City of Coquitlam | Planning and Development | Building Permits Division

GUIDE

RACKING

GUIDE OVERVIEW

This guide is intended to assist the applicant with their drawing requirements for a building permit application. This is only an example of the information required for a drawing set submission, and is not intended to be reproduced for a building permit application.

This guide is intended to compliment the Tenant Improvements Guide.

WHAT IS RACKING?

Racking is defined as any combination of vertical, horizontal and diagonal members that supports stored materials. Racking can be pre-manufactured, site constructed or a combination of both; it may incorporate solid shelving. Racking can be fixed or movable, can be constructed using a variety of materials, come in many different sizes and configurations and be used to store a variety of products or commodities. Permit requirements can also vary greatly from one application to the next. As a result, each application for a permit for racking or a vertical storage system is viewed on a site specific basis.

Pursuant to the City's Building Bylaw 3598, 2003, racking systems are considered structures, and require building permits. The incorporation of a racking system into a building is treated as a tenant improvement and you should consult the Tenant Improvements Guide for the requirements specific to racking systems. Shelving, as described below, is exempted from permit requirements. A separate permit will be required for any modifications to the building's sprinkler system.

SHELVING

Shallow storage units under 2.4 m in height are considered shelving and do not require a building permit for installation. However, if in the course of a Safety Inspection, Fire Services observes the storage of commodities that present an undue hazard, a building permit will be required. As Coquitlam is located in a seismically active area, it is strongly recommended that shelves be restrained either by fastening them to the floor or to an adjacent wall and adding diagonal bracing.

RACKING SYSTEMS

Although normally considered equipment and not a part of the building, the introduction of racking systems my compromise a building's compliance with the BC Building Code. Therefore, base building issues such as load bearing capacity, seismic loading, exiting, sprinkler protection and travel distance must all be considered when preparing an application for a racking system building permit.

RACKING SYSTEMS CONTINUED

Documentation of BC Building Code compliance should incorporate an explicit recognition that racking systems over 2.4 m in height and which are not freestanding but connected to the building structure, are considered fixtures (BC Building Code Division B, Table 4.1.8.17, Category 11 or 12). Designers must be cognizant of the potential impact free standing racking may have on the building's structure and equipment (i.e. sprinkler system) and account for this in the structure's or building's design. For example, "in rack" sprinklers are supported by the racks for the most part but are elsewhere attached to the ceiling/roof truss supported building sprinkler system. As fires after an earthquake cannot be properly fought if waterlines are broken, designers should give special consideration to the details of the sprinkler pipe connections between racking and building systems.

While the impact of the racking on the building raises BC Building Code issues, the design and construction of the racking itself is not governed by the BC Building Code. The proponent must ensure that racking is designed and constructed to good engineering practice.

EXISTING BUILDINGS

Racking and vertical storage systems are often installed in existing buildings. Such installations are subject to the BC Building Code, which stipulates that the introduction of racking may not reduce the level of safety in the building (BC Building Code Div. A; 1.1.1.2). Of the various BC Building Code issues that must be addressed, seismic may present the severest test to an application. If the owner chooses not to upgrade those aspects of the building affected by the introduction of racking to current BC Building Code standards, a report prepared by a suitably qualified registered professional will be required to demonstrate the appropriate application of the BC Building Code Div. A; 1.1.1.2 to the building in question. One guiding principle should be that the racking cannot be a contributing factor to building failure in a seismic event.

Note: Owners should inform and educate themselves with respect to the need to inspect the installation for continuing conformance with the BC Building Code. The maintenance of the racks to original manufacturer's specifications is the owner's responsibility. Worker's safety is governed by WorkSafe BC regulations.

SUBTRADES

All subtrade permits shall be obtained by a certified trade contractor, licensed in the City of Coquitlam. Please note, the City of Coquitlam, issues plumbing and sprinkler permits however electrical and gas permits are applied for through Technical Safety BC. Electrical Information such as load calculation and single line diagram showing the size and type of service equipment, grounding, over current devices, feeders, branch circuits, distribution panels and electrical room layout may be required. Depending on the extent of new plumbing work proposed, information regarding size of water pipes, plumbing vent termination and sanitary tie-ins may also be required.

GENERAL REQUIREMENTS

This is a general list consolidating common requirements compiled for information only and should not be considered a complete list.

- Applicant to engage a professional when preparing drawings for this application.
- Substandard drawings will not be accepted.
- Permit drawings must provide sufficient information to describe the full scope of work.
- Submissions are required to comply with the latest version of the British Columbia Building Code and applicable City of Coquitlam bylaws and regulations.
- All drawings are to be neat, to scale and of draftsman quality.
- Metric or Imperial standard may be used, but not mixed.
- Agent Authorization Form (if applicable).
- Fire Services, Development Planning and Plumbing approvals may be required. For all unsprinklered buildings, refer to Fire Services.

PERMIT APPLICATION REQUIREMENTS

- Three (3) site/key plans showing area where racks are located.
- Three (3) sealed original sets of racking structural drawings.
- Three (3) floor plans showing racking location in existing building.
- One (1) sealed original Schedule B for the racking system.
- A list of the products and commodities stored will be required (i.e. it is encapsulated, any flammables?).
- Professional Engineer to certify adequacy of structural slab to support racking system and stored goods.
- Professional Engineer to specify structural notes (i.e. seismic zone, load requirements, etc.).
- Show clear access to exit pathways and exit doors.
- Show minimum aisle widths.
- Show exit signs and emergency lighting layout.
- Sprinkler system material, commodity and quantity check may be required.

Further submissions may be required from a fire protection engineer to demonstrate adequate sprinkler coverage is provided in accordance with the British Columbia Building Code and referenced documents.

FEES

Per the City of Coquitlam's Fees and Charges Bylaw, you will have to pay an application fee when you apply. The permit fee is based on the calculated construction and is payable when the permit is ready to be picked up and issued. The fees are broken down as follows:

- 25% of the permit value when the application is made.
- Balance of the permit value when the permit is issued.

INSPECTIONS

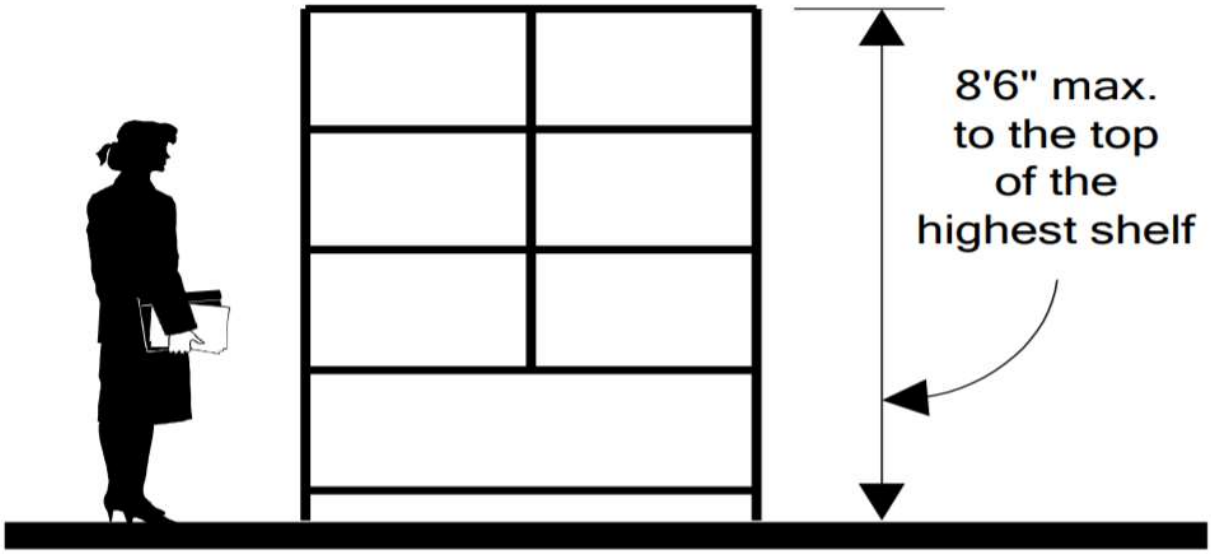
Complete information on inspections can be found on our Inspections page.

- Buildings and/or structures requiring a building permit will also require inspections performed by City Building Officials.
- Plumbing permits for new plumbing systems and services will require inspections by City Plumbing Officials.
- Fire suppression systems (building sprinklers) will require inspections by City Plumbing Officials.

SEE THE FOLLOWING PAGES FOR EXAMPLES

This information is provided for convenience only and is not in substitution of applicable City Bylaws, Provincial or Federal laws and regulations. Always refer to official documents. The City is not responsible for errors found in copies or alterations of this document.

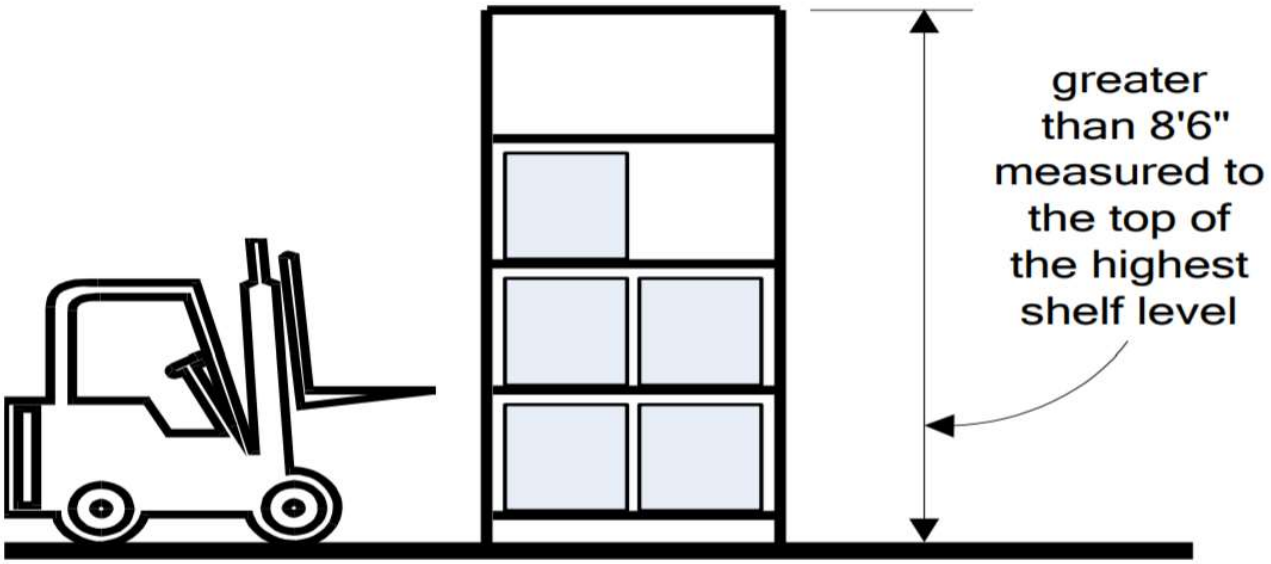
VERTICAL STORAGE SYSTEMS
EXAMPLE 1 - SHELVING UNITS



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

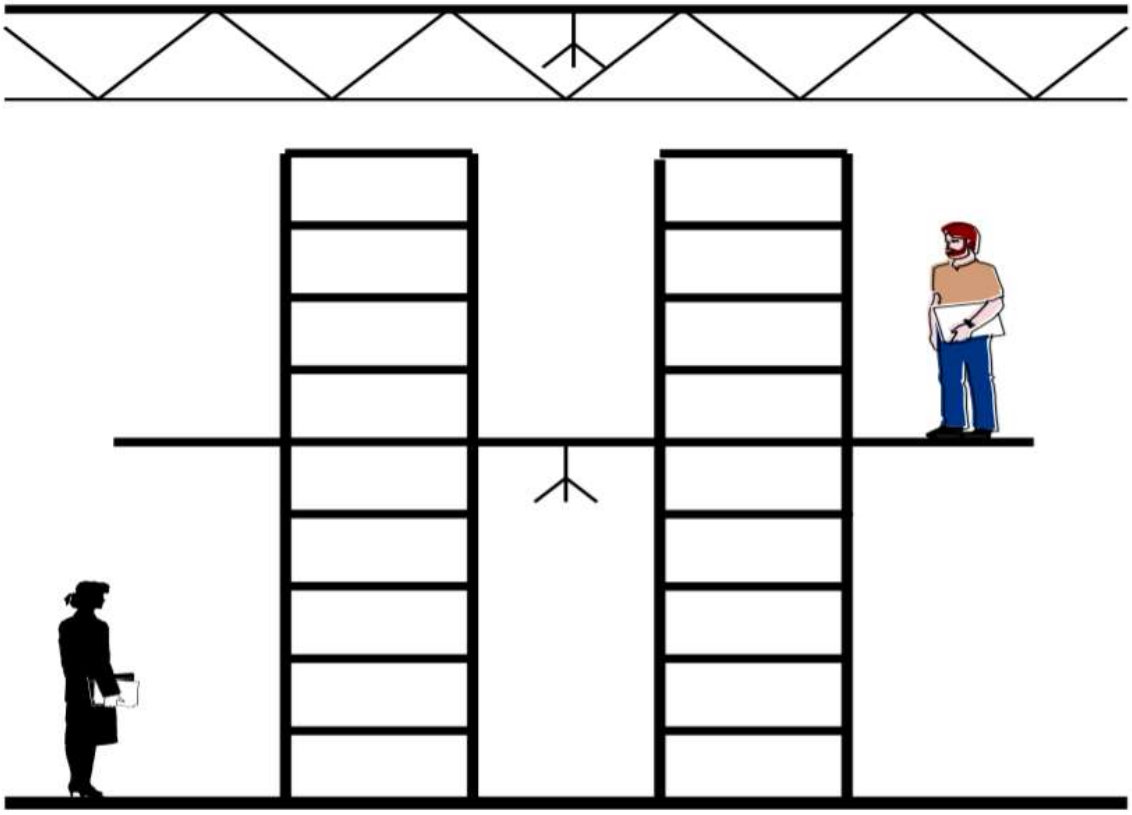
- Any vertical storage unit under 2.6 m (8'-6") in height, in sprinklered buildings, and under 900 mm (30") in depth is considered shelving.
- In sprinklered buildings, back to back shelving units with a combined depth exceeding 900 mm (30") are considered racking unless the units are separated by non-combustible construction or a minimum of 150 mm (6") flue space.
- Shelving unites can be constructed of combustible and non-combustible material.
- A building permit is **not required** for the installation of **shelving units**.
- It is recommended that shelving units be seismically restrained.

VERTICAL STORAGE SYSTEMS
EXAMPLE 2 - SINGLE LEVEL RACKING



- A vertical storage unit greater than 2.6 m (8’6”) in height is defined by the City of Coquitlam Building Bylaw 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.

VERTICAL STORAGE SYSTEMS
EXAMPLE 3 - TWO LEVEL RACKING

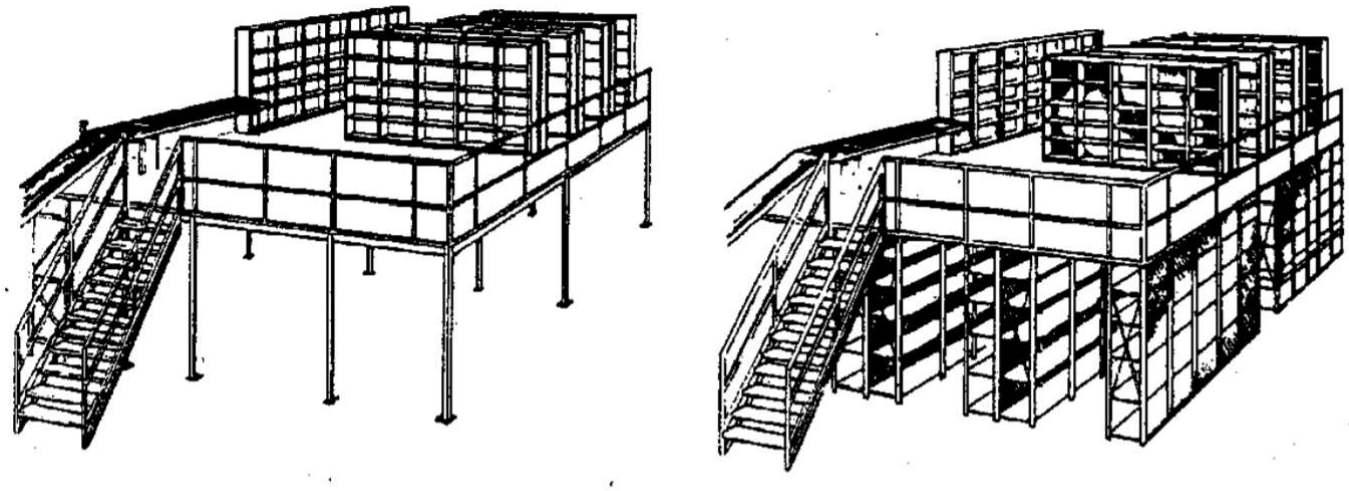


- A vertical storage unit that supports an intermediate elevated walking platform requires a building permit.
- With the exception of the shelves, the structure must be constructed of non-combustible material.
- The number, location and construction guards and egress stairs for the catwalk system must 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 and providing access to the racking only. No open platform is permitted for the use of storage, manufacturing and assembly.

MEZZANINES

EXAMPLE 4 - NOT RACKING SYSTEMS



(NOT RACKING SYSTEMS)

- A continuous floor system supporting the upper shelving units is considered a mezzanine rather than a racking system.
- Mezzanines and the building must be designed to comply with the BC Building Code's requirements for mezzanines.
- **For more information, see our Mezzanine Guide.**