



A publication of Fairfax County, Virginia



CODE COMPLIANCE GUIDELINE

HIGH-PILED COMBUSTIBLE STORAGE

Office of the Fire Marshal
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**** PERMIT REQUIRED ****

This publication outlines the Fire Prevention Code documentation and evacuation planning requirements, permit application and inspection scheduling procedures, and fire safety requirements related to high-piled combustible storage and associated storage areas located in new and existing buildings within Fairfax County and the towns of Clifton, Herndon, and Vienna.

*** PLEASE REVIEW THIS ENTIRE PUBLICATION BEFORE TAKING ACTION ***

Questions regarding the content of this publication should be directed to the Fire Inspections Branch at 703-246-4849 during regular office hours, Monday thru Friday, 8:00 a.m. to 4:30 p.m.

OVERVIEW

The Fire Prevention Code defines "high-piled storage area" as the area within a building which is designated, intended, proposed or actually used for high-piled combustible storage. High-piled combustible is the 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. When 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.

Required fire protection features for high-piled combustible storage are generally determined by the storage commodity type (i.e., combination of products, packing materials and containers), as well as the height, quantity, and method of commodity storage. A key concept in the protection of buildings containing high-piled combustible storage is ensuring the level of fire protection provided is adequate for the commodity types and storage arrangements actually in place.

PERMIT REQUIRED. An operational permit (i.e., Fire Prevention Code Permit) is required to use a building or a portion thereof as a high-piled storage area exceeding 500 square feet. The primary focus of this permit requirement is to ensure the required level of protection and planning (e.g., fire protection systems, portable fire extinguishers, smoke and heat vents, fire department access, evacuation plan, etc.) is adequate, code compliant, and properly maintained for a particular high-piled storage area. A Fire Prevention Code Permit (FPCP) for high-piled combustible storage will only be issued after documentation requirements have been satisfied.

FOUR STEP PROCESS. The following steps form the procedural framework for completing the documentation submittal/retrieval, permit application, and inspection scheduling processes.

- STEP 1 - Submit required construction documents and evacuation plan.
- STEP 2 - Retrieve approved documents/plans and pay plan review fees.
- STEP 3 - Make application for a Fire Prevention Code Permit (FPCP).
- STEP 4 - Schedule a fire marshal site inspection.

STEP 1 - SUBMIT REQUIRED DOCUMENTATION

The following documentation requirements must be satisfied before a Fire Prevention Code Permit (FPCP) for high-piled combustible storage will be issued. Therefore, prior to making application for an FPCP, all required construction documents and a completed evacuation plan must be submitted, reviewed, and approved by the Fire Marshal. The minimum required contents for construction documents and the evacuation plan are outlined below.

CONSTRUCTION DOCUMENTS. In accordance with Section 2301.3 of the Fire Prevention Code, at the time of building permit application for new structures designed to accommodate high-piled storage or for requesting a change of occupancy/use, and at the time of application for a storage permit, plans and specifications shall be submitted for review and approval. In addition to the information required by the Virginia Uniform Statewide Building Code (USBC), the storage permit submittal shall include the information specified in items 1 through 14 listed below. All plans, specifications, documents or designs for high-piled combustible storage shall bear the name and address of the author and his/her occupation. Following approval of the plan, a copy of the approved plan shall be maintained on the premises in an approved location.

To avoid confusion with other construction documents associated with the building, construction documents (i.e., plans and specifications) related to high-piled combustible storage shall be known as the "**High-Piled Storage Plan**" and shall include the following information:

1. Floor plan of the building showing locations and dimensions of high-piled storage areas.
2. Usable storage height for each storage area.
3. Number of tiers within each rack, if applicable.
4. Commodity clearance between top of storage and the sprinkler deflector for each storage arrangement.
5. Aisle dimensions between each storage array. (*Fire Prevention Code, 2306.9*)
6. Maximum pile volume for each storage array. (*Fire Prevention Code, 2307.3*)
7. Location and classification of commodities in accordance with Section 2303 of the Fire Prevention Code.
8. Location of commodities which are banded or encapsulated.
9. Location of required fire department access doors. (*Fire Prevention Code, 2306.6.1*)
10. Type of fire suppression and fire detection systems. (*See Item 14 for Specific Details*)
11. Location of valves controlling the water supply of ceiling and in-rack sprinklers.
12. Type, location and specifications of smoke removal and curtain board systems.
13. Dimension and location of transverse and longitudinal flue spaces. (*Fire Prevention Code, 2308.3*)
14. Additional information required by the fire code official (Fire Marshal):
 - a. Complete information as to sprinkler systems types, densities, and current design criteria for specific commodities.
 - b. Pipe types, sizes and sprinkler head characteristics must be included
 - c. Hydraulic nameplate information from the sprinkler riser must be included.
 - d. If any hazardous materials or other commodities specially classified by NPFA 13-07 are on site, these and their protective measures should be set forth in detail.
 - e. Distribution, location, and type of required portable fire extinguishers.
 - f. Specifications and locations of marking methods or signs used to visually indicate the maximum allowable storage height. (*See Item #7 on Page 6 for Requirement*)
 - g. Specifications and locations of required "No Smoking" signs. (*See Item #4 on Page 5 for Details*)

EVACUATION PLAN. In accordance with Section 2301.4 of the Fire Prevention Code, an evacuation plan for public accessible areas and a separate set of plans indicating location and width of aisles, location of exits, exit access doors, exit signs, height of storage, and locations of hazardous materials shall be submitted at the time of permit application for review and approval. Following approval of the plans, a copy of the approved plans shall be maintained on the premises in an approved location.

Mercantile Occupancies. In addition to the evacuation planning requirements listed above for high-piled storage areas, section 404.2 of the Fire Prevention Code requires an approved fire safety and evacuation plan be prepared and maintained for all mercantile occupancies having an occupant load of 500 or more persons for the entire occupancy or 100 or more persons for areas of the occupancy located above or below the lowest level of exit discharge. This planning requirement is not a substitute for the requirements listed above for high-piled storage areas, however, the required contents of each plan may be consolidated into one plan. A fire safety and evacuation planning guideline for mercantile occupancies is available online at:

www.fairfaxcounty.gov/fr/prevention/fmpublications/fmevac/mercevac.pdf

DOCUMENTATION SUBMITTAL INSTRUCTIONS. Along with a high-piled combustible storage plan review and billing information form, submit three (3) copies of each required plan type (i.e., high-piled storage plan, evacuation plan) to the following address for review:

Fairfax County Office of the Fire Marshal
ATTN: Revenue & Records Branch (High-Piled Storage Plan)
10700 Page Avenue
Fairfax, VA 22030

The plan review and billing information form is available online at:

www.fairfaxcounty.gov/fr/prevention/fmpublications/billing_hpcs.pdf

PLAN REVIEW FEES. An hourly fee of \$128 will be charged for the review of the plans. Hourly fees are charged in quarter hour increments (\$32), rounded to the next quarter hour. Do not include a payment with your plan submittal. Fees shall be paid when plans are retrieved.

STEP 2 - RETRIEVE APPROVED DOCUMENTATION

After submitted documentation (i.e., high-piled storage plan, evacuation plan) is reviewed and approved, arrangements should be made to retrieve customer copies of all approved plans. The Fire Marshal will retain one copy of each approved plan on file. Plans may only be retrieved at our office during regular lobby hours, 7:30 a.m. to 3:30 p.m., and cannot be returned by mail. To find out the status of your submitted plan(s), call 703-246-4803.

In accordance with Section 107.8 of the Fire Prevention Code, plans approved by the fire official are approved with the intent that they comply in all respects to the Fire Prevention Code. Any omissions or errors on the plans (i.e., high-piled storage plan, evacuation plan) do not relieve the permit applicant of complying with all applicable requirements.

Generally, application for a Fire Prevention Code Permit (FPCP) may be made when approved plans are retrieved.

STEP 3 - MAKE APPLICATION FOR A PERMIT (FPCP)

In accordance with Section 2301.2 of the Fire Prevention Code (as amended by Fairfax County), a Fire Prevention Code Permit (FPCP) is required to use a building or a portion thereof as a high-piled storage area exceeding 500 square feet. Furthermore, in accordance with Section 108.2, application for an FPCP shall be made to the fire official in such form and detail as prescribed by the fire official. Applications for permits shall be accompanied by such plans as prescribed by the fire official.

The documentation requirements outlined in steps one and two of this publication must be satisfied before an FPCP for high-piled combustible storage will be issued. The FPCP application for high-piled combustible storage must be accompanied by an approved copy of the high-piled storage plan, which will be returned when the FPCP is issued during the fire marshal site inspection. The FPCP application is available online at:

www.fairfaxcounty.gov/fr/prevention/fmpublications/frd_069.pdf

In accordance with Section 108.3.6 of the Fire Prevention Code, the issuance or granting of an operational permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. Operational permits presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction shall not be valid. The issuance of a permit based on other data shall not prevent the fire official from requiring the correction of errors in the provided documents and other data. Any addition to or alteration of approved provided documents shall be approved in advance by the fire official, as evidenced by the issuance of a new or amended permit.

STEP 4 - SCHEDULE A FIRE MARSHAL SITE INSPECTON

In accordance with Section 108.2.2 of the Fire Prevention Code, before a new operational permit (i.e., Fire Prevention Code Permit) is approved, the fire official is authorized to inspect the receptacles, vehicles, buildings, devices, premises, storage spaces or areas to be used to determine compliance with this code or any operational constraints required.

A copy of the approved high-piled storage plan and evacuation plan shall be maintained on the premises in an approved location and be readily available for inspection by the fire official.

FIRE SAFETY REQUIREMENTS

In addition to the limitations and requirements specified in the approved high-piled storage plan, Chapter 23 of the Fire Prevention Code requires the housekeeping and maintenance of high-piled combustible storage shall be in accordance with the following:

1. **Approved Plans.** A copy of the approved plans (i.e., high-piled storage plan, evacuation plan) shall be maintained on the premises in an approved location.
2. **Rack Structures.** The structural integrity of racks shall be maintained.
3. **Ignition Sources.** Clearance from ignition sources shall be provided in accordance with Section 305 of the Fire Prevention Code as follows:
 - **305.1.** Clearance between ignition sources, such as luminaires, heaters, flame-producing devices and combustible materials, shall be maintained in an approved manner.

- **305.2.** Hot ashes, cinders, smoldering coals or greasy or oily materials subject to spontaneous ignition shall not be deposited in a combustible receptacle, within 10 feet of other combustible material including combustible walls and partitions or within 2 feet of openings to buildings. *Exception:* The minimum required separation distance to other combustible materials shall be 2 feet where the material is deposited in a covered, noncombustible receptacle placed on a noncombustible floor, ground surface or stand.
 - **305.3.** Open-flame warning devices shall not be used along an excavation, road, or any place where the dislodgment of such device might permit the device to roll, fall or slide on to any area or land containing combustible materials.
 - **305.4.** It shall be unlawful to deliberately or through negligence set fire to or cause the burning of combustible material in such a manner as to endanger the safety of persons or property.
4. **Smoking Prohibited.** Smoking shall be prohibited. Approved "No Smoking" signs shall be conspicuously posted in accordance with Section 310 of the Fire Prevention Code as follows:

- **310.3.** The fire code official is authorized to order the posting of "No Smoking" signs in a conspicuous location in each structure or location in which smoking is prohibited. The content, lettering, size, color and location of required "No Smoking" signs shall be approved. Signs specification may be approved during the plan review phase outlined on page two of this publication and verified as compliant during a site inspection. Generally, signs should be clearly legible, visible from distances of approximately 25 feet, with lettering on a contrasting background with the following wording proportioned approximately as shown:



- **310.4.** A posted "No Smoking" sign shall not be obscured, removed, defaced, mutilated or destroyed.
 - **310.5.** Smoking shall not be permitted nor shall a person smoke, throw or deposit any lighted or smoldering substance in any place where "No Smoking" signs are posted.
 - **310.7.** Lighted matches, cigarettes, cigars or other burning object shall not be discarded in such a manner that could cause ignition of other combustible material.
5. **Aisle Maintenance.** When restocking is not being conducted, aisles shall be kept clear of storage, waste material and debris. Fire department access doors, aisles and exit doors shall not be obstructed.

During restocking operations using manual stocking methods, a minimum unobstructed aisle width of 24 inches shall be maintained in 48-inch or smaller aisles, and a minimum unobstructed aisle width of one-half of the required aisle width shall be maintained in aisles greater than 48 inches.

During mechanical stocking operations, a minimum unobstructed aisle width of 44 inches shall be maintained in accordance with Section 2306.9 as follows:

- **2306.9.** Aisles providing access to exits and fire department access doors shall be provided in high-piled storage areas exceeding 500 square feet, in accordance with Sections 2306.9.1 through 2306.9.3. Aisles separating storage piles or racks shall comply with NFPA 13-07. Aisles shall also comply with Chapter 10. *Exception:* Where aisles are precluded by rack storage systems, alternate methods of access and protection are allowed when approved.
 - **2306.9.1.** Aisle width shall be in accordance with Sections 2306.9.1.1 and 2306.9.1.2.
Exceptions: Aisles crossing rack structures or storage piles, which are used only for employee access, shall be a minimum of 24 inches wide and aisles separating shelves classified as shelf storage shall be a minimum of 30 inches wide.
 - **2306.9.1.1.** Aisles in sprinklered buildings shall be a minimum of 44 inches wide. Aisles shall be a minimum of 96 inches wide in high-piled storage areas exceeding 2,500 square feet in area that are accessible to the public and designated to contain high-hazard commodities. *Exception:* Aisles in high-piled storage areas exceeding 2,500 square feet in area, that are accessible to the public and designated to contain high-hazard commodities, are protected by a sprinkler system designed for multiple-row racks of high-hazard commodities shall be a minimum of 44 inches wide. Aisles shall be a minimum of 96 inches wide in areas accessible to the public where mechanical stocking methods are used.
 - **2306.9.1.2.** Aisles in nonsprinklered buildings shall be a minimum of 96 inches wide.
 - **2306.9.2.** The required aisle width shall extend from floor to ceiling. Rack structural supports and catwalks are allowed to cross aisles at a minimum height of 6 feet 8 inches above the finished floor level, provided that such supports do not interfere with fire department hose stream trajectory.
 - **2306.9.3.** Dead-end aisles shall be in accordance with Chapter 10.
6. **Pile Dimension & Height Limitations Shall be Maintained.** Pile dimensions, the maximum permissible storage height and pile volume shall be in accordance with Table 2306.2, and shall be specified in the approved high-piled storage plan.
7. **Designation of Storage Heights Required.** Where required by the fire code official, a visual method of indicating the maximum allowable storage height shall be provided, and shall be specified in the approved high-piled storage plan.
8. **Required Array Clearances Shall be Maintained.** Where an automatic sprinkler system design utilizes protection based on a closed array, array clearances shall be provided and maintained as specified by the standard used, and shall be specified in the approved high-piled storage plan.
9. **Required Flue Spaces Shall be Maintained.** Flue spaces shall be provided in accordance with Table 2308.3, and shall be specified in the approved high-piled storage plan. Required flue spaces shall be maintained.

Fairfax County is committed to nondiscrimination on the basis of disability in all county programs, services and activities. Reasonable accommodations will be provided upon request. Materials such as this publication may be available in alternate formats. To request reasonable ADA accommodations or materials in alternative formats, call the Office of the Fire Marshal at 703-246-4803 (TTY: 711 or 1-800-828-1120) or write us at the following address: 10700 Page Avenue, Fairfax, VA 22030.