

Racking Permit Design Guidance

This guide provides a list of minimum requirements for a racking permit. Please ensure the following items are addressed in the permit documents. Additional information may be needed as the plans are reviewed.

A building permit is required for installing racking over 5'-9" in height.

The work shall comply with the State Construction and Fire Codes, the currently adopted ICC codes (International Fire Code, International Building Code, International Existing Building Code), National Electrical Code (NFPA 70), and Statewide Amendments.

PERMIT APPLICATION SUBMITTALS

These submittals are for typical projects where the racking is 8 feet or higher, and the top of storage is over 12 feet but not more than 30 feet in height. Other heights and conditions are described below.

- **Site plan:** Provide a dimensioned site plan showing streets, building location, fire hydrants, and fire department access roadways. Provide a key plan to show the project location, and provide the correct building address with the suite number or sub-address of the space.
- **Building plan:** Provide a dimensioned floor plan of the building showing the proposed racking, existing racking, fire department access doors, fire department hose outlets, fire pump/riser room, location of valves controlling the water supply of sprinklers, smoke removal and curtain board systems, and portable fire extinguishers.
- **Egress plan:** On a floor plan show the means of egress components, such as aisles, exit access doors, exit doors, and exit discharge per Chapter 10. Dead-end aisles must

not exceed 20 feet in Group M occupancies, and 50 feet in other occupancies.

- **Exit signage and lighting:** Provide a plan of the exit signs and lighting in the racking area. If these were previously installed under a separate permit, provide the plans clearly marked as “existing.”
 - Provide exit signs as needed to mark the path of egress travel to exits per IBC 1013.
 - Provide egress lighting per IBC 1008. Under emergency power the illumination level at the walking surface must be average 1 footcandle and not less than 0.1 footcandle.
- **Racking plan:** Provide a dimensioned plan of the racking area indicating aisle widths and the locations of different types and heights of racks. Provide information on the maximum pile volume for each storage array, the shelf types (solid, slatted, wire grid, or open), and dimensions and locations of transverse and longitudinal flue spaces.
- **Racking elevation:** Provide a full-height elevation drawing of the racking, showing number of tiers and dimensions from the floor to: rack top shelf, top of usable storage, sprinkler deflectors, bottom of roof structural members, and bottom of roof deck. The design storage height shall be permanently marked as approved by the building inspector.

- **Commodities stored:** Describe the commodities stored and how they are placed on the racks (loose on pallets, in cardboard boxes, encapsulated in plastic shrink wrap, in metal bins, banded, etc.). Classify the commodities per Table 3203.8 in *IFC Chapter 32*.
- **Existing fire protection:** Provide information about the existing fire protection systems: type of fire sprinkler system (which NFPA standard), density, type of sprinkler heads (such as ESFR or CMSA), fire detection system, type and specifications of smoke removal and curtain board systems, etc. Provide a photo of the hydraulic calculation on the riser placard.
- **Proposed fire protection:** Fire protection systems must comply with IFC Sections 3206-3209. In addition, a 1-1/2" small hose connection in accordance with NFPA 13-8.17.5 must be provided at each fire department access door serving the racking area. Where work on fire protection systems is required, either:

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- **Structural plans:** Submit structural plans and calculations for the racking stamped by a Utah-licensed structural engineer. Seismic design of storage racks shall be in accordance with ASCE 7 Section 15.5.3.
- **Special inspection:** Submit a Special Inspection Agreement (available on our [Forms and Links Page](#)). “Storage Racks (IBC 1705.12.7)” should be marked as an item requiring special inspection. Fill out this form as completely as possible, providing at least the name of the inspection agency and the required signatures and stamp prior to permit issuance.

OTHER REQUIREMENTS

- **Racking less than 8 feet:** For racking more than 5’-9” but less than 8 feet in height, stamped structural plans are not required. Instead, submit the manufacturer’s installation details and specifications. Special inspection is also not required by the building code.
- **Top of storage not more than 12 feet:** Where the top of storage is no more than 12 feet in height and there are no commodities classified as high-hazard in Table 3203.8, then the requirements of IFC Chapter 32 and for 1-1/2” small hose outlets would not apply.
- **Extra-high rack storage:** Where the top of storage is over 30 feet for high-hazard commodities, or over 40 feet for Class I-IV commodities (per IFC 3203), the building shall be protected with a specially engineered automatic sprinkler system. The storage racking shall be

provided with additional special fire protection, such as separation from other buildings and additional built-in fire protection features and fire department access, where required by the fire code official.

- **Automated storage:** Where automated storage would require sprinklers per Table 3206.2, the building shall be sprinklered throughout per 903.3.1.1.
- **Commodity-specific requirements:** Additional requirements apply to: aerosol products, flammable and combustible liquids, hazardous materials, combustible paper records, and combustible fibers.
- **Change of occupancy:** Where the work creates an occupancy containing greater than the maximum allowable quantities per control area of hazardous materials per IBC 307.1 and IFC 5003.1.1, the area would be classified as a High-Hazard Group H occupancy. In this case, apply for a regular building permit.

This document intends to provide guidance to the applicant for most typical situations. It does not intend to approve, and cannot approve, construction in violation of the State Construction and Fire Codes. It does not substitute for an approved Building Permit

