



Information for installation of racking/shelving structures

INTENT:

To inform property owners, designers and contractors of The City of Delta building permit requirements for the installation of racking/shelving structures used for storage that are over 2.6 m (8'6") in height.

BACKGROUND:

Racking/shelving structures designed to the current BC Building Code are often installed in existing buildings built to earlier Codes. The geotechnical reports for such buildings do not provide information of the ground response spectrum requirements for the design of the structure in accordance to current BC Building Code.

NFPA 13 and the BC Fire Code impose restrictions on the storage of commodities based on the hazard classification of the commodities, storage configuration and level of sprinkler protection provided.

The following must be submitted with your completed building permit application form:

- I. Floor plan showing the layout of the racking including aisle width, location of exits.
- II. Design of racking including all dimensions, size and material of all structural members.
- III. Structural drawings including all design criteria such as loading of the commodities, site classification, acceleration and velocity based site coefficients F_a and F_v (seismic ground motion values).

A letter from the Fire Protection Engineer or qualified sprinkler designer is required confirming the adequacy of the existing sprinklers system, or specifying the requirements for any required upgrades. The letter should include:

- I. Type of commodity stored including hazard classification, i.e. Class I, II, III, or IV, and the total height of commodity on the racks.
- II. Summary of the relevant requirements of BC Building Code, BC Fire Code, NFPA 13 and any applicable standards referenced in NFPA 13.
- III. If the building has sprinklers the type of sprinkler system, including classification of occupancy, i.e. light hazard, ordinary hazard, extra hazard or special occupancy hazard.
- IV. If applicable, the design of any sprinkler system modification, new system, in-rack sprinklers, fire alarm, standpipe, smoke alarms, detectors, etc.

The structural engineer must submit Letters of Assurance, Schedule B at the time of permit application and subsequently Schedule C-B upon completion confirming the design and field review specifically referencing racking under the structural discipline.

A letter from the structural engineer is required confirming the structural capacity of the slab and assuring adequate support of the racking.

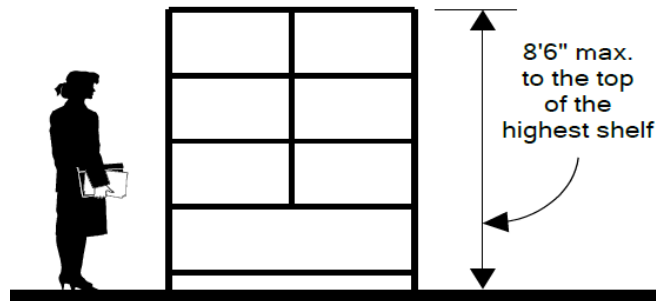


Alternative Solutions:

Racking that does not meet all the requirements of the applicable Code and referenced standards can be considered under an Alternative Solution submission as per the BC Building Code.

INFORMATION FOR THE TYPES OF VERTICAL STORAGE SYSTEM TYPES:

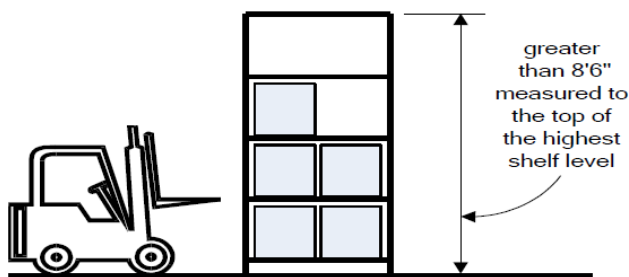
1. Shelving Units:



NOTE: 2.6m (8'6") height includes 152mm (6") toe kick.

- Any vertical storage unit under 2.6 m (8'-6") in height and, in sprinklered buildings, under 900 mm (36") in depth is considered shelving.
- In sprinklered buildings, back-to-back shelving units with a combined depth exceeding 900 mm (36") are considered racking unless the units are separated by non-combustible construction or by a minimum 150 mm (6") flue space.
- Shelving units can be constructed of combustible or non-combustible material.
- A building permit is not required for the installation of shelving units.
- It is recommended that shelving units be seismically restrained.

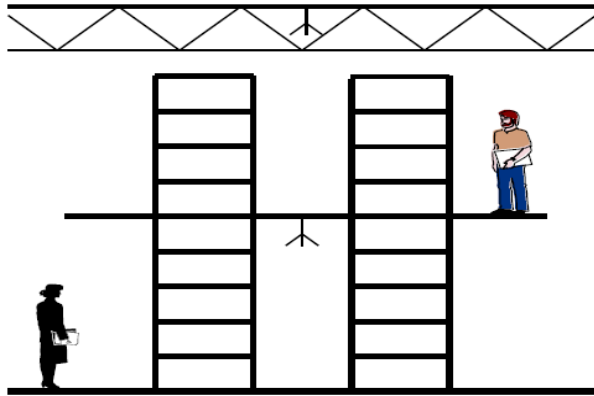
2. Single Level Racking:



- A vertical storage unit greater than 2.6 m (8'-6") in height shall be defined as a structure and the installation of such single level racking requires a building permit.
- With the exception of the actual shelves, this type of storage unit must be constructed of non-combustible material.

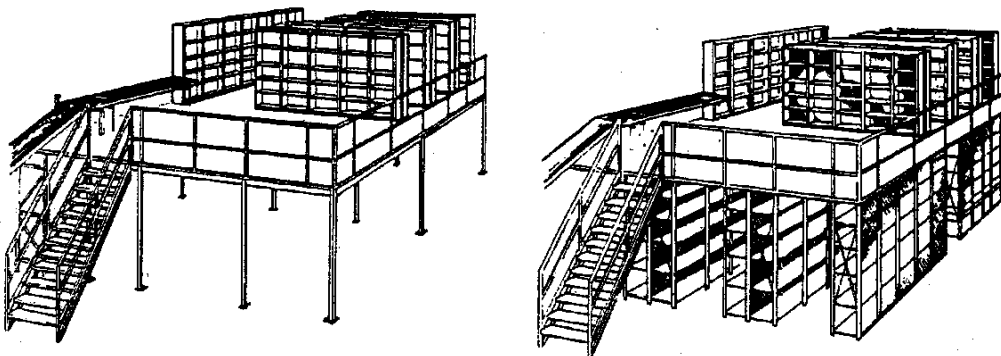


3. Two-Level Racking:



- A vertical storage unit that supports an intermediate elevated walking platform requires a building permit.
- With the exception of the shelves, the structure must be constructed of non-combustible material.
- The number, location, and construction of guards and egress stairs for the catwalk system must conform to the requirements of the BC Building Code.
- Hard-wired, interconnected smoke alarm system(s) are required to cover the entire floor area containing the racking. If the catwalk system has a solid walking surface, smoke alarms shall be installed at each level.
- The walking platform shall be a catwalk system, supported by the racking, providing access to the racking only. No open platform is permitted for the use of storage, manufacturing and assembly.

4. Mezzanines:



THIS IS NOT A RACKING SYSTEM

- A continuous floor system supporting the upper shelving units (see diagram above) is considered as a mezzanine rather than a racking system. They, and the building, must be designed to comply with the BC Building Code's requirements for mezzanines.



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