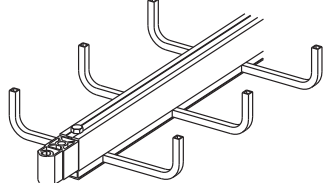
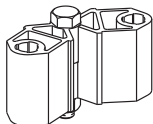


Common Items Required:

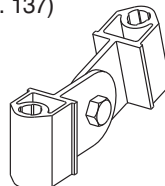
- 10 ft (3.0m) or 12 ft (3.7m) Straight Sections with Standard Splice Hangers. (pgs. 124-131)



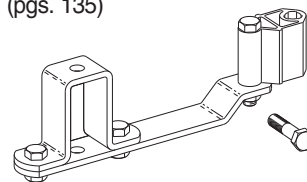
- Horizontal Adjustable Splices (pg. 134)



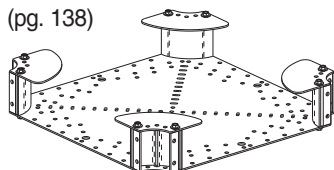
- Vertical Adjustable Splices (pg. 137)



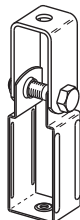
- Horizontal Elbow & Tee Coupling (pgs. 135)



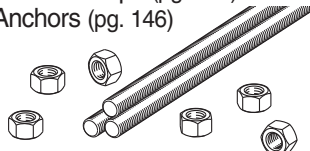
- Universal Hub Fittings with Pivot Connectors (pg. 138)



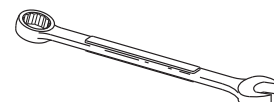
- Clevis Hangers (pgs. 140 & 141)



- 1/2" ATR & Hex Nuts (pg. 145)
- Beam Clamps (pg. 147)
- Anchors (pg. 146)



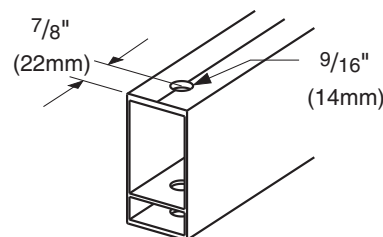
- Two 3/4" Combination Wrenches



Guidelines for Common Items:

- When field cutting is required, use drill fixture (pg. 152) to cut ends square and locate new splice holes, or drill one 9/16" (14mm) hole 7/8" (22mm) on center from end of the tray through center rail.

IMPORTANT: Tube end must be cut square when field cutting.



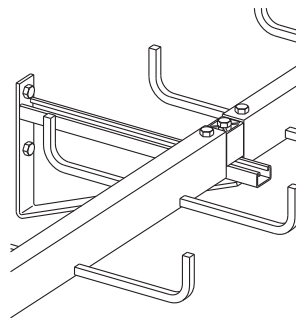
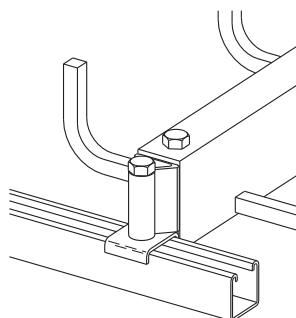
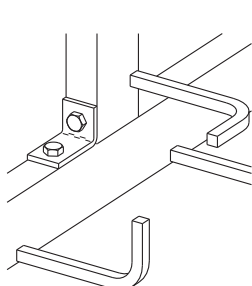
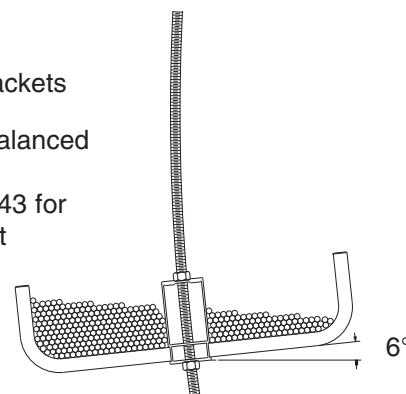
- When hanging ATR, leave slightly loose until after tray is installed to ease alignment with splice hanger holes.
- When attaching the tray system to the ATR, extend the ATR approximately 1" past the hex nut to allow for the use of B655 rod couplings (pg. 146) for future expansion.

• To address unbalanced loading.

When tray stabilization is required for non-uniform loading, use brackets with ATR as shown: (pg. 144)

- CENT-R-RAIL™ tray was designed to be interactive with Cooper B-Line's strut systems, allowing multiple options for miscellaneous supports. Refer to Cooper B-Line's Strut Systems catalog and seismic brochure for a complete listing of items available. A few examples are shown below:

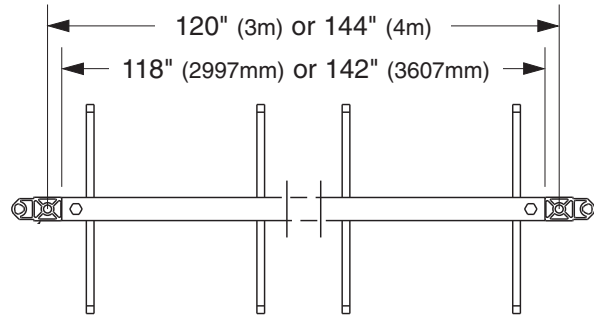
- Page 171 - unbalanced loading study.
- Refer to page 143 for auxiliary support



Guidelines for Common Items:

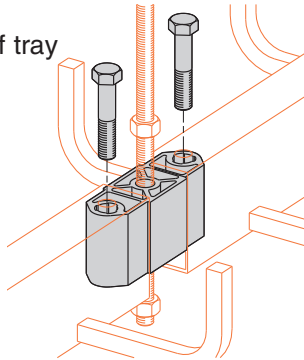
• When installing straight sections:

- Hang 1/2" ATR on 10 ft or 12 ft centers (depending on tray lengths) with one hex nut threaded approximately 4 inches onto ATR.
- Attach splice hanger and tray onto ATR through center hole of splice hanger.
- Install one hex nut on ATR under tray and thread up to set elevation of tray.
- Tighten upper hex nut against top of splice hanger.
- For wall attachment options see Seismic Restraints Cent-R-Rail® Supplement.



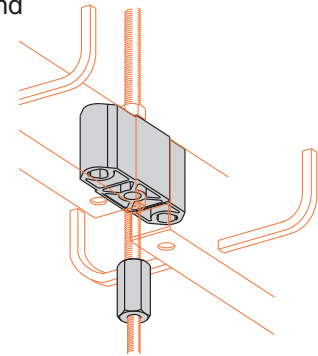
• When using Qwik-Bolt™ Splice Hangers:

- Insert splice into ends of tray with non-threaded side toward bolt head.
- Insert bolts and tighten securely.



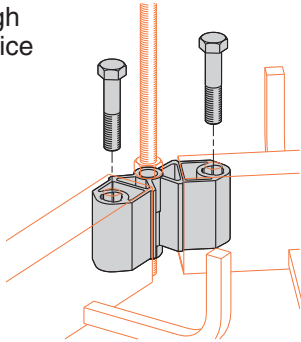
• Allow for future expansion

- When possible, extend ATR 1" past bottom hex nut to provide for later expansion by using an ATR coupling (pg. 146).



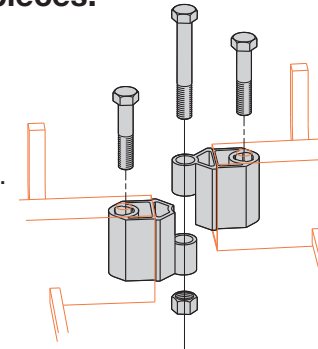
• When using Horizontal Adjustable Splices:

- Install with ATR through center hole, adjust splice to required angle and tighten ATR nuts. (May also install with the included 3" bolt and nut and support tray using a clevis hanger within 2 ft of splice.)
- For optional outside bend cable support, horizontal bend rung support (pg. 134).



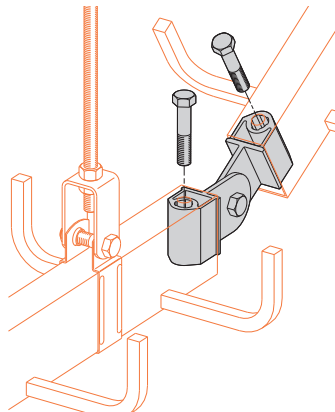
• For connecting two mid-run straight pieces:

- Use Horizontal Adjustable Splices to join two straight sections at mid-run, where short of space for connection.

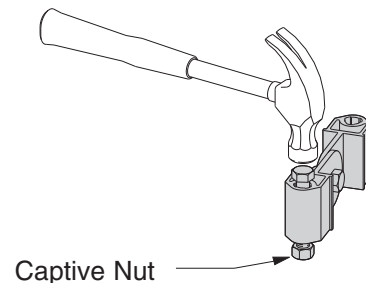


• When using Vertical Adjustable Splices:

- Attach splice to trays and install a clevis hanger within 2 ft of splice to support tray. (May also install using ATR as support by first removing captive nut.)
- Tighten pivot bolt & nut.



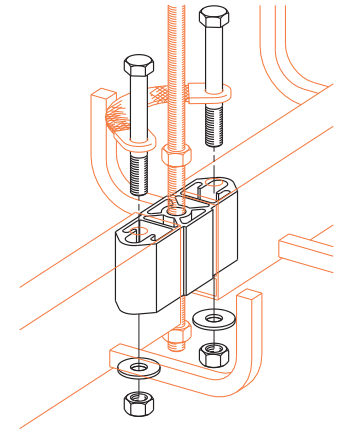
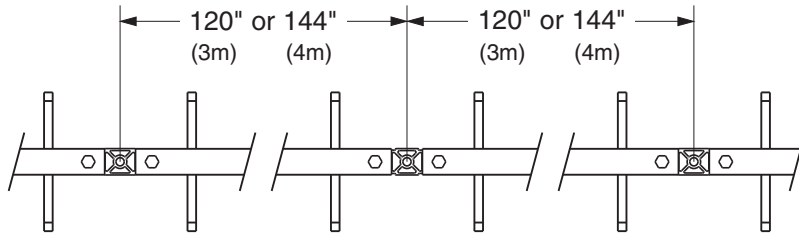
• Removing the captive nut



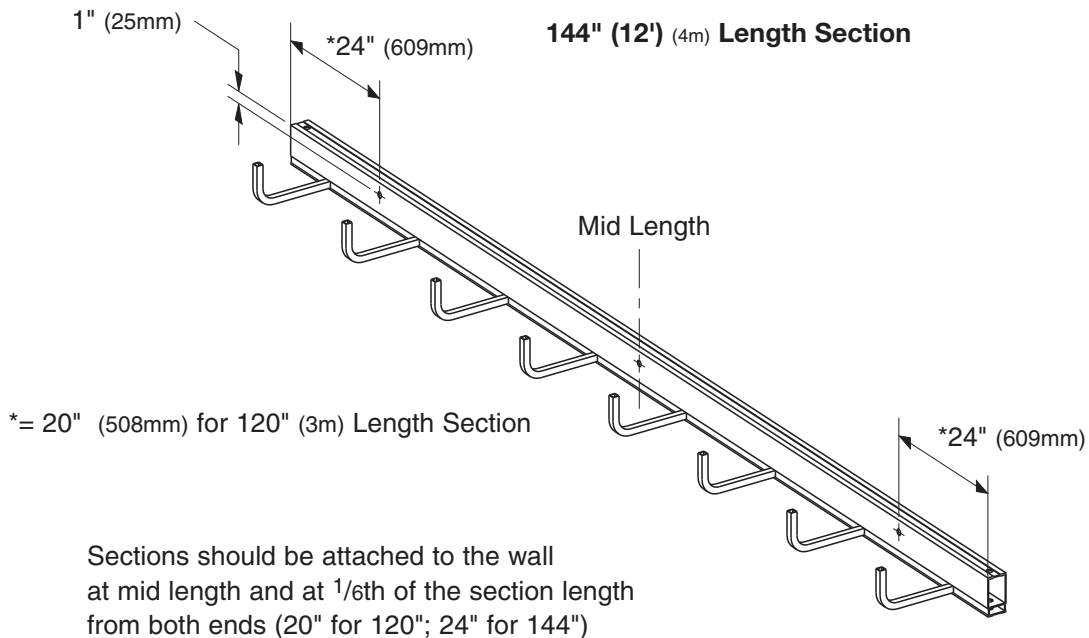
Guidelines for Common Items:

- **When using Expansion Splice Hangers:**

- Both splices adjacent to expansion splice hangers must be installed 120" or 144" (depending on the tray length) on centers from expansion splice to allow full expansion and contraction.
- Grounding jumper must be installed with expansion splice.



Half-Rack™ and Multi-Tier Half-Rack™ Support Locations



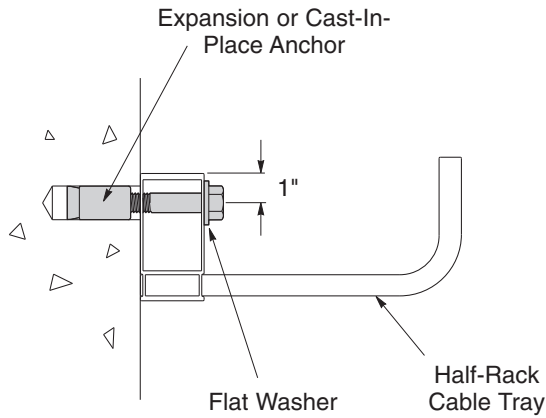
- **When wall-mounting tray:**

- Attach tray and splice to wall by bolting through center rail to wall. (May also be installed using other methods, such as brackets.)

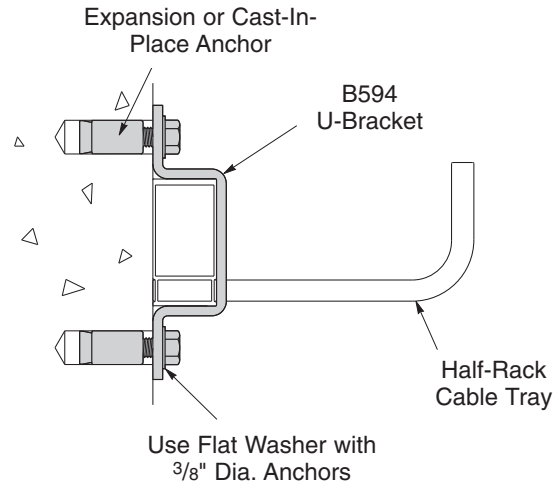
Guidelines for Common Items:

Half-Rack™ Mounting Details:

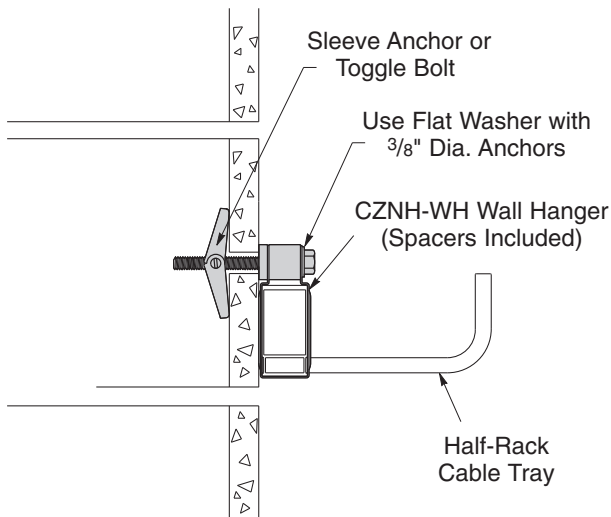
- **Drill Through Method:
In Concrete Slab**



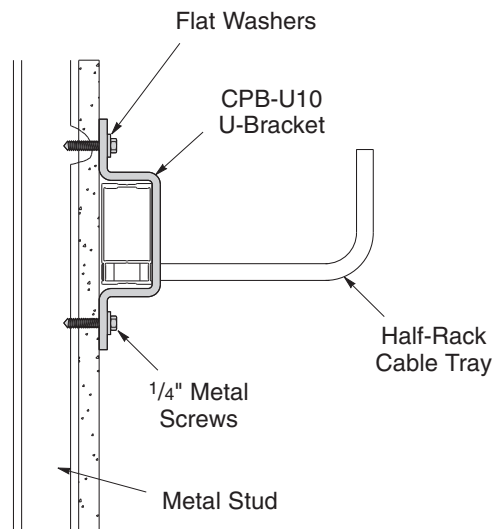
- **B594 Clevis U-Bracket:
In Concrete Slab**



- **CZNH-WH Wall Hanger:
In Hollow CMU Wall**



- **CPB-U10 U-Bracket:
In Drywall & Metal Stud Wall**
- **CPB-CV1 For Multi-Tier Half-Rack**

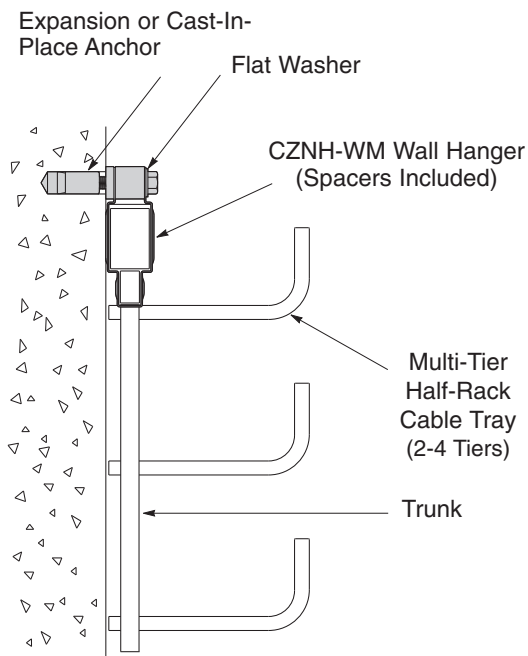


Note: These mounting details serve as a vertical support, and can serve as seismic bracing. See the Cent-R-Rail Seismic Restraints brochure for details.

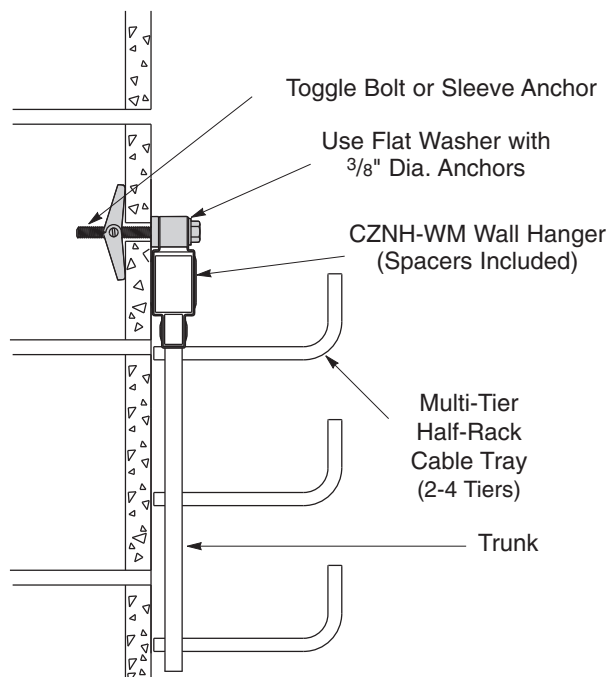
Guidelines for Common Items:

Multi-Tier Half-Rack™ Mounting Details:

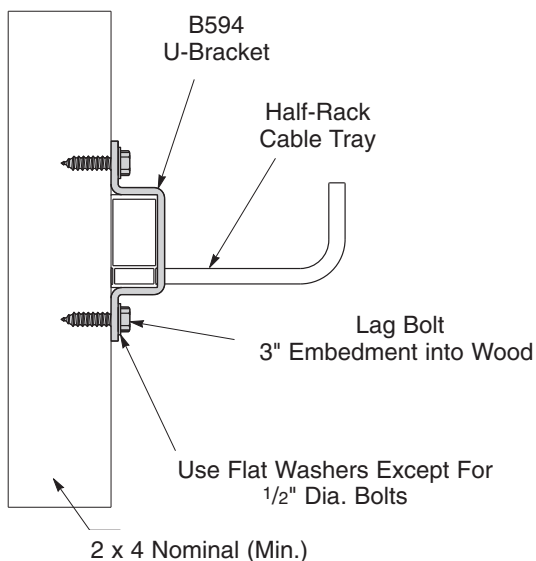
- **CZNH-WM Wall Hanger:**
In Concrete Slab



- **CZNH-WM Wall Hanger:**
In Hollow CMU Wall



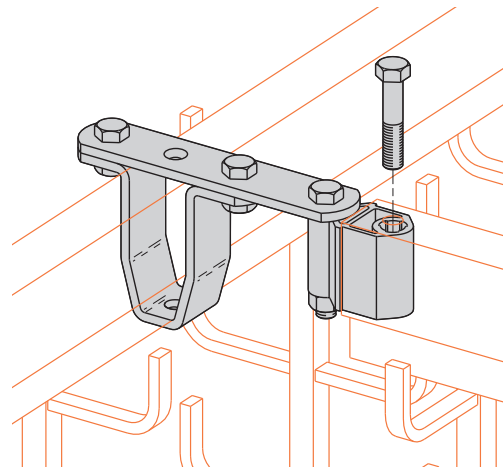
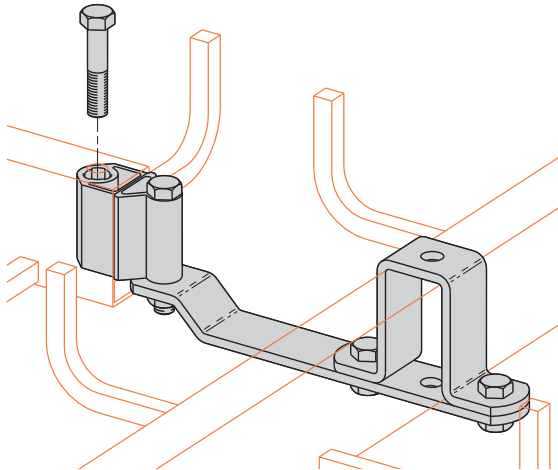
- **B594 Clevis U-Bracket:**
In Wood Stud Wall



Guidelines (cont.):

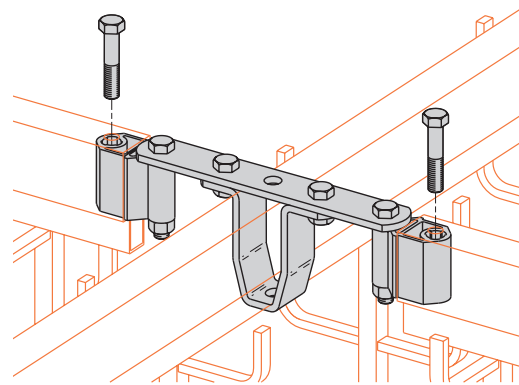
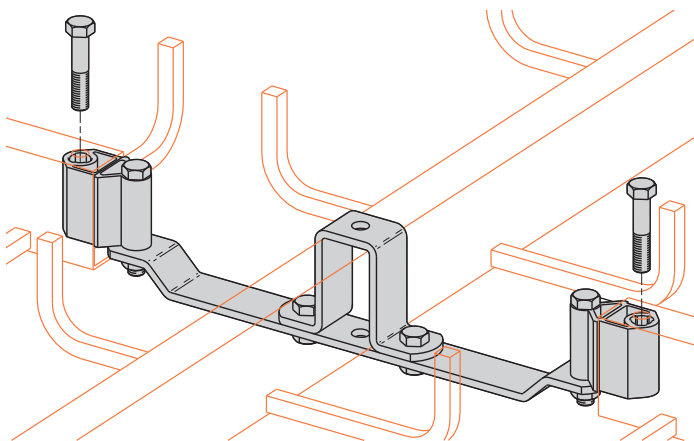
• When using Horizontal Elbow and Tee Couplings:

- Bolt “U” bracket around tray center rail with coupling bar on bottom of center rail for Data-Track™ & Half-Rack™, and top of center rail for Verti-Rack™ & Multi-Tier Half-Rack™.
- Attach pivot connector to branch tray using included bolt, and support tray with clevis hanger within 2 ft of coupling. (May also attach to ATR by first removing captive nut.)
- Adjust pivot connector to desired position and tighten all hardware.



• When using Horizontal Cross Couplings:

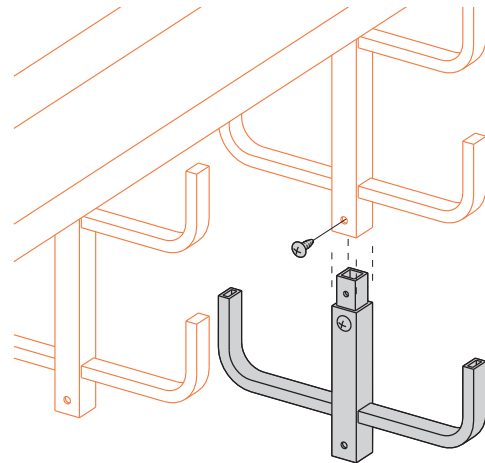
- Installation is similar to elbow and tee coupling, except with two branch trays instead of one.
- Support ATR may be located through existing “U” bracket holes, by using clevis hangers within 2 ft of coupling. (May also attach to ATR by first removing captive nut.)



Guidelines (cont.):

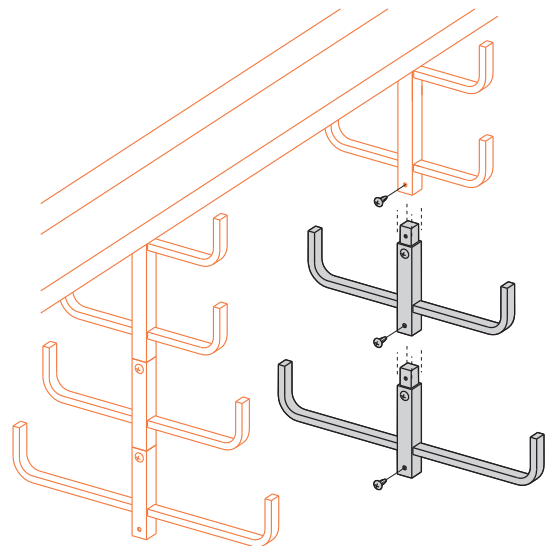
- **When using Add-A-Rung™ with Verti-Rack™ or Multi-Tier Half-Rack™:**

- See loading data for maximum center rail load capacity to determine the maximum number of tiers allowed.
- Insert Add-A-Rung™ into end of vertical trunk.
- Install included screw through pilot hole in trunk.



- **When using Add-A-Rung with Verti-Rack or Multi-Tier Half Rack in Different Widths:**

- See loading data for maximum center rail load capacity to determine the maximum number of tiers in different widths allowed.
- 3", 6", 9" and 12" wide tiers.
- Insert Add-A-Rung into end of vertical trunk.
- Install included screw through pilot hole in trunk.
- See page 126 for part number.



- **When using Universal Hub Fittings:**

- Position hubs with rounded edges toward cables.
- Attach pivot connectors to cable support surface using ATR, or bolt and nut through pivot hole. (If bolt and nut are used, tray must be supported using clevis hangers within 2 ft of pivot connectors.)
- Connect tray ends to pivot connectors.
- Position pivot connectors as desired and tighten hardware.
- **Warning: Do not use as a support for personnel!**

