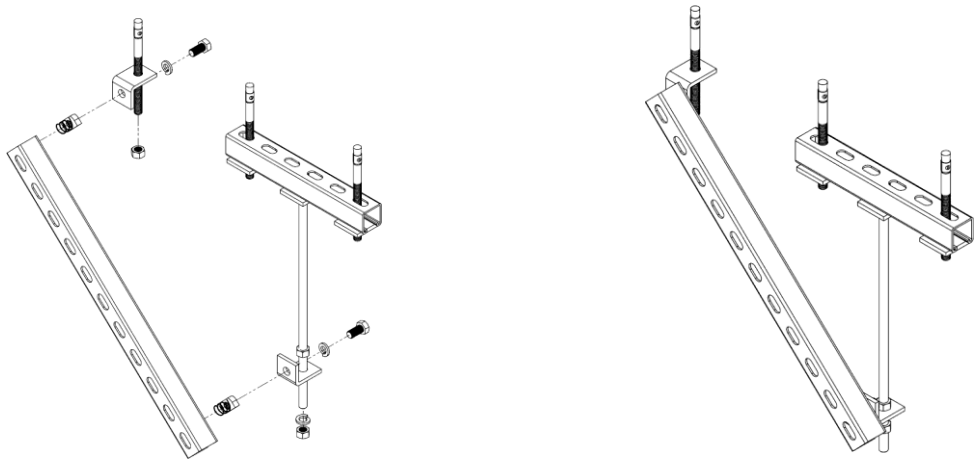


Figure 246: ***Lateral Bracing***

For each ceiling track bracket assembly, the following components are required:

- 3” Handicare Bracket (1/2” slot) (360478)
- 1/2” coupling nut
- 1/2” lock washer (2)
- 1 1/2” x 1/2” bolt
- 1/2” flat washer
- 1/2” hex nut

See Figure 247.

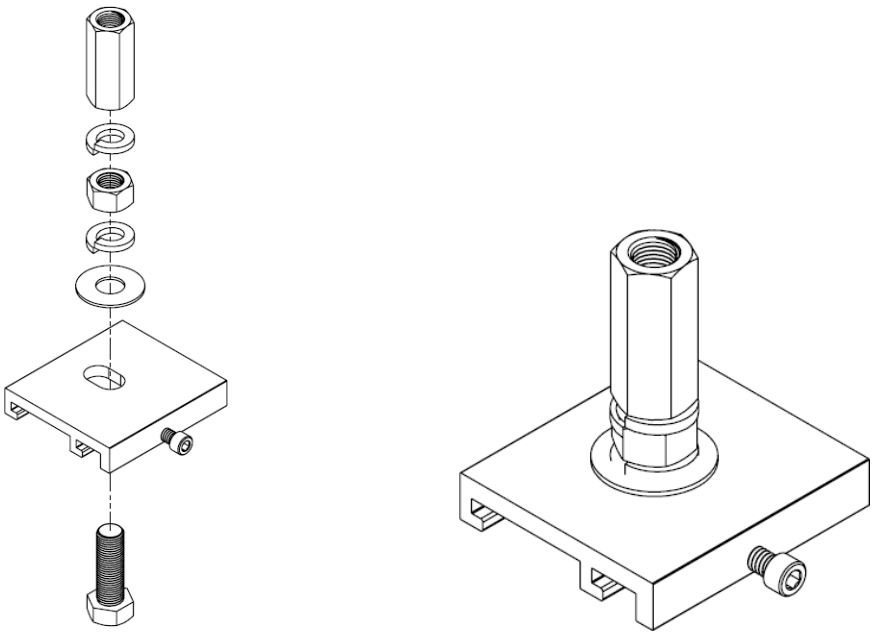


Figure 247: ***Ceiling Bracket Assembly***

Install the Vertical Attachment Points

1. Follow the steps in “PREPARATION” (Page 8). to make sure to have all necessary tools and supplies.
2. Complete step 1 of “Basic Track Systems” (Page 8).
    - Use painter’s tape and a marker to mark the bracket locations on the floor.
3. Using the band saw, cut the strut to 12” sections.
    - Cut one segment of strut for each ceiling track bracket.
    - Do not cut through the slots.

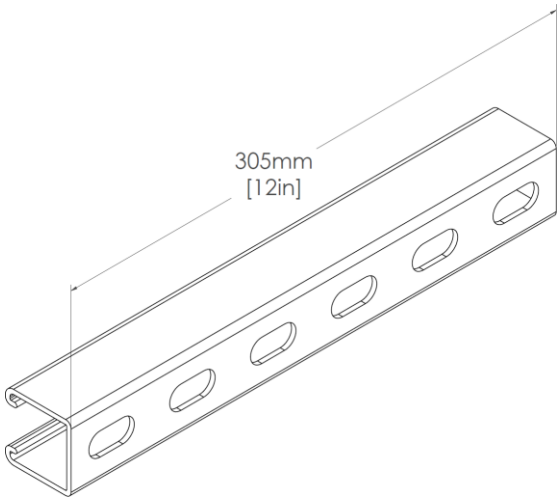


Figure 248: ***Cut Strut Segment***

4. Use a plumb bob to transfer the bracket locations from the floor to the concrete slab.
    - Adjust bracket locations along the center line of the rail to avoid conflicts with MEP in the ceiling.
    - Make sure the space between the connection points is within the allowable spans indicated in the Span and Cantilever charts in Appendix A.
    - If mechanical, electrical or plumbing equipment cannot be avoided, a “bridge” or “trapeze” (Figure 249) may be necessary. Refer to the strut channel manufacturer’s specifications to determine the type and size of strut channel required to meet load capacity and span conditions.

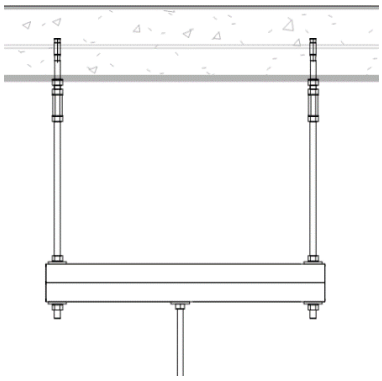


Figure 249: ***A Trapeze Created to Avoid an Above Ceiling Conflict***

5. Align the 12” section of strut on the concrete slab so the plumb bob point is centered in the 1 5/8” slotted (1/2”) strut channel.
6. Using a marker, mark the end slots of the strut on the concrete slab (Figure 250).

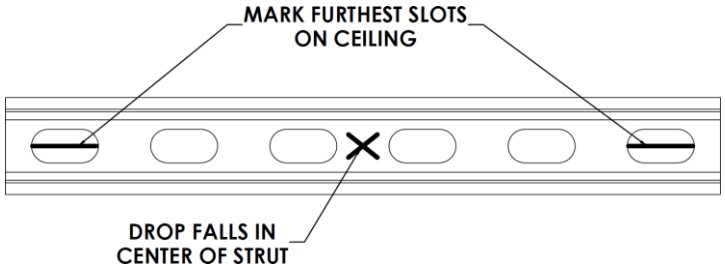


Figure 250: ***Mark the End Slots of the Strut on the Concrete Slab***

7. Use a hammer drill with a 1/2” masonry bit to drill the hole locations to the proper anchor embedment depth.
    - When installing anchors into a steel over concrete pan deck, make sure anchors are placed in the center of the lower flute channels as shown in Figure 251.

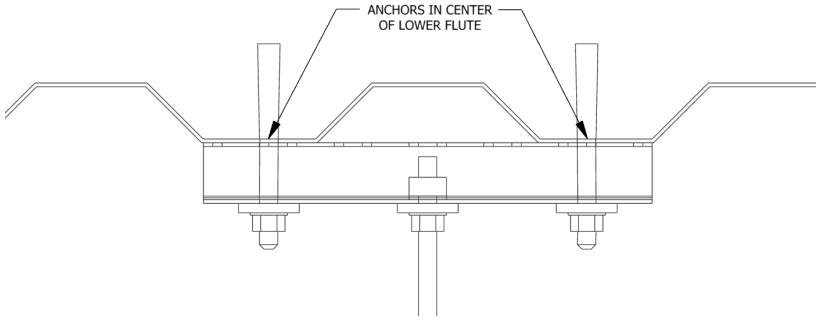


Figure 251: ***Anchors Installed in Center of Lower Flute***

8. Secure the strut to the concrete using the seismic wedge anchors, square strut washers, flat washers, and hex nuts (Figure 252).
    - Torque to the manufacturer's recommended setting.

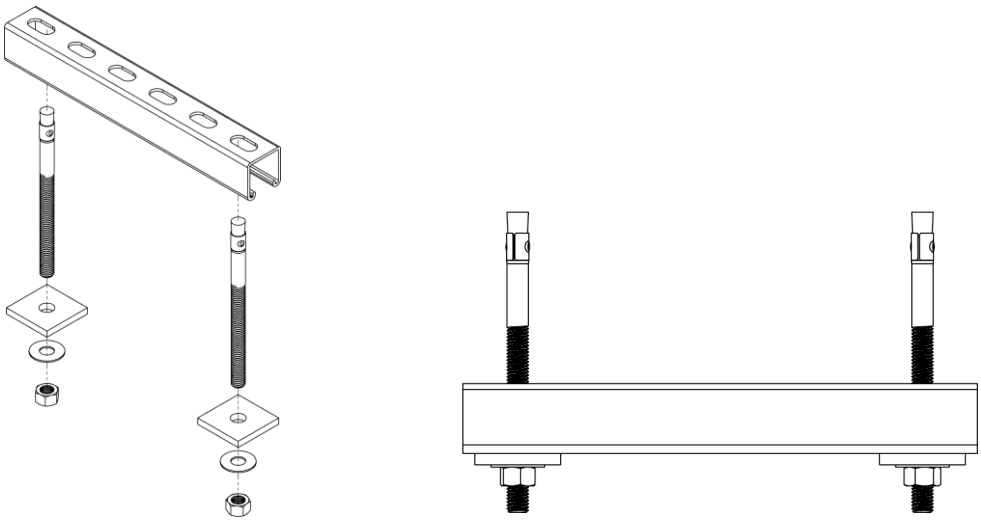


Figure 252: ***Strut Secured to the Concrete***

9. Measure and cut the threaded rod to the appropriate length.
    - Measure from the bottom of the 1 5/8" slotted (1/2") strut channel to the lowest ceiling elevation and subtract 1".
10. Attach the threaded rod to the 1 5/8" slotted (1/2") strut channel where the attachment point is to be located, using a hex nut, lock washer, square strut washer, and channel nut, as shown in Figure 253.

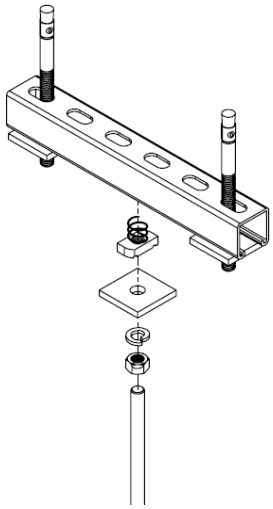


Figure 253: ***Attach the Threaded Rod***

- Make sure the threaded rod is fully threaded into the strut channel nut (Figure 254).

Install Lateral Bracing

11. Identify the number of braces required and their location.
    - Each section of track requires three lateral braces:
        - Two braces running perpendicular to the track, at each end of the track
        - One brace running parallel to the track

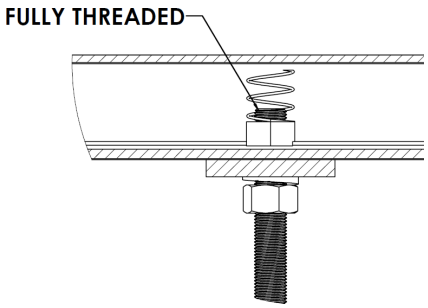


Figure 254: ***Threaded Rod Fully Threaded into the Strut Channel Nut***

- Make sure the bottoms of all threaded rods are level to each other (Figure 255).

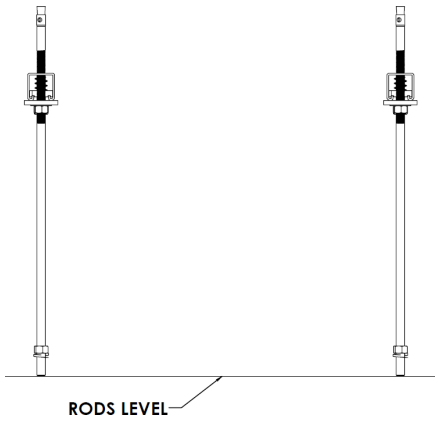


Figure 255: ***Bottoms of All Threaded Rods Level to Each Other***

- Make sure the strut channel nut is seated properly in the 1 5/8” slotted (1/2”) strut channel (Figure 256).

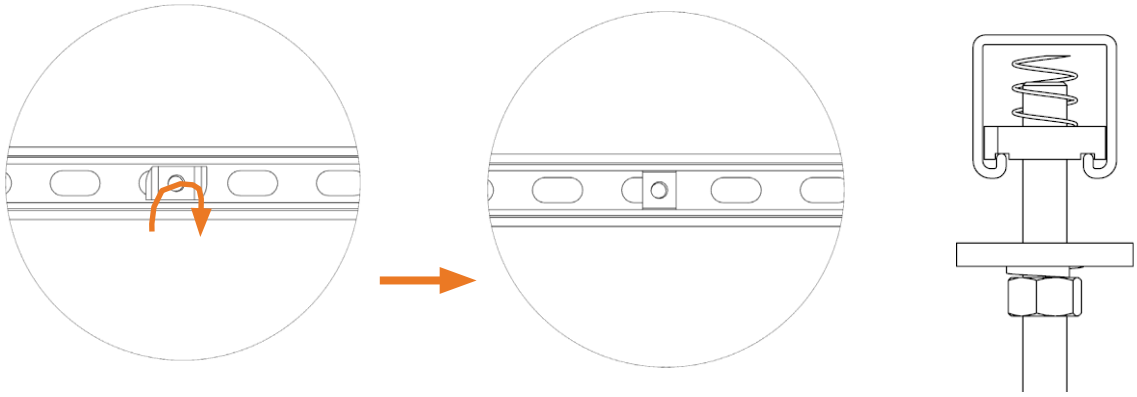


Figure 256: ***Strut Channel Nut Seated Properly in Strut Channel***

- Tighten the hex nut to the recommended torque, making sure the lock washer is fully compressed (Figure 257).

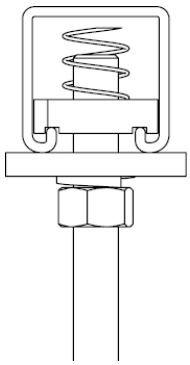


Figure 257: ***Hex Nut Tightened and Lock Washer is Fully Compressed***

13. Use the plumb bob to mark the location of the attachment point on the ceiling and drill a 1” hole in the ceiling for the attachment point.

14. Repeat steps 3–13 for each attachment point. Figure 258 diagrams the assembly.

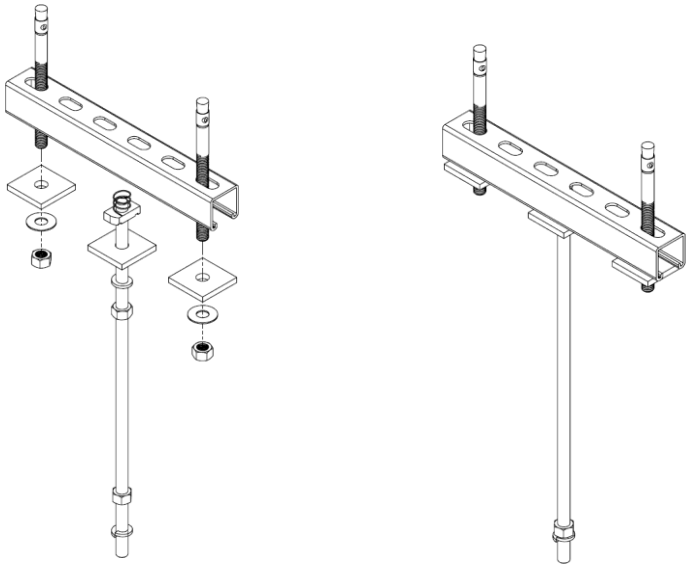


Figure 258: ***Concrete Installation Assembly (Detail)***

Install Lateral Bracing

1. Identify the number of braces required and their location.
    - Each section of track requires three lateral braces:
        - Two braces running perpendicular to the track, at each end of the track
        - One brace running parallel to the track

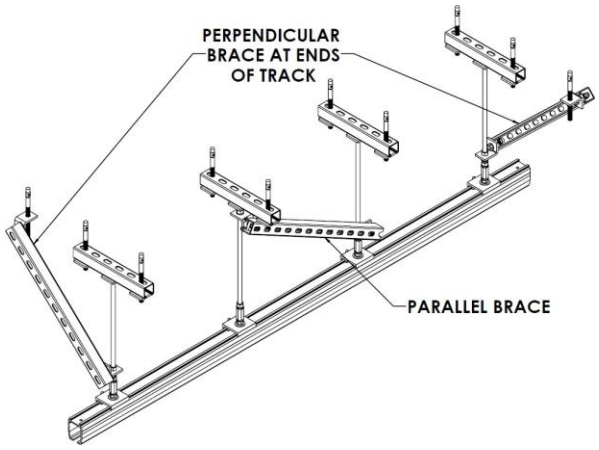


Figure 259: ***Perpendicular and Parallel Braces***

2. Attach the bracing hardware to the threaded rods identified in step 1:
    a. Approximately 3” up from the bottom of the threaded rod, hand tighten the 1/2” two-hole 90° strut fitting using two hex nuts and a lock washer.
        - The two-hole 90° strut fitting should be facing upwards (Figure 260).

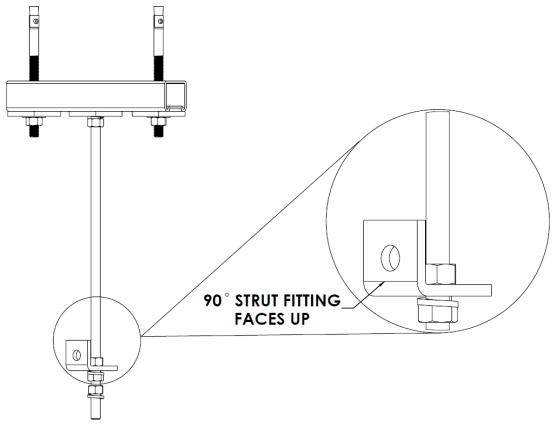


Figure 260: ***90° Strut Fitting Faces Upwards***

    b. Insert the 1” x 1/2” bolt with a lock washer through the hole in the two-hole 90° strut fitting so that the bolt head is nearest the threaded rod.
    c. Loosely thread the strut channel nut on to the end of the bolt with the spring facing away from the 90° strut fitting (Figure 261).

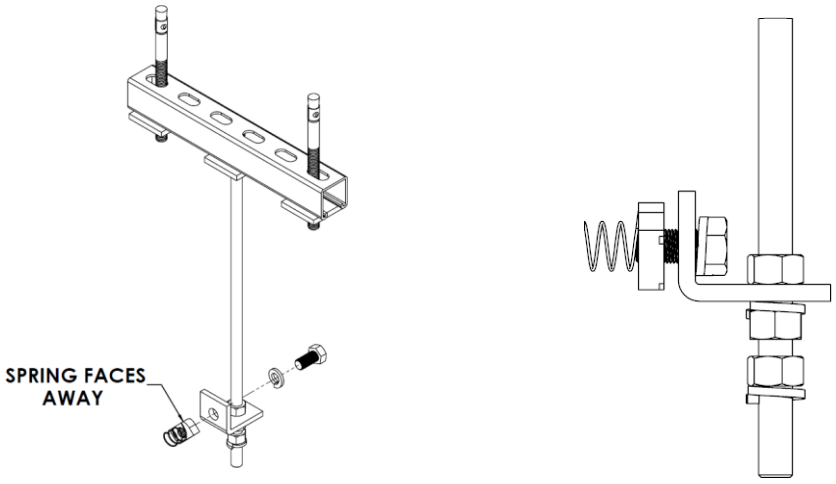


Figure 261: ***Strut Channel Nut Threaded with Spring Facing Away***

3. Mark the location where the lateral bracing will connect to the concrete slab.
    - The lateral braces should be at a 45° (+/-10°) angle to the threaded rod.

    a. Measure the distance from the bottom of the threaded rod to the concrete slab.

    b. Use that measurement and measure horizontally on the concrete slab from the threaded rod and mark that point (Figure 262).

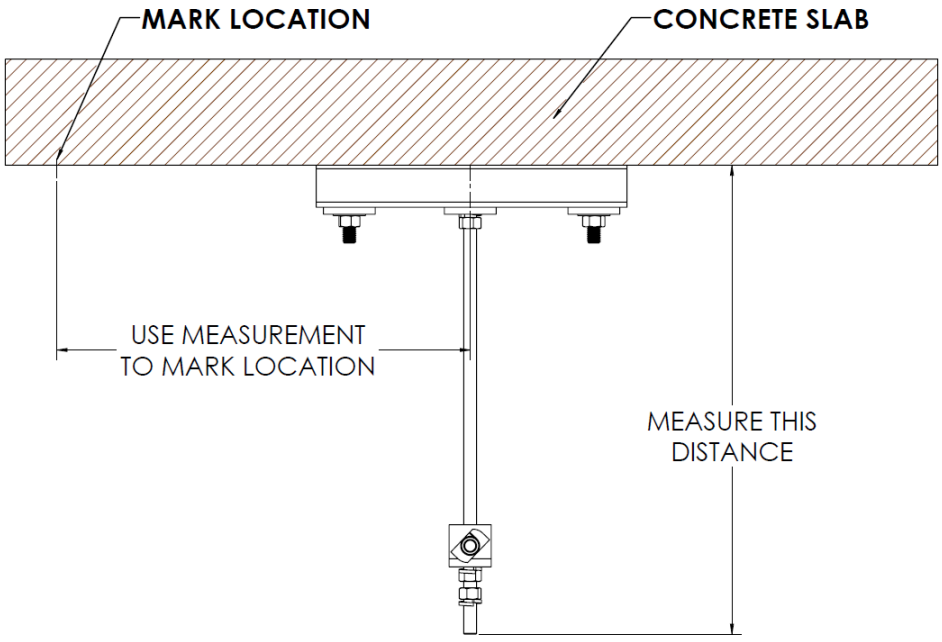


Figure 262: ***Mark the Location on the Concrete Slab***

4. At the point just marked, use a hammer drill with a 1/2” masonry bit to drill a hole to the proper anchor embedment depth.
5. Embed the seismic wedge anchor fully into the hole.
    - Torque to the manufacturer’s recommended setting.
6. Using the hex nut and flat washer supplied with the anchors, secure a two-hole 90° strut fitting to the anchor, flat against the concrete slab (Figure 263).

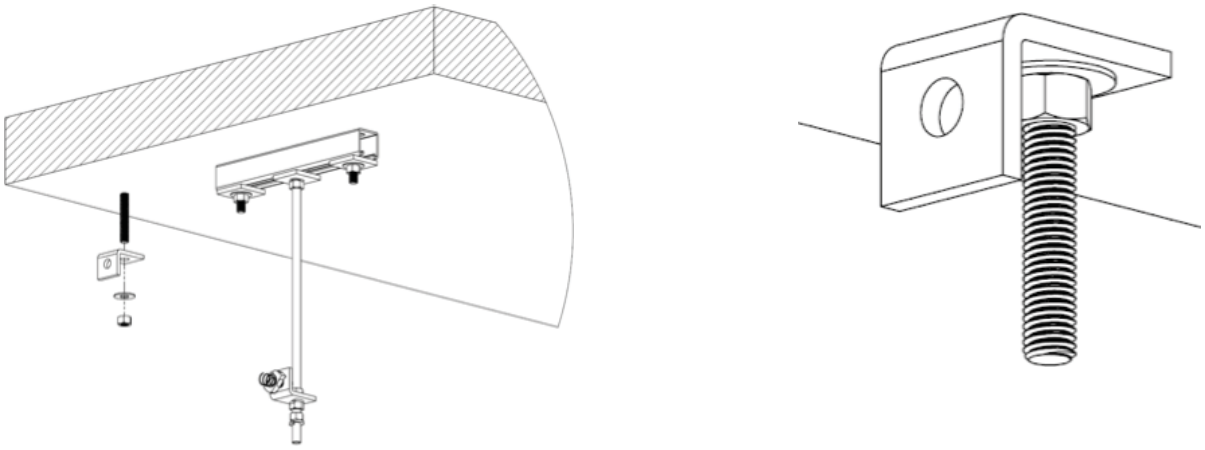


Figure 263: ***Secure a Two-Hole 90° Strut Fitting to the Anchor, Flat Against the Concrete Slab***

7. Insert the 1” x 1/2” bolt with a lock washer through the hole in the two-hole 90° strut fitting and loosely thread the strut channel nut on to the end of the bolt with the spring facing away from the 90° strut fitting.
8. Make sure the bolt head is oriented the same as the bolt installed in step 2b (Figure 264).

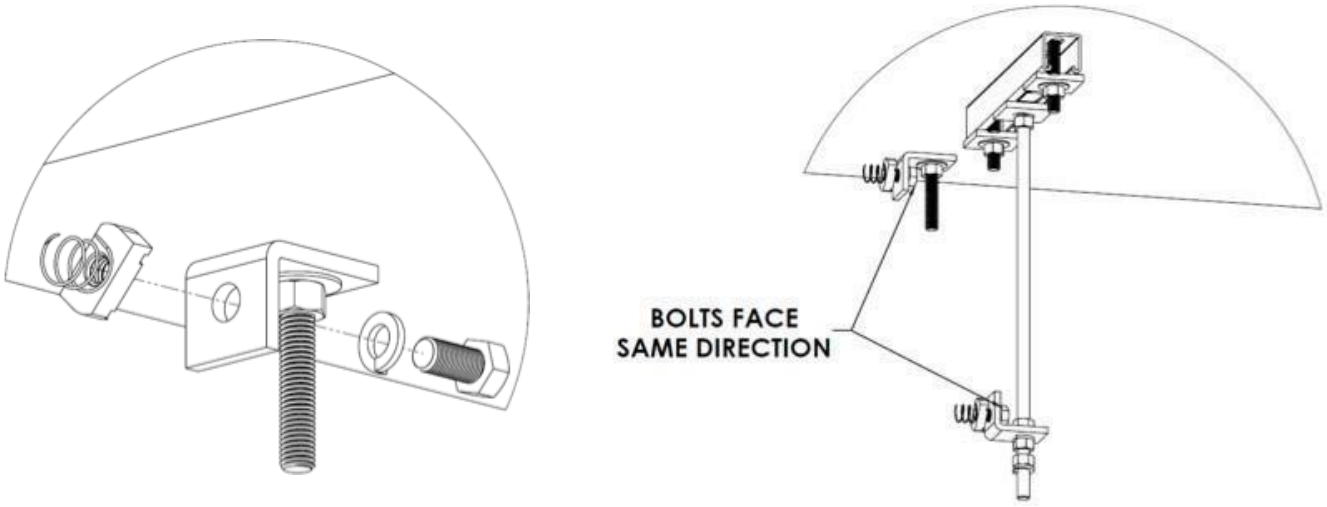


Figure 264: ***Correct Orientation of Bolt Heads***

9. Measure the length between the two-hole 90° strut fitting on the threaded rod and the concrete slab (Figure 265).

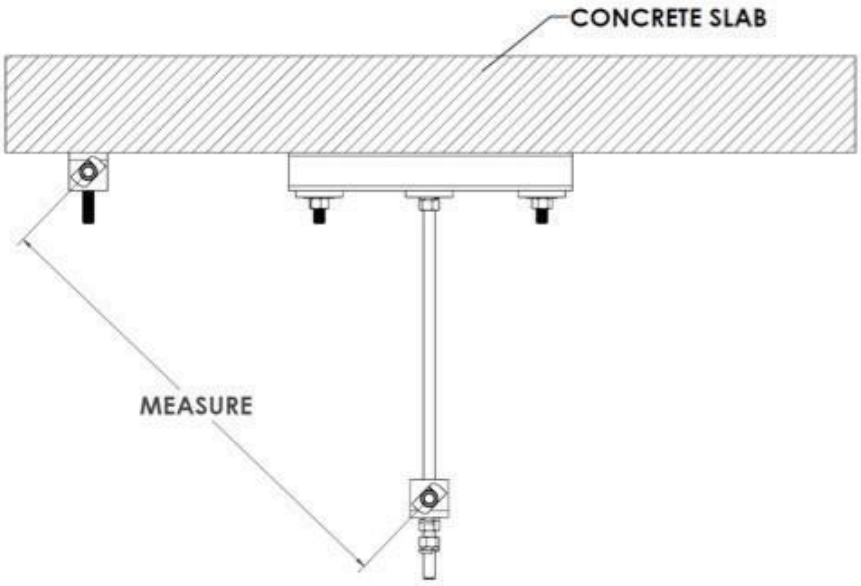


Figure 265: ***Measure the Length Between the Two-Hole 90° Strut Fitting on the Threaded Rod and the Concrete Slab***

10. Cut a section of 1 5/8” slotted strut channel to the measurement in step 9, plus 2”.
11. Secure the 1 5/8” slotted strut channel to the two-hole 90° strut fitting on the concrete slab, with the lower end angled towards the two-hole 90° strut fitting on the threaded rod (Figure 266).

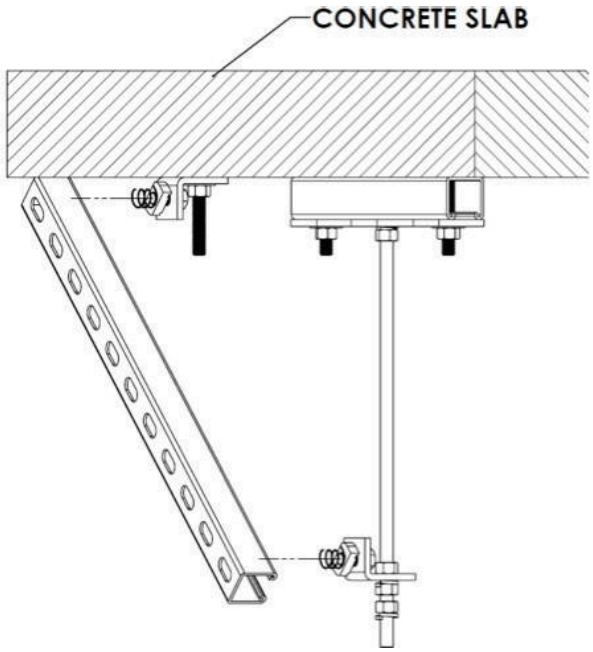


Figure 266: ***Secure the Slotted Strut Channel to the Two-Hole 90° Strut Fitting***

- Make sure the strut channel nut is properly seated in the 1 5/8” slotted (1/2”) strut channel before tightening (Figure 267).

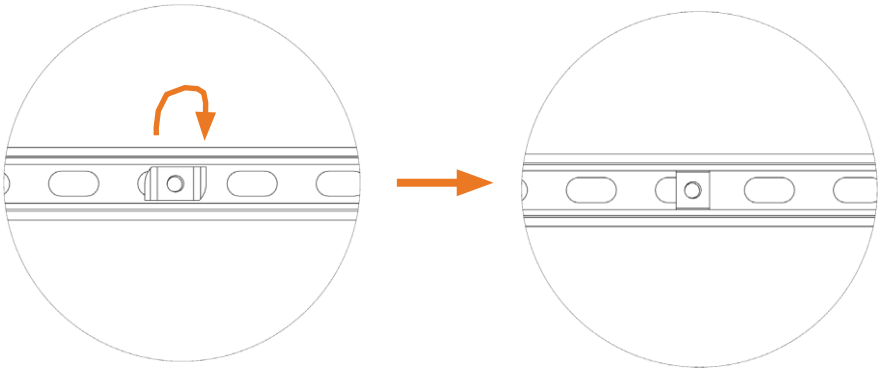


Figure 267: ***Strut Channel Nut Properly Seated in the Slotted Strut Channel***

- Torque to the manufacturer's recommended setting.
- Make sure the lock washer is fully compressed.

12. Secure the 1 5/8" slotted strut channel to the two-hole 90° strut fitting on the threaded rod.
    - Use a plumb bob to make sure the bottom of the threaded rod is in line with the marked attachment location on the floor (adjust rod position as necessary).
    - Make sure the strut channel nut is properly seated in the 1 5/8" slotted (1/2") strut channel before tightening.
    - Tighten the 1/2" hex nuts on either side of the two-hole 90° strut fitting.
    - Torque all hardware to the manufacturer's recommended setting.
    - Make sure all lock washers are fully compressed.
    - Repeat steps 2–12 for each lateral brace.

Install the Ceiling Track Brackets at All Attachment Locations

1. Loosen the set screw on the ceiling bracket so no threads are visible in the bracket channel.
    - This makes mounting the track to the bracket easier (Figure 268).

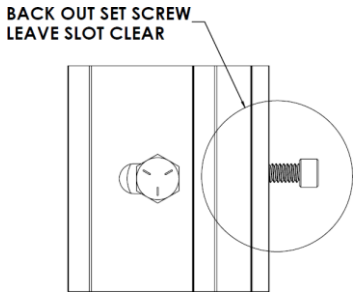


Figure 268: ***Loosen the Ceiling Bracket Set Screw So No Threads are Visible in the Bracket Channel***

2. Insert the 1 1/2" x 1/2" bolt through the slot in the ceiling bracket, with the bolt head in the underside of the bracket.
3. On top of the bolt, place in this order:
    1. 1/2" Flat washer
    2. 1/2" Lock washer
    3. 1/2" Hex nut

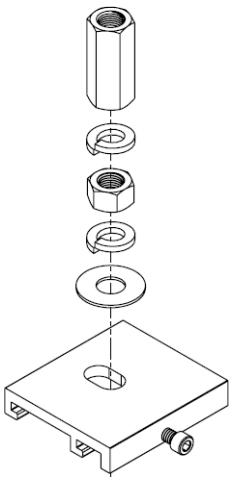


Figure 269: ***Flat Washer, Lock Washer, Hex Nut Assembly***

4. Use two 3/4” wrenches to tighten this assembly.
    - Make sure the bolt head on the underside of the bracket is as close as possible within the slotted bracket hole to the set screw side of the ceiling bracket.

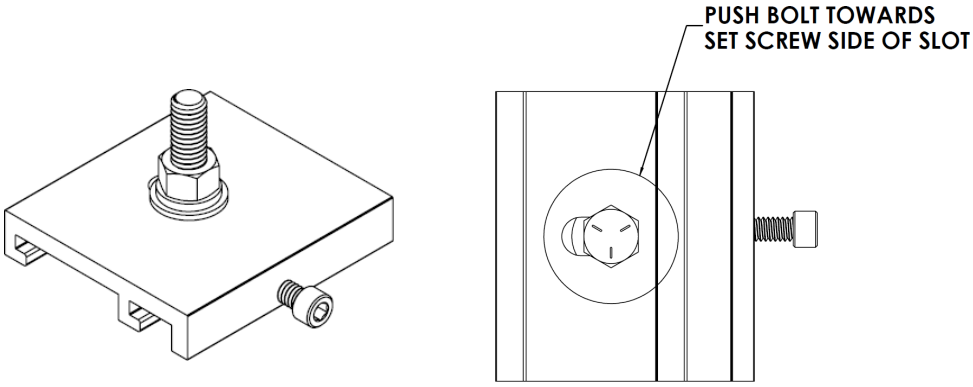


Figure 270: ***Tighten the Assembly***

5. On top of this assembly, place in this order:
    1. 1/2” Lock washer
    2. 1/2” Coupling nut

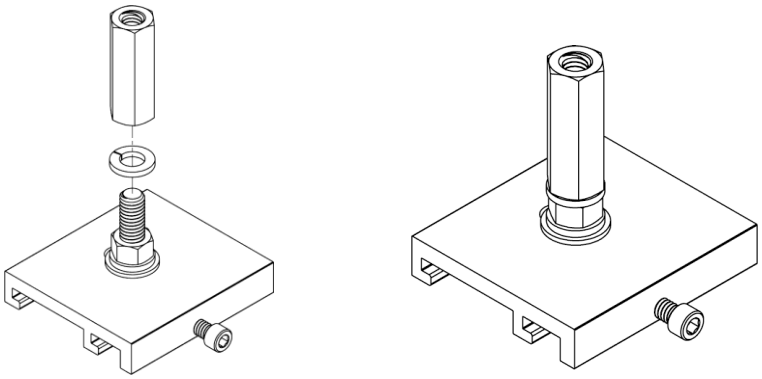


Figure 271: ***Lock Washer, Coupling Nut Assembly***

6. Thread the 1/2” coupling nut on top of the ceiling bracket assembly onto the threaded rod a minimum of four complete rotations.

- Level by threading the 1/2” coupling nut further on or off the threaded rod.

Figure 272: Level by Threading Coupling Nut Further On or Off the Threaded Rod

7. Tighten the 1/2” hex nut on the threaded rod against the 1/2” coupling nut of the ceiling bracket assembly.

- Make sure all lock washers are fully compressed.

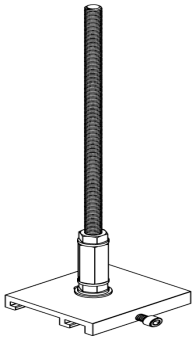


Figure 273: ***Tighten the Hex Nut So All Lock Washers are Fully Compressed***

Structural Beam/Open Web Joist Installation

In institutional settings where the ceiling is supported by steel I-beams, top-down mounting involves back-to-back strut being clamped to the I-beam structure in an arrangement roughly a parallel to the ceiling track to be installed. Threaded rods are then fastened to the back-to-back strut and fed through the ceiling, where the track brackets are attached and then the ceiling track mounted and installed.

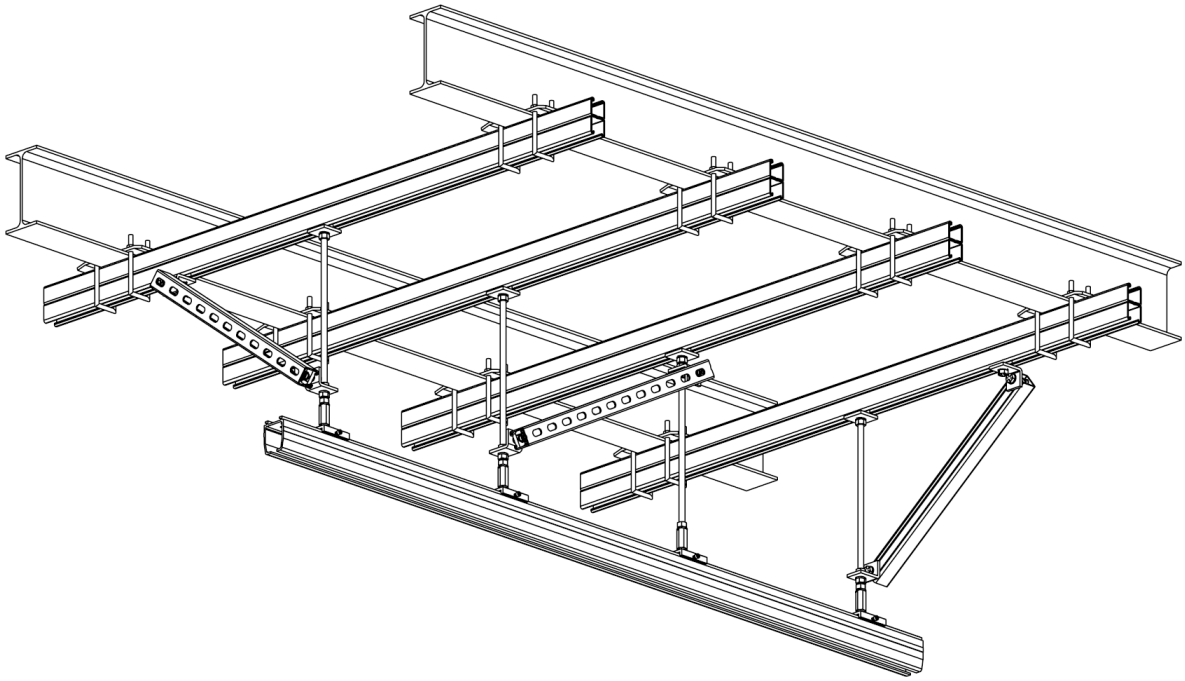


Figure 274: ***Structural Beam/Open Web Joist Installation***

Structural beam attachment consists of:

- A vertical attachment point to connect track to the structure vertically
- Lateral bracing to secure the track from side-to-side movement
- A ceiling bracket assembly

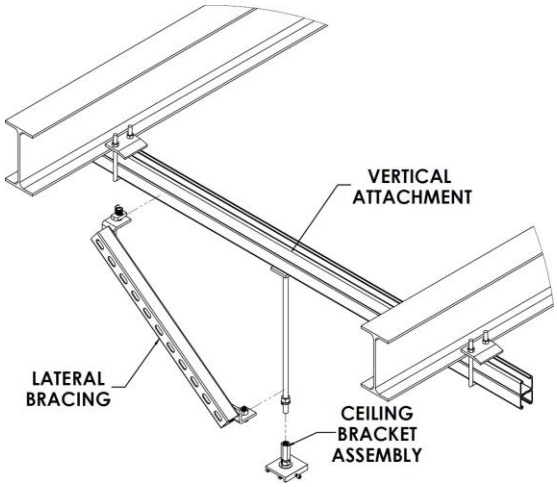


Figure 275: ***Structural Beam Attachment c***

For each vertical attachment point (one per ceiling track bracket), the following is needed:

- 1 5/8” slotted (1/2”) strut channel
  - Refer to the strut channel manufacturer’s specifications to determine the type and size of strut channel required to meet load capacity and span conditions.
- Beam clamps (4)
  - Refer to the strut channel manufacturer’s specifications to determine the type and size of beam clamps required.

- 1/2” square strut washer
- 1/2” strut channel nut
- 1/2” lock washers (2)
- 1/2” hex nuts (2)
- 1/2” threaded rod

See Figure 276.

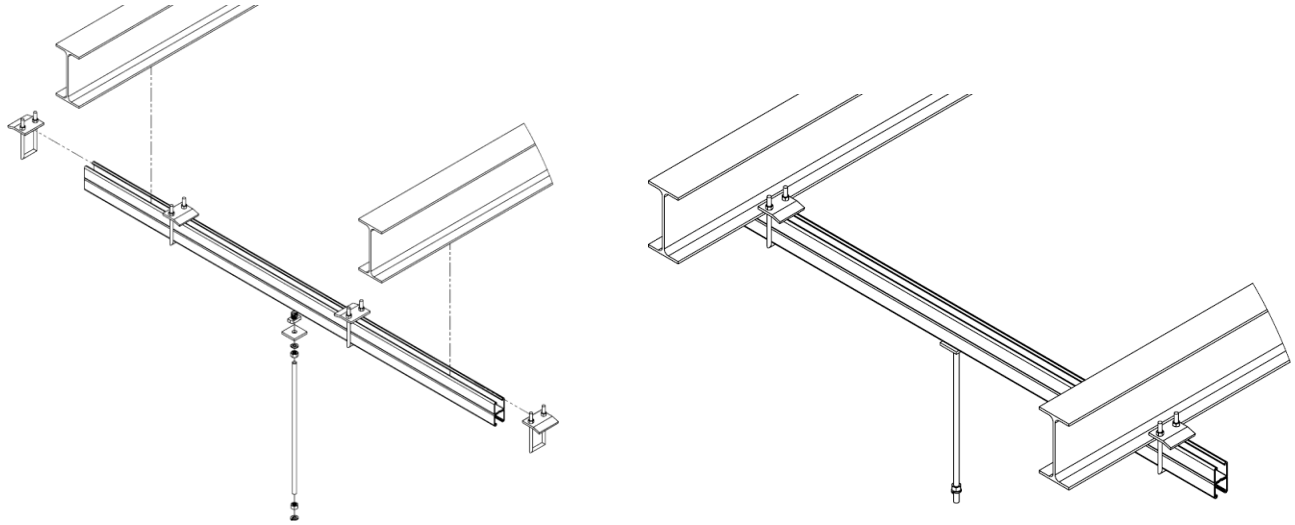


Figure 276: ***Structural Beam Attachment***

For each lateral bracing point (typically three per track section), the following is needed:

- 1 5/8” slotted (1/2”) strut channel
  - Refer to the strut channel manufacturer’s specifications to determine the type and size of strut channel required to meet load capacity and span conditions.
  - It may be possible to attach the upper section of the bracing to a strut channel installed for the vertical attachment points reducing the amount of strut channel required.
- Beam clamps (4)
  - Refer to the strut channel manufacturer’s specifications to determine the type and size of beam clamps required.
  - It may be possible to attach the upper section of the bracing to a strut channel installed for the vertical attachment points, reducing the number of beam clamps required.
- 1/2” two-hole 90° strut fitting (2)
- 1” x 1/2” bolt (3)
- 1/2” strut channel nut (3)
- 1/2” lock washers (4)
- 1/2” hex nuts (2)

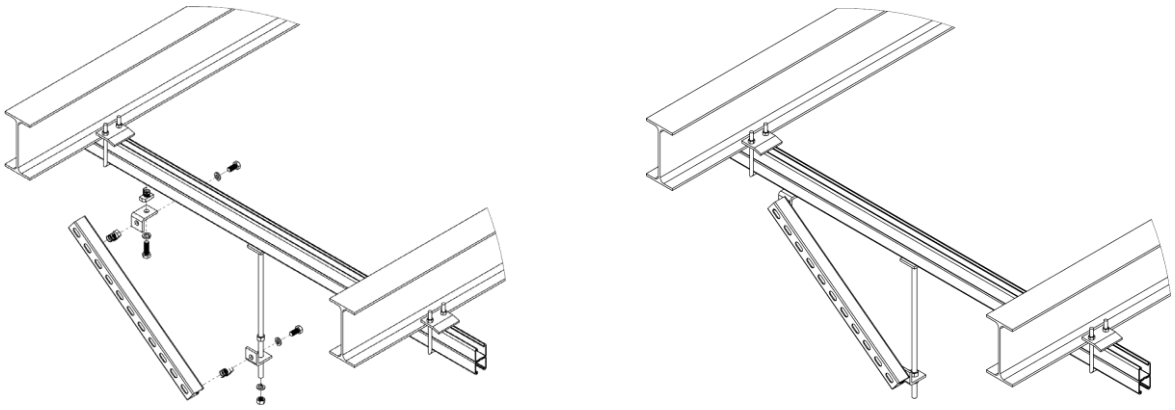


Figure 277: ***Beam Clamps***

For each ceiling track bracket assembly, the following is needed:

- 3” Handicare Bracket (1/2” slot) (360478)
- 1/2” coupling nut
- 1/2” lock washer (2)
- 1 1/2” x 1/2” bolt
- 1/2” flat washer
- 1/2” hex nut

See Figure 278.

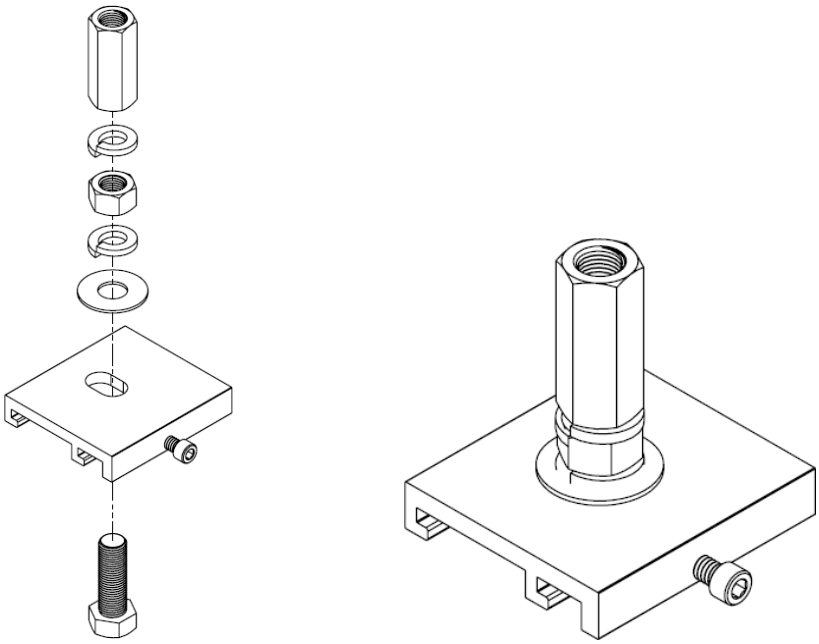


Figure 278: ***Structural Beam Assembly Parts***

Install the Vertical Attachment Points

1. Follow the steps in “PREPARATION” (Page 8). to make sure to have all necessary tools and supplies.
2. Complete step 1 of “Basic Track Systems” (Page 8).
    - Use painter’s tape and a marker to mark the bracket locations on the floor.
3. Measure the distance between structural beams as shown in Figure 279.
    - Measure from outermost edge to outermost edge.

Figure 279: ***Measure Distance Between Structural Beams***

4. Using the band saw, cut the 1 5/8” slotted (1/2”) strut channel to the measurement from step 3, plus 12”.
    - Cut one segment of strut for each ceiling track bracket.

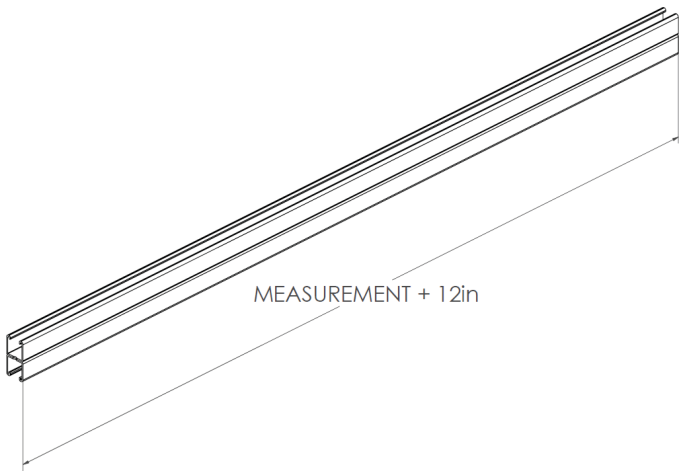


Figure 280: Cut the Slotted Strut Channel to the Measurement from Step 3, Plus 12”

5. Use a plumb bob to project the bracket locations from the floor upward.
    - Adjust bracket locations along the center line of the rail to avoid conflicts with MEP in the ceiling.
    - Make sure the space between the connection points is within the allowable spans indicated in Appendix A: Span and Cantilever Details (Page 210).
6. Align the cut section of 1 5/8” slotted (1/2”) strut channel on the underside of the beams so the plumb bob point is centered in the strut channel.
7. Secure the 1 5/8” slotted (1/2”) strut channel to the structural beams using four beam clamps (two per structural beam).
    - Torque the beam clamp hex nuts to the manufacturer’s recommended setting.

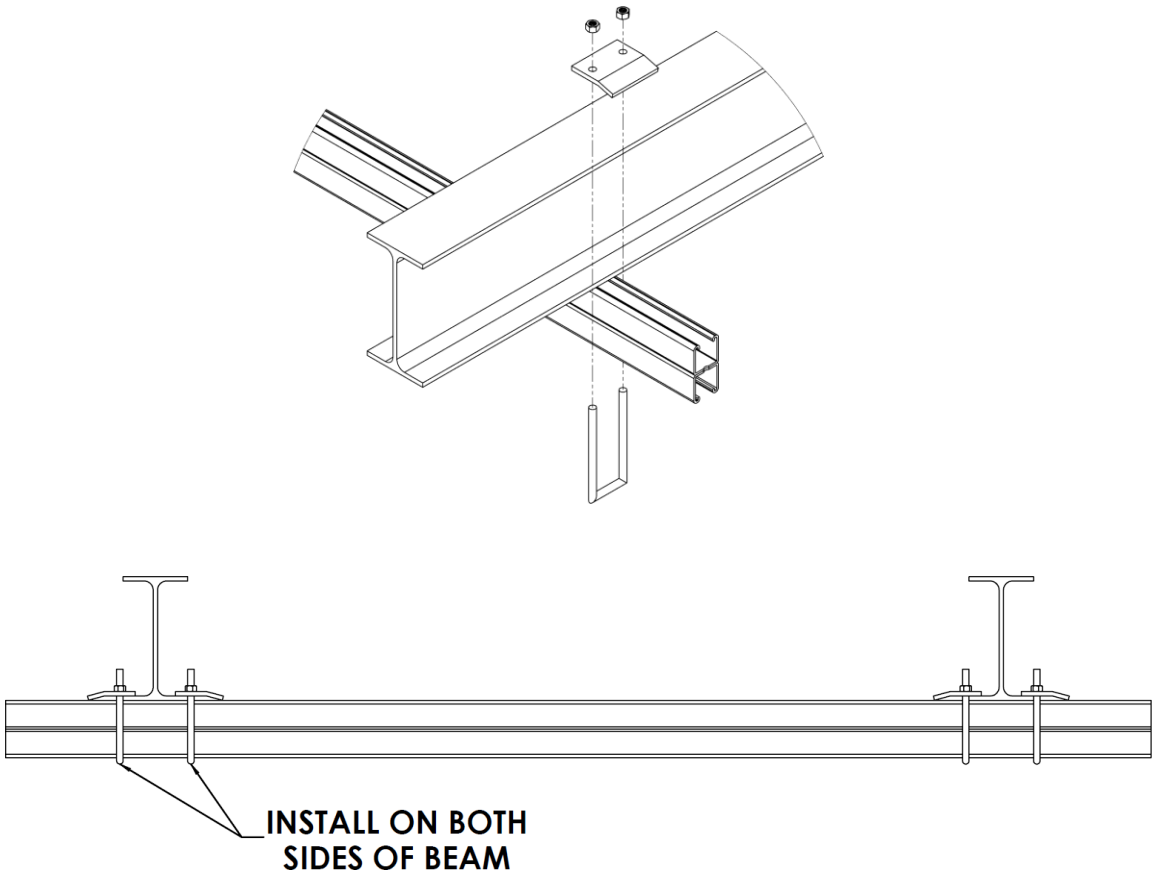


Figure 281: ***Secure Strut Channel to the Structural Beams Using Four Beam Clamps***

8. Measure and cut the threaded rod to the appropriate length.
    - Measure from the bottom of the strut channel to the lowest ceiling elevation, and subtract 1”.
9. Attach the threaded rod to the 1 5/8” slotted (1/2”) strut channel where the attachment point is to be located, using a hex nut, lock washer, square strut washer, and channel nut (Figure 282).

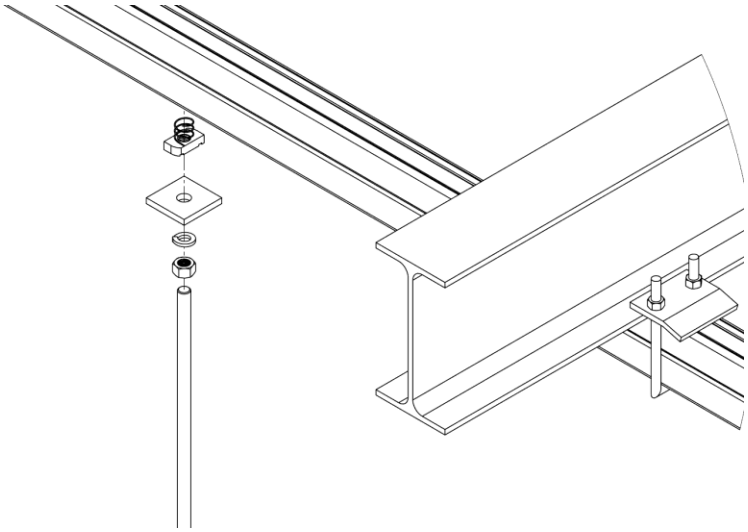


Figure 282: ***Attach the Threaded Rod to the Strut Channel***

- Make sure the threaded rod is fully threaded into the strut channel nut.

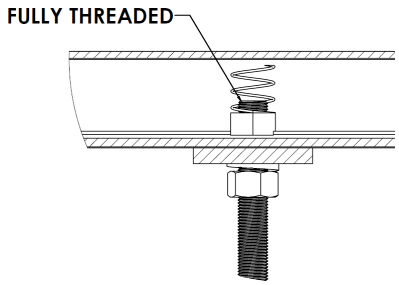


Figure 283: Threaded Rod Fully Threaded into the Strut Channel Nut

- Make sure the strut channel nut is seated properly in the 1 5/8” slotted (1/2”) strut channel (Figure 284).

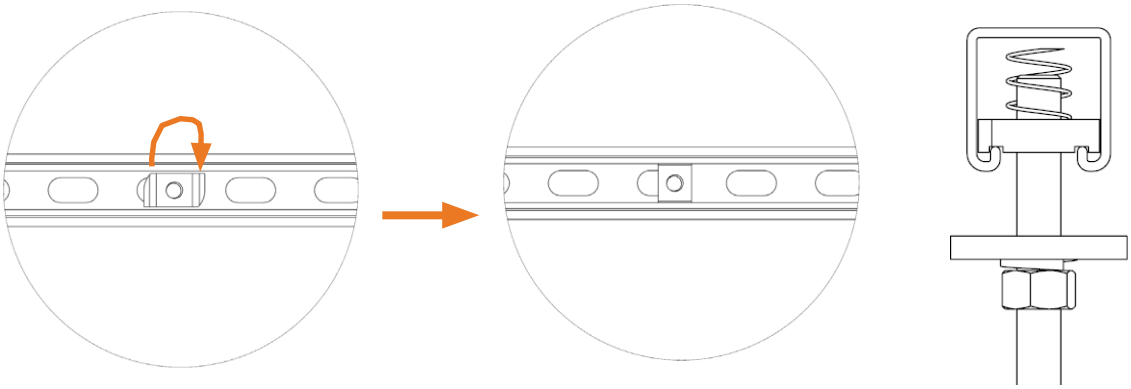


Figure 284: ***Strut Channel Nut Seated Properly in the Slotted Strut Channel***

- Tighten the hex nut to the recommended torque, making sure the lock washer is fully compressed.

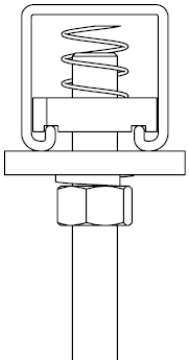


Figure 285: ***Tighten the Hex Nut to the Recommended Torque, So That the Lock Washer is Fully Compressed***

10. Use the plumb bob to mark the location of the attachment point on the ceiling, then drill a 1” hole in the ceiling for the attachment point.

11. Repeat steps 3–10 for each attachment point.

12. Make sure the bottoms of all threaded rods are level to each other.

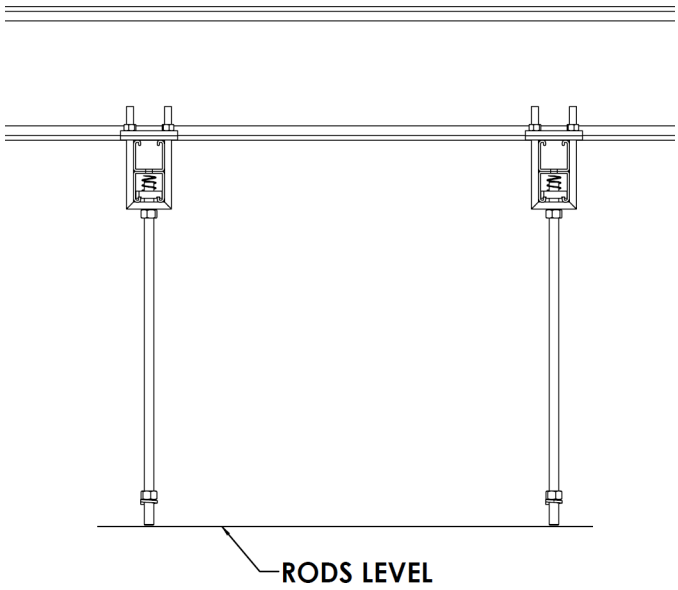


Figure 286: ***Bottoms of All Threaded Rods Level to Each Other***

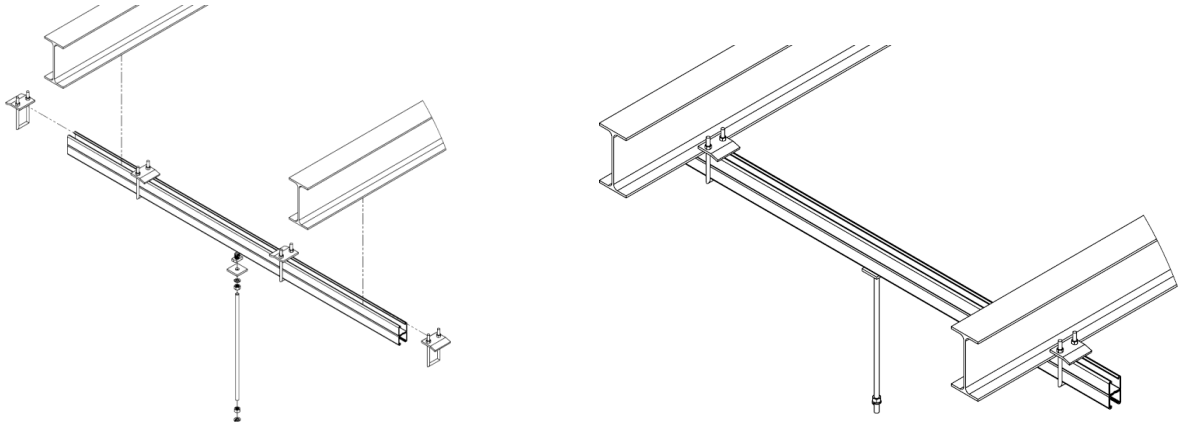


Figure 287: ***Beam Installation (Detail)***

Install Lateral Bracing

1. Identify the number of braces required and their location.
    - Each section of track requires three lateral braces:
        - Two braces running perpendicular to the track, at each end of the track
        - One brace running parallel to the track

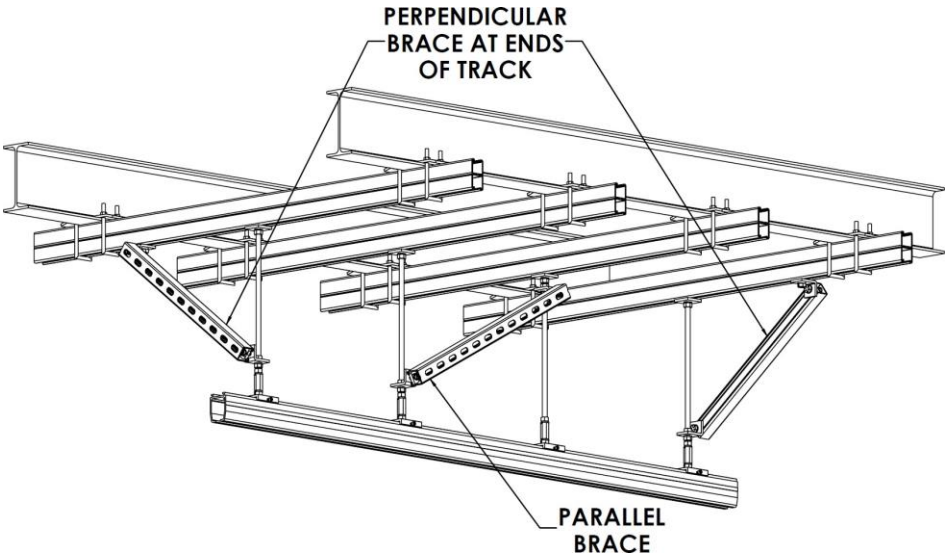


Figure 288: ***Lateral Bracing***

2. Attach the bracing hardware to the threaded rods identified in step 1:
   a. Approximately 3” up from the bottom of the threaded rod, hand tighten the 1/2” two-hole 90° strut fitting using two hex nuts and a lock washer.
      - The two-hole 90° strut fitting should be facing upwards.

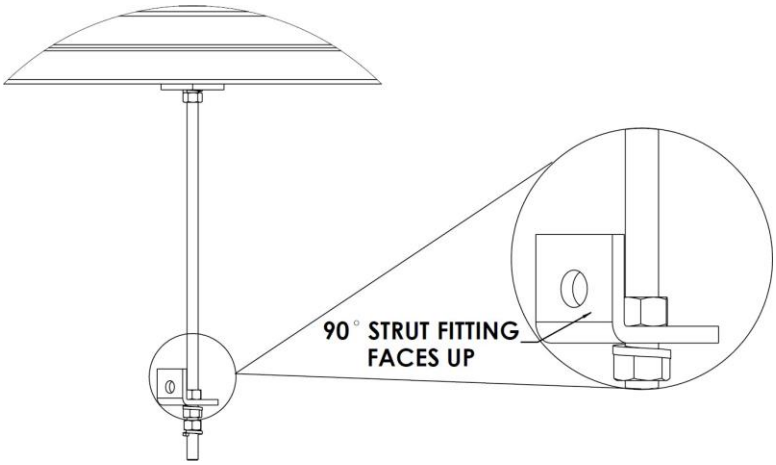


Figure 289: ***Two-hole 90° Strut Fitting Faces Upwards***

   b. Insert the 1” x 1/2” bolt with a lock washer through the hole in the two-hole 90° strut fitting so that the bolt head is nearest the threaded rod.
   c. Loosely thread the strut channel nut on to the end of the bolt with the spring facing away from the 90° strut fitting.

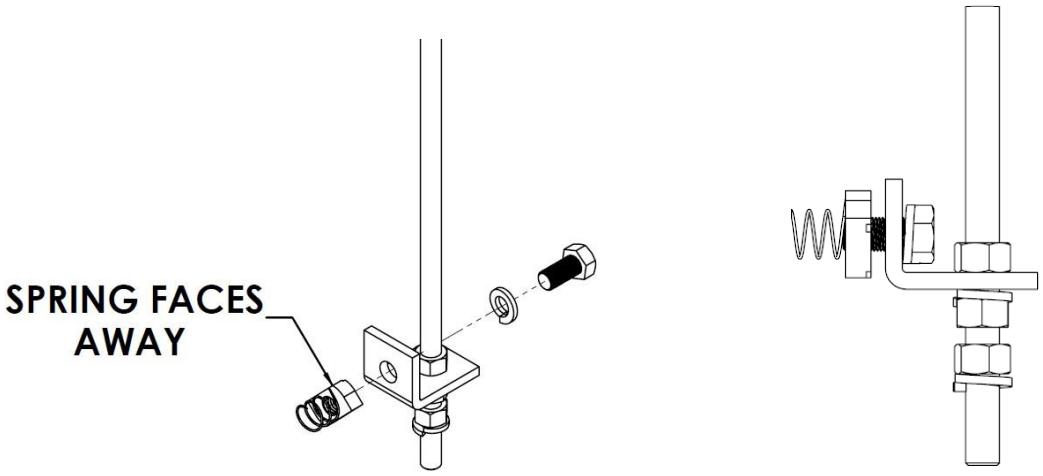


Figure 290: ***Loosely Thread the Strut Channel Nut on the Bolt with the Spring Facing Away From the 90° Strut Fitting***

3. Determine the location where the lateral bracing will connect to the strut channel.
    - The lateral braces should be at a 45° (+/-10°) angle to the threaded rod.

NOTE: **It is often possible to adjust the lateral bracing angle within the tolerance (+/- 10°) to connect directly to the underside of an existing 1 5/8" slotted (1/2") strut channel already in place for attachment points. Where this is not possible, an additional strut channel must be installed following steps 3-7 of "Install the Vertical Attachment Points" (Page 137).**

a. To determine the 45° angle, measure the distance from the bottom of the threaded rod to the 1 5/8" slotted (1/2") strut channel.
b. Use that measurement and measure horizontally on strut channel or the floor (if no strut channel is in place, see step c) from the attachment point location and mark that point.

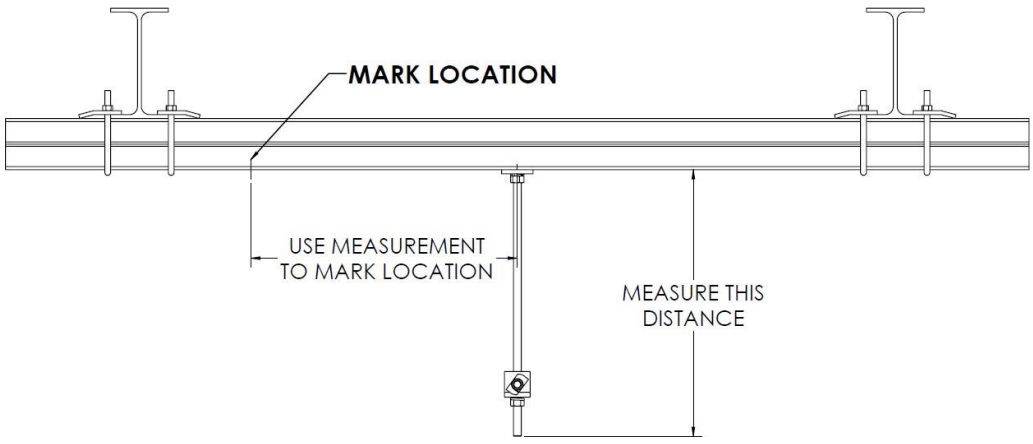


Figure 291: ***Perpendicular Brace***

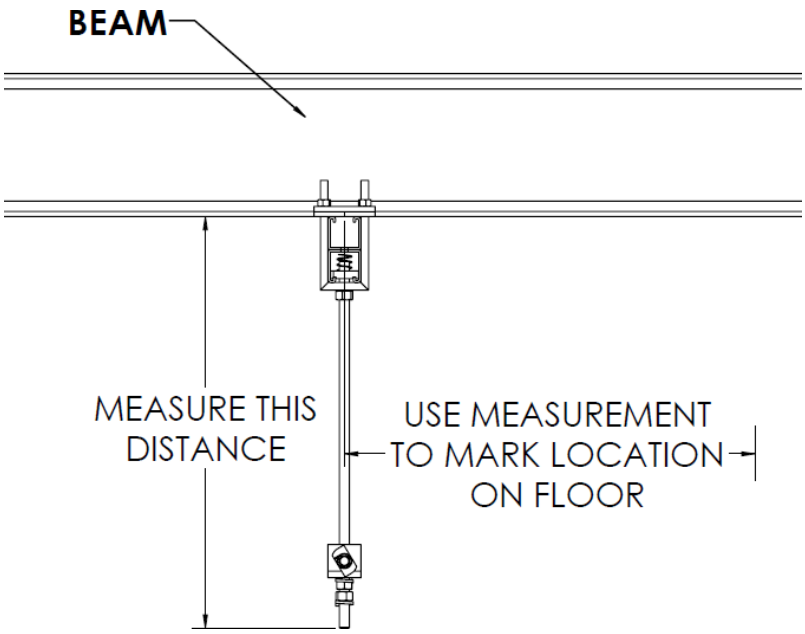


Figure 292: ***Parallel Brace***

NOTE: **If there is no strut channel to connect to, i.e. in the Parallel Brace example above, install an additional strut channel as described in steps c-e below.**

c. Project a plumb bob laser from the floor at the point marked in step 3b.

d. Install an additional strut channel that will intersect the plumb bob laser following steps 3-7 of “Install the Vertical Attachment Points” (Page 137).

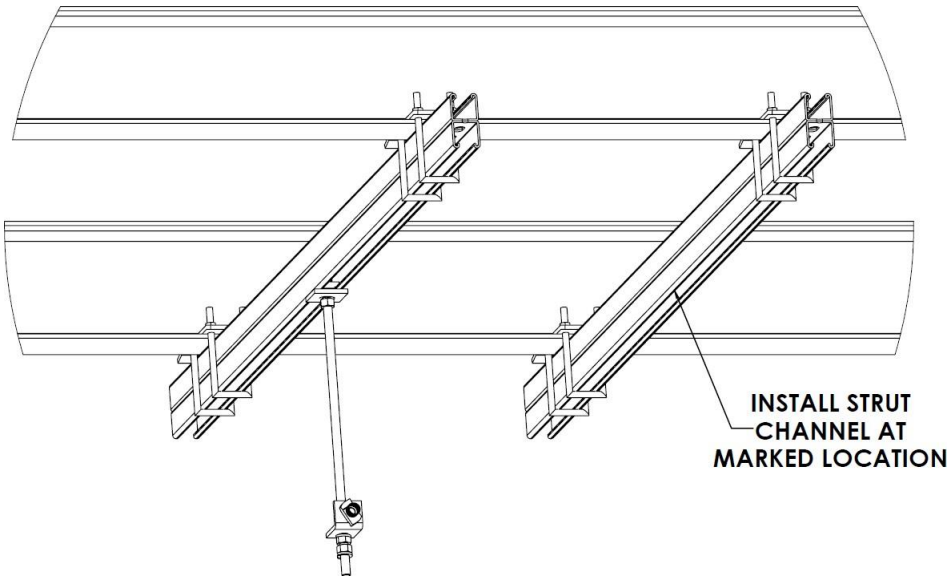


Figure 293: ***Install Additional Strut Channel***

e. Mark the location where the plumb bob laser intersects the new strut channel.

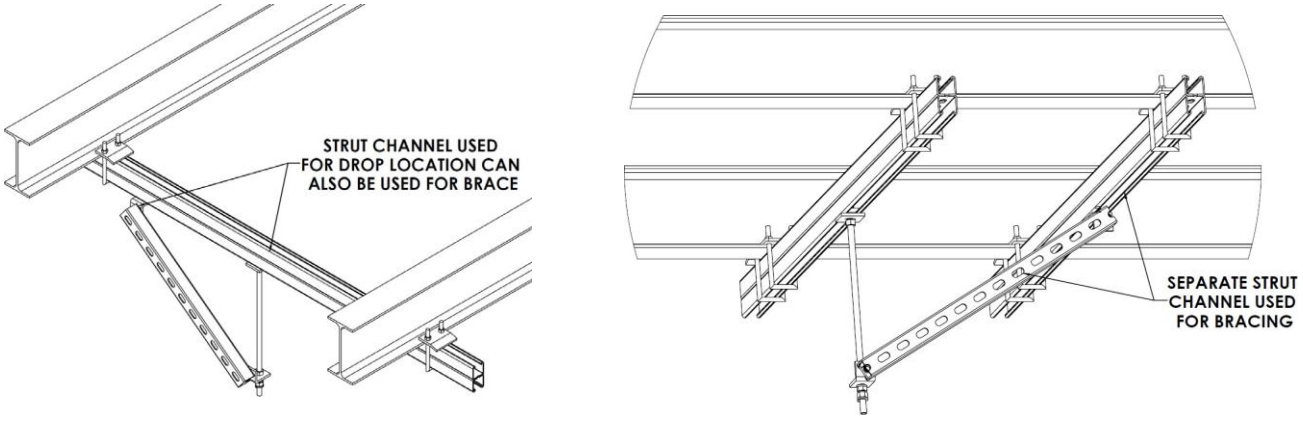


Figure 294: ***Strut Channel for Bracing***

4. At the marked location on the strut channel, install a two-hole 90° strut fitting onto the 1 5/8” slotted (1/2”) strut channel:
    - The two-hole 90° strut fitting should be facing downwards.

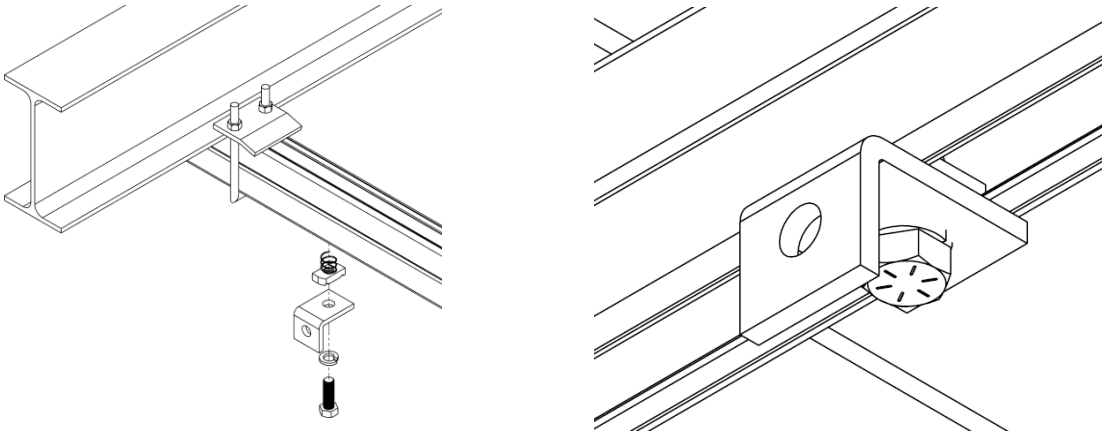


Figure 295: ***Two-Hole Strut Fitting, Facing Downwards***

5. Hand tighten the 1/2” two-hole 90° strut fitting using a 1” x 1/2” bolt, 1/2” strut channel nut, and a 1/2” lock washer.
6. Insert the 1” x 1/2” bolt with a lock washer through the hole in the two-hole 90° strut fitting and loosely thread the strut channel nut on to the end of the bolt with the spring facing away from the 90° strut fitting.

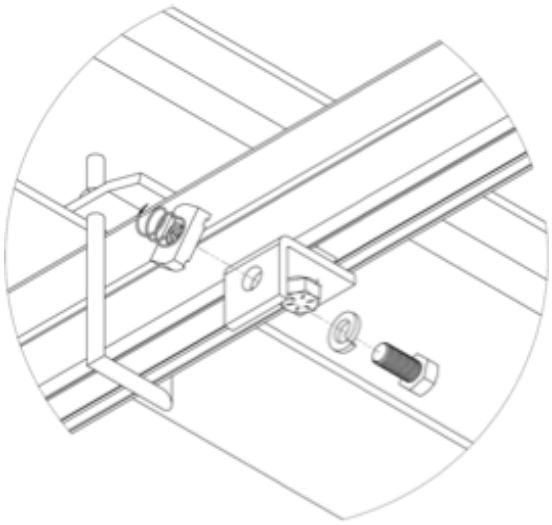


Figure 296: ***Loosely Thread the Strut Channel Nut on the Bolt with the Spring Facing Away From the 90° Strut Fitting***

- Make sure the bolt head is oriented the same as the bolt installed in step 2b, as shown in Figure 297.

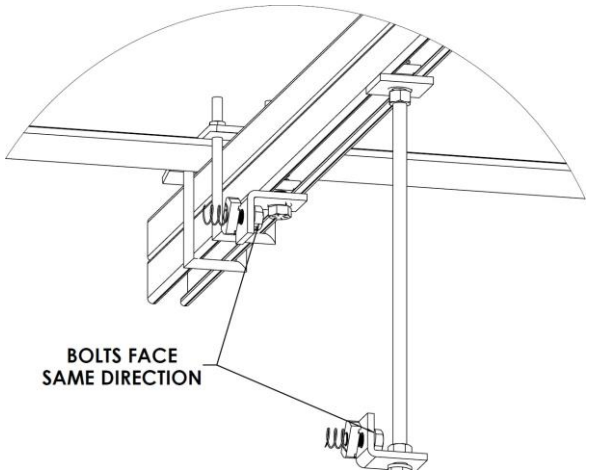


Figure 297: ***Correct Orientation of Bolt Heads***

7. Measure the length between the two-hole 90° strut fitting on the threaded rod and the beam.

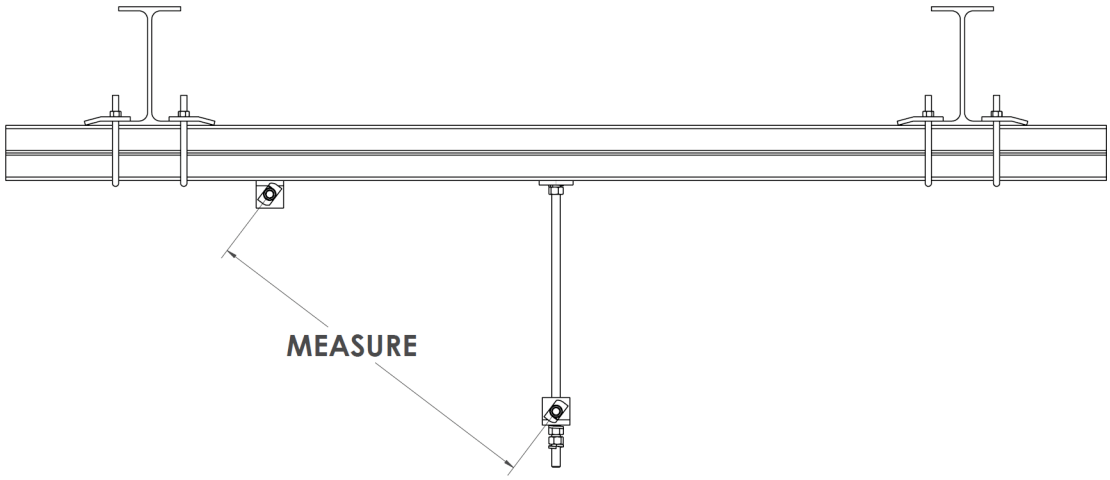


Figure 298: ***Measure the Length Between the Two-Hole 90° Strut Fitting on the Threaded Rod and the Beam***

8. Cut a section of 1 5/8” slotted strut channel to the measurement in step 7, plus 2”.

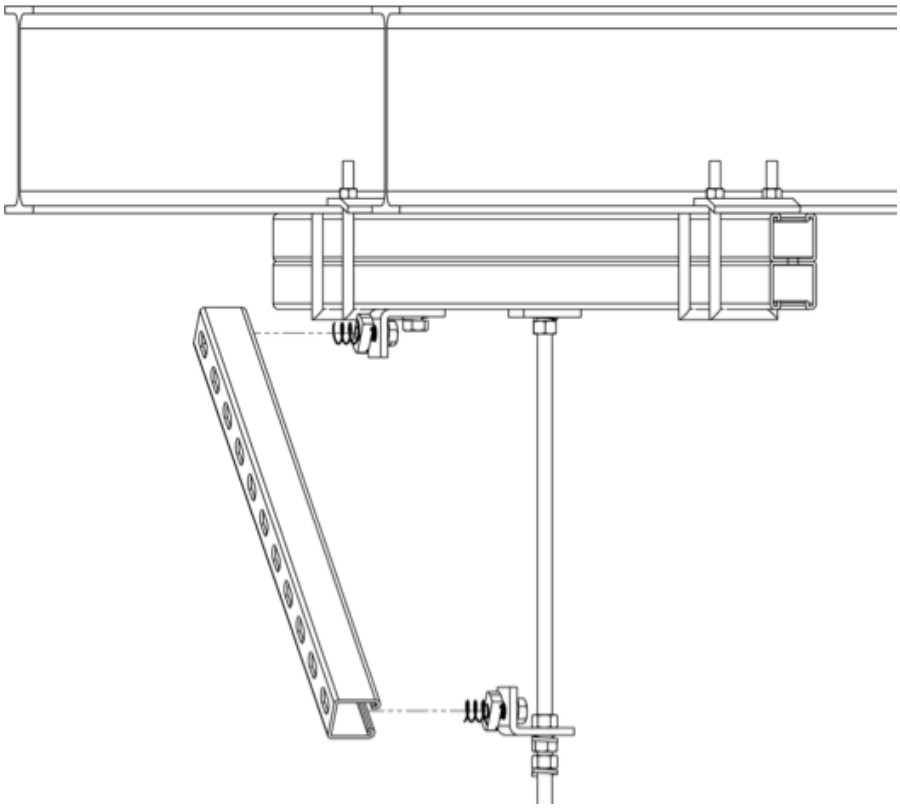


Figure 299: ***Secure the Slotted Strut Channel to the Two-Hole 90° Strut Fitting on the Beam***

- Before tightening, make sure the strut channel nuts are properly seated in the 1 5/8” slotted (1/2”) strut channels in both the beam and bracing.

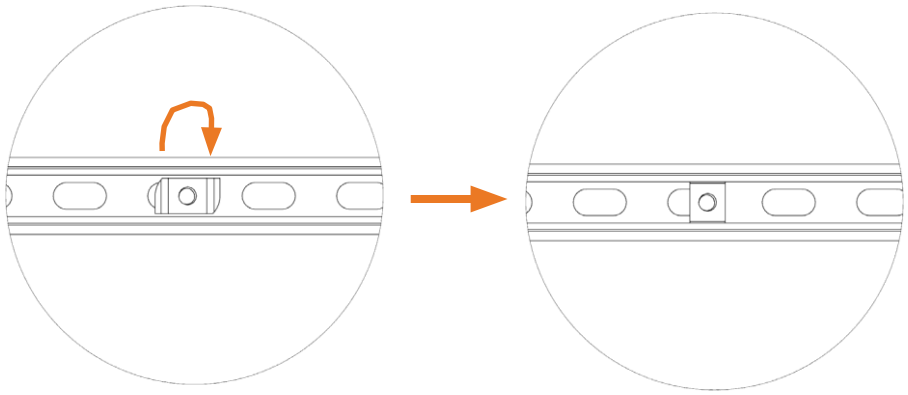


Figure 300: ***Strut Channel Nuts Properly Seated in the Slotted Strut Channels***

- Tighten both bolts connecting the two-hole 90° strut fitting to the 1 5/8” slotted (1/2”) strut channels.
- Torque to the manufacturer’s recommended setting.
- Make sure the lock washers are fully compressed.

9. Secure the 1 5/8” slotted strut channel to the two-hole 90° strut fitting on the threaded rod.
    - Use a plumb bob to make sure the bottom of the threaded rod is in line with the marked attachment location on the floor (adjust rod position as necessary).
    - Make sure the strut channel nut is properly seated in the 1 5/8” slotted (1/2”) strut channel before tightening.
    - Tighten the 1/2” hex nuts on either side of the two-hole 90° strut fitting.
    - Torque all hardware to the manufacturer’s recommended setting.
    - Make sure all lock washers are fully compressed.
10. Repeat steps 2–9 for each lateral brace

.

Install the Ceiling Track Brackets at All Attachment Locations

1. Loosen the set screw on the ceiling bracket so no threads are visible in the bracket channel.
    - This makes mounting the track to the bracket easier.

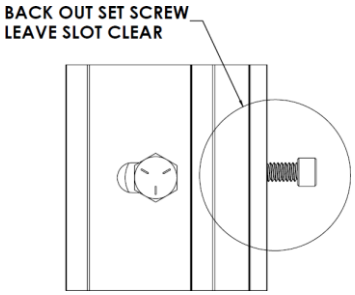


Figure 301: ***Loosen the Ceiling Bracket Set Screw So No Threads are Visible in the Bracket Channel***

2. Insert the 1 1/2” x 1/2” bolt through the slot in the ceiling bracket, with the bolt head in the underside of the bracket.
3. On top of the bolt, place in this order:
    1. 1/2” Flat washer
    2. 1/2” Lock washer
    3. 1/2” Hex nut

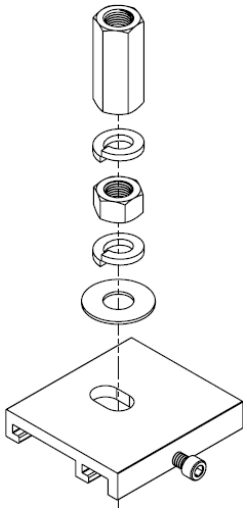


Figure 302: ***Flat Washer, Lock Washer, Hex Nut***

4. Use two 3/4” wrenches to tighten this assembly.
    - Make sure the bolt head on the underside of the bracket is as close as possible within the slotted bracket hole to the set screw side of the ceiling bracket.

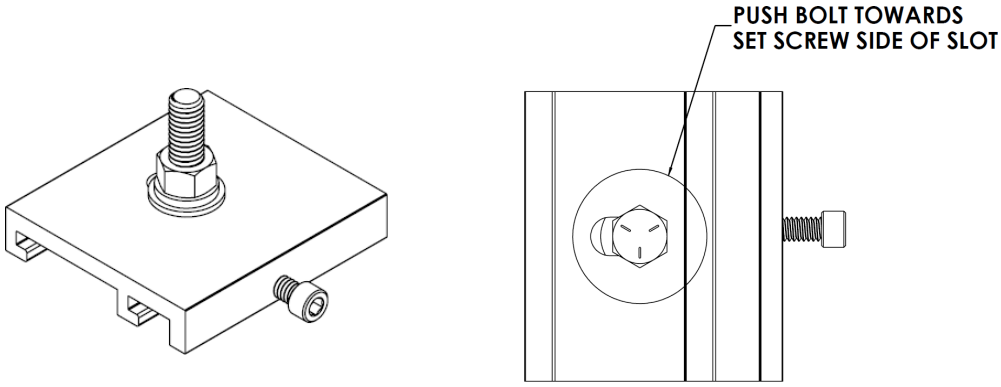


Figure 303: ***Tighten the Assembly***

5. On top of this assembly, place in this order:
    1. 1/2” Lock washer
    2. 1/2” Coupling nut

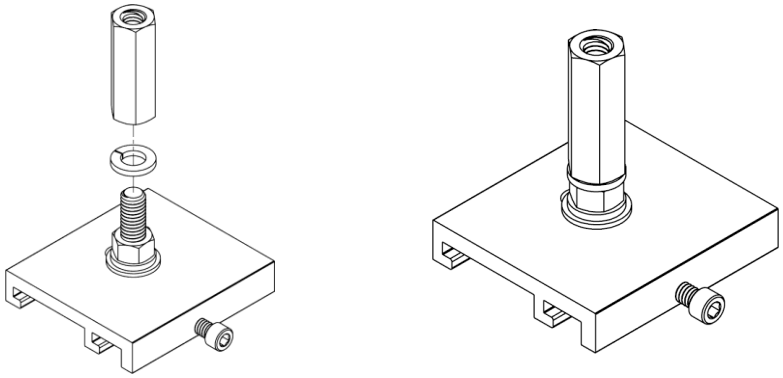


Figure 304: Lock Washer, Coupling Nut Assembly

6. Tighten this assembly using an 11/16” wrench on the coupling nut while holding the bolt head under the bracket using a 3/4” wrench.
7. Thread a hex nut onto the threaded rod approximately 2” up from where the bracket assembly will be attached.
8. Place a lock washer on the threaded rod beneath the hex nut.
9. Thread the 1/2” coupling nut on top of the ceiling bracket assembly onto the threaded rod a minimum of four complete rotations.
    - Level by threading the 1/2” coupling nut further onto or off the threaded rod.

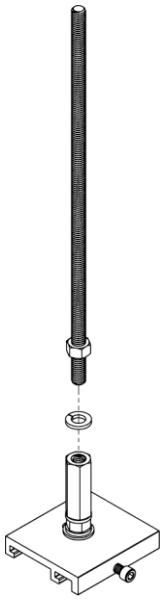


Figure 305: ***Level by Threading the 1/2” Coupling Nut Further On or Off of the Threaded Rod***

10. Tighten the 1/2” hex nut on the threaded rod against the 1/2” coupling nut of the ceiling bracket assembly.
    - Make sure all lock washers are fully compressed.

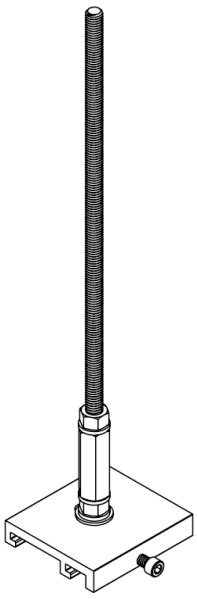


Figure 306: ***Tighten the Hex Nut on the Threaded Rod So All Lock Washers are Fully Compressed***

POWER SUPPLY INSTALLATION

Mount the power supply to the wall, within reach of the outlet. To do this:

1. Place the power supply on the wall.
    - Position it so its cord can easily reach the nearest electrical outlet.
2. Place the power supply cover over the power supply so it's against the wall.
3. Secure the cover to the wall.
    - Use a screwdriver to drive four toggle screws into the wall.

End Point Charging

1. Determine where the nearest outlet is relative to where the track will be installed.
    - The charger can be mounted to the wall near the end of the track closest to the outlet.
    - Make sure the charger cord is long enough to reach between the outlet and the end of the track.
    - The end of the track closest to the outlet will become the docking location for the ceiling lift to charge.

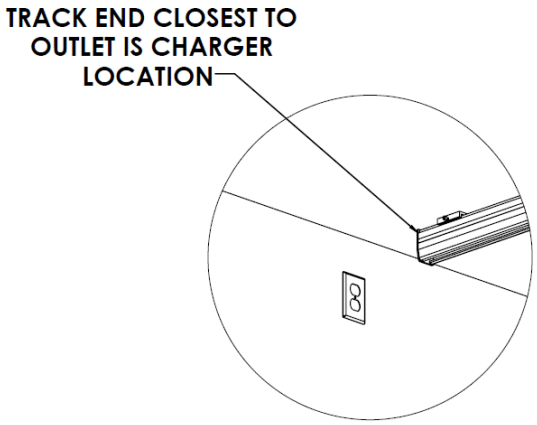


Figure 307: ***End Point Charging Location***

2. At the terminal end where the ceiling lift will charge, install the charging endstop in the track and use a 13mm wrench to torque the bolt and lock washer to 12–14 ft lbs.
3. Mount the ceiling lift unit following the instructions in "CEILING LIFT INSTALLATION" (Page 169).
    - Make sure the docking station contacts align with the charging contacts on the ceiling lift.

Omni/Constant Charging

The omni or constant charging system eliminates the need for a docking station by providing a continuous electrical charge throughout the length of the track. It is available for straight track in both basic track and traversing track ceiling lift systems.

1. Determine where the nearest outlet is relative to where the track will be installed.
    - The charger can be mounted to the wall near the end of the track closest to the outlet.
    - Make sure the charger cord is long enough to reach between the outlet and the end of the track.
    - The end of the track closest to the outlet will be where the charger connects to the TransStrip.

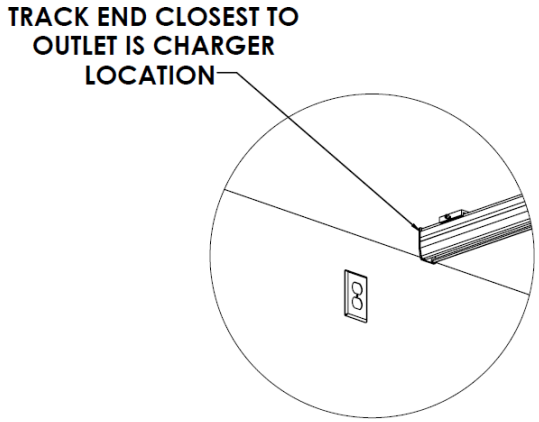


Figure 308: ***Omni/Constant Charger Location***

2. Unroll the TransStrip.
    - The TransStrip comes in 20' lengths and has male terminal tabs on both ends so each TransStrip can be used in two separate ceiling tracks.
3. Cut the TransStrip to fit the traversing track:

    a. Push in the protruding male terminal tabs on the TransStrip so they're flush with the plastic insulator (Figure 309).

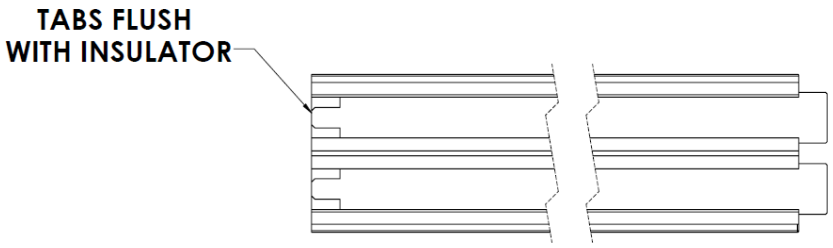


Figure 309: ***Male Terminal Tabs Flush with the Plastic Insulator***

    b. Measure from the flush end of the male terminal tabs the length of the track minus 4".
        - This leaves 2"of space at each end to allow room for electrical connection and end caps.

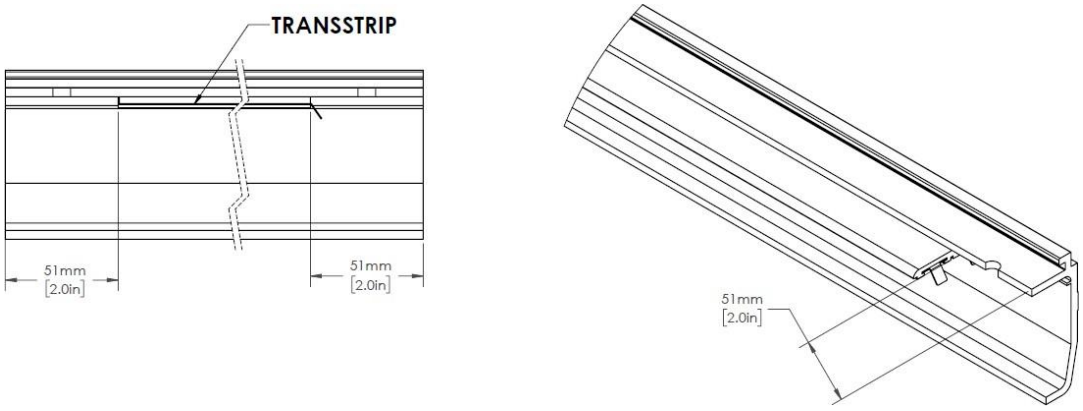


Figure 310: ***Measure from the Flush End of the Male Terminal Tabs the Length of the Track, Minus 4"***

c. Use a band saw to cut the end of the TransStrip opposite the male terminal tabs.

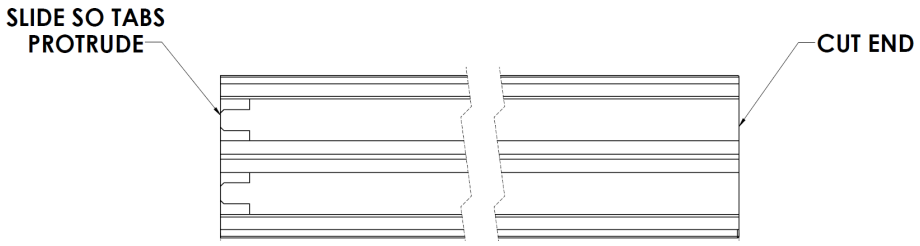


Figure 311: ***Cut the end of the TransStrip Opposite the Male Terminal Tabs***

d. Slide the metal strips inside the TransStrip back so the male terminal tabs protrude from the plastic insulator (Figure 312).

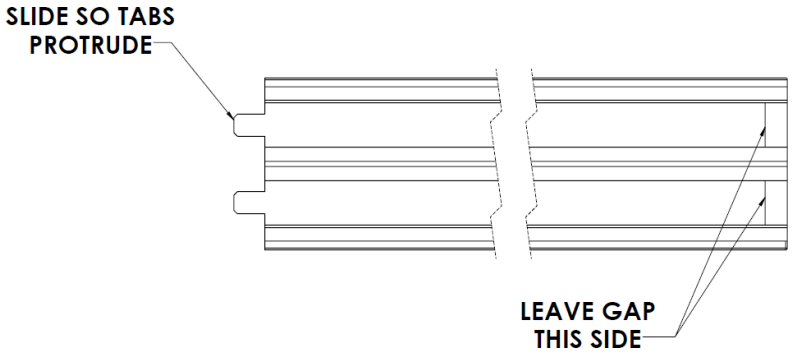


Figure 312: ***Slide Metal Strips 1/2" Out of Plastic Insulator***

4. Use pliers to bend the male terminal tabs approximately 45° (Figure 313).

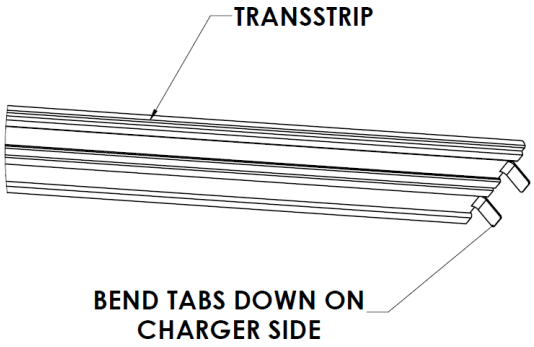


Figure 313: ***Bend the Male Terminal Tabs Approximately 45°***

5. Inside the track, insert the TransStrip into the channel slot on the upper side of the track.
    - Make sure the metal surface faces down toward the ceiling lift channel.
6. Approximately 1' from each end of the track and centered relative to the width of the track, use a long 5/32" bit to drill a hole through the TransStrip and out the top of the track at each end.
    - As shown in Figure 314, drill from the bottom up, through the channel, to ensure to drill between the metal segments of the TransStrip.

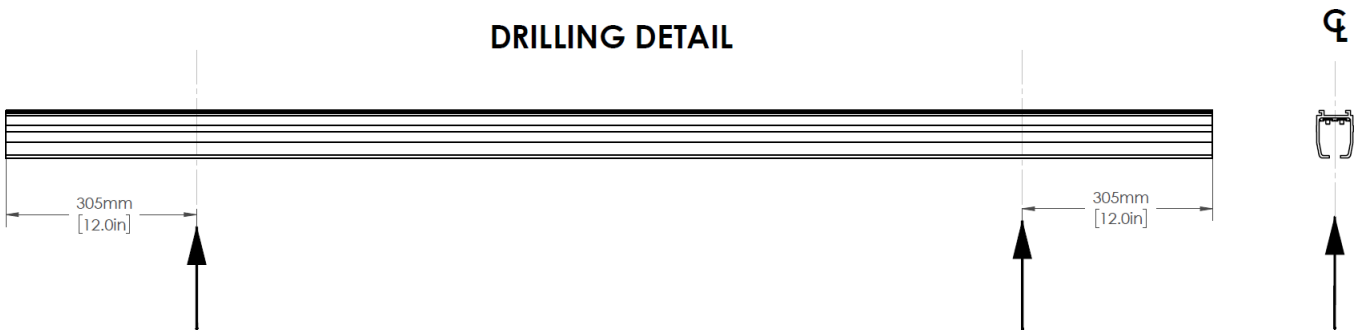


Figure 314: ***Drill from the Bottom Up, Through the Channel***

7. Secure the TransStrip.
   a. Use needle-nose pliers to insert the plastic rivets included with the TransStrip through the ceiling lift channel and through the holes just drilled.
   b. Insert the wide, split end of the plastic rivet until it seats, then snap off the protruding tab inside the track.
8. Install the track to the ceiling, following the instructions in “TRACK LAYOUT AND INSTALLATION” (Page 8).
9. Connect the two female spade connectors on the Omni power supply to the male ends of the TransStrip.
   - Note the position of the black wire connection and make sure it matches the Omni charging contact on the ceiling lift, as shown in Figure 315.

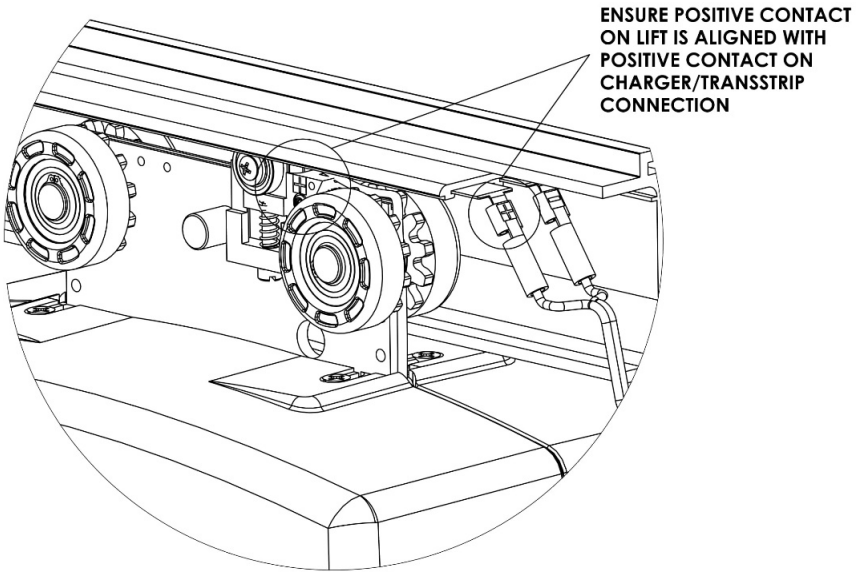


Figure 315: ***Make Sure the Connections Match***

10. Mount the ceiling lift unit following the instructions in “CEILING LIFT INSTALLATION” (Page 169).
    - The ceiling lift indicator lights orange when the charger is making proper contact with the TransStrip
11. Run the ceiling lift unit through the entire track to make sure it remains lit throughout the track.
    - To improve contact, adjust the spring-loaded screw (Figure 316) on the ceiling lift.

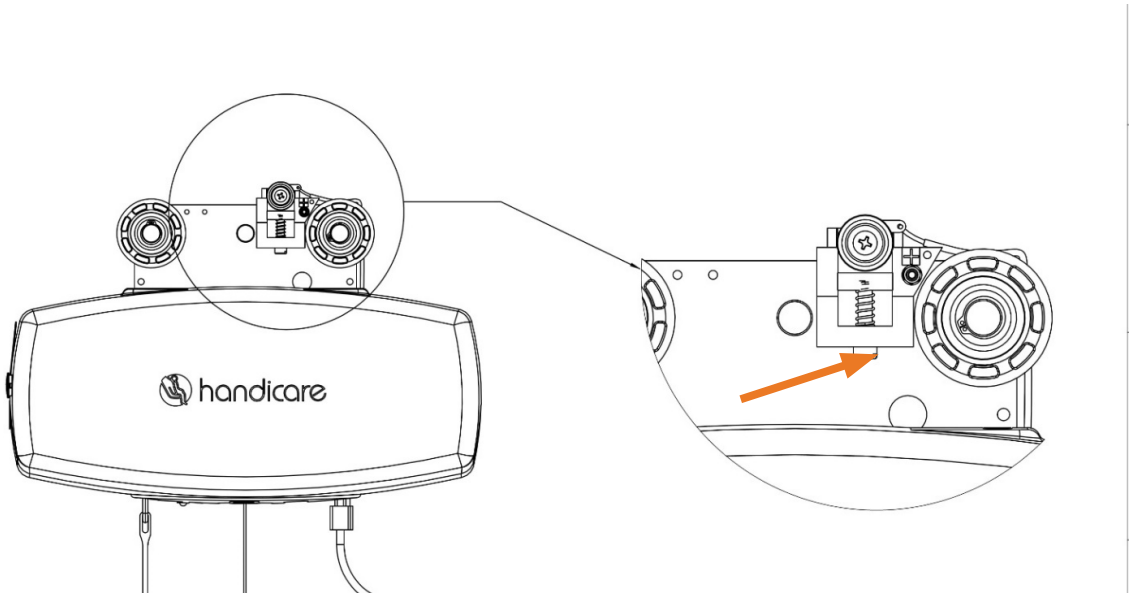


Figure 316: ***Ceiling Lift Spring-Loaded Contact Screw***

Once the track is mounted, install the ceiling lift.

CEILING LIFT INSTALLATION

1. Hang the ceiling lift in the track.
2. By hand, push the ceiling lift through the entire track installation.
    - If the ceiling lift's wheels stick at any joint:
        a. Loosen the set screws of the segments at that joint.
        b. Reposition the joint until the ceiling lift's wheels pass through it smoothly.
        c. Re-apply Blue Loctite 243 to the set screws just loosened and re-torque each to 40–45 in lbs.
3. If the ceiling lift has an integrated load cell, the load cell must be calibrated in the new track system. Refer to A-Series Tech Manual on how to calibrate.
    - After calibrating, picking up 100% SWL and confirm the scale measures within +/- 0.6%.
4. At the terminal end where the ceiling lift will charge, install the charging endstop in the track and use a 13mm wrench to torque the bolt and lock washer to 12–14 ft lbs.
5. At any other terminal end, install the standard endstop and torque bolts to 12–14 ft lbs.
6. At all terminal ends, install the clevis pin and ring as shown in Figure 317.

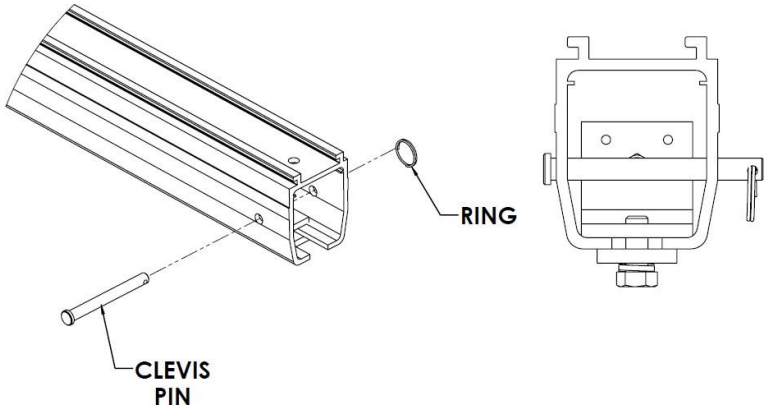


Figure 317: ***Clevis Pin and Ring Installed***

Testing and Inspection

To complete installation, inspect the system following each step on Form 75-07-01 “Ceiling Lift System Installation Final Checklist and Inspection” “CL” (Page 219). This form covers:

- Inspection of critical components
- Testing to verify the structure
- Weight test
- Inspection of the lift features of the
- Cleaning and labeling

Final Inspection (FI)

The system must be inspected and tested by a trained technician and witnessed by a client representative immediately following completion of a ceiling track installation before first use.

1. Verify the track is installed to the correct dimensions and placement in the room is in accordance with customer expectations.
2. Perform the “Inspection Procedure” steps identified as “(FI)” 170
3. Complete all steps in “Load Testing Procedures” identified as “(FI)” 172
4. Complete the following forms to document final testing and inspection of the ceiling track system:
    - Form 75-07-01 “Ceiling Lift System Installation Final Checklist and Inspection” “CL” (Page 219).
        - For any items on the form that do not apply for a specific installation, checkmark **N/A**.
    - Form 75-07-02 “Final Checklist and Inspection Commissioning Cover Sheet” “FC” (Page 218).

Preventative Maintenance (PM)

The system must be inspected and tested by a trained technician and witnessed by a client representative at the following intervals:

- Annually
- If the system has been overloaded
    - If at any time the ceiling lift system has been accidentally overloaded, remove the ceiling lift system from service until an inspection can be performed
- If there are any changes or modifications to the:
    - Structure the ceiling track is mounted to
    - Ceiling lift’s safe working load
    - Track and/or accessories (gantries, ceiling brackets, transition gates, turntables, smoke barrier assembly, etc.).

1. Perform the “Inspection Procedure” steps identified as “(PM)” 170
2. Complete all steps in “Load Testing Procedures” identified as “(PM)” 172
3. Complete the following forms to document preventative maintenance inspection of the ceiling track and lift system:
    - Form 75-07-09 “Ceiling Lift Preventative Maintenance” “PM” (Page 220).
        - For any items on the form that do not apply for a specific installation, checkmark **N/A**.
    - Form 75-07-10 “Ceiling Track Preventative Maintenance” “TPM” (Page 221).
        - For any items on the form that do not apply for a specific installation, checkmark **N/A**.

Inspection Procedure

Track System Inspection

1. Check that the endstops are in place and bolts tightened to 12–14 ft lbs. **(PM) (FI)**
2. Re-apply blue Loctite 243 to the set screws and tighten to 40–45 in lbs. **(PM) (FI)**
3. Confirm that all track ends have a clevis pin and split ring behind the endstop. **(PM) (FI)**
4. Confirm that all track ends have endcaps. **(PM) (FI)**
5. Confirm the track is level. **(PM) (FI)**
6. If the ceiling track system has a gantry trolley:
    a. Check for flat spots on the gantry wheels, and for any excessive wear and tear. **(PM)**
    b. Confirm the anti-drop pins are in place and functional. **(PM) (FI)**

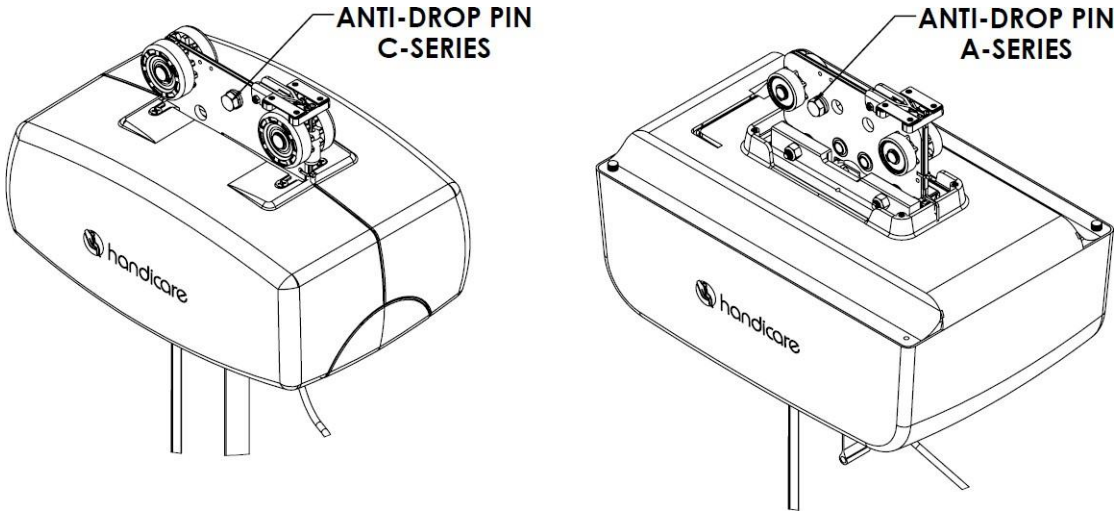


Figure 318: ***Anti-drop Pin Locations, C- and A-Series Ceiling Lifts***

c. Apply blue Loctite 243 to the set screws and tighten to 40–45 in lbs. **(PM) (FI)**
d. Make sure the bracket strip is installed between set screws. **(PM) (FI)**

7. Run a lift or trolley through all track joints and make sure the transition is smooth. **(PM) (FI)**
8. If the ceiling track system has a transition gate:
   a. Inspect the track joints into the transition gate. **(PM) (FI)**
   b. Confirm that the transition gate is functioning properly and the pin falls freely. **(PM) (FI)**
   c. Confirm the roller bearings are in place and undamaged. **(PM) (FI)**
   d. Apply blue Loctite 243 to the set screws and tighten to 40–45 in lbs. **(PM) (FI)**
9. If the ceiling track system has a turntable:
   a. Inspect the track joints into the turntable. **(PM) (FI)**
   b. Confirm that the turntable is functioning properly. **(PM) (FI)**
   c. Make sure all stop brackets are in position and tight. **(PM) (FI)**
   d. Apply blue Loctite 243 to the set screws and tighten to 40–45 in lbs. **(PM) (FI)**

Structure Inspection

1. Make sure all support points and the terminal ends of track are firm and display little perceptible movement laterally or longitudinally when force is applied by shaking the track. **(PM) (FI)**
2. Confirm all structural attachment and bracing hardware are tightened to manufacturer's specifications. **(PM) (FI)**
3. Perform a 150% SWL Load test. See "Load Testing 150%" (Page 173). **(FI)**
4. Perform a Function test. See "Function Testing" (Page 173). **(PM) (FI)**
5. Perform a Deflection Test. See "Deflection Testing" (Page 173). **(PM) (FI)**

Ceiling Lift Inspection

1. Make sure the LED on the charger and ceiling lift turns green when on, dark when off, and amber when charging. **(PM) (FI)**
2. Make sure any controls on the ceiling lift unit—including emergency lowering—work properly. **(PM) (FI)**
3. Make sure the lifting motion stops when the carry bar reaches the top of the lifting range. **(PM) (FI)**
4. Makes sure the lowering motion stops when the carry bar reaches the bottom of the lifting range. **(PM) (FI)**
5. Make sure the lowering motion stops when there is slack in the lift strap. **(PM) (FI)**
6. While using either Up or Down functions, angle the strap more than 15^0. **(PM) (FI)**
    - The motor should stop automatically.
7. Test all functions on the hand control to confirm they're functioning properly. **(PM) (FI)**
8. Inspect trolley wheels for flat spots, and excessive wear and tear. **(PM)**
9. Ensure Portable Trolley nut and pin are intact and tight. **(PM) (FI)**
10. Inspect Motor, Gears, and Traversing Drive for damage and excessive noise. **(PM)**
11. Inspect Carry Bar for damage; verify that it swivels freely. **(PM) (FI)**
12. Lower the strap down to the floor and inspect the full length of the edges for fraying. **(PM)**
13. Inspect the strap integrity where the strap and carry bar connect. **(PM)**
14. Press each button on the hand control for 10 seconds; make sure button function works continuously. **(PM) (FI)**
15. Inspect hand control wiring/tubing for damage or leaks. **(PM)**
16. Ensure hand control connection to ceiling lift are tight. **(PM) (FI)**
17. Check the ceiling lift batteries with a multimeter and confirm 12V reading while engaging the motor during the function test. **(PM)**
18. Check physical condition and ensure battery has install date on it**. (PM)**
19. Check that the LCD screen works properly. **(PM)**
20. Check for cracks or wear on the case. **(PM)**
21. Use the hand control to enter program mode (refer to the technical manual for the ceiling lift). Log the number of lifts in the "Lift Count" area of form FM-75-07-09 "Ceiling Lift Preventative Maintenance form" "PM" (Page 220). then reset the PM lift count on the ceiling lift to zero. **(PM)**

Charging System Inspection

1. Use a multimeter to check the output voltage of the charger (24–28V) by testing the contact strips of the endstop charger or Trans-Strip. **(PM) (FI)**
2. Confirm that the ceiling lift (and gantry trolley, if applicable) enters the charging endstop without resistance. **(PM) (FI)**
3. Confirm the ceiling lift charges at all charge points. **(PM) (FI)**
    - For constant charge systems, make sure the ceiling lift charges at all points along the track.

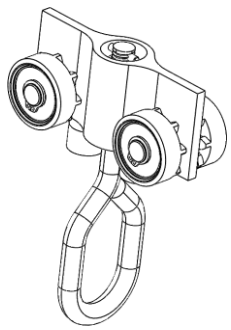
Cleaning/Miscellaneous

1. Use a dust wand to clean all dust and debris within the track. **(PM) (FI)**
2. Use a mild abrasive bleach to clean and scuff marks on the track. **(PM) (FI)**
3. Complete and place a PM inspection label (620710) on the track "Labels (Stickers)" (Page 209). **(PM)**
4. Ensure the SWL label (620720) is in place, accurate, and legible "Labels (Stickers)" (Page 209). **(PM) (FI)**

Load Testing Procedures

The inspection calls for load testing, deflection testing, and function testing, each of which is based upon the Safe Working Load (SWL) of the installed system. The SWL is determined by the maximum load capacity of the ceiling lift (for example, when installing a C-450, the SWL is 450 lbs). The indicated SWL determines the amount of weight to apply for each of the various tests:

- Load test—150% of SWL
- Function test—100% of SWL
- Deflection test—100% of SWL



For example, for a 450 lbs SWL installation, the inspector applies 675 lbs for the load test and 450 lbs for both the function and deflection tests.

Perform load testing using:

- Portable trolley
- Chain hoist capable of supporting the carry load

Load Testing 150%

To perform the load test:

1. Place the trolley in the track. (FI)
2. Using the chain hoist, attach weight to the trolley equal to 150% of the SWL. (FI)
3. Roll the trolley with the weight throughout the entire track system and ensure that all attachment points hold. (FI)
    - The test is performed in the same manner regardless of attachment structure. In a concrete installation attachment, the anchors are tested, while in a home care installation, the structural wood screws or wall mount posts/flip toggles are tested.

All connection points are stressed by this testing method to ensure everything holds.

Function Testing

Perform function testing using:

- Weights totaling 100% of the SWL

To perform the function test:

1. If there is a ceiling lift, attach weight equal to 100% of the SWL to the carry bar.

   If there is not a ceiling lift, place a trolley in the track and attach weight equal to 100% of the SWL. **(PM) (FI)**
2. Roll the ceiling lift or trolley with the weight throughout the entire track system. **(PM) (FI)**
    - Make sure all track components and accessories (track joints, turntables, transition gates, etc.) function properly under load.
    - Observe the system closely (visually and audibly) for unusual movement or noise.
3. If there is a ceiling lift, use the ceiling lift's Up function to lift the weight 20" off the floor and then lower it back down. **(PM)**

Deflection Testing

The deflection test determines how far the system pulls down while under load. Perform deflection testing using:

- Weights equal to 100% of the SWL

To perform the deflection test:

1. Place the trolley in the track. **(PM) (FI)**
2. Attach weight to the trolley equal to 100% of the SWL. **(PM) (FI)**
3. Position a laser level so it casts a level beam along the section of track being tested. **(PM) (FI)**
4. Use a pencil to mark the level line (so it can be erased when the test is complete). **(PM) (FI)**
5. Position the trolley at the center point between two attachment points (between two brackets, or for a traverse track (X/Y) system, at the center of the traversing track). **(PM) (FI)**
    - The track sinks as it deflects.
6. Replace the laser and use the pencil mark to determine the current position of the laser line. **(PM) (FI)**
7. Measure the distance between these two lines. **(PM) (FI)**
    - The deflection is how far the track sinks from its unweighted height.
    - The maximum allowable deflection is L/200, where L = length of the track segment between the support points.
    - For example, if the span is 96", then the maximum allowable deflection is 96"/200 or 0.48"
8. If the deflection is greater than the maximum for the span, the attachment points must either be moved closer together or an additional attachment point must be added in-between them until an acceptable deflection is achieved. **(PM) (FI)**

PARTS AND ACCESSORIES

Ceiling Lifts

Fixed Ceiling Lifts

A-Series

Trolley Top Specifications										
				Charging			Trolley Type			
Kit Part Number	Track	Power	Wi-Fi/ Load Cell	End Stop Charging	Constant Charging	Hand Control Charging	Power XY	Power Turntable	Curtain Jumper	Quick Curve
440542	Handicare	X	X		X					
440543	Handicare	X	X				x			
440544	Handicare	X	X	X				X		
440541	Handicare	X	X	X						
440552	Handicare	X	X			X				
440546	Handicare				X					
440550	Handicare		X		X					
440549	Handicare					X				
440559	Handicare		X			X				
440545	Handicare			X						
440560	Handicare		X	X						
440547	Handicare			X					X	
440551	Handicare		X	X					X	
440553	Handicare			X						X
440554	Handicare		X	X						X
440556	Arjo			X					x	
440558	Arjo		X	X					X	
440555	Arjo			X						
440557	Arjo		X	X						
440566	Arjo	X	X	X						
440569	Guldmann	X	X		X					
440567	Guldmann				X					
440568	Guldmann		X		X					
440548	Milkyway, Tollos, HumanCare					X				
440561	Milkyway, Tollos, HumanCare		X			X				

Hand Control Specifications

Digital Hand Control Options			
Part Number	**Channels**	**System**	**Product**
635400US / 635625	2 way	Manual Traverse	A-Series, AP-Series
635401US	4 way	Power Traverse	A-Series
635402US	6 way	Power XY/Power Turntable	A-Series
Pneumatic Hand Control Options			
635600HC, 635600, 635612	2 way	Manual Traverse	C-Series, P-Series
635601HC, 635601	4 way	Power Traverse	C-Series
635602HC	6 way	Power XY/Power Turntable	C-Series

C-Series

	Manual Traverse (Docking station)	Manual Traverse (Omni charging)	Power Traverse (Docking station)	Power Traverse (Omni charging)	Manual Traverse (Power Turntable)	Power Traverse (Power Turntable)	Manual Traverse (Quick Curve)	Power Traverse (X/Y)	Power Traverse (Return to Charge)
C-450	323100	323400	323150	323450	323242	323240	323101	323177	323150
C-625	323117	323417	323126	323427	323246	323244	323118	323137	323126
C-800	329180	329181	329190	NA	NA	NA	NA	NA	329190
C-1000	329100	329101	329126	329151	NA	NA	329104	329137	329126

Portable Ceiling Lifts

AP-300, AP-450, P-440, P-600

Note that the lift requires a trolley.

Lift	**Trolley**			
	All Handicare Track and Accessories	**Mikyway Track**	**Guldman Track**	**ArjoTrack**
AP-300 303080	360655	360650	360651	360652
AP-450 303060	360655	360650	360651	360652
P-440 303070	360655	360650	360651	360652
P-600 303090	360655	360650	360651	360652

Track

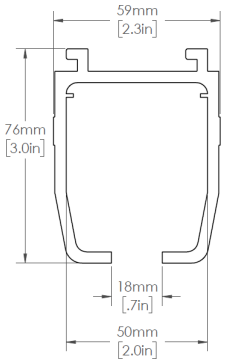
Straight Track

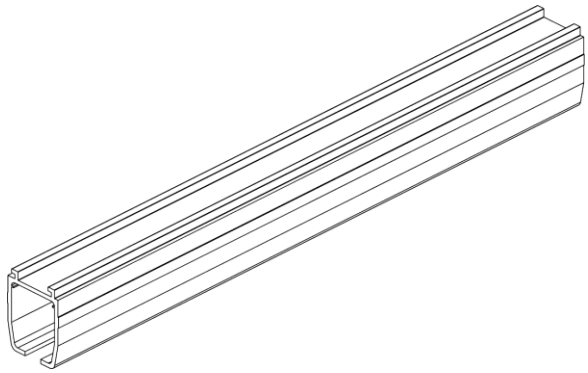
Regular Track—Straight Track

Dimensions:
59mm x 76mm
(2.32” x 2.99”)

Available in lengths

- Part No: 360448
  1931mm (76”)
- Part No: 360447
  2490mm (98”)
- Part No: 360439
  3010mm (122”)
- Part No: 360541
  3658mm (144”)
- Part No: 360542
  5004mm (197”)



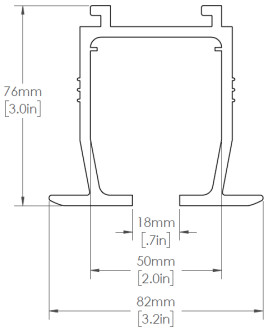


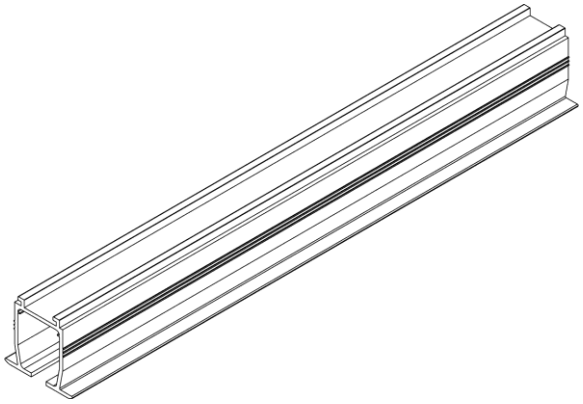
Flush Mount—Straight Track

Dimensions:
81.5mm x 76mm
(3.21” x 2.99”)

Available in lengths:

- Part No: 360522
  3708mm (146”)



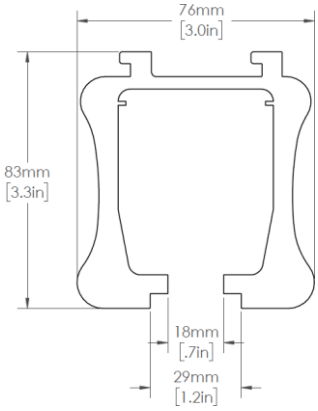


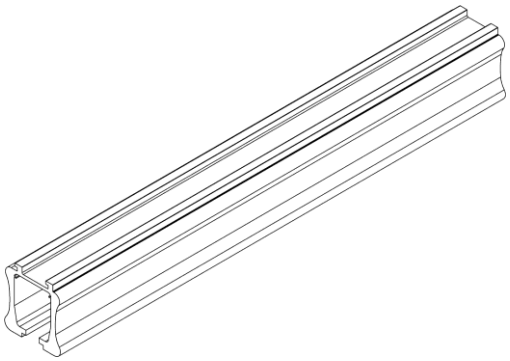
Super Track—Straight Track

Dimensions:
76mm x 83mm
(3.0” x 3.3”)

Available in lengths:

- Part No: 360489
  3048mm (120”)
- Part No: 360440
  3810mm (150”)



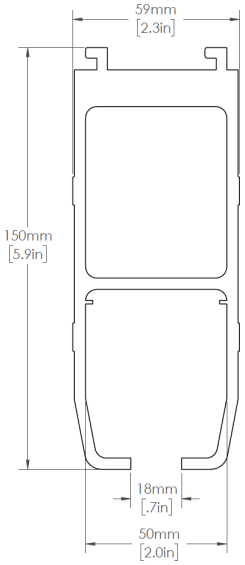


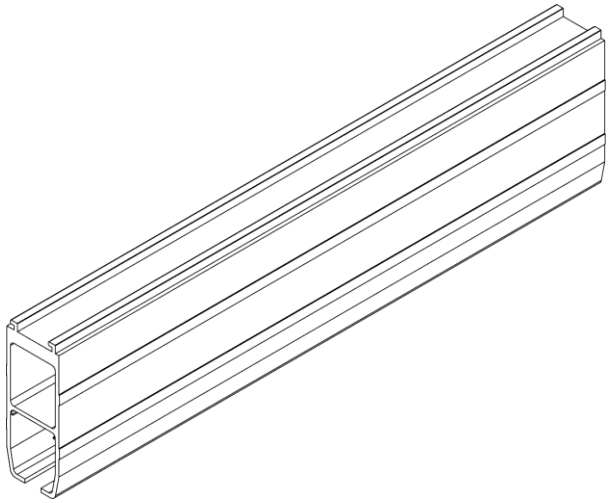
TrackPlus—Straight Track

Dimensions:
59mm 150mm
(2.3” x 5.9”)

Available in lengths:

- Part No: 360544
  3970mm (156”)
- Part No: 360543
  5010mm (197”)
- Part No: 360421
  6000mm (236”)





Curved Track

Handicare track is available in four types to accommodate different loads or layout requirements:

- Flush Mount Track
- Standard Track
- Super Track
- TrackPlus

It's available in straight and curved sections, with the curves available in either "outside" or "inside" alignment tab configurations to accommodate any layout requirement.

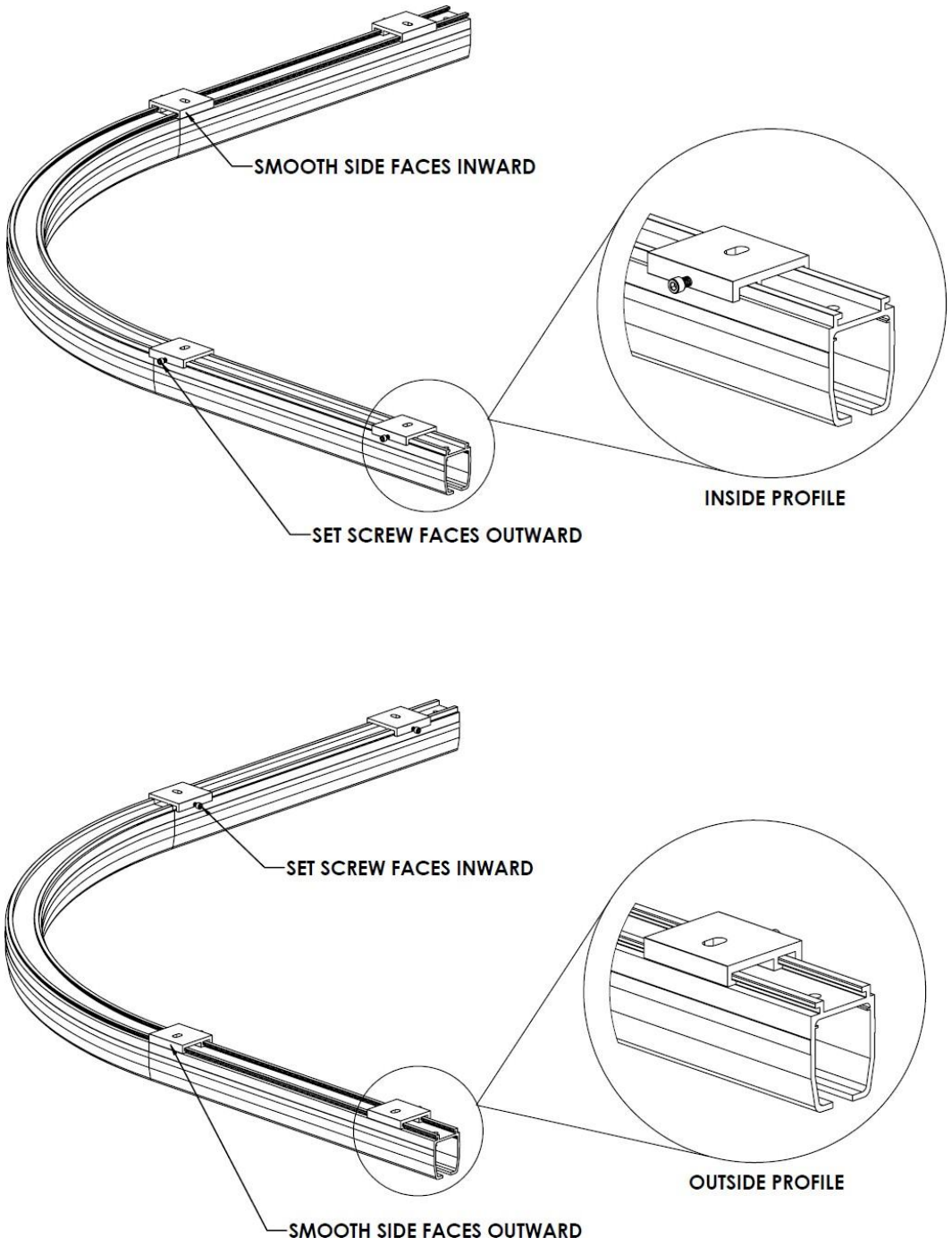


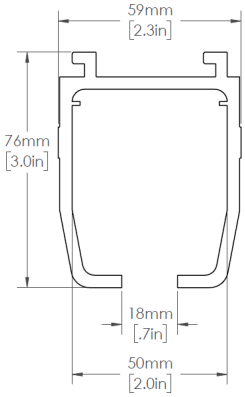
Figure 321: Ceiling Track Inside and Outside Curve Configurations (note placement of alignment tabs)

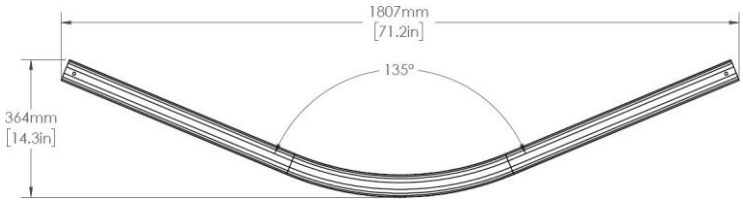
Regular Track—Curved Track 45° over 30”

Dimensions:
59mm x 76mm
(2.3” x 3.0”)

Radius: 1807mm (71.2”)

- Part No: 364220
  Inside curve
- Part No: 364240
  Outside curve



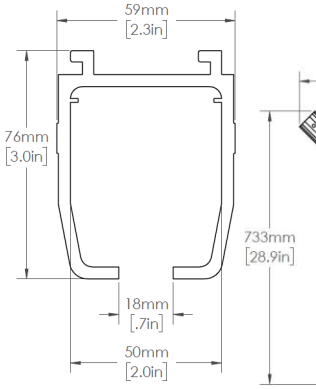


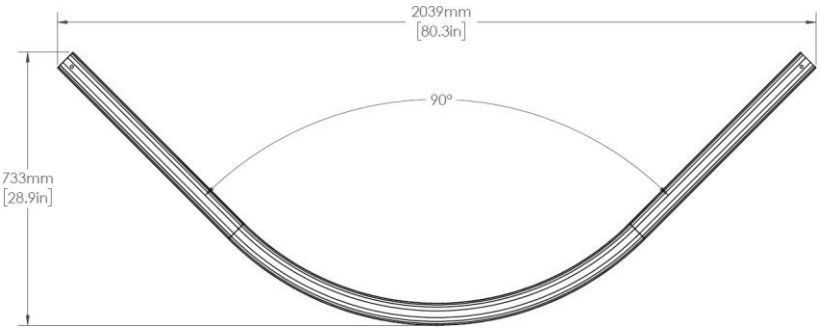
Regular Track—Curved Track 90° over 30”

Dimensions:
59mm x 76mm
(2.3” x 3.0”)

Radius: 2039mm (80.3”)

- Part No: 360416
  Inside curve
- Part No: 364160
  Outside curve



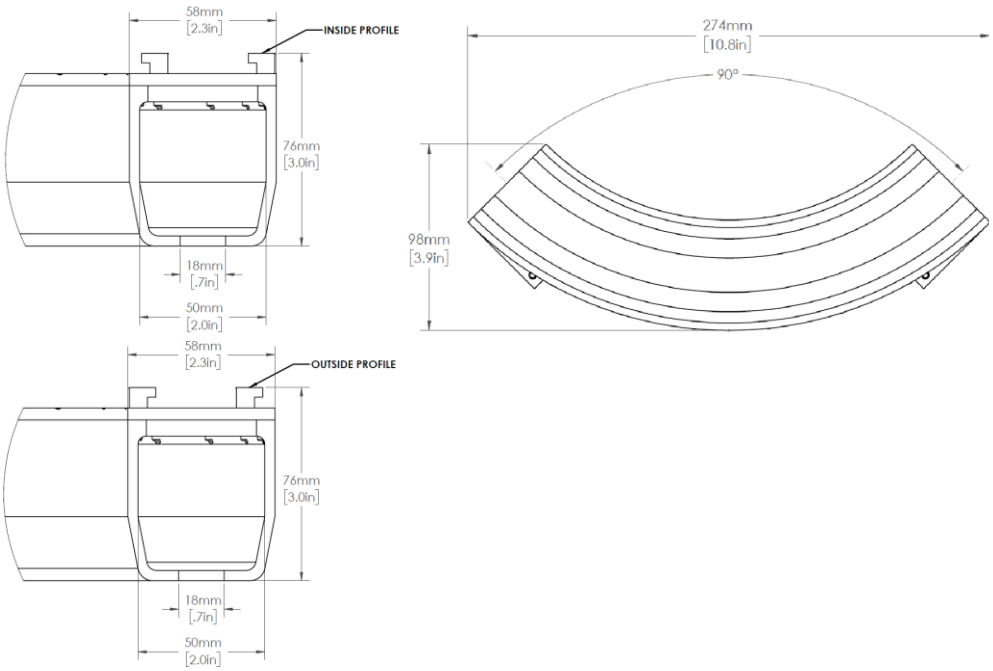


Regular Track - Quick Curve Assembly 90° over 6.5”

Dimensions:
59mm x 76mm
(2.3” x 3.0”)

Radius: 274mm (10.8”)

- Part No: 360417
  Inside curve
- Part No: 360420
  Outside curve

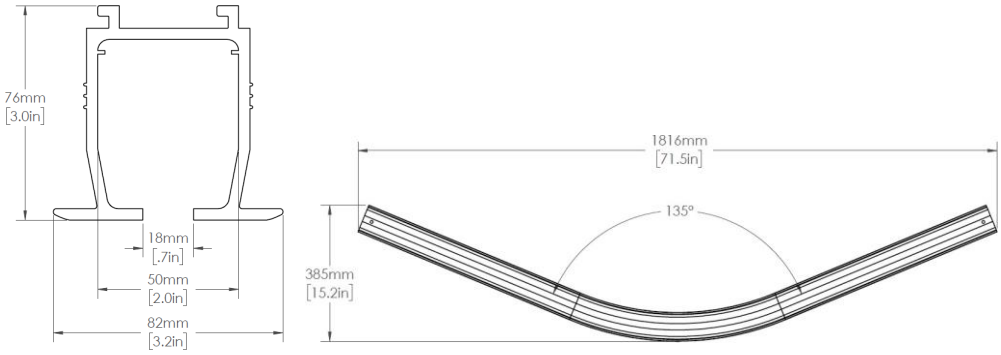


Flush Mount—Curved Track 45° over 30”

Dimensions:
81.5mm x 76mm
(3.2” x 3.0”)

Radius: 1816mm (71.5”)

- Part No: 360516
  Inside curve
- Part No: 360517
  Outside curve

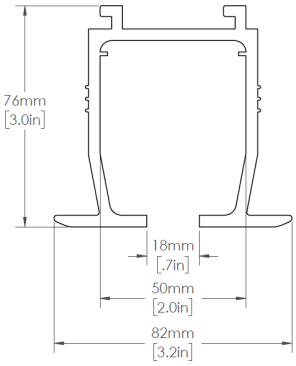


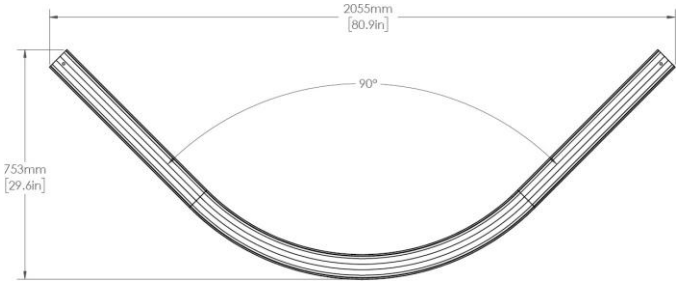
Flush Mount—Curved Track 90°

Dimensions:
81.5mm x 76mm
(3.2” x 3.0”)

Radius: 2055mm
(80.9”)

- Part No: 360514
  Inside curve
- Part No: 360515
  Outside curve





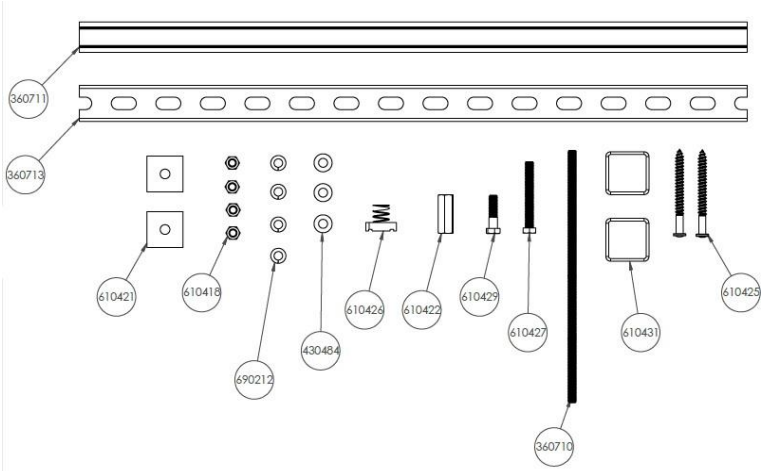
Homecare Hardware Kit (HHK)

Dimensions: N/A

Part No: 360704

The kit includes:

- 360710 - 3/8”-16 x 12” Threaded rod (1)
- 360711 - “ Strut strip (1)
- 360713 - 1-5/8” x 1-5/8” x 30” White strut (1)
- 430484 - 3/8” Flat washer (3)
- 610418 - 3/8-16 Hex nut (4)
- 610421 - 3/8” Square channel washer (2)
- 610422 - 3/8”-16 x 1.75” Coupling nut (1)
- 610425 - 3/8” x 4” Structural wood screw (2)
- 610426 - 3/8”-16 Spring channel nut (1)
- 610427 - 3/8”-16 x 3” Hex bolt (1)
- 610429 - 3/8”-16 x 1.5” Hex bolt (1)
- 610431 - White plastic Strut end cap (2)
- 690212 - 3/8” Lock washer (4)

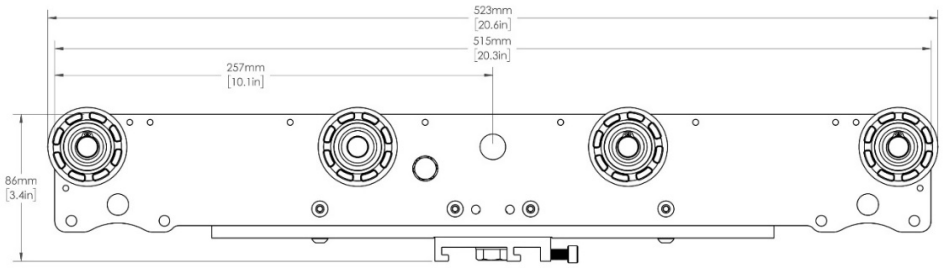


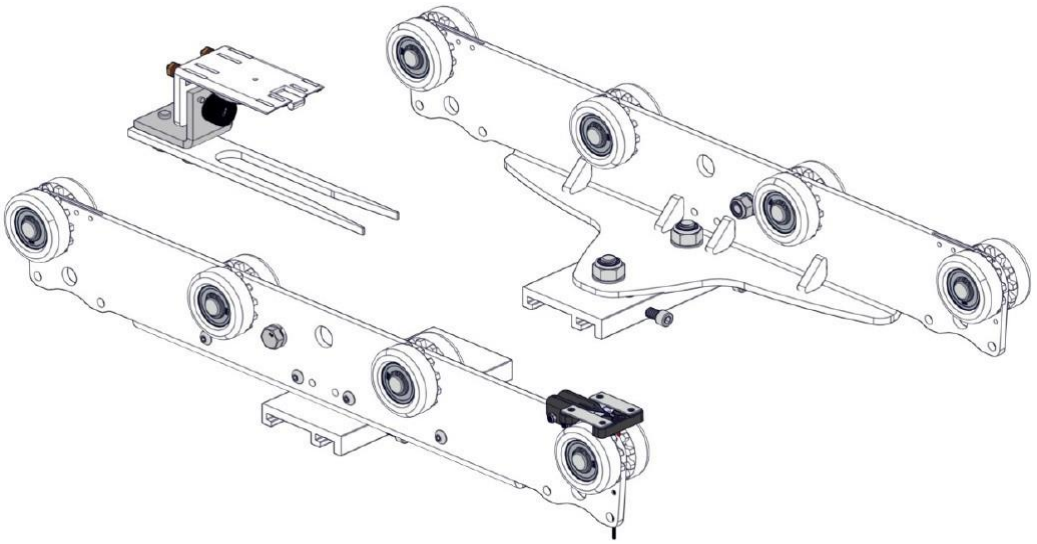
X/Y Gantry

Manual Gantry, Docked Charging

Dimensions:
523mm x 86mm
(20.6” x 3.4”)

- Part No:
  363920

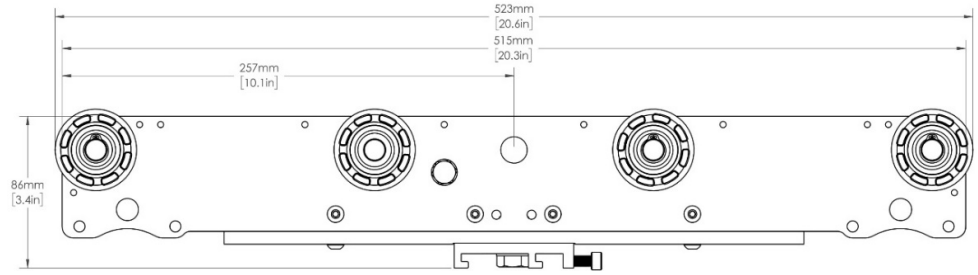


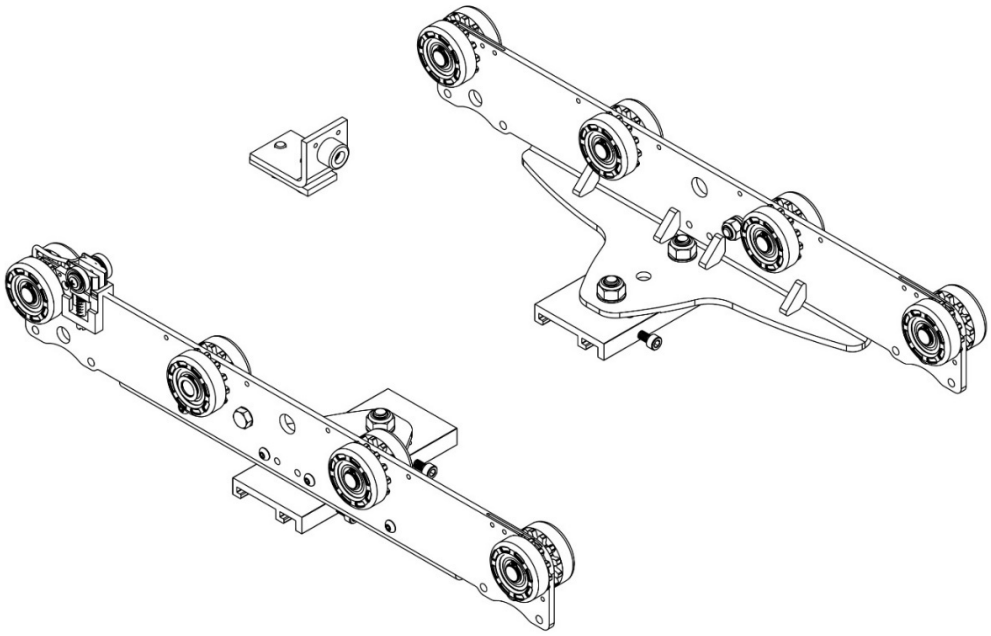


Manual Gantry, Omni Charging

Dimensions:
523mm x 86mm
(20.6” x 3.4”)

- Part No:
  363920JC

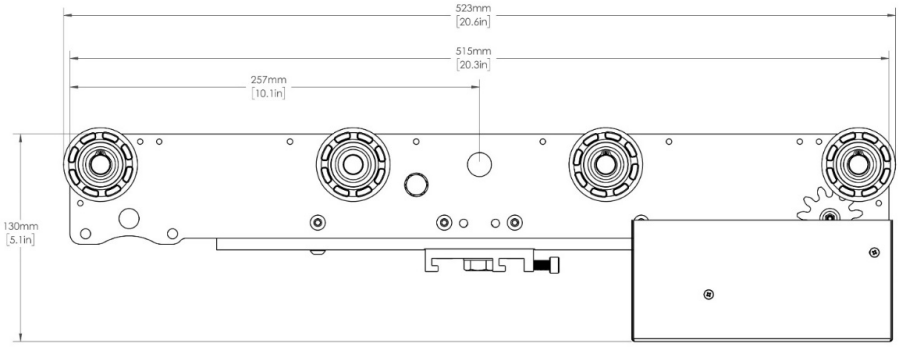


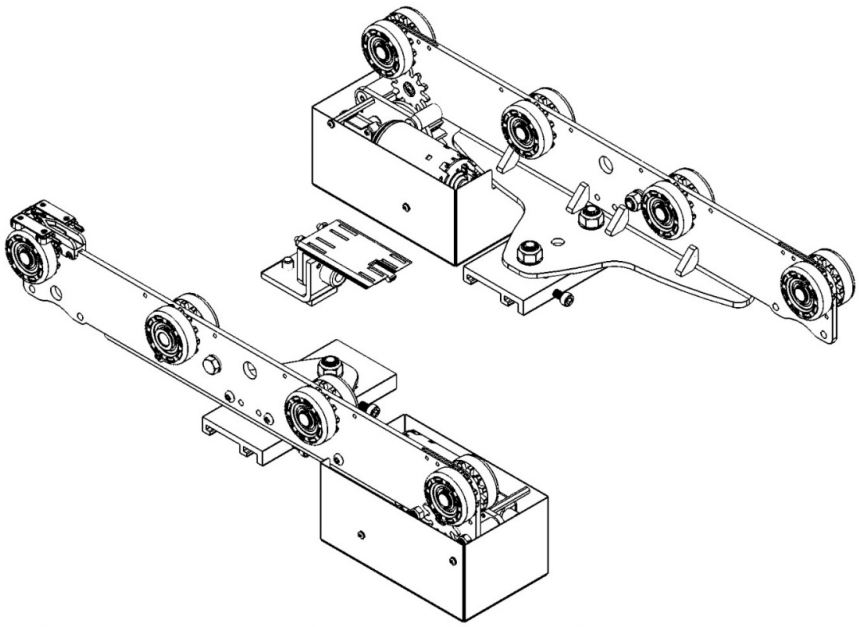


Power X/Y Gantry

Dimensions:
523mm x 130mm
(20.6” x 5.1”)

- Part No: 363920P





Transition Gate

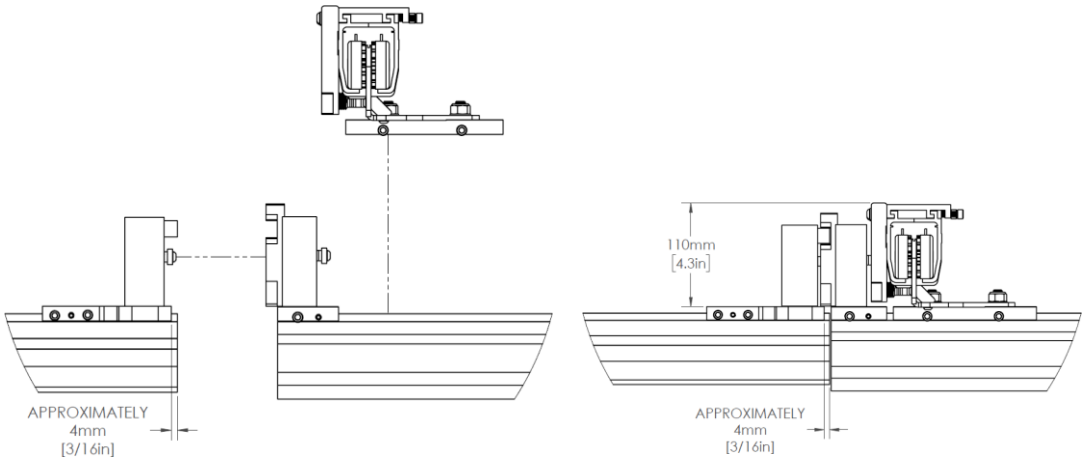
A transition gate connects a traverse track (X/Y) section of a ceiling lift system to a single-track section of the system.

Transition Gate for Regular Track or Super Track Traversing Track

Capacity: 1000 lbs

Dimensions:
4” x 3.3” x 4.1”
5.2” x 5.8” x 4”
4” x 2.8” x 3.9”

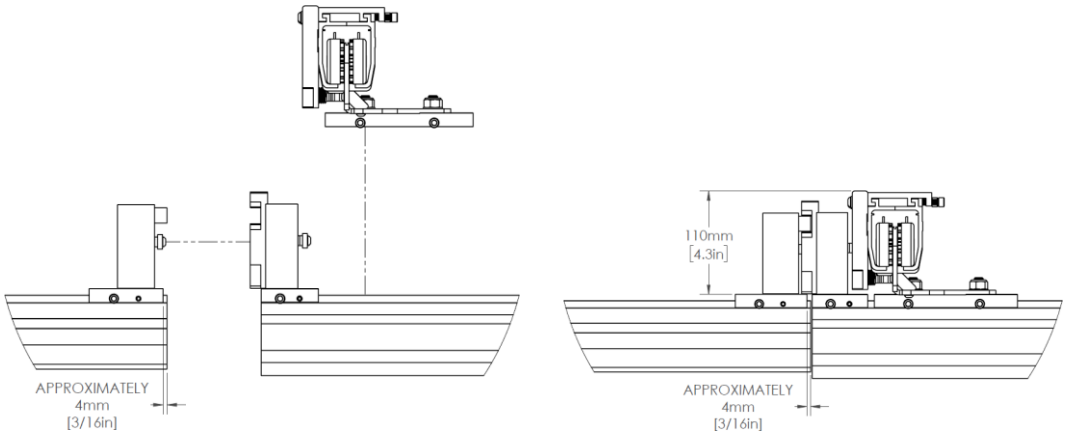
- Part No:
  - Right Hand- 363987-1,
  - Left Hand- 363988-1



Capacity: 625 lbs

Dimensions:
4” x 3.3” x 4.1”
5.2” x 5.8” x 4”
4” x 2.8” x 3.9”

- Part No: 363980-1

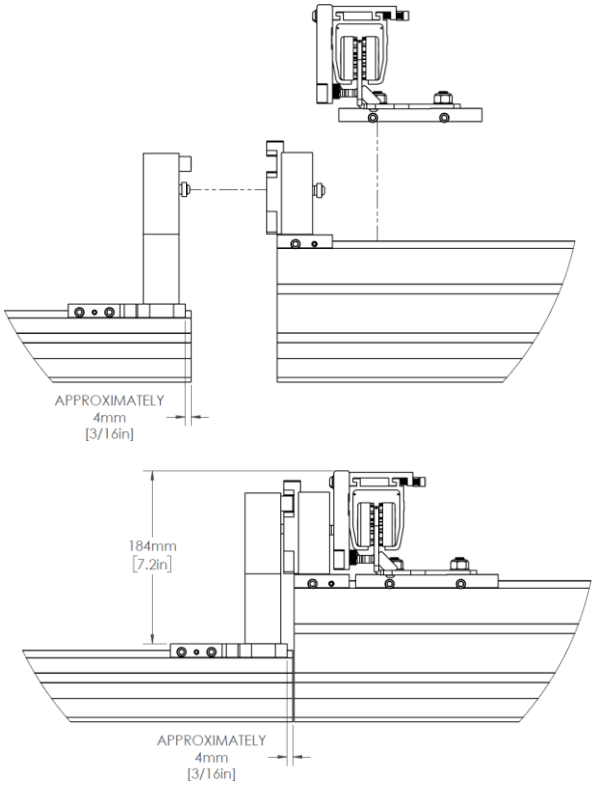


Transition Gate for TrackPlus Traversing Track

Capacity:
1000 lbs

Dimensions:
4” x 3.3” x 4.1”
5.2” x 5.8” x 6.9”
4” x 2.8” x 3.9”

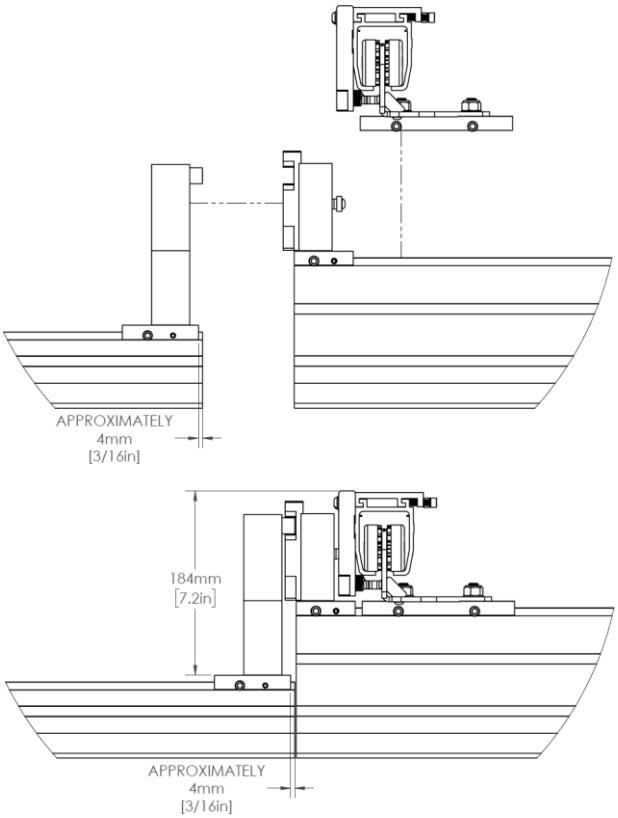
- Part No:
  - Right Hand-363982-1
  - Left Hand - 363983-1



Capacity:
625 lb

Dimensions:
4” x 3.3” x 4.1”
5.2” x 5.8” x 6.9”
4” x 2.8” x 3.9”

- Part No: 363981-1



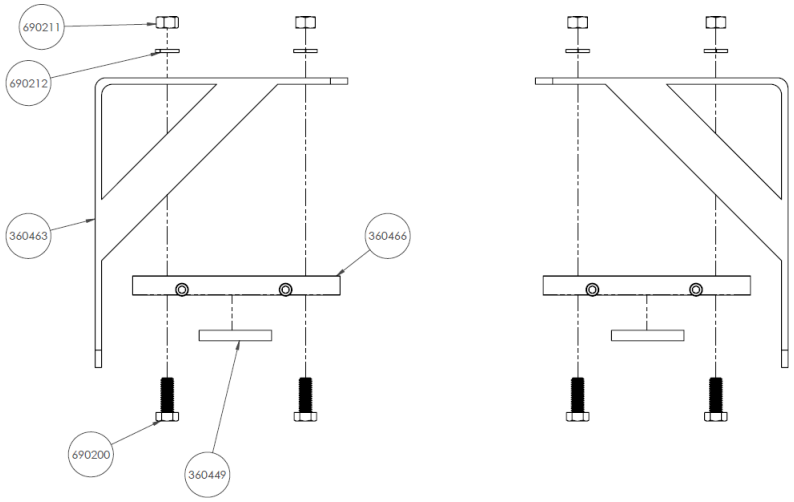
Wall Mounts

Heavy Duty Wall Mount

Wall Mount Bracket Kit—Heavy Duty

Dimensions: N/A

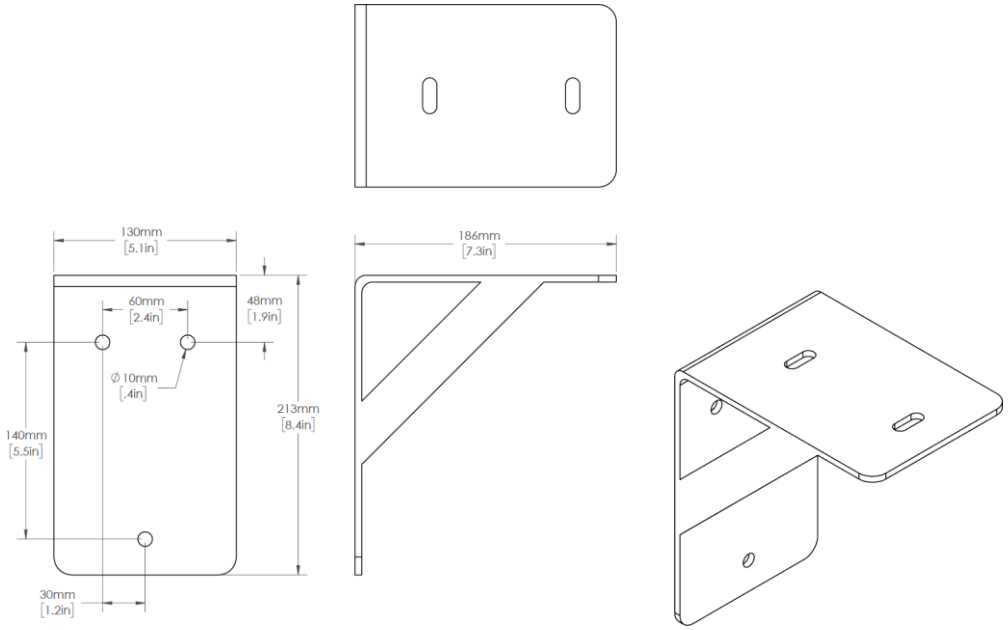
- Part No: 360809
  Kit Includes:
  - 360463 - Wall Mount Bracket (2)
  - 360466 - Wall Mount Ceiling Bracket (2)
  - 360449 - 6 inch Ceiling Bracket Strip (2)
  - 690200 - 3/8”-16 x 1” Hex Bolt (4)
  - 690212 - 3/8” Lock Washer (4)
  - 690211 - 3/8”-16 Hex Nut (4)



Wall Mount Bracket—Heavy Duty

Dimensions:
130mm x 213mm x 186mm
(5.1” x 8.4” x 7.3”)

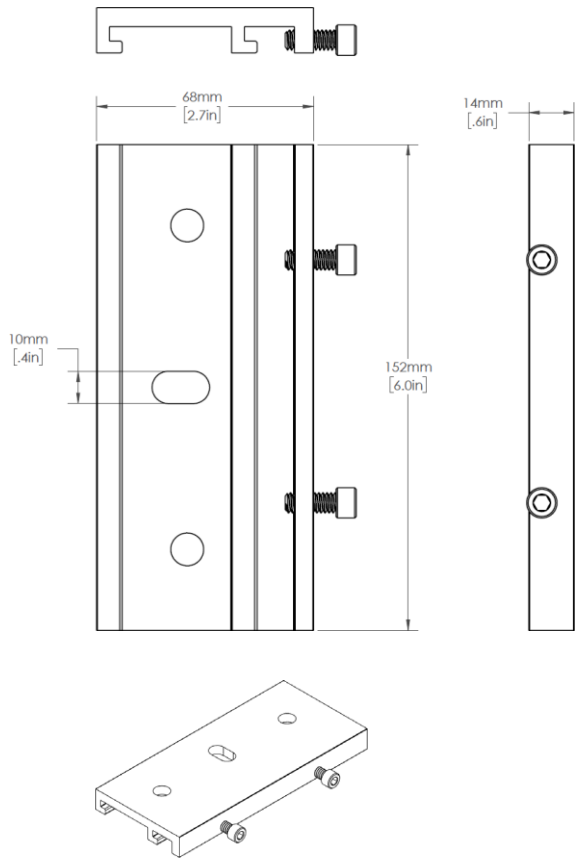
- Part No: 360463



Wall Mount 6” Connecting Bracket

Dimensions:
68mm x 152mm x 14mm
(2.7” x 6” x .6”)

- Part No: 360466

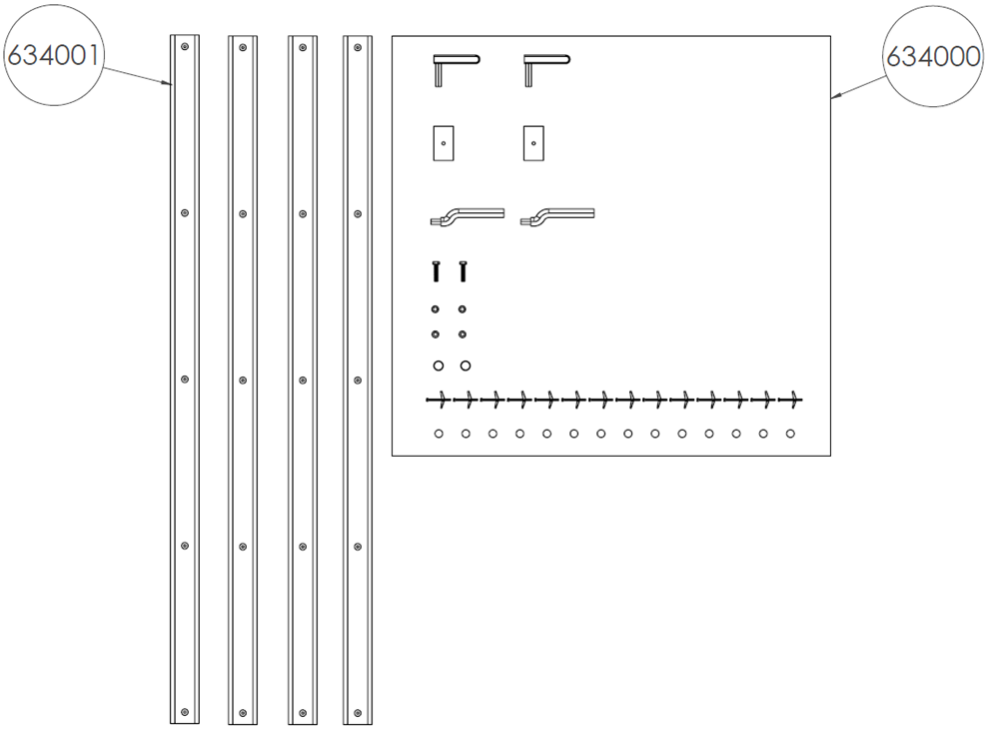


Wall Mount System - 2 Post

Wall Mount System - 2 Post

Dimensions:
N/A

- Part No: 342100



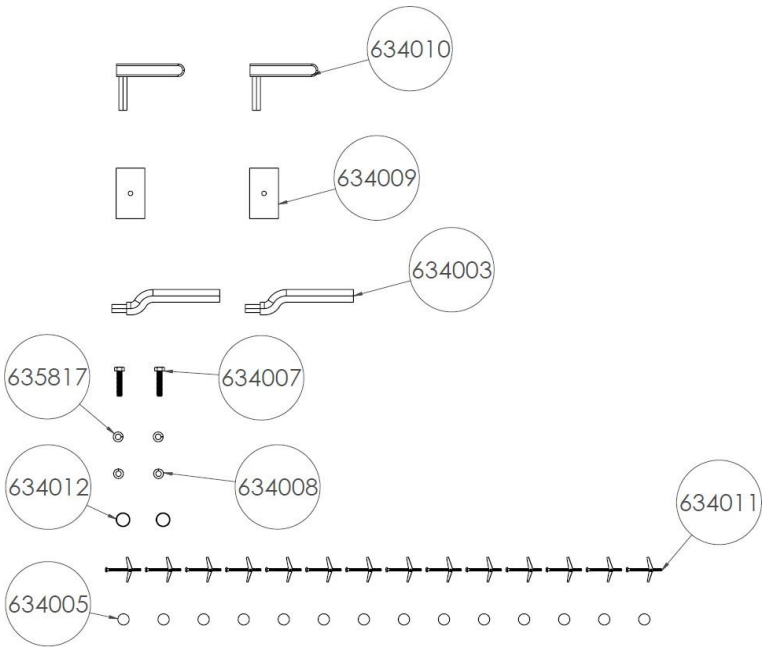
Wall Mount Hardware Kit

Dimensions:
N/A

- Part No: 634000

  Kit Includes:

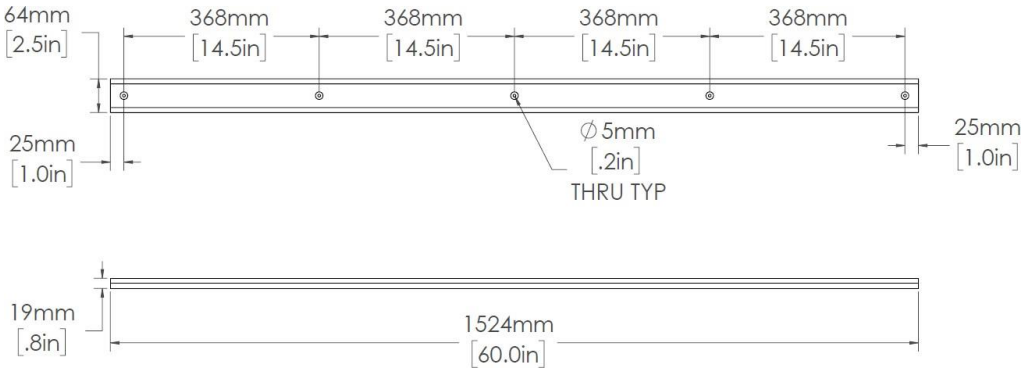
  - 634003 - Wall Mount Base Board Foot (2)
  - 634014 - Wall Mount Connecting Joint (2)
  - 634009 - Wall Mount Track Mt. Bkt (2)
  - 634010 - Angled Bracket (2)
  - 634011 - EZ Toggle Drywall Anchor (20)
  - 634005 - Wall Mount Post White Caps (20)
  - 634007 - Wall Mount 5/16” UNC 1 1/2Lg (2)
  - 634008 - High Collar Lock Washer 5/16” (2)
  - 634012 - Hex Dome Protection Cap 5/16” (2)
  - 635817 - M8 Spring Washer (2)



Wall Mount Post

Dimensions:
1524mm x 64mm x 19mm
(60” x 2.5” x .8”)

- Part No: 634001



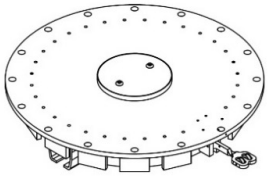
Turntables

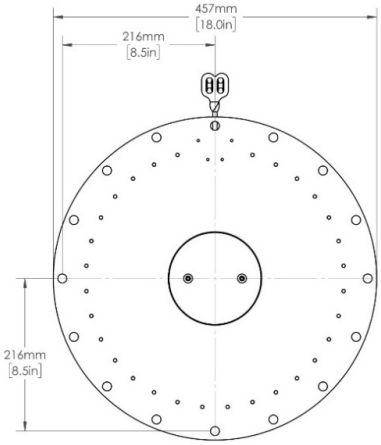
A turntable is a mechanical device in a ceiling track system that rotates to allow the lift to move from one section of track to another.

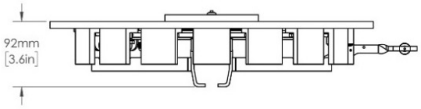
Multiport Manual Turntable

Dimensions:
Diameter 457mm (18”)
Depth 92mm (3.6”)

- Part No:
  360453





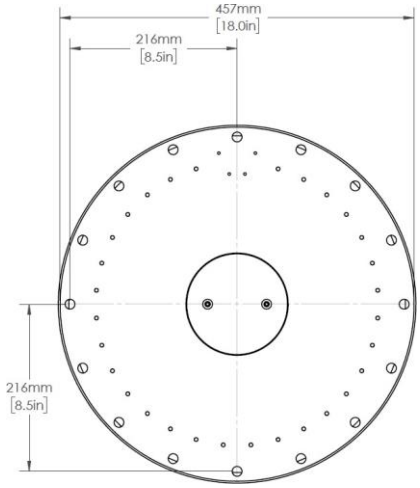


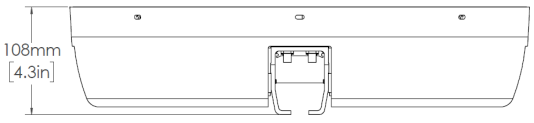
Multiport Power Turntable

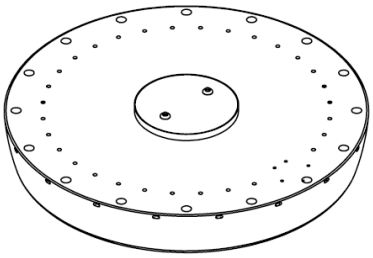
The Power Turntable is a motorized table that is operated using the ceiling lift hand control. It features entry/exit points at 22.5° increments.

Dimensions:
Diameter 457mm (18”)
Depth 108mm (4.3”)

- Part No:
  360452





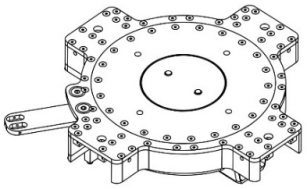


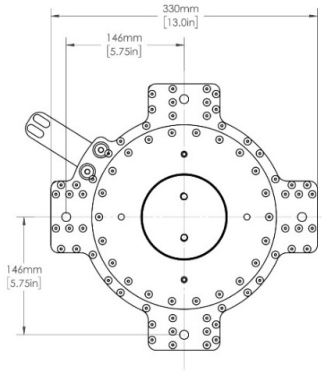
Quick Fit 90 Turntable

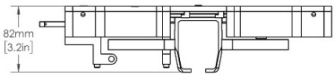
The Quick Fit 90 Turntable is a manual turntable featuring four entry/exit points spaced in 90° intervals.

Dimensions:
330mm x 146mm x 82mm
(13” x 5.75” x 3.2”)

- Part No: 360454





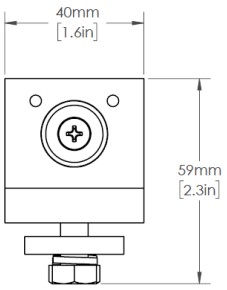


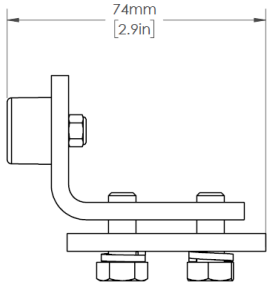
Endstops

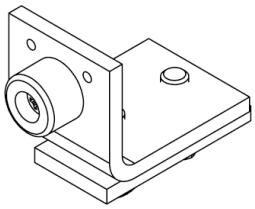
Standard Endstop

Dimensions:
40mm x 59mm x 74mm
(1.6” x 2.3” x 2.9”)

- Part No: 360460



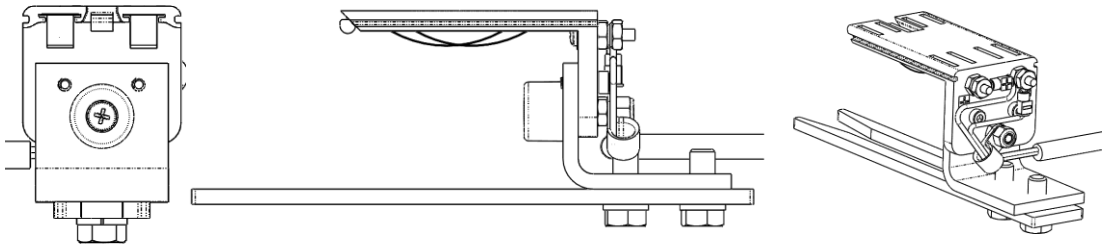




C-Series Lift Charger With Endstop Assembly

Dimensions:
48mm x 76mm x 135mm
(1.9” x 3.0” x 5.3”)

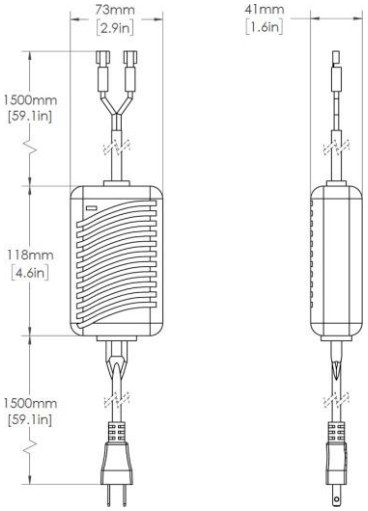
- Part No: 440152

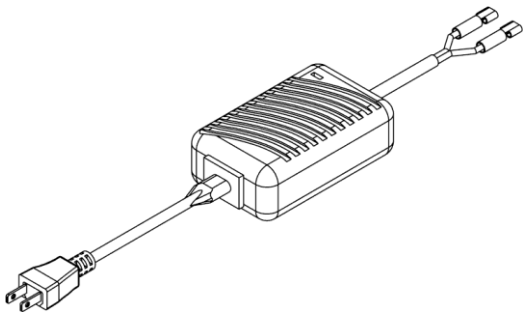


C-Series Lift Charger With Omni Assembly

Dimensions:
73mm x 3118mm x 41mm
(2.9” x 122.8” x 1.6”)

- Part No: 440101

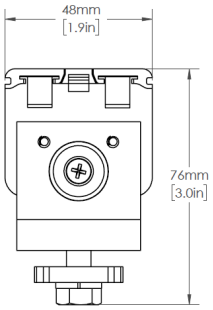


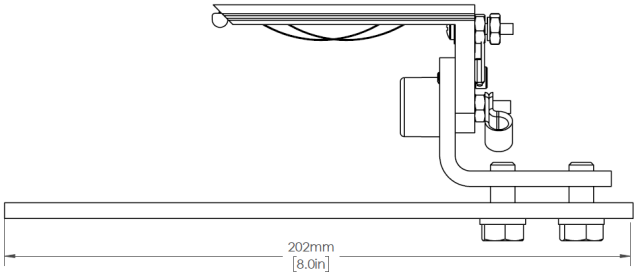


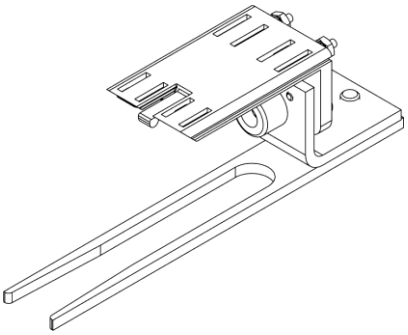
A-Series Lift Charger With Endstop Assembly

Dimensions:
48mm x 76mm x 202mm
(1.9” x 3.0” x 8.0”)

- Part No: 440510



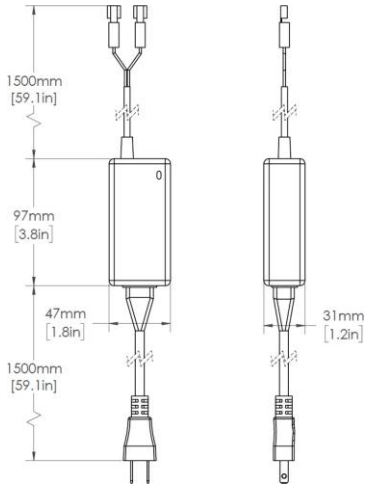


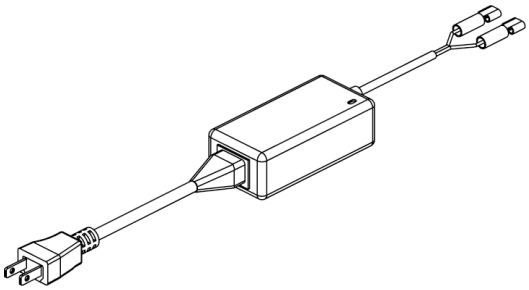


A-Series Lift Charger With Omni Assembly

Dimensions:
47mm x 3097mm x 31mm
(1.8” x 122.0” x 1.2”)

- Part No: 440102



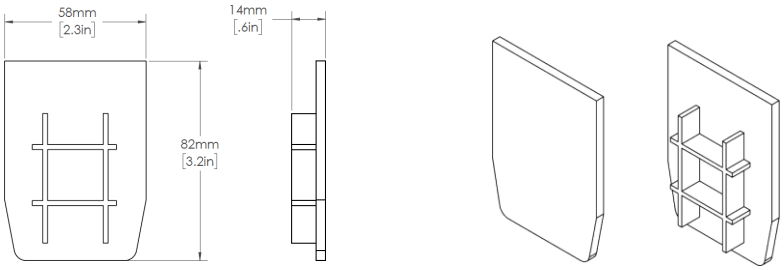


Endcaps

Regular Track Endcap

Dimensions:
58mm x 82mm x 14mm
(2.3” x 3.2” x .6”)

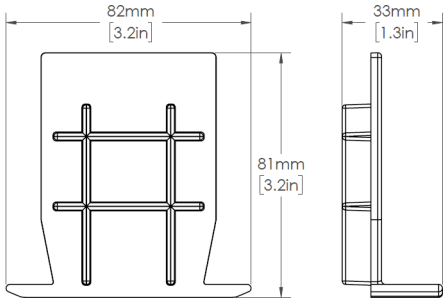
- Part No: 360419

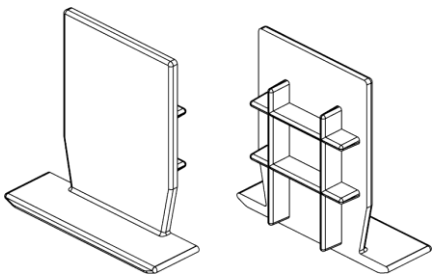


Flush Mount Endcap

Dimensions:
82mm x 81mm x 33mm
(3.2” x 3.2” x 1.3”)

- Part No: 360519

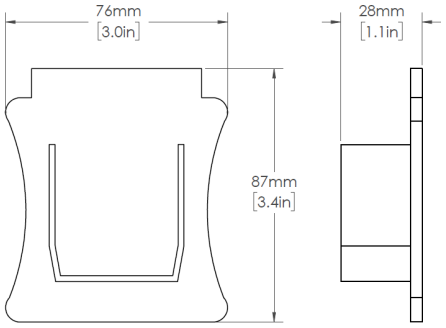


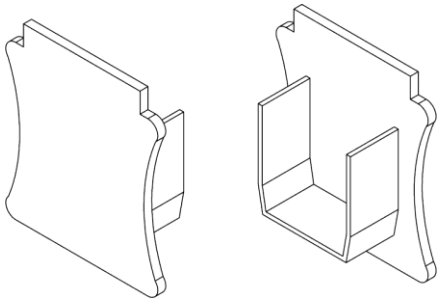


Super Track Endcap

Dimensions:
76mm x 87mm x 28mm
(3.0” x 3.4” x 1.1”)

- Part No: 360450

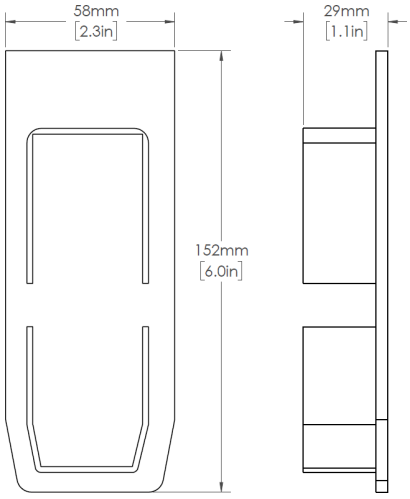


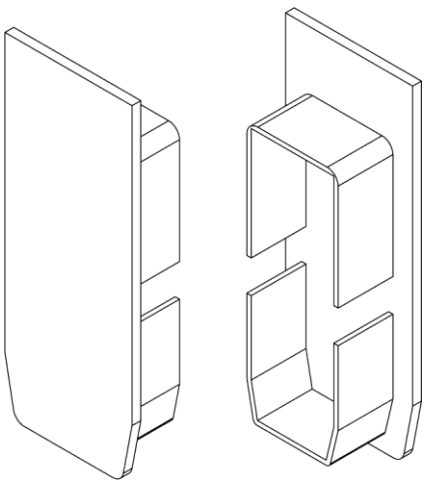


TrackPlus Endcap

Dimensions:
58mm x 152mm x 29mm
(2.3” x 6.0” x 1.1”)

- Part No: 360451





Brackets

The most common brackets used are the 3” and 6” types.

- A 3” bracket is used for all attachment points along a ceiling track with exception to those that connect two individual pieces of ceiling track together.
- A 6” bracket is used in these cases where two pieces of track are joined. 6” brackets can be used to connect a straight track to a curved track, or another straight track for a longer length run.

3” and 6” brackets come with a pre-drilled slot on the flat side of the bracket.

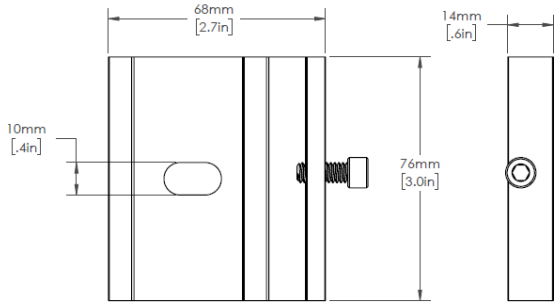
The slot on the bracket comes in two diameters:

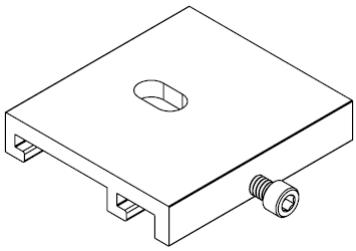
- 3/8”—Typically only used when attaching to a wood joist structure since a 3/8” structural wood screw can fit through the slot channel for direct attachment to wood structure.
- 1/2” - Recommended for used in most institutional applications when attaching to concrete, metal beams, etc.

3” Bracket 3/8” Slot

Dimensions:
68mm x 76mm x 14mm
(2.7” x 3” x .6”)

- Part No: 360461

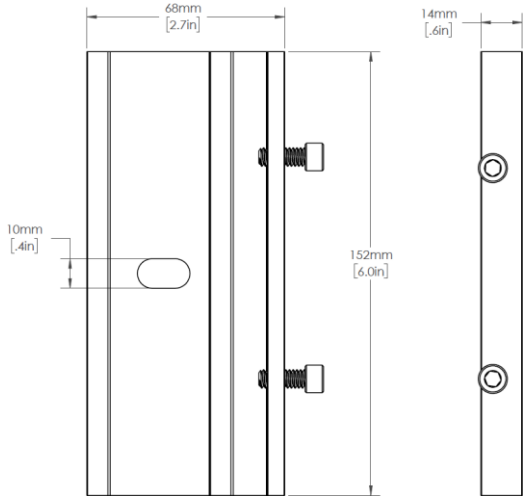


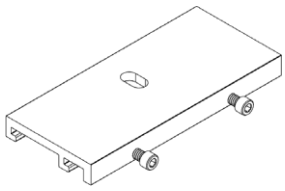


6” Connector Bracket 3/8” Slot

Dimensions:
68mm x 152mm x 14mm
(2.7” x 6” x .6”)

- Part No: 360462

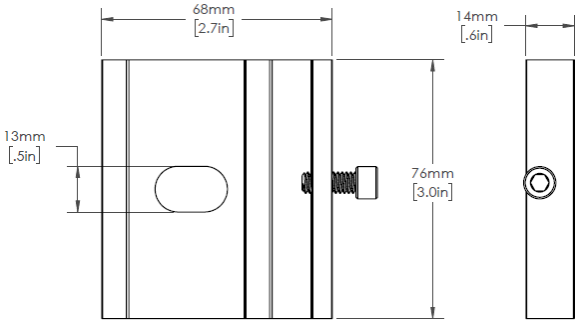


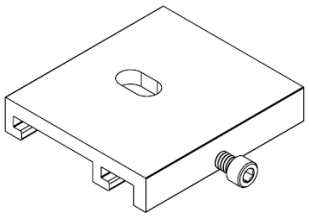


3” Bracket 1/2” Slot

Dimensions:
68mm x 76mm x 14mm
(2.7” x 3” x .6”)

- Part No: 360478

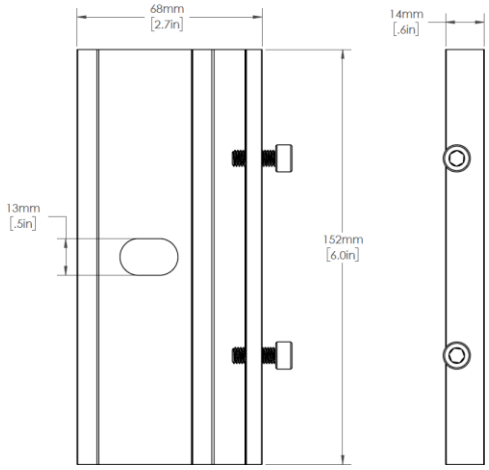


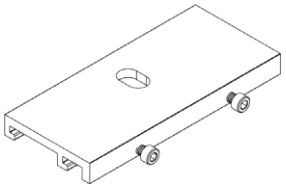


6” Connector Bracket 1/2” Slot

Dimensions:
68mm x 152mm x 14mm
(2.7” x 6” x .6”)

- Part No: 360457



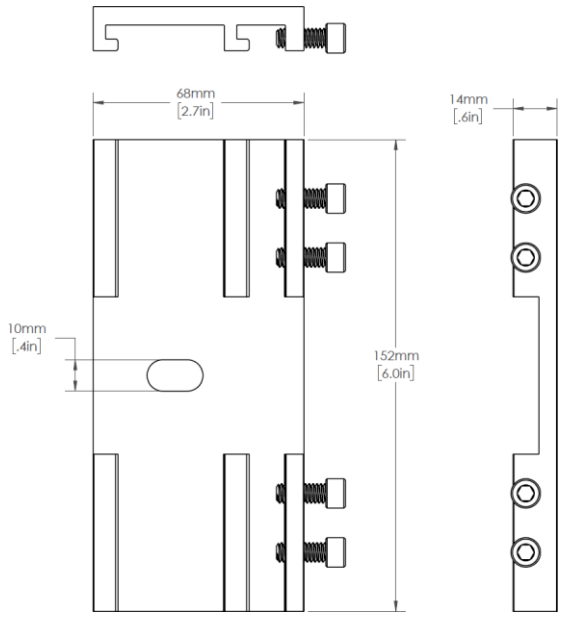


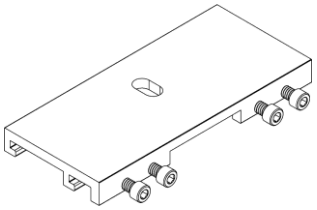
6” Curtain Jumping Bracket 3/8” Slot

The 6” Curtain Jumping bracket cannot be used as a load bearing bracket. It is for alignment of tracks only, to minimize horizontal and vertical deflection under load and must be used in conjunction with two 3” connector brackets.

Dimensions:
68mm x 152mm x 14mm
(2.7” x 6” x .6”)

- Part No: 360456

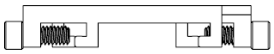


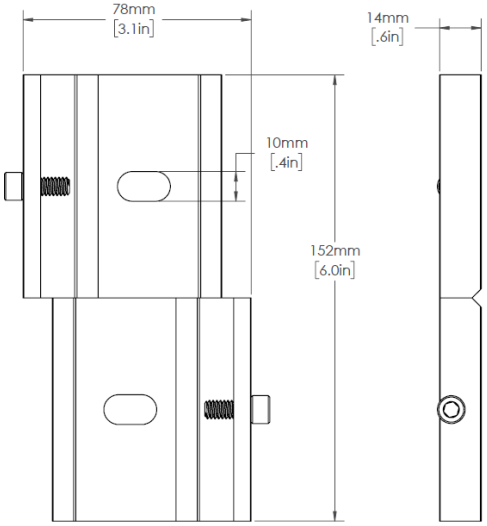


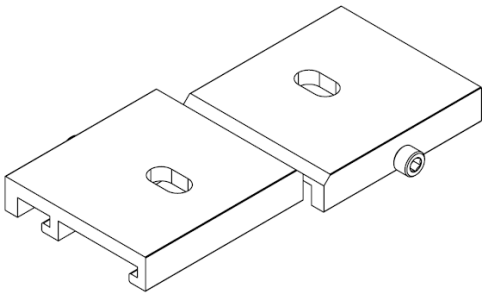
Reverse Connector Brackets

Dimensions:
78mm x 152mm x 14mm
(3.1” x 6” x .6”)

- Part No: 360464

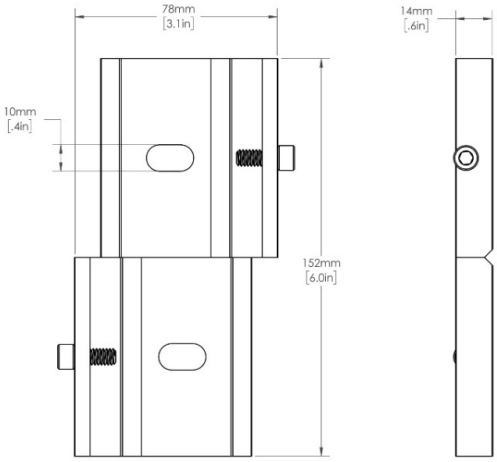


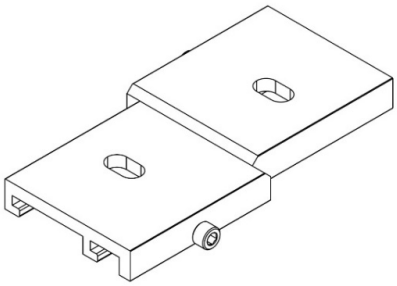




Dimensions:
78mm x 152mm x 14mm
(3.1” x 6” x .6”)

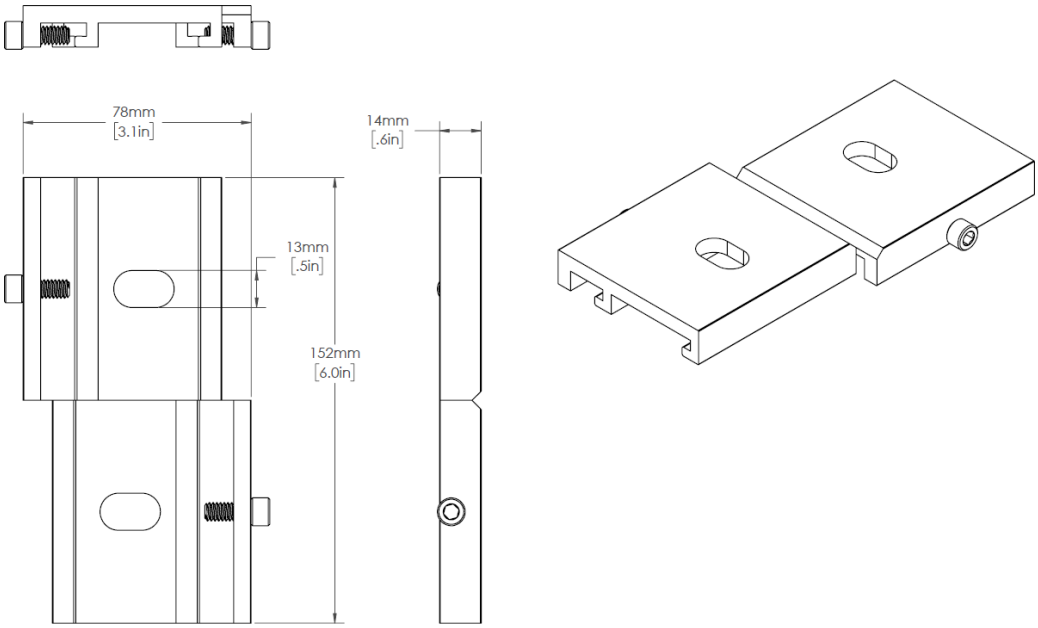
- Part No: 360465





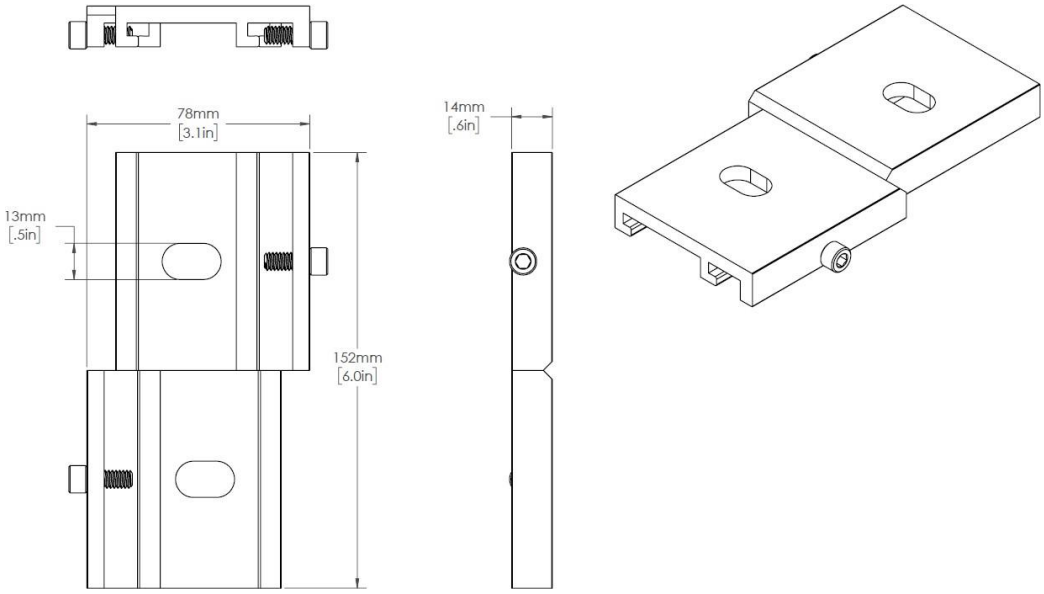
Dimensions:
78mm x 152mm x 14mm
(3.1” x 6” x .6”)

- Part No: 360481



Dimensions:
78mm x 152mm x 14mm
(3.1” x 6” x .6”)

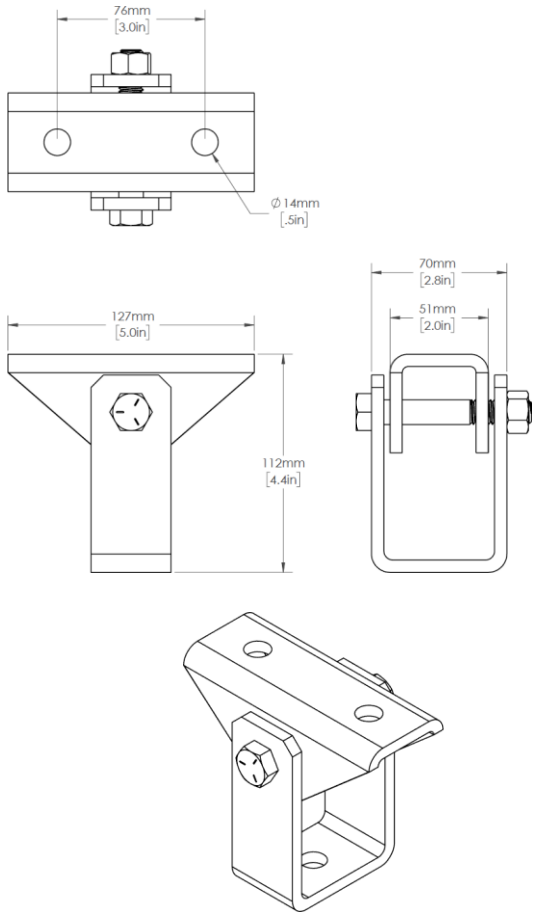
- Part No: 360482



Vaulted Ceiling Bracket

Dimensions:
127mm x 112mm x 70mm
(5” x 4.4” x 2.8”)

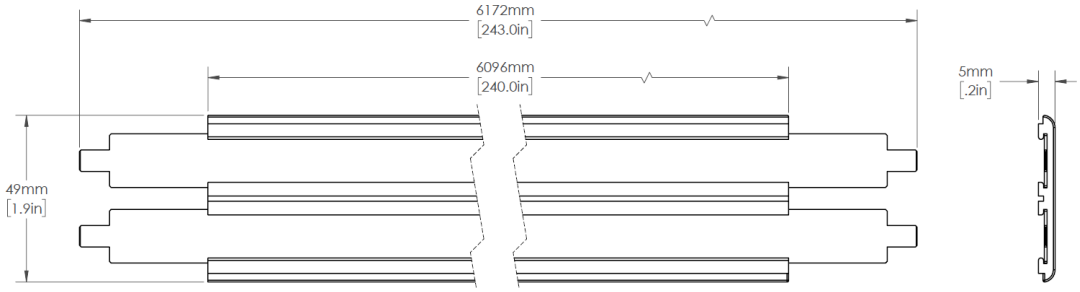
- Part No: 360185



TransStrip

Dimensions:
49mm x 5mm
(1.9” x .2”),
in 20’ length

- Part No:
363959

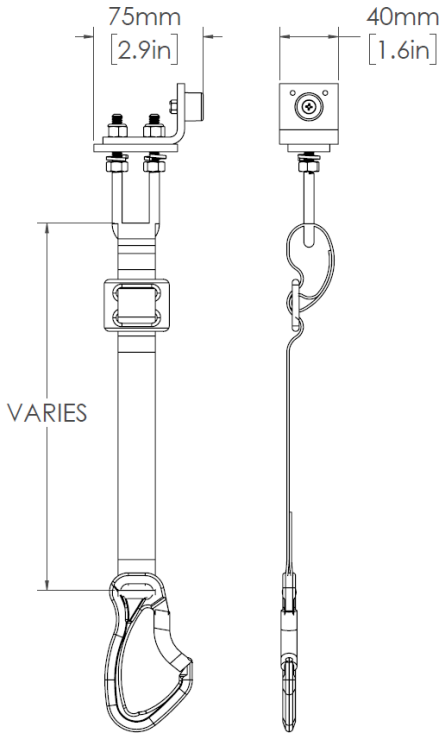


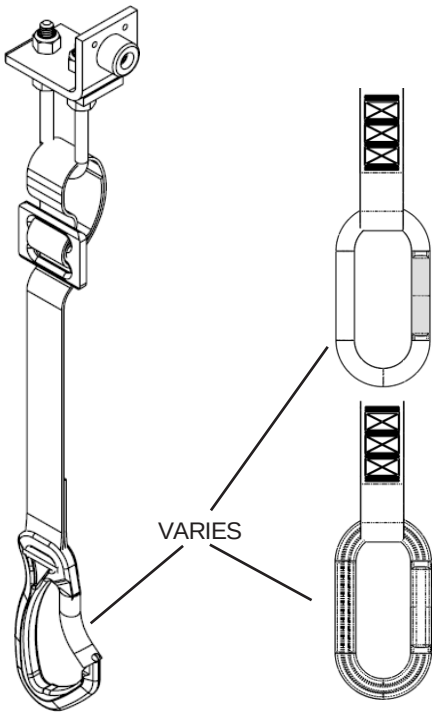
Transpoint

Transpoint System

Dimensions:
Variable x 75mm x 40mm
(Variable x 2.9” x 1.6”)

- Part No:
- 18” - 24” 360501
- 24” - 36” 360502
- 36” - 48” 360503



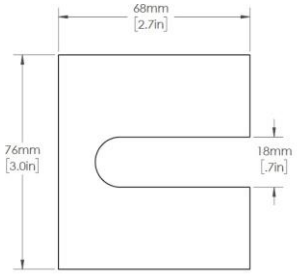


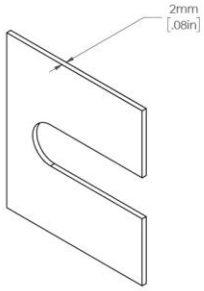
Shims

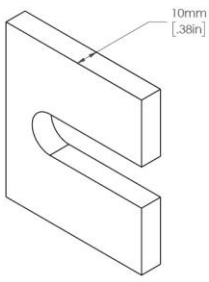
Aluminum Shims, in 1”, 3/8”, and .08” thicknesses

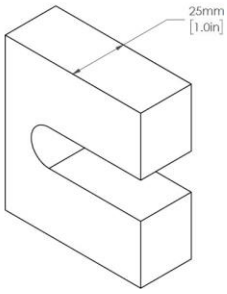
Dimensions
68mm x 76mm
(3” x 2.7”)

- 1” Shim
  Part No: 380463
- 3/8” Shim
  Part No: 380462
- 0.08” Shim
  Part No: 380460





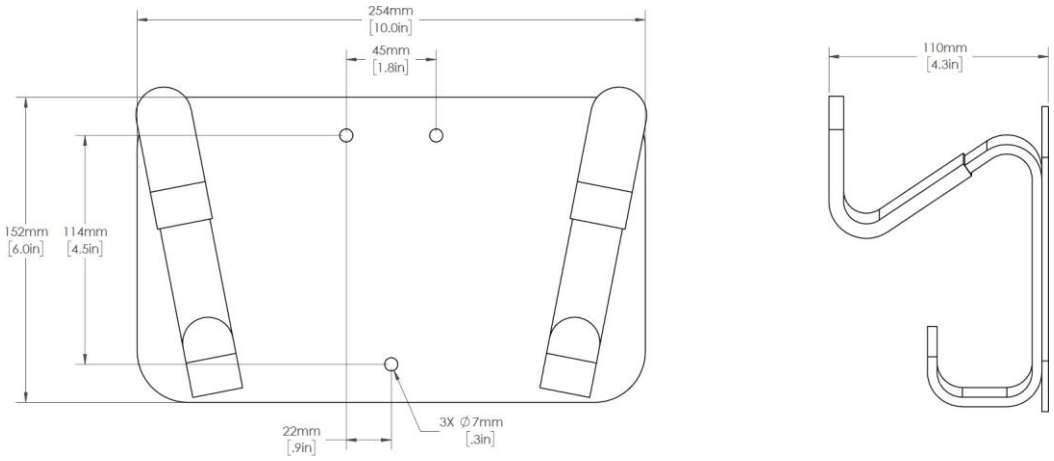




Wall Placard Carry Bar Holder

Dimensions:
254mm x152mm x 110mm
(10” x 6” x 4.3”)

- Part No: 360509

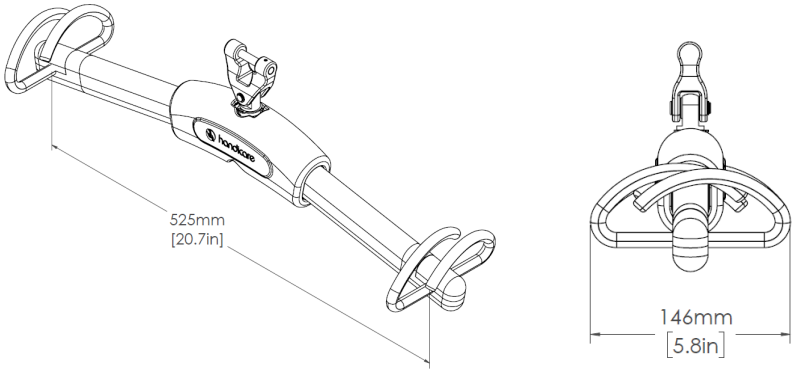


Carry Bar

All of the following carry bars have a 625 lbs/ 284 kg SWL with QRS connector and bull horn hooks:

Handicare - QRS - Bull Horn
Part No—Length:

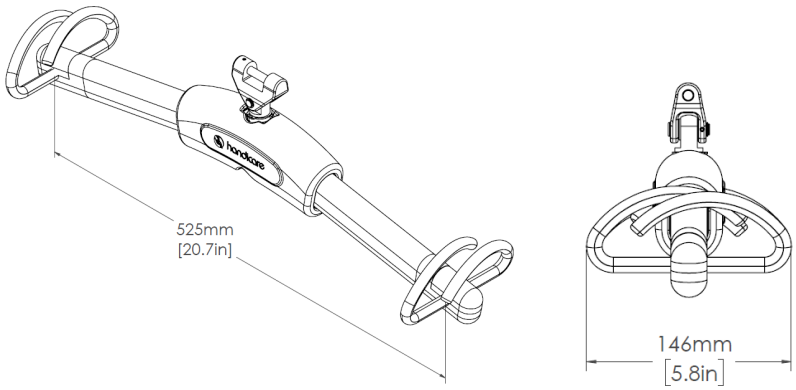
- 360931—525mm/20.7in



Note: All of the following carry bars have a 625 lbs/ 284 kg SWL with direct to strap connector and bull horn hooks:

Handicare - Strap - Bull Horn
Part No—Length:

- 360935—525mm/20.7in

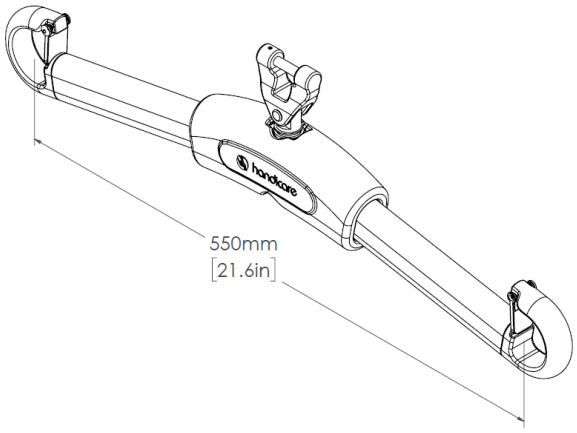


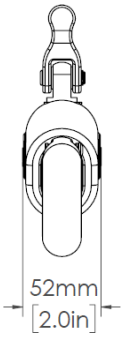
All of the following carry bars have a 625 lbs/ 284 kg SWL with QRS connector and spring loaded latching hooks:

Handicare - QRS - Spring Latch

Part No—Length:

- 360982—461mm/18.2in
- 360981—550mm/21.6in
- 360980—690mm/27.2in



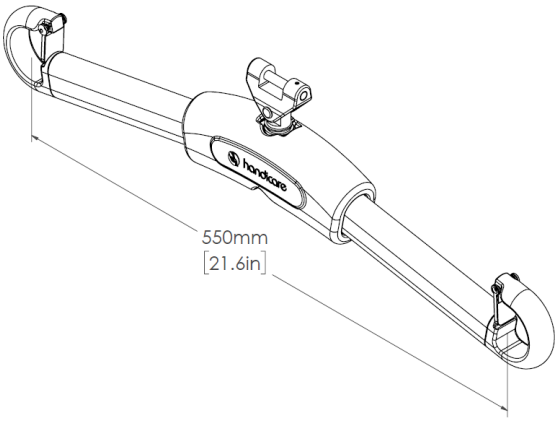


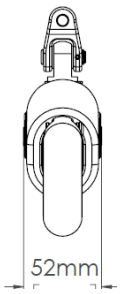
All of the following carry bars have a 625 lbs/ 284 kg SWL and QRS with direct to strap connector and spring loaded latching hooks:

Handicare - Strap - Spring Latch

Part No—Length:

- 360986—461mm/18.2in
- 360985—550mm/21.6in



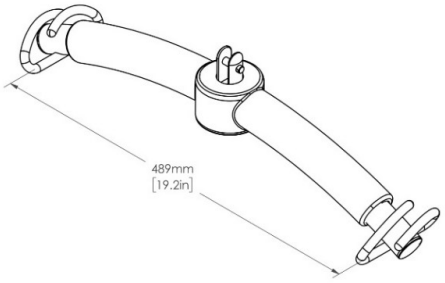


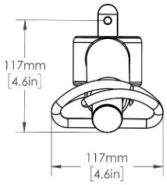
All of the following carry bars have an 1000 lbs/ 44.5 kg SWL and QRS with bull horn hooks:

1000 lbs - 2 point - 520 mm

Part No—Length:

- 360770—489mm x 117mm x 117mm (19.2” x 4.6” x 4.6”)

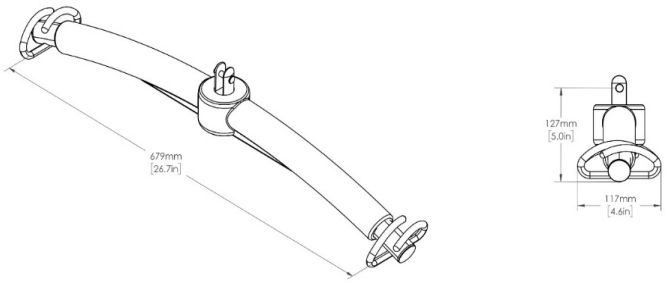




1000 lbs - 2 point - 670 mm

Part No—Length:

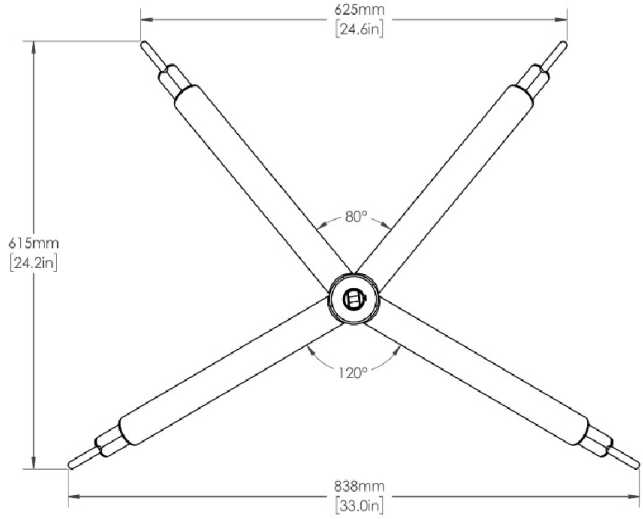
- 360771—
  679mm x 127mm x 615mm
  (326.7” x 5” x 4.6”)

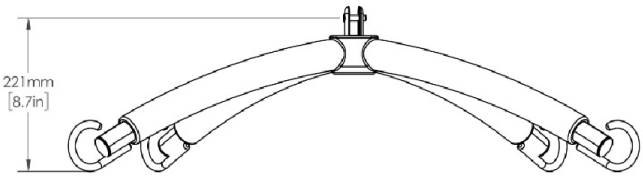


1000 lbs - 4 point

Part No—Length:

- 360772—
  838mm x 221mm x 615mm
  (33” x 8.7” x 24.2”)





Hand Controls

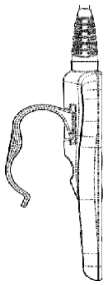
A-Series (with clip 635669)

Dimensions: 60mm x 161mm (2.3” x6.3”)
with 473mm (58”) cord

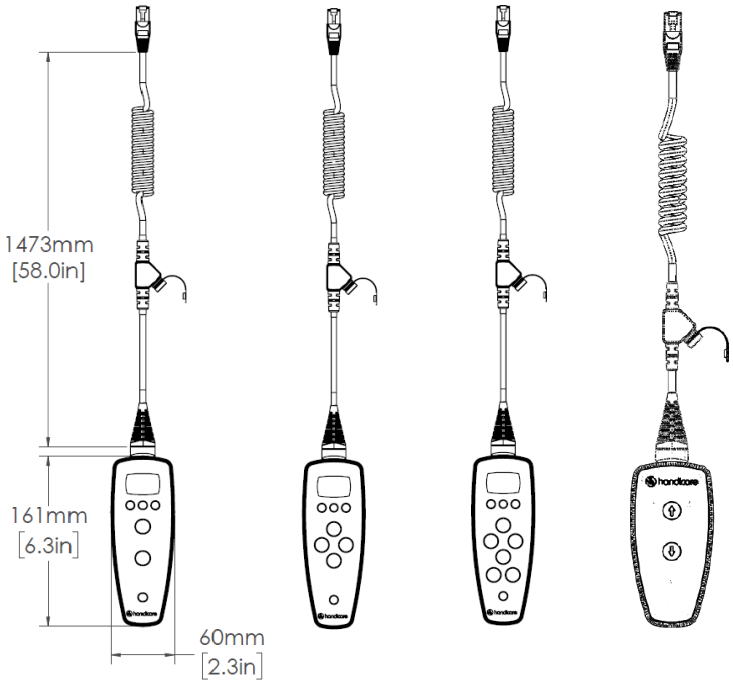
- 635400US - Hand Control 2 Channel with Charging
- 635401US - Hand Control 4 Channel with Charging
- 635402US - Hand Control 6 Channel with Charging

AP-450 & AP-300

- 635625 - Hand Control 2 channel



A-Series with
Clip 635669



C-450/625 (with clip 635663)

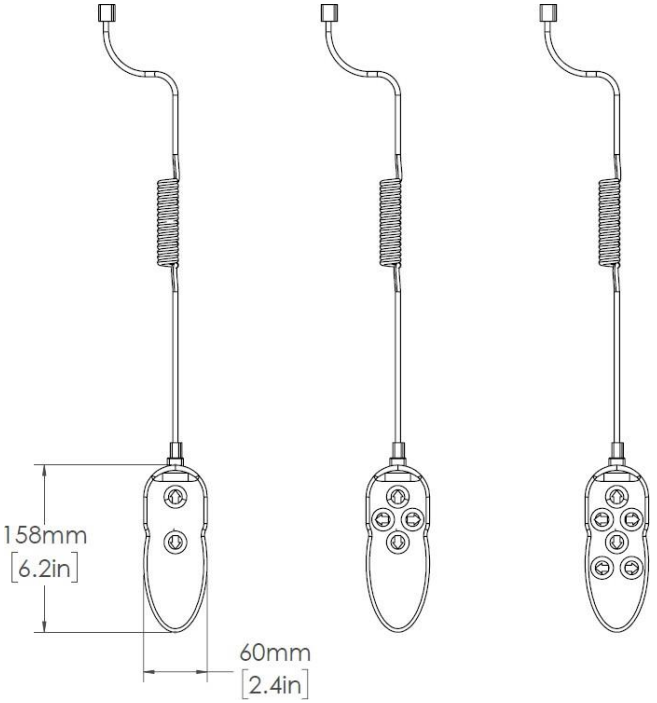
- 635600HC - Hand Control 2 channel
- 635601HC - Hand Control 4 channel
- 635602HC - Hand Control 6 channel

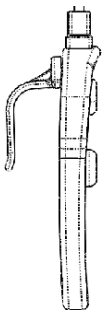
C-800/1000 (with clip 635603)

- 635600 - Hand Control 2 channel
- 635601 - Hand Control 4 channel

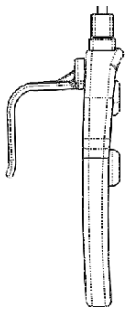
P-400/600

- 635612 - Hand Control 2 channel





C-450/625 with
Clip 635663

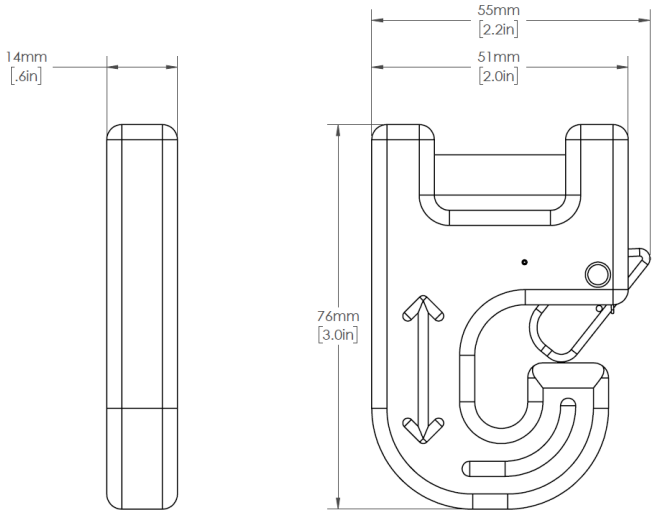


C-800/1000 with
Clip 635603

Quick Release System (QRS)

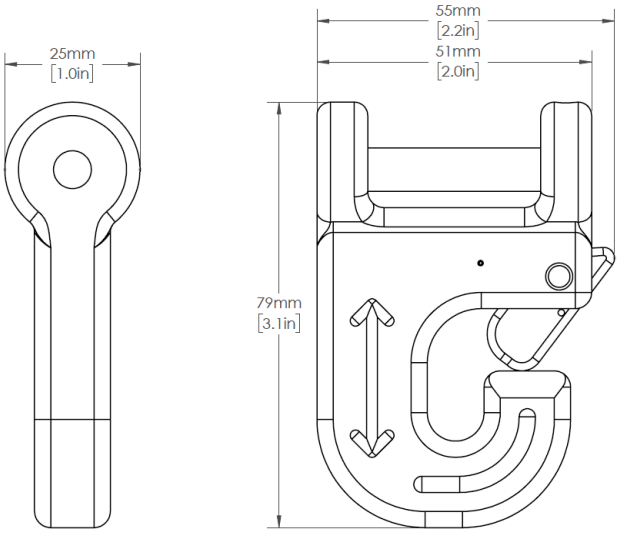
625 lbs (283 kg) Capacity

- Part No: 635185
  Dimensions:
  55mm x 76mm x 14mm
  (2.2” x 3” x .6”)



1000 lbs (454kg) Capacity

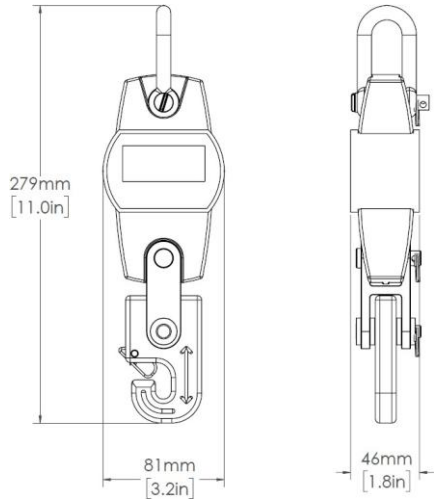
- Part No: 636062
  Dimensions:
  55mm x 79mm x 25mm
  (2.2” x 3.1” x 1”)



REMOVABLE SCALES

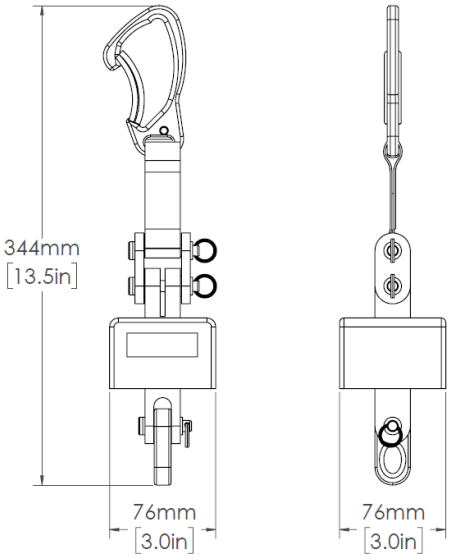
C-450/625 Scale with QRS Hook

- Part No: 370800
  Dimensions:
  279mm x 81mm x 46mm
  (11.0” x 3.2” x 1.8”)



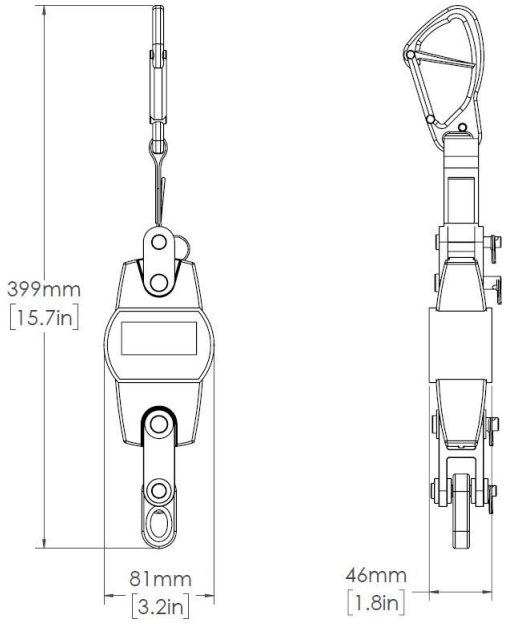
Portable Lift Scale Kit

- Part No: 370840
  Dimensions:
  344mm x 76mm x 76mm
  (13.5” x 3.0” x 3.0”)



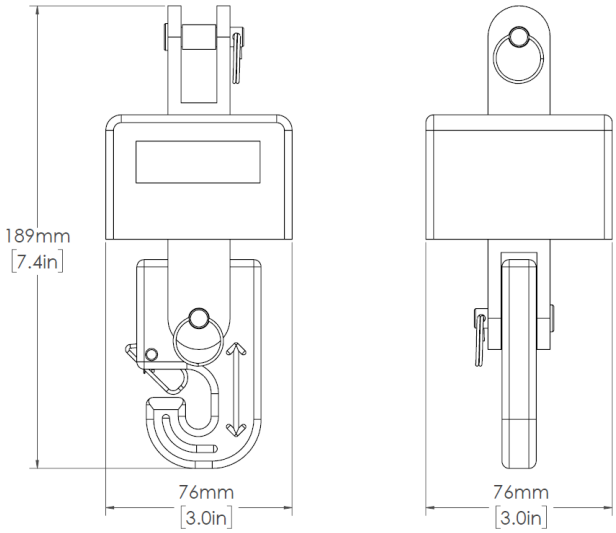
Portable OCS Scale - 660 lbs

- 370849
  Dimensions:
  399mm x 81mm x 46 mm
  (15.7” x 3.2” x 1.8”)



C800/1000 Scale with QRS - 1000 lbs

- Part No: 370871
  Dimensions:
  189mm x 76mm x 76 mm
  (7.4” x 3.0” x 3.0”)



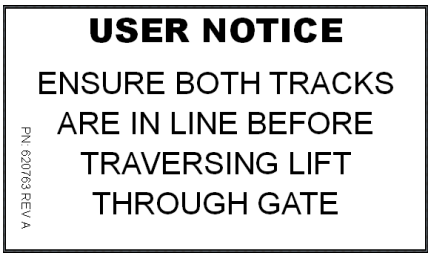
Labels (Stickers)

Transition Gate Alignment Label

- Part No:

  620763

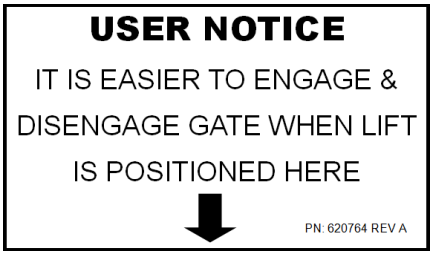
  Dimensions:
  3.5” x 2.0”



Transition Gate Engage/Disengage Label

- Part No: 620764

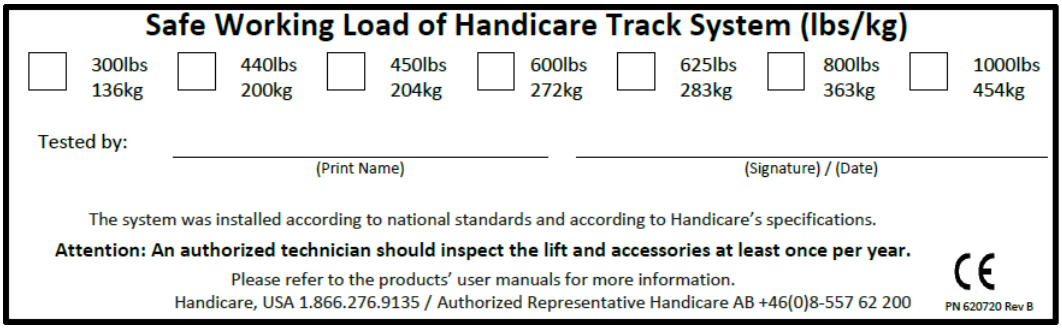
  Dimensions:
  3.5” x 2.0”



Safe Working Load (SWL) Label

- Part No: 620720

  Dimensions:
  7” x 2”



Maintenance (PM) Inspection Label Preventive

- Part No: 620710

  Dimensions:
  3” x 2”

APPENDIX A: SPAN AND CANTILVER DETAILS

Span Details

The table below lists the maximum distance between supports for wall mount, ceiling mount, and X/Y gantry installations.

Every section of track requires a minimum of three connection points with the ceiling. The distances shown represent the maximum distance between brackets on a length of track.

Lift Capacity	Maximum Distance Between Supports (Service Load)					
	Standard Track	Super Track	TrackPlus	Flush Mount	90° Arc	45° Arc
300 lbs (136 kg)	111” (2.82m)	174” (4.42m)	315” (8.00m)	123” (3.11m)	38” (0.97m)	64” (1.63m)
450 lbs (204 kg)	91” (2.31m)	142” (3.61m)	257” (6.53m)	100” (2.54m)	33” (0.84m)	56” (1.42m)
625 lbs (284 kg)	70” (1.78m)	121” (3.07m)	218” (5.54m)	83” (2.11m)	29” (0.74m)	48” (1.22m)
800 lbs (363 kg)	56” (1.42m)	107” (2.72m)	193” (4.90m)	68” (1.73m)	24” (0.61m)	41” (1.04m)
1000 lbs (454 kg)	46” (1.17m)	95” (2.41m)	172” (4.37m)	56” (1.42m)	24” (0.61m)	38” (0.97m)
1200 lbs (544 kg)	39” (1.00m)	87” (2.21m)	148” (3.77m)	48” (1.22m)	N/A	N/A

Definitions

- **Services Load -** Rated lifting capacity, i.e. 425 lbs, 600 lbs, 800 lbs, 1000 lbs
- **Factored Load -** 1.50 (Load Factor) x 1.1 (Impact Load Factor) = 1.65
- **Max. Deflection -** L/200 (L equals the span between supports), i.e. 96” span = 0.48” max. deflection
  (Note: Deflection should only be measured under Service Load and not the Factored Load)
- **Resistance Factor -** 0.9

Cantilever Details

Lift Capacity	Maximum Cantilever		
	Standard Track	Super Track	TrackPlus
200 lbs (91 kg)	22” (0.56m)	51” (1.30m)	65” (1.65m)
250 lbs (114 kg)	20” (0.51m)	46” (1.17m)	58” (1.47m)
300 lbs (136 kg)	18” (0.46m)	42” (1.07m)	53” (1.35m)
400 lbs (181 kg)	16” (0.41m)	36” (0.91m)	46” (1.17m)
425 lbs (193 kg)	16” (0.41m)	35” (0.89m)	45” (1.14m)
450 lbs (204 kg)	15” (0.38m)	34” (0.86m)	44 “ (1.12m)
600 lbs (272 kg)	13” (0.33m)	29” (0.74m)	38” (0.97m)
625 lbs (284 kg)	13” (0.33m)	29” (0.74m)	37” (0.94m)
800 lbs (363 kg)	11” (0.28m)	26” (0.66m)	33” (0.84m)

1000 lbs (454 kg)	10” (0.25m)	23” (0.58m)	29” (0.74m)

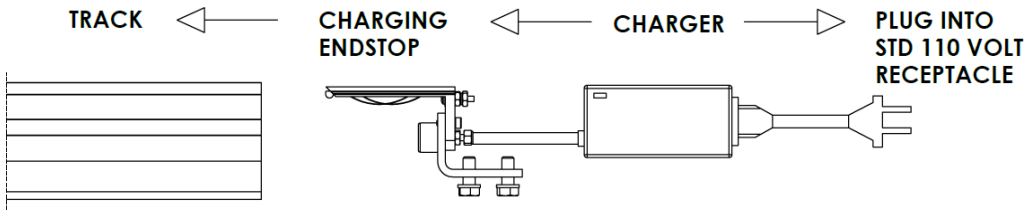
APPENDIX B: CEILING LIFT POWER REQUIREMENTS

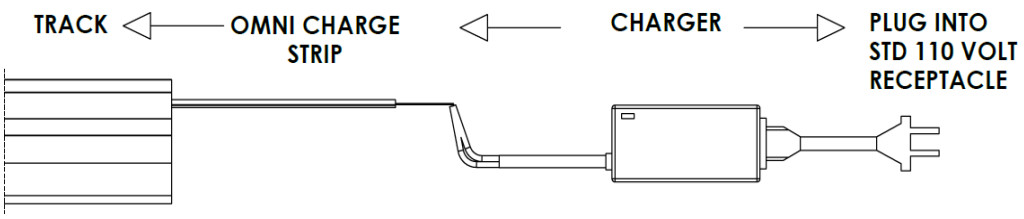
A-Series Ceiling Lift Charger Power Requirements

Mount the AC outlet within 2’ of track end.

Input Characteristics	
Input Voltage Range	100–240 VAC
AC Voltage Frequency	50/60 HZ
Max. Current	0.8A
Output Characteristics	
Output Voltage	24V
Max. Voltage	25.2V
Constant Current	1.3A
Max. Power	38W
Power Efficiency	85%

- Dimensions: 3.8in X 1.84in (97mm X 47mm)
- Certified UL, CSA, CE, FCC
- Protections Features:
  - Short circuit
  - Reverse polarity
  - Over voltage
  - Over current
- Endstop and Constant (Omni) charging
- Charger compatible with all A-450 and A-625 ceiling lifts



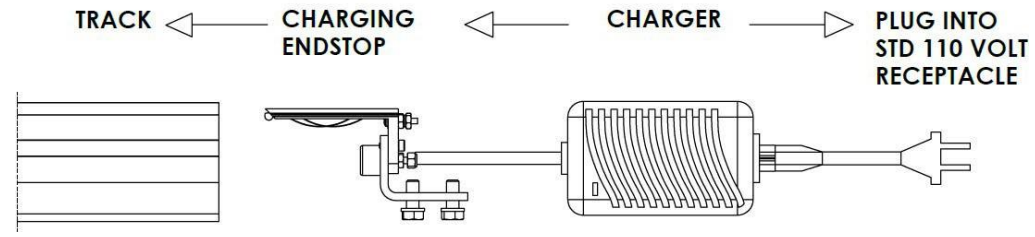


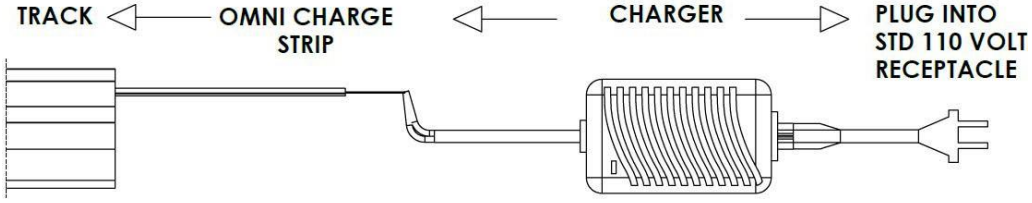
C-Series Ceiling Lift Charger Power Requirements

Mount the AC outlet within 2' of track end.

Input Characteristics	
Input Voltage Range	100–240 VAC
AC Voltage Frequency	50/60 HZ
Max. Current	0.45A (at 115 VAC Rated Load Input) 0.22A (at 230 VAC Rated Load Input)
Output Characteristics	
Fast Charge Voltage	28.8V
Floating Voltage	27V
Constant Current	1A +/- 10%
Switching Current	About 0.3A
Max. Power	29W
Power Efficiency	85%

- **Dimensions:** 4.6in X 2.9in (118mm X 73mm)
- Certified UL, CSA, CE
- Protections Features:
  - Short circuit
  - Reverse polarity
  - Over voltage
  - Over current
- Endstop and Constant (Omni) Charging
- Charger compatible with all C-450, C-625, C-800 and C-1000 Ceiling Lifts





APPENDIX C: FORMS

Use the forms provided in this section to ensure the installation is complete and safe.

HOMECARE PROJECT ASSESSMENT FORM

handicare

PROJECT SUMMARY			
Dealer Name:		**Dealer Acct #:**	
Dealer Contact Name:			
Phone #:		**Email:**	
Handicare Sales Rep:			
Project Reference Name:			
Project Location:			
	City	*State*	*Zip Code*
Bill to Address:			
Address	*City*	*State*	*Zip Code*
Ship to Address:			
Address	*City*	*State*	*Zip Code*
Project Requirement(s):			
☐ *Quote Only*		☐ *Drawing & Quote*	

PATIENT LIFT SYSTEM OPTIONS	
Fixed Lift	**Portable Lift**
Type:	**Type:**
☐ *Manual*	☐ *Standard*
☐ *Power*	☐ *Curtain Jumping*
☐ *Power Return To Charge*	☐ *Quick Curve*
☐ *Standard (Docking Station)*	☐ *Room to Room Transfer*
☐ *Omni (Constant Charge)*	**Load Capacity :**
Load Capacity :	☐ *440 lbs.*
☐ *450 lbs.*	☐ *600 lbs.*
☐ *625 lbs.*	**Portable Lift Accessories:**
☐ *800 lbs.*	☐ *24" Reacher Arm*
☐ *1000 lbs.*	☐ *36" Reacher Arm*
Fixed Lift Accessories:	☐ *Transport Cart*
☐ *Standard Carry Bar*	**Track Options**
☐ *QRS Carry Bar*	**Type:**
☐ *1000 lbs. 2 point carry bar - 520 mm*	☐ *Standard*
☐ *1000 lbs. 2 point carry bar - 670 mm*	☐ *Flush Mount*
☐ *Weigh Scale*	☐ *Wall Mount*
Free Standing & Pressure Fit Track Options	**Turntable Options**
Type:	**Type:**
☐ *Free Standing Track System*	☐ *Quick-fit 90° turntable*
☐ *Pressure Fit*	☐ *Multi-Port Turntable*
Type	☐ *Multi-Port Turntable, Power*
☐ *Handicare Castor*	**Other Options**
Size	☐ *Shower Curtain Rod-Adjustable*

HOMECARE PROJECT ASSESSMENT FORM CONT.

handicare

SLING OPTIONS

Client Height: _____ Feet _____ Inches

Client Weight: _____ lbs.

Type:

- ☐ Head Support
- ☐ Mesh
- ☐ Quilted
- ☐ Padded
- ☐ Disposable

INSTALLATION INFORMATION & OPTIONS

- ☐ Installation Estimate
- ☐ Door Header Modification
- ☐ Above Mount Gantry
- ☐ Include Bottom Up/Top Down Installation Kit
- ☐ Attic Access for Floor where Installation is Located

# of Load Bearing Headers: _____

# of Non-Load Bearing Headers: _____

Total # of Floors: _____

Installation into which Floor(s): _____

Type of Ceiling:

- ☐ Drywall
- ☐ Vaulted
- ☐ Acoustic Tile
- ☐ Plaster
- ☐ Other _____

Type of Structure Above:

- ☐ Wood Joist (If checked, see section A)
- ☐ Concrete Deck (If checked, see section B)
- ☐ Steel I-Beams (If checked, see section C)
- ☐ Open Web Steel Joists (If checked, see section C)
- ☐ Corrugated Steel Pan (If checked, see section D)
- ☐ Other _____

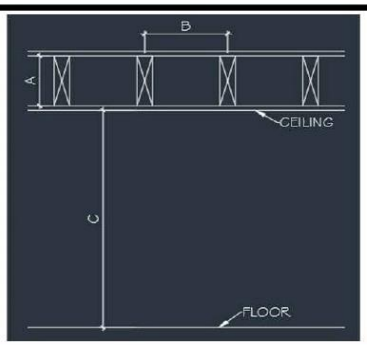
Section A - Wood Joist

- ☐ Wood Truss/Floor Joist
- ☐ Custom Engineered Joist (TGI)
- ☐ Other _____

Dimension A: _____

Dimension B: _____

Dimension C: _____



NOTES

HOMECARE PROJECT ASSESSMENT FORM CONT.

handicare

Section B - Concrete Deck

Thickness: _____

PSI of Concrete: _____

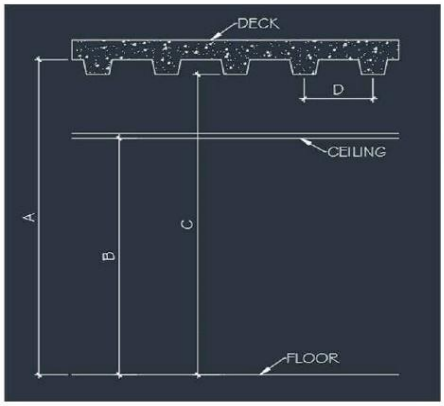
- ☐ *Concrete Beams*
- ☐ *Post Tension Cables*
- ☐ *Pre-Cast Concrete*

Dimension A: _____

Dimension B: _____

Dimension C: _____

Dimension D: _____



Section C - Steel I-Beams

- ☐ *Steel I-Beam*
- ☐ *OWSJ (Open Web Steel Joists)*
- ☐ *Fire Proofing*

Type of Deck Above Beams/Joists

- ☐ *Concrete Deck*
- ☐ *Corrugated Steel Pan*
- ☐ *Other* _____

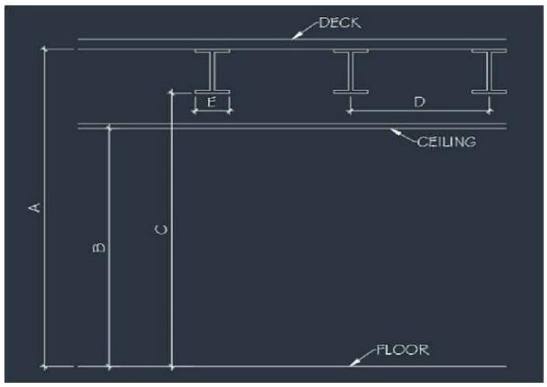
Dimension A: _____

Dimension B: _____

Dimension C: _____

Dimension D: _____

Dimension E: _____



Section D - Corrugated Steel Pan/ Lightweight Concrete

Thickness of Concrete from Upper (Shallow) Flute: _____

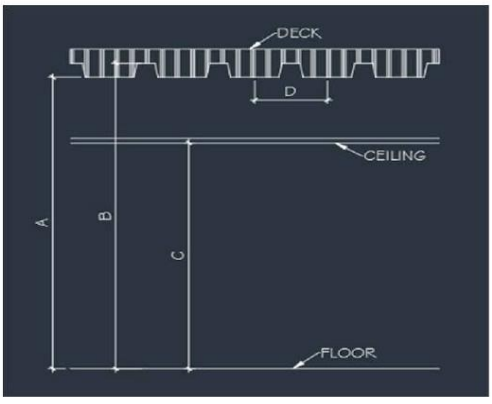
PSI of Concrete: _____

Dimension A: _____

Dimension B: _____

Dimension C: _____

Dimension D: _____



NOTES

HOMECARE PROJECT ASSESSMENT FORM

SKETCH

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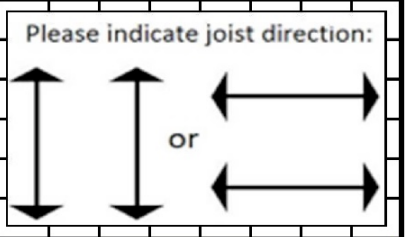
**Draw overall room dimensions, door locations, desired track layout , non-moveable objects, ceiling obstructions, etc. Each square on the grid is 2' x 2' unless otherwise specified.*



Items Needed: Assessment Form, 25' Tape Measure, Flashlight, Small 4' Step Ladder, Digital Camera and/or Video Camera

Final Checklist and Inspection Commissioning Cover Sheet

Client Name: _____

Client Address: _____

_____

_____

Order Number: _____

Number of Pages Including Cover Sheet: _____

Date: _____

Client Signature: _____

The above signed acknowledges the receipt of the completed Certified Inspection Information attached herein

Form FM-75-07-2 Rev E.1
Effective Date: 26SEP19

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Ceiling Lift System Installation Final Checklist and Inspection

Sales Order Number:				
Facility Name:				
Address:				
Room Number:				
Safe Working Load (SWL) of System:				
Track Inspection	**Inspection**			**Specification**
Endstops	Yes	No	N/A	Endstops are in place at all track ends and are tightened to 12-14 ft. lbs.
Set Screws	Yes	No	N/A	Apply Blue Loctite (243). Tighten to 40-45 in. lbs.
Ceiling brackets	Yes	No	N/A	Ensure hardware is fully tightened with no movement in slot.
End stop safety pins	Yes	No	N/A	Verify all track ends have a safety pin and split ring behind the endstop.
Endcaps	Yes	No	N/A	Verify all track ends have end cap installed.
Track joints	Yes	No	N/A	Ensure track joints are level with no gaps. Lift rolls over seams smoothly.
XY Gantry	Yes	No	N/A	Ensure both XY gantry trolley brackets have 6" ceiling bracket strip properly installed between two set screws.
Gate assembly	Yes	No	N/A	Bracket should be bolted securely so that no movement is apparent. Ensure gap between tracks is no more than 1/16". Ensure pins raise and drop freely on both tracks. Adjust tension screw to 400lbs for function test. Ensure provided stickers are applied (620764 should be positioned 24" from gate). Apply Blue Loctite 243 to screws holding towers. Ensure proper support bracing to prevent any track separation.
Turntable (SN:_____)	Yes	No	N/A	Ensure all stops are in place, turntable is level, functions properly, rotates freely, and aligns with all entry/exit points. Ensure gap width of no more than 1/8". Ensure motor transitions smoothly in and out of turntable under normal (400lbs) load. Cut shroud to cover all unused turntable exits (powered multiport only).
Track	Yes	No	N/A	Track is level.
Track placement	Yes	No	N/A	Track is installed per correct dimensions and placement in the room in accordance with either shop drawing or customer verification.
Structure Inspection	**Inspection**			**Specification**
Support Bracing	Yes	No	N/A	Support points shall feel structurally firm and display little perceptible movement laterally or longitudinally by firmly grasping and shaking the rail. Verify all support braces are as low as possible, within 1" of jam nut on coupler or ceiling. Verify all braces are at a minimum 45 degree angle.
Safe Working Load (SWL) Sticker (620720)	Yes	No	N/A	Complete and place SWL stickers (620720) on the track system no more than 20ft. apart so they are visible to user. The SWL will determine parameters for load, deflection and function tests.
Tested Weight: _____ lbs	Yes	No	N/A	Using 150% of system's SWL, test all attachment points by hanging weights below them.
Deflection Measured: _____ "	Yes	No	N/A	Using 100% of system's SWL, confirm an allowable deflection of no more than 1" over every 200" of track span, measured from middle of span.
Function test	Yes	No	N/A	Using 100% of system's SWL, test run through entire track system including all accessories. System should be visually/audibly observed for movement or loud noises.
Vertical rods and structural fittings	Yes	No	N/A	Installed per approved engineering attachment detail and/or Handicare Recommendation.
Lift Inspection	**Inspection**			**Specification**
Lift Charging	Yes	No	N/A	Ensure LED display on lift indicates charging function is operational via amber light.
Trolleys	Yes	No	N/A	Fixed Lifts - Ensure all bolts are fully tightened. Portable Lifts - Cotter/thrust-pin in place. No movement of nut.
Carry Bar	Yes	No	N/A	Ensure set screws, pin, and retaining ring are installed. Verify swivel function.
Lifts	Yes	No	N/A	Any controls on unit (including emergency lowering) work properly.
Upper / Lower Limit Switches	Yes	No	N/A	Ensure both limit switches are functioning properly.
Slack Tape Switch	Yes	No	N/A	Ensure lift strap slack switch activates appropriately with no weight on strap.
Handset Functions	Yes	No	N/A	Test all functions on the hand control to confirm they are working as intended.
Omni Charging	Yes	No	N/A	Ensure motor amber light illumination is continuous through all charged locations on track. Shoulder bolts can be adjusted on XY gantry and motor trolley. Ensure polarity is not reversed.
Charging Endstop	Yes	No	N/A	Installed and operating properly. Lift docks and charges properly. Tightened to 12-14 ft. lbs. For XY systems, ensure end stop plate is switched on the gantry end stop and motor end stop. Motor should always dock in guided endstop plate.
Cleaning/Miscellaneous/Aesthetics	**Inspection**			**Specification**
Interior Track Cleaning	Yes	No	N/A	Use a dust wand or clean rag to clear out any dust and debris within the track.
Ceiling Inspection	Yes	No	N/A	Ensure no visible access above ceiling at rod penetrations. Ensure all ceiling tiles with drops are not damaged and seated properly.
Exterior Track Cleaning	Yes	No	N/A	Use a soft scrub bleach to clean any scuff marks on the track. Touch up paint should be applied to areas with damaged powder coating (RAL 9003).
Pictures	Yes	No	N/A	Include pictures of upper structure, weight test, and proof of charging labeled properly by room/location.

Lift Serial Number(s)	
Carry Bar Serial Number(s)	
*Handicare Representative	

Print Name Signature Date

*The Handicare technician's signature above confirms all items on checklist are completed in accordance with Handicare's manufacturing reccomendations and requirements.

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Effective: 16May2022
DCO: 2022-0011

Ceiling Lift - Preventative Maintenance

Facility:					Date of Service:		
Address:					Contract Start Date:		
Room Number:					Contract End Date:		
Lift Model:					Lift Count:		
Lift Serial Number:					Additional Service Needed?	☐ YES	☐ NO
Lift Functions:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
UP, DOWN, EMRG. DOWN, TRAVERSE, ON/OFF, EMRG. ON/OFF	Check functions using the buttons on the lift.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Mechanical Functions:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
Load Test Per CSA Z10535.2-17	Lift 100% of the load capacity of the Motor 20" off of the ground	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Trolley Wheels	Inspect wheels for flat spots, and excessive wear and tear	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Portable Trolley	Ensure nut and pin are intact and tight	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Motor, Gears, and Traversing Drive	Inspect for damage and excessive noise	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Carry Bar	Inspect for damage; verify insert, hooks and strap pass through hole	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Fraying of Strap Edges	Lower the strap down to the ground and inspect the full length of the edges. Remove the plug from the carry bar; inspect the strap integrity around the pin.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Pneumatic Hand Control:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
UP, DOWN, EMRG. DOWN, TRAVERSE, ON/OFF	Press each button on hand control for 10 seconds, make sure button function works continuously.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Airline Tubing	Inspect for damage/leaks	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Grommet Connectors	Check that they are tight	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Limit Switches:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
Upper Limit Switch and Angle Detection	Hold **UP** until the carry bar is at the top. Motor should stop automatically.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
	Let the strap out all the way to the ground. Motor should stop before strap winds backwards.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
	While using either **UP** or **Down**, angle the strap more than 15 degrees. Motor should stop automatically.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Slack Tape Switch	Hold **DOWN** and lift up on the carry bar. Motor should stop automatically.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Electrical Functions:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
Battery Voltage	Check batteries with multimeter and confirm 12V reading while engaging the motor during load test.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Battery Inspection	Check physical condition and ensure battery has install date on it.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Charging End Stop	Confirm that lift enters charging end stop without resistance; lift docks and charges properly	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Miscellaneous	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
LCD Screen:	Check that LCD works properly	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
LED Light:	Check that light turns green when on, dark when off, and amber when charging.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Casing	Check for cracks or wear in case	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
PM Reset	Use hand control to enter program mode. Log # of lifts in upper right corner on this sheet. Reset the PM Counter.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
PM Sticker (620710)	Complete and place a PM sticker on the track.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
SWL Sticker (620720)	Ensure SWL information is still accurate and readable	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO

Handicare:			
Customer:			
	Print	Sign	Date

FM-75-07-09 rev **B**
Effective Date: **26SEP19**

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Ceiling Track - Preventative Maintenance

Facility:					Date of Service:		
Address:					Contract Start Date:		
Room Number:					Contract End Date:		
SWL of System:					Additional Service Needed?	☐ YES	☐ NO
Track Inspection:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
Endstops	Check that endstops are in place and tightened to 12-14 ft. lbs.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Set Screws	Visually inspect; reapply Blue Loctite (243) and tighten to 40-45 in-lbs. of torque if required	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
End Stop Safety Pins	Confirm that all track ends have a safety pin and split ring behind the endstop	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Endcaps	Confirm that all track ends have endcaps installed	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Gantry Trolleys	Check for flat spots on wheels and any excessive wear and tear; safety pins in place and functional; Set screws tightened; Loctite used on set screws	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Track Joints	Run a lift or trolley through a track joint and confirm that the transition is smooth	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Transition Gate	Inspect track joints into the transition gate, confirm that it is functioning properly and the pin falls down easily, roller bearing in place; pin and connection are working properly	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Turn Table	Inspect track joints into the turntable, confirm that it is functioning properly	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Smoke Barrier Assembly	Doors spring back and forth without hinderence; no visual damage to any of the gaskets; all screws are tight; no signs of wear/ deformation on any components including the hinge doors	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Track	Track is level	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Structure Inspection:	**Description:**	**Pass Inspection:**				**Fixed:**	
Bracing	Wiggle the ends of the track to confirm minimal movement	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Anchor Testing	Using 100% of system's SWL, test all attachment points by hanging weights below them	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Deflection Test	1" over every 200" measured from middle of span. 100% of system's SWL	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Function Test	100% of system's SWL through entire track system (including accessories such as smoke doors); system should be visually/ audibly observed for movement or loud noises	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Charging System:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
Charger and connections	Visually check all contact points and connections	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Voltage	Use a voltmeter to check output (24-28V)	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Charging End Stop	Confirm that lift enters charging end stop without resistance; end stop has power and motor charges	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Cleaning/Miscellaneous:	**Description:**	**Pass Inspection:**			**Problems:**	**Fixed:**	
Interior Track Cleaning	Use a dust wand to clear out any dust and debris within the track	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
Exterior Track Cleaning	Use a soft scrub bleach to clean any scuff marks on the track	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
PM Sticker (620710)	Complete and place a PM sticker (620710) on the track.	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO
SWL Sticker (620720)	Ensure SWL information is still accurate and readable	☐ PASS	☐ FAIL	☐ N/A		☐ YES	☐ NO

Handicare:			
Customer:			
	Print	Sign	Date

Form: 75-07-10 Rev B
Effective Date: 26SEP19

Making everyday life easier

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