



SK3000[®]

STRUCTURAL PALLET RACK

ASSEMBLY GUIDE



Assembly Instructions



Steel King Industries recommends that this product be assembled only by qualified personnel, experienced in assembly of storage racks, and knowledgeable of all safety regulations and practices. These instructions are intended only for use by qualified individuals using all proper safety equipment.



WARNING: These storage racks are extremely heavy, and if not properly secured during installation and assembly could fall, possible causing injury or death as well as damage to property.

Contact Steel King Industries or your local Steel King Representative for the name and contact information of a qualified installer. Users of this information agree to indemnify and hold harmless Steel King Industries from any and all liability.



WARNING: Instructions for assembly are set forth on these pages. Proper assembly is the responsibility of the purchaser and is not covered by any warranty of the seller. Buyer is cautioned not to substitute parts or hardware. Seller disclaims all liability with respect to any substitution of parts or hardware not approved in writing by seller.

The installation detail drawings that follow are intended as basic guides for installation of the standard components. Depending upon the specifications of the system, there may be limitations regarding the use of these standard components and/or a requirement for special installation techniques. Additional information is found in Steel King price books, published technical documents, comprehensive installation drawings, and other materials.

Installation Note

Do not install racks outdoors, unless specifically designed by Steel King for this purpose. Outdoor usage requires consideration of wind loads, snow loads, etc., which are not normally considered in rack design.

Pallet Rack User's Manual

Steel King Industries recommends that all users of Steel King manufactured storage racks obtain, read, and understand **Steel King's Pallet Rack User's Guides**. Copies of Steel King's Pallet Rack User Manual, as well as other Steel King product and safety manuals are available at steelking.com/safetyinfo.



Step 1: Check the Material

- A. Check to make certain that all materials have been received. Materials should be checked against the packing lists and Bill of Lading.
- B. Notify the shipper immediately of any shortages or product damage.

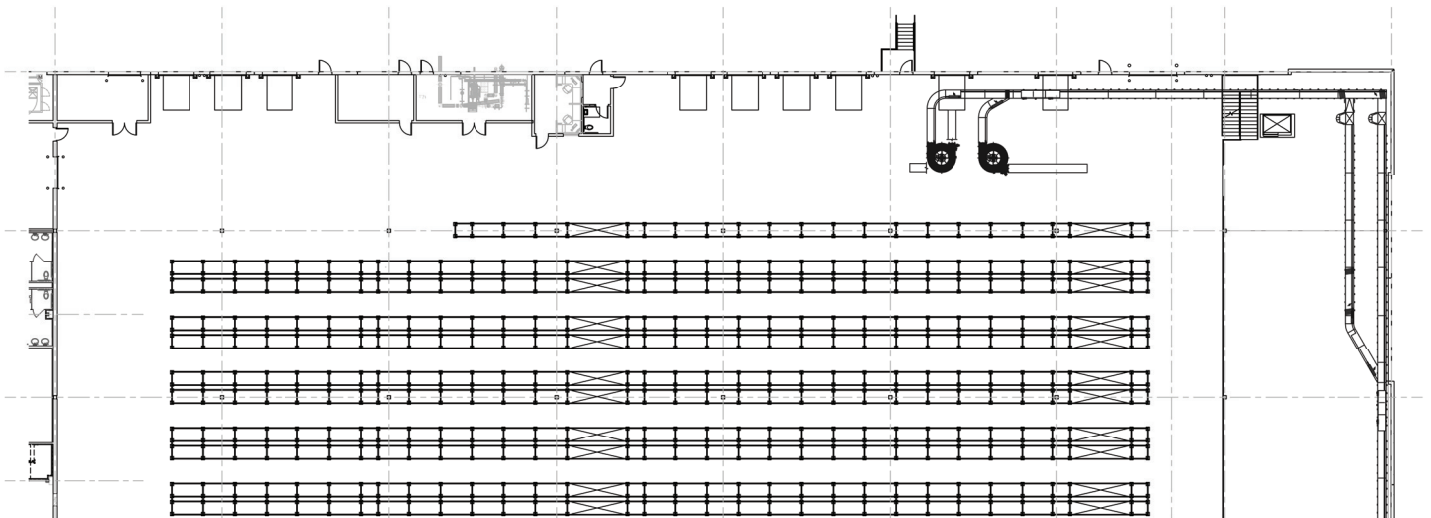
Step 2: Check the Area

- A. Clear the area where the rack system is to be located.
- B. Check the area for all obstructions, such as lights, heating ducts, pipes, building columns, etc., to insure a clear area for the installation of the storage rack.

Step 3: Lay Out Floor

RECOMMENDED TOOLS:

- Tape Measure
 - Chalk Line
- A. Establish the rack layout by determining the aisle dimensions and the rack position.
See figure below.
 - B. Snap a chalk line establishing the front edge of the upright bases.
The chalk line should run the entire length of the row of rack.



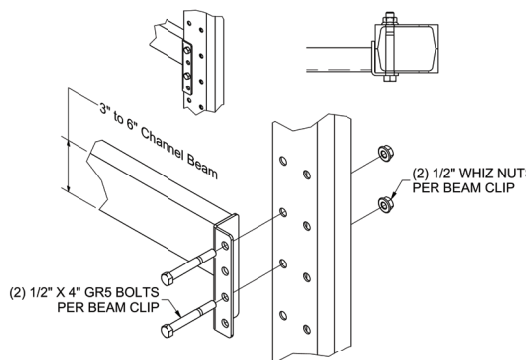
Example of rack layout

Step 4: Assemble First Bay

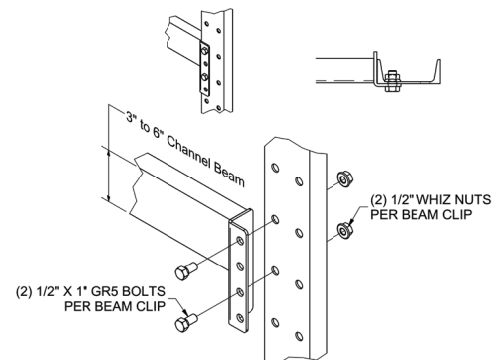
RECOMMENDED TOOLS:

- Air Compressor
- Torque Wrench
- 3/4" Drive Impacts or Equivalent

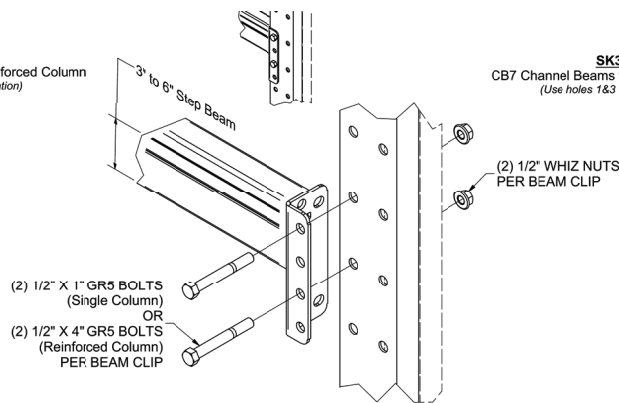
- A. Bolt one beam to the upright frame using the hardware provided. The bolt is inserted through the front of the frame column so that the nut shows on the inside of the column when assembled. **See figures below.**



SK3000 Connection Detail
CB7 Channel Beams to SK3000 Channel Frame, Reinforced Column
(Use holes 1&3 OR 2&4 depending on beam's elevation)



SK3000 Connection Detail
CB7 Channel Beams to SK3000 Channel Frame, Single Column
(Use holes 1&3 OR 2&4 depending on beam's elevation)



SK3000 Connection Detail
SB7 Rollform Step Beam to Channel Frame
(Use holes 1&3 OR 2&4 depending on beam's elevation)

- B. Stand the second upright frame vertically, attaching the load beams as above. Install subsequent beam levels from the lowest level to the highest level.
- C. Torque the bolts to 60 ft-lbs.

NOTE: Bolt Tightening Structural Rack: The connections for our structural rack are bearing/shear type connections. These connections are not subject to tension loads. The AISC states that "bolts in connections not subject to tension loads, where slip can be permitted and where loosening or fatigue due to vibration or load fluctuations are not design considerations, need only be tightened to the snug tight of an impact wrench or the full effort of a worker with an ordinary spud wrench that brings the connected plies into firm contact." (Manual of Steel Construction, Load & Resistance Factor Design, Volume 1, Second edition, AISC Manual of Steel Construction, 16th edition). Therefore all bolted connections in Steel King Rack are to be tightened to the snug tight condition defined above.

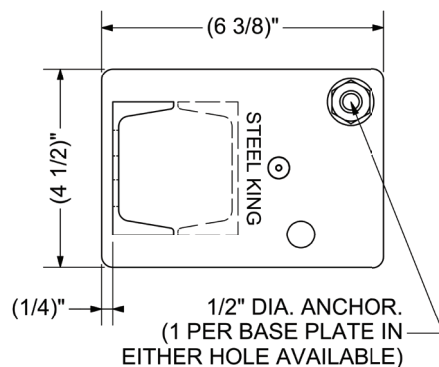
Step 5*: Shim, Plumb, and Anchor

- A. Make sure that the bay is square and plumb before anchoring.

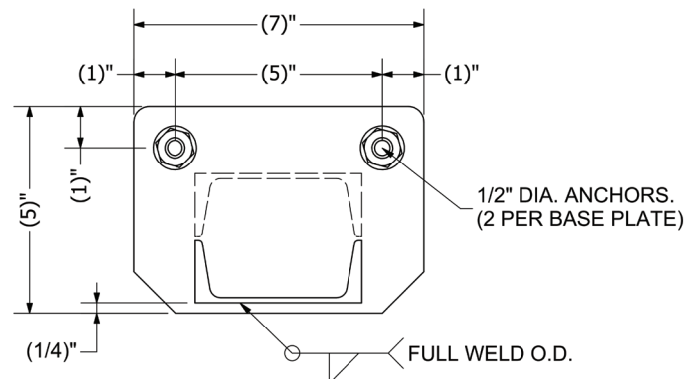
PLUMB NOTE: It is very important that the rack structure be installed in a plumb, level, and square condition. Since few floors are perfectly flat, shimming of the racks is frequently required. A four foot long carpenter's level is a good choice for checking level and plumb conditions on storage racks of average proportions. A vertical tolerance of 1/2" in 10 feet or less for unloaded racking (or other as specified on Steel King installation drawings) is generally acceptable.

- B. Use shims as required. Shims are available in 1/8" and 1/16" thicknesses.
- C. The first bay of each row must be anchored to the floor to insure proper placement of the rack to the floor layout.
- D. Each upright frame has 2 footplates, with anchor holes for floor anchoring.

PLEASE NOTE: Only 1 anchor is required for the F03 Base Plate. The second hole can be used in case interference is encountered when drilling the floor. Two anchors are required for the F04 base plate as shown below.



(F03) BASE PLATE
4 1/2" X 6 3/8" X 1/4"
1/8" SHIM: SHIM.125-03



(F04) BASE PLATE
5" X 7" X 3/8": F04 (STK)
1/8" SHIM: SHIM.125-04 (STK)

ANCHORING NOTES:

- Every column of each rack frame must be anchored to an adequate concrete floor. The normal anchor connection is one 1/2" diameter x 3-3/4" concrete expansion anchor per column, or as indicated on the Steel King installation drawings.
- All anchors must be torqued per Manufacturer's specifications.
- Anchor bolts are not included with Steel King rack systems unless specifically detailed on the Bill of Materials.
- Since anchor bolts vary in strength, if you are purchasing your own anchor bolts, contact Steel King or your Steel King Distributor for minimum anchor specifications for your installation.

ANCHORING NOTES (continued):

- Since concrete floors vary greatly in design and load carrying capacity, Steel King cannot guarantee that a particular concrete slab is adequate to support a particular rack installation. The design of the slab-on-grade is the responsibility of others. Unless told otherwise, Steel King assumes that the slab-on-grade can adequately support the loads imposed on it by the fully-loaded rack structure(s).

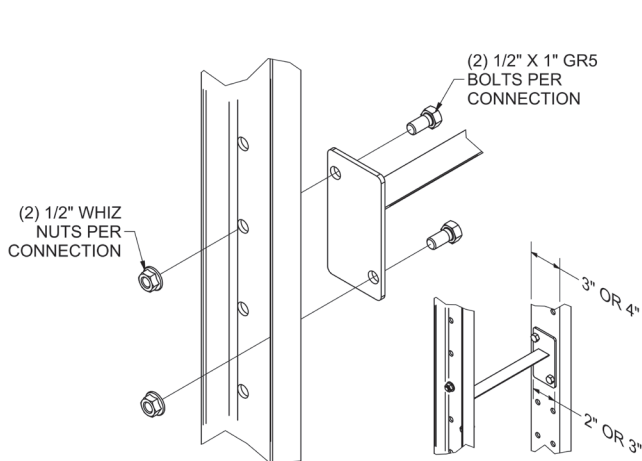
* Note: The use of handheld and stand-mounted drills, impact and rotary hammer drills, and similar tools used to drill holes in concrete, masonry, or other silica containing materials can generate respirable crystalline silica dust. Read this OSHA Fact Sheet to learn how to minimize the amount of airborne dust when using handheld and stand-mounted drills. https://www.osha.gov/sites/default/files/publications/OSHA_FS-3630.pdf

Step 6: Install Remaining Bays

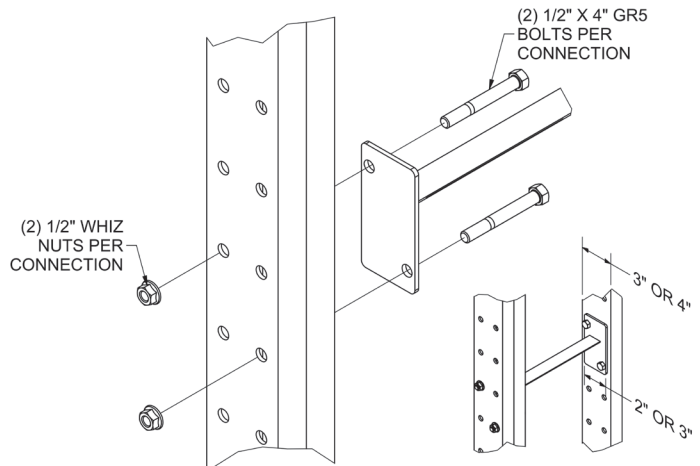
- A. Follow the same procedure as Step 4 using common upright frames for each bay.

Step 7: Accessories

- A. When row spacers are required, each component must have (2) 1/2" diameter x 1" bolts and bolts per connection.

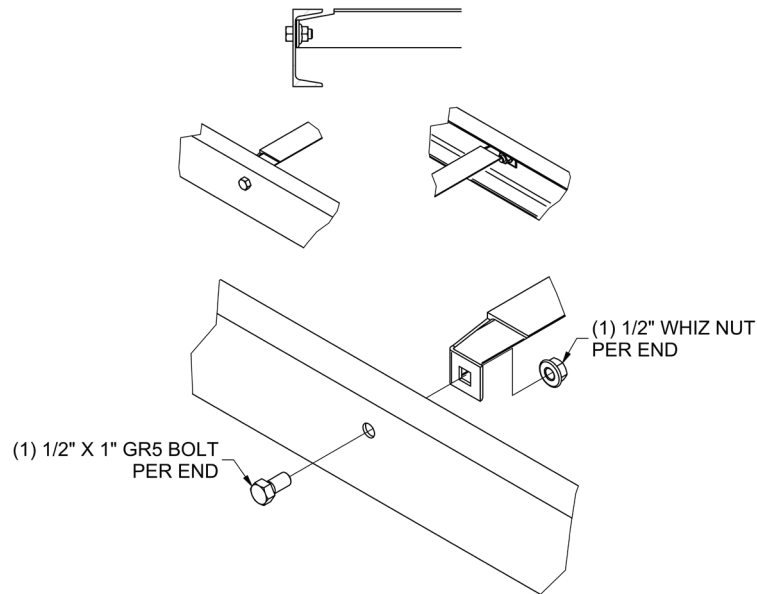


SK3000 Connection Detail
BOLTED CONNECTION OF
ROW SPACER (RSC) TO
CHANNEL UPRIGHT (BCF)
(Single Column, Single Row Spacer)



SK3000 Connection Detail
BOLTED CONNECTION OF
ROW SPACER (RSC) TO
CHANNEL UPRIGHT (BCF)
(Reinforced Column, Single Row Spacer)

- B. The angle pallet supports are installed with 2 nuts and bolts, one on each end.



CHANNEL BEAM ACCESSORY
BOLTED CONNECTION OF
PALLET SUPPORT (PSB)
TO CHANNEL BEAM (CB7)

Note: We recommend that the nuts and bolts for these accessories are not fully tightened until the rack is plumb, level and square. Torque the bolts to 60 ft-lbs.

- C. Tighten all accessory nuts and bolts (row spacers and pallet supports) and double check anchor connections to complete the installation process.

CAPACITY PLATE NOTE: Installation of "capacity plates" is strongly recommended. These plates should identify the characteristics for which the rack was designed, such as load size, load weight, and rack configuration. These plates are very useful for communicating safe loading information to both present and future users. Several signs should be prominently located for easy visibility, and be permanently affixed to the rack structure. Appropriate signs can be obtained locally, through industrial mail order catalogs, or from Steel King or your Steel King Distributor.

Step 8: Clean Up

- A. Dispose of all dunnage, strapping and debris. Sweep the floor with a broom if necessary.

Have questions about pallet racks? Answers to Frequently Asked Questions can be found here: www.mhia.org/industrygroups/rmi/faq



Rack and Systems

The ultimate in design and execution, customized for your space and requirements. Built tough, forklift-friendly, and ready to store any inventory.

- > Pallet Racks
- > Cantilever Racks
- > Drive-In / Drive-Through Racks
- > Flow Rack / Pushback Racks
- > Pick Module Racks
- > Specialty Racks
- > Portable Racks
- > Custom Shipping Racks
- > Support Structures / Work Platforms

Safety Products

Steel King's safety products extend the life of your facility and have been setting industry standards in safety, protecting your people, product, and plant.

- > Guard Rails
- > Safety Gates
- > Pallet Load Stops and Supports
- > Lift-Out Rails
- > Rub Rails

Containers

Steel King manufactures a full line of industrial storage containers for heavy-duty stackable storage, scrap handling, line assembly dispensary, parts distribution, and other uses. We offer essential, industry-standard designs as well as fully-custom containers suited to your storage requirements.

- > Transportable Containers
- > Bulk Containers
- > Collapsible Containers
- > Work in Progress (WIP) Containers
- > Steel Pallets

If you have any further questions, contact your local Steel King Representative for customer assistance or contact Steel King Industries directly at (800) 826-0203.

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