

2600 Fresno Street, Room 3043
Fresno, California 93721-3604
(559) 621-8003
www.fresno.gov

STORAGE RACKS PLAN SUBMITTAL GUIDELINES AND REQUIREMENTS

PURPOSE

This handout summarizes the requirement for a complete plan submittal for the installation of pallet racks, movable shelf racks, fixtures, and stacker racks in commercial and industrial buildings. A complete plan shall be submitted, reviewed, and approved prior to the commencement of any work. Steel storage racks shall comply and be designed in accordance with the requirements of the 2022 California Building Code (CBC), ASCE 7-16, Section 15.5.3.1 and ANSI MH16.1: 2012 RMI (Rack Manufacturers Institute). Steel cantilever storage racks shall comply and be designed in accordance with the requirements of the 2022 California Building Code (CBC), ASCE 7-16, Section 15.5.3.2 and ANSI MH16.3: 2016, RMI (Rack Manufacturers Institute)

BUILDING PERMIT REQUIREMENTS: TABLE 1

Height of Highest Beam (i)	Permit	Layout Plan (iii)	Seismic Anchorage	Structural Plans and Calculations
Up to 5'-9"	Not Required (ii)	Required	Not Required	Not Required
Over 5'-9" to 8'-0", and H/D > 6	Required	Required	Required (iv)	Not Required
Over 8'-0", or H/D > 8	Required	Required	Required (v)	Required (v)

Where: H = Height measured to the topmost beam position/top load shelf
D = Depth

Footnotes:

- i. Height of racks is measured from floor to the top of highest beam.
- ii. A separate permit is not required for racks up to 5'-9" (CBC 105.2 #13), however if being installed as part of a tenant improvement the architectural floor plan for the T.I. shall show the rack layout/location.
- iii. A scaled, complete floor plan with dimensions showing layout and type of storage racks, aisle widths, and existing elements.
- iv. Detail and specify seismic anchor to be used. Detail anchor diameter, embedment, quantity, and manufacturers specifications.
- v. Structural plans, calculations, and anchorage details must be prepared by a licensed engineer for racks over 8'-0". (ASCE 7 Section 15.5.3)
- vi. Rolling racks systems require structural design.

HIGH-PILED STORAGE PERMITS

High-Piled Combustible Storage Definition (2022 California Fire Code, Ch.2):

Storage of combustible materials in closely packed piles or combustible materials on pallets, in racks or on shelves where the top of storage is greater than 12 feet in height. Where required by the fire code official, high-piled combustible storage also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets, and similar commodities, where the top of storage is greater than 6 feet in height.

For questions concerning "High-Piled Storage" permit requirements please contact Fire Prevention Division at (559) 621-4181 for more information.

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REQUIRED EXHIBITS AT TIME OF APPLICATION SUBMITTAL

1. Complete set of plans prepared and signed by a CA licensed engineer. (Per Table 1)
2. Structural calculations prepared and signed by a CA licensed engineer. (If needed, see Table 1)
3. Completed special inspection acknowledgement form. (if applicable)
4. Apply for a Commercial Storage Racks Building Permit through the City of Fresno Citizen Access Permitting Portal. Note: A free account must be created prior to submittal - <https://lmsaca.fresno.gov/CitizenAccess/Default.aspx>

Plans

Plans shall be 18-in x 24-in minimum (24-in x 36-in recommended), drawn to scale, fully dimensioned and legible. Plans shall include all the following:

- Plot plan and/or cover sheet (i.e. job address and suite number, name, address, phone number of business owner /contractor /design professional, complete description of work; design criteria; north arrow; type of business; applicable codes; type of construction; occupancy type, fire sprinkler system? etc.).
- Floor plans identifying location and square footage of all storage areas where racks and shelving are to be installed; location of exit door(s), exit access doors and exit signs.
- Aisle clearances between racks (egress) [CBC sections 1005.1, 11B-403.5.1 ex (4), or 1018.3, exception as applicable] and clearance to other elements/equipment in the area where racks will be installed.
- Rack layout details showing dimensions, number of tiers, and weight limit per tier.
- Location of and dimensions of smoke vents and curtain boards (as applicable).
- Provide a plaque having an area of note less than 50 square inches at conspicuous locations to indicate the maximum load per level and per bay. ANSI MH16.1:2012, 1.4.2.
- Support and lateral bracing framing details.
- Anchorage connection details including type, size, depth, and spacing of anchors, as well as specifications to reinforced concrete slab or foundation. Bolting and epoxy connections will require special inspection.
- Add the following out of plumb or straight limit note on plans: The maximum top-to-bottom out-of-plumb ratio for a loaded rack column is 1/240. (1/2 inch per 10 feet)
- Exception: Special Inspection is not required if 50% values are utilized. The bolts or expansion anchors to be referenced to a valid ICC-ES Research Report or equivalent.
- ANSI MH16.1:2012, 2.6.2 Minimum seismic forces: I_p = system of importance factor, 1.5 for essential facilities, 1.5 if the system contains material that would be significantly hazardous if released, 1.0 for all other structures.
 - i. For storage racks in areas open to the public, (e.g., in warehouse retail stores), I_p = 1.5.
 - ii. If a displacement-based evaluation of the rack structure is performed in either of the two principal directions of the rack, I_p may be taken as 1.0 in that direction.

Structural Calculations

Stamped and signed calculation reports prepared by a CA licensed engineer. (If required per Table 1)

Special Instruction Form

If special inspections are required per Chapter 17 of the California Building Code, it shall be included with the submittal.