

2021 Virginia Construction Code

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

SECTION 307 HIGH-HAZARD GROUP H

[F] 307.1 High-hazard Group H.

High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or *health hazard* in quantities in excess of those allowed in *control areas* complying with [Section 414](#), based on the maximum allowable quantity limits for control areas set forth in [Tables 307.1\(1\)](#) and [307.1\(2\)](#). Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this section, the requirements of [Section 415](#) and the [International Fire Code](#). *Hazardous materials* stored, or used on top of roofs or canopies, shall be classified as outdoor storage or use and shall comply with the [International Fire Code](#).

TABLE 307.1(1)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD^{a, j, m, n, p}

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE ^b			USE-CLOSED SYSTEMS ^b			USE-OPEN SYSTEMS ^b	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible dust	NA	H-2	See Note q	NA	NA	See Note q	NA	NA	See Note q	NA
Combustible fiber ^q	Loose Baled ^o	H-3	(100) (1,000)	NA	NA	(100) (1,000)	NA	NA	(20) (200)	NA
Combustible liquid ^{c, i}	II IIIA IIIB	H-2 or H-3 H-2 or H-3 NA	NA	120 ^{d, e} 330 ^{d, e} 13,200 ^{e, f}	NA	NA	120 ^d 330 ^d 13,200 ^f	NA	NA	30 ^d 80 ^d 3,300 ^f
Cryogenic flammable	NA	H-2	NA	45 ^d	NA	NA	45 ^d	NA	NA	10 ^d
Cryogenic inert	NA	NA	NA	NA	NL	NA	NA	NL	NA	NA
Cryogenic oxidizing	NA	H-3	NA	45 ^d	NA	NA	45 ^d	NA	NA	10 ^d
Explosives	Division 1.1	H-1 H-1 H-1 or H-2 H-3 H-3 H-1 H-1 H-1	1 ^{e, g}	(1) ^{e, g}	NA	0.25 ^g	(0.25) ^g	NA	0.25 ^g	(0.25) ^g
	Division 1.2		1 ^{e, g}	(1) ^{e, g}		0.25 ^g	(0.25) ^g		0.25 ^g	(0.25) ^g
	Division 1.3		5 ^{e, g}	(5) ^{e, g}		1 ^g	(1) ^g		1 ^g	(1) ^g
	Division 1.4		50 ^{e, g}	(50) ^{e, g}		50 ^g	(50) ^g		NA	NA
	Division 1.4G		125 ^{e, l}	NA		NA	NA		NA	NA
	Division 1.5		1 ^{e, g}	(1) ^{e, g}		0.25 ^g	(0.25) ^g		0.25 ^g	(0.25) ^g
Flammable gas	Gaseous	H-2	NA	NA (150) ^{d, e}	1,000 ^{d, e} NA	NA	NA (150) ^{d, e}	1,000 ^{d, e} NA	NA	NA
	Liquefied									
Flammable liquid ^c	IA IB and IC	H-2 or H-3	NA	30 ^{d, e} 120 ^{d, e}	NA	NA	30 ^d 120 ^d	NA	NA	10 ^d 30 ^d
Flammable liquid, combination (IA, IB, IC)	NA	H-2 or H-3	NA	120 ^{d, e, h}	NA	NA	120 ^{d, h}	NA	NA	30 ^{d, h, r}
Flammable solid	NA	H-3	125 ^{d, e}	NA	NA	125 ^d	NA	NA	25 ^d	NA
Inert gas	Gaseous	NA	NA	NA	NL	NA	NA	NL	NA	NA
	Liquefied	NA	NA	NA	NL	NA	NA	NL	NA	NA

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Organic peroxide	UD I III III IV V	H-1 H-2 H-3 H-3 NA NA	1 ^{e, g} 5 ^{d, e} 50 ^{d, e} 125 ^{d, e} NL NL	(1) ^{e, g} (5) ^{d, e} (50) ^{d, e} (125) ^{d, e} NL NL	NA	0.25 ^g 1 ^d 50 ^d 125 ^d NL NL	(0.25) ^g (1) ^d (50) ^d (125) ^d NL NL	NA	0.25 ^g 1 ^d 10 ^d 25 ^d NL NL	(0.25) ^g (1) ^d (10) ^d (25) ^d NL NL
Oxidizer	4 3 ^k 2 1	H-1 H-2 or H-3 H-3 NA	1 ^g 10 ^{d, e} 250 ^{d, e} 4,000 ^{e, f}	(1) ^{e, g} (10) ^{d, e} (250) ^{d, e} (4,000) ^{e, f}	NA	0.25 ^g 2 ^d 250 ^d 4,000 ^f	(0.25) ^g (2) ^d (250) ^d (4,000) ^f	NA	0.25 ^g 2 ^d 50 ^d 1,000 ^f	(0.25) ^g (2) ^d (50) ^d (1,000) ^f
Oxidizing gas	Gaseous Liquefied	H-3	NA	NA (150) ^{d, e}	1,500 ^{d, e} NA	NA	NA (150) ^{d, e}	1,500 ^{d, e} NA	NA	NA
Pyrophoric	NA	H-2	4 ^{e, g}	(4) ^{e, g}	50 ^{e, g}	1 ^g	(1) ^g	10 ^{e, g}	0	0
Permissible fireworks	1.4G	H-3	125 ^{d, e, l}	NA	NA	NA	NA	NA	NA	NA
Unstable (reactive)	4 3 2 1	H-1 H-1 or H-2 H-3 NA	1 ^{e, g} 5 ^{d, e} 50 ^{d, e} NL	(1) ^{e, g} (5) ^{d, e} (50) ^{d, e} NL	10 ^{e, g} 50 ^{d, e} 750 ^{d, e} NL	0.25 ^g 1 ^d 50 ^d NL	(0.25) ^g (1) ^d (50) ^d NL	2 ^{e, g} 10 ^{d, e} 750 ^{d, e} NL	0.25 ^g 1 ^d 10 ^d NL	(0.25) ^g (1) ^d (10) ^d NL
Water reactive	3 2 1	H-2 H-3 NA	5 ^{d, e} 50 ^{d, e} NL	(5) ^{d, e} (50) ^{d, e} NL	NA	5 ^d 50 ^d NL	(5) ^d (50) ^d NL	NA	1 ^d 10 ^d NL	(1) ^d (10) ^d NL

For SI: 1 cubic foot = 0.028 m³, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

NL = Not Limited; NA = Not Applicable; UD = Unclassified Detonable.

- For use of control areas, see [Section 414.2](#).
- The aggregate quantity in use and storage shall not exceed the quantity specified for storage.
- The quantities of alcoholic beverages in retail and wholesale sales occupancies shall not be limited provided the liquids are packaged in individual containers not exceeding 1.3 gallons. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.
- Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an *automatic sprinkler system* in accordance with [Section 903.3.1.1](#). Where Note e also applies, the increase for both notes shall be applied accumulatively.
- Maximum allowable quantities shall be increased 100 percent when stored in approved storage cabinets, day boxes, gas cabinets, gas rooms or exhausted enclosures or in *listed* safety cans in accordance with [Section 5003.9.10](#) of the *International Fire Code*. Where Note d also applies, the increase for both notes shall be applied accumulatively.
- Quantities shall not be limited in a *building* equipped throughout with an *automatic sprinkler system* in accordance with [Section 903.3.1.1](#).
- Allowed only in buildings equipped throughout with an *automatic sprinkler system* in accordance with [Section 903.3.1.1](#).
- Containing not more than the maximum allowable quantity per *control area* of Class IA, IB or IC flammable liquids.
- The maximum allowable quantity shall not apply to fuel oil storage complying with [Section 605.4.2](#) of the *International Fire Code*.
- Quantities in parentheses indicate quantity units in parentheses at the head of each

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column.

- k. A maximum quantity of 220 pounds of solid or 22 gallons of liquid Class 3 oxidizers is allowed when such materials are necessary for maintenance purposes, operation or sanitation of *equipment* when the storage containers and the manner of storage are approved.
- l. Net weight of the pyrotechnic composition of the fireworks. Where the net weight of the pyrotechnic composition of the fireworks is not known, 25 percent of the gross weight of the fireworks, including packaging, shall be used.
- m. For gallons of liquids, divide the amount in pounds by 10 in accordance with [Section 5003.1.2](#) of the International Fire Code.
- n. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with [Section 414.2.5](#), see [Tables 414.2.5\(1\)](#) and [414.2.5\(2\)](#).
- o. Densely packed baled cotton that complies with the packing requirements of [ISO 8115](#) shall not be included in this material class.
- p. The following shall not be included in determining the maximum allowable quantities:
 1. Liquid or gaseous fuel in fuel tanks on vehicles.
 2. Liquid or gaseous fuel in fuel tanks on motorized *equipment* operated in accordance with the [International Fire Code](#).
 3. Gaseous fuels in piping systems and fixed appliances regulated by the [International Fuel Gas Code](#).
 4. Liquid fuels in piping systems and fixed appliances regulated by the [International Mechanical Code](#).
 5. Alcohol-based hand rubs classified as Class I or II liquids in dispensers that are installed in accordance with [Sections 5705.5](#) and [5705.5.1](#) of the *International Fire Code*. The location of the alcohol-based hand rub (ABHR) dispensers shall be provided in the *construction* documents.
- q. Where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with [Section 414.1.3](#).
- r. The tabular value for distilled spirit distillation and blending rooms is 120 gallons.

[F] TABLE 307.1(2)

MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD^{a, c,}

MATERIAL	STORAGE ^b			USE-CLOSED SYSTEMS ^b			USE-OPEN SYSTEMS ^b	
	Solid pounds ^{d, e}	Liquid gallons (pounds) ^{d, e}	Gas cubic feet at NTP (pounds) ^d	Solid pounds ^d	Liquid gallons (pounds) ^d	Gas cubic feet at NTP (pounds) ^d	Solid pounds ^d	Liquid gallons (pounds) ^d
Corrosives	5,000	500	Gaseous 810 ^e Liquefied (150)	5,000	500	Gaseous 810 ^e Liquefied (150)	1,000	100
Highly Toxic	10	(10)	Gaseous 20 ^g Liquefied (4) ^g	10	(10)	Gaseous 20 ^g Liquefied (4) ^g	3	(3)
Toxic	500	(500)	Gaseous 810 ^e Liquefied (150) ^e	500	(500)	Gaseous 810 ^e Liquefied (150) ^e	125	(125)

For SI: 1 cubic foot = 0.028 m³, 1 pound = 0.454 kg, 1 gallon = 3.785 L.

- a. For use of control areas, see [Section 414.2](#).
- b. The aggregate quantity in use and storage shall not exceed the quantity specified for storage.

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- c. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50 percent by volume of water-miscible liquids and with the remainder of the solutions not being flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.
- d. Maximum allowable quantities shall be increased 100 percent in buildings equipped throughout with an *approved automatic sprinkler system* in accordance with [Section 903.3.1.1](#). Where Note e also applies, the increase for both notes shall be applied accumulatively.
- e. Maximum allowable quantities shall be increased 100 percent where stored in approved storage cabinets, gas cabinets or exhausted enclosures as specified in the *International Fire Code*. Where Note d also applies, the increase for both notes shall be applied accumulatively.
- f. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with [Section 414.2.5](#), see [Tables 414.2.5\(1\)](#) and [414.2.5\(2\)](#).
- g. Allowed only where stored in approved exhausted gas cabinets or exhausted enclosures as specified in the *International Fire Code*.
- h. Quantities in parentheses indicate quantity units in parentheses at the head of each column.
- i. For gallons of liquids, divide the amount in pounds by 10 in accordance with [Section 5003.1.2](#) of the *International Fire Code*.

[F] 307.1.1 Uses other than Group H.

An occupancy that stores, uses or handles *hazardous materials* as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of [Section 416](#) and the *International Fire Code*.
2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *International Fire Code*.
3. Closed piping system containing *flammable or combustible liquids* or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize *combustible liquid* solvents having a *flash point* of 140°F (60°C) or higher in closed systems employing equipment *listed* by an *approved* testing agency, provided that this occupancy is separated from all other areas of the building by 1-hour *fire barriers* constructed in accordance with [Section 707](#) or 1-hour *horizontal assemblies* constructed in accordance with [Section 711](#), or both.
5. Cleaning establishments that utilize a liquid solvent having a *flash point* at or above 200°F (93°C).
6. Liquor stores and distributors without bulk storage.
7. Refrigeration systems.
8. The storage or utilization of materials for agricultural purposes on the premises.
9. Stationary storage battery systems installed in accordance with the *International Fire Code*.
10. *Corrosive* personal or household products in their original packaging used in retail display.
11. Commonly used *corrosive* building materials.
12. Buildings and structures occupied for *aerosol product* storage, *aerosol cooking spray products* or *plastic aerosol 3 products* shall be classified as Group S-1, provided that such buildings conform to the requirements of the *International Fire Code*.
13. Display and storage of nonflammable solid and nonflammable or noncombustible liquid *hazardous materials* in quantities not exceeding the maximum allowable quantity per control area in Group M or S occupancies complying with [Section 414.2.5](#).
14. The storage of black powder, smokeless propellant and small arms primers in Groups M, R-3 and R-5 and special industrial explosive devices in Groups B, F, M and S, provided such storage conforms to the quantity limits and requirements prescribed in the *International Fire Code*, as amended in [Section 307.9](#).
15. Stationary fuel cell power systems installed in accordance with the *International Fire Code*.

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16. Capacitor energy storage systems in accordance with the [International Fire Code](#).
17. Group B *higher education laboratory* occupancies complying with [Section 428](#) and [Chapter 38](#) of the *International Fire Code*.
18. The storage of distilled spirits and wines in wooden barrels and casks. Distillation, blending, bottling, and other hazardous materials storage or processing shall be in separate control areas complying with [Section 414.2](#)

[F] 307.2 Hazardous materials.

Hazardous materials in any quantity shall conform to the requirements of this code, including [Section 414](#), and the *International Fire Code*.

[F] 307.3 High-hazard Group H-1.

Buildings and structures containing materials that pose a detonation hazard shall be classified as Group H-1. Such materials shall include, but not be limited to, the following:

Detonable *pyrophoric materials*

Explosives:

Division 1.1

Division 1.2

Division 1.3

Division 1.4

Division 1.5

Division 1.6

Organic peroxides, unclassified detonable

Oxidizers, Class 4

Unstable (reactive) materials, Class 3 detonable and Class 4

[F] 307.3.1 Occupancies containing explosives not classified as H-1.

The following occupancies containing *explosive* materials shall be classified as follows:

1. Division 1.3 *explosive* materials that are used and maintained in a form where either confinement or configuration will not elevate the hazard from a mass fire to mass *explosion* hazard shall be allowed in H-2 occupancies.
2. Articles, including articles packaged for shipment, that are not regulated as a Division 1.4 *explosive* under Bureau of Alcohol, Tobacco, Firearms and Explosives regulations, or unpackaged articles used in process operations that do not propagate a detonation or deflagration between articles shall be allowed in H-3 occupancies.

[F] 307.4 High-hazard Group H-2.

Buildings and structures containing materials that pose a deflagration hazard or a hazard from accelerated burning shall be classified as Group H-2. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA *flammable or combustible liquids* that are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch gauge (103.4 kPa).

Combustible dusts where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with [Section 414.1.3](#).

Cryogenic fluids, flammable.

Flammable gases.

Organic peroxides, Class I.

Oxidizers, Class 3, that are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch gauge (103 kPa).

Pyrophoric liquids, solids and gases, nondetonable.

Unstable (reactive) materials, Class 3, nondetonable.

Water-reactive materials, Class 3.

[F] 307.5 High-hazard Group H-3.

Buildings and structures containing materials that readily support combustion or that pose a *physical hazard* shall be classified as Group H-3. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA *flammable or combustible liquids* that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103.4 kPa) or less

Combustible fibers, other than densely packed *baled cotton*, where manufactured, generated or used in such a manner that the concentration and conditions create a fire or *explosion* hazard based on information prepared in accordance with [Section 414.1.3](#)

Consumer *fireworks*, 1.4G (Class C, Common)

Cryogenic fluids, oxidizing

Flammable solids

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Organic peroxides, Class II and III

Oxidizers, Class 2

Oxidizers, Class 3, that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103 kPa) or less

Oxidizing gases

Unstable (reactive) materials, Class 2

Water-reactive materials, Class 2

[F] 307.6 High-hazard Group H-4.

Buildings and structures containing materials that are *health hazards* shall be classified as Group H-4. Such materials shall include, but not be limited to, the following:

Corrosives

Highly toxic materials

Toxic materials

[F] 307.7 High-hazard Group H-5.

Semiconductor fabrication facilities and comparable research and development areas in which hazardous production materials (HPM) are used and the aggregate quantity of materials is in excess of those specified in [Table 307.1\(1\)](#) and [\[F\] Table 307.1\(2\)](#) shall be classified as Group H-5. Such facilities and areas shall be designed and constructed in accordance with [Section 415.11](#).

[F] 307.8 Multiple hazards.

Buildings and structures containing a material or materials representing hazards that are classified in one or more of Groups H-1, H-2, H-3 and H-4 shall conform to the code requirements for each of the occupancies so classified.

307.9 Amendments.

The following changes shall be made to the [International Fire Code \(IFC\)](#) for the use of Exception 14 in [Section 307.1.1](#):

1. Change the following definition in [Section 202](#) of the IFC to read:

Smokeless propellants. Solid propellants, commonly referred to as smokeless powders, or any propellants classified by DOTn as smokeless propellants in accordance with NA3178 (Smokeless Powder for Small Arms), used in small arms ammunition, firearms, cannons, rockets, propellant-actuated devices, and similar articles.

2. Change [Section 314.1](#) of the IFC to read as follows:

314.1 General. Indoor displays constructed within any *building* or *structure* shall comply with [Sections 314.2](#) through 314.5.

3. Add new [Section 314.5](#) to the IFC to read as follows:

314.5 Smokeless powder and small arms primers. Vendors shall not store, display or sell smokeless powder or small arms primers during trade shows inside exhibition halls except as follows:

1. The amount of smokeless powder each vendor may store is limited to the storage arrangements and storage amounts established in [Section 5606.5.2.1](#).
2. Smokeless powder shall remain in the manufacturer's original sealed container and the container shall remain sealed while inside the *building*. The repackaging of smokeless powder shall not be performed inside the *building*. Damaged containers shall not be repackaged inside the *building* and shall be immediately removed from the *building* in such manner to avoid spilling any powder.
3. There shall be at least 50 feet (15 240 mm) separation between vendors and 20 feet (6096 mm) from any exit.
4. Small arms primers shall be displayed and stored in the manufacturer's original packaging and in accordance with the requirements of [Section 5606.5.2.3](#).

4. Change Exception 4 and add Exceptions 10 and 11 to [Section 5601.1](#) of the IFC as follows:

4. The possession, storage and use of not more than 15 pounds (6.75 kg) of commercially manufactured sporting black powder, 20 pounds (9 kg) of smokeless powder and any amount of small arms primers for hand loading of small arms ammunition for personal consumption.

10. The display of small arms primers in Group M when in the original manufacturer's packaging.

11. The possession, storage and use of not more than 50 pounds (23 kg) of commercially manufactured sporting black powder, 100 pounds (45 kg) of smokeless powder, and small arms primers for hand loading of small arms ammunition for personal consumption in Group R-3 or R-5, or 200 pounds (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet (3048 mm) from inhabited buildings and are accessory to Group R-3 or R-5.

5. Change [Section 5606.4](#) of the IFC to read as follows:

5606.4 Storage in residences. Propellants for personal use in quantities not exceeding 50 pounds (23 kg) of black powder or 100 pounds (45 kg) of smokeless powder shall be stored in original containers in occupancies limited to Groups R-3 and R-5 or 200 pounds (91 kg) of smokeless powder when stored in the manufacturer's original containers in detached Group U structures at least 10 feet (3048 mm) from inhabited buildings and are accessory to

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Group R-3 or R-5. In other than Group R-3 or R-5, smokeless powder in quantities exceeding 20 pounds (9 kg) but not exceeding 50 pounds (23 kg) shall be kept in a wooden box or cabinet having walls of at least one inch (25 mm) nominal thickness or equivalent.

6. Delete [Sections 5606.4.1](#) and [5606.4.2](#) of the IFC.

7. Change [Section 5606.5.1.1](#) of the IFC to read as follows:

5606.5.1.1 Smokeless propellant. No more than 100 pounds (45 kg) of smokeless propellants in containers of 8 pounds (3.6 kg) or less capacity shall be displayed in Group M occupancies.

8. Delete [Section 5606.5.1.3](#) of the IFC.

9. Change [Section 5606.5.2.1](#) of the IFC as follows:

5606.5.2.1 Smokeless propellant. Commercial stocks of smokeless propellants shall be stored as follows:

1. Quantities exceeding 20 pounds (9 kg), but not exceeding 100 pounds (45 kg) shall be stored in portable wooden boxes having walls of at least 1-inch (25 mm) nominal thickness or equivalent.
2. Quantities exceeding 100 pounds (45 kg), but not exceeding 800 pounds (363 kg), shall be stored in storage cabinets having walls at least 1-inch (25 mm) nominal thickness or equivalent. Not more than 400 pounds (182 kg) shall be stored in any one cabinet, and cabinets shall be separated by a distance of at least 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of at least 1 hour.
3. Storage of quantities exceeding 800 pounds (363 kg), but not exceeding 5,000 pounds (2270 kg) in ~~a~~building shall comply with all of the following:
 - 3.1. The warehouse or storage room is not open to unauthorized personnel.
 - 3.2. Smokeless propellant shall be stored in nonportable storage cabinets having wood walls at least 1-inch (25 mm) nominal thickness or equivalent and having shelves with no more than 3 feet (914 mm) of vertical separation between shelves.
 - 3.3. No more than 400 pounds (182 kg) is stored in any one cabinet.
 - 3.4. Cabinets shall be located against walls with at least 40 feet (12 192 mm) between cabinets. The minimum required separation between cabinets may be reduced to 20 feet (6096 mm) provided that barricades twice the height of the cabinets are attached to the wall, midway between each cabinet. The barricades must extend a minimum of 10 feet (3048 mm) outward, be firmly attached to the wall, and be constructed of steel not less than 0.25 inch thick (6.4 mm), 2-inch (51 mm) nominal thickness wood, brick, or concrete block.
 - 3.5. Smokeless propellant shall be separated from materials classified as combustible liquids, flammable liquids, flammable solids, or oxidizing materials by a distance of 25 feet (7620 mm) or by a fire partition having a fire-resistance rating of 1 hour.
 - 3.6. The *building* shall be equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.1](#).
4. Smokeless propellants not stored according to Item 1, 2, or 3 above shall be stored in a Type 2 or 4 magazine in accordance with [Section 5604](#) and NFPA 495.