Plan Submittal Checklist for High-Piled Combustible Storage

Purpose
The intent of this guideline is to provide the requirements for the protection of high-piled storage (HPS) of a variety of commodities. The following requirements will ensure that the minimum measures required by code have been designed in accordance with Chapter 32 of the 2019 California Fire Code (CFC) and referenced standards.

References

Scope
High-Piled Storage
The following requirements shall apply to all new buildings, tenant improvements and building additions having rack, shelf, solid piled, or pallet storage 12-ft or higher. For rack storage these requirements apply to all racks having the top rack at 8-ft or higher. High-piled storage (HPS) also includes certain high-hazard commodities, such as rubber tires, Group A plastics, flammable liquids, idle pallets and similar commodities where the top of the storage is greater than 6-ft in height.

High-Piled Storage Area
An area within a building that is designated, intended, proposed or actually used for high-piled storage. For purposes of selecting the applicable fire protection requirements in Table 3206.2, of the CFC:

- This area shall include the “footprint” of the actual storage array (racks, shelves, fixtures or pallets), inclusive of aisles within the storage area(s). When individual storage arrays are separated by less than 15-ft spaces, the space shall be considered aisles and shall be included in a single storage footprint. When individual storage arrays are separated by more than 15-ft spaces, the individual arrays shall be considered separate storage areas with their own footprint calculation.
- For multiple storage areas within a building the aggregate of all high-piled storage areas shall be used for selecting the applicable requirements in CFC Table 3206.2, unless such areas are separated from each other by a one-hour rated fire resistive wall constructed in accordance with CBC 707.

Submittal Requirements
General
- At the time of permit application, plans and specifications, including but not limited to the information listed below, shall be submitted for review and approval. For certain HPS reviews, the services of a design professional familiar with the requirements contained in CFC Chapter 32 may be of great assistance to the applicant. A minimum of four (4) sets of plans shall be submitted with the following information per CFC 3201.3:
  1. Rack plans shall be submitted separately from architectural plans and require a separate application and plan review.
  2. A letter of intent containing a detailed description of the products to be stored and the description of all containers, pallets and packing materials. This letter must also include a detailed description of the storage methods (racks, shelves, pallets, etc.), the total storage area in square feet, maximum storage height and aisle widths. An authorized officer of the company or business must sign this letter. After final approval of the letter, it shall be blue-lined on the plan.
  3. A scaled site plan that shows the entire building, including all fire access lanes, fire hydrants and fire sprinkler riser(s), location of the racks and access doors to the storage area.
5. The maximum desired / proposed storage height for each designated storage area per array. The height is measured from the finished floor to the highest beam and an additional four feet to the top of the commodity stored.

6. The number of tiers within each rack.

7. The commodity clearance between the top of storage and the sprinkler deflector for each storage arrangement.

8. Aisle dimensions between each storage array. Aisles are measured from the actual edge of the commodity to commodity, not rack to rack.

9. Maximum pile volume for each storage array.

10. Location and classification of different commodity classes in accordance to Section 3203.

11. Location of commodities that are banded or encapsulated and packing arrangements of the commodities – how are the commodities stored, if in cardboard boxes, and what is the packing material.

12. Dimension and location of the transverse and longitudinal flue space.

* Refer to CFC Table 3206.2, if applicable.

Provide a written code analysis of the fire sprinkler design using the 2016 NFPA 13 design tables in Chapters 14-20 specific to the storage parameters. The analysis shall conclude with the required sprinkler design for each storage array.

13. The location of all steel columns in relationship to the racks. All steel columns located within a rack flue space, immediately adjacent to a rack in an aisle or within 15-ft of rack space will require protection if the storage height exceeds 15-ft. See 2016 NFPA 13.

14. The location, model, type and automatic link temperature of the automatic / manual release smoke vents. Links shall be a minimum of 100 to 200 degree temperature rating higher than the sprinklers. Note all smoke vents shall be automatic and manual release type.*

15. The design (construction), location and depth of the draft curtain board assembly.*

16. Show location of fire department access doors.*

17. The occupancy use group as defined by CFC Chapter 2.

18. Indicate if the storage area is accessible to the public.