Chapter 3 General Storage Requirements

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Deputy State Fire Marshal







Introduction

2020 MINNESOTA STATE ERECODE

Minnesota State Fire Code Chapter 3 Storage

- Section 304.3 control of combustible waste material *PAGE 56*
- Sections 315.1 through 315.6 on general storage
- Sections 315.2 through 315.7 on outdoor pallet storage
 PAGES 61, 62

Waste and Rubbish

When in containers awaiting collection it is "being stored"

м	Section 304.3.2	1 Cubic Yard IFC language deleted from the 2020 MSFC
N N N N N N N	Section 303.3.3	For containers over 1.5 Cubic Yards
Ν	Section 303.3.4	5.33 Cubic Foot IFC language deleted from the 2020 MSFC

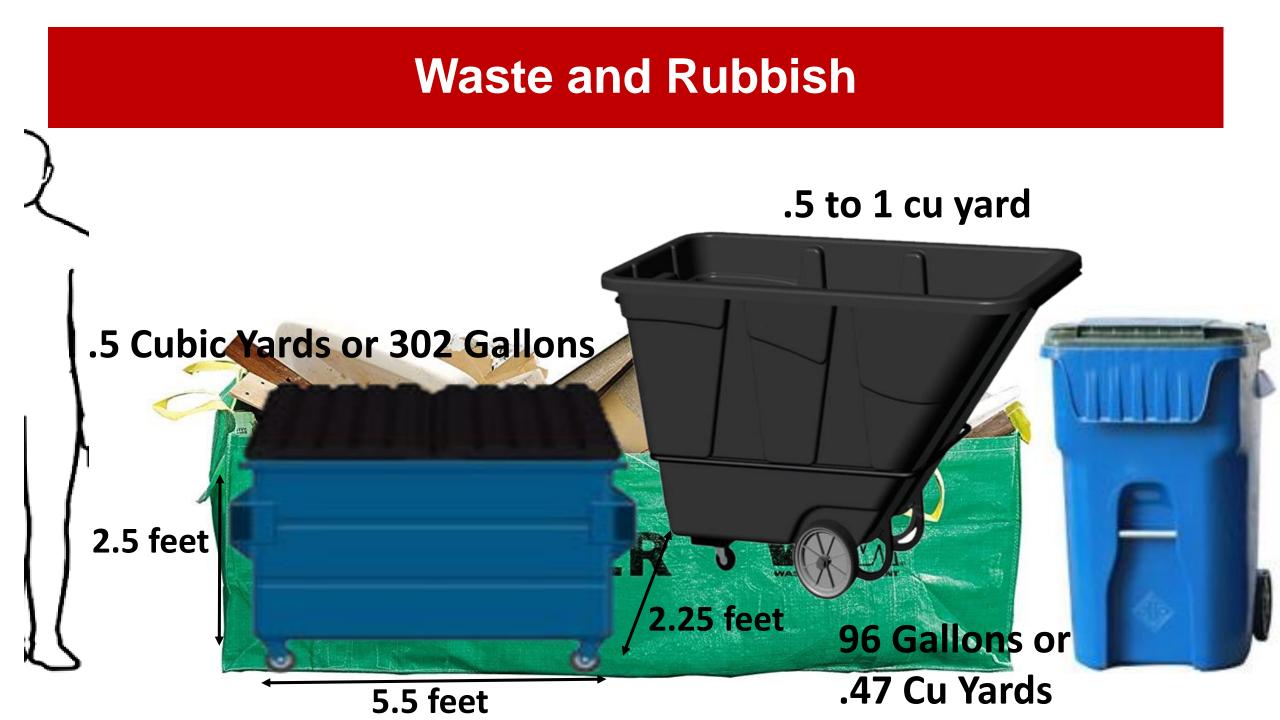
Waste and Rubbish

Containers with an individual capacity of 1.5 cubic yards or more cannot be stored in buildings or placed within 5 feet of combustible construction or openings.



Photo from thehour.com

Section 304.3.3



Waste and Rubbish

Dumpster Exceptions

- Dumpsters or containers that are placed inside buildings in areas protected by an *approved automatic sprinkler system*,
- Dumpsters or containers that are located next to buildings where the exterior area is protected by an approved automatic sprinkler system,
- Storage in a structure is allowed if the structure Type I or IIA construction, located further than 10 feet from other buildings and is designed specifically for dumpster storage.

Section 304.3.3 Exception

Section 315

Section 315.1 through Section 315.6

General Storage Requirements



Part II-General Safety Provisions

CHAPTER 3

GENERAL REQUIREMENTS

User note:

About this chapter (Dapter 2 provides general requirements for anythal katiles, combastil downate material, ignition sources, motion picture projection reconstant film, open huming, recreational frees, pointike outdoor frequences, open furners, powered reducted tracks and appendent. weating second provides, which impact protection, forbul equipment, indeer deplays, rescal are seen aborings, outdoor public takings, fracttenenty, wear presence, where repost pransies, some experiment and/or an pro-interaction valueles. These are interacted to response at do to far lighters, real graders and land scaped roofs, laundy carb and mobile load proparation valueles. These are interacted to response promotively for everyone, including construction workers, invents, operations and maintenance personnel, and among ancy response per-

SECTION 301 bunbhs building surface or any building opening and within a controlled area identified by the use of traffic comes, barri-GENERAL 301.1 Scope. The provinions of this chapter shall govern the occupancy and maintenance of all structures and premises for ers or other approved means. Asphalt (tar) kettles and pots precentions against fire and the spread of fire and general thall not be utilized inside or on the roof of a building or structure. Roofing kettles and operating asphalt (hr) kettles 301.2 Permits Permits shall be required as set forth in Secshall not block means of egress, gates, roadways or entrances. ton 105.6 for the activities or uses regulated by Sections 306. 303.3 Location of fael containers. Fuel containers shall be located not less than 10 feet (3045 nam) from the burner. Exception: Comminary properly insulated from heat or finms are allowed to be within 2 feet (610 mm) of the SECTION 302 DEFINITIONS 302.1 Definitions. The following terms are defined in Chap-303.4 Attendant. An operating kettle shall be attended by not 303.4 Attendant. An operating some time to smeanest oy not less than one employee incoviledgeable of the operations and hands. The employee shall be within 100 feet (30 490 mm) of the keetle and have the keetle within tight. Ladden or time. HI-BOY. HIGH-VOLTAGE TRANSMISSION LIVE. he obtacles shall not form a part of the route between the standard and the kettle. PORTABLE OUTDOOR FIREPLACE 303.5 Fire extinguishers. There shall be a portable fire extin-POWERED INDUSTRIAL TRUCK. 303.5 Fire extinguishers. There that he is portate the extin-mitther complying with Section 906 and with a minimum 40-B.C. ranking within 25 Sect (7620 mm) of each apphals (nz) ket-the during the period such learthe is being unlitted. Addition-ally, there than be one periodic five extinguisher with a minimum 3-A40-B.C rating on the roof being covered. RECREATIONAL FIRE. SKY LANTERN SECTION 303 ASPHALT KETTLES 303.6 Lidz. Asphalt (ter) kettles shall be equipped with tight-3031 Transporting. Aphalit (tor) kathas shall not be trans-pond over my highnry, road or stress when the heat source for the kerts is opening. 303.7 Hi-boys, Hi-boys shall be constructed of noncombustibe removed. In-boys shall be constructed of noncombust-ble material. Hi-boys shall be limited to a capacity of 55 gal-lem (OR L). Fusi sources or heating elements shall not be allowed as part of a hi-boy. Exception: Appliant (for) kettles in the process of patching road surfaces roza raznova. 303.2 Locasion. Auplialit (ter) kastias shall nor be locasid within 20 fast (6096 mm) of any combustiols manarial, com-303.5 Roofing kettles. Roofing kettles shall be constructed of noncombusible materials. 303.9 Feel container: under air pressure. Fuel container: dur opens under air pressure skall not exceed 20 gallon: (76 L) in capacity and skall be approved.

Section 315 General Information

- Where a material in storage is specifically regulated by another section of the code, that section would apply in addition to any applicable provisions in Section 315.
- If the storage meets the Section 202 definition of high piled storage then the provisions of Chapter 32 would apply



Storage Permits

Permit required- A permit for miscellaneous combustible storage shall be required as set forth in Section 105.6.

Operational Permit is required for Miscellaneous Storage

- in any building or on any premises,
- in excess of 2,500 cubic feet gross volume,
- Includes combustible empty packing cases, boxes, barrels or similar containers, combustible pallets, rubber tires, rubber, cork or similar combustible material.

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ле	SCOPE AND ADMINISTRATION	
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Section 315.2 & 105.6.29

Storage inside Buildings

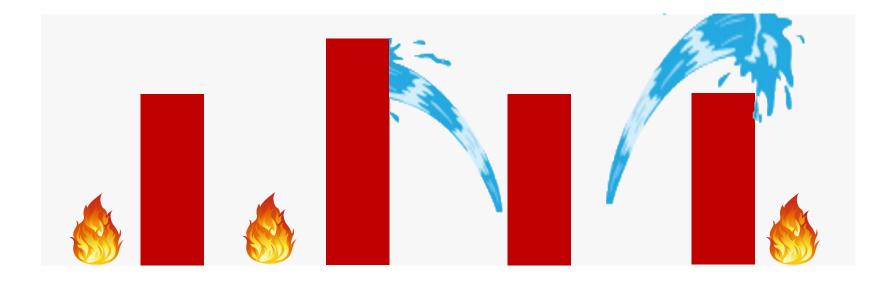
Storage of materials in buildings shall be orderly and stacks shall be stable. Storage of combustible materials shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.



Ceiling Clearance

Storage shall be maintained...

 2 feet or more below the ceiling in nonsprinklered areas of buildings

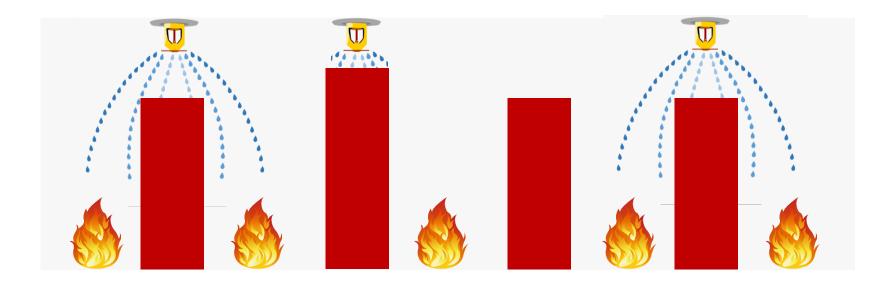


Section 315.3.1

Ceiling Clearance

Storage shall be maintained...

 minimum of 18 inches below sprinkler head deflectors in sprinklered areas of buildings

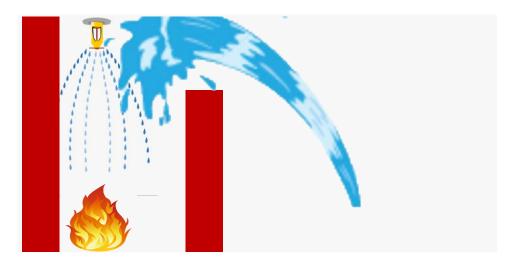


Section 315.3.1

Ceiling Clearance

- The 2-foot ceiling clearance is not
 required for storage along walls
 in nonsprinklered areas of
 buildings.
- The 18-inch ceiling clearance is not required for storage along walls in areas of buildings equipped with an automatic sprinkler system

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Section 315.3.1 Exceptions

Means of Egress

Combustible materials shall not be stored in *exits* or enclosures for *stairways* and *ramps*.



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Bottom of stairwell covered by 315.3.2



Exit access/ corridor covered in Chapter 10 Section 315.3.2

- Combustible storage in
 - boiler rooms,

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- mechanical rooms,
 - electrical equipment rooms,
 - elevator equipment rooms.
- M Must meet the requirements of Sections 315.3.3.1 through 315.3.3.4

- Storage in equipment rooms must be
 - Neat and orderly

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- Allow access to necessary equipment
 - 36" minimum clearance or per
 - the manufacturer which ever is greater
- The Fire Code Official is authorized to order removal of any or all materials that pose a hazard.



Section 315.3.3.1

- Electrical vaults and equipment rooms are not allowed to have any storage in them.
- These are rooms dedicated to main
 electrical distribution equipment.

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For more clarification on working space
 and clearance for electrical equipment
 see section 604.3



Section 315.3.3.2

- 604.3 Working space and clearance. A working space of not
 less than
 - 30" in width
 - 36" in depth
 - 78" in height
- shall be provided in front of electrical service equipment.
- Storage of materials cannot be located within the working
- <u> space</u>. ∎
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If the equipment is wider than 30" the working clearance is no less than the width of the equipment.
Section 315.3.3.2

No storage is allowed in elevator equipment or machine
 rooms



Photo: Delta Elevator

Section 315.3.3.3

No storage is allowed in rooms that have shafts open to other floors.

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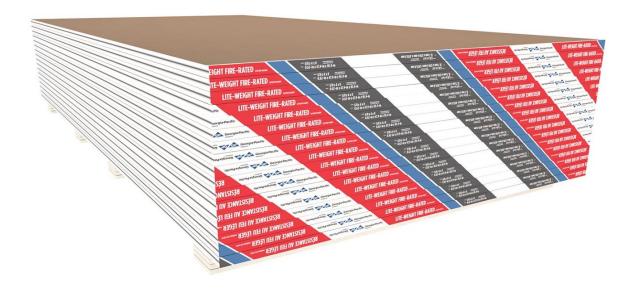


Section 315.3.3.4

Attics, Under Floor, and Concealed Spaces

Attic, under-floor and concealed spaces used for storage of combustible materials shall

 protected <u>on the storage side</u> with a minimum 1-hour fireresistance-rated construction



Section 315.3.4

Attics, Under Floor, and Concealed Spaces

Attic, under-floor and concealed spaces openings must have access panels that are self- closing Made of

- noncombustible construction, or
- solid wood core not less than 1 ¾" inches in thickness,
- Storage shall not be placed on exposed joists.



Section 315.3.4

Attics, Under Floor, and Concealed Spaces

- Areas protected by approved automatic sprinkler systems
- Group R-3 and Group U occupancies.



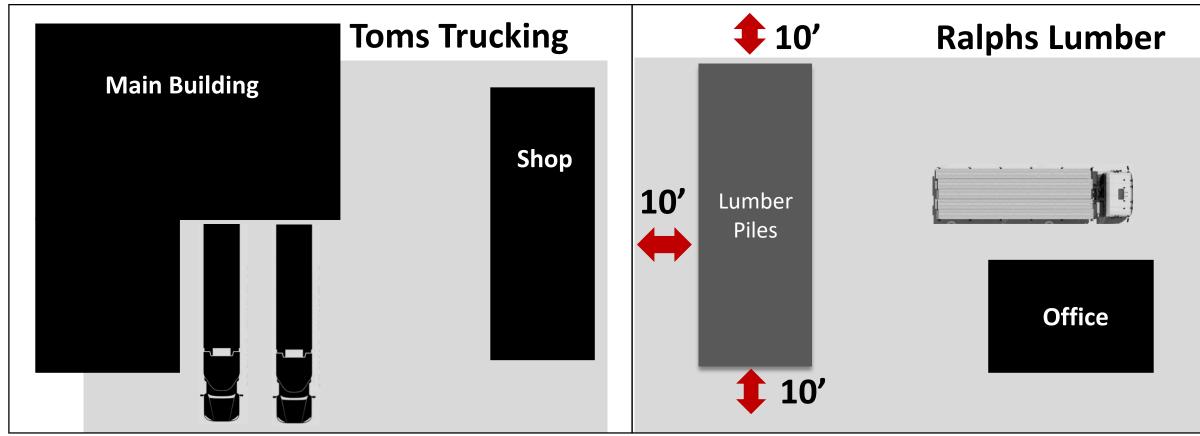


Photo VSC Fire

Section 315.3.4 Exceptions

Outside Storage

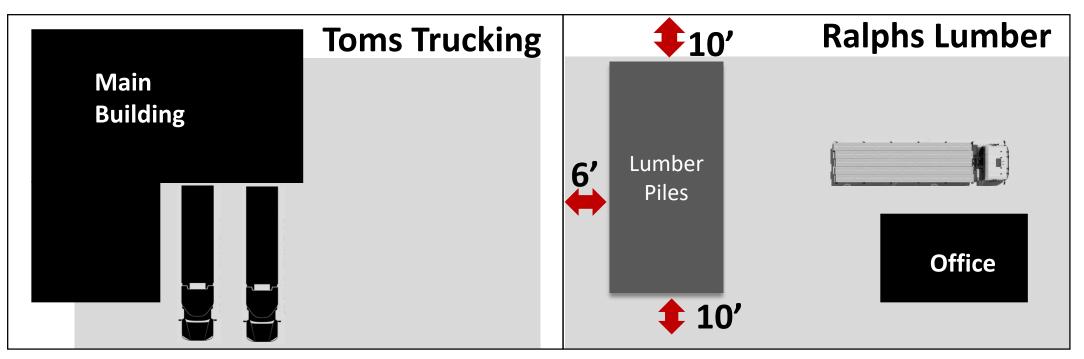
Outside storage of combustible materials shall not be located within 10 feet of a lot line.



Section 315.4

Outside Storage

- The separation distance is allowed to be reduced to 3 feet for storage not exceeding 6 feet in height.
- The separation distance is allowed to be reduced where the fire code official determines that hazard to the adjoining property does not exist.



Section 315.4

Overhead projections from Buildings

Storage displays and handling of combustible materials underneath overhead projections is only allowed where the building is protected by an automatic sprinkler system and automatic sprinklers are installed under the overhang, eves or canopy.



Section 315.4.1





Storage out in the open cannot be higher than 20 feet





Section 315.4.1

High-voltage Transmission Lines

Storage located underneath high-voltage transmission lines shall be in accordance with Section 316.6.2

The concern is not that the lines will cause a fire, but rather a fire could potentially cause a service disruption or possible collapse.



Section 315.5

High-voltage Transmission Lines

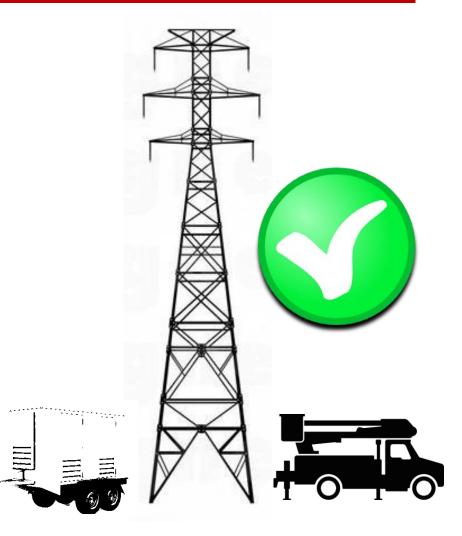
- Outdoor storage within the utility easement underneath high-voltage transmission lines shall be limited to noncombustible material.
- Storage of hazardous materials including, but not limited to, flammable and combustible liquids is prohibited.



Section 316.6.2

High-voltage Transmission Lines

- Combustible storage, including vehicles and fuel storage for backup power equipment serving public utility equipment, is allowed
- Requires a plan to be submitted and approved indicating the storage configuration



Section 316.6.2 Exception

Storage in Plenum Spaces

Storage is prohibited in plenums.

Abandoned material in plenums shall be deemed to be storage and shall be removed.



Photo Grainger

Section 315.6

Storage in Plenum Spaces

Abandoned cables that are able to be accessed without causing damage, or requiring demolition to the building shall be identified for future use with a tag or shall be deemed storage and shall be removed.

Future use requires a tag or termination on both ends per the NEC



Section 315.6

Outdoor Pallet Storage

Pallets stored outdoors shall comply with Sections 315.7.1 through 315.7.7.

Pallets stored within a building shall be protected in accordance with Chapter 32.



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Pallet Storage Beneath Overhead Projections from Buildings

Μ Where buildings are equipped Ν throughout with an automatic M Ν sprinkler system, the outdoor M storage of pallets under eaves, Ν M canopies or other projections or Ν overhangs are prohibited except M Ν where automatic sprinklers are M Ν installed under such eaves, canopies M or other projections or overhangs. Ν M

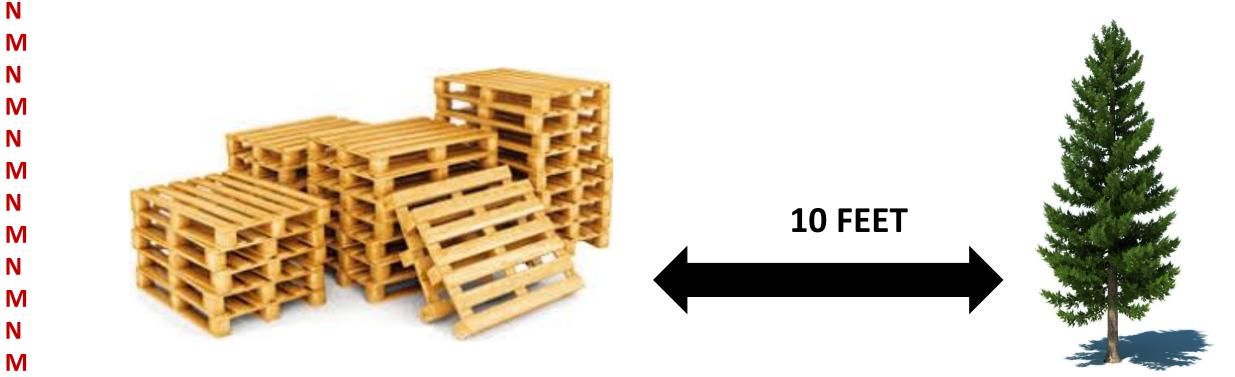
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Section 315.7.1

Distance to Lot Lines

Distance to lot line. Pallet storage shall not be located within 10
 feet of a lot line.



No Exceptions or approvals

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Section 315.7.2

Pallet Storage Height

- Pallet storage shall not exceed 20
- M feet in height.

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- Be stacked stable in piles
- not to exceed 400 square feet per
 stack



Sections 315.7.3, 315.7.4 & 315.7.5

Pile Separation

- Μ Pallet stacks and piles shall be separated in accordance with Ν Sections 315.7.6.1 and 315.7.6.2 Μ Ν Μ Ν 315.7.6.1 Separation from buildings Μ Ν Μ 315.7.6.2 Separation from other pallets and on-site storage Ν Μ Ν Μ Ν

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Section 315.7.6

Pallet - Building Separation

- Pallet stacks and piles shall be separated from buildings in
- accordance with Table 315.7.6(1) for wood pallets and Table
- ^N 315.7.6(2) for plastic pallets.

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Pallet - Building Separation

			WOOD PALLET SEPARATION DISTANCE (feet)		
WALL CONSTRUCTION	OPENING TYPE	≤ 50 Pallets	51 to 200 Pallets	>200 Pallets	
Masomy	None	2	2	2	
Masomy	Fire-rated glazing with open sprinklers	2	5	20	
Masomy	Fire-rated glazing	10	5	20	
Masomy	Plain glass with open sprinklers	10	5	20	
Noncombustible	None	10	5	20	
Wood with open sprinklers	—	10	5	20	
Wood	None	15	30	90	
Any	Plain glass	15	30	90	

Table 315.7.6(1)

M For SI: 1 foot = 304.8 mm.

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Pallet - Building Separation

TABLE 315.7.6(2) SEPARATION DISTANCE BETWEEN PLASTIC PALLET STACKS AND BUILDINGS				
	PLASTIC PALLET SEPARATION DISTANCE (feet)			
WALL CONSTRUCTION	OPENING TYPE	≤ 50 Pallets	51 to 200 Pallets	>200 Pallets
Masonry	None	2	2	2
Masomy	Fire-rated glazing with open sprinklers	10	20	50
Masomy	Fire-rated glazing	15	40	100
Masonry	Plain glass with open sprinklers	15	40	100
Noncombustible	None	15	40	100
Wood with open sprinklers	_	15	40	100
Wood	None	30	80	150
Any	Plain glass	30	80	150

For SI: 1 foot = 304.8 mm.

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Table 315.7.6(2)

Pallet - On-Site Storage Separation

Pallets shall be separated from other pallet piles and other
 storage in accordance with Table 315.7.6(3) for wood pallets
 and Table 315.7.6(4) for plastic pallets

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Pallet - On-Site Storage Separation

TABLE 315.7.6(3) SEPARATION FROM OTHER PALLET PILES AND ON-SITE STORAGE (WOOD PALLETS)			
	WOOD PALLET SEPARATION DISTANCE (feet)		
	≤ 50 Pallets	51 to 200 Pallets	>200 Pallets
Between pallet piles	7.5	15	45
Other on-site storage	7.5	15	45

Table 315.7.6(3)

For SI: 1 foot = 304.8 mm.

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Pallet - On-Site Storage Separation

TABLE 315.7.6(4) SEPARATION FROM OTHER PALLET PILES AND ON-SITE STORAGE (PLASTIC PALLETS)

	PLASTIC PALLET SEPARATION DISTANCE (feet)			
	≤ 50 Pallets	51 to 200 Pallets	>200 Pallets	
Between pallet piles	15	40	75	
Other on-site storage	15	40	75	

For SI: 1 foot = 304.8 mm.

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Table 315.7.6(4)

Prohibited Locations

Pallets shall not be stored underneath high-voltage
 transmission lines, elevated road- ways or elevated railways.

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Thank you

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