

AlphaRac

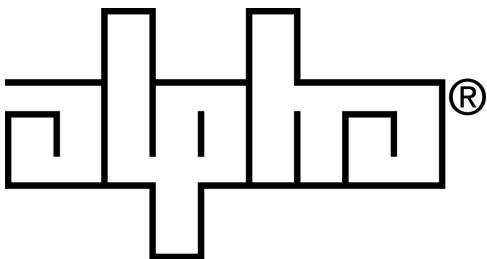
Battery Racks and Cabinets

Power



Assembly Instructions Battery Racks

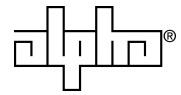
Effective: May 2008



Alpha Industrial Power Inc

Power

Alpha Industrial Power Inc



Battery Rack Assembly Instructions



Note:

Installer is cautioned to review the drawings and illustrations contained in this manual before proceeding. If there are questions regarding the safe operation of the installation of the racks, please contact Alpha Industrial Power or your nearest Alpha representative.



Note:

Alpha Industrial Power shall not be held liable for any damage or injury involving it's enclosures, power supplies, generators, batteries, or other hardware if used or operated in any manner or subject to any condition not consistent with its intended purpose, or is installed or operated in an unapproved manner, or improperly maintained.

Contacting Alpha Industrial Power:

www.alpha.com

OR

For general product information and customer service (8AM to 5PM, Eastern Time) call

1-800-996-6104

For complete technical support, call

1-800-996-6104

1.0 Introduction

These instructions detail the proper assembly of Alpha battery racks.



Note:

Use a crew of at least two persons trained in handling, installing, operating, and maintaining batteries and battery systems to assemble the battery racks. Rack components must be assembled and secured on-site in accordance with these assembly instructions and all applicable codes and laws.

During assembly procedure, do not tighten the hardware until the final step. This will prevent hole alignment problems due to tolerance stacking. Once the battery rack is assembled, tighten all the hardware to its specified torque.

1.1 Tools required:

- Chalk line
- 13mm wrench
- Torque wrench (0-250 in-lbs)
- 13mm socket
- Concrete drill with bit for anchor bolts (when applicable)
- Level
- Multimeter (grounding verification)
- Measuring Tape



Note:

Inspect contents upon receipt. If items are damaged or missing, immediately contact Alpha Industrial Power and the shipping company. Most shipping companies have only a short claim period.

Do not proceed with the installation of the battery rack if parts are missing or damaged.

1.0 Introduction, continued

1.1 Parts List

Please refer to the bill of material enclosed with each rack. Each battery rack is unique and will contain different parts for each configuration

1.2 Pre-installation



Note:

The following items must be addressed prior to assembly and installation.

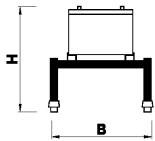
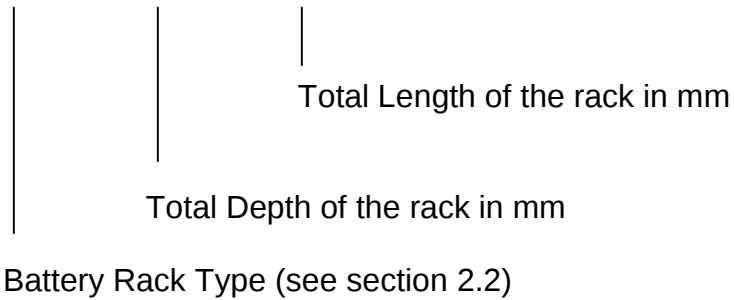
Installation Considerations	
Anchoring	To provide stability and safety, securely anchor all battery racks to the floor in accordance with applicable codes
Codes	Ensure observance of all applicable codes.
Grounding	Ground the rack in accordance with all applicable codes.
Location	Locate the racks in a clean, cool, dry place where they will not be affected by sources of heat or sunlight. Adequate ventilation must be provided. DO NOT install the rack in an airtight enclosure or room with no ventilation. The floor must be level, and capable of supporting the weight of the battery rack and the batteries, in addition to any other equipment.
Battery Installation Procedure	DO NOT install batteries until the rack has been properly and completely installed. Know the polarities and terminal placement of each battery and coordinate its location prior to installation. Unless otherwise instructed, begin the installation of the batteries at the center of the bottom row and work out to each end. Install the batteries on the lowest shelves first and work upward. If necessary, use only a small amount of water or unscented talcum powder to help reduce friction on the shelving. DO NOT use any lubricating agent to help slide batteries into place.
Seismic/Earthquake Protected Design	Perform in accordance with applicable local, state and national codes.
Maintenance	Make periodic inspections of the entire rack for any signs of acid corrosion. If found, the acid must be neutralized. If left unattended, the corrosion could weaken areas of the rack. Periodically check to see if the rack remains properly grounded and anchored.

2.0 Assembly Procedure

2.1 Determine the type of battery rack you are installing.

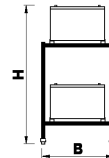
Every battery rack will be marked with the rack type, depth of the rack and the length of the battery rack.

2P – 350 / 2700



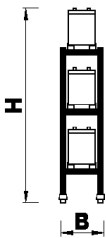
1P ~ 1 Battery Row

Depths(B): 250; 350; 450; 550; 650



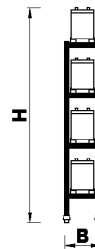
2P ~ 2 Tier – single row

Depths(B): 350; 500; 550; 650



3P ~ 3 Tier – single row

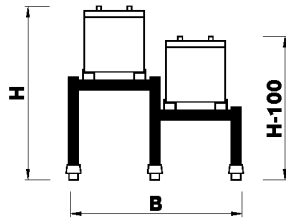
Depths(B): 350; 650



4P ~ 4 Tier – single row

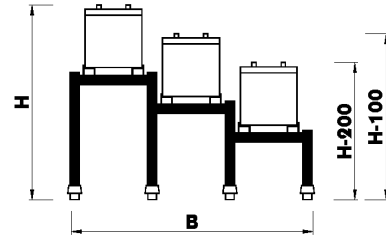
Depths(B): 500

2.1 Rack Type continued



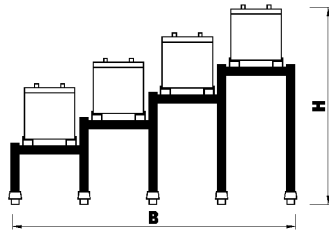
2G ~ 2 Step

Depths(B): 470; 570; 670; 870



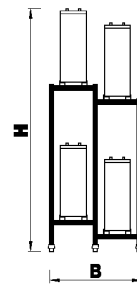
3G ~ 3 Step

Depths(B): 690; 990; 1260



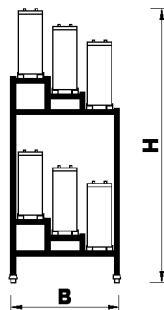
4G ~ 4 Step

Depths(B): 1110



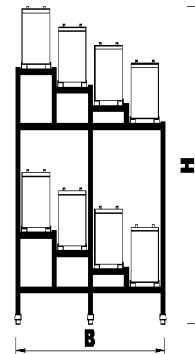
2P - 2G ~ 2 Tier - 2 Step

Depths(B): 470; 670



2P - 3G ~ 2 Tier - 3 Step

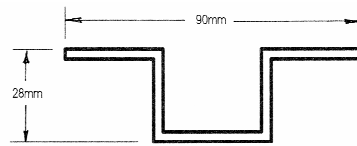
Depths(B): 670; 690



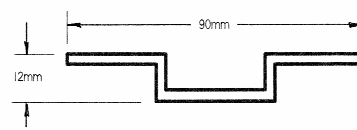
2P - 4G ~ 2 Tier - 4 Step

Depths(B): 1110

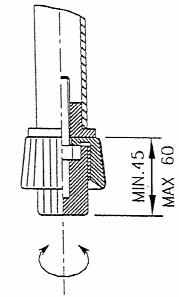
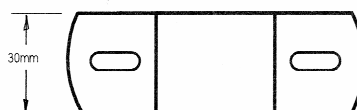
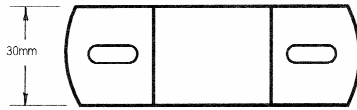
2.2 Identify the parts required to construct the battery rack.



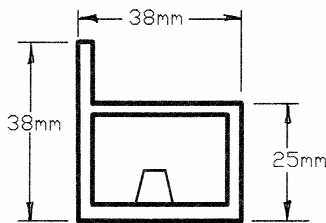
Angle Clip "L"



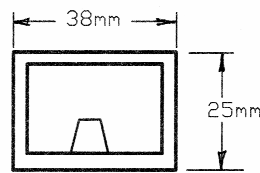
Angle Clip "D"



Support Foot



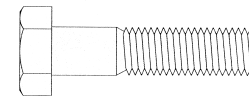
Outside Rail



Mid-Support Rail

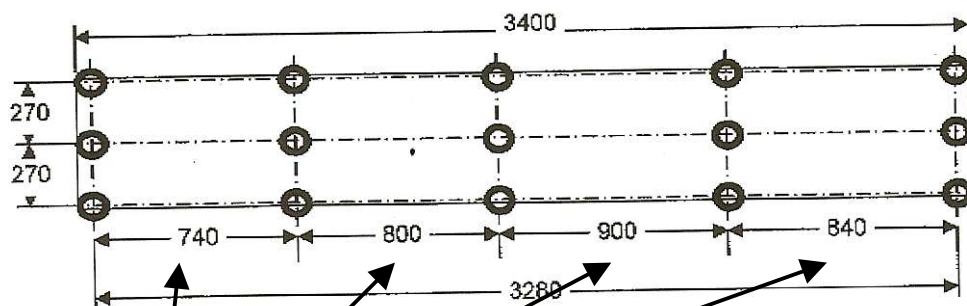


M8 Hex Nut



M8 x 20 Bolt

2.3 Utilizing the footing layout diagram assemble the frames.



NOTE: Frames may or may not be equally spaced

2.4 Assemble the rails to the frame

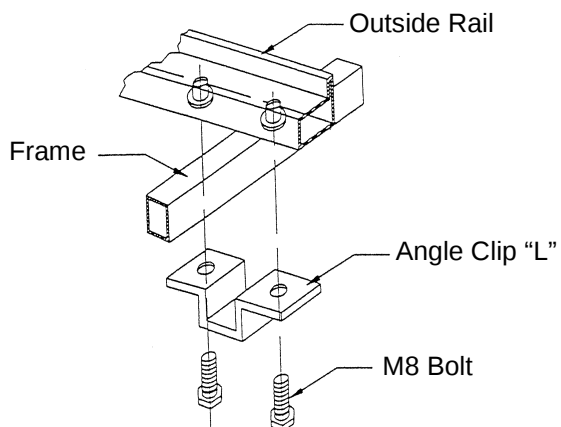
Figure 2.4.1

Figure 2.4.2

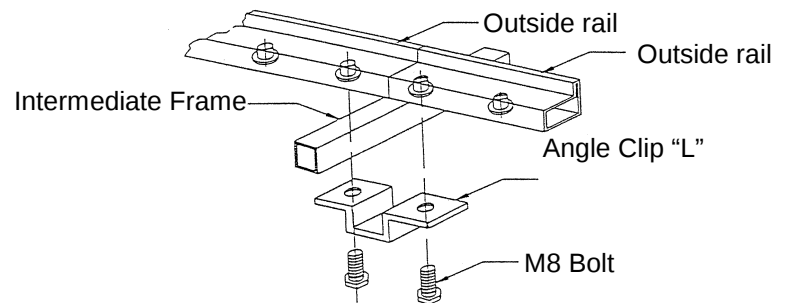
Figure 2.4.3

Figure 2.4.4

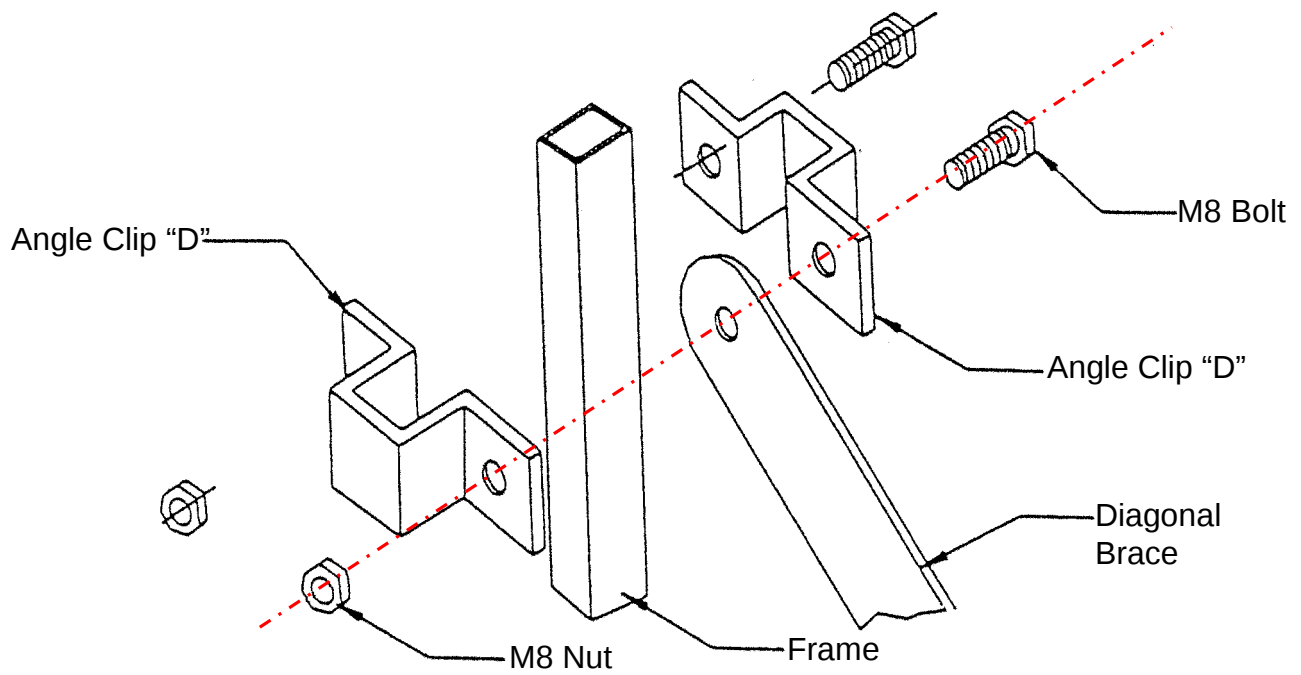
2.4.1 Attach the rail to the frame with one angle clip "L" and 2 each M8 Bolts



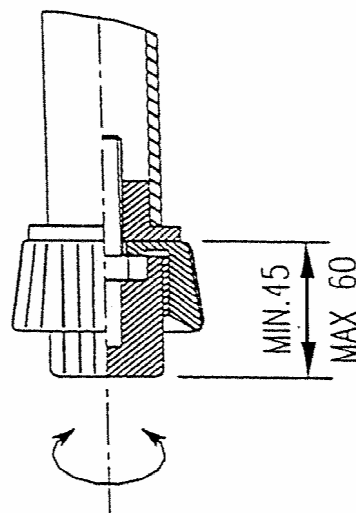
2.4.2 Attach the rail to the intermediate frame with one angle clip "L" & 2 each M8 bolts



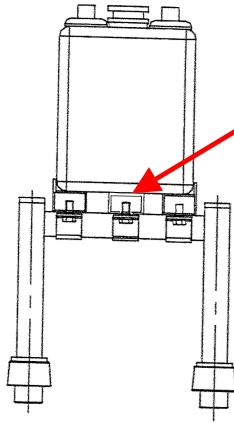
2.4.3 Attach the diagonal cross rack bracing (All assemblies will not have bracing)



2.4.4 Level Rack by adjusting the insulated foot.



2.4.5 Installation of middle support rail (if required)



One or more mid-support rails may be required. Space evenly between outside rails. Install procedure same as outside rails. (2.4.1 & 2.4.2)

2.4.6 At this time, verify or torque all hardware to 75 in-lbs (8Nm)

2.4 Installation is now complete for **Standard** battery racks and the rack is ready for battery installation. Follow the battery layout provided for you installation to install the battery system.



Note:

For Seismic battery rack installation continue to section 3.0

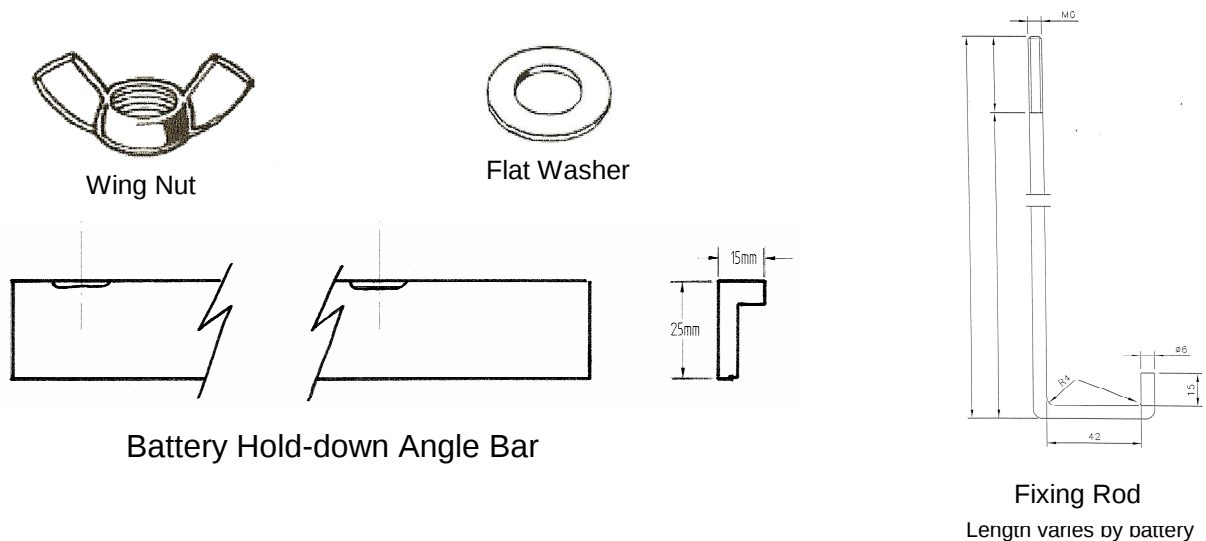
3.0 Seismic Battery Hardware Installation



Note:

For Seismic battery rack installation, perform steps 2.4.1 through 2.4.6. On seismic racks the insulated foot is replaced with a floor flange for bolting the battery rack to the floor. After battery installation follow seismic battery installation instructions.

3.1 Identify the individual components of the seismic installation.



3.2 Some racks may need the installation of the seismic flange to the frame (see figure 3.2.A). With the beveled hole facing down install with the flat head bolt to frame leg. Install the M8 anchor bolts into the slots on the floor foot flange (figure 3.2.B). Pre-drill the anchor holes per the footing layout in section 2.3. When anchor bolts supplied by factory – torque the bolts to 221 in-lbs (25Nm) into concrete floor. For all other surfaces please refer to all local and state building codes.

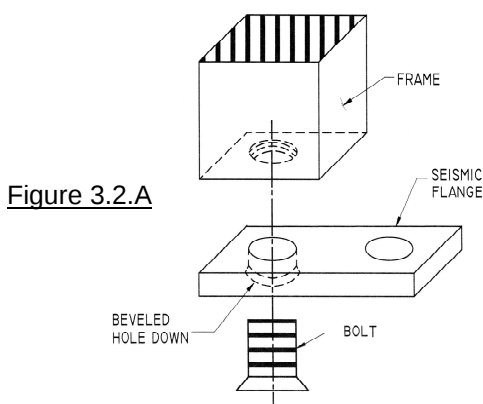


Figure 3.2.A

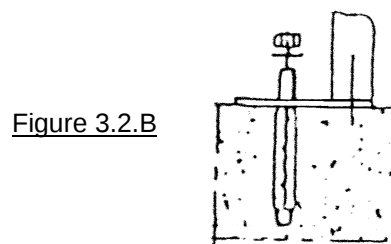


Figure 3.2.B

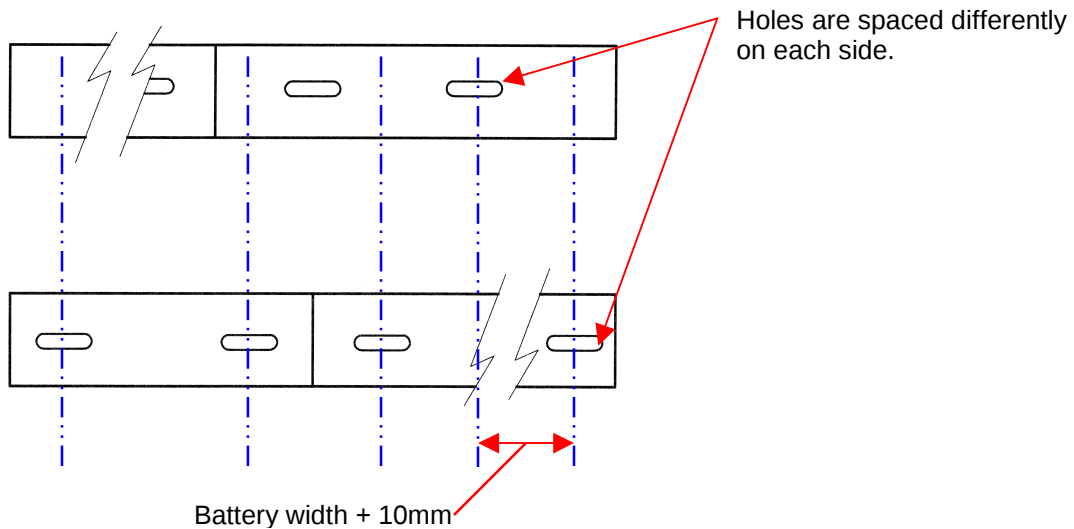
3.3 Install the batteries onto the racks.



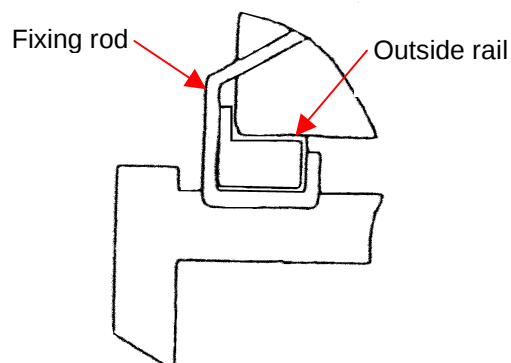
Note:

When installing the batteries leave a 10mm spacing between cells to accommodate the fixing rods during the seismic hardware installation.

3.4 Layout the battery hold-down angle bars to verify installation position



3.5 Position the hold-down angle bars onto the batteries. Align the fixing rods with the holes and hook the rod under the outside rail.



3.6 Feed the fixing rod through the holes in the hold-down angle bar. Insert washer and install wing nut until hand tight as shown in figure 3.6.A. Fixing rods are installed in opposite directions on every-other battery spacing (see figure 3.6.B & 3.6.C)

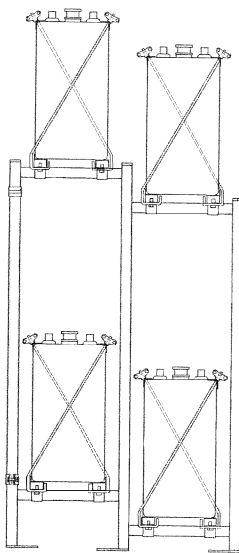
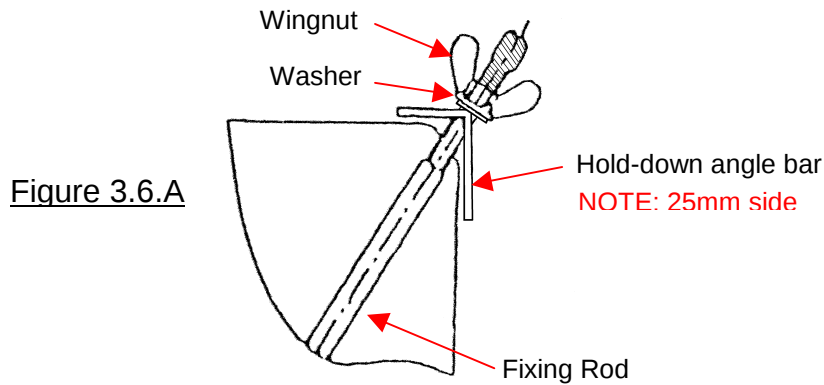


Figure 3.6.B

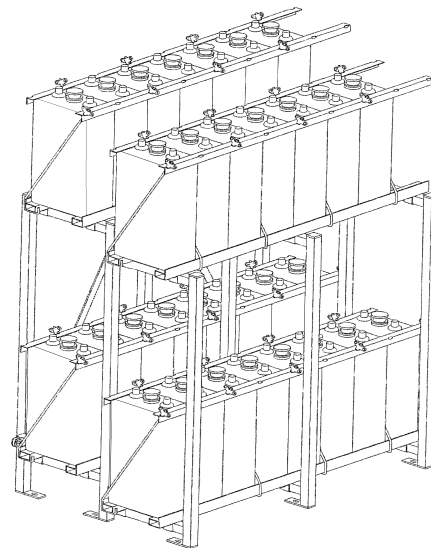


Figure 3.6.C

3.7 Installation is now complete for **Seismic** battery racks.



Note:

Manufacturer shall not be liable for, and user shall indemnify and save manufacturer harmless from any and all claims and liabilities arising out of the use, maintenance, transportation, or installation of any equipment warranted hereunder. The foregoing limited warranty is in lieu of all warranties express or implied, including any warranty of merchantability or fitness for a particular purpose. Manufacturer shall not have any liability for any special, incidental, indirect, or consequential damages.

This limited warranty applies only to the original purchaser (user) of the equipment, is non-transferable, and is governed by and construed under the Washington State laws.

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