



Revision Date:	March 7, 2022
Code/Section:	2018 IBC Section 105.2, 1003.1, 1607.2, 2209.1, 2209.2
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Purpose

This document is to help guide customers and staff on what racking systems require permits and what the applicant must submit for plan review.

Requirements

Racking systems are divided into three categories in the table below that state what is required for plan review.

Racking is frequently used to store *high-piled combustible storage*. See TRT/DOC/00339 for High-Pile Storage requirements. https://www.phoenix.gov/pdds/Docs/Trt_Pdf/00339.pdf

<u>Category</u>	<u>REQUIRED DOCUMENTATION</u>	<u>PERMIT</u>
Height ¹ ≤ 5'-9".	<ul style="list-style-type: none"> None required. 	Exempt per IBC 105.2 item 13.
<ul style="list-style-type: none"> Height¹ > 5'-9" and ≤ 12'-0" & HDR² < 8 & Total weight supported by any level ≤ 2,500#. & Is in a risk category I or II structure 	<ul style="list-style-type: none"> Provide floor plan(s) identifying the location of storage rack(s), exiting system and aisle widths. Provide an elevation drawing showing the height, width, and depth of the racking type(s) with dimensions and total weight supported on all levels. See Figure 1. Provide design structural loading. Provide details and calculations only for the anchors and baseplates.³ Structural special inspection certificate for anchors. Manufacturer's maximum load plaque location.⁴ 	<p>Yes – Can be Permit by Inspection (PBI) with a potential structural over-the-counter review.</p> <p>Fire permits may be required. See TRT/DOC/00339.</p>
All other heights, weights, and depths	<ul style="list-style-type: none"> The requirements as directly above. Provide complete structural loading, drawings, and calculations for the racks, anchors, and slab in accordance with the MHI16.1 and/or MH16.3 standard.^{3,5} 	Yes – Both PDD and fire permits are required.

Notes:

1. Rack height is measured to the top of the shelf for these structural requirements. See TRT/DOC/00339 for High-Pile Storage height. https://www.phoenix.gov/pdds/Docs/Trt_Pdf/00339.pdf
2. The Height-to-Depth Ratio (HDR) is the height of the topmost loaded beam divided by the least horizontal dimension of the racking structure. Interconnecting rack frames reduces this ratio. HDR = Height/Depth.
3. For racks with a HDR² over 6: Anchorage and base plates calculations for a 350-pound live load at the top shelf of an entirely empty frame directed perpendicular to the aisle is required. See MH16.1 Section 8.1 and MH16.3 Section 9.1.
4. Refer to the Rack Manufacturer's Institute MH16.1 Section 1.4.2 and MH16.3 Section 1.4.2 for the maximum load plaque requirements. See Figure 2 for an example.
5. See TRT/DOC/00282 for the acceptable design of slabs-on-ground supporting storage racking. https://www.phoenix.gov/pdds/Docs/Trt_Pdf/00282.pdf

For more information or for a copy of this publication in an alternate format, contact Planning & Development at (602) 262-7811 voice / (602) 534-5500 TTY.

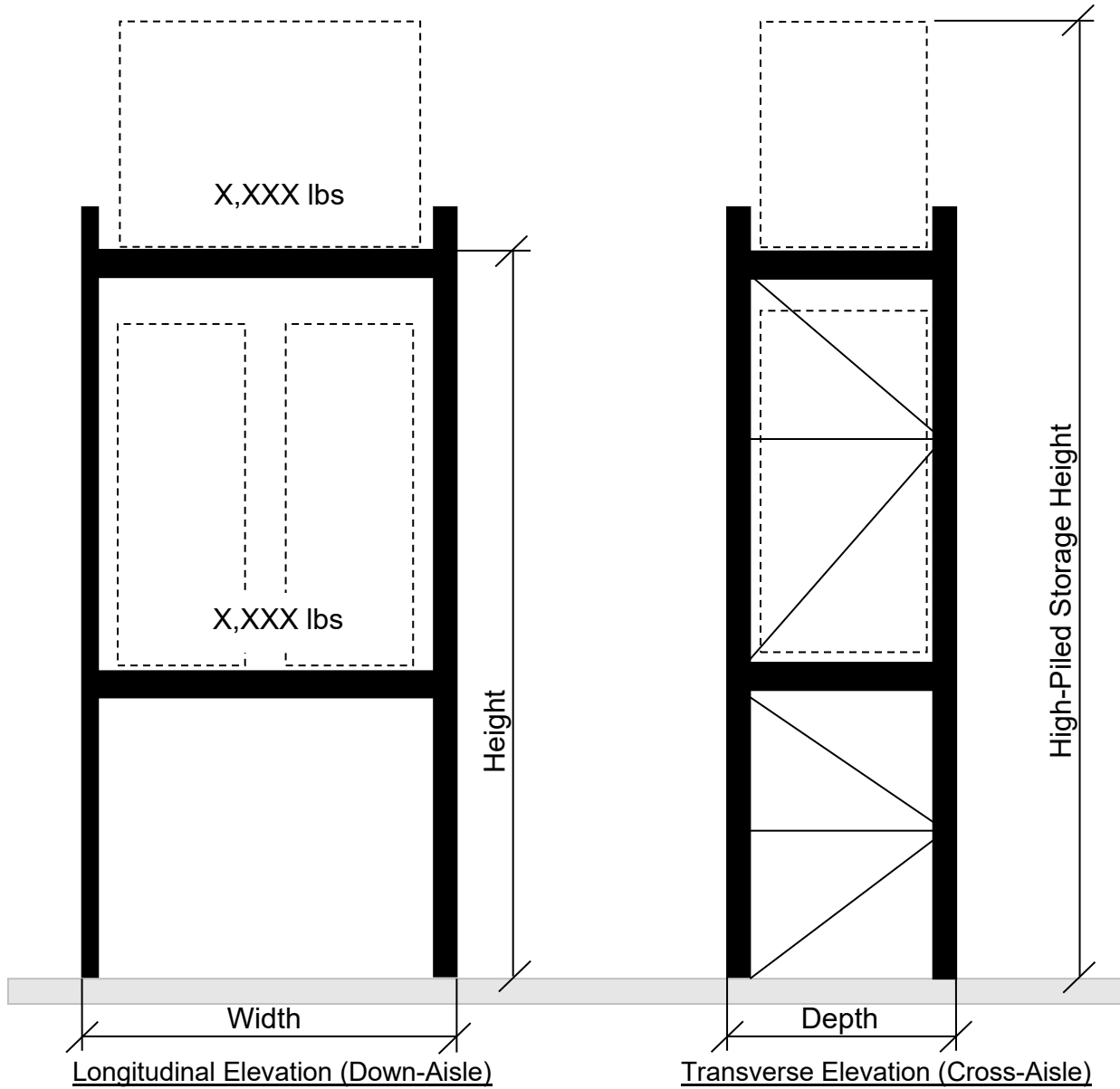


Figure 1 – Example Elevation Drawing.

Figure 2, to the right:
**Example Manufacturer’s
 Maximum Load Plaque Appearance.**

Notes:

1. Plaques must be in conspicuous locations
2. Plaques must be at least 50 square inches.

