



SK2500[®]

BOLTED PALLET RACK

ASSEMBLY AND INSTALL GUIDE



Assembly Instructions



Steel King Industries recommends that this product be assembled only by qualified personnel, experienced in this 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, possibly 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..

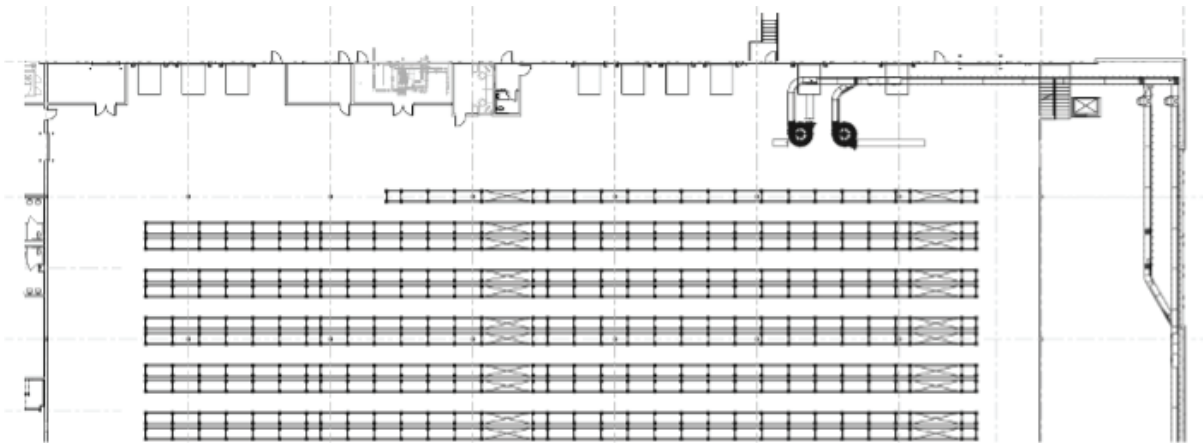
Step 2: Check the Area

- 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 rack.

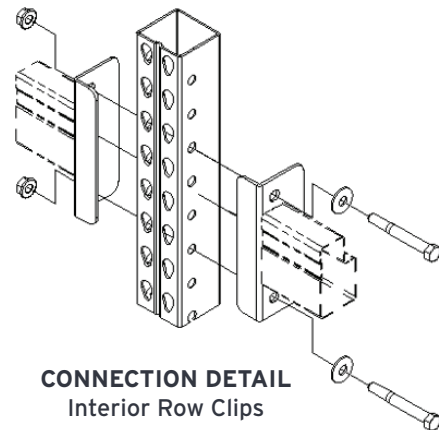
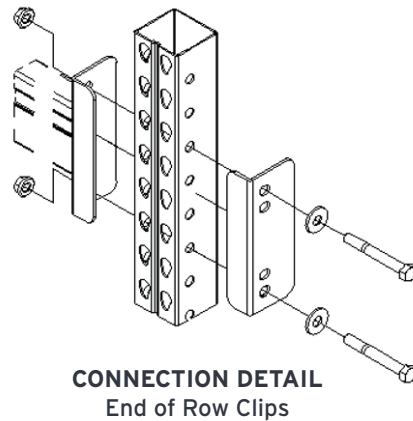


Step 4: Assembly First Bay

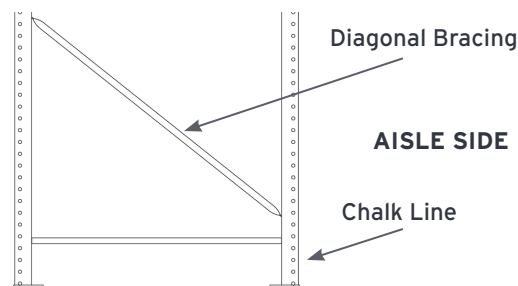
RECOMMENDED TOOLS:

- Lift Truck
- A. Stand up two upright frames and separate by the length of the load beams.
 - B. Mark the desired height of the first load beams on the face of each upright frame.
 - C. Bolt one beam to the upright frame using the hardware provided. Bolts are shared by beams on either side of the upright frame be certain to include both when attaching beams to frames not on the end-of-row. End of row clips require special connection with an end-plate.

Step 4: Assembly First Bay (Cont.)



- D. All hardware is SAE Grade 5 minimum unless noted otherwise. All nuts are to be serrated flange self-locking type unless noted otherwise. For through-bolted connections passing through hollow/tubular members:
- > Snug-Tightened Joint - tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench to bring the plies into firm contact. The nuts should not be able to be removed without the use of the wrench.
 - > Tightening is to be done by turning the bolts and not buying the serrated nuts when serrated nuts are used.
 - > Deformation of the members due to tightening shall be no more than 1/16".
- E. Move and align the bay so that the front edge of upright bases is on the chalk line.



Upright frames should be positioned so that the lowest diagonal bracing is pointed downward toward aisle side.

- F. Install subsequent beam levels from the lowest level to the highest level.
Note: It is recommended that a lift truck be used to stand and position frames.

Step 5: Shim, Plumb, and Anchor

RECOMMENDED TOOLS:

- Level
- Air Compressor
- 3/4" Drive Impacts or Equivalent

Step 5: Shim, Plumb, and Anchor (Cont.)

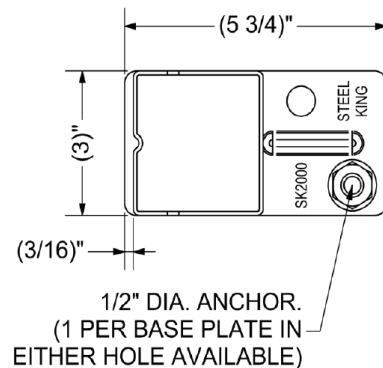
- A. Make sure that the bay is square and plumb before anchoring.

PLUMB NOTE: It is very important that the rack structure be installed in a plumb, level, and square condition. Since a 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 1/4" 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.

NOTE: Anchor(s) to be installed as shown below or shown otherwise on installation drawings.

NON-SEISMIC ANCHORING DIAGRAM

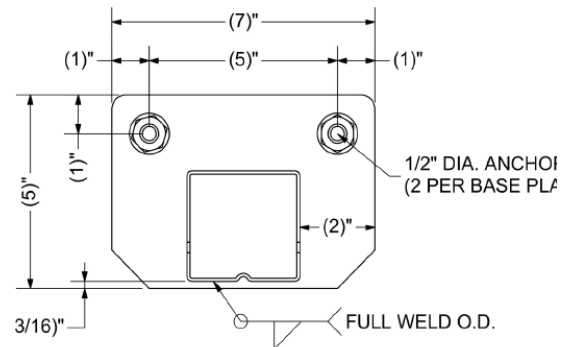


(F01) BASE PLATE
3" X 5 3/4" - 10 Ga.

3" x 3" or 4" x 3" Upright Column
5" x 7" x 3/8" Base Plate or
5" x 7" x 1/2" Base Plate
(2) 1/2" x 4-1/2" I.C.C. Approved
Anchors per Base Plate

3" x 1.625" or 3" x 3" Upright Column
3" x 5-3/4" Base Plate
(1) 1/2" x 4-1/2" I.C.C. Approved
Anchors per Base Plate

SEISMIC ANCHORING DIAGRAM



(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 a 1/2" dia. x 3-3/4" concrete expansion anchor per column base plate, or as indicated on the Steel King installation drawings.
- All anchors must be torqued per manufacturer's specifications.
- Seismic uprights, those with 5" x 7" base plate, utilize (2) 1/2" dia. x 4-1/2" I.C.C. approved concrete expansion anchors per column base plate.

Step 5: Shim, Plumb, and Anchor (Cont.)

- Anchor bolts are not included with Steel King rack systems unless specifically detailed on the Bill of Material.
- Since anchor bolts vary in strength, if you are purchasing your own anchor bolts, contact Steel King Industries or your Steel King Distributor for minimum anchor specifications for your installation.
- 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 characteristics of the slab should be obtained from the building architect or engineer before the racks are specified, so that the rack supplier can design the rack to suit the slab.

ANCHORING 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

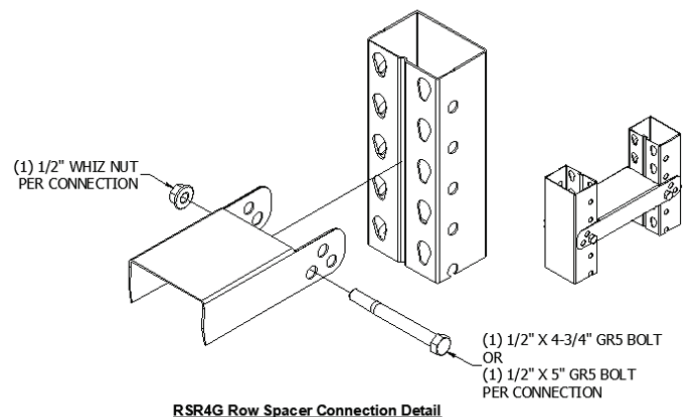
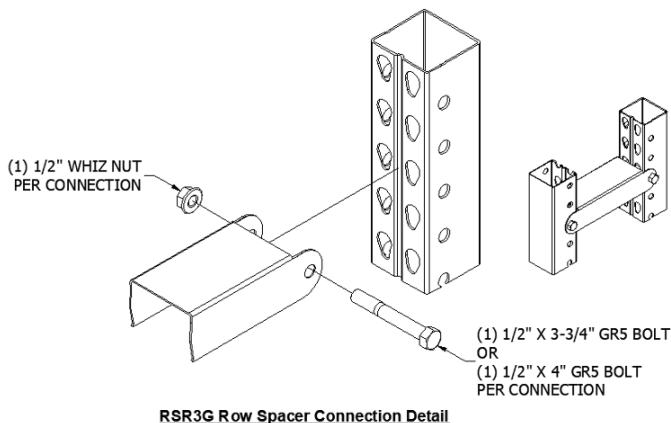
- A. Follow the same procedure as Step 4 using common upright frames for each bay.

Step 7: Accessories

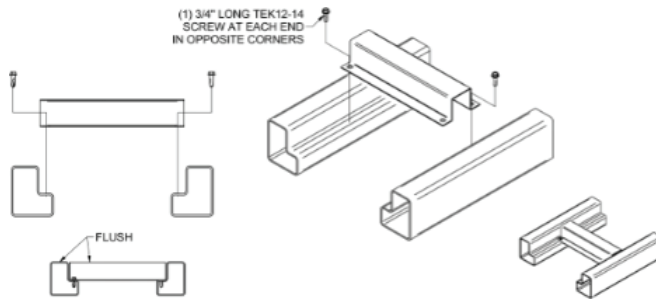
- A. When row spacers are required, for B sized columns each component must have (1) 1/2" X 3.75" bolt or (1) 1/2" X 4" bolt and 1/2" nut per connection, for C sized columns each component must have (1) 1/2" X 4.75" bolt or (1) 1/2" X 5" bolt and 1/2" nut per connection.
- B. Use a minimum of (2) row spacers and to space no more than 96" apart. Vertical placement of row spacers should be in line with upright column's horizontal bracings

PLEASE NOTE: That row spacers need to be in line with horizontal braces of the upright.

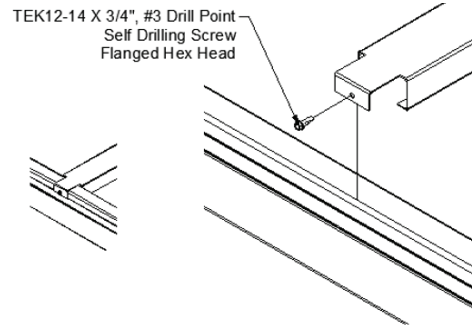
- C. A minimum of two (2) Tek screws - in opposite corners - are required to secure hat shaped pallet supports
- D. Two (2) Tek screws are required to secure waterfall pallet supports.



Step 7: Accessories (continued)



TEK SCREWED CONNECTION OF HAT-SHAPED PALLET SUPPORT (PSH) TO STEP BEAM (SBR)

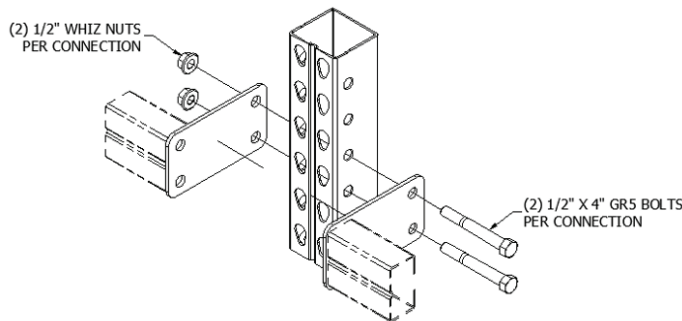


**STEP BEAM CONNECTION DETAIL
PSW-BTW PALLET SUPPORTS - BEAM TIE**

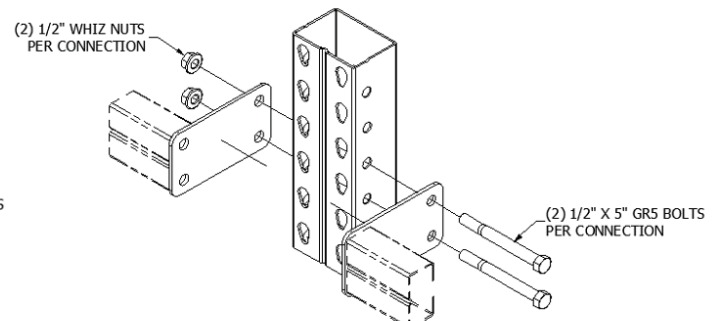
TEK SCREWED CONNECTION OF WATERFALL PALLET SUPPORT (PSW) TO STEP BEAM (SBR)

- E. Tighten all accessory nuts, bolts (row spacers) and double check anchor connections to complete the installation process.
- F. Stop beams to be through-bolted to the side using (2) 1/2" X 4" GR 5 bolts for 3" wide upright posts and (2) 1/2" x 5" GR 5 bolts for 4" wide upright posts.

NOTE: The outer side at the end-of-row posts require a flat washer under the bolt head or whiz nut. Tightening is to be done by turning the bolts and not by turning the serrated nuts when serrated nuts are used. Deformation of the member by tightening shall be no more than 1/16"



**PLT2 LOAD STOP CONNECTION DETAIL
PLT2 Load Stop to 3" A or B Roll-Formed Posts**



**PLT2 LOAD STOP CONNECTION DETAIL
PLT2 Load Stop to 4" A or B Roll-Formed Posts**

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.



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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