

# Ontario Fire Code

## SECTION 3.5 ***SALVAGE SHOPS AND SALVAGE YARDS***

Illustrated Commentary



*Office of the  
Ontario  
Fire Marshal*



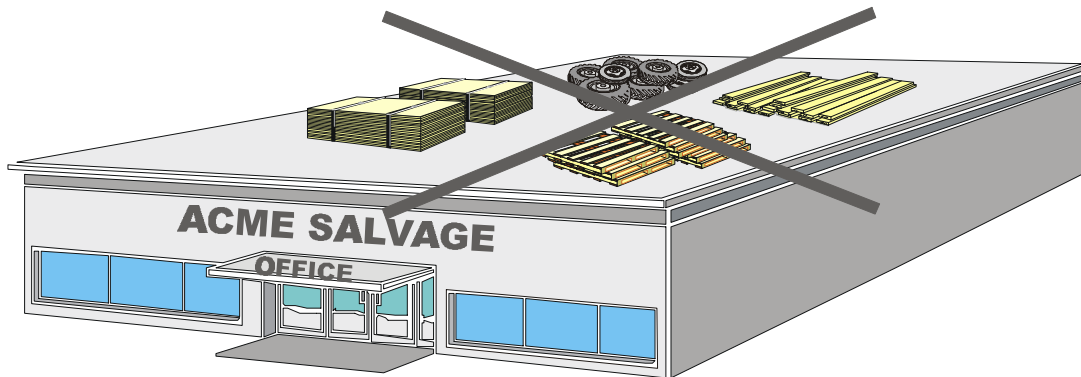
## 3.5.1. General

*Roof storage prohibited*

3.5.1.1. The roof of a **building** located in a salvage yard shall not be used for storage purposes.

Article 3.5.1.1. applies to all buildings on a property where salvage work is performed, including those used for storage, vehicle shelters, administration and sales.

The intent is to prevent storage of materials on roofs in order to decrease the likelihood that the building will collapse in the event of fire.



Roof storage prohibited.

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**Building** means any structure used or intended for supporting or sheltering any use or occupancy.

3.5.1. General

*Fires prohibited*

3.5.1.2. Fires shall not be permitted in a salvage yard except when used for heating purposes or for operating machinery or welding or cutting equipment.

In salvage yards, controlled flame sources such as cutting torches and salamanders may be used for heating or work. Article 3.5.1.2. is intended to prohibit fires/burning such as bonfires or burning of refuse piles.



3.5.1. General

*Fires prohibited*

3.5.1.3. Gas tanks on vehicles to be salvaged shall be drained and ventilated prior to salvage operations.

Salvaging parts from vehicles may involve using cutting torches that operate at very high temperatures. Article 3.5.1.3. is intended to prevent fires and explosions, resulting from the ignition of gasoline or gasoline vapours that may be present in gas tanks, during salvage work.

Gas tank drained and ventilated prior to salvage operations

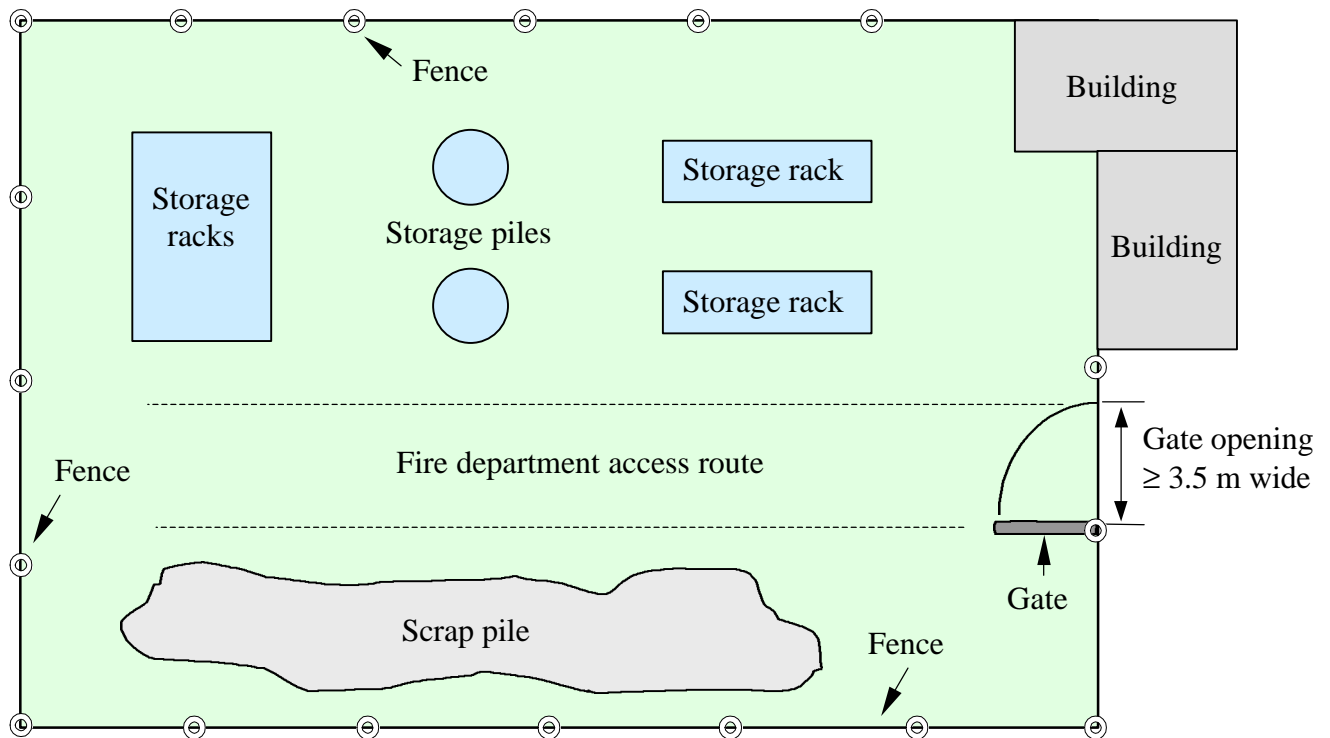


## 3.5.1. General

*Fire access gates*

3.5.1.4. Where storage areas are fenced or otherwise enclosed, gates having a clear width of 3.5 m shall be provided to permit the entry of **fire department** vehicles.

Making certain that all areas of salvage yards are accessible to fire department vehicles allows firefighters to contain fires and extinguish them with maximum efficiency. Clearance for fire department vehicles needs to be considered in the layout of access routes throughout the salvage yard. This is in order to allow those vehicles access to all areas within the site. The intent of Article 3.5.1.4. is to ensure that gates are wide enough to accommodate fire department vehicles.



**Fire department** means a group of firefighters authorized to provide fire protection services by a municipality, group of municipalities or by an agreement made under section 3 of the Fire Protection and Prevention Act.

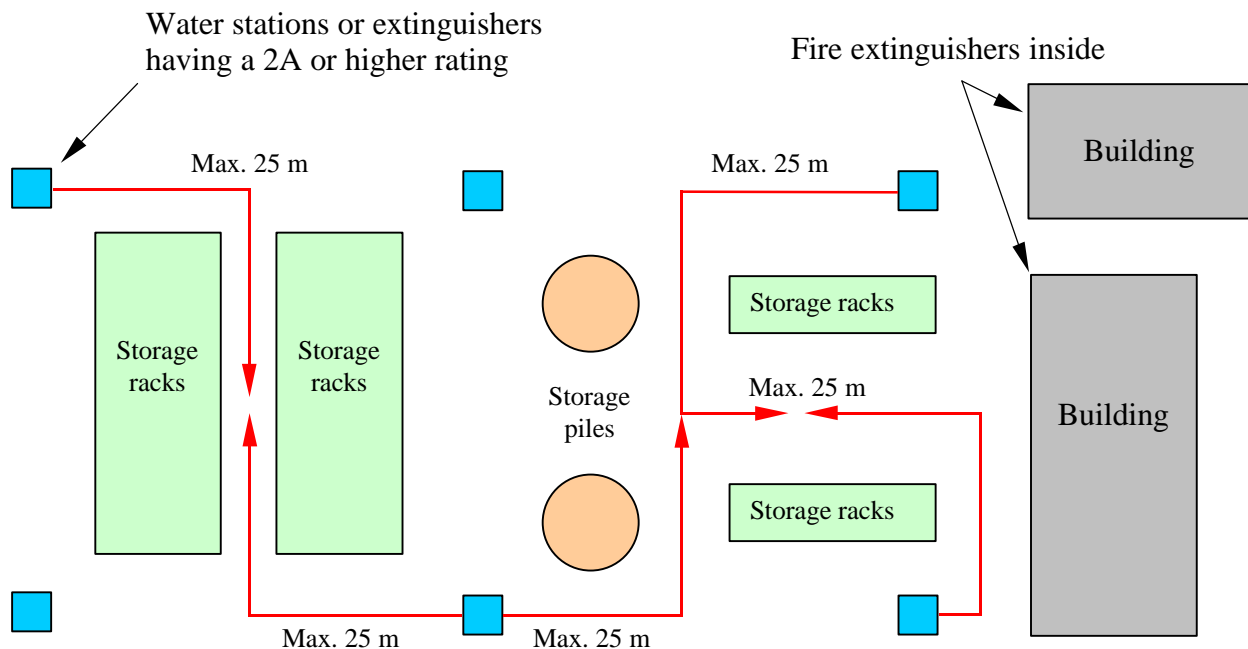
## 3.5.1. General

*Fire extinguishing provisions*

3.5.1.5. Except where all salvage and scrap material is noncombustible and free of combustibles, water barrels of 200 L capacity with three 12 L pails or portable extinguishers having a 2A or higher rating conforming to the requirements of Section 6.2 shall be provided, so that the maximum travel distance from any part of the yard to a barrel or extinguisher is 25 m.

3.5.1.6. Portable extinguishers in conformance with Section 6.2 shall be provided in each **building** located in a salvage yard.

First aid fire fighting equipment is required in salvage yards containing combustible materials and in buildings located in salvage yards. Article 3.5.1.5. ensures that extinguishing equipment, i.e. water barrels or fire extinguishers, are readily available in yards containing combustible materials. Article 3.5.1.6. is a reminder that buildings must be provided with fire extinguishers under Section 6.2.



**Building** means any structure used or intended for supporting or sheltering any use or occupancy.

## 3.5.1. General

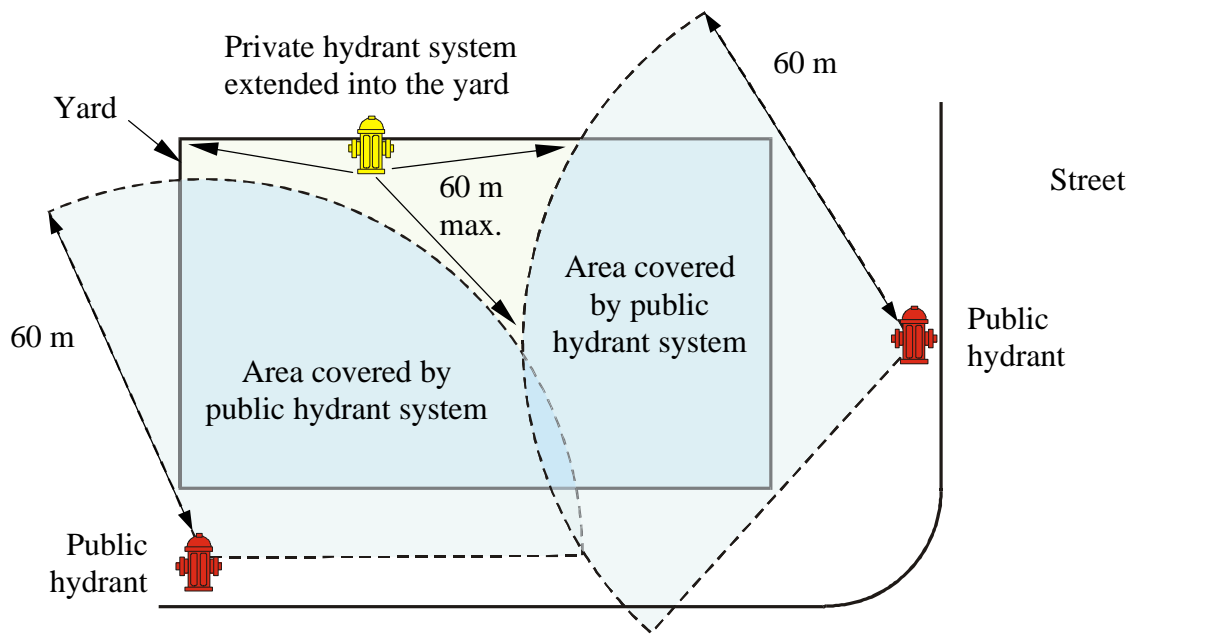
*Hydrant systems and water supply*

3.5.1.7. Except as required in Article 3.5.1.8., where a municipal hydrant system exists and is adjacent to the yard, the hydrant system shall be extended into the yard area so that all parts of the salvage yard can be reached by using not more than 60 m of hose.

3.5.1.8. Article 3.5.1.7. does not apply where the fire protection that is provided by the municipal street hydrants and mobile pumping equipment is **approved** as being adequate in the circumstances.

Salvage yards may take up a large area of land for the storage of salvaged materials. Installing private hydrants inside the yard so that any part of the yard can be reached by 60 m or less of hose can save valuable time in fire fighting. The intent of article 3.5.1.7. is to ensure that an adequate water supply is available in order to maximize fire fighting efficiency.

The Chief Fire Official may decide to waive this requirement, based on his evaluation of the fire protection provided by existing street hydrants and fire equipment owned by the municipality.



**Approved** means approved by the Chief Fire Official.



## 3.5.1. General

*Smoking prohibited*

- 3.5.1.9. Smoking shall be prohibited in salvage yards, except as permitted in Subsection 2.4.3.

Subsection 2.4.3 states that “smoking is allowed only in approved areas where it does not present a fire or explosion hazard to flammable or combustible materials or vapours” (that exist in salvage yards). “No Smoking” signs must be posted in areas where smoking is not permitted.



**3.5.1. General**

**3.5.1.10.** The telephone number of the **fire department** and location of the nearest telephones shall be posted conspicuously in working locations in the open yard and in each **building**.

This requirement is intended to inform people who discover a fire to call the fire department and know where the nearest phone is situated. Posting this information in work areas where people will see it can save valuable time in notifying the fire department.

**IN CASE OF FIRE****CALL – 555 –1212****Municipal Fire Department****Nearest phone to this location is:****At Crane Operator's Hut**

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**Building** means any structure used or intended for supporting or sheltering any use or occupancy.  
**Fire department** means a group of firefighters authorized to provide fire protection services by a municipality, group of municipalities or by an agreement made under section 3 of the Fire Protection and Prevention Act.

### 3.5.2. Piling

#### *Pile clearance and dimensions*

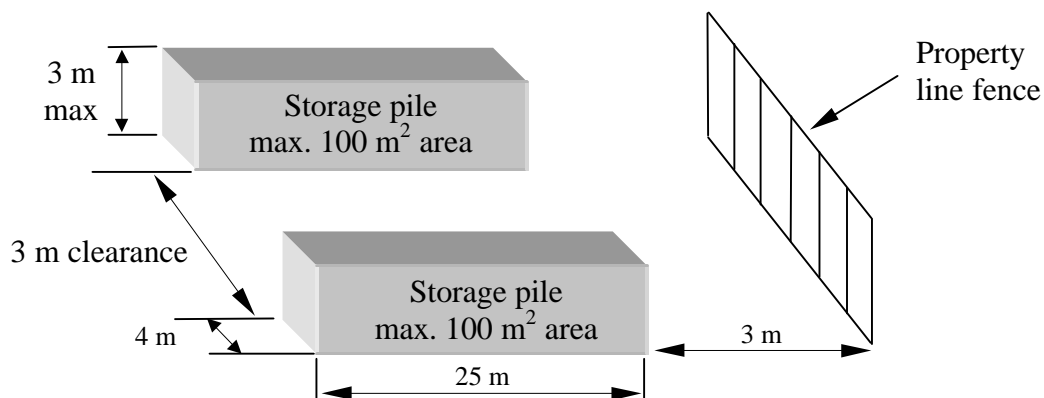
3.5.2.1. Piles that include combustible salvage shall be 3 m from property lines, and not more than 3 m in height and 100 m<sup>2</sup> in area.

3.5.2.2. Piles of salvage material shall be separated by a clear space of 3 m that is kept clear of grass and weeds.

The intent of these Articles is to limit the amount of available fuel for fires by keeping piles of combustible salvage separated by clear lanes and limiting the size of piles.

This:

- Allows firefighters to work between storage piles and fences
- Helps to prevent the spread of fire to neighbouring storage piles or properties



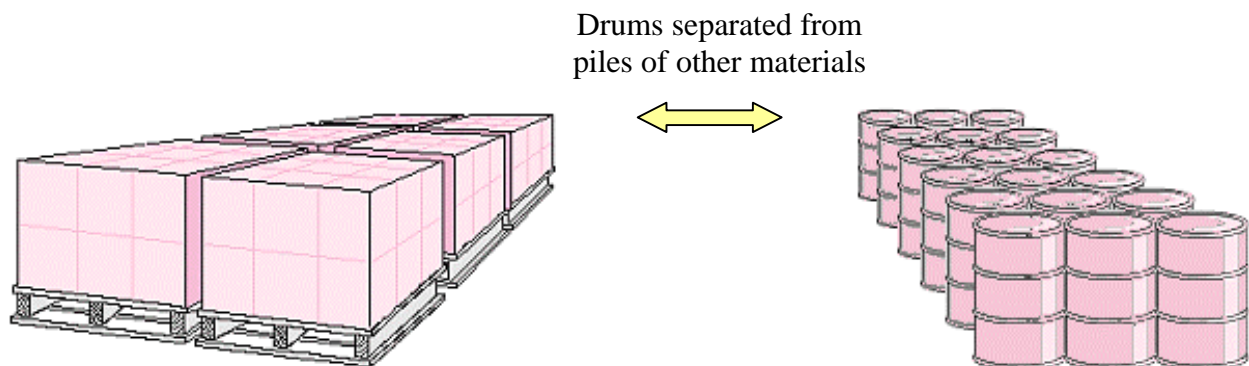
The storage piles in this illustrated example have a base area of 100 square metres (4m x 25m) and have adequate clearance between both piles and property lines.

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3.5.2. Piling  
*Piles of tanks or drums*

3.5.2.3. Tanks or drums shall be stored in piles separate from piles of other materials.

Salvaged tanks or drums may have contained hazardous materials, flammable liquids, oils or greases and may contain flammable residue. The intent of this article is to keep tanks and drums separate from other materials and decrease the likelihood of the residue posing a problem should a fire occur.



### 3.5.2. Piling

#### *Combustible metals*

- 3.5.2.4.(1) Piles or containers with metal shavings, turnings and dusts shall be stored in an area separate from other salvage materials and identified with warning signs.
- (2) Warning signs required in Sentence (1) shall
- (a) be visible from all directions of approach, and
  - (b) have the name of the metal and the words "COMBUSTIBLE METAL - DO NOT USE WATER" displayed in plain legible letters as described in Sentence (3).
- (3) Lettering on warning signs shall be red or white letters 114 mm high with a 19 mm stroke on a contrasting background.

Certain metals (e.g. titanium, magnesium, hafnium, thorium, tungsten) are highly combustible when in shaving, dust or powder form. Many react with water and release hydrogen, which can spontaneously ignite. In addition, using water on some combustible metal fires can cause a steam explosion. This results when water comes in contact with the extremely hot burning metals. Article 3.5.2.4. is intended to ensure separate storage and proper labeling of these materials as required in order to reduce the fire potential presented by such metals and to reduce the spread of fires caused when these metals combust.



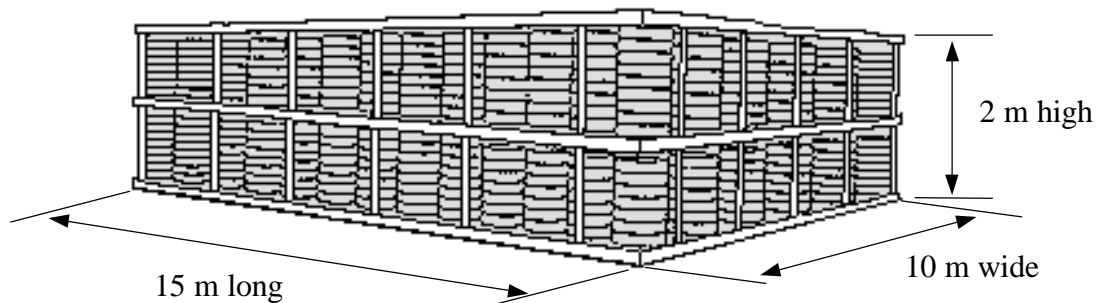
### 3.5.3. Outdoor Tire Storage Yards

#### *Application*

3.5.3.1.(1) Despite Subsection 3.5.2., this Subsection applies with respect to the outdoor storage of tires or shredded tires where the bulk volume of stored product exceeds  $300 \text{ m}^3$ .

(2) This Subsection does not apply where the stored tires or shredded tires are covered by a minimum depth of 150 mm of noncombustible material.

Rubber tire storage exceeding  $300 \text{ m}^3$  in an outdoor area presents a significant fire/environmental hazard and deserves special consideration. Subsection 3.5.3. outlines requirements for outdoor storage of tires in excess of  $300 \text{ m}^3$ . As an alternative to complying with Subsection 3.5.3., the tires or shredded tires may be covered by a minimum of 150 mm of noncombustible material, such as earth.



*A tire storage pile of these dimensions is  $300 \text{ m}^3$  (these are sample measurements). Subsection 3.5.3. applies to volumes greater than illustrated.*

3.5.3. Outdoor Tire Storage Yards  
*Prohibitions*

- 3.5.3.2.(1) Open air burning is prohibited in storage yards.
- (2) Cutting, welding or heating devices shall not be operated in storage yards.
- (3) Smoking is prohibited in storage yards except as provided in Subsection 2.4.3.
- (4) Storage piles shall not be located beneath electrical power lines with a voltage in excess of 750 volts or that supply power to fire emergency systems.

The intent of Article 3.5.3.2. is to eliminate all ignition sources such as welding and cutting from yards where rubber tire storage exceeds 300 cubic metres. Smoking is allowed only in approved areas where it does not present a fire hazard. Electrical power lines may be damaged in cases of fire, cutting off emergency fire systems. For this reason storage piles must not be located beneath power lines as described in Sentence (4).



Sentence (1)



Sentence (2)



Sentence (3)

**3.5.3. Outdoor Tire Storage Yards***Fire safety planning*

- 3.5.3.3.(1) Except as provided in Sentences (2) to (4), storage yards shall comply with the requirements of Section 2.8.
- (2) The fire safety plan shall include provisions respecting access for water tanker shuttle operations within the **fire department** access routes, if water tanker shuttle operations are required in the circumstances of the storage yard.
- (3) At least one copy of the fire emergency procedures shall be prominently posted and maintained at the storage yard.
- (4) The telephone number of the **fire department** and location of the nearest telephone shall be posted conspicuously in attended locations.

Section 2.8 of the Ontario Fire Code details the requirements for emergency planning and fire safety plans. A fire safety plan must include: procedures for sounding the fire alarm, procedures for notifying the fire department, provisions for fire department access and training requirements for supervisory staff regarding their duties in the event of a fire. The requirements stated in Sentences (2) to (4) of Article 3.5.3.3., are specific to salvage operations. They are intended to increase effective response to fire emergencies and ensure that all employees of a salvage yard know and understand what to do in case of fire.

**IN CASE OF FIRE****CALL – 555 –1212****Municipal Fire Department****Nearest phone to this location is:****At Crane Operator's Hut**

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**Fire department** means a group of firefighters authorized to provide fire protection services by a municipality, group of municipalities or by an agreement made under section 3 of the Fire Protection and Prevention Act.

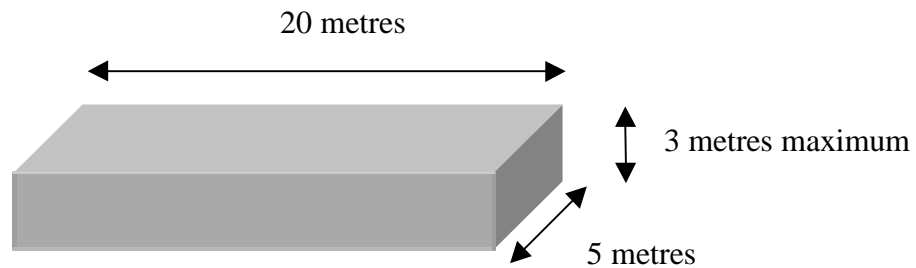


### 3.5.3. Outdoor Tire Storage Yards

#### *Pile dimensions*

3.5.3.4.(1) Individual storage piles shall not be more than 3 m in height and 100 m<sup>2</sup> in area.

Individual storage piles must not exceed the dimensions described in Sentence 3.5.3.4.(1). Tire storage piles that are larger make it more difficult to contain and extinguish fires. The intent of this article is to limit the amount of fuel that an individual storage pile contains.



(maximum pile area not to exceed 100 m<sup>2</sup>)

*Illustration of storage pile dimensions (these are sample measurements) that comply with Sentence 3.5.3.4.(1).*

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### 3.5.3. Outdoor Tire Storage Yards

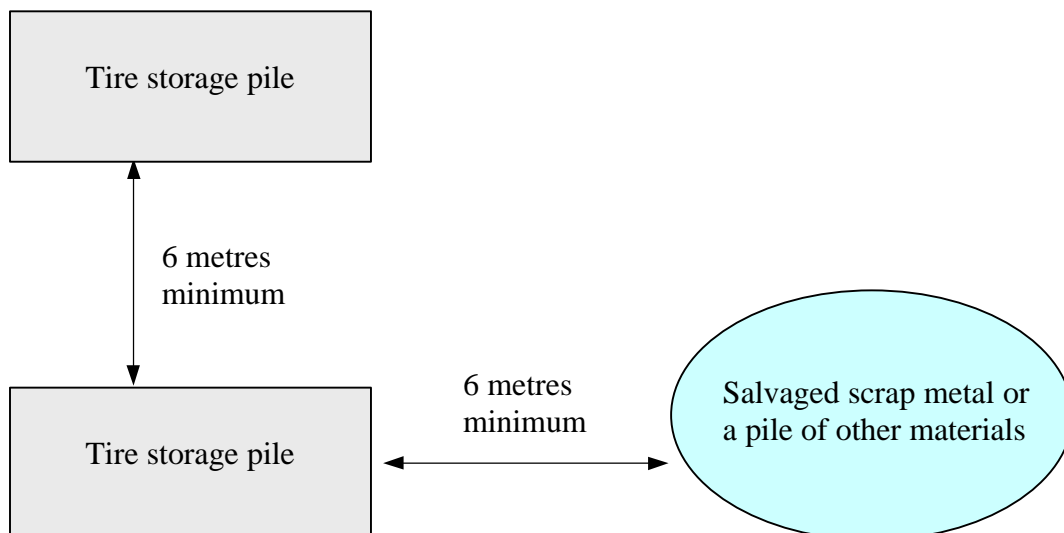
#### *Pile separations*

3.5.3.4.(2) Storage piles shall be separated by a clear space of at least 6 m from piles of other stored product.

The purpose of this Sentence is to limit the possibility of a fire spreading from one pile to another.

The 6 metre clearance:

- allows fire department vehicles and personnel access to all areas of a salvage yard
- helps prevent the spread of fire from burning tire storage piles to other materials stored in the yard.



### 3.5.3. Outdoor Tire Storage Yards

#### *Pile clearance*

- 3.5.3.5.(1) Storage piles shall be located at least 15 m from property lines.
- (2) Storage piles shall be located at least 15 m from **buildings**.
- (3) Despite Sentence (2), the separation of storage piles from **buildings** may be determined in accordance with Appendix C, "Guidelines for Outdoor Storage of Scrap Tires", of NFPA 231D, "Storage of Rubber Tires", and NFPA-80A, "Protection of Buildings from Exterior Fire Exposures".
- (4) Individual storage piles shall be separated from other piles of salvage by a clear space of at least 6 m.

The intent of Article 3.5.3.5. is to protect both buildings on the property and adjoining properties from damage due to storage of rubber tires and to prevent the spread of fire from one storage pile to another by requiring:

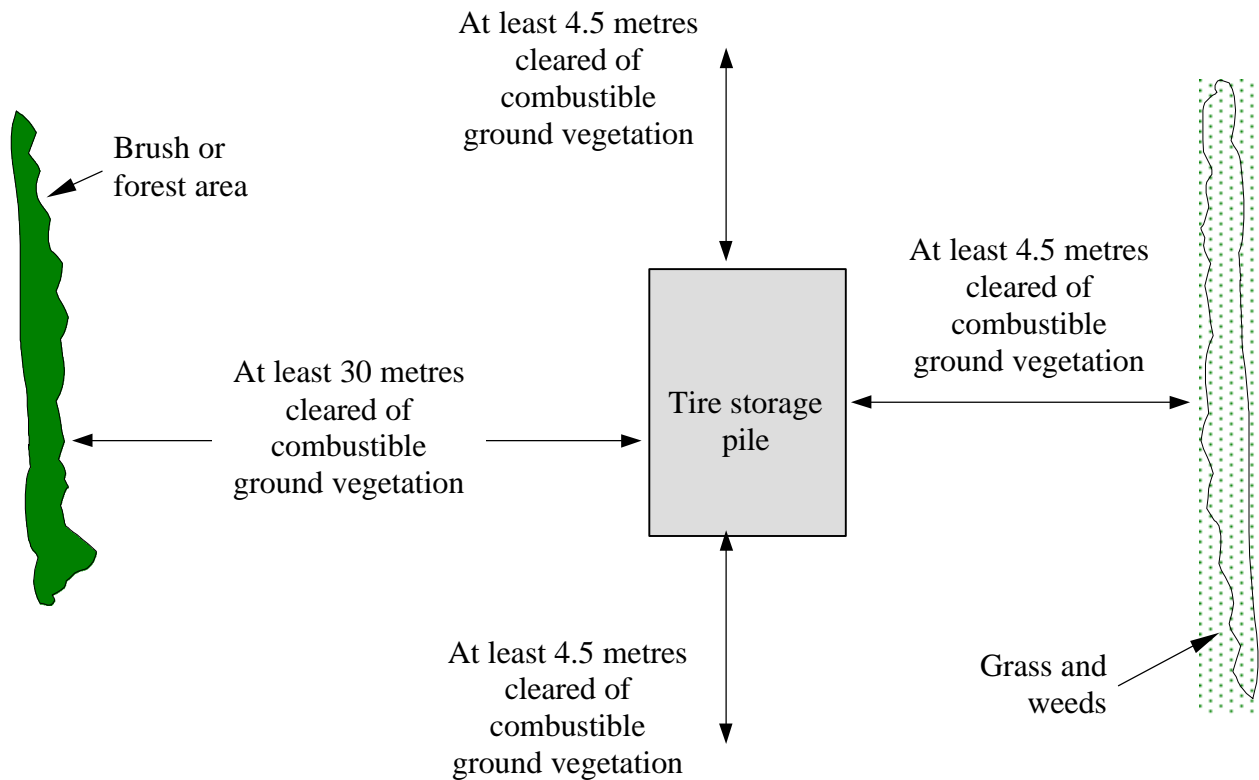
- At least 15 metres of clear space between storage piles and property lines;
- At least 15 metres of clear space between storage piles and buildings;
- At least 6 metres of clear space between all storage piles.

Under Sentence (3) the clearance between a storage pile and a building may be reduced, depending upon the construction features of the building. The standards referenced allow lesser clearances to be determined based upon the construction of the walls facing the storage piles.

3.5.3. Outdoor Tire Storage Yards  
*Clearances from vegetation*

- 3.5.3.6.(1) Storage yards shall be maintained free of combustible ground vegetation,
- (a) over a distance of 4.5 m from the stored product to grass and weeds, and
  - (b) over a distance of 30 m from the stored product to brush and forested areas.

The purpose of this Article is to prevent a fire spreading along ground vegetation and involving the stored product.



### 3.5.3. Outdoor Tire Storage Yards

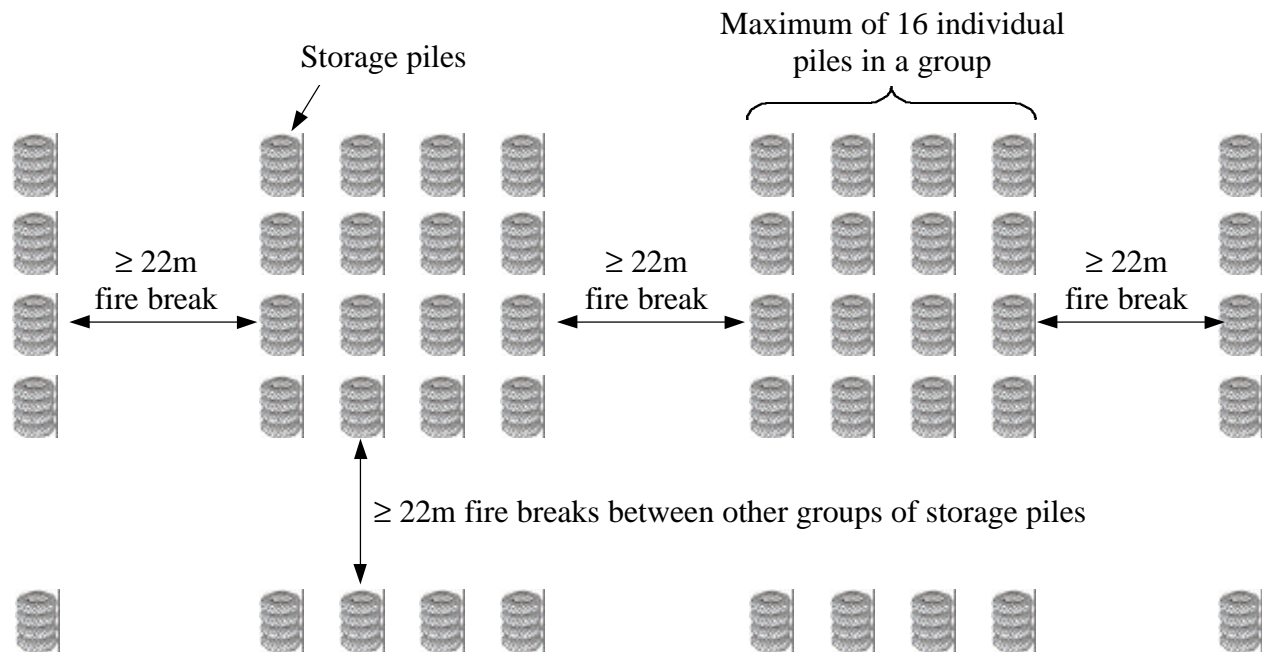
#### *Fire breaks*

- 3.5.3.7.(1) Where the bulk volume of stored product is more than 4800 m<sup>3</sup>, fire breaks shall be provided around the perimeter of each group of storage piles in accordance with Sentences (2) and (3).
- (2) Individual storage piles shall be arranged so that there are not more than 16 individual storage piles per group.
- (3) Fire breaks shall be at least 22 m wide.

The individual storage piles described here must conform to the storage pile dimension requirements stated in Sentences 3.5.3.4.(1) and (2):

- Not more than 3m in height and 100 square metres in area:  $3 \times 100\text{m}^2 = 300\text{m}^3$ .
- Be separated from other piles of stored product by at least 6m.

The intent of Article 3.5.3.7. is to limit the concentration of storage piles and ensure that an area, that is free of all other combustibles and at least 22m wide, is provided to allow access for fire department crews and vehicles, and to help prevent the spread of fire to other groups of stored tire piles.



3.5.3. Outdoor Tire Storage Yards

*Alternative measures*

3.5.3.8. Despite Articles 3.5.3.4. to 3.5.3.7., other pile arrangements that will prevent the spread of fire and that are **approved** may be used.

This Article permits alternative pile arrangements to Articles 3.5.3.4. to 3.5.3.7. provided that fire spread is prevented and the arrangements are approved by the Chief Fire Official.



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**Approved** means approved by the Chief Fire Official.

### 3.5.3. Outdoor Tire Storage Yards

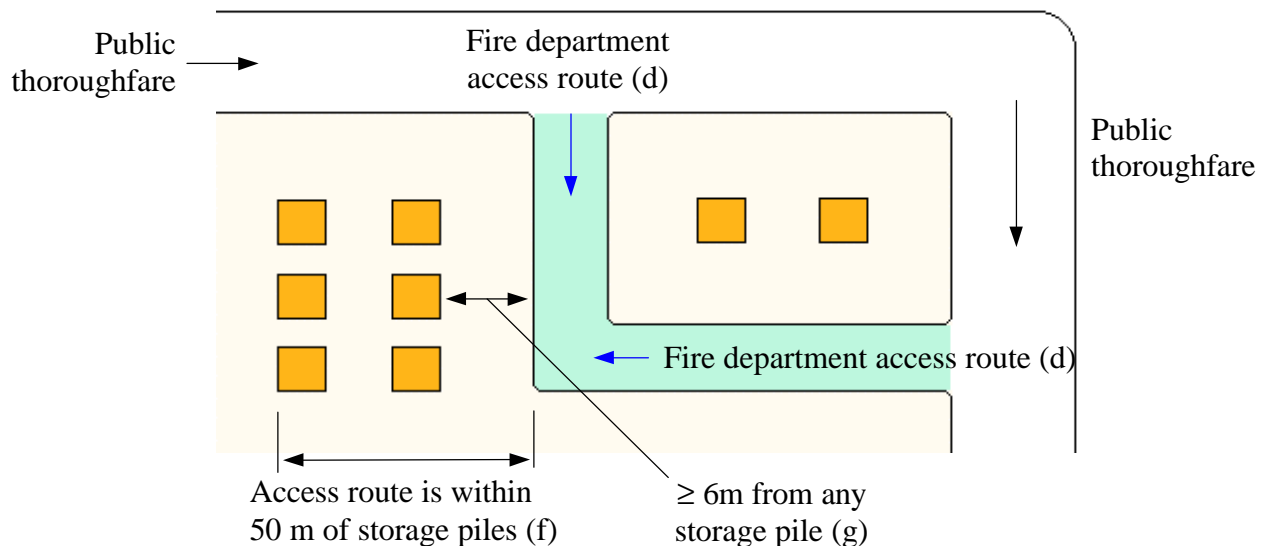
#### *Fire Department Access*

3.5.3.9.(1) Each tire storage yard shall be provided with fire access routes.

(2) The fire access routes shall,

- (a) have a clear width of at least 6 m,
- (b) be designed to support the loads imposed by fire fighting equipment,
- (c) be surfaced with material designed to permit accessibility under all climatic conditions,
- (d) be connected with a public thoroughfare in at least two places that are located as remotely as is possible in the circumstances from each other,
- (e) be located within all pile clearances identified in Sentence 3.5.3.5.(1), (2) or (3) and within all fire breaks required in Article 3.5.3.7.,
- (f) be within 50 m of any point in the storage yard where storage piles are located,
- (g) be at least 6 m from any storage pile, and
- (h) be maintained accessible and unobstructed at all times.

The intent of Sentences 3.5.3.9.(1) and (2) is to ensure that firefighters have access for bringing their equipment into the yard, getting to the fire quickly thereby increasing the efficiency of fire fighting efforts.



#### 3.5.4. Outdoor Tire Storage Yards

##### *Fire department access*

- 3.5.3.9.(3) Despite Sentences (1) and (2), alternate fire access routes may be provided if
- (a) the routes permit fire fighting vehicles and equipment access and permit the use of fire suppression techniques appropriate in the circumstances, and
  - (b) the routes are **approved**.

The intent of Sentence 3.5.3.9.(3) is to allow an alternate layout for Fire Department access in the yard.

Alternate fire routes may only be used where approved by the Chief Fire Official. The alternate access routes have to permit access for fire fighting vehicles and necessary equipment. These alternative fire access routes will permit the use of the fire suppression techniques that are appropriate for the respective yard.



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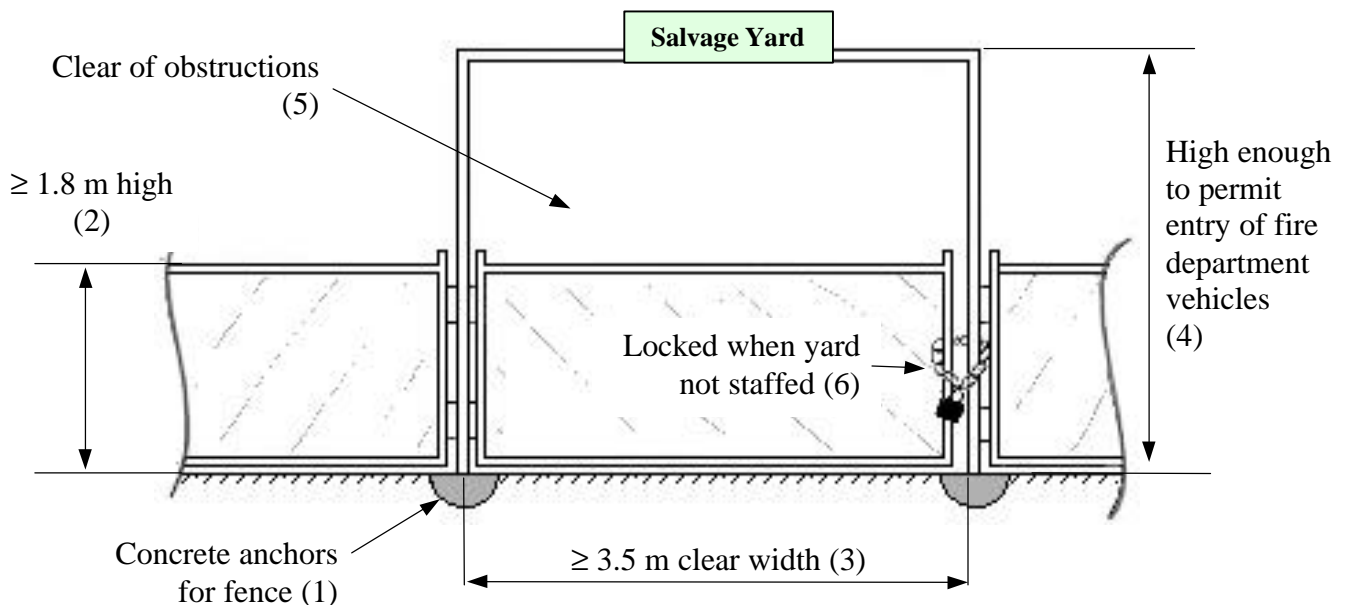


### 3.5.3. Outdoor Tire Storage Yards

#### *Fencing*

- 3.5.3.10.(1) Where the bulk volume of stored product is more than 600 m<sup>3</sup>, the storage yard shall be surrounded by a firmly anchored fence or other **approved** method of security that controls unauthorized access to the storage yard.
- (2) Where a fence is used, the fence shall be at least 1.8 m high and constructed to discourage entry.
  - (3) The fence shall have gateways with a clear width of at least 3.5 m.
  - (4) The gateways shall be high enough to permit the entry of **fire department** vehicles.
  - (5) The gateways shall be kept clear of obstructions so that the gates may be opened fully at all times.
  - (6) The gates shall be locked when the storage yard is not staffed.

The intent of Article 3.5.3.10. is to ensure the security of salvage yards, prevent malicious acts (e.g. arson), and to ensure that gateways will allow access by fire department equipment to salvage yards. Fencing, gateways and security precautions must comply with the requirements set out in this article. Alternative security measures are permitted where approved.



**Approved** means approved by the Chief Fire Official.

**Fire department** means a group of firefighters authorized to provide fire protection services by a municipality, group of municipalities or by an agreement made under section 3 of the Fire Protection and Prevention Act.

### 3.5.3. Outdoor Tire Storage Yards

#### *Water supply*

- 3.5.3.11.(1) A public or private water supply shall be provided such that any part of the storage yard can be reached by using not more than 150 m of hose.
- (2) When the quantity of stored product is between 300 m<sup>3</sup> and 1200 m<sup>3</sup>, the water supply system shall be capable of supplying 1860 L/min for 3 hours.
- (3) Where the quantity of stored product is 1200 m<sup>3</sup> or more, the water supply system shall be capable of supplying 3780 L/min for 3 hours.

The intent of Article 3.5.3.11. is to ensure that an adequate public or private water supply is available for fire fighting.

Where private or public fire hydrants are used, they must be situated such that any part of the salvage yard can be reached by using not more than 150 m of hose.

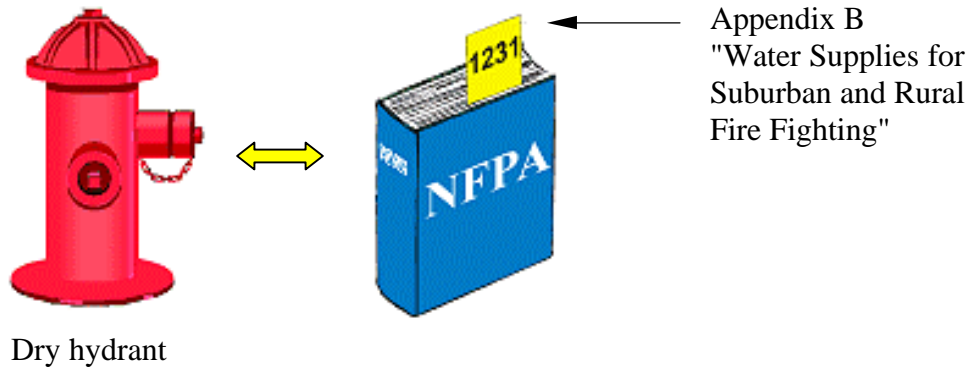
<b>Quantity of stored product</b>	<b>Minimum water supply required</b>
> 300 m <sup>3</sup> and < 1200 m <sup>3</sup>	1860 L/min for 3 hours
1200 m <sup>3</sup> and more	3780 L/min for 3 hours

### 3.5.4. Outdoor Tire Storage Yards

#### *Water supply*

3.5.3.11.(4) Where on-site reservoirs or other established water supplies are used as a **fire department** draft source to meet the requirements of Sentences (1), (2) and (3), they shall be equipped with dry hydrants in accordance with Appendix B of NFPA 1231, "Water Supplies for Suburban and Rural Fire Fighting".

The purpose of this Article is to ensure that on-site water supplies are readily accessible at all times by using dry hydrants that comply with Appendix B of NFPA 1231.



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**Fire department** means a group of firefighters authorized to provide fire protection services by a municipality, group of municipalities or by an agreement made under section 3 of the Fire Protection and Prevention Act.

### 3.5.3. Outdoor Tire Storage Yards

#### *Alternative measures*

3.5.3.12. Despite Article 3.5.3.11., other water supply systems or other measures may be used if the systems or measures will provide sufficient fire suppression capability in the circumstances and if the systems or measures are **approved**.

The intent of Article 3.5.3.12. is to allow the use of alternate water supply systems or, where water is not available, the use of other measures.

Alternative systems or measures may only be used where approved by the Chief Fire Official. These alternative systems or measures must have sufficient fire protection capability given the circumstances before they can be approved.



### 3.5.3. Outdoor Tire Storage Yards

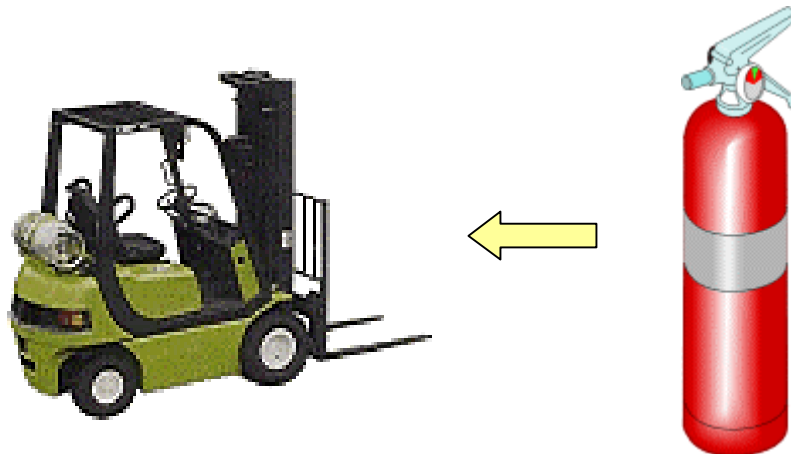
#### *Fire extinguishers*

3.5.3.13. Fuel-fired vehicles operating in the storage yard shall be equipped with a 2A:10BC or higher rated portable extinguisher conforming to the requirements of Section 6.2.

This requirement specifies that each fuel-fired vehicle operating in the storage yard shall be equipped with a listed 2A:10BC or higher rated portable fire extinguisher mounted in brackets designed to accommodate the effects of jarring or vibration.

Fuel-fired vehicles can be an ignition source. Faulty electrical systems, hot engines or exhaust systems may create enough heat to ignite materials.

Placing a fire extinguisher on the vehicle, provides the operator with immediate access to first aid fire fighting equipment.



- Q1 How must gas tanks on vehicles being salvaged be treated before salvage begins?  
A1 Refer to Ontario Fire Code 3.5.1.3.
- Q2 Where salvage yards are fenced, what is the minimum requirement regarding the clear width of gates?  
A2 Refer to Ontario Fire Code 3.5.1.4.
- Q3 Do municipal hydrant systems that are adjacent to a salvage yard have to be extended into the yard?  
A3 Refer to Ontario Fire Code 3.5.1.7. and 3.5.1.8.
- Q4 Is smoking allowed in salvage yards?  
A4 Refer to Ontario Fire Code 3.5.1.9.
- Q5 What is the maximum height allowed for storage piles that include combustible salvage?  
A5 Refer to Ontario Fire Code 3.5.2.1.
- Q6 How must piles of salvaged tanks or drums be stored?  
A6 Refer to Ontario Fire Code 3.5.2.3.
- Q7 What labeling is required on storage containers holding combustible metal shavings?  
A7 Refer to Ontario Fire Code 3.5.2.4.(2)(b).
- Q8 Are cutting and welding operations allowed in tire storage yards?  
A8 Refer to Ontario Fire Code 3.5.3.2.(2).
- Q9 In tire storage yards, what is the maximum volume allowed for individual storage piles?  
A9 Refer to Ontario Fire Code 3.5.3.4.(1).
- Q10 In tire storage yards where the volume of stored product exceeds 4800m<sup>3</sup>, what is the minimum required width of fire breaks?  
A10 Refer to Ontario Fire Code 3.5.3.7.(3).
- Q11 What is the minimum required width for fire access routes in salvage yards?  
A11 Refer to Ontario Fire Code 3.5.3.9.(2)(a).
- Q12 What rating must portable fire extinguishers carried by fuel-fired vehicles operating in outdoor tire storage yards have?  
A12 Refer to Ontario Fire Code 3.5.3.13.
-