



**RIDG-U-RAK®**  
**STORAGE SYSTEMS**

**A GENERAL INSTALLATION GUIDE FOR**  
***RIDG-U-RAK***  
**DRIVE-IN/DRIVE-THRU STORAGE RACK SYSTEMS**



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## **IMPORTANT INFORMATION**

- **This Ridg-U-Rak drive-in rack installation guide document supersedes any previously published Ridg-U-Rak drive-in rack installation guides.**
- **All Ridg-U-Rak storage racks must be installed by trained professionals experienced with proper installation procedures. Installation personnel must also read and understand these installation guidelines. Ridg-U-Rak explicitly disclaims any responsibility for damage or injuries resulting from interpretation or use of this installation guide.**
- **Do not install racks outdoors, unless specifically designed by Ridg-U-Rak for such an application and environment.**
- **All Ridg-U-Rak racks must be installed on a concrete floor. The floor must be structurally adequate to support the storage rack design loads and able to accept the installation of anchors. Ridg-U-Rak accepts no responsibility or liability for the floor design or performance. The floor should be level so that a plumb installation of the rack can be achieved. If the floor is not level and has a slope, contact Ridg-U-Rak immediately and DO NOT start the installation.**
- **Never mix Ridg-U-Rak product with product from other manufacturers or used racking in the same installation unless specifically designed and approved by Ridg-U-Rak.**
- **Drive-In storage rack is not designed for use as scaffolding or for any type of human support. Never climb on the rack at any time. It is the installer's responsibility to meet current OSHA requirements for personal fall arrest.**
- **Never cut, weld, or modify any rack component during installation unless approved and specified in writing by Ridg-U-Rak engineering.**
- **Never install damaged or compromised rack components.**
- **Never leave an unanchored rack unattended.**

## **I. INTRODUCTION**

- This document is a procedural guide only and is intended to be used as a reference for installing a new Ridg-U-Rak drive-in storage rack system. This guide is not a guideline for removal or demolition of existing racking systems. Due to the numerous types of storage rack systems, the installer must thoroughly review this guide and all instructions, bills of material, and Ridg-U-Rak installation drawings prior to starting. By doing so, you will provide yourself with a basic understanding on how to install a Ridg-U-Rak storage system. Some rack system designs may be unique, driven by a variety of factors. Understanding these differences is critical in determining the best procedure for erecting the system. A well-executed and properly installed system will ultimately depend on the experience of the installation crew and how well they understand the specific system configuration and characteristics. Any questions regarding the above information should be brought to the attention of Ridg-U-Rak prior to the start of installation.

## **II. PRIOR TO INSTALLATION**

- Ensure that all members of the installation crew are trained regarding proper installation procedures and safety protocol necessary for creating a safe working environment. Many customers enforce their own safety program and installers must also adhere to the requirements of the customer's safety program, along with any federal, state, or local guidelines.
- It is important to use the packing list provided to verify all items have been received. If provided, "Supplemental Drawing(s)" may be used to identify and locate components in the system. Do not, under any circumstances, use hardware other than that which is specified.
- Determine the installation location of the racks within the building. Completely inspect the area verifying building column locations and checking for any other types of obstructions such as piping, electrical panels, ducts, lights, doorways, etc. Building column locations should be noted, and if there are any places where aisle widths are compromised or interference with the rack system is apparent, the installer should notify the onsite contact person. Prior approval must be obtained from Ridg-U-Rak if it becomes necessary to modify the configuration of the racks in any way.
- A good installation begins with accurate and straight chalk lines to lay out the floor. Establish the correct starting point, using a tape measure and a chalk line. This reference starting point is critical as it establishes the base location for the entire grid pattern that will be used for locating the racks. Squareness of the grid pattern must be maintained.
- At no time shall a bay of rack be preassembled on the floor and then lifted into place as a complete assembly. This method may damage the rack components.

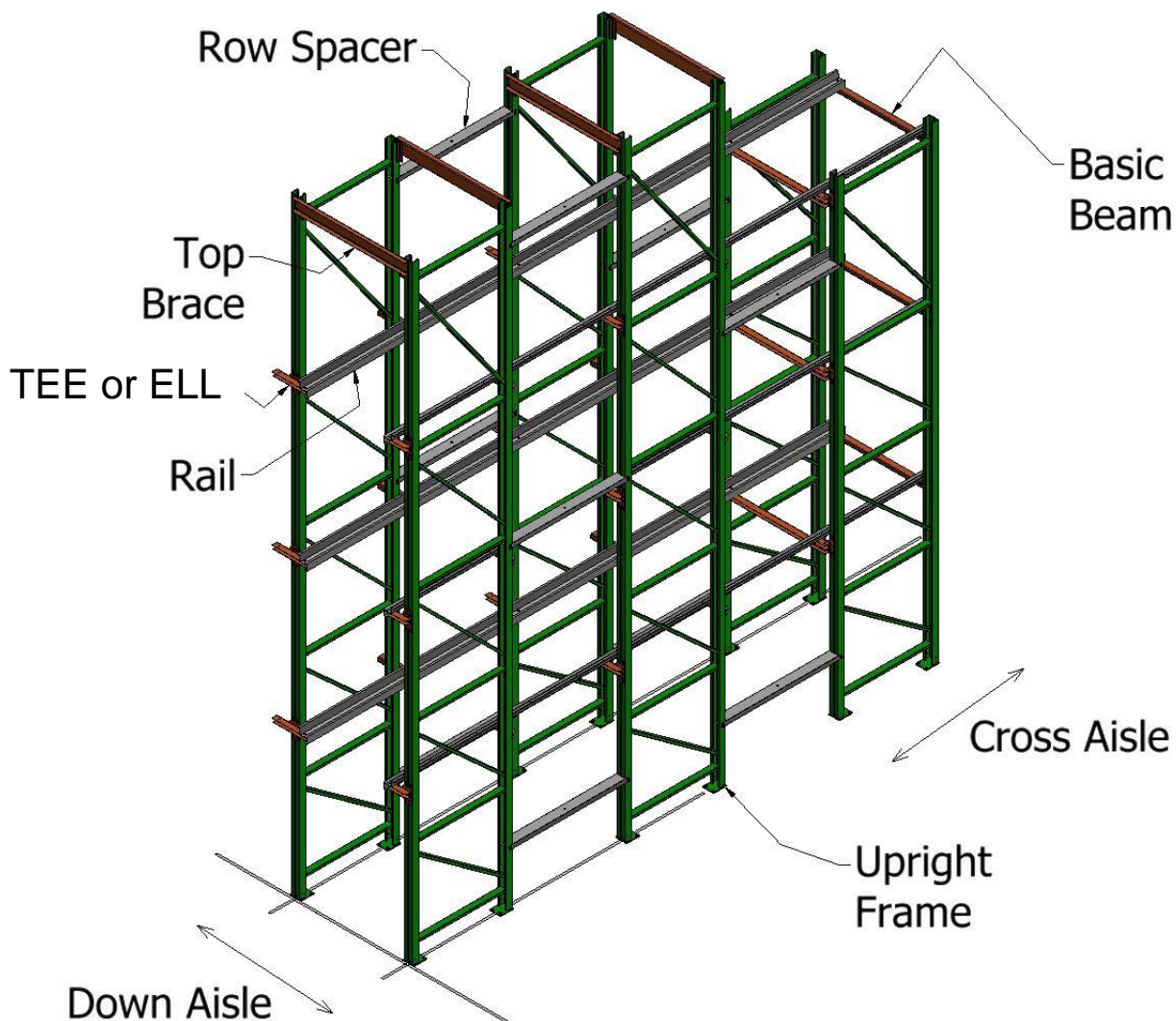
### III. GENERAL DESCRIPTION OF SYSTEM

Drive-In systems are a high-density storage system best suited for last-in, first out (LIFO) storage requirements. Drive-Thru systems are similar to Drive-In systems as they can be accessed from either end and can be used for first-in, first-out (FIFO) storage requirements.

These storage rack systems feature narrow-pallet storage lanes running perpendicular to the working aisles. Pallets are stored on the floor and on the elevated parallel rails.

Drive-in rack systems should be started with the installation of a single bay. Refer to the proper **“Rack Profile, Supplemental Drawings, and the Bill of Material,”** prepared for this particular system. The instructions herein may also contain pertinent information. Identify and gather the correct components for a single bay at this time. Be sure to check for special or optional components before initiating the installation process. See section VIII, **“Drive-In/Drive-Thru Accessories”** on pages 21-25.

**Ex. Rack Profile** - See supplemental drawings provided specific to your Drive-In system.



**IV. DRIVE-IN/DRIVE-THRU COMPONENTS**  
***ROLLED RAIL SUPPORTS***

**TEE'S**

**Standard TEE - Roll Form (TR)**

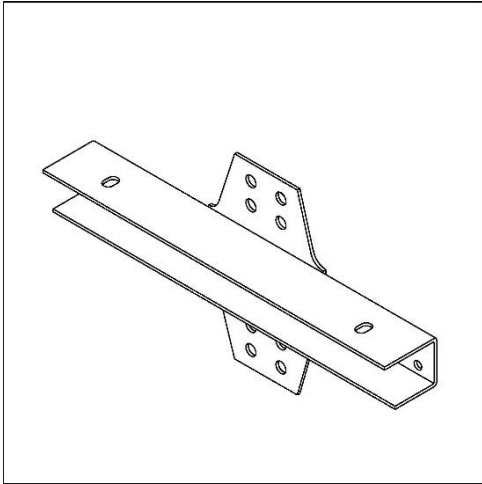


Figure 1

**Standard TEE - Roll Form - Upright Connection**

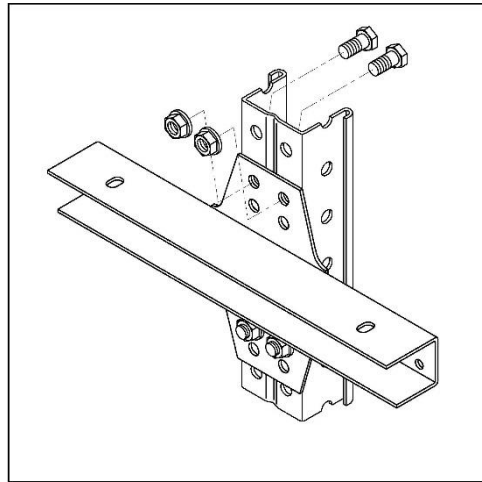


Figure 2 - (4) 1/2-13x1" LG Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Standard TEE - Roll Form - Upright and Rolled Rail Connection with Hardware**

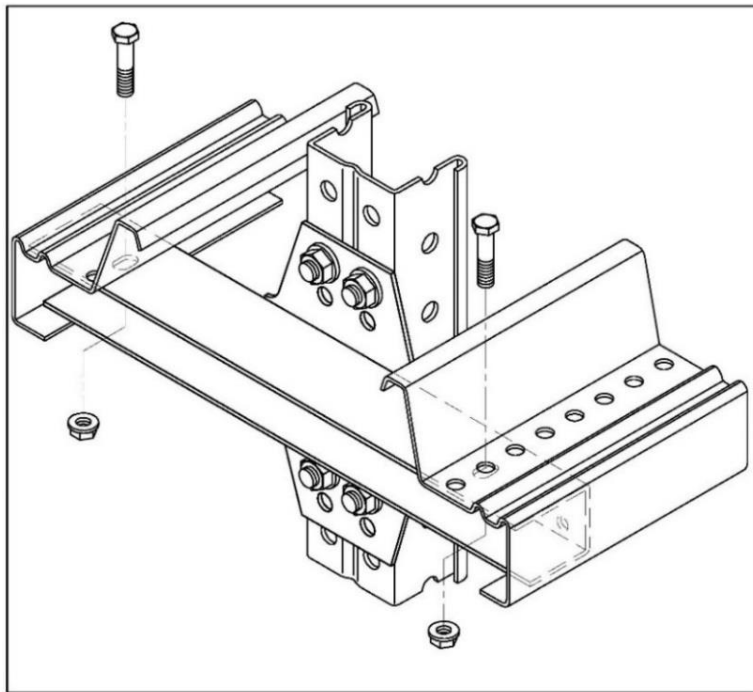


Figure 3 - (2) 3/8-16x1" LG Hex HD Bolt & Whiz-Lok Nuts (Torque = 23ft.lbs)

## SPLICE TEE'S

**Splice TEE - Roll Form (TR)**

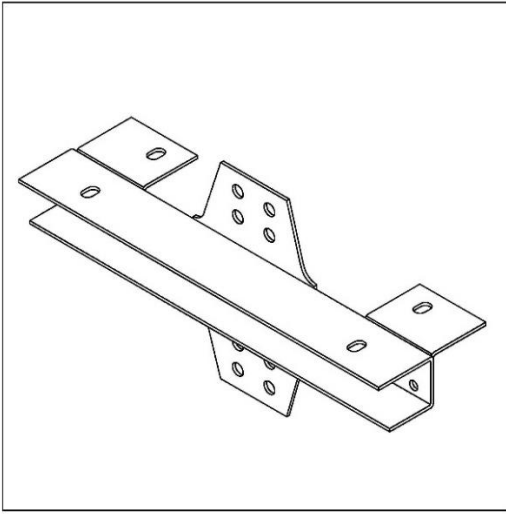


Figure 4

**Splice TEE - Roll Form with Upright Connection**

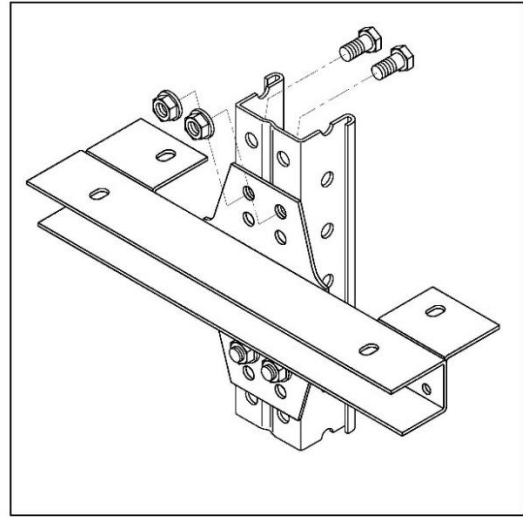


Figure 5 - (4) 1/2-13x1" LG Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Splice TEE - Roll Form-Upright and Rolled Rail Connection with Hardware**

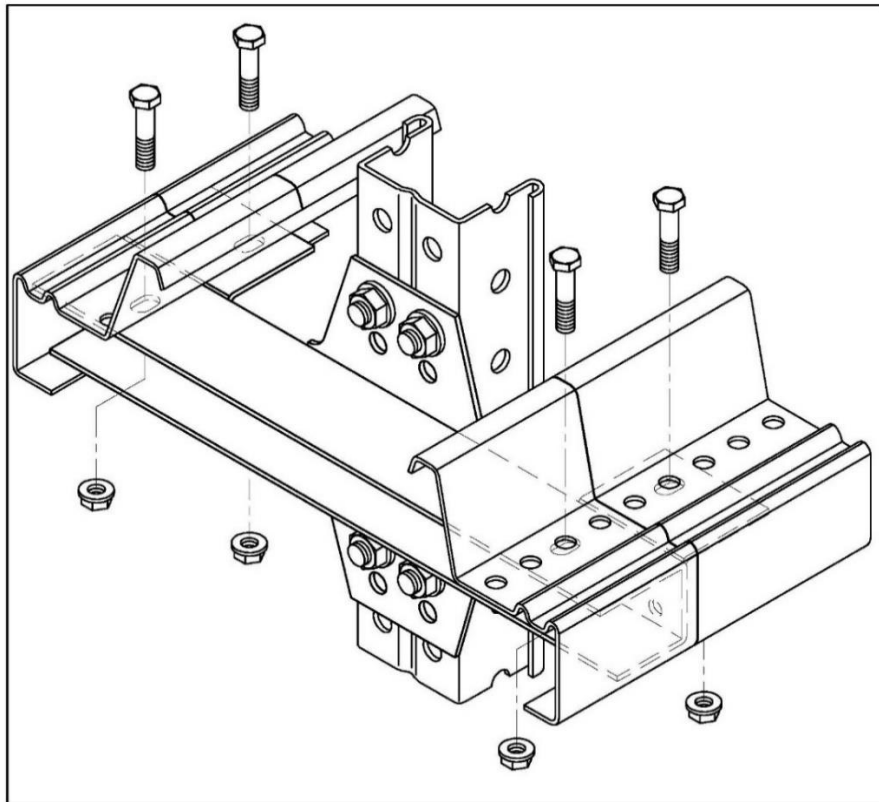


Figure 6 - (4) 3/8-16x1" LG Hex HD Bolt & Whiz Lok Nuts (Torque = 23ft.lbs)

## ELL'S

### Standard ELL - Roll Form (LR)

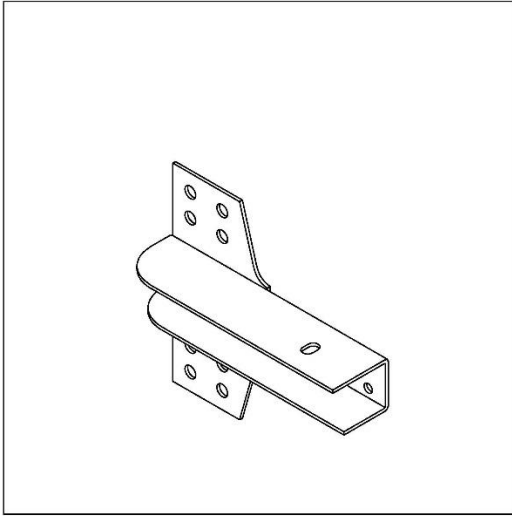


Figure 7

### Standard ELL - Roll Form Upright Connection

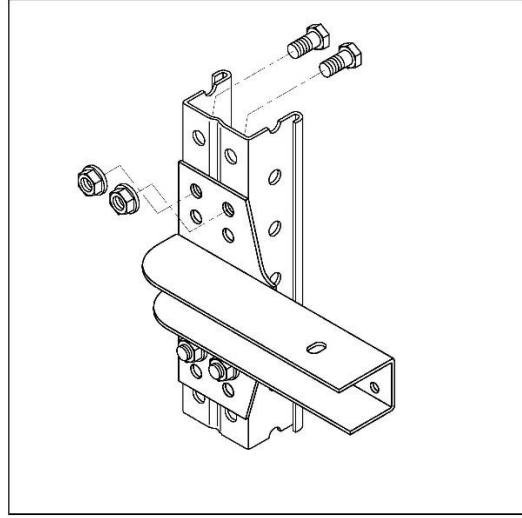


Figure 8 - (4) 1/2-13x1" LG Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

### ELL - Roll Form - Upright and Rolled Rail Connection with Hardware

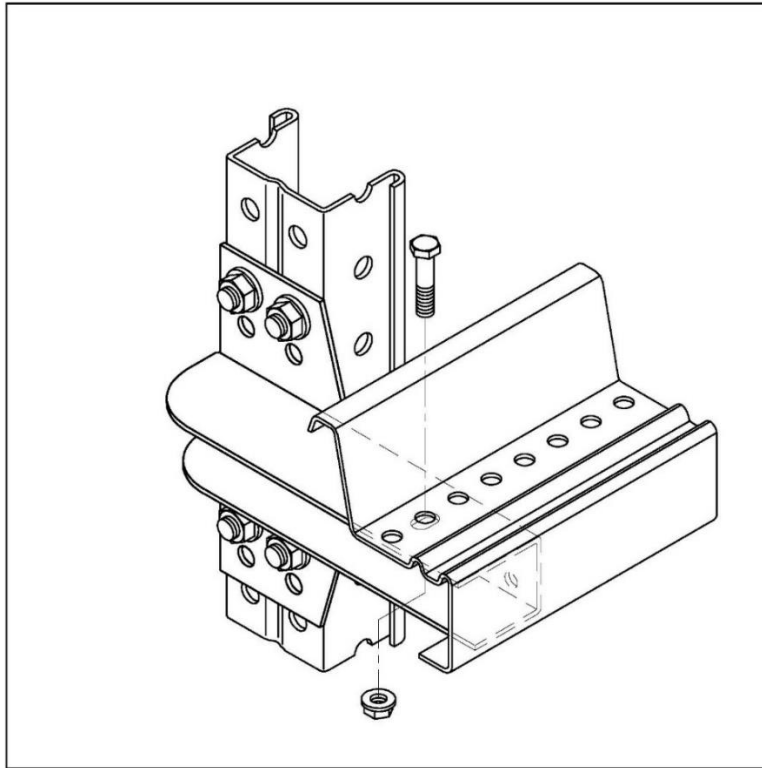


Figure 9 - (1) 3/8-16x1" Hex HD bolt & Whiz-Lok Nuts (Torque = 23ft.lbs)



## SPLICED ELL'S

**Spliced Rolled Rail - ELL (LR)**

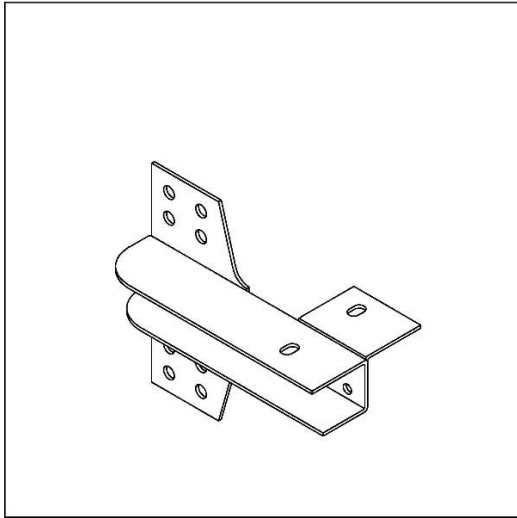


Figure 10

**Spliced Rolled Rail - ELL with Upright Connection**

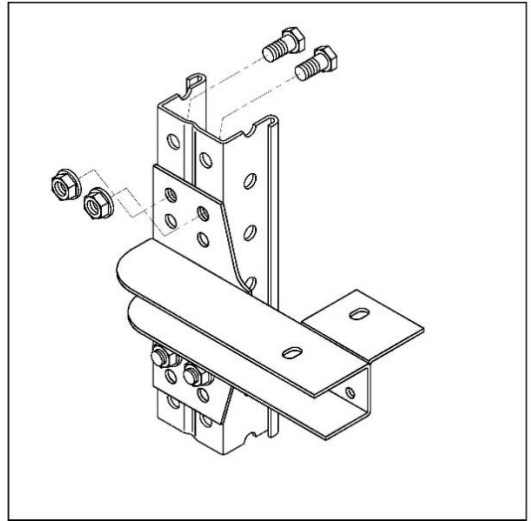


Figure 11 - (4) 1/2-13x1" LG Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Spliced Rolled Rail - ELL Upright and Rolled Rail Connection with Hardware**

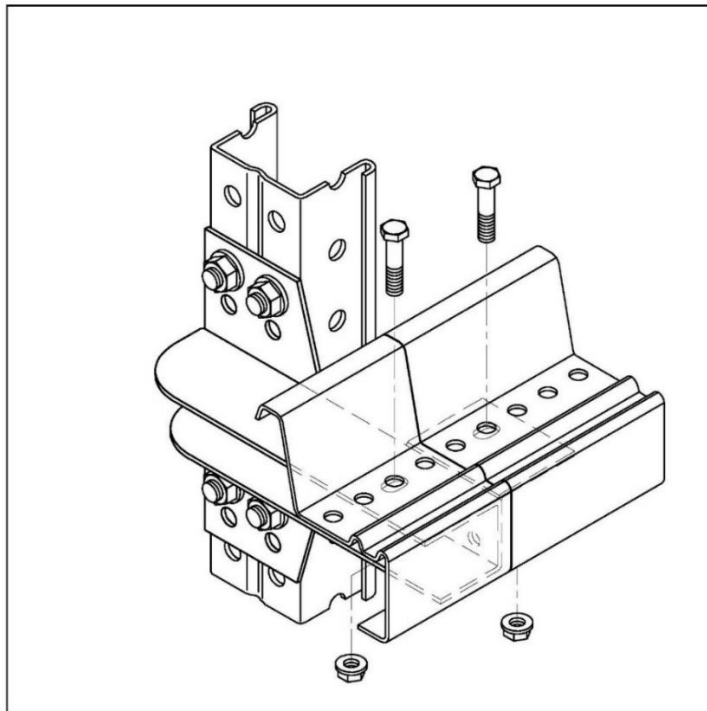


Figure 12 - (2) 3/8-16x1" Hex HD Bolt & Whiz-Lok Nuts (Torque = 23ft.lbs)

## ALTERNATE ELL'S

**Alternate ELL - (AR)**

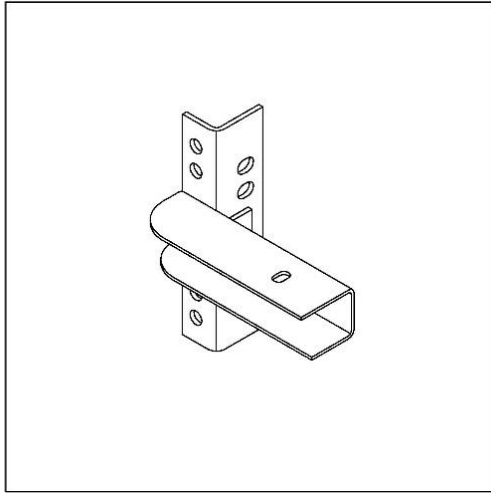


Figure 13 – AR = Nomenclature for Alternate ELL

**Alternate ELL with Upright Connection**

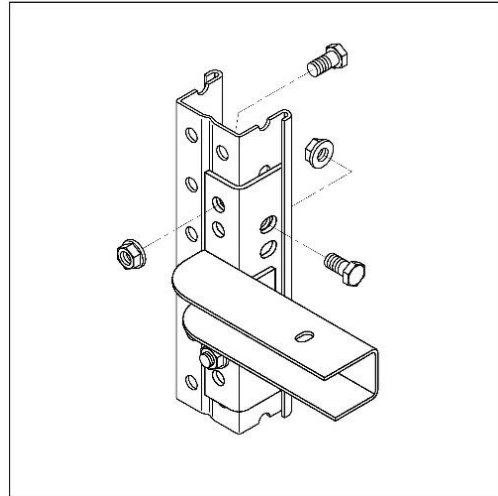


Figure 14 - (3) ½-13x1" Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs.)

**Alternate ELL - Upright and Rolled Rail Connection with Hardware**

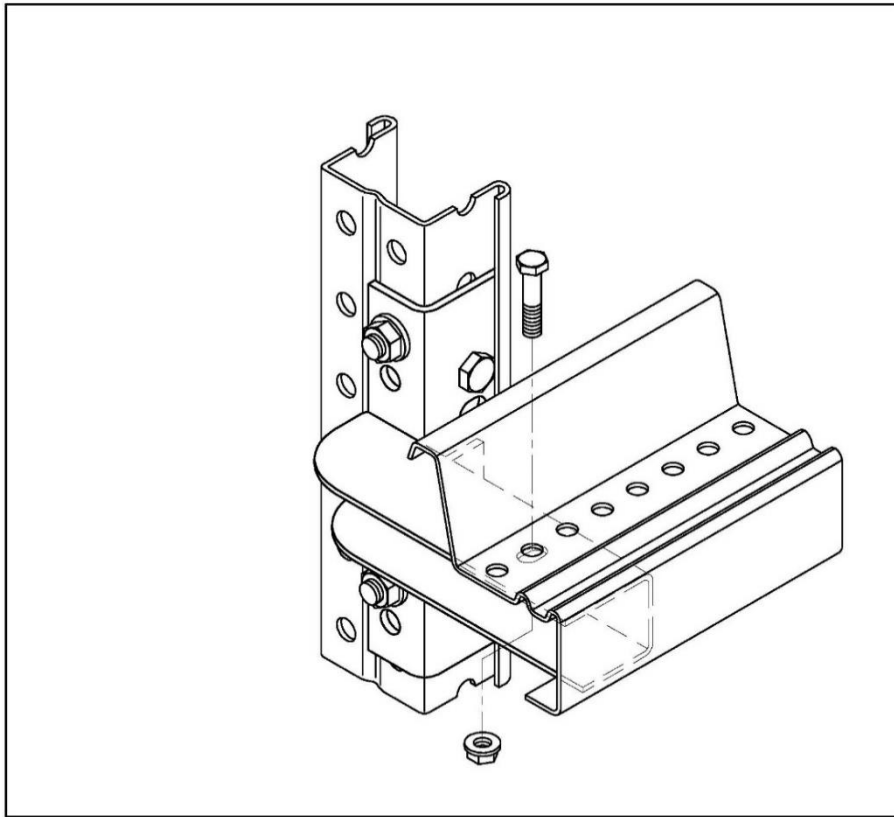


Figure 15 - (1) 3/8-16x1" Hex HD Bolt & Whiz-Lok Nuts (Torque = 23ft.lbs)

## **BASIC BEAMS**

**Basic Beam (BR)**

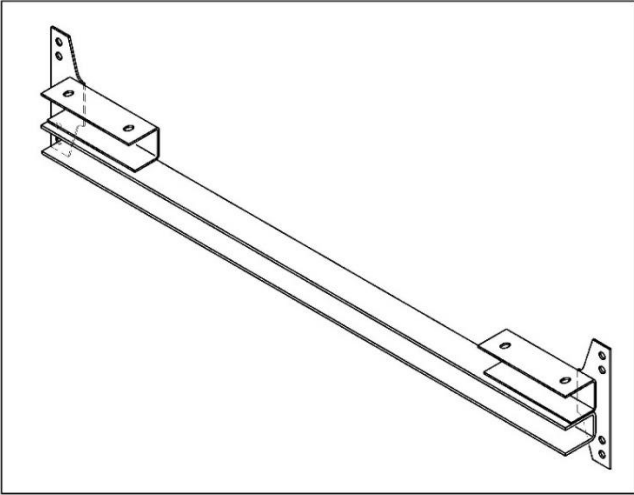


Figure 16

**Basic Beam with Upright Connection**

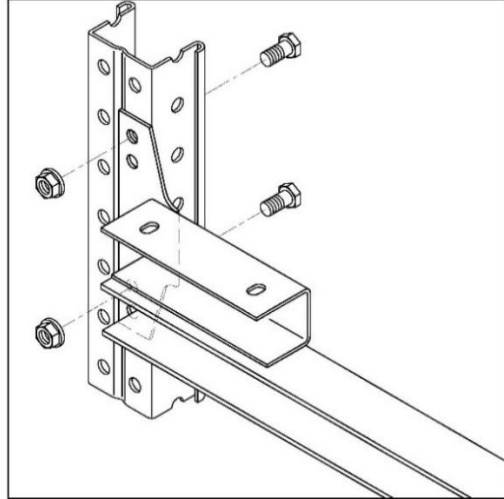


Figure 17 - (4) 1/2"-13x1" Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Basic Beam - Upright and Rail Connection with Hardware**

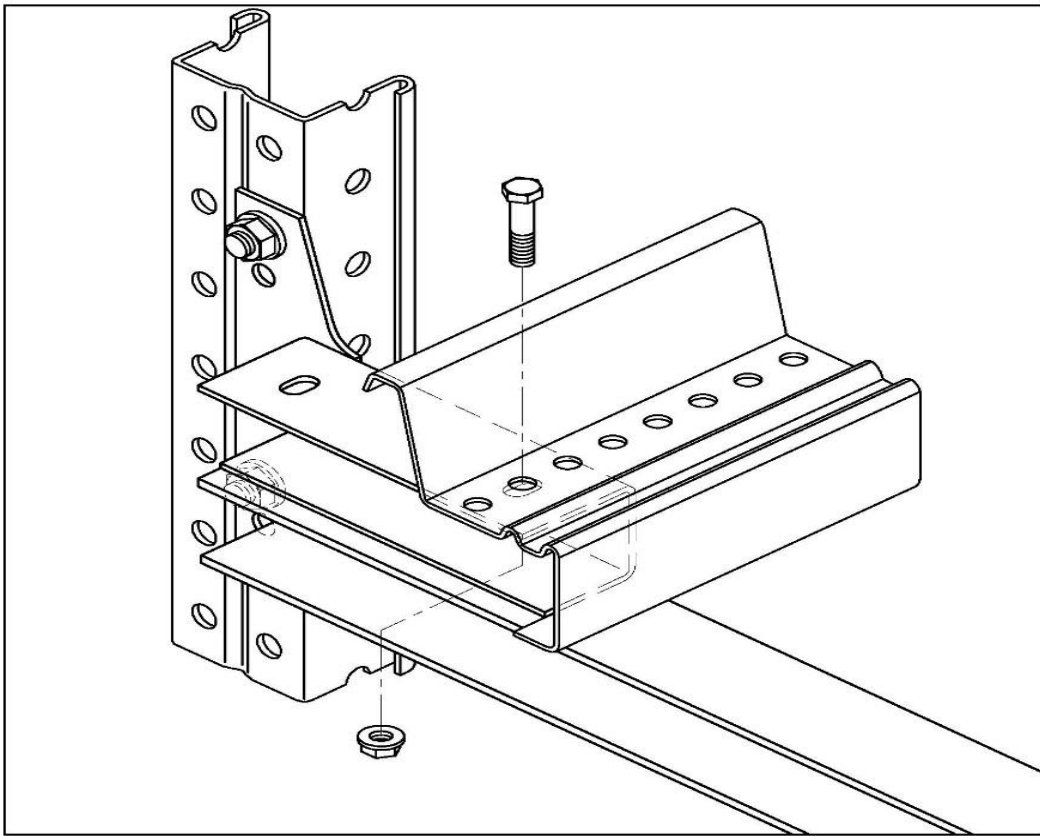


Figure 18 - (2) 3/8"-16x1" Hex HD Bolt & Whiz-Lok Nuts (Torque = 23ft.lbs)

## TOP BRACE - Roll Form Upright Frames

**Top Brace (TB)**

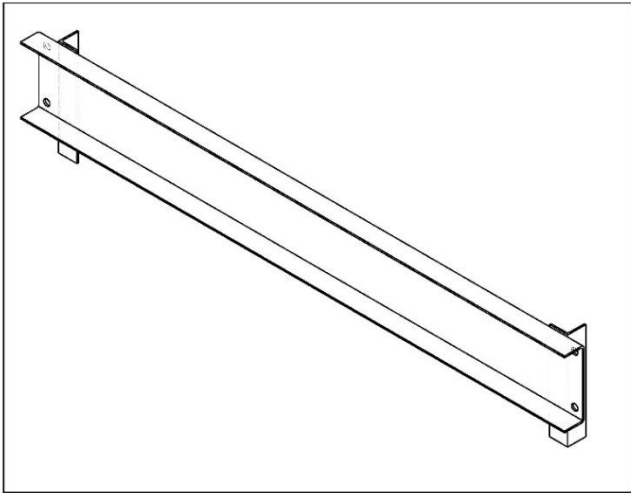


Figure 19

**Top Brace with Upright**

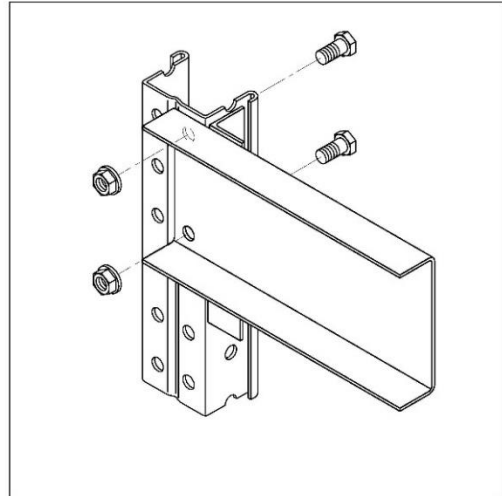


Figure 20 - (4) ½-13x1" Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

### **Top Brace Connection and Hardware**

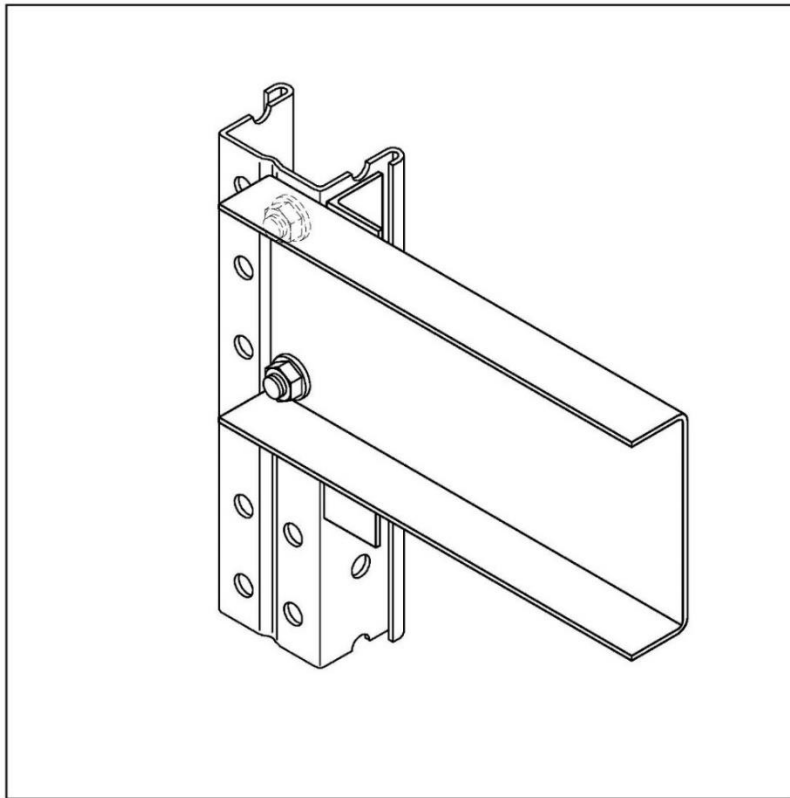


Figure 21 - Attach both ends (1 end shown)

# SPACE SAVER RAIL SUPPORTS

## TEE'S

**Space Saver Rail - TEE (SST)**

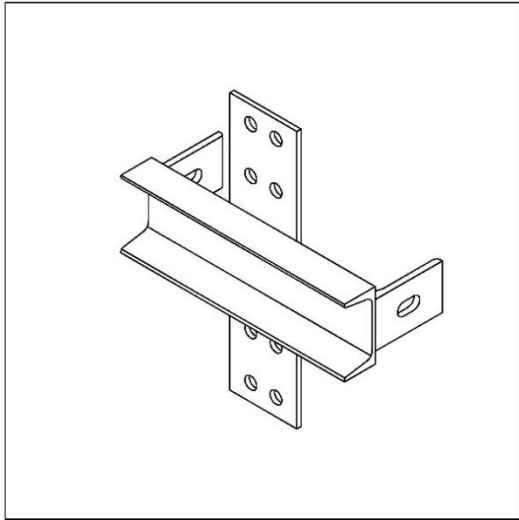


Figure 22

**Space Saver Rail - Tee with Upright Connection**

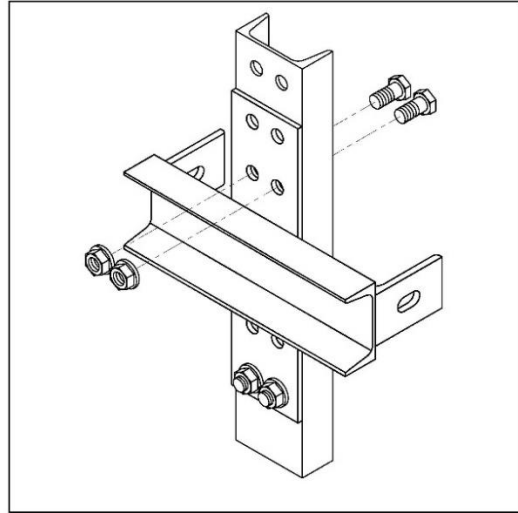


Figure 23 - (4) 1/2-13x1"LG Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Space Saver Rail - TEE - Upright and Rail Connection with Hardware**

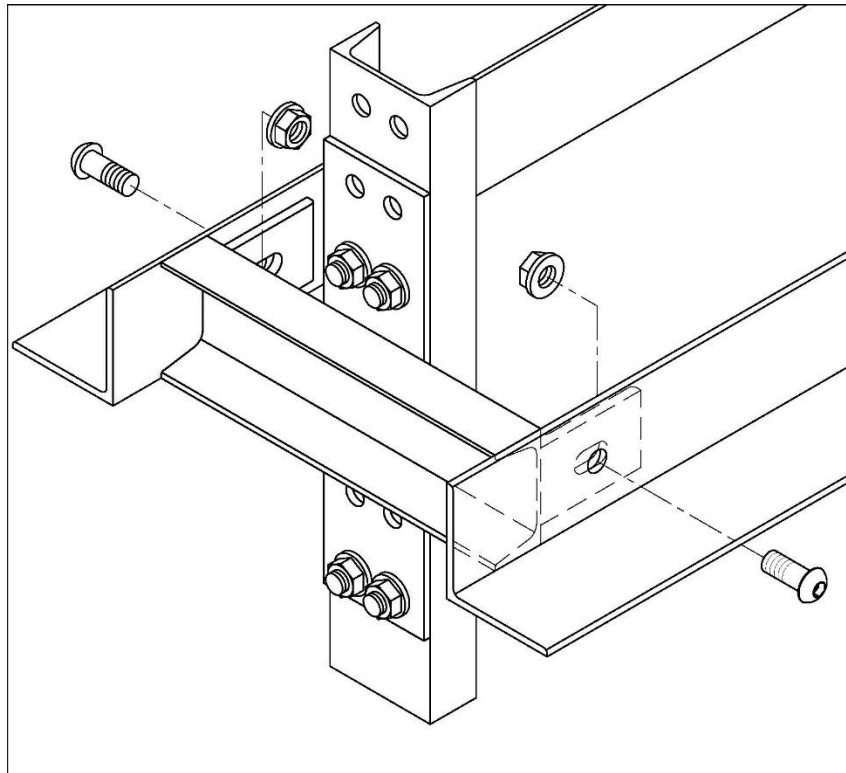


Figure 24 - (2) 1/2-13x1.25" BTN HD Bolt & Whiz-Lok Nuts (Torque = 57ft.lbs)

**ELL'S**

**Space Saver Rail - ELL (SSL)**

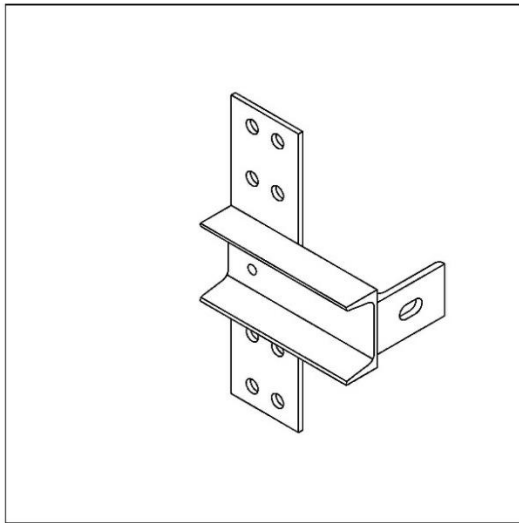


Figure 25

**Space Saver Rail-ELL - Upright Connection**

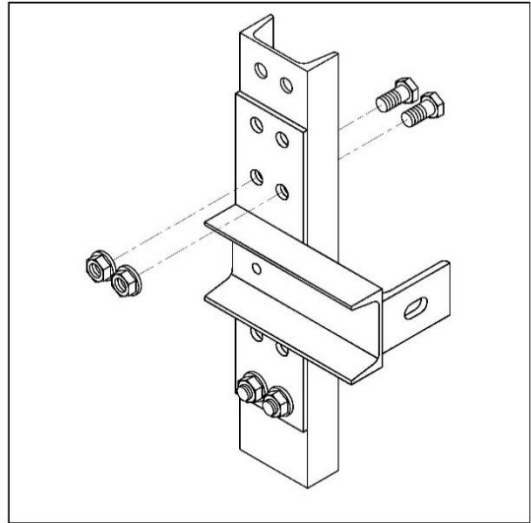


Figure 26 - (4) 1/2-13x1" LG Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Space Saver Rail - ELL - Upright and Rail Connection with Hardware**

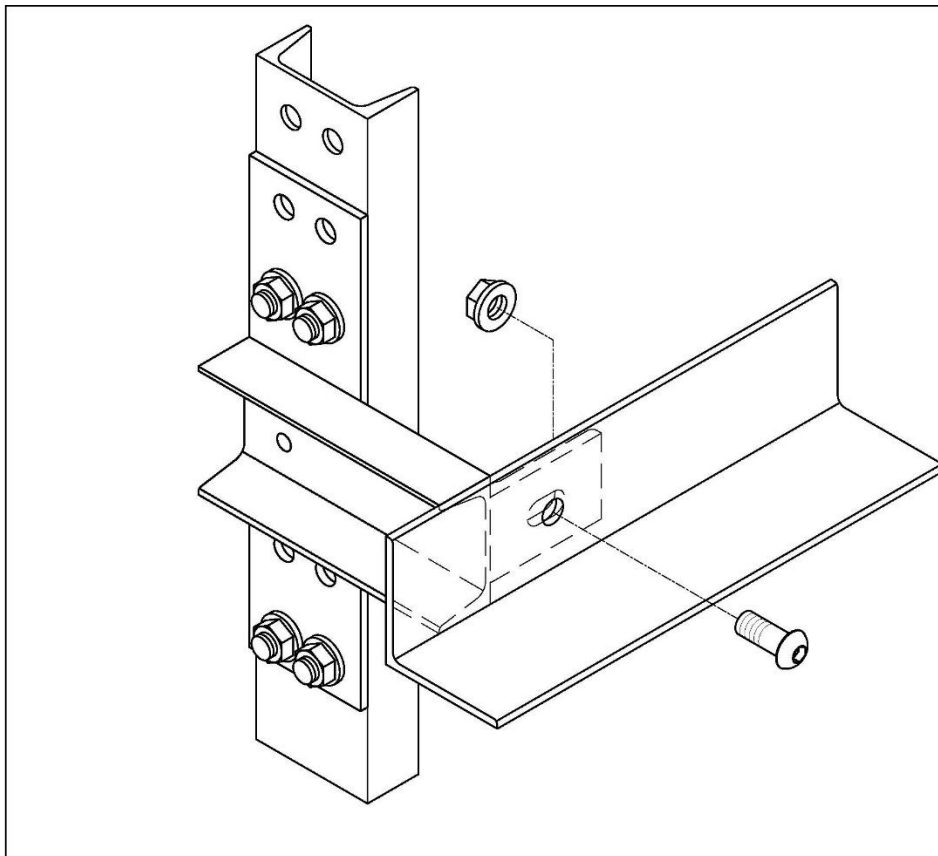


Figure 27 - (1) 1/2-13x1.25" BTN HD Bolt & Whiz Lok Nuts (Torque = 57ft.lbs)

## SPACE SAVER RAIL - Spliced Rail

### Space Saver Rail - Spliced Rail (SSR)

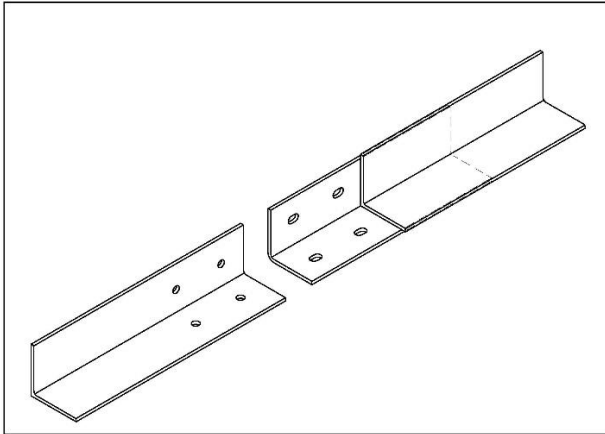


Figure 28 - Longer rails may contain a splice.

### Space Saver Rail - Spliced Rail with Hardware

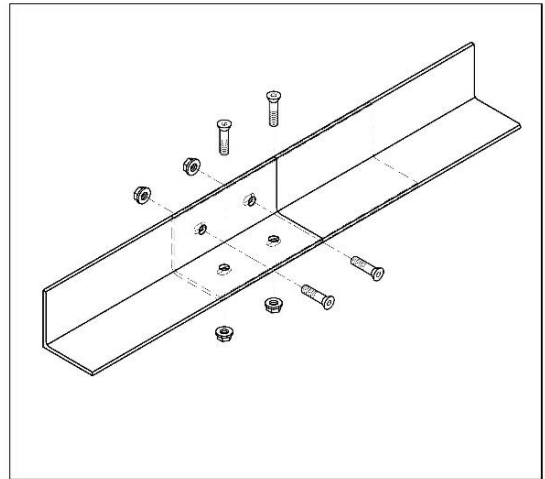


Figure 29 - (4) 3/8-16x1 1/4" SKFL HD Bolt & Whiz Lok Nuts  
(Torque = 23ft.lbs)

### Space Saver Rail - Spliced Rail with Hardware & Connection

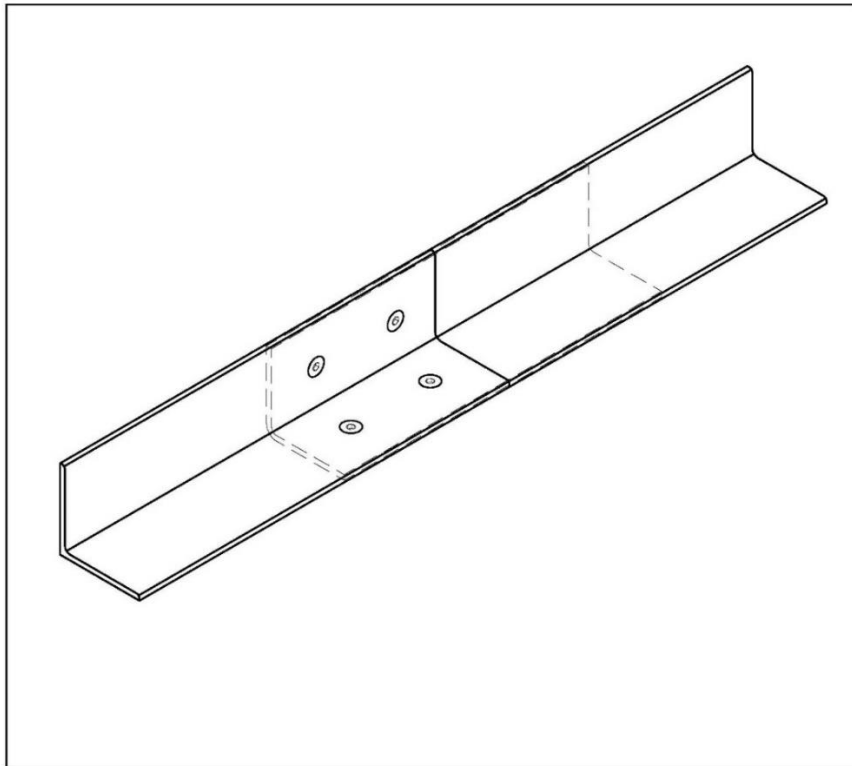


Figure 30 - Shown Attached

## BASIC BEAMS

**Basic Beam (SBG)**

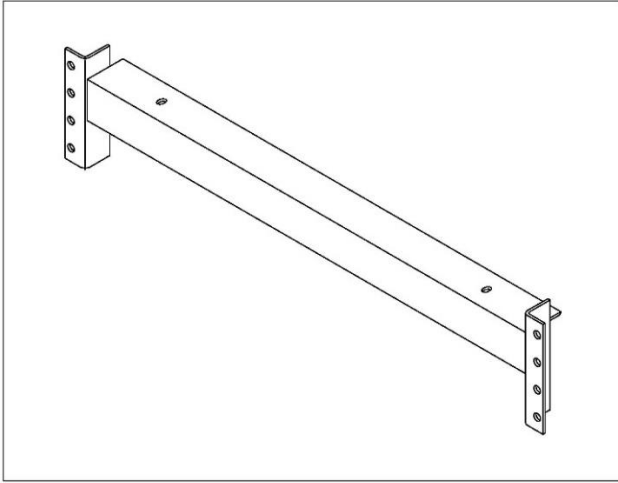


Figure 31

**Space Saver with Upright**

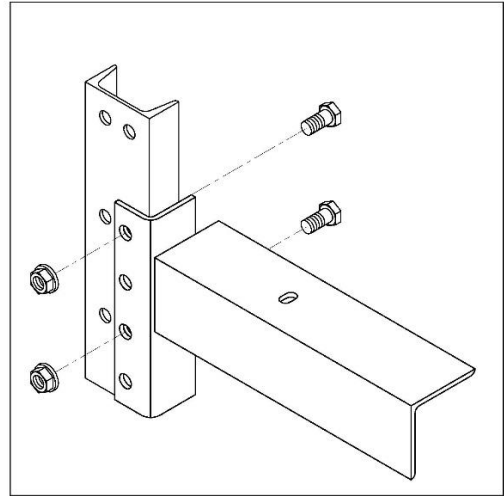


Figure 32 - (4) 1/2-13x1" Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Basic Beam Connection with Hardware**

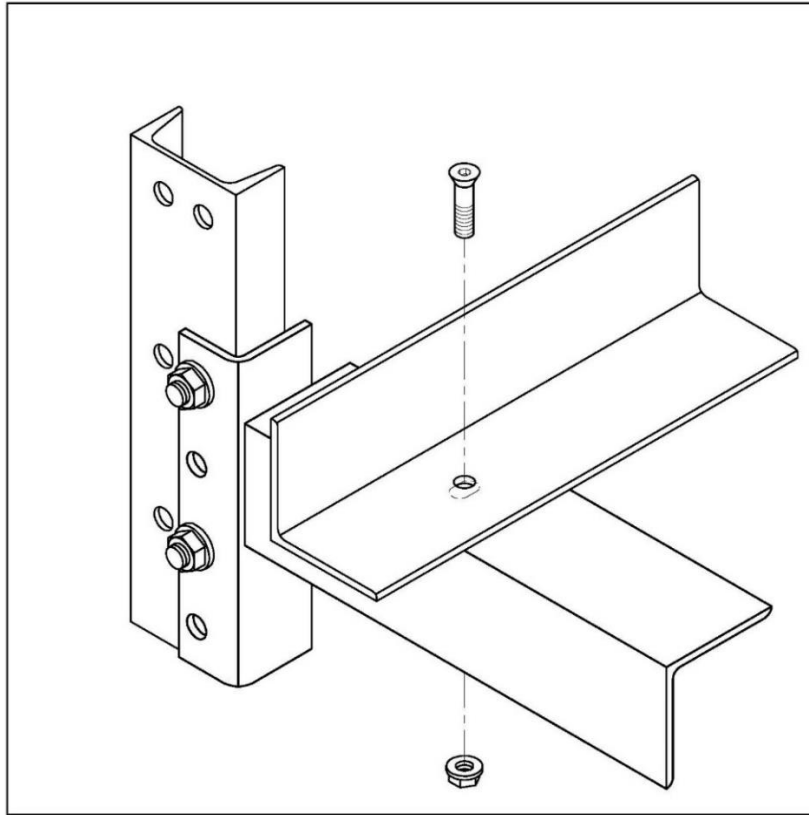


Figure 33 - (2) 3/8-16x1 1/4" SKFL HD & Whiz Lok Nuts (Torque = 23ft.lbs)



## TOP BRACE – Structural Upright Frames

**Top Brace (STB)**

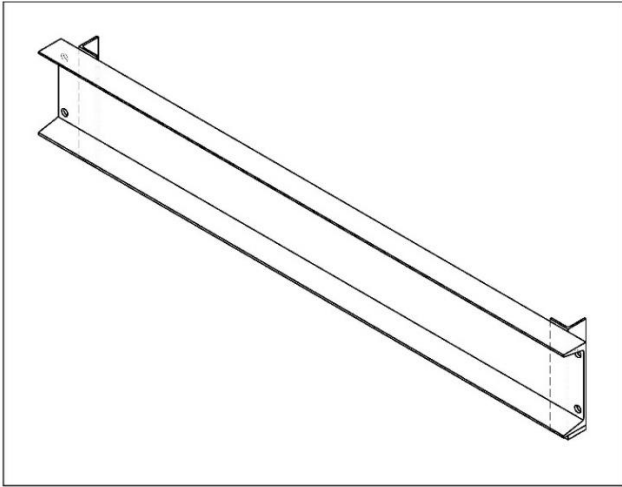


Figure 34

**Top Brace with Upright**

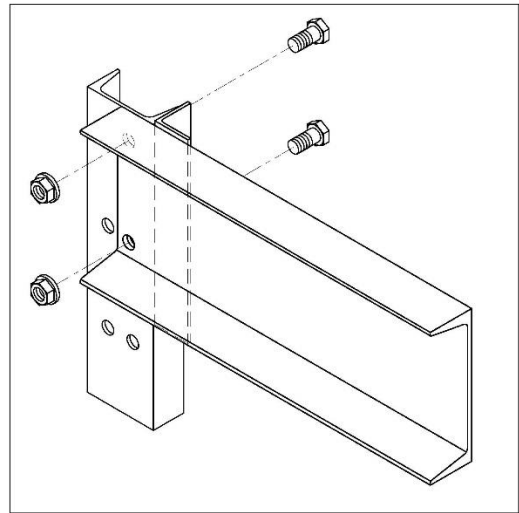


Figure 35 - (4) ½-13x1" Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

### **Top Brace Connection with Hardware**

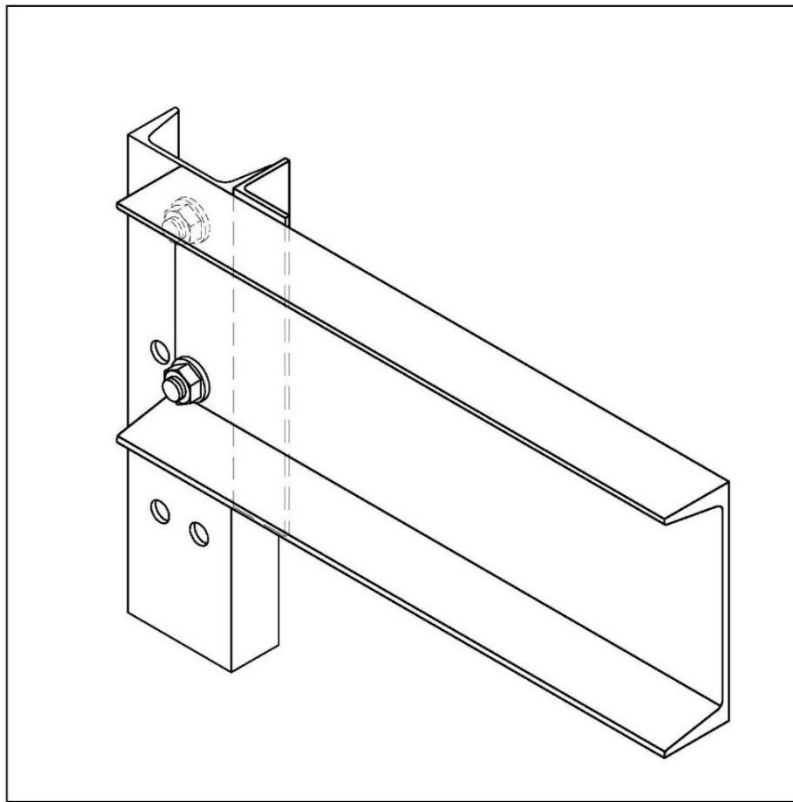


Figure 36 - Attach both ends (1 end shown)

## ROW SPACERS

**Row Spacer (RS)**

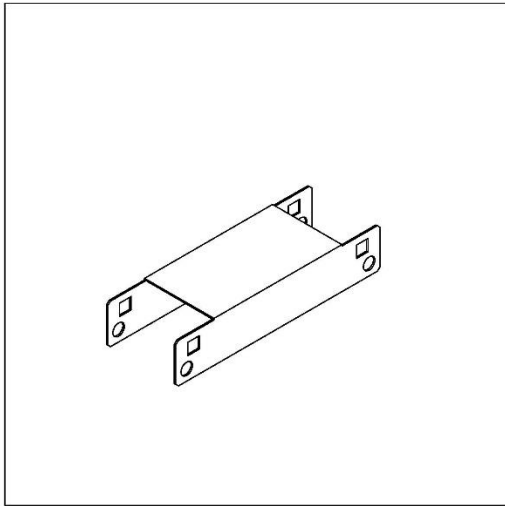


Figure 38

**Row Spacer with Upright**

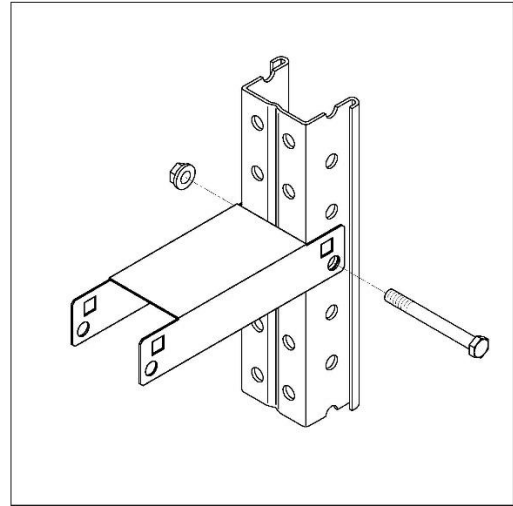


Figure 39 - (2) 7/16-14x3-1/2" (3" Column) or 4-1/2" (4" Column)

Hex HD Bolt & Whiz-Lok Nuts (Torque = 15ft.lbs.)

***Row Spacer Bolted to Upright with Hardware***

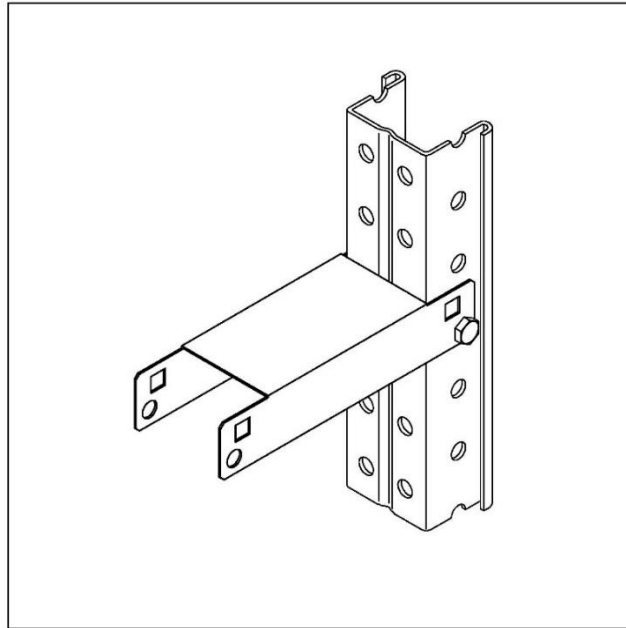


Figure 40 - Attach both ends (1 end shown)

## STRUCTURAL UPRIGHT FRAME SPACER

**Structural Frame Spacer (SFS)**

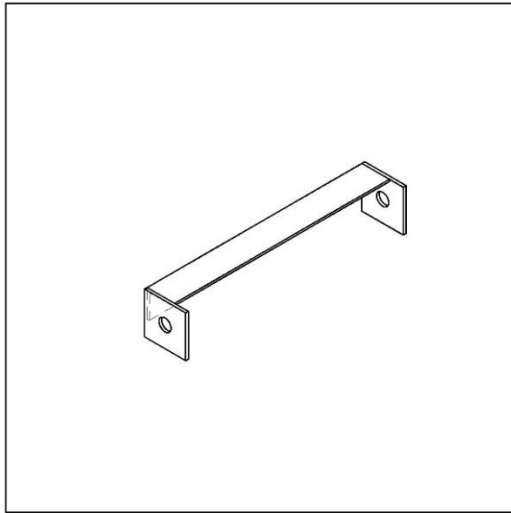


Figure 41

**Structural Frame Spacer with Upright**

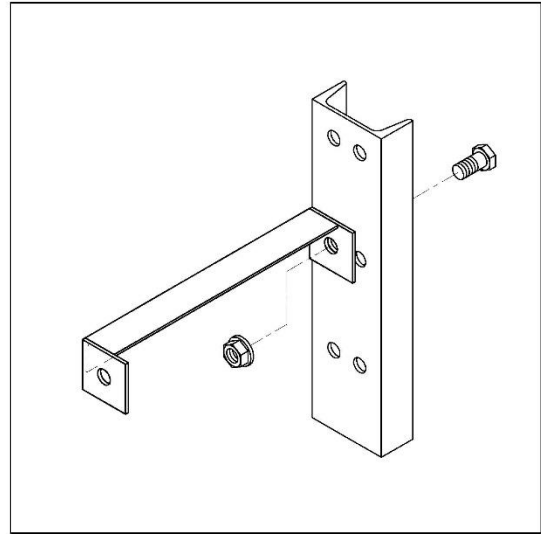


Figure 42 - (2) ½-13x1" Hex HD Bolt & Whiz-Lok Nuts

(Torque = 57ft.lbs)

**Structural Frame Spacer Connected to Upright with Hardware**

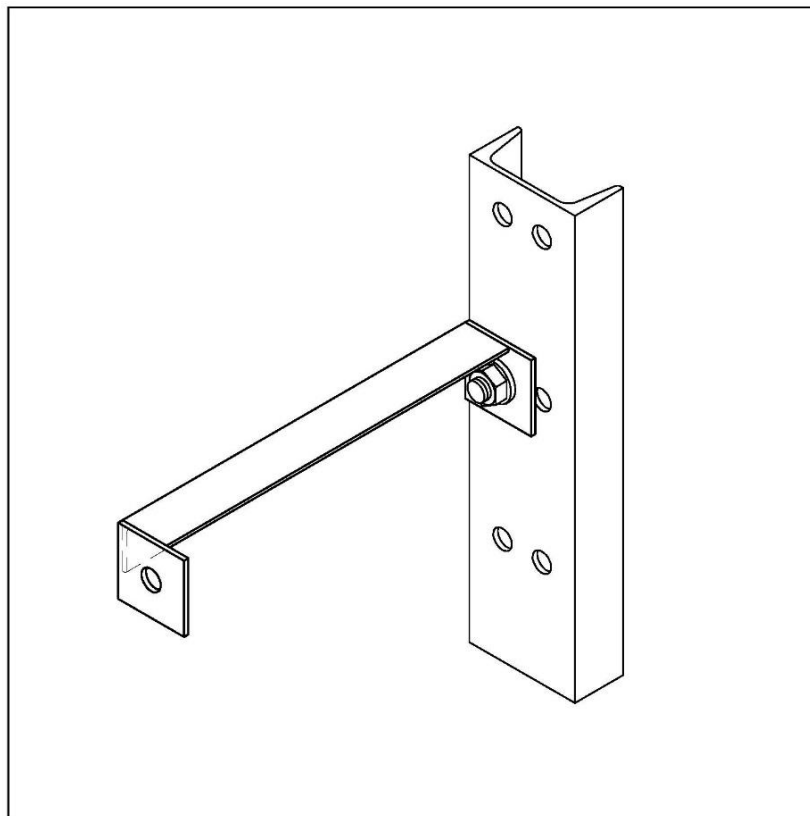


Figure 43 - Attach both ends (1 end shown)

## **V. START INSTALLATION**

- Fully erect the first bay of rack ensuring that the rail elevations are correct. The starter bay must be plumb in both the down-aisle and the cross-aisle directions to a maximum deviation of  $H''/480$  ( $1/4''$  in 10') over the rack frame height. Frame base plate shims may be required to achieve proper plumbness. Use of a plumb bob from the top of the frame column to the floor or laser equipment is recommended. Ridg-U-Rak does NOT recommend the use of a carpenter level to determine plumb conditions as they are not as accurate. Square the rack bay and align it with the chalk lines on the floor. Once the first rack bay is plumb and square, all connection hardware can be tightened.
- Recommended tightening torque values for Grade 5 hardware unless specified otherwise:
  - $3/8''$  Dia. = 23 ft-lb.  
 $7/16''$  Dia. = 37 ft-lb.  
 $1/2''$  Dia. = 57 ft-lb.
  - While the above values are recommended, tightening torque should never be applied to the point of crushing any of the connecting members.

## **VI. ANCHORING**

- Once the first bay of rack is plumb, square and aligned it can be anchored to the floor. Many installations require specific types, sizes, and quantities of anchors. This information is typically detailed on the Ridg-U-Rak installation drawings. These anchoring details are to be followed by the installer. In the absence of such details, it is the installer's responsibility to ensure that the anchoring used will meet all structural and code requirements for the application. If unsure, contact Ridg-U-Rak engineering for guidance.
- The installer should refer to the anchor bolt manufacturer's instructions for proper installation information and torque values for the anchors.
- Anchors are to be installed perpendicular to the baseplate surface, with an installation tolerance of +/- 6 degrees.
- Ridg-U-Rak requires that all drive-in rack frames be anchored to the concrete floor, regardless of height. A minimum of one  $5/8''$  diameter anchor per rack column should be used with a minimum nominal embedment of  $3\ 1/4''$ .

## **VII. INSTALLATION OF REMAINING BAYS**

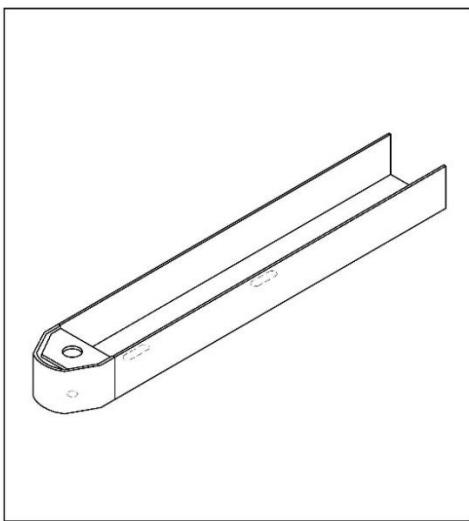
- The remaining bays can now be installed making sure that the rows are properly aligned with the chalk line and that all frames remain square and plumb. The rest of the rack row can be set up prior to anchoring.
- Once the rack row is complete and verified to meet the configuration, square, plumb and alignment requirements, all frames of the remaining bays are to be anchored.

- Never attempt to pull a rack into plumb after fasteners or anchors have been tightened or use excessive force to plumb a rack. This could bend or otherwise damage the rack members.
- Periodically check square, plumb and alignment as the rack installation proceeds.
- Never leave an unanchored rack unattended.

## VIII. DRIVE-IN/DRIVE-THRU ACCESSORIES

**Floor Guides** run the depth of the system to help guide the fork truck in the Drive-In storage bay and also help reduce the incidence of internal upright frame impact damage.

**Floor Guide (FG)**



**Floor Guide –Attaching to Upright with Hardware**

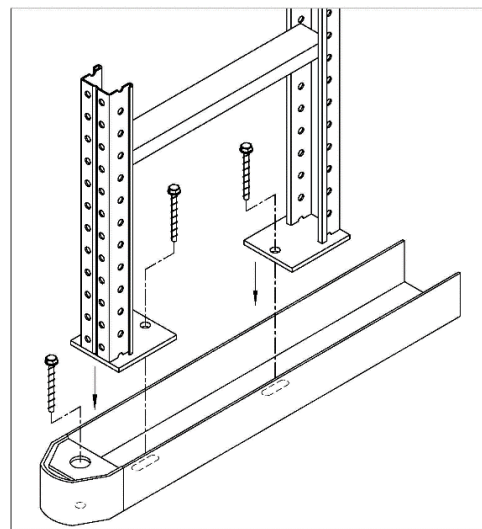


Figure 44 - Anchor, Floor Guide, and Frames Together

**Floor Guide Attached to Upright with Anchors Installed**

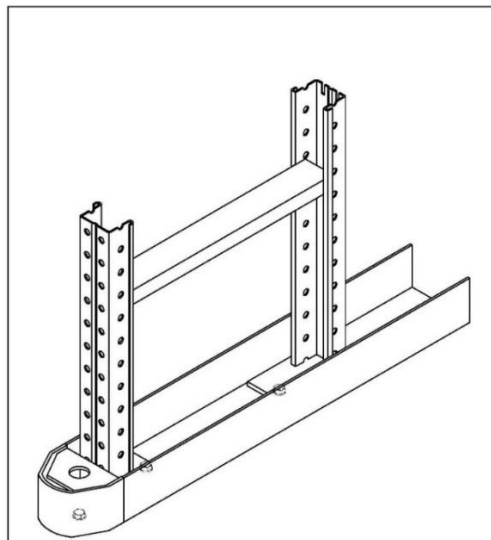
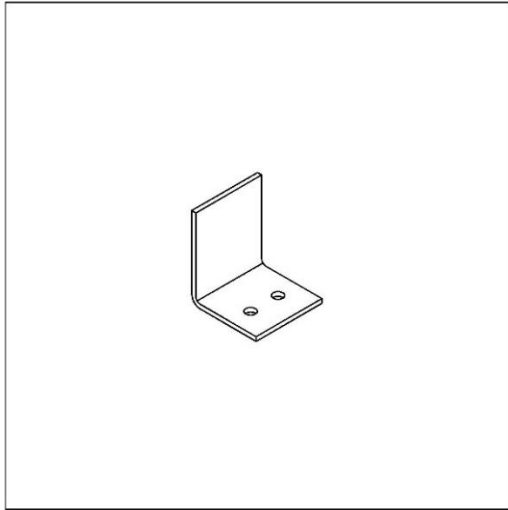


Figure 45 - Shown attached

**Pallet Rail Stops** attach to the end of the pallet rails.

**Pallet Rail Stop (PS)**



**Pallet Rail Stop with Upright and Hardware**

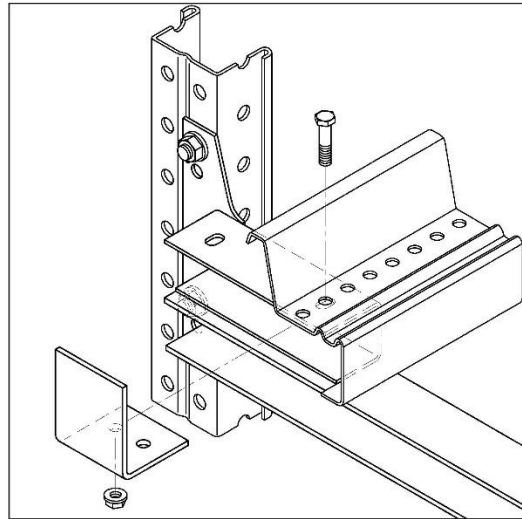


Figure 46 - 1-3/8x16x1" Hex HD Bolt & Whiz Lok Nuts

(Torque Spec = 23ft.lbs)

*\*Attaches to the rail using the bolt supplied in the basic beam kit.\**

**Pallet Rail Stop with Upright and Hardware Connection**

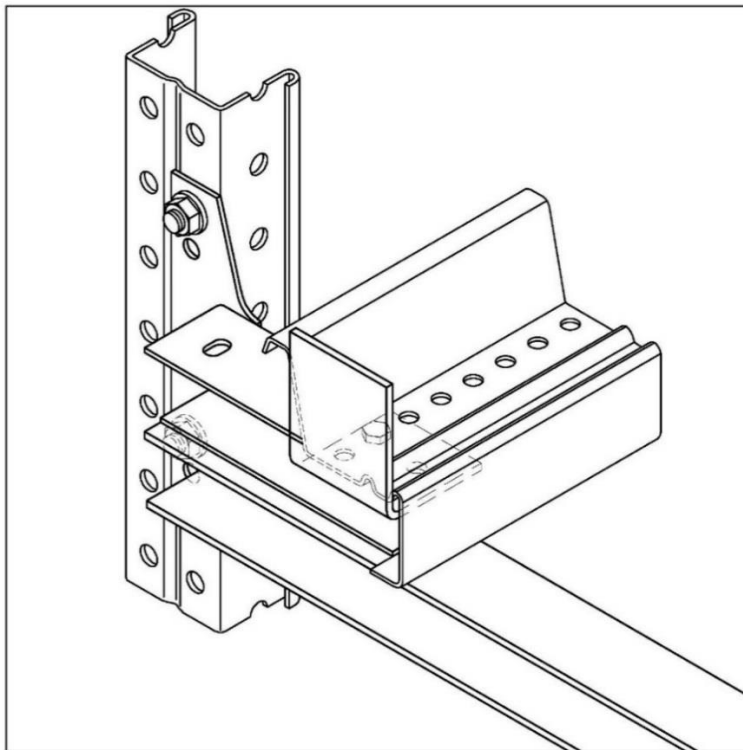
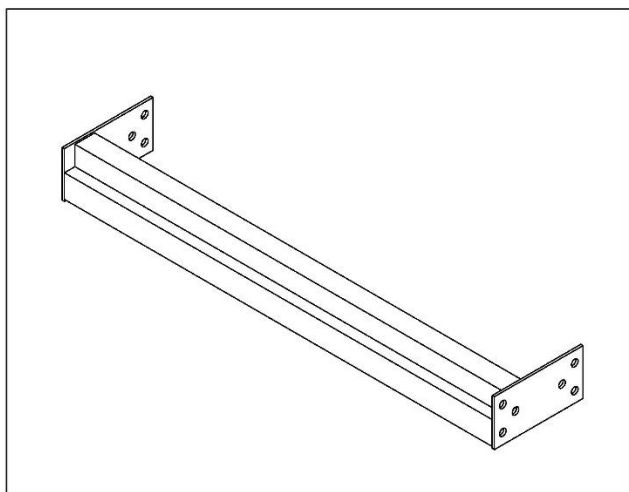


Figure 47 - Shown attached

**Bolted Load Stops** attach to the upright frames.

**Bolted Load Stop (BLS)**



**Bolted Load Stop with Upright and Hardware**

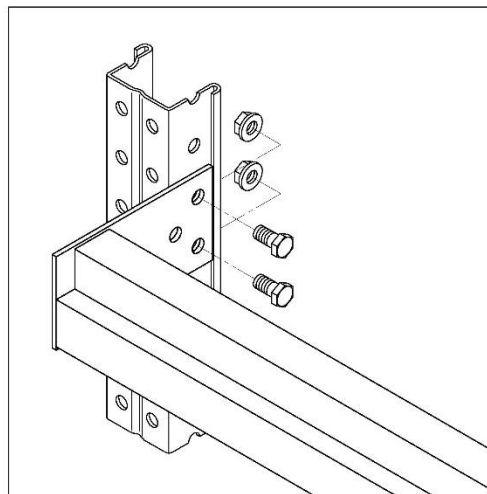


Figure 48 - 4-1/2-13X1" Hex HD Bolt & Whiz Lok Nuts

(Torque Spec = 57ft.lbs.)

**Bolted Load Stop with Upright and Hardware Connection**

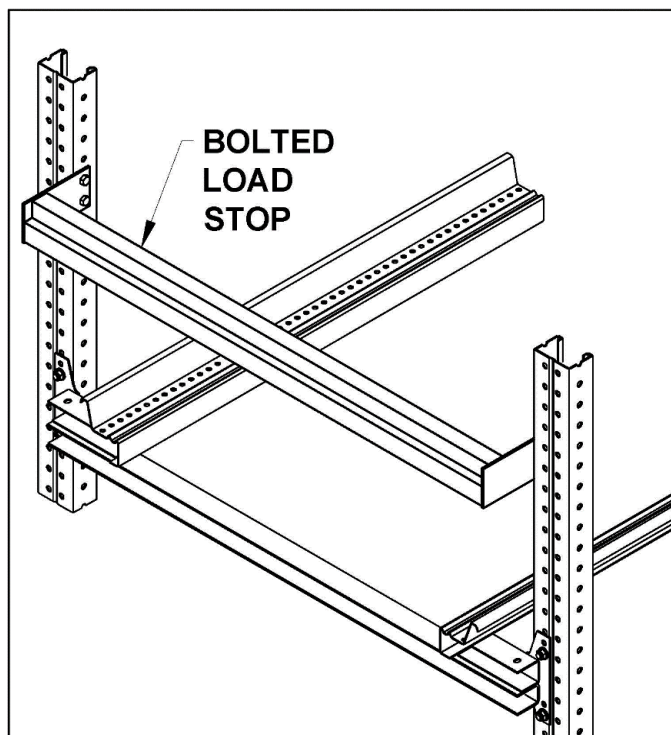
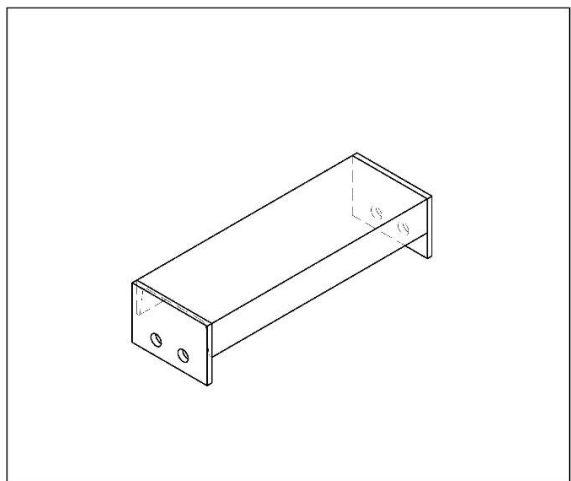


Figure 49 - Shown attached

**G.R. Structural** is a heavy-duty row spacer that serves as a guide rail.

**G.R. Structural (GR)**



**G.R. Structural with Upright and Hardware**

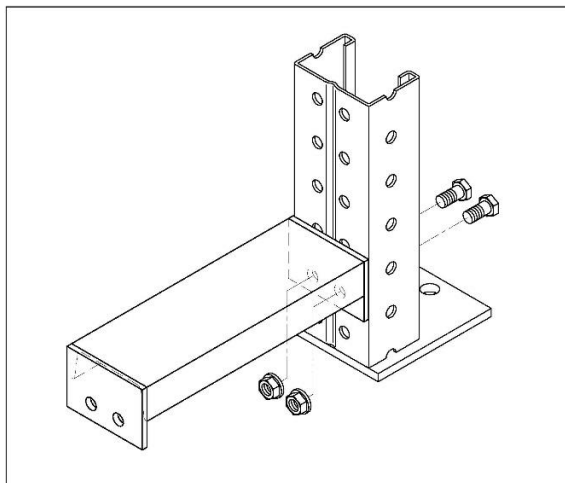


Figure 50 - 4-1/2x13x1" Hex HD Bolt & Whiz Lok Nuts

(Torque Spec = 57ft.lbs.)

**G.R. Structural with Upright and Hardware Connection**

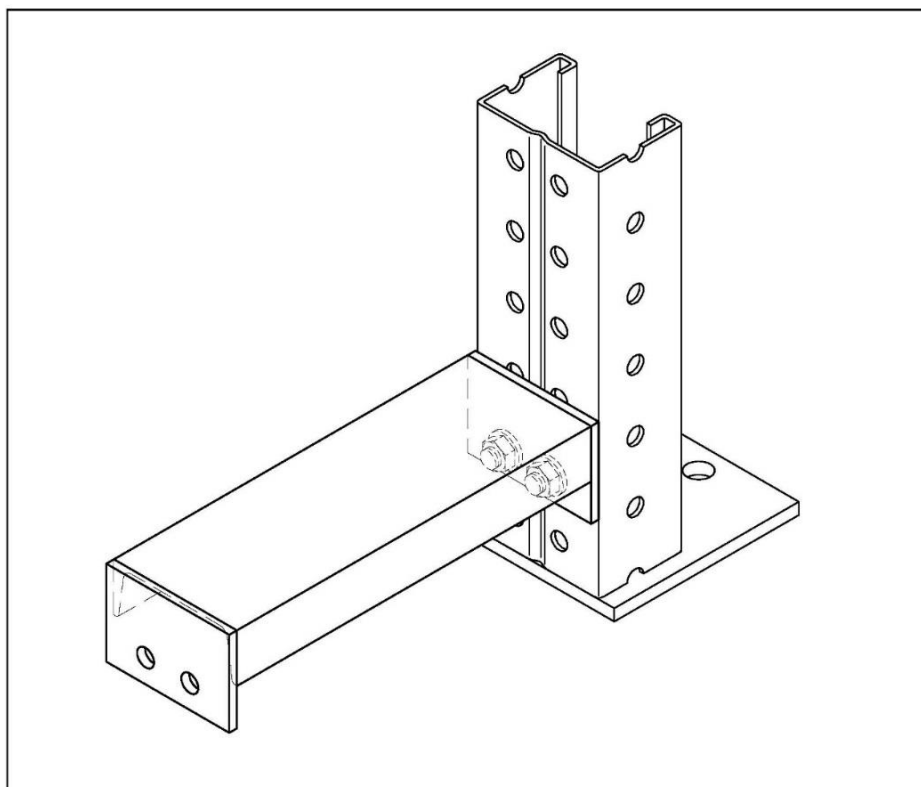


Figure 51 - Attach both ends (1 end shown)



**Long Bolt Hardware** is required when a component is attached to the face of the upright doubles or double columns. (TEE is shown in the example below)

**Upright Double 32D with Long Bolt Connection**

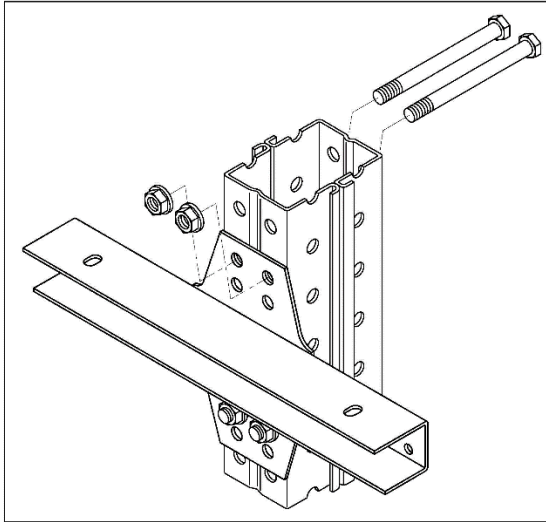


Figure 52 - 1/2-13x 5 1/2" Lg Hex HD Bolt & Whiz Lok Nuts  
(Torque Spec = 57ft.lbs.)

**Double Column 32D with Long Bolt Connection**

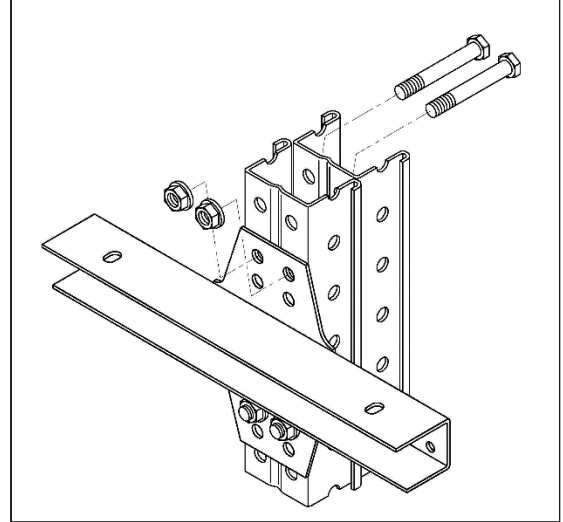


Figure 53 - 1/2-13x 3 1/2" Lg Hex HD Bolt & Whiz Lok Nuts  
(Torque Spec = 57ft.lbs.)

**Upright Double 43B with Long Bolt Connection**

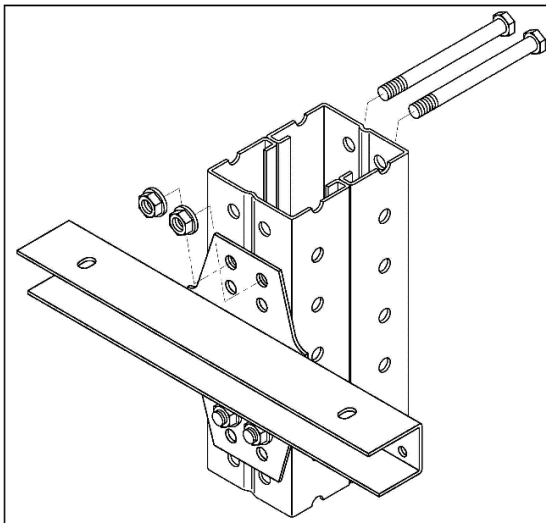


Figure 54 - 1/2-13x 6 1/2" Lg Hex HD Bolt & Whiz Lok Nut  
(Torque Spec = 57ft.lbs.)

**Double Column 43B with Long Bolt Connection**

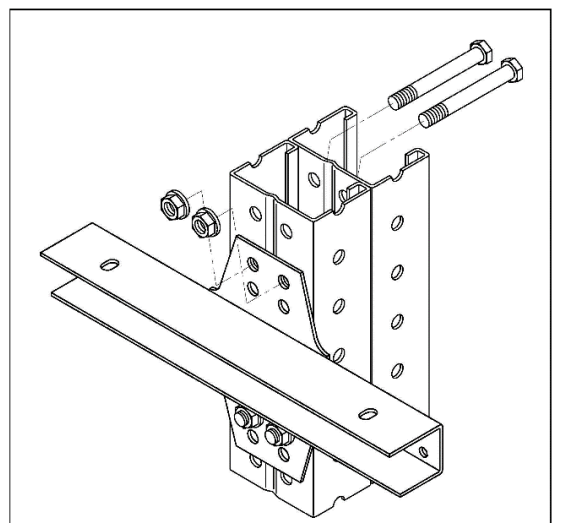


Figure 55 - 1/2-13x 4" Lg Hex HD Bolt & Whiz Lok Nuts  
(Torque Spec = 57ft.lbs.)

## **IX. INSPECTION**

- Throughout the installation process, the rack installer should periodically inspect the racks to ensure that proper installation procedures and the Installation Drawings have been followed and that racks remain properly square, plumb and aligned, and that no rack components have been damaged during the installation.

## **X. FURTHER INFORMATION**

- These installation guidelines cover the installation of new Ridg-U-Rak drive-in storage rack. The proper installation of the rack is the responsibility of the installer. The installation is not covered by any warranty from Ridg-U-Rak.
- For general information on storage racks, the user should refer to the following:  
Rack Manufacturer's Institute  
8720 Red Oak Blvd., Suite 201  
Charlotte, NC 28217-3992.  
<http://www.mhi.org/rmi>

Rack Safety Blog: <http://www.rmiracksafety.org/>

**If questions still exist, contact Ridg-U-Rak for technical support at 814-725-8751**



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