

POINT LOADINGS EXPLAINED

What you need to know before installing Longspan or Stockrax shelving



*More than just shelving...
Smarter storage for a more productive world*

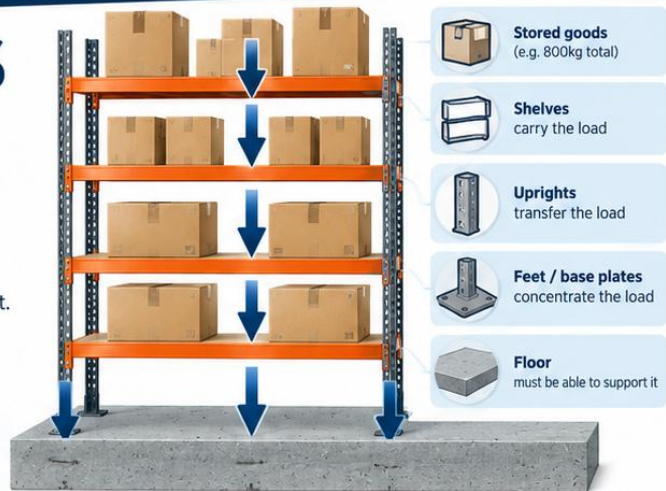
POINT LOADINGS EXPLAINED

What you need to know before installing Longspan or Stockrax shelving

A shelving system's load capacity is only part of the equation. The building floor must also be able to support the weight, especially where loads are concentrated through the shelving feet.

WHAT IS A POINT LOAD?

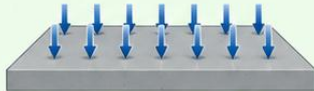
A point load (or concentrated load) is a force applied to a relatively small area. With shelving, the weight of the stored goods is transferred through the shelves and uprights, and ultimately through the feet or base plates onto the floor.



POINT LOAD vs UNIFORMLY DISTRIBUTED LOAD (UDL)

UNIFORMLY DISTRIBUTED LOAD (UDL)

Weight spread evenly across an area.



For example: 800kg spread over 10m²
= 80kg/m²

POINT LOAD

Weight concentrated in a small area.



For example: 800kg through 4 shelving feet
= 200kg on each foot (concentrated load)

DON'T CONFUSE THESE THREE THINGS



SHELF LOAD

► The maximum weight an individual shelf is designed to carry.



BAY LOAD

► The total load the shelving structure is designed to carry across its levels.



FLOOR LOAD

► The load the building floor can safely support, including how the load is transferred into it.

DIFFERENT FLOORS BEHAVE DIFFERENTLY

The type, construction and condition of the floor all affect how point loads are managed.

CONCRETE FLOOR



- Generally suitable for shelving
- Thickness, reinforcement and condition may affect capacity
- Check for services below the slab

MEZZANINE FLOOR



- Designed for specific loads (usually kg/m²)
- Check concentrated loads from shelving feet
- Provide foot plate sizes and locations
- Avoid overloading – follow manufacturer's guidance

RAISED ACCESS FLOOR



- Load must be assessed carefully
- Visible surface is not always the structural element
- May require load spreaders

OTHER FLOORS



- Consider uneven floors, slopes, thresholds and expansion joints
- Check for damaged or weakened areas
- Always assess the specific environment

SHELVING CONFIGURATION ALSO MATTERS

The number of uprights, feet, bay width, shelf capacity and overall configuration all influence how the load is transferred to the floor.



Longspan Shelving

Typically fewer uprights, so higher loads per foot.



Stockrax Shelving

More uprights and feet, which can help distribute loads (subject to configuration).

INSTALLING ON A MEZZANINE?



- Confirm the mezzanine's specified load capacity (e.g. kg/m²)
- Provide details of shelving loads and foot plate sizes
- Consider both overall distributed load and concentrated loads
- Follow the mezzanine manufacturer's guidance

WHAT INFORMATION SHOULD YOU PROVIDE?



- What are you storing?
- How heavy is it?
- How many shelves and bays?
- Ground floor or mezzanine?
- What type of floor?
- Is there existing storage?
- Will trolleys or other equipment be used?
- Are there restrictions on where the shelving can go?
- Any other relevant information?

OUR ADVICE



The more we know about your environment and intended use, the better we can help you select the right shelving solution and ensure a safe, efficient installation.

1. What is a point load?

A point load (or concentrated load) is a force applied to a relatively small area. With shelving, the weight of stored goods is transferred through the shelves and uprights and ultimately through the shelving feet or base plates onto the floor.

2. Point load vs uniformly distributed load (UDL)

A uniformly distributed load spreads weight across an area, whereas a point load concentrates force into a smaller area. For example, 800kg spread evenly over 10m² is 80kg/m², while 800kg transferred through four shelving feet represents approximately 200kg at each foot. These are different loading situations and should not be treated as interchangeable.

3. Don't confuse these three things

Shelf load: The maximum weight an individual shelf is designed to carry.

Bay load: The total load the shelving structure is designed to carry across its levels.

Floor load: The load the building/floor structure can safely support, including how the load is transferred into it.

4. Why the shelving load rating isn't the whole story

A shelving specification may state a shelf or bay capacity, but that does not by itself confirm that the building floor can safely support the installation. Consider the total stored load, number of levels and bays, weight distribution, number and size of shelving feet/base plates, floor construction and condition, and where the shelving will be positioned.

5. Different floors behave differently

Concrete floor: Consider slab thickness, reinforcement, condition and what is beneath the slab. Do not assume every concrete floor has the same capacity.

Mezzanine floor: Check the mezzanine against the intended storage loads and concentrated loads from shelving feet. Foot-plate sizes and locations may be needed by the structural designer or mezzanine supplier.

Raised access floor: The visible surface may not be the structural element carrying the load. Loading should be assessed carefully and may require a suitable load-spreading solution.

Other floors: Consider uneven floors, slopes, thresholds, expansion joints, damaged areas and other site-specific conditions.

6. Does the shelving configuration affect point loading?

Yes. The number and position of uprights and feet, bay width, shelf capacity, number of levels and overall configuration can influence how the load is transferred to the floor. Longspan and Stockrax systems can therefore produce different loading arrangements depending on the chosen configuration. Always consider the actual manufacturer's specification and installation arrangement.

7. Installing shelving on a mezzanine

A shelving system may be capable of carrying the required stock load while the mezzanine still needs to be designed for the loads being imposed upon it. Consider overall distributed loading and concentrated loads at shelving feet, together with decking, beams, columns and the structural load path. Follow the mezzanine manufacturer's or structural engineer's requirements and do not exceed the specified safe working load.

8. What information should you provide before choosing shelving?

- What are you storing and what is the approximate weight?
- How many shelves and bays are required?
- What shelf and overall bay capacities are needed?
- Is the shelving on a ground floor, upper floor or mezzanine?

- What type of floor is it and is there any existing storage or other loading?
- Will trolleys, handling equipment or other equipment be used?
- Are there restrictions on where the shelving can be positioned?
- Are there uneven areas, thresholds, joints or other floor conditions to consider?

9. Storage First advice

The more we know about your environment and intended use, the better we can help you select an appropriate shelving solution. Where floor or structural capacity is uncertain, obtain suitable advice from the building owner, structural engineer, mezzanine supplier or other competent person before installation.

DISCLAIMER

This guide is provided for general information only and is not a structural engineering assessment or a substitute for site-specific professional advice. Storage First cannot determine the structural capacity or safe working load of a particular floor, mezzanine, slab or building from this guide. Actual shelving capacities and installation requirements must be confirmed against the relevant manufacturer's specifications and the conditions at the installation site. Where there is any doubt about floor capacity, point loading, mezzanine loading or structural integrity, obtain advice from a suitably qualified structural engineer, building owner or other competent professional before installation. Do not exceed any stated safe working load.

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