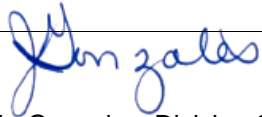


CITY AND COUNTY OF DENVER	POLICY	DENVER FIRE DEPARTMENT
Subject: HIGH-PILED COMBUSTIBLE STORAGE		
Reference: DFC 2300-1, Denver Amendments, NFPA 13 and 25.		
Approved:		 Joseph L. Gonzales, Division Chief, Fire Prevention
Number: DFC-2300-1	Effective Date: March 01, 2011	Page 1 of 5

This policy is meant to provide basic information for the most common conditions and situations. In any given occupancy, many other Fire Code requirements may be enforced. The Fire Inspector will address these during a premises inspection. Questions can be addressed by contacting the Fire Prevention Division Warehouse Section (720) 913-3474.

1. SCOPE

Due to the common practice of storing multiple commodity classes in the same facility, the Denver Fire Prevention Division must approve of storage of any commodity above 12 feet high (High Piled Combustible Storage per Denver Fire Code (DFC) Chapter 23), or certain high-hazard commodities stored above six (6) feet in height. A permit must be issued annually to verify compliance. A permit will not be required when the area of high-piled storage does not exceed 500 square feet.

2. PERMITS

A permit shall be obtained from the Denver FPD Warehouse Section. The permit shall be kept on site for inspection. To obtain a permit, the following information must be provided:

- a) Tenant/Business owner name, phone number, fax numbers, addresses and e-mail.
- b) Review and apply DFC Chapter 23 High-piled Combustible Storage Table 2306.2 General Fire Protection and Life Safety requirements and NFPA 13, Chapter 12, for general design criteria for the protection of storage occupancies. If the requirements outlined in Table 2306.2 are not met, seek technical assistance per DFC 104.7.2.
- c) Hydraulic placard on the sprinkler riser with sprinkler system flow densities and maximum storage height information for class of commodity (or commodities) being stored (I – IV, High Hazard). *NFPA 13, A.24.5*
- d) Height of storage. A visual method of indicating the maximum allowable storage height shall be provided. *DFC 2305.6-Designation of storage heights.*
- e) Total amount of square footage of high-piled product (including aisles).
- f) Scaled floor plan of high-piled area indicating:
 - Actual high piled area configuration (location of racks/piles)
 - Building access door locations for egress and ingress
 - Dock door locations
 - Existing smoke removal capabilities (skylights, smoke and heat vents, mechanical exhaust)
- g) Year building was built.

A permit may be issued with special conditions. These conditions may take an extended amount of time to complete, and a time frame for completion will be agreed upon.

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3. SITE INSPECTION

Prior to issuance of a High-Piled Combustible Storage Permit, a Denver FPD Inspector will conduct a field inspection of the site. Compliance with all Fire Code requirements shall be maintained at all times. Permit is only valid for business/property owner, time frame, and site address indicated on the permit. A permit will be revoked if:

- a) Any of the conditions or limitations set forth in the permit has been violated.
- b) Applicant fails to satisfy special conditions in time frame agreed upon.
- c) Change in the class of commodity stored.
- d) Change in height of commodity being stored.
- e) Change in tenant/occupant.
- f) Misinformation or incomplete information provided in the permit.
- g) The permit is issued in error, in violation of a City ordinance, or a Fire Code violation exists.

4. GENERAL GUIDELINES

- a) Storage height is measured from the top of highest level of product.
- b) Minimum distance of three (3) feet is required between piles and walls.
- c) Racking must be of non-combustible construction.
- d) Racking must be mechanically fastened to the floor.
- e) Racking/Piles cannot obstruct exits or exit pathways.
- f) Dead-end corridors created by racking that is greater than 50 feet deep are not permitted. Aisles between racks need two ways out.
- g) A building permit (10.17.3) shall be required for all rack system installations.
- h) Minimum clearance of 36" is required between product and unit heaters.
- i) Structural analysis per International Building Code Chapter 16 will be required on NEW rack systems. Installation shall be in accordance with the rack manufacturer's specifications.
- j) Buildings built prior to October 1990 must comply with Section 2311. Contact Denver FPD Inspector to ensure compliance.

The Denver Fire FPD Warehouse Inspector will inspect your facility annually. Issues of egress, proper signage, keys for access, fire extinguisher placement, and fire protection system functions will be addressed at that time, as well as any other Fire Code issues noted during the inspection.

Visit DenverGov.org/DFD and select "Fire Safety Permits" for the current Fire Permit Fee Calculation Table.

**Table 2306.2(2008 Amendment to 2006 IFC)
General Fire Protection and Life Safety Requirements**

Category	All Storage Areas (See Sections 2306,2307, and 2308)b					Solid-Piled, Self and Palletized Storage (see Section 2307.3)			
	Commodity Class	Size of High-Piled Storage Area(sq ft)	Auto Fire Ext. System	Building access	Smoke and heat removal	Draft Curtains	Maximum Pile Dimension (Ft)	Maximum permissible storage height (Ft)	Maximum Pile Volume (Ft)
	I-IV	0 - 500	Not required	Not required	Not required	Not required	100	40	Not required
	I-IV	501-2,500	Not required	Not required	Not required	Not required	100	40	100,000
	I-IV	2501 – 12,000	Yes	Not required	Not required	Not required	100	40	400,000
	I-IV	12,001-20,000	Yes	Yes	Yes	Not required	100	40	400,000
	I-IV	20,001-500,000	Yes	Yes	Yes	Not required	100	40	400,000
	I-IV	Greater than 500,000	Yes	Yes	Yes	Not required	100	40	400,000
	High Hazard	0 - 500	Not required	Not required	Not required	Not required	50	Not required	Not required
	High Hazard	501-2,500	Yes	Not required	Not required	Not required	50	30	75,000
	High Hazard	2501 – 300,000	Yes	Yes	Yes	Not required	50	30	75,000
	High Hazard	300,000 – 500,000	Yes	Yes	Yes	Not required	50	30	75,000

For SI: 1 foot = 304.8mm, 1 cubic foot = 0.02832m³, 1 square foot = 0.0929m²

- a. When automatic sprinklers are required for reasons other than those in Chapter 23, the portion of the sprinkler system protecting the high-piled storage area shall be designed and installed in accordance with Sections 2307 and 2308.
- b. For aisles, see Section 2306.9
- c. Piles shall be separated by aisled complying with Section 2306.9
- d. For storage in excess of the height indicated, special fire protection shall be provided in accordance with note g when required by the fire code official. See also Chapters 28 and 34 for special limitations for aerosols and flammable and combustible liquids, respectively.
- e. Section 503 shall apply for fire apparatus access.
- f. Intentionally deleted.

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- g. Special fire protection provisions including, but not limited to, fire protection of exposed steel columns; increased sprinkler density; additional in rack sprinklers, without associated reductions in ceiling sprinkler density; or additional fire department hose connections shall be provided when required by the fire code official.
- h. High-piled storage areas shall not exceed 500,000 square feet. A 2-hour fire wall constructed in accordance with the *International Building Code* shall be used to divide high-piled storage exceeding 500,000 square feet in area.
- i. Intentionally deleted.
- j. Not required when storage areas are protected by early suppression fast response (ESFR) sprinkler systems installed in accordance with NFPA 13.
- k. For requirements refer to Section 910.3.5 and NFPA 13

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HIGH-PILED STORAGE PERMIT APPLICATION FORM

THIS FORM SHALL BE COMPLETED AND SIGNED BY A REPRESENTATIVE OF THE SITE APPLYING FOR THE PERMIT. IT SHALL BE RETURNED TO THE **DENVER FIRE PREVENTION-WAREHOUSE SECTION, 745 W. COLFAX AVENUE, DENVER, COLORADO 80204**. CHECKS SHOULD BE MADE PAYABLE TO: **DENVER MANAGER OF FINANCE**. A PERMIT WILL NOT BE ISSUED IF THE APPLICATION IS NOT COMPLETE, REQUIRED PERMIT INFORMATION IS NOT AVAILABLE, OR FEE IS NOT INCLUDED.

NAME OF BUSINESS: _____

BUSINESS ADDRESS: _____ DENVER, CO ZIP _____

BUSINESS PHONE NUMBER: _____ FAX: _____

TENANT/BUSINESS OWNER NAME: _____

TENANT/BUSINESS OWNER PHONE NUMBER: _____ FAX: _____

BUSINESS TYPE: _____

SPRINKLER SYSTEM (YES / NO). TYPE (ESFR-CMSA or PIPE SCHEDULE). TEMPERATURE (HIGH / LOW)
PIPE SCHEDULE SYSTEMS CANNOT BE USED FOR THE PROTECTION OF HIGH-PILED STORAGE BECAUSE NFPA 13, CHAPTER 5, LIMITS THEIR USES TO LIGHT OR ORDINARY HAZARD OCCUPANCIES.

YEAR BUILDING BUILT? _____ AISLE SPACE BETWEEN RACKS (FT) _____ IN RACKS? (YES / NO)

SPRINKLER FLOW DENSITIES (LIST EACH ZONE) _____

ASSESSMENT FOR SMOKE AND HEAT VENT FOR ANY WAREHOUSE STORAGE AREA OF CLASS I-IV COMMODITIES OVER 12,000 SQUARE FEET DFC TABLE 2306.2 (YES / NO).

ASSESSMENT FOR FIRE ACCESS DOORS FOR ANY WAREHOUSE STORAGE AREA OF CLASS I-IV COMMODITIES OVER 12,000 SQUARE FEET PER DFC. 2306.6.1 (YES / NO).

WHAT IS BEING STORED IN RACKS/PILES: _____

HOW HIGH IS PRODUCT BEING STORED: _____

TOTAL SQUARE FOOTAGE OF HIGH PILED STORAGE AREA: _____

IT IS THE RESPONSIBILITY OF THE PROPERTY OWNER OR OCCUPANT TO EVALUATE AND MAINTAIN THE ADEQUACY OF THE INSTALLED FIRE SAFETY SYSTEM TO PROTECT THE BUILDING OR COMMODITY CLASSIFICATION IN QUESTION. I UNDERSTAND THAT THE DENVER FIRE DEPARTMENT WILL CONDUCT A SITE INSPECTION AND, BASED ON THE INFORMATION PROVIDED, THE FOLLOWING PERMIT WILL BE ISSUED. I ALSO UNDERSTAND THAT I AM RESPONSIBLE FOR PROVIDING THE DENVER FIRE DEPARTMENT WITH THE PROPER NOTIFICATION AND DOCUMENTATION PRIOR TO MAKING ANY MODIFICATIONS TO MY BUILDING, TENANT SPACE, STORAGE CONFIGURATION, AND STORAGE METHODS WITHIN THE ANNUAL PERMIT CYCLE. A FOLLOW-UP EVALUATION WILL BE CONDUCTED BASED ON ANY NEW MODIFICATIONS TO VERIFY COMPLIANCE WITH THE DENVER FIRE CODE. IF I DO NOT COMPLY WITH THESE REQUIREMENTS, MY PERMIT MAY BE REVOKED WITHOUT A REFUND.

NAME (PLEASE PRINT) _____

SIGNATURE _____ DATE: _____