Wall/Floor Fixings For Your Racking – A Brief Guide

For Hand-Load Shelving Systems

The height-to-depth ratio of your shelving or racking system plays an important role in determining how sturdy the storage structure is.

If the ratio is low enough, the racking can be free-standing but if the ratio is too high then steps must be taken to anchor the storage units to the floor and/or adjacent walls or structures.

Height-To-Depth Ratios Explained

The ratio between height and depth simply compares the height of the top-most loaded shelf with the depth (front-to-back) of the shelving bay. To calculate the ratio all you need to do is divide the height of the top shelf by the depth.

For example: A typical medium duty shelving unit might have a height to the top shelf of 1830mm, this value is then divided by the depth. In this example case the rack has a depth 480mm

1830 divided by 480 = 3.812 which can also be written as 3.821:1

Fixing Down Your Racking Bays

Now that you have the ratio calculated you need to compare this with the generally accepted allowances for hand-load shelving systems as below:

For shelving systems where the height-to-depth ratio is 4:1 or less, those units can be free-standing.

When the ratio is above 4:1 but not exceeding 6:1 the racking should be ideally be fixed to the ground via its base plate, foot or mounting hardware. Should the ground not be suitable for fixing down into, the units can also be fixed to an adjacent wall or other structure. In certain circumstances 'aisle-ties' can be used to connect bays to provide extra stability if ground/wall anchoring is an issue.

For back-to-back racking units (when bolted together), these can be counted as one single unit and you can use the overall depth of the combined racks to calculate the shelving safety ratio.

Extra safety measures will be needed if the height-to-depth ratio exceeds 6:1, in these instances and where fixing down is problematic please contact the supplier/manufacturer for guidance on the best way to safely secure the racking.