

## PROPOSED CHANGE

AFC 2.1.3.3. Smoke Alarms Comment

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AFC 2006  
2.1.3.3. Smoke Alarms Comment

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### EXISTING PROVISION

#### 2.1.3.3. Smoke Alarms

1) *Smoke alarms* conforming to CAN/ULC-S531, "Smoke Alarms," shall be installed in each *dwelling unit* and, except for *care or detention occupancies* required to have a fire alarm system, in each sleeping room not within a *dwelling unit*.

2) Reserved

3) Except as permitted by Sentence (4), *smoke alarms* required by Sentence (1) shall be installed in conformance with the Alberta Building Code 2006. (See Appendix A.)

4) *Smoke alarms* are permitted to be battery-operated in *dwelling units* constructed before July 5, 1977. (See Appendix A.)

**A-2.1.3.3.(3)** Part 3 and Part 9 of Division B of the Alberta Building Code 2006 and CAN/ULC-S553, "Installation of Smoke-Alarms," contain additional information for locating, installing and interconnecting smoke alarms in dwelling units.

**A-2.1.3.3.(4)** It is not the intent of this Sentence to restrict the use of battery-operated smoke alarms that are installed in addition to required smoke alarms. The requirements ensure that properties constructed after July 5, 1977 are protected by smoke alarms, with permanent connections to an electrical circuit, installed in accordance with the Alberta Building Code.

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### PROPOSED CHANGE

The text and Appendix references associated with Sentences (3) and (4) are Alberta specific and as such the proposal could be accommodated with wording as follows:

**A-2.1.3.3.(3)** Part 3 and Part 9 of Division B of the Alberta Building Code 2006 and CAN/ULC-S553, "Installation of Smoke-Alarms," contain additional information for locating, installing and interconnecting smoke alarms in dwelling units. Consideration should be given to the inspection, maintenance and testing of smoke alarms installed at elevated levels by the selection of smoke alarms with a remote testing capability.

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### RATIONALE

#### Problem

Smoke alarms located at elevated levels may be impossible to inspect, maintain, and test and with this in mind a smoke alarm with some form of remote testing capability may be advantageous.

Also forwarded to Building for consideration.

#### Justification - Explanation

The ability to test remotely on a monthly basis would provide a certain amount of assurance that the device would work in a fire condition.

#### Cost implications

Smoke alarms with this capability may be more expensive.

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

### AFC 2.14.2. Flammable and Combustible Liquids and Flammable Gases

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AFC 2006  
**2.14.2. Flammable and Combustible Liquids and Flammable Gases**

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#### EXISTING PROVISION

None

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#### PROPOSED CHANGE

Insert a new Section 2.14.2. in industrial relocatable accommodation to read as follows:

##### **2.14.1. Industrial Relocatable Accommodation**

##### **2.14.1. General**

...

##### **2.14.2. Flammable and Combustible Liquids and Flammable Gases**

##### **2.14.2.1. Flammable and Combustible Liquids and Flammable Gases**

1) Where *flammable liquids*, *combustible liquids* or liquefied petroleum gases in cylinders or tanks are being utilised for heating, cooking or power generation purposes at industrial relocatable accommodation they shall not be installed

- a) in any *exit* or corridor providing *access to exit* including open air or exterior corridors,
- b) under any fire escape, outside *exit* stair, passage or ramp, or
- c) within 7.5 m of any *exit*.

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#### RATIONALE

##### **Problem**

Cylinders and tanks of flammable and combustible liquids and compressed gases are being located in industrial camps in inappropriate locations.

##### **Justification - Explanation**

An anomaly or misunderstanding of the differences between LPG being “stored” (and this not attached to anything and not drawing LPG to an appliance) and being “used” or “utilised” has created significant concerns. In industrial camps these tanks and cylinders have been allowed to be placed in the exterior exit and escape corridors with no requirements for clearance to the exit or means of egress. Technically this situation is compliant with the B149.2 Code but creates an unacceptable risk to life safety that would not be allowed with any other compressed flammable gas. The near blanket deferral to the Propane Gas Code doesn’t require the owner, nor allow the safety codes officer – fire to prohibit these containers of flammable gas within these exterior exit paths.

##### **Cost implications**

None

##### **Enforcement implications**

None

## PROPOSED CHANGE

2.16.2.13. New. Sprinklering of Furnace Room

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2.16.2.13. New. Sprinklering of Furnace Room

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### EXISTING PROVISION

#### 2.16.2.13. Furnace Room Separations

- 1) A furnace room shall be separated from the remainder of the *building* by not less than one layer of 12.7 mm thick gypsum wallboard or equivalent material on the ceiling and on each side of the walls. (See A-2.16.2.10.(1) in Appendix A.)
- 2) A door shall be provided to each furnace room.

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### PROPOSED CHANGE

Insert new Sentence 2.16.2.13.(1) to read as follows:

#### 2.16.2.13. Furnace Room Separations

- 1) A furnace room shall be
  - a) separated from the remainder of the *building* by not less than one layer of 12.7 mm thick gypsum wallboard or equivalent material on the ceiling and on each side of the walls, or
  - b) protected by a professionally designed and installed automatic sprinkler system complete with a local water flow alarm.(See A-2.16.2.10.(1) in Appendix A.)

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### RATIONALE

#### Problem

It is almost impossible to properly finish the interior of a furnace room in 12.7 mm gypsum wallboard due to pipes, wires, ducts etc. The proposal is to give an alternative solution to the 12.7 mm gypsum wallboard requirement inside the furnace room.

This would address the AFC code objective of OS1.5, OS3.7 and OH5.

#### Justification - Explanation

The proposed sentence addition gives an option to the owners of the dwelling units since installing 12.7 mm gypsum wallboard inside furnace rooms in many instances is practically impossible. The addition of the sprinkler heads will give equal or greater protection for the occupants of the secondary suite and the primary suite. It could be argued the sprinkler heads are a greater form of protection as they act as a fire control or extinguishing system which 12.7 mm gypsum wallboard will not provide.

Additionally, having a gypsum wallboard ceiling and walls in the furnace room makes it quite difficult to service or replace appliances in the furnace room such as the domestic hot water tank, forced air furnaces, in floor heating boilers, built-in vacuum systems, security systems etc.

#### Cost implications

The cost for the sprinkler head(s) installation is in the range of \$1000.00.

The cost to install 12.7 mm gypsum wallboard inside the room in some instances may get close to this amount. The larger issue is it may be impossible to install the 12.7 mm gypsum wallboard properly around all openings etc.

The benefits in monetary terms will be substantial as a sprinkler head(s) will keep a fire under control or extinguish it completely whereas gypsum wallboard will contain a fire for only so long before the fire breaches the wallboard.

## PROPOSED CHANGE

### 2.16.2.13. New. Sprinklering of Furnace Room

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#### **Enforcement implications**

No increase in resources. Existing AHJ resources can easily handle this code addition during the secondary suite inspection process.

We feel this is a reasonable addition to the Alberta Fire Code 2006 by providing building owners with an option of complying with the requirements of AFC Article 2.16.2.13.

#### **List Attached Supporting Material:**

Functional and Objective Statements for AFC Article 2.16.2.13.

Sentence 1) F03, OS1.2 F03, OP1.2

F03 To retard the effects of fire on areas beyond its point of origin

OS1.2 Fire or explosion impacting areas beyond its point of origin

OP1.2 Fire or explosion impacting areas beyond its point of origin

NFPA 13D -2002

We feel the sprinkler head(s) in the furnace room will accomplish the functional and objective statements as outlined in the AFC.

## PROPOSED CHANGE

AFC 2.16.2.15. Smoke Alarms

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2.16.2.15. Smoke Alarms

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### EXISTING PROVISION

#### 2.16.2.15. Smoke Alarms

- 1) *Smoke alarms* conforming to CAN/ULC-S531, "Smoke Alarms," installed in accordance with Subsection 9.10.19. of Division B of the Alberta Building Code 2006 shall be provided in each *dwelling unit*.
- 2) *Smoke alarms* shall be installed by permanent connections to an electrical circuit and wired so that activation of one *smoke alarm* will cause all alarms within both *dwelling units* to sound.
- 3) *Smoke alarms* shall be installed in areas that are common to both *dwelling units* and connected in conformance with Sentence (2).

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### PROPOSED CHANGE

Revise the wording of Sentence (3) and include an Appendix reference to permit the interconnection of smoke alarms to be hardwired or wireless where permitted by the authority having jurisdiction to reads as follows:

#### 2.16.2.15. Smoke Alarms

- 1) *Smoke alarms* conforming to CAN/ULC-S531, "Smoke Alarms," installed in accordance with Subsection 9.10.19. of Division B of the Alberta Building Code 2006 shall be provided in each *dwelling unit*.
- 2) *Smoke alarms* shall be installed by permanent connections to an electrical circuit and when acceptable to the *authority having jurisdiction* the interconnection of *smoke alarms* can be hard wired or wireless so that activation of one *smoke alarm* will cause all alarms within both *dwelling units* to sound. (See Appendix A.)
- 3) *Smoke alarms* shall be installed in areas that are common to both *dwelling units* and connected in conformance with Sentence (2).

**A-2.16.2.15.(2)** The appropriate hard wired installation of smoke alarms meeting the requirements of CAN/ULC-S531, "Smoke Alarms," in a building with an existing secondary suite in consultation and discussion with the authority having jurisdiction, and maintaining them in accordance with the Alberta Fire Code, Division B, Article 2.16.2.16., will result in the owner meeting the intent of the Alberta Fire Code 2006 regarding smoke alarms for this application. When permitted the interconnection of the above smoke alarms may be either hard wired or wireless.

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### RATIONALE

#### Problem

Due to a number of installation problems and the aesthetics of hard wired interconnection of smoke alarms a Variance was issued in February 2011 which permitted the interconnection of such alarms to be hard wired or wireless. A number of hard wired 110 volt smoke alarms with a wireless interconnect are now available which was not the case when requirements for secondary suites was first placed in the AFC.

#### Justification - Explanation

Variances are given consideration during the Code review process and where applicable inserted in the Code.

#### Cost implications

A reduction in the cost of interconnection may result if permitted to be wireless.

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 2.16.2.16. Wording Revision

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2.16.2.16. Wording Revision

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### EXISTING PROVISION

#### **2.16.2.16. Inspection, Testing and Maintenance of Smoke Alarms**

1) *Smoke alarms* required by this Section shall be inspected, tested and maintained in conformance with the manufacturer's instructions.

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### PROPOSED CHANGE

Revise and renumber existing Article 2.16.2.16. to include carbon monoxide alarms to read as follows:

#### **2.16.2.17. Inspection, Testing and Maintenance of Smoke and Carbon Monoxide Alarms**

1) *Smoke alarms* and carbon monoxide alarms shall be inspected, tested and maintained in conformance with Section 6.7.

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### RATIONALE

#### **Problem**

Rewrite of existing Article 2.16.2.16.

#### **Justification - Explanation**

Upon acceptance of proposal to require carbon monoxide alarms in secondary suites Article 2.16.2.16 is to be rewritten and renumbered to include inspection, testing, and maintenance of such.

#### **Cost implications**

None anticipated

#### **Enforcement implications**

None anticipated

**PROPOSED CHANGE**

AFC 2.16.2.16. New CO Alarms

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2.16.2.16. New CO Alarms in Secondary Suites

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**EXISTING PROVISION**

None

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**PROPOSED CHANGE**

Replace existing Article 2.16.2.16., "**Inspection, Testing and Maintenance of Smokes Alarms**" with a new Article 2.16.2.16. "**Carbon Monoxide Alarms**" and an Appendix reference to Sentence 2.16.2.16.(2) in Section 2.16, Secondary Suites to read as follows:

**2.16.2.16. Carbon Monoxide Alarms**

1) Carbon monoxide alarms conforming to CAN/CSA-6.19, "Residential Carbon Monoxide Alarming Devices" installed in accordance with Division B, Sentence 9.32.3.9.(2) of the Alberta Building Code shall be provided in the primary and secondary dwelling units.

2) Carbon monoxide alarms shall be installed by permanent connections to an electrical circuit and interconnected so that the activation of one carbon monoxide alarm will sound all alarms within both dwelling units. (See Appendix A)

3) Carbon monoxide alarms shall be installed in areas that are common to both dwelling units and connected in conformance with sentence (2).

**A-2.16.2.16** The interconnection of carbon monoxide alarms may be hard wired or wireless.

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**RATIONALE**

**Problem**

At the present time carbon monoxide alarms are required in new Part 9 residential construction as per the Alberta Building Code Article 9.32.3.9.

This would address the AFC code objective of OS1.5, OS3.7 and OH5.

**Justification - Explanation**

As smoke alarms and carbon monoxide alarms are required in any new or renovation project involving a building permit and smoke alarms are required in all secondary suites it is therefore logical to add carbon monoxide alarms to Section 2.16 of the Alberta Fire Code.

**Cost implications**

The additional costs will be minor as dual sensor smoke alarm/carbon monoxide alarm devices are available in the market place today.

The benefits in monetary terms are difficult to measure exactly but with the early detection of carbon monoxide and assuming 1 person in each dwelling unit the costs associated with 2 deaths may reach into the millions of dollars when factoring in all associated legal costs.

**Enforcement implications**

No increase in resources. Existing AHJ resources can easily handle this code addition during the secondary suite inspection process

**PROPOSED CHANGE**

AFC 2.16.2.16. New CO Alarms

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**Additional Information**

We feel this addition to the Alberta Fire Code brings secondary suites in line with public expectations of safety within dwelling units. We have been asked numerous times why carbon monoxide alarms were not in 2.16 of the AFC and believe this is the right time to add this important article to the Alberta Fire Code.

Alberta Building Code article 9.32.3.9. requires carbon monoxide alarms in a residential occupancy. The addition of AFC Article 2.16.2.17. will bring secondary suites in line with the requirements of the building primary suite and give equal protection to occupants of both primary and secondary suites.



## PROPOSED CHANGE

AFC 2.2.2. Closures

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2.2.2. Closures

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### EXISTING PROVISION

#### 2.2.2.4. Inspection and Maintenance

- 1) Defects that interfere with the operation of *closures* in *fire separations* shall be corrected, and such *closures* shall be maintained to ensure that they are operable at all times by
- a) keeping fusible links and other heat-actuated devices undamaged and free of paint and dirt,
  - b) keeping guides, bearings and stay rolls clean and lubricated,
  - c) making necessary adjustments and repairs to door hardware and accessories to ensure proper closing and latching, and
  - d) repairing or replacing inoperative parts of hold-open devices and automatic releasing devices.
- 2) Doors in *fire separations* shall be inspected at intervals not greater than 24 h to ensure that they remain closed unless the door is equipped with a hold-open device conforming to the Alberta Building Code 2006.
- 3) Doors in *fire separations* shall be operated at intervals not greater than one month to ensure that they are properly maintained in accordance with Sentence (1), as specified in the fire safety plan prepared in conformance with Section 2.8.
- 4) *Closures* in *fire separations* shall not be obstructed, blocked, wedged open, or altered in any way that would prevent the intended operation of the *closure*.
- 5) *Fire dampers* and *fire stop flaps* shall be inspected at intervals not greater than 12 months to ensure that they are in place and are not obviously damaged or obstructed.

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### PROPOSED CHANGE

Add an Appendix reference to read as follows:

#### 2.2.2.4. Inspection and Maintenance

(See Appendix A.)

**A-2.2.2.4.** NFPA 80, "Fire Doors and Fire Windows" may provide additional guidance on the inspection, testing, and maintenance of closures in fire separations.

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### RATIONALE

#### Problem

NFPA 80, "Fire Doors and Fire Windows" is referenced in the Alberta Building Code for the installation of such closures in fire separations and the Appendix reference may give individuals some additional information on this issue.

#### Justification - Explanation

See above.

#### Cost implications

None

#### Enforcement implications

None

## PROPOSED CHANGE

AFC 2.4.1.3. Recycling Programs

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2.4.1.3. Recycling Programs

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### EXISTING PROVISION

#### 2.4.1.3. Waste Receptacles

...

- 5) Except as permitted in Sentence (6), receptacles for combustible recyclable material having a capacity greater than 0.125 m<sup>3</sup> used within a *building* shall be
- a) of noncombustible, fully enclosed construction with a tight-fitting lid, or
  - b) located in a storage room conforming to Article 2.4.1.2.
- 6) Receptacles for the collection of combustible recyclable materials are permitted provided they
- a) conform to CAN/ULC-S102, "Method of Test for Surface Burning Characteristics of Building Materials and Assemblies," and
  - b) have a *flame-spread rating* not more than 150 on any exposed surface.
- 7) Unless acceptable to the *authority having jurisdiction*, only one receptacle for combustible recyclable materials per *suite* shall be permitted.
- 8) Receptacles for combustible recyclable material shall be emptied when full or at least weekly.
- 9) Receptacles for combustible recyclable material shall not be placed in rooms or areas where smoking is permitted unless the receptacles are noncombustible with a tight-fitting lid. (See Appendix A.)

**A-2.4.1.3.(9)** Containers for combustible recyclable material should not be located in areas where there is the likelihood of sources of ignition being introduced to the contents. Lunch rooms, coffee rooms and staff lounges are building areas where persons congregate and, in some cases, are permitted to smoke. This creates a potential hazard that can be reduced by prohibiting the containers. If containers are necessary in these areas, they should be noncombustible with suitable covers or lids that would contain the outbreak of fire.

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### PROPOSED CHANGE

Revise present wording to read as follows:

- 5) Except as permitted in Sentence (6), receptacles for combustible recyclable paper product, plastics, metal and glass material having a capacity greater than 5 m<sup>3</sup> used within an unsprinklered *building* shall be located in a storage room conforming to Article 2.4.1.2.
- 6) Receptacles for combustible recyclable paper product, plastics, metal and glass material having a capacity greater than 15 m<sup>3</sup> used within a sprinklered *building* shall have the sprinkler demand calculations verified for protection of the added fuel load.
- 7) Receptacles for combustible recyclable paper product, plastics, metal and glass shall be located in buildings so as not to obstruct an exit, fire alarm pull station, portable extinguisher, and sprinkler or standpipe hose connections.
- 8) Receptacles for recyclable material shall be emptied when full or at least weekly.
- 9) Receptacles for collecting bio-hazard materials shall be constructed of plastic or other products capable of being sanitized on a regular basis.

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### RATIONALE

#### Problem

(The present bulletin reaffirmed in May 2008 needs to be amended in order to address the current issues for material recycling in buildings.

## PROPOSED CHANGE

### AFC 2.4.1.3. Recycling Programs

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Background and intent of the present bulletin is directed to **office paper recycling** programs.

The Code requirements when originally introduced were specific to address potential fire hazards in office buildings being:

1. Employees smoking at work stations and lunch rooms.
2. Fuel load in storage on a work floor
3. Fuel load storage in basements, collection points and loading docks
4. Types of containers

In 2008 the circumstances for identifying work place fire hazards has changed due to no smoking regulations and policies. There is also the advent of expanded recycling programs for plastics, aluminum cans, glass etc. In order to address the present use of recycling new criteria needs to be analyzed and captured for all occupancy types.

New criteria:

- 1) Container size and construction for temporary storage of:
  - a. Plastics
  - b. Glass
  - c. Paper
  - d. Refuse
  - e. Bio-hazards
- 2) Locations of temporary storage containers:
  - a. Impact on egress corridors and exits
  - b. Fire loading in one area
  - c. Fire loading impacting sprinkler system designs
  - d. Sprinklered or non-sprinklered occupancies
- 3) Acceptable use:
  - a. Arranging containers for easy access and use by building occupants
  - b. Disposal frequency
  - c. Addressing large volumes of storage

#### Justification - Explanation

None stated

#### Cost implications

None stated

#### Enforcement implications

None stated

#### Additional Information

The collection of recyclable materials was once focused on paper products but now has expanded to include plastics, metals and bio-hazard wastes. The risk of having fires with recyclable paper products has been greatly minimized due to the general ban on smoking in the workplace and assembly buildings as well as the increased use of sprinklers in buildings.

Since recycling has expanded to include items such as plastic and metal beverage containers the collection and indoor storage practices have become more innovative. There are now large wheeled plastic bins located in corridors and exits that have the potential to obstruct pedestrian egress.

## PROPOSED CHANGE

### AFC 2.4.1.3. Recycling Programs

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The primary fire safety concern deals with the overall quantity of recyclables that could be located in any one place. A large enough volume of concentrated combustible recyclable material may have the potential of overpowering a light hazard or ordinary hazard sprinkler system. Having the same quantity of materials spread throughout a building would reduce the concentration size and allow sprinklers to operate at their designed performance levels.

The same concern applies also to an unsprinklered building where the fuel load may exceed the original occupancy design limit and contribute to fire spreading beyond the area of origin.

For this reason it is recommended that:

- (1) A concentration of more than 5 m<sup>3</sup> of storage in an unsprinklered building be located in a separate fire rated compartment, and
- (2) A concentration of more than 15 m<sup>3</sup> in a sprinklered building be the determining factor to have the sprinkler density calculation evaluated for ensuring proper operation.

The secondary safety concern with recyclable collection receptacles is their location within the floor areas. The containers themselves become an obstruction for building occupants in the means egress and at exit doors as well as accessing fire alarm pull stations, portable fire extinguishers, sprinkler and standpipe and hose connections. Improperly located containers will also impact a barrier-free path of travel.

For this reason it is recommended that recyclable collection receptacles be located to prevent these obstructions.

A third item for consideration and discussion is the concept of increasing the fuel load in exit corridors where it is likely collection receptacles will be located. The convenience of having receptacles in the corridors makes them more accessible and useful to the occupants. In the broader sense, occupancies such as covered malls, airport terminals, sporting arenas have had recycling programs in place for numerous years. These occupancies do in fact have other items located within the exit corridors such as food kiosks, commercial cooking equipment, occasional parked vehicles, etc.

The probability of recycling receptacles creating dangerous condition that would warrant any further regulation is very minimal. The present Alberta specific provisions being Sentences 2.4.1.3.(5), (6), (7) and (9) are penalizing in nature and provide very little value to the objectives of fire and safety in use within buildings.

## PROPOSED CHANGE

AFC 2.4.4.5. Revision

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### EXISTING PROVISION

#### 2.4.4.5. Propane Fuelled Vehicles

1) Except as permitted by Sentence (2), only a propane fuelled vehicle bearing a label in accordance with the CAN/CGA-B149.5, "Installation Code for Propane Fuelled Systems and Tanks on Highway Vehicles," is permitted to enter or be parked in

- a) an underground parking facility, or
- b) an enclosed structure.

(See Appendix A.)

2) A propane fuelled vehicle may be parked in an enclosed structure that is

- a) a garage serving not more than one *dwelling unit*, or
- b) not used by the public and is acceptable to the *authority having jurisdiction*.

3) No person shall park a propane fuelled vehicle inside a *building* for repair or maintenance unless safety precautions are taken in conformance with gas regulations made pursuant to the Safety Codes Act.

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### PROPOSED CHANGE

Revise Article title and add Sentence (4) to read as follows:

#### 2.4.4.5. Vehicle Parking

...

(4) No person shall park a vehicle carrying tanks, containers, or cylinders of *flammable liquids, combustible liquids, or dangerous goods* in

- a) an underground parking facility, or
- b) an enclosed structure.

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### RATIONALE

#### Problem

The current AFC's wording includes the word "Storage" which does not clearly address Portable Fuel Tanks in Vehicles while parked in a building and in particular the Underground parkade (Enclosed parkade's as well). Presently a grey area exists in the interpretation and causes confusion – "What is Stored" vs. "What is Transported".

Code Objectives covered in the this proposed change include OS – Safety, OH – Health, and OP Fire Protection

#### Justification - Explanation

The added fuel load of flammable /combustible liquids in quantities over 30 L significantly impacts underground and enclosed (heated) parking garages. The building and the fire protection (suppression) Systems designs are not sufficient and were not allowed for in the original design of the parking garage. The result of a fire, fire/explosion increases the volume of smoke, fire, and heat and can severely impact a person(s) within the parkade and throughout the building. This can impact the prompt escape, cause unnecessary health implications, and may impact the structural integrity of the structure. A fire or fire/explosion with the increased fuel load of flammable and/or combustible liquids would cause extensive damage to surrounding vehicles and have a severe negative impact on fire fighting efforts.

#### Cost implications

No added costs are anticipated with the suggested changes. Monetary benefits for this change are reduced damage the building structure, surrounding vehicles and a quicker and safer response for firefighting purposes. This may also lower insurance claims and may also lower health associated costs for person(s) impacted from the fire (injuries).

## PROPOSED CHANGE

AFC 2.4.4.5. Revision

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Building parkade system (underground and enclosed (heated) aboveground parkade's fire suppression systems are not currently designed for this increased fire load.

### **Enforcement implications**

There will be limited impact on enforcement from SCO's as this would be enforced through regular Inspection protocols or by complaint.

### **Additional Information**

There have been a high number of requests by building owners, property managers, residents, and condominium associations to have fire SCO's restrict fuel tanks in pickup trucks in parking garages and enclosed heated parking garages.

The Code changed is desired to effectively deal with this hazardous condition.

Fire department vehicles cannot enter underground or enclosed parkade's and therefore an interior attack must be used by fire fighters. long hose lays are required, finding standpipe connections in dark and smokey conditions with an increase in dark black smoke from the additional petroleum fuel products delays a rapid extinguishment where a sprinkler system may be overwhelmed by this increased undersigned fuel load.

**Safety Services NOTE:** It should be noted that this will not include vehicles fitted with auxiliary fuel tanks connected directly to the vehicle fuel supply system.

## PROPOSED CHANGE

AFC 2.4.6.1. Vacant Buildings

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2.4.6.1. Vacant Buildings

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### EXISTING PROVISION

#### 2.4.6. Vacant Buildings

##### 2.4.6.1. Security

1) Vacant *buildings* shall be secured against unauthorized entry. (See Appendix A.)

**A-2.4.6.1.(1)** Vacant buildings frequently become the target of vandalism and arson. They should be locked, and accessible windows and doors should be barricaded to prevent unauthorized entry. However, fire department access to the interior of the building in the event of a fire should not be made unduly difficult.

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### PROPOSED CHANGE

Revise the Appendix reference to include consideration for fire protection when buildings are left vacant to read as follows:

**A-2.4.6.1.(1)** Vacant buildings frequently become the target of vandalism and arson. They should be locked, and accessible windows and doors should be barricaded to prevent unauthorized entry. However, fire department access to the interior of the building in the event of a fire should not be made unduly difficult. In addition consideration should be given to requirements that ensure such buildings remain fully protected during closure unless alternative measures are taken.

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### RATIONALE

#### Problem

The current provision of the code only requires that the owner of a vacant building secure this building from unauthorized entry. This is unsatisfactory as it can permit large buildings within an urban centre to pose a significant exposure threat to surrounding buildings. Often these buildings are adjacent to other properties that can remain in operation. Despite security measures vandals, or vagrants can enter these buildings. Their inactive fire detection systems and suppression systems can significantly hinder efforts of the fire department to contain these fires thus exposing the surrounding urban properties to significant risk. Fire responders are also placed at greater risk as fire stages can be more significantly advanced than indicated and they are jeopardized in conducting their operations. We have several incidents on record in Canada and the U.S. of large loss fires in urban centres and fire fighter fatalities for these reasons.

#### Justification - Explanation

Building owners must then be aware of the long-term impacts that abandoning these structures have on their communities. We have many notable examples in Canadian records for abandoned structures and the threat they pose to our communities and our emergency responders.

#### Cost implications

Costs to maintain minimum protective measures for these structures should be levied from the building owners or trustees in the case of bankruptcy. In exceptional cases the city may bear responsibility for these costs. Back costs for the continued operations could be taken for the value of the property or considered as part of the overall lifetime costs for the structure and thus factored into the mil rate applied. Alternative procedures can be established with the AHJ in other cases where costs or other conditions make it too prohibitive.

## **PROPOSED CHANGE**

AFC 2.4.6.1. Vacant Buildings

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### **Enforcement implications**

The additional costs to maintain these structures should be borne by the facility owner. In cases of extreme cases the building owner can approach the AHJ to waive this requirement but then the AHJ will have the ability to specify alternative protective measures, i.e. security patrols, fire patrols, periodic inspections, etc.. This provision ensures that the AHJ is engaged and consulted in the proper close up of these structures.

### **Additional Information**

This is an excellent means to ensure that emergency responders are engaged early in the process when buildings are to be closed up. It helps to ensure the protection of surrounding properties.



## PROPOSED CHANGE

AFC 2.7.1.3. Occupant Loads

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AFC 2006  
2.7.1.3. Occupant Loads

---

### EXISTING PROVISION

#### 2.7.1.3. Occupant Load

- 1) The maximum permissible *occupant load* for any room shall be calculated on the basis of the lesser of
- a) the number of occupants determined in accordance with Table 3.1.17.1. of Division B of the Alberta Building Code 2006,
  - b) the *occupant load* for which *means of egress* are provided, or
  - c) the *occupant load* as calculated and posted in accordance with the Alberta Building Code.

(See Appendix A.)

- 2) The number of occupants permitted to enter a room shall not exceed the maximum *occupant load* calculated in conformance with Sentence (1).

- 3) The *owner* shall ensure that a plan showing the floor layout and designed use of the rooms specified in Sentence (1) is made available in conformance with Article 2.2.1.2. of Division C.

**A-2.7.1.3.(1)** The Alberta Fire Code 2006 uses three criteria to determine the maximum number of persons permitted in a building or floor area where the authority having jurisdiction posts an occupant load.

The maximum occupant load of a building is determined by

- (a) the calculation of the exit capacity of the means of egress,
- (b) the design load calculated by using Table 3.1.17.1. of Division B of the Alberta Building Code 2006, or
- (c) the posting of an occupant load by the building authority having jurisdiction in conformance with the Alberta Building Code.

Table 3.1.17.1. of Division B of the Alberta Building Code 2006 is intended to allow a building designer to calculate a minimum occupant load for the purposes of designing certain building features, such as means of egress and fire alarm systems. The designer may choose to design to accommodate more or fewer persons, in which case the actual design occupant load must be posted in a conspicuous location. In this case, the building authority having jurisdiction will require that a permanent sign indicating the maximum number of persons permitted be posted in the building or floor area.

Table 3.1.17.1. should not be used as the only regulating factor in establishing the maximum occupant load for the building. The initial procedure should include a calculation of the exit capacity of the means of egress system for the building. The result of these calculations may not be consistent with values obtained using Table 3.1.17.1. but will confirm if the capacity of the existing system is adequate for the occupant load.

Area per person in Table 3.1.17.1. is calculated based upon the area of a room or space excluding structural or other permanent features, such as walls, columns or ramps, but includes non-fixed items, such as tables, chairs, millwork and movable partitions. In some circumstances, different design factors in Table 3.1.17.1. may apply to the same floor space. For example, a floor space may have a designated standing space as well as a designated table and chair space. Each area would be calculated for the maximum number of persons permitted.

It should also be noted that Article 2.1.3.1. of this Code requires fire protection systems to be installed in conformance with the Alberta Building Code 2006. This means that if the posted occupant load exceeds the limits for which a protection system is required by the Alberta Building Code 2006, the system must be installed in the building.

---

### PROPOSED CHANGE

Reword to remove reference to Table 3.1.17.1. of Division B of the Alberta Building Code 2006 with the net floor space being 0.8 m<sup>2</sup> as follows:

---

### 2.7.1.3. Occupant Load

- 1) The maximum permissible *occupant load* for any room shall be calculated on the basis of the lesser of
- a) 0.8 m<sup>2</sup> of net floor space per occupant,
  - b) the *occupant load* for which *means of egress* are provided, or
  - c) the *occupant load* as calculated and posted in accordance with the Alberta Building Code.

(See Appendix A.)

- 2) The number of occupants permitted to enter a room shall not exceed the maximum *occupant load* calculated in conformance with Sentence (1).

**A-2.7.1.3.(1)** The AFC uses three criteria to determine the maximum permissible occupant load in existing buildings: the exit capacity, the total clear floor space per person and the posting of an occupant load by the building authority having jurisdiction in conformance with the ABC. Assuming that exit capacity is sufficient, the value of 0.8 m<sup>2</sup>/person ensures that a crowd of people will be able to move steadily toward the exits. Table 3.1.17.1. of Division B of the ABC should not be used to determine the maximum permissible occupant load for rooms or spaces in existing buildings. Table 3.1.17.1. is intended to allow a building designer to calculate a minimum occupant load for the purpose of designing certain building features, such as means of egress and fire alarm systems. The designer may choose to design for more or fewer persons, in which case the actual design occupant load must be posted in a conspicuous location. In an existing building, the process must be calculated in reverse, from the measured exit capacity, or other building features, to a maximum permissible occupant load. The result of the calculation may not be, and is not intended to be, consistent with values obtained using Table 3.1.17.1.

Net floor space referred to in Clause (a) is the floor space in a room excluding areas occupied by structural features and fixtures, such as tables, furnishings or equipment. In certain assembly occupancies, where the number and type of furnishings may change according to the nature of the function taking place, it may be appropriate to calculate maximum occupant loads for each of the different functions anticipated.

It should also be noted that Article 2.1.3.1. of this Code requires fire alarm systems to be installed in conformance with the ABC. This means that if the occupant load determined by Sentence 2.7.1.3.(1) exceeds that for which a fire alarm system is required by the ABC, a fire alarm system must be provided in the building.

---

## RATIONALE

### Problem

Since the inception of the Alberta Fire Code in 1986 it has used Table 3.1.17.1. of the Alberta Building Code in an attempt to calculate occupant loads. The use of Table 3.1.17.1. has at times been less than satisfactory and complicated. In an attempt to clarify use of the Table 3.1.17.1. a Standata (FCB-08-02) was developed which did for some time clarify how the Table was to be used and introduced two concepts; *operational occupant load* and *design occupant load*.

### Justification - Explanation

Although Standata FCB-08-02 has served us well, in an attempt to move closer to the requirements of the NFC 2010 it is suggested that occupant loads be calculated on the two factors stated. The following information taken from the NFC 2010, Appendix information above reiterates that the Table should not be used to calculate a buildings occupant load:

...

*"Table 3.1.17.1. of Division B of the ABC should not be used to determine the maximum permissible occupant load for rooms or spaces in existing buildings. Table 3.1.17.1. is intended to allow a building designer to calculate a minimum occupant load for the purpose of designing certain building features, such as means of egress and fire alarm systems."*

...

The above was rewritten in the AFC Appendix reference to reflect Table 3.1.17.1. as being suitable for the calculation of occupant loads.

### Cost implications

None anticipated

### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 2.7.1.3. Occupant Loads

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AFC 2006  
2.7.1.3. Occupant Loads

---

### EXISTING PROVISION

#### 2.7.1.3. Occupant Load

- 1) The maximum permissible *occupant load* for any room shall be calculated on the basis of the lesser of
- a) the number of occupants determined in accordance with Table 3.1.17.1. of Division B of the Alberta Building Code 2006,
  - b) the *occupant load* for which *means of egress* are provided, or
  - c) the *occupant load* as calculated and posted in accordance with the Alberta Building Code.

(See Appendix A.)

- 2) The number of occupants permitted to enter a room shall not exceed the maximum *occupant load* calculated in conformance with Sentence (1).

- 3) The *owner* shall ensure that a plan showing the floor layout and designed use of the rooms specified in Sentence (1) is made available in conformance with Article 2.2.1.2. of Division C.

**A-2.7.1.3.(1)** The Alberta Fire Code 2006 uses three criteria to determine the maximum number of persons permitted in a building or floor area where the authority having jurisdiction posts an occupant load.

The maximum occupant load of a building is determined by

- (a) the calculation of the exit capacity of the means of egress,
- (b) the design load calculated by using Table 3.1.17.1. of Division B of the Alberta Building Code 2006, or
- (c) the posting of an occupant load by the building authority having jurisdiction in conformance with the Alberta Building Code.

Table 3.1.17.1. of Division B of the Alberta Building Code 2006 is intended to allow a building designer to calculate a minimum occupant load for the purposes of designing certain building features, such as means of egress and fire alarm systems. The designer may choose to design to accommodate more or fewer persons, in which case the actual design occupant load must be posted in a conspicuous location. In this case, the building authority having jurisdiction will require that a permanent sign indicating the maximum number of persons permitted be posted in the building or floor area.

Table 3.1.17.1. should not be used as the only regulating factor in establishing the maximum occupant load for the building. The initial procedure should include a calculation of the exit capacity of the means of egress system for the building. The result of these calculations may not be consistent with values obtained using Table 3.1.17.1. but will confirm if the capacity of the existing system is adequate for the occupant load.

Area per person in Table 3.1.17.1. is calculated based upon the area of a room or space excluding structural or other permanent features, such as walls, columns or ramps, but includes non-fixed items, such as tables, chairs, millwork and movable partitions. In some circumstances, different design factors in Table 3.1.17.1. may apply to the same floor space. For example, a floor space may have a designated standing space as well as a designated table and chair space. Each area would be calculated for the maximum number of persons permitted.

It should also be noted that Article 2.1.3.1. of this Code requires fire protection systems to be installed in conformance with the Alberta Building Code 2006. This means that if the posted occupant load exceeds the limits for which a protection system is required by the Alberta Building Code 2006, the system must be installed in the building.

---

### PROPOSED CHANGE

Reword to reflect the NFC 2010 with the removal of the reference to Table 3.1.17.1. of Division B of the Alberta Building Code 2006 and revise the net floor space to 0.8 m<sup>2</sup> and Appendix reference to read as follows:

## PROPOSED CHANGE

### AFC 2.7.1.3. Occupant Loads

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#### 2.7.1.3. Occupant Load

- 1) The maximum permissible *occupant load* for any room shall be calculated on the basis of the lesser of
- a) 0.8 m<sup>2</sup> of net floor space per occupant, or
  - b) the *occupant load* for which *means of egress* are provided.

(See Appendix A.)

- 2) The number of occupants permitted to enter a room shall not exceed the maximum *occupant load* calculated in conformance with Sentence (1).

**A-2.7.1.3.(1)** The AFC uses two criteria to determine the maximum permissible occupant load in existing buildings: the exit capacity, and the total clear floor space per person. Assuming that exit capacity is sufficient, the value of 0.8 m<sup>2</sup>/person ensures that a crowd of people will be able to move steadily toward the exits.

Table 3.1.17.1. of Division B of the ABC should not be used to determine the maximum permissible occupant load for rooms or spaces in existing buildings. Table 3.1.17.1. is intended to allow a building designer to calculate a minimum occupant load for the purpose of designing certain building features, such as means of egress and fire alarm systems. The designer may choose to design for more or fewer persons, in which case the actual design occupant load must be posted in a conspicuous location. In an existing building, the process must be calculated in reverse, from the measured exit capacity, or other building features, to a maximum permissible occupant load. The result of the calculation may not be, and is not intended to be, consistent with values obtained using Table 3.1.17.1.

Net floor space referred to in Clause (a) is the floor space in a room excluding areas occupied by structural features and fixtures, such as tables, furnishings or equipment. In certain assembly occupancies, where the number and type of furnishings may change according to the nature of the function taking place, it may be appropriate to calculate maximum occupant loads for each of the different functions anticipated.

It should also be noted that Article 2.1.3.1. of this Code requires fire alarm systems to be installed in conformance with the ABC. This means that if the occupant load determined by Sentence 2.7.1.3.(1) exceeds that for which a fire alarm system is required by the ABC, a fire alarm system must be provided in the building.

---

## RATIONALE

### Problem

Since the inception of the Alberta Fire Code in 1986 it has used Table 3.1.17.1. of the Alberta Building Code in an attempt to calculate occupant loads. The use of Table 3.1.17.1. has at times been less than satisfactory and complicated. In an attempt to clarify use of the Table 3.1.17.1. a Standata (FCB-08-02) was developed which did for some time clarify how the Table was to be used and introduced two concepts; *operational occupant load* and *design occupant load*.

### Justification - Explanation

Although Standata FCB-08-02 has served us well, in an attempt to move closer to the requirements of the NFC 2010 it is suggested that occupant loads be calculated on the two factors stated. The following information taken from the NFC 2010, Appendix information above reiterates that the Table should not be used to calculate a buildings occupant load:

...

*"Table 3.1.17.1. of Division B of the ABC should not be used to determine the maximum permissible occupant load for rooms or spaces in existing buildings. Table 3.1.17.1. is intended to allow a building designer to calculate a minimum occupant load for the purpose of designing certain building features, such as means of egress and fire alarm systems."*

...

The above was rewritten in the AFC Appendix reference to reflect Table 3.1.17.1. as being suitable for the calculation of occupant loads.

## **PROPOSED CHANGE**

AFC 2.7.1.3. Occupant Loads

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### **Cost implications**

None anticipated

### **Enforcement implications**

None anticipated

## PROPOSED CHANGE

### 2.7.1.3.(1)(c) Occupant Load

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AFC 2006  
2.7.1.3.(1)(c)

---

## EXISTING PROVISION

### 2.7.1.3. Occupant Load

- 1) The maximum permissible *occupant load* for any room shall be calculated on the basis of the lesser of
- a) the number of occupants determined in accordance with Table 3.1.17.1. of Division B of the Alberta Building Code 2006,
  - b) the *occupant load* for which *means of egress* are provided, or
  - c) the *occupant load* as calculated and posted in accordance with the Alberta Building Code.
- (See Appendix A.)

---

## PROPOSED CHANGE

Remove Clause 2.7.1.3.(1)(c) from the AFC

Add (see Appendix A) after sentence 3.1.17.1.(2) in the ABC. Suggestion for appendix note as follows:

**A-3.1.17.1.(2)** The intent of this sentence is to allow for some flexibility in design, when it can be shown that the use of the building will not permit or be occupied by the numbers that would normal be calculated using Table 3.1.17.1. It is not the intent of this sentence to allow for the elimination of life safety requirements in the code by agreement to limit the numbers of occupants based on the posted occupant load in isolation.

---

## RATIONALE

### Problem

There is a conflict with the ABC and AFC when the design occupant load is less than the operational occupant load. This problem is consistent in relation to bars and night clubs in particular. The most common conflict arises in instances where the design occupant load is a lower number than the operational occupants load and bathrooms have too few water closets etc.

This can also occur when a change of use or occupancy happens and a buildings occupant load is recalculated. For example, a building changes occupancy from a car dealership F3 to a pool hall A2 then to a bar/night club A2. The change from F3 to A2 most likely will be identified during the development process and a building SCO would most likely note the need to alter the restrooms, however a change from A2 pool hall to A2 bar is not evident yet the occupancy can be very different. The pool hall occupancy posting could have been 200 where as with the pool tables removed the operational occupancy posting may go up to 450-500.

Buildings are no longer administered by the Building authority after occupancy so it is a bad idea to have a code provision in the Fire Code which enables the building SCO to establish an occupant load which can be substantially less than would be allowed when measuring floor area and exiting which are life safety issues. Bathrooms are not life safety issues and as a fire authority I do not believe that fire officials should be enforcing code items that are not life safety issues. (the fire code is a life safety document). It is notable also that Alberta Health Services do not consider the number of bathrooms to be a Health related concern.

*Here is a real life scenario which occurred as a result of this provision in the codes:*

*At the time of renovation to construct a bar the building authority determined upon application for permit that the rest rooms were only good for an occupant load of 200. The building owner indicated to the building authority that he would not require an occupant load of more than 200 for the bar as he did not want the expense of installing new restroom equipment. The building authority allowed the bar to be built with restroom for 200 only on the commitment from the owner that he would abide by this limitation. When the fire authority measured the bar it was determined there was floor space and exiting for 375 but the bar was posted for 200 because of the bath rooms and the commitment to the building authority. After the bar open the owner soon came to realize that at 200 the bar looked empty and people were leaving because they*

## PROPOSED CHANGE

### 2.7.1.3.(1)(c) Occupant Load

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*don't like to be in a bar the is not popular re full. The owner let in more patrons' than the posted 200 and business was booming subsequently the FD laid a charge. The bar owners lawyer meet with the crown prosecutor which is the norm prior to going to court and indicated to the crown that he would be forwarding a defence of no life safety violation. The crown asked the fire authority for documentation verifying that the charge was laid because of life safety violations. The fire authority was unable to provide such documentation as bathrooms are not a life safety installation. The crown withdrew the charges and advised the FD to charge only when life safety was the issue. Circa 1994*

The sentence in the Alberta Building Code which is referred to in the Alberta Fire Code reads:  
If a floor area or part of a floor area or part thereof has been designed for an occupant load other than that determined from table 3.1.7.17.1., a permanent sign indicating that occupant load shall be posted in a conspicuous location.

I do not think that the intent of ABC article was to allow for a building owner to try decreasing the occupant load in occupancies to avoid having to follow the requirements of the code. Unfortunately this is how this sentence of the building code is being used. I think the intent of this sentence is to give a designer some flexibility in design criteria for example. A floor space which is going to be used for a design studio Group D business and personal service use, allows for a occupant load calculator of personnel service shops 4.6 and offices 9.3 this could be a very large open space and after the occupant load is calculated could accommodate a very large number of people which would require the design of exits etc to accommodate these numbers. A building designer could argue that although the design could have an occupant load of 400 which requires a fire alarm system in reality large this area will be used for large dimension tables and design equipment and the business currently employs only 70 staff at and even if they doubled in size would only have a staff of 140 nowhere near 400 therefore they should not require an alarm system. This I believe is the real intent of sentence 3.1.17.1 (2). As stated previously the sentence was not intended to allow a bar owner to agree to have a posted occupant load of 150 in a room with floor space and exiting for 300 to avoid putting in an alarm system.

This provision the way it is written and being interpreted causes conflict between the fire authority and the building authority. The fire authority is the AHJ for occupied buildings and if the building authority makes agreements without the consent of the fire authority that affect a building after occupancy when they are no longer the AHJ it will lead to conflict.

#### Justification - Explanation

This change removes potential conflict in the codes by taking the provision out of the fire code which allows for the non AHJ to make agreements for which they have no enforcement authority.

This change clarifies what the intent of the provision is in an appendix note for the designer and the AHJ.

#### Cost implications

There is no cost increase as the requirements of the ABC should be followed at the time of construction or renovation.

#### Enforcement implications

This issue has been a long standing enforcement issue which has caused inconsistency in code enforcement for years. This change will illuminate these inconsistencies and provide for a better inter jurisdictional relationship.

#### Additional Information

The FTC has been trying to address this situation for many years and to date has not had a noticeable success. I think that that lack of success is not for lack of trying rather it is because the code is written in such a way that interpretation leads to inconsistencies which were never intended by the original code writers.

## PROPOSED CHANGE

AFC 3.2.10. Indoor Storage of Fireworks

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AFC 2006  
3.2.10. Indoor Storage of Fireworks

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### EXISTING PROVISION

#### 3.2.10.4. Storage

- 1) *Fireworks* shall not be stored or displayed for sale in a *building* or place unless the *building* or place is acceptable to the fire department in accordance with Part 5.
- 2) Explosives, other than small arms ammunition, shall not be stored in the same *building* in which *fireworks* are stored.

#### 3.2.10.5. Low-Hazard Storage

- 1) *Low-hazard fireworks* that are displayed for sale shall be
  - a) in lots that do not exceed 25 kg each gross weight,
  - b) in a package, glass case or other suitable receptacle away from flammable or combustible substances, and
  - c) in a place that is not exposed to direct or refracted sunlight or excessive heat.
- 2) Where *low-hazard fireworks* that exceed 25 kg gross weight are stored, they shall be in a container meeting the requirements of the "Explosives Act" and its Regulations, published by Natural Resources Canada.
- 3) Where *low-hazard fireworks* that exceed 100 kg gross weight are stored, they shall be stored in a separate store or warehouse meeting the requirements of the "Explosives Act" and its Regulations, published by Natural Resources Canada.

#### 3.2.10.6. High-Hazard Storage

- 1) Where *high-hazard fireworks* that exceed 25 kg gross weight are stored, they shall be stored in a container meeting the requirements of the "Explosives Act" and its Regulations, published by Natural Resources Canada.
- 2) Where *high-hazard fireworks* that exceed 125 kg gross weight are stored, they shall be in a separate store or warehouse meeting the requirements of the "Explosives Act" and its Regulations, published by Natural Resources Canada.
- 3) *High-hazard fireworks* obtained for immediate use are permitted to be stored in quantities that exceed those specified in this Article if the storage place is
  - a) situated in a location acceptable to the fire department,
  - b) secured to prevent unauthorized entry,
  - c) clean and adequately ventilated,
  - d) not used for the storage of any other flammable, combustible or explosive substance, and
  - e) identified with conspicuously posted signs warning of the explosive contents and the danger from open flames, smoking and the use of spark-producing tools or other objects in the storage place.

---

### PROPOSED CHANGE

Add a new Alberta specific requirement that the total quantity of fireworks stored on the premises is available to the authority having jurisdiction and responding fire department to read as follows:

#### 3.2.10.4. Storage

...

- 3) The total quantity of *low-hazard fireworks* and *high-hazard fireworks* in storage shall be made available to the *authority having jurisdiction* and form a component part of the facility fire safety plan in accordance with Article 3.2.2.5.



## PROPOSED CHANGE

AFC 3.2.10. Indoor Storage of Fireworks

Page: 2 of 2

Revise Sentence 3.2.10.5.(1) to require individual weights on packages to read as follows:

### 3.2.10.5. Low-Hazard Storage

1) *Low-hazard fireworks* that are displayed for sale shall indicate the weight of each individual package and be

- a) separated in lots that do not exceed 25 kg each gross weight,
- b) in a package, glass case or other suitable receptacle away from flammable or combustible substances, and
- c) in a place that is not exposed to direct or refracted sunlight or excessive heat.

...

---

## RATIONALE

### Problem

Business's should be required maintain a manifest of the quantities (kg) of materials on the property. Further, manufactures should be mandated to mark the boxes or packages with the quantity of explosives (weight) in the packages.

### Justification - Explanation

It is very difficult to determine actual quantity of fireworks being stored in a facility if there is no weight (mass) indication on the package on the actual packages.

### Cost implications

None stated

### Enforcement implications

Will assist to enforce the display and quantity restrictions.

## PROPOSED CHANGE

AFC 3.3.2.10. Portable Extinguishers Comment

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AFC 2006  
3.3.2.10. Portable Extinguishers Comment

---

### EXISTING PROVISION

#### 3.3.2.10. Portable Extinguishers

- 1) Any *building* located in an outdoor storage area shall be provided with portable extinguishers.
- 2) Each motorized vehicle operating in an outdoor storage area shall be equipped with at least one portable extinguisher having a minimum rating of 2-A:30-B:C.
- 3) Portable extinguishers shall be provided in all storage areas so that the travel distance from any part of the storage area to an extinguisher is not more than 25 m.

---

### PROPOSED CHANGE

Remove Alberta specific Sentence (3) to align with NFC 2010

---

### RATIONALE

#### Problem

There appears to be no historical data on where the Alberta specific Sentence (3) came from and how strictly is it being enforced.

#### Justification - Explanation

Fire protection requirements for Outdoor Storage have evolved over the years and it is believed this requirement replaced requirements for the protection of wood chip piles which included the provision of fire hose cabinets and nozzles, water barrels and pails, 2A extinguishers, etc. It is felt that the portable extinguisher requirements in buildings, on motorized vehicles, and the Alberta specific water supply requirements negate the need for this requirement.

#### Cost implications

None

#### Enforcement implications

None

## PROPOSED CHANGE

AFC 4.1.1.1. Application Comment 1

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AFC 4.1.1.1. Application Comment 1

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### EXISTING PROVISION

#### Section 4.1. General

##### 4.1.1. Scope

##### 4.1.1.1. Application

...

2) Areas in *process plants*, where conditions must be addressed by design and operational details specific to the hazard, need not conform to this Part, where alternative protection is provided in conformance with Article 1.2.1.1. of Division A. (See Appendix A.)

**A-4.1.1.1.(2)** Certain areas in refineries, chemical plants and distilleries will not meet all Code requirements because of extraordinary conditions. Design should be based on good engineering practice and on such factors as manual fire suppression equipment, daily inspections, automated transfer systems, location of processing units, and special containment systems, piping, controls and materials used. NFPA 30, "Flammable and Combustible Liquids Code," and NFPA 36, "Solvent Extraction Plants," are examples of good engineering practice and can be referred to by the designer and the authority having jurisdiction.

---

### PROPOSED CHANGE

Rewrite Appendix reference to read as follows:

**A-4.1.1.1.(2)** Certain areas in refineries, chemical plants and distilleries may not meet all Code requirements because of extraordinary conditions. Design should be based on good engineering practice and on such factors as manual fire suppression equipment, daily inspections, automated transfer systems, location of processing units, and special containment systems, piping, controls and materials used. NFPA 30, "Flammable and Combustible Liquids Code," and NFPA 36, "Solvent Extraction Plants," are examples of good engineering practice and can be referred to by the designer and the authority having jurisdiction.

This Sentence directs the owner or designer to submit a proposal for an alternative solution to the authority having jurisdiction.

---

### RATIONALE

#### Problem

This statement and appendix text relies heavily on the term "good engineering practice". It is suggested the good engineering practice be addressed through the requirement for such practices to be submitted as an alternative solution in accordance with Div A, Clause 1.2.1.1.(1)(c).

#### Justification - Explanation

With the advent of objective based codes it is felt that this should be the subject of a submission for an alternative solution.

#### Cost implications

There may be additional costs however submission as an alternative solution would ensure that the use of good engineering practice receives some form of scrutiny or attention to ensure Code compliance.

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 4.1.1.1. Application Comment 2

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4.1.1.1. Application Comment 2

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### EXISTING PROVISION

#### AFC 2006

##### Section 4.1. General

##### 4.1.1. Scope

##### 4.1.1.1. Application

...

3) This Part shall not apply to

...

b) *appliances* and their ancillary equipment within the scope of CAN/CSA-B139, "Installation Code for Oil-Burning Equipment" (see Appendix A),

...

**A-4.1.1.1.(3)(b)** Storage tank systems installed in conformance with CAN/CSA-B139, "Installation Code for Oil-Burning Equipment," must comply with Part 4 for items that are outside of the scope of the CSA standard. This includes, but is not limited to, site sensitivity classification, registration, secondary containment, testing, maintenance, repair, leak detection, corrosion protection testing, and removal of storage tank systems.

#### NFC 2010

##### Section 4.1. General

##### 4.1.1. Scope

##### 4.1.1.1. Application

...

3) This Part shall not apply to

...

b) *appliances* and their ancillary equipment within the scope of CAN/CSA-B139, "Installation Code for Oil-Burning Equipment" (see Appendix A),

...

**A-4.1.1.1.(3)(b)** Ancillary equipment covered in CSA B139, "Installation Code for Oil-Burning Equipment," includes storage tanks and piping that supply oil-burning equipment, diesel-engine-driven emergency generators and fire pumps. Part 4 of the NFC does not apply to such tanks and piping systems.

---

### PROPOSED CHANGE

Rewrite Appendix reference to read as follows:

**A-4.1.1.1.(3)(b)** Storage tank systems containing combustible liquids used to supply fuel to equipment installed in conformance with CAN/CSA-B139, "Installation Code for Oil-Burning Equipment," must comply with Part 4. This includes, but is not limited to, storage tank installation, piping, venting, secondary containment, testing, maintenance, repair, leak detection, corrosion protection testing, registration, and removal of storage tank systems. **This does not include any fuel tanks that are an integral part of the manufactured assembly.**

---

### RATIONALE

#### Problem

Suggest further clarification of types of equipment as B139 seems to focus on oil fired furnaces. Things like generators, etc currently get thrown here, possibly not appropriately?

## PROPOSED CHANGE

AFC 4.1.1.1. Application Comment 2

Page: 2 of 2

### Justification - Explanation

Alberta has for some time placed a "line in the sand" with regard to equipment that falls within the scope of CAN/CSA-B139, "Installation Code for Oil-Burning Equipment" and the Alberta Fire Code requirements. It is felt that a manufactured unit complete with fuel tanks, etc. falls well within B-139 however any additional fuel supply and piping shall meet the requirements of the AFC.

### Cost implications

None anticipated at this time

### Enforcement implications

The above will clarify into which jurisdiction equipment will fall.

### Additional Information

#### CSA-B139, "Installation Code for Oil-Burning Equipment."

##### 1 Scope

##### 1.1

This Code applies to

- (a) the installation of appliances, equipment, components, and accessories where oil is used for fuel purposes such as
  - (i) forced-air furnaces;
  - (ii) boilers;
  - (iii) domestic water heaters;
  - (iv) vehicle heaters; and
  - (v) emergency power supplies for buildings;
- (b) the installation of all stationary and portable oil-burning equipment, including fuel supply, piping, and non-integrated tanks for fuel-oil-driven internal combustion engines; and
- (c) the installation of aboveground tanks that have a maximum individual capacity of 2500 L (550 gal) and a maximum aggregate capacity of 5000 L (1100 gal), and the piping and tubing systems from the tanks to the oil-fired appliance.

**Note:** *Fuel oil tank installations of any size underground, and aboveground installations over 2500 L (550 gal), are covered by the National Fire Code of Canada (NFCC) and the CCME Environmental Code. Tank installations may also be governed by the requirements of the authority having jurisdiction.*

It is interesting that the above note clearly states that any tanks in excess of 2500 L are covered by the NFC however the following Appendix reference from the NFC 2010 suggests otherwise:

**A-4.1.1.1.(3)(b)** Ancillary equipment covered in CSA B139, "Installation Code for Oil-Burning Equipment," includes storage tanks and piping that supply oil-burning equipment, diesel-engine-driven emergency generators and fire pumps. Part 4 of the NFC does not apply to such tanks and piping systems.

**Note:** CSA B139, "Installation Code for Oil-Burning Equipment," does not define ancillary equipment and has one reference to such equipment in the definition section of the document as follows:

...

**Foundation, tank** — the area on the site prepared to receive the tank, complete with ancillary equipment and support structure.

...

## PROPOSED CHANGE

AFC 4.1.2.1. Classification Comment

Page: 1 of 2

Document  
Provision

AFC 2006  
4.1.2.1. Classification Comment

---

### EXISTING PROVISION

#### 4.1.2. Classification

##### 4.1.2.1. Classification

(See Appendix A.)

- 1) For the purposes of this Part, *flammable liquids* and *combustible liquids* shall be classified in conformance with Sentences (2) and (3).
- 2) *Flammable liquids* shall be Class I liquids, and shall be subdivided into:
  - a) Class IA liquids, which shall include those having a *flash point* below 22.8°C and a boiling point below 37.8°C,
  - b) Class IB liquids, which shall include those having a *flash point* below 22.8°C and a boiling point at or above 37.8°C, and
  - c) Class IC liquids, which shall include those having a *flash point* at or above 22.8°C and below 37.8°C.
- 3) *Combustible liquids* shall be Class II or Class IIIA liquids, and shall be subdivided into:
  - a) Class II liquids, which shall include those having a *flash point* at or above 37.8°C and below 60°C, and
  - b) Class IIIA liquids, which shall include those having a *flash point* at or above 60°C and below 93.3°C (see Appendix A).

**AFC A-4.1.2.1.(3)(b)** The NFPA classification system for flammable and combustible liquids includes Class IIIB liquids, which have flash points at or above 93.3°C. These liquids are not regulated by Part 4 of the Alberta Fire Code 2006 because they are deemed to represent no greater fire hazard than other combustibles, such as wood or paper products. However, Article 4.1.2.2. clarifies that such liquids are effectively Class I liquids when heated to their flash point temperature.

---

### PROPOSED CHANGE

**A-4.1.2.1.(3)(b)** The NFPA classification system for flammable and combustible liquids includes Class IIIB liquids, which have flash points at or above 93.3°C. These liquids are not regulated by Part 4 of the Alberta Fire Code 2012 because at normal storage temperatures they do not present an ignition scenario which constitutes a fire hazard. From the perspective of an ignition scenario these liquids should be treated as combustible materials under Part 3 of the Alberta Fire Code 2012. However, given that these liquids may be spilled and may burn consideration must be given to ensure that the principles of Part 4, particularly those related to Spill Control and Drainage, be utilised in storage system design.

In addition, where Class IIIB liquids are stored or used in conjunction with *flammable liquids* and *combustible liquids* then they should be treated as if they were Class IIIA liquids.

Article 4.1.2.2. clarifies that many liquids are effectively Class I liquids when heated to their flash point temperature and should be treated as such during system design and operation when those temperature conditions will be present in storage or process operations.

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### RATIONALE

#### Problem

Questions have been posed about whether we can somehow provide some direction for the storage and fire protection of vegetable, animal and motor oils; however, there is no desire to make this as strict as for other

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## PROPOSED CHANGE

AFC 4.1.2.1. Classification Comment

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types of liquids which pose a greater frequency of concern.

This concern is likely to increase as “bio” type fuels, both new and recycled, become more prevalent within manufacturing processes.

### **Justification – Explanation**

With these products not meeting the national and provincial definitions of a *combustible liquid* and falling outside the generally accepted thoughts for other combustible materials in Part 3 of the AFC 2006 they sit in an grey area. Without changing the Code or its intent this should guide owners, designers and SCOs to understand that as a combustible product of a liquid nature it requires consideration under both Part 3 and Part 4 of the AFC 2012.

### **Cost implications**

**Enforcement implications** – will provide some guidance for SCOs dealing with these situations to ensure that they are stored in a manner consistent with the risk created and with other commodities.

### **Additional Information**

(attach pages if required)

## PROPOSED CHANGE

AFC 4.3.1.2. Atmospheric Storage Tanks

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Document  
Provision

AFC 2012  
4.3.1.2. Atmospheric Storage Tanks

---

### EXISTING PROVISION

#### 4.3.1.2. Atmospheric Storage Tanks

1) Except as permitted in Sentence (3) and in Section 4.10., *atmospheric storage tanks* shall be built in conformance with the following:

- a) API 650, "Welded Steel Tanks for Oil Storage,"
- b) ULC-S601, "Shop Fabricated Steel Aboveground Horizontal Tanks for Flammable and Combustible Liquids,"
- c) ...

2) Reserved

...

---

### PROPOSED CHANGE

Rewrite Sentence 4.3.1.2.(1) to include reference to API 12B, 12D, and 12F and renumber existing requirements. Insert wording into Sentence 4.3.1.2.(2) to indicate where such tanks are approved for use. The rewrite will align with the NFC 2010 to read as follows:

#### 4.3.1.2. Atmospheric Storage Tanks

1) Except as permitted in Sentence (3) and in Section 4.10., *atmospheric storage tanks* shall be built in conformance with the following:

- a) API 12B, "Bolted Tanks for Storage of Production Liquids,"
- b) API 12D, "Field Welded Tanks for Storage of Production Liquids,"
- c) API 12F, "Shop Welded Tanks for Storage of Production Liquids,"
- d) API 650, "Welded Tanks for Oil Storage,"
- e) CAN/ULC-S601, "Shop Fabricated Steel Aboveground Tanks for Flammable and Combustible Liquids,"
- f) ...

2) Tanks built in conformance with Clauses (1)(a), (b) and (c) and shop fabricated tanks built in conformance with Clause (d) shall be used only for the storage of crude petroleum at oil fields.

...

---

### RATIONALE

#### Problem

Numerous oil field companies that service oil and gas wells in the upstream production areas are storing flammable liquids and combustible liquids in storage tanks that are not compliant with the Alberta Fire Code (AFC). The majority of these tanks are regulated by the AFC as they are located at facilities remote from oil field operations.

Division B, Part 4, Clause 4.1.1.1.(3)(h) of AFC exempts storage tanks at oil and gas sites that are regulated by the Energy Resources Conservation Board (ERCB) Directive 55, "Storage Requirements for the Upstream Petroleum Industry." (Formerly entitled Guide 55). as follows:

#### Section 4.1. General

##### 4.1.1. Scope

##### 4.1.1.1. Application

...

3) This Part shall not apply to

...



## PROPOSED CHANGE

AFC 4.3.1.2. Atmospheric Storage Tanks

Page: 2 of 2

**h)** the storage and handling of raw production *flammable liquids* or *combustible liquids* and the incidental storage and handling of hydrocarbon-based chemicals resulting from or used during crude oil or natural gas exploration, production or transmission as mandated under the scope of EUB Guide 55, "Storage Requirements for the Upstream Petroleum Industry."

The Fire Code Bulletin (FCB) "Storage of Flammable and Combustible Liquids" identifies that American Petroleum Institute (API) specification 12F tanks are not permitted under the AFC.

### Justification - Explanation

The above exemption has been interpreted in such a manner that flammable liquid or combustible liquid that is "... used during crude oil or natural gas exploration, production or transmission ..." can be stored in API 12B, 12D, and 12F and shop fabricated API 650 aboveground storage tanks at offsite locations; this is not the case. The National Fire Code has stated for some time that API 12B, 12D, and 12F tanks built in conformance with those standards are to be used only for the storage of crude petroleum at oil fields.

The above proposal aligns with the NFC to clarify where API 12B, 12D, and 12F tanks are permitted to be used and is expanded to include shop fabricated API 650 tanks that are being manufactured in a similar manner and style.

### Cost implications

Storage tanks meeting the requirements of the AFC will invariably be more expensive than using API 12B, 12D, 12F and shop fabricated API 650 tanks, however such tanks meeting referenced standards, complete with all necessary safety features, is considered the appropriate method for the storage of flammable liquids and combustible liquids to support crude oil or natural gas exploration, production or transmission.

### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 4.3.1.8. Overfill Protection

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Provision

AFC 2012  
**4.3.1.8. Overfill Protection**

---

### EXISTING PROVISION

#### 4.3.1.8. Overfill Protection

- 1) Except as required in Subsection 4.3.8., a storage tank shall be prevented from being overfilled by providing
- a) continuous supervision of the filling operations by personnel qualified to supervise such operations, or
  - b) an overfill protection device conforming to ULC/ORD-C58.15, "Overfill Protection Devices for Flammable Liquid Storage Tanks" (see Appendix A).

**A-4.3.1.8.(1)(b)** Examples of devices to prevent overfill include automatic sensing devices for interconnection with shut-off equipment at the supply vehicle, automatic overfill shut-off devices of a float valve or other mechanical type, vent restriction devices, and overfill alarm devices of the audible or visual type.

---

### PROPOSED CHANGE

Replace the word "or" with "and" and include a new Sentence (2) as per the NFC 2010 to read as follows:

- 1) Except as required in Subsection 4.3.8. and Sentence (2), a *storage tank* shall be prevented from being overfilled by providing
- a) continuous supervision of the filling operations by personnel qualified to supervise such operations, and
  - b) an overfill protection device conforming to ULC-S661, "Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks" (see Appendix A).

(See Appendix A.)

- 2) Tight-filled storage tanks shall be prevented from being overfilled by providing a positive shut-off device conforming to ULC-S661, "Overfill Protection Devices for Flammable and Combustible Liquid Storage Tanks" (See Appendix A.)

**A-4.3.1.8.(1)(b)** Examples of devices to prevent overfill include automatic sensing devices for interconnection with shut-off equipment at the supply vehicle, automatic overfill shut-off devices of a float valve or other mechanical type and overfill alarm devices of the audible or visual type.

**A-4.3.1.8.** Continuous supervision of the unloading of flammable or combustible liquids by qualified personnel is always required to provide protection to persons, the facility and the environment.

**A-4.3.1.8.(2).** A tight-fill operation means that a mechanical, liquid-tight connection is used at the fill point.

---

### RATIONALE

#### Problem

The Alberta Fire Code has had overfill prevention requirement for underground storage tanks since 1992. This has removed a serious overfill risk from underground storage tank operations. However, a major source of spilled flammable and combustible liquids is from overfilling of aboveground storage tanks. The National Fire Code 2010 has recognized this as a serious issue by changing the Article to say that where tanks are filled with a tight-fill connection there must be a shutoff device conforming to the ULC Standard for those devices.

#### Justification - Explanation

Aboveground double-walled storage tanks without conventional secondary containment have increased the

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## **PROPOSED CHANGE**

AFC 4.3.1.8. Overfill Protection

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likelihood of spills from overfills, creating a safety and environmental issue.

### **Cost implications**

None anticipated

### **Enforcement implications**

None anticipated

## PROPOSED CHANGE

AFC 4.3.15.1 Underground Storage Tanks Out of Service

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Document  
Provision

AFC 2006  
4.3.15.1 Underground Storage Tanks Out of Service

---

### EXISTING PROVISION

#### 4.3.15. Out of Service

##### 4.3.15.1. Underground Storage Tanks

...

2) Except as provided in Sentence (3), when underground *storage tanks* will be out of service for a period exceeding 180 days

- a) the *authority having jurisdiction* shall be notified, in writing, as soon as practicable,
- b) the *storage tanks*, connected piping and dispensers shall be emptied of Class I liquid,
- c) the *storage tanks*, piping and dispensers shall be refilled with a Class II or IIIA liquid, or not less than 1 kg of dry ice for each 500 L of tank capacity shall be added to the *storage tank*,
- d) measurements of the liquid level of each *storage tank* containing a Class II or IIIA liquid shall be made at intervals not greater than one month, and a record of the measurements shall be retained in conformance with Article 2.2.1.2. of Division C, and
- e) fill pipe covers and covers over openings to measure liquid levels, dispensers and power controls shall be locked.

---

### PROPOSED CHANGE

Rewrite Sentence 4.3.15.1.(2) to read as follows:

2) Except as provided in Sentence (3), when underground *storage tanks* will be out of service for a period exceeding 180 days

- a) the *authority having jurisdiction* shall be notified, in writing, as soon as practicable,
- b) the *storage tanks*, connected piping and dispensers shall be emptied of liquid, and
- c) fill pipe covers, dispensers and power controls shall be locked.

---

### RATIONALE

#### Problem

The present Alberta Fire Code allows underground tanks that will be out of service for 180 days or longer to be filled with a combustible liquid. This practice could result in diesel fuel leaking out of tanks that are out of service.

#### Justification - Explanation

When a tank is to be out of service for a period exceeding 180 days you must remove Class I liquid and can fill the tank with Class II or IIIA liquid. So, if the tank owner wants to stop use of the tank gasoline (for example) can be removed and replaced with diesel fuel. If you do not fill the tank with a Class II or IIIA liquid an option is to dry ice the tank. The idea of use of dry ice is to displace the oxygen in the tank to render it inert. Underground storage tanks that are taken out of service for a period of longer than 180 days often get left in the ground long after the required 2-year limit before removal is necessary. Although it is very unlikely a tank owner would choose to fill the tank with diesel fuel this option contradicts one of the basic objectives of the Fire Code – to protect human health. Class II or Class IIIA liquid that escapes from an abandoned tank could create a serious environmental problem. Secondly, dry icing a tank in order to inert it is a very temporary measure to prevent a tank explosion. It is very difficult to remove the potential for flammable vapours over the long term. Finally, the value of an inert tank underground is questionable since there's little risk to people or structures when the tank is buried. The updated NFC has removed prescriptive requirements associated with tanks out of service and now says removal, taking out of service, etc., should be done in accordance with good engineering practice. The Appendix lists a number of documents as reference.

## **PROPOSED CHANGE**

AFC 4.3.15.1 Underground Storage Tanks Out of Service

Page: 2 of 2

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### **Cost implications**

Accepting this change will result in lower cost and a safer practice.

### **Enforcement implications**

If an individual was to replace flammable liquid with combustible liquid it would be difficult for a Safety Codes Officer to determine that this has been done. It is simple to determine if a storage tank is empty, however.

## PROPOSED CHANGE

AFC 4.3.15.2.(4) Aboveground Storage Tanks Out of Service

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4.3.15.2.(4) Aboveground Storage Tanks Out of Service

---

### EXISTING PROVISION

#### 4.3.15. Out of Service

#### 4.3.15.2. Aboveground Storage Tanks

...

4) Aboveground *storage tanks* that have been out of service for a period of more than 180 days and are to be returned to service shall, where possible, be internally inspected and the *authority having jurisdiction* shall be advised of the inspection results and the intention to return the *storage tanks* to service.

---

### PROPOSED CHANGE

Insert revised wording as follows:

4) Except where *storage tank* floors can be externally examined, aboveground *storage tanks* that have been out of service for a period of more than 180 days and are to be returned to service must, where possible, be internally inspected and the *authority having jurisdiction* shall be advised of the inspection results and the intention to return the *storage tanks* to service.

---

### RATIONALE

#### Problem

Many aboveground tanks are not in direct contact with the ground making an external inspection a simple task. The Sentence could be more specific by targeting tanks that have a risk of a floor failure.

#### Justification - Explanation

The rationale for internal inspections of some tanks is difficult to determine, especially for tanks not in contact with soil. Double-walled tanks cannot be entered without cutting. That might explain the requirement saying "where possible". There is rationale for vertical tanks in contact with the ground to have a failure that might not be detected without internal examination. This requirement corresponds with the in-service monitoring of vertical, single-walled tanks that is stated in Table 4.4.1.2.B.

#### Cost implications

None

#### Enforcement implications

None

## PROPOSED CHANGE

AFC 4.3.3.4. Protection Against Mechanical Damage

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4.3.3.4. Protection Against Mechanical Damage

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### EXISTING PROVISION

#### 4.3.3. Supports, Foundations and Anchorage for Aboveground Storage Tanks

...

##### 4.3.3.4. Protection Against Mechanical Damage

1) The *authority having jurisdiction* is permitted to require that an aboveground *storage tank* be provided with barriers, if there is potential for mechanical damage to the *storage tank* from vehicles or other sources.

---

### PROPOSED CHANGE

Revise wording in Article 4.3.3.4. and add an Appendix reference to read as follows:

##### 4.3.3.4. Protection Against Mechanical Damage

1) Barriers shall be used to protect an aboveground *storage tank* from mechanical damage by vehicles or other sources. (See Appendix A.)

**A-4.3.3.4.** Protection against collision damage can be provided in the form of vertical posts or bollards or reinforced concrete Jersey barriers. The protection should be designed to protect tank systems by considering the type and weight of vehicle traffic at the facility. Standard protection might be concrete set and filled 150 mm schedule 40 pipe, set at 1 m from the tank shell with the posts being spaced 1500 mm on centre. If Jersey barriers are used they should be not less 750 mm in height and the width of the base not less than the height of the barrier spaced 500 mm from the tank shell. A conventional secondary containment system utilizing walls that are spaced a minimum of 1.5 m from the tank shell may be sufficient to provide collision protection.

It might be pointed out that a conventional secondary containment system with walls spaced 1.5 m from the tank shell normally provides a means of protection against mechanical damage.

---

### RATIONALE

#### Problem

There should not be a need for discretion for collision protection, regardless of the use of tanks as fuel dispensing, bulk application or used oil storage. All aboveground tanks should be protected from collision.

#### Justification - Explanation

The current wording implies that collision protection is a discretionary decision on the part of the Safety Codes Officer. Collision protection should be considered for all tanks. If there's no possibility of a vehicle striking a storage tank then protection is not required. If a collision is only possible on one side of a tank then only one side would need protection. The tank owner or design engineer should not expect the SCO to request collision protection. The style and strength of the collision protection should also be specific to the tank location.

#### Cost implications

There should be no net change to site development costs from the previous Fire Code.

#### Enforcement implications

This change should provide an enforcement improvement. The onus to provide collision protection would shift to the owner and his design engineer. The previous wording suggests it is the SCO's responsibility to install it.

#### Additional Information

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## PROPOSED CHANGE

AFC 4.3.8.1.(3) Site Sensitivity

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4.3.8.1.(3) Site Sensitivity

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### EXISTING PROVISION

#### 4.3.8. Installation of Underground Storage Tanks

##### 4.3.8.1. Location

- 1) Underground *storage tanks* shall be located so that loads from *building* foundations and supports are not transmitted to the tank.
- 2) Underground *storage tanks* shall be separated by a horizontal distance of not less than
  - a) 600 mm from adjacent underground tanks or structures,
  - b) 1 m from a *building* foundation or a *street* line, and
  - c) 1.5 m from other property lines.
- 3) The location of each proposed *underground storage tank system* shall be assigned a site sensitivity classification by the *authority having jurisdiction* in accordance with Sentences (4) and (5).
- 4) The site sensitivity classification shall be Class A where the *underground storage tank system* is located within
  - a) 500 m of wells or other locations where underground water is being used,
  - b) 200 m of a lake, river or other body of water,
  - c) 150 m of a major underground structure, or
  - d) a municipality that has been deemed to require protection from hydrocarbon spills.
- 5) The site sensitivity classification shall be Class B if the site does not meet the criteria for Class A sites described in Sentence (4).

...

---

### PROPOSED CHANGE

Remove the Alberta specific Sentences 4.3.8.1.(3),(4), and (5) which are no longer required with the inclusion of a new Sentence 4.3.8.1. from the NFC 2010 which reads as follows:

#### 4.3.8. Installation of Underground Storage Tanks

##### 4.3.8.1. Construction

- 1) *Storage tanks* installed underground shall be of double-walled construction and shall be built in conformance with the underground *storage tanks* standards identified in Sentence 4.3.1.2.(1).
- 2) See proposal AFC 24 (4.3.8.1.(6) & (7)) regarding list of requirements for the installation of underground *storage tank systems*.

**NOTE:** Remaining Articles in Section 4.3.8. will be renumbered as per the NFC 2010 as follows:

##### 4.3.8.2. Location

- 1) Underground *storage tanks* shall be located so that loads from *building* foundations and supports are not transmitted to the tank.
- 2) Underground *storage tanks* shall be separated by a horizontal distance of not less than
  - a) 600 mm from adjacent underground tanks or structures,
  - b) 1 m from a *building* foundation or a *street* line, and
  - c) 1.5 m from other property lines.

---

### RATIONALE

#### Problem

Site sensitivity classification was introduced in the 1992 Alberta Fire Code to place higher protection on underground tank system installations based on risk. Much work has been done by a NRC committee to improve leak detection requirements in the National Fire Code. For that model code double-walled tanks are a requirement where much of the leak detection change is based. If the Alberta Fire Code continues to



## PROPOSED CHANGE

AFC 4.3.8.1.(3) Site Sensitivity

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recognize site sensitivity to mandate use of double-walled storage tanks Alberta would fall behind most jurisdictions in North America and not be synchronized with many articles in the National Fire Code.

### **Justification - Explanation**

In Alberta only 19% of underground storage tank sites are classified as Class A sites where double-walled tanks are required. Despite that low number of more sensitive sites, 81% of underground tanks that have been installed during the past five years have been double-walled. Most companies recognize the protection offered by double-wall construction and are using this style of tank voluntarily. Existing single-walled systems should be allowed to continue but new systems should be double-walled to minimize releases at all locations.

### **Cost implications**

Although this is a major change from the 2006 AFC the cost implications for industry will be negligible and in line with voluntary practices of companies that install underground storage tanks. In most cases, service station operators that cannot afford the cost of a double-walled system have the option of using aboveground double-walled tanks.

### **Enforcement implications**

Eventually all underground systems will be double-walled and employ state of the art leak detection equipment. This change is a step toward the AHJ having very little enforcement concern for equipment that is under ground.

## PROPOSED CHANGE

AFC 4.3.8.1.(6) & (7) Site Sensitivity

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4.3.8.1.(6) & (7) Site Sensitivity

---

### EXISTING PROVISION

#### 4.3.8. Installation of Underground Storage Tanks

##### 4.3.8.1. Location

...

**6)** No person shall install an underground storage tank system at a location that has a site sensitivity classification of Class A as described in Sentence (4), unless

- a) the underground storage tank system is constructed and installed in conformance with this Part,
  - b) a means of secondary containment is provided (see Appendix A),
  - c) an overfill protection device conforming to ULC/ORD-C58.15, "Overfill Protection Devices for Flammable Liquid Storage Tanks," is installed,
  - d) a spill containment device conforming to ULC/ORD-C58.19, "Spill Containment Devices for Underground Flammable Liquid Storage Tanks," is installed,
  - e) leak detection is installed (see Appendix A),
  - f) a line leak detection device is installed on pressurized or suction piping systems (see Appendix A),
  - g) all storage tank fill pipes are equipped with liquid- and vapour-tight adapters and caps,
  - h) a valve is installed on buried suction piping systems in order to isolate piping during leakage testing, and
- i) under dispenser sumps conforming to ULC/ORD-C107.21, "Under Dispenser Sumps," are installed.

**7)** No person shall install an underground storage tank system at a location that has a site sensitivity classification of Class B as described in Sentence (5) unless

- a) the underground storage tank system is constructed and installed in conformance with this Part,
- b) an overfill protection device conforming to Clause (6)(c) is installed,
- c) a spill containment device conforming to Clause (6)(d) is installed,
- d) leak detection is installed (see A-4.3.8.1.(6)(e) in Appendix A),
- e) a line leak detection device is installed on pressurized or suction piping systems (See A-4.3.8.1.(6)(f) in Appendix A),
- f) all storage tank fill pipes are equipped with liquid- and vapour-tight adapters and caps,
- g) a valve is installed on buried suction piping systems in order to isolate piping during leakage testing, and
- h) under dispenser sumps conforming to ULC/ORD-C107.21, "Under Dispenser Sumps," are installed.

---

### PROPOSED CHANGE

Remove existing Sentences 4.3.8.1.(6) and (7) revise, replace and renumber with the wording under the new NFC 2010 Article 4.3.8.1. "Construction", as Sentence (2) to read as follows:

#### 4.3.8. Installation of Underground Storage Tanks

##### 4.3.8.1. Construction (new NFC 2010)

**1)** See proposal for change to AFC 23 (4.3.1.8.(3) Site Sensitivity.)

**2)** No person shall install an *underground storage tank system* unless

- a) the *underground storage tank system* is constructed and installed in conformance with this Part,
- b) an overfill protection device conforming to ULC-S661, "Overfill Protection Devices for Flammable Liquid Storage Tanks," is installed,
- c) a *spill containment device* conforming to ULC/ORD-C58.19, "Spill Containment Devices for Underground Flammable Liquid Storage Tanks," is installed at the *storage tank* fill point,
- e) *storage tank system* leak detection is installed, (see Appendix A),

- 
- f) *storage tank system* leak detection is conducted in accordance with Section 4.4,
  - g) all *storage tank* fill pipes are equipped with liquid and vapour-tight adapters and caps, and
  - h) where applicable, *dispenser sumps*, *transition sumps*, and *turbines sumps* shall be provided and monitored in accordance with Section 4.3.9.

(See Appendix A)

**NOTE:** *The above reference to Section 4.3.9. is written to reflect acceptance of proposal AFC 25 (4.3.9.1. NEW Sumps.)*

**A-4.3.8.1.(2)(e)** Periodic leak detection monitoring and testing in Section 4.4 for tank systems installed before this Code was published applies to single-walled systems. Existing systems which include single-walled piping require leak detection which may include the following types of technology.

**Pressurized Piping Systems:**

Mechanical or electronic line leak detectors on pressurized piping systems constructed in accordance with ULC/ORD-C107.12, "Line Leak Detection Devices for Flammable Liquid Piping," capable of detecting a leak rate of 11.4 L/h or greater, at a line pressure of 69 kPa, with a probability of detection of 0.95 and a probability of false alarm of 0.05 within 1 hour of the occurrence of the start of the leak. Line leak detection must incorporate one of the following:

- (a) an automatic shut-off device,
- (b) a flow restriction device, or
- (c) an alarm that indicates a leak.

Line leak detectors for pressurized piping systems must be tested annually to ensure they are operating properly and must not be bypassed from operation.

Cardlock installations and other unattended facilities must be equipped with leak detection interlock to shut off delivery of flammable and combustible liquids in the event of a detected leak.

**Suction Systems**

Where single-walled piping is installed in existing systems, all suction lines must be equipped with a single, vertical check valve, which is to be installed immediately below the pump. If a check valve is to be located elsewhere, all suction piping trenches must be equipped with a sufficient quantity of monitoring wells, which are to be used monthly to test for the presence of flammable or combustible vapours or free product.

**A-4.3.8.1.(2)** The requirements in this Article typically apply to underground storage tanks and underground piping. It is common for aboveground storage tanks used for fuel dispensing to have connected underground piping. The requirements for transition sumps and piping in the Article also apply to underground piping connected to aboveground storage tanks.

---

**RATIONALE**

**Problem**

If there is acceptance of the proposal to remove reference to site sensitivity classification existing Sentences (6) and (7) can be omitted. However, it is felt that there should still be a consolidated listing of equipment requirements for the installation of underground storage tank systems in the Alberta Fire Code.

**Justification – Explanation**

In AFC 2006 the minimum requirements for underground storage tanks and piping are found in 4.3.8.1.(6) and (7). The NFC has chosen to spread around requirements throughout the Part. This does not provide a concise listing for easy reference. The AFC design should be maintained, pulling in all of the requirements that appear in the updated NFC 2010.

**Cost implications**

None anticipated

**Enforcement implications**

None anticipated

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## PROPOSED CHANGE

AFC New 4.3.9.1. Sumps

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New 4.3.9.1. Sumps

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### EXISTING PROVISION

None

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### PROPOSED CHANGE

Align with the NFC 2010 with the amalgamation of the following requirements for sumps when installing underground storage tanks and underground storage tank systems.

**NOTE:** The NFC 2010 Articles 4.3.10.2. and 4.3.10.3. which address Construction and Leak Detection Monitoring regarding sumps are in incorrect locations (See Section 4.3.10. "Corrosion Protection of Underground Steel Storage Tanks".) This will be corrected in the NFC and AFC by placing the above Articles in Section 4.3.9. as follows:

#### 4.3.9. Sumps

##### 4.3.9.1. Installation

- 1) A *dispenser sump* shall be provided under a dispenser, unless the dispenser is located on top of an aboveground *storage tank*.
- 2) A *spill containment sump* shall be provided at every underground *storage tank* fill point.
- 3) A *transition sump* shall be provided for all mechanical pipe connections located below *grade*.
- 4) A *turbine sump* shall be provided for all turbine pump assemblies located below *grade* or above *grade* where they are not readily visible.
- 5) In addition to the requirements of Article 4.3.10.2., the sumps referred to in Sentences (1) to (4) shall be installed in conformance with the sump manufacturer's instructions.

##### 4.3.9.2. Construction

- 1) *Dispenser sumps* shall conform to the construction and performance requirements of ULC/ORD-C107.21, "Under-Dispenser Sumps."
- 2) *Spill containment sumps* shall conform to the construction and performance requirements of ULC/ORD-C58.19, "Spill Containment Devices for Underground Flammable Liquid Storage Tanks."

##### 4.3.9.3. Leak Detection Monitoring

- 1) Where *dispenser sumps*, *turbine sumps* and *transition sumps* referred to in Article 4.3.9.1. are used in underground applications, they shall be provided with an electronic monitoring device to indicate the presence of liquid.

**NOTE:** The following are the *defined terms* regarding sumps:

*Dispenser sump* means a liquid-tight container intended for installation under a dispensing unit for the collection of any internal leakage of *flammable liquid* and *combustible liquid* from the dispensing unit.

*Spill containment sump* means a liquid-tight container intended to catch, retain and provide for the evacuation of any product at the time of filling.

*Transition sump* means an underground liquid-tight container intended for installation where mechanical connection or transition takes place for the collection of any internal leakage of *flammable liquid* and *combustible liquid*.

*Turbine sump* means a container designed to provide access to equipment and to contain minor leakage, and installed to prevent water ingress.

## PROPOSED CHANGE

AFC New 4.3.9.1. Sumps

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*Grade* means the lowest of the average levels of finished ground adjoining each exterior wall of a *building*, except that localized depressions need not be considered in the determination of average levels of finished ground. (See *First storey* and Appendix A.)

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### RATIONALE

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#### Problem

The NFC 2010 has amalgamated requirements for sumps at locations that are deemed to require containment and monitoring during the installation of underground storage tanks, underground storage tank systems, and underground piping. These changes will be reflected in the next edition of the Alberta Fire Code.

#### Justification - Explanation

The installation of such sumps is industry practice when installing of underground storage tanks, underground storage tank systems, and underground piping.

#### Cost implications

As stated above the installation of these sumps is industry practice

#### Enforcement implications

None anticipated.

## PROPOSED CHANGE

AFC 4.5.6.1.(1) Construction UG Piping Appendix Reference

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AFC 4.5.6.1.(1) Construction UG Piping Appendix Reference

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### EXISTING PROVISION

**None.** Please note that this item has been inserted in the National Fire Code of Canada 2010 as Article 4.5.6.1. Construction. This has led to existing Articles being renumbered.

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### PROPOSED CHANGE

Insert NFC 2010 wording to require all underground piping to be double wall with an Alberta specific Appendix reference as follows:

#### Section 4.5.6 Location and Arrangement of Piping

##### 4.5.6.1. Construction

1) Except for vents, risers and vertical fill piping systems, underground piping systems shall be of double-walled construction. (See Appendix A.)

**A-4.5.6.1.** It should be noted that this requirement applies to new and upgraded piping systems. A common practice in Alberta is the installation of aboveground storage tanks that supply remote dispensers by the use of underground piping. This requirement would apply to all such installations.

---

### RATIONALE

#### Problem

There are a number of facilities that utilize aboveground storage tanks with remote dispensers in Alberta. The Appendix reference is to ensure that if underground piping is to be installed or replaced this shall be double walled piping in all new or existing locations.

#### Justification - Explanation

With the removal of the Alberta specific requirements for site sensitivity for underground piping it is considered appropriate to insert an Appendix reference.

#### Cost implications

Double-walled piping is clearly twice the cost of single-walled piping. This material cost does not deter any tank owners from installing double-walled pipe today (even outside of Class A locations).

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 4.5.6.5.(2) Installation of Underground Piping

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AFC 2006  
4.5.6.5.(2) Installation of Underground Piping

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### EXISTING PROVISION

#### Section 4.5. Piping and Transfer Systems

...

#### 4.5.6. Location and Arrangement of Piping

...

##### 4.5.6.5. Installation of Underground Piping

- 1) Underground piping shall be
  - a) supported on
    - i) undisturbed or compacted soil, or
    - ii) not less than 150 mm of clean sand, pea gravel or clean crushed stone, and
  - b) backfilled on the top and sides with not less than
    - i) 300 mm of pea gravel or clean crushed stone, or
    - ii) 300 mm of clean sand, free of cinders and stones, and compacted in layers not more than 300 mm thick.
- 2) The location of underground piping shall be assigned a site sensitivity classification in accordance with Sentences (3) and (4) by the *authority having jurisdiction*.
- 3) The site sensitivity classification shall be Class A where the underground piping is located within
  - a) 500 m of wells or other locations where underground water is being used,
  - b) 200 m of a lake, river or other body of water,
  - c) 150 m of a major underground structure, or
  - d) a municipality that has been deemed to require protection from hydrocarbon spills.
- 4) The site sensitivity classification shall be Class B if the site does not meet the criteria for Class A sites described in Sentence (3).
- 5) Underground piping installed at a location that has a site sensitivity classification of Class A shall have
  - a) a means of *secondary containment* provided (see A-4.3.8.1.(6)(b) in Appendix A), and
  - b) a line leak detection device installed on pressurized or suction piping systems (see A-4.3.8.1.(6)(f) in Appendix A).
- 6) Underground piping installed at a location that has a site sensitivity classification of Class B shall have a line leak detection device installed on pressurized or suction piping systems. (See A-4.3.8.1.(6)(f) in Appendix A.)

---

### PROPOSED CHANGE

The following from the NFC 2010 requires that all piping installed underground is to be double-walled which results in there being no need for site sensitivity classifications. Sentence 4.5.6.1.(1) of the NFC 2010 reads as follows:

#### 4.5.6.1. Construction

- 1) Except for vents, risers and vertical fill piping systems, underground piping systems shall be of double-walled construction.

*Note Also see AFC 26 re: proposal for an Alberta specific Appendix reference for the above Sentence.*

With the above in mind and the removal of site sensitivity classifications it is considered appropriate to include requirements for sumps where applicable. The following Sentence 4.5.6.5.(2) will replace Sentences 4.5.6.5.(2), (3), (4) (5) and (6) of the AFC 2006, which all relate to site sensitivity, to read as follows:

## PROPOSED CHANGE

AFC 4.5.6.5.(2) Installation of Underground Piping

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### Section 4.5. Piping and Transfer Systems

...

#### 4.5.6. Location and Arrangement of Piping

...

##### 4.5.6.5. Installation of Underground Piping

- 1) Underground piping shall be
  - a) supported on
    - i) undisturbed or compacted soil, or
    - ii) not less than 150 mm of clean sand, pea gravel or clean crushed stone, and
  - b) backfilled on the top and sides with not less than
    - i) 300 mm of pea gravel or clean crushed stone, or
    - ii) 300 mm of clean sand, free of cinders and stones, and compacted in layers not more than 300 mm thick.
- 2) Where applicable sumps shall be installed and monitored in accordance with Section 4.3.9.

---

### RATIONALE

#### Problem

There is no need to classify sites by sensitivity if the NFC is followed to have all underground piping double-walled. We need to bear in mind that although we require all underground piping to be double-walled and we are removing the site sensitivity requirements from the AFC we should be including requirements for sumps at any transition points for underground piping.

#### Justification - Explanation

Most leaks from underground systems are from single-walled piping. All engineers, contractors and owners realize that the risk of a leaking system are much less if double-walled piping is used. The leak detection tables established in the 2010 NFC would not be possible unless Alberta adopts the example of that Code which sets double-walled piping as a minimum requirement for new piping.

#### Cost implications

Double-walled piping is clearly twice the cost of single-walled piping. This material cost does not deter any tank owners from installing double-walled pipe today (even outside of Class A locations).

#### Enforcement implications

As stated earlier, enforcement action in the future will be minimal for underground systems which use a double-walled tank and piping system along with appropriate leak detection.



## PROPOSED CHANGE

AFC 4.6.2.1. Outside Aboveground Storage Tanks

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AFC 2006  
4.6.2.1. Outside Aboveground Storage Tanks

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### EXISTING PROVISION

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#### 4.6.2.1. Outside Aboveground Storage Tanks

- 1) Except as provided in Sentences (2) , (3), and (4), the installation of outside aboveground *storage tanks* at *fuel-dispensing stations* shall be in conformance with Subsection 4.3.2.
- 2) Except as permitted by Sentence (3), outside aboveground *storage tanks* at *fuel-dispensing stations* shall have an individual capacity of not more than 50 000 L, and their aggregate capacity shall not exceed 150 000 L. (See Appendix A.)
- 3) Outside aboveground *storage tanks* for Class II and IIIA liquids used exclusively at fleet vehicle *fuel-dispensing stations* or cardlock installations shall have an individual capacity of not more than 75 000 L, and their aggregate capacity shall not exceed 225 000 L. (See Appendix A.)
- 4) Outside aboveground *storage tanks* at *fuel-dispensing stations* shall be provided with
  - a) physical protection against collision damage,
  - b) measures to prevent unauthorized access to the storage tank and its ancillary equipment, and
  - c) measures to contain accidental spillage in conformance with Subsection 4.3.7.

**A-4.6.2.1.(2)** These maximum capacities were deliberately chosen based on typical underground systems now in use, with due regard for fire safety. The maximum individual capacity will accommodate delivery of a single product grade that might be expected. The maximum aggregate capacity allows the service station owner or operator the flexibility needed to offer a full range of fuel products. These underground tank storage capacities are typical of automotive fuel-dispensing stations, which usually have three or four 35 000 to 50 000 L tanks for different grades of gasoline and smaller tanks for diesel fuel.

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### PROPOSED CHANGE

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Replace Article 4.6.2.1. with the following text taken from the NFC 2010 to read as follows:

#### 4.6.2.1. Outside Aboveground Storage Tanks

- 1) Except as provided in Sentences (2) , (3), and (4), the installation of outside aboveground *storage tanks* at *fuel-dispensing stations* shall be in conformance with Subsection 4.3.2.
- 2) Except as permitted in Sentence (3), outside aboveground *storage tanks* at *fuel-dispensing stations* shall have an individual capacity of not more than 80 000 L, and their aggregate capacity shall not exceed 200 000 L.
- 3) The individual capacity of outside aboveground *storage tanks* at *fuel-dispensing stations* is permitted to exceed the individual capacity limit of 80 000 L required in Sentence (2), provided
  - a) they conform to ULC-S655, "Aboveground Protected Tank Assemblies for Flammable and Combustible Liquids," and
  - b) their aggregate capacity does not exceed 200 000 L.
- 4) Outside aboveground *storage tanks* at *fuel-dispensing stations* shall be provided with
  - a) physical protection against collision damage,
  - b) measures to prevent unauthorized access to the *storage tank* and its ancillary equipment,
  - c) measures to contain accidental spillage in conformance with Subsection 4.3.7., and
  - d) an overfill protection device in conformance with Sentence 4.3.1.8.(2), where a tight-filled connection is provided.
- 5) In cases where a compartmentalized tank is used, the entire tank shall be treated as one tank with the aggregate of all compartments totalling the total capacity of that tank.

## PROPOSED CHANGE

AFC 4.6.2.1. Outside Aboveground Storage Tanks

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### RATIONALE

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#### Problem

In keeping with the Alberta Standard AFC 4.6.2.1.(2), the National Fire Code and the Alberta Fire Code will be adjusted to permit individual tanks to 80,000 L capacity and facility aggregate of 200,000 L.

#### Justification - Explanation

The Alberta Fire Code is aligning with the National Fire Code 2010 and permit use of individual tanks of up to 80,000 L. The current Alberta Fire Code allows an aggregate of 225,000 L for cardlocks.

Although the requirements may now restrict fuel dispensing stations to less fuel it is felt that this can be accommodated by the use of bulk plant storage to supply such fuel dispensing stations which continues to be common practice with this type of facility. It should be pointed out that a bulk plant does not have any aggregate capacity limitation. Part of the rationale for no limitation is that bulk plants are expected to be located in an industrial area.

Another alternative that may be considered is the placement of storage tanks at such high capacity facilities would be to install underground storage tanks where again no maximum capacities are stated.

Storage quantities and location of storage tanks is part of the discussion of the next NRC Hazardous Materials and Activities meeting in Montréal in April 2011.

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 4.6.4.2. Self-service Outlets

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AFC 2006  
4.6.4.2. Self-service Outlets

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### EXISTING PROVISION

#### 4.6.4.2. Self-service Outlets

- 1) Except as required by Sentence (2) and Sentences 4.6.8.2.(6) to (9) and in addition to the device required by Sentence 4.6.4.1.(1), an emergency shut-off switch to simultaneously stop the flow of liquid at all dispensers at *self-service outlets* shall be located at the central control console described in Sentence 4.6.8.2.(2) so that it is readily accessible to the attendant.
- 2) At card- or key-activated *self-service outlets*, the emergency shut-off switch required in Sentence (1) shall be in a readily accessible location acceptable to the *authority having jurisdiction*.
- 3) Reset capability for emergency shut-off switches required by Sentence (1) shall be restricted to manual operation.

---

### PROPOSED CHANGE

Add an Appendix reference to Sentence 4.6.4.2.(2) to read as follows:

**A-4.6.4.2.(2)** The location of the emergency shut-off switch would normally be located a minimum of 6 m and maximum of 10 m from dispensers to get the public away from the likely location of a fire but not too distant such that the switch is difficult to find or get to. The location of the switch should take into account such factors as an available power source, visibility of signage directing the public to the switch and yard lighting.

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### RATIONALE

#### Problem

Prospective tank installers expect the AHJ to determine the location of the emergency shutoff switch. The Appendix should provide direction to design engineers and contractors.

#### Justification - Explanation

The location of the shut-off switch is often debated between PTMAA staff and tank contractors. The PTMAA typically uses a minimum of 6 m and maximum of 10 m as its recommendation for the location of the shut-off from the dispenser. This separation is used in 4.6.8.2.(7)(c) for unattended retail outlets. The generally used rule is that the shut-off should not be located too close to the dispenser as this is likely to be the location of a fire.

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 4.6.8.4. Card or Key-Activated Dispensers

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AFC 2006  
4.6.8.4. Card or Key-Activated Dispensers

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### EXISTING PROVISION

#### 4.6.8.4. Card or Key-Activated Dispensers

- 1) Card-or key-activated dispensers are permitted at unattended *self-service outlets* and *fuel-dispensing stations* that are not open to the general public, in conformance with Sentences (2) to (6). (See Appendix A.)
- 2) Except as provided in Sentences (3) to (6), the installation of card- or key-activated dispensers shall conform to the requirements for *self-service outlets* and *fuel-dispensing stations* in this Section.
- 3) Operation of card or key-activated dispensers shall be restricted to persons authorized by the supply agent to possess a card or key to operate the dispensers.
- 4) Clearly legible operating instructions, visible at all times, shall be posted at every dispenser island.
- 5) A telephone or other clearly identified means to notify the fire department shall be provided in a location readily accessible to the user.
- 6) Emergency instructions, including the telephone number of the local fire department, shall be conspicuously posted to advise the user, in the event of a spill or accident,
  - a) to use the emergency shut-off switch required in Article 4.6.4.2., and
  - b) to call the fire department.

**A-4.6.8.4.** The authorized holder of a card or key, having received adequate training in the safe and responsible operation of the equipment, is not considered a member of the "general public." Such is not the case for coin operated or preset dispensers, which can be operated by anyone.

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### PROPOSED CHANGE

The Alberta Fire Code should incorporate requirements similar to that used in Ontario's regulation. This can be accomplished by altering Sentence (3) as follows:

- 3) Operation of card or key-activated dispensers shall be restricted to persons authorized by the supply agent to possess a card or key to operate the dispensers, provided
  - a) the card or key issuer shall, on an annual basis, provide card or key holders with a detailed training package on the requirements including safe operating and emergency procedures,
  - b) the card or key issuer shall notify card or key holders that in order to use the card or key facilities, the card or key holder must train all card or key users on the requirements of the document and maintain a record of the training,
  - c) the card or key holder shall maintain a training record for each person authorized by the card or key holder to dispense product in accordance with the requirements of this document, and
  - d) training records referred to in this Sentence shall be retained in conformance with Article 2.2.1.2. of Division C.

**A 4.6.8.4.(3)** Standard training for safe fuelling should include constant attendance during fuelling activities, no sources of ignition near fuelling activity, no use of artificial hold-open devices, no returning to vehicle after starting to add fuel, no children doing fuelling, purpose and function of emergency shutdown switches, static electricity safety, spill reporting and response and portable container filling.

#### Notes:

Since cardlock agreements allow commercial customers to purchase fuel in other jurisdictions, it is important that standard wording is employed across Canada. The PTMAA will submit a similar recommendation to NRC. Occasionally, holders of commercial cardlock cards provide a complimentary card to family member who operate passenger vehicles. The recommendation, above, would apply to all cards issued, regardless of class.

## PROPOSED CHANGE

AFC 4.6.8.4. Card or Key-Activated Dispensers

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### RATIONALE

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#### Problem

Customers accessing cardlocks are not receiving a consistent level of safety training for dispensing without the supervision of an attendant at the facility.

#### Justification - Explanation

The PTMAA has observed an increase in retail service stations where the general public is able to purchase petroleum at unattended facilities. The Fire Code does permit *unattended retail facilities* but their design includes, amongst other differences, surveillance and increased shutdown capabilities. To differentiate between an acceptable “unattended retail” and the type of facility being addressed here the subject facility will be referenced as a “ghost station”. At a ghost station the general public can use a standard credit card to pump fuel without an employee overseeing the dispensing activity. At this kind of facility the dispensers generally provide safety messages like “no smoking or other types of ignition sources within 7.5 m” and limit the quantity of fuel that can be purchased at one time. Essentially, the ghost station is offering the convenience normally available only to “cardlock” customers. We could see a proliferation of ghost stations, especially in rural locations which may offer attended service during the day and “cardlock” operations after hours. The Alberta Fire Code does not provide rationale for a distinction between retail and cardlock customers or the design of the facilities the respective products are offered at. The relevant regulations follow.

The PTMAA Board of Directors struck a task force consisting of representatives from Imperial Oil, Federated Co-op, United Farmers of Alberta, Suncor, Fleming Reid Petroleum and Husky Energy. The objective of the task force was to study practices and safety concerns related to dispensing without supervision of a facility attendant.

The most salient requirement of the Fire Code is that “*operation of card activated dispensers shall be restricted to persons authorized by supply agent to possess a card to operate the dispensers*”. A common belief is that there are hard rules around qualification as a cardlock customer. Some of the supposed rules include the need for commercial plates, the need for fire extinguishers on board, the need for special safety training, etc. With the Fire Code stating that the fuel supplier is responsible for “deciding” who shall be issued a cardlock card, the qualification for a card is left to the supplier. The Code does not include guidance on minimum training, re-training, exclusive use, etc.

Typically, the fuel supplier will provide the card-using company representative with a supply contract and location guide which will include safety advice. There is no assurance that the company representative will provide the same information to employees he authorizes to purchase fuel using the company account. A company may issue 2 to 200 fuel credit cards. Once an employee receives a fuel card there is typically no point of purchase safety training, apart from signage that would be present at all service stations.

The task force did not support the idea of typical retail service stations offering fuel without an attendant on duty. The task force also did not support allowing the general public to access cardlocks. Their concerns included:

- Large trucks, interfacing with passenger cars may present a safety issue
- Cardlock dispensers often dispense at a rate much higher than retail dispensers so the potential losses at the fuelling point could be greater
- Cardlock agreements with customers typically have purchase quantity limits which would not offer the same safeguard if retail credit cards can activate dispensers
- Cardlock customers are considered “professional drivers” and do not have the distractions that typical retail customers might have

The general public using unattended facilities may tend to use nozzle hold-open items (like gas caps), raising the risk of overfills or static electricity fires.

## PROPOSED CHANGE

### AFC 4.6.8.4. Card or Key-Activated Dispensers

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#### Cost implications

Providing safety information to holders of cards will cost money. Most companies have incorporated a safety program into their operations so the additional cost should not be too difficult to absorb.

#### Enforcement implications

None

#### Attached Supporting Material:

#### Alberta Regulations

#### Definitions:

*Fuel dispensing station* means any premises or part thereof at which *flammable liquids* or *combustible liquids* are dispensed from fixed equipment into the fuel tank of a motor vehicle, watercraft or aircraft.

*Cardlock installation* means a *self-service outlet* that is equipped with card, key or similar activation method dispensing devices that

- (a) do not display the price of the fuel being dispensed, and
- (b) are for the exclusive use of persons who are under contract with a supplier.

*Self-service outlet* means a *fuel dispensing station* other than a marine *fuel dispensing station* where the public handles the dispenser.

#### 4.6.8.2. Self-service Outlets

- 1) Instructions for the operation of dispensers in *self-service outlets* shall be posted in a conspicuous location.
- 2) A control console shall be provided at *self-service outlets* within 25 m of all dispensers so that the attendant has an unobstructed view of all units at the same time.
- 3) The control console referred to in Sentence (2) shall be equipped to regulate the operation of each dispenser.
- 4) A 2-way communication system between the control console and each pump island shall be provided at *self-service outlets*.
- 5) At *fuel-dispensing stations* that provide both attended service and self-service, the attendant required in Sentence 4.6.8.1.(1) is permitted to *dispense flammable liquids* or *combustible liquids* at the attended service island, provided that
  - a) each island has an emergency shut-off switch as described in Article 4.6.4.2., and
  - b) the attendant is never more than 25 m from the self-service island or control console.
- 6) *Self-service outlets* are permitted to operate as unattended *self-service outlets* in conformance with all relevant Sections of this Part and Sentences (7), (8) and (9).
- 7) An unattended *self-service outlet* shall be provided with the following safety features:
  - a) a video recording surveillance system connected to a monitoring facility (see Appendix A),
  - b) a manually actuated emergency shut-off switch that
    - i) shuts off power to the individual dispensing unit, and
    - ii) can be actuated from both sides of the dispensing unit,
  - c) a readily accessible, manually actuated, master emergency shut-off switch that
    - i) is located more than 6 m but less than 10 m from the dispensing island, and
    - ii) shuts off power to all dispensing units at the station,

## PROPOSED CHANGE

### AFC 4.6.8.4. Card or Key-Activated Dispensers

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- d) dispensing devices that can only be reset by trained personnel in attendance at the site in the event an emergency shut-off switch has been actuated,
- e) a public pay telephone or other means of direct communication with the fire department provided in a location acceptable to the *authority having jurisdiction*,
- f) an audible alarm actuated by the emergency shut-off switches that can be heard throughout the site,
- g) a strobe light actuated by the emergency shut-off switch in Clause (b) or Clause (c) in a visible location,
- h) dispensing pump cabinets and panels monitored with intrusion alarm devices connected to a monitoring facility,
- i) pump control and accessory buildings that are protected with intrusion alarm devices and smoke and heat detection devices connected to the monitoring facility in Clause (a), and
- j) electronic storage tank monitoring for inventory control.

**8)** Dispensing units at an unattended *self-service outlet* shall be such that the maximum quantity of *flammable liquids* and *combustible liquids* that can be dispensed at one time is 100 L, after which

- a) the dispensing unit automatically shuts down, and
- b) further dispensing cannot occur until the dispensing unit has been reset and the customer has initiated the starting sequence.

**9)** In addition to the requirements of Articles 4.6.8.6. to 4.6.8.8., an unattended *self-service outlet* shall have weather-resistant signs acceptable to the *authority having jurisdiction* conspicuously posted in the dispensing area indicating

- a) the location and use of the dispenser emergency shut-off switch,
- b) the location and use of the master emergency shut-off switch,
- c) the user must stay outside their vehicle in view of the fuelling nozzle during dispensing,
- d) emergency instructions in the event of an accident or spill, and
- e) telephone numbers for the fire department.

**A-4.6.8.2.(7)(a)** Video surveillance equipment at an unattended self-service outlet provides the owner and the authority having jurisdiction with the ability to monitor accidents, spills or vandalism that may occur at the site. The authority having jurisdiction may accept a variety of surveillance monitoring methods using technologies other than those described in proprietary or central station monitoring systems. Although live, continuous surveillance is an ideal method, the intent of this Clause is to allow flexibility in the type of system used. A video surveillance tape of an accident, spill or vandalism will assist the owner and the authority having jurisdiction in identifying the cause of an incident. A monitoring facility may include a ULC listed monitoring service company, a security monitoring service company or monitoring equipment connected to the owner's security monitoring service, which may be located at a corporate office or refinery. The authority having jurisdiction should be consulted regarding the acceptability of the monitoring facility.

**A-4.6.8.4.(1)** The authorized holder of a card or key, having received adequate training in the safe and responsible operation of the equipment, is not considered a member of the "general public." Such is not the case for coin-operated or preset dispensers, which can be operated by anyone.

### Emergency Shutdown:

#### 4.6.4.1. Location and Identification

## PROPOSED CHANGE

### AFC 4.6.8.4. Card or Key-Activated Dispensers

Page: 5 of 6

- 1) A device to shut off power to all dispensers and pumps shall be provided at a remote location on the site of the *fuel-dispensing station* and shielded from any fire that might occur in the dispensing area.
- 2) The device required in Sentence (1) shall be clearly identified and readily accessible to attendants and emergency responders.

#### 4.6.4.2. Self-service Outlets

- 1) Except as required by Sentence (2) and Sentences 4.6.8.2.(6) to (9) and in addition to the device required by Sentence 4.6.4.1.(1), an emergency shut-off switch to simultaneously stop the flow of liquid at all dispensers at *self-service outlets* shall be located at the central control console described in Sentence 4.6.8.2.(2) so that it is readily accessible to the attendant.
- 2) At card or key-activated *self-service outlets*, the emergency shut-off switch required in Sentence (1) shall be in a readily accessible location acceptable to the authority having jurisdiction.
- 3) Reset capability for emergency shut-off switches required by Sentence (1) shall be restricted to manual operation.

#### 4.6.8.5. Duties of Attendants

- 1) Attendants on duty at *fuel-dispensing stations* shall
  - a) supervise the dispensing of *flammable liquids* and *combustible liquids*,
  - b) activate the controls to permit the dispensing of fuel at an individual dispenser only after the customer at the unit is ready to activate the nozzle,
  - c) prevent the dispensing of *flammable liquids* and *combustible liquids* into containers that
    - i) do not conform to Article 4.2.3.1., or
    - ii) are in a vehicle,
  - d) take appropriate measures to prevent sources of ignition from creating a hazard at the dispensers,
  - e) take appropriate action in the event of a spill to reduce the risk of fire,
  - f) shut off the power to all dispensers in the event of a spill or fire, and
  - g) notify the fire department forthwith in accordance with Sentence 4.1.6.4.(1), when a spill or accident occurs that involves flammable liquids or combustible liquids.
- 2) In addition to the requirements in Sentence (1), attendants on duty at *marine fuel-dispensing stations* shall
  - a) activate the controls to permit the dispensing of fuel at an individual dispenser only after all ports and hatches on the watercraft have been closed, and
  - b) ensure that containers for *flammable liquids* and *combustible liquids*,
    - i) are not filled beyond their safe filling level, and
    - ii) are filled only after they have been removed from the watercraft or aircraft.
- 3) Attendants shall be trained on how to conduct their duties including but not limited to,
  - a) inventory reconciliation practices,
  - b) proper and safe product transfer procedures, and
  - c) responsibilities identified in this Code.

#### Ontario Regulations:

##### Definitions:

*Cardlock/keylock* means a retail outlet where gasoline or diesel fuel is dispensed unsupervised and where the outlet is not used by the general public.



## PROPOSED CHANGE

### AFC 4.6.8.4. Card or Key-Activated Dispensers

Page: 6 of 6

*Retail outlet* means any premises to which the public is invited at which gasoline or an associated product is sold and is put into the fuel tanks of motor vehicles, floating motorized watercraft or into portable containers.

*Self-serve* means a facility where gasoline or diesel fuel is dispensed by the recipient of the fuel, but excludes facilities herein defined as cardlock/keylock.

#### Rules:

1. Dispensing equipment at a cardlock/keylock shall be installed to automatically stop dispensing Class 1 product after 5 minutes of operation and after 10 minutes for Class II product.
2. At cardlock/keylock facilities there shall be:
  - a) Automatically controlled lighting to illuminate the dispensing facilities sufficiently at all times to permit the safe dispensing of product, and
  - b) Telephone numbers of persons to be contacted in the event of an emergency.
3. An emergency electrical shut-off shall be available to the person dispensing product at a cardlock/keylock in the event of dispenser malfunction.
4. The owner or operator of a card or key lock facility shall post signs which provide details of safe operating practice and emergency phone numbers.
5. The card or key issuer shall, on an annual basis, provide card or key holders with a detailed training package on the document requirements including safe operating and emergency procedures. The package will notify card or key holders that in order to use the card or key lock facilities, the card or key holder must train all card or key users on the requirements of the document and maintain a record of the training. The initial training package and each annual reminder shall contain a clause similar to the following: "Use of the card or key constitutes acceptance of all terms and conditions of this agreement including training by the card or key holder of all card or key users in safe operating and emergency procedures.
6. Where there are multiple card issuers for a card lock facility, the owner shall be responsible, on an annual basis, to ensure that all card issuers of cards acceptable at the owner's facility, have complied with the requirements above.
7. No person shall dispense fuel from a card or key lock dispenser unless that person,
  - a) Has a card or key provided by the card or key issuer or card or key holder;
  - b) Has been trained in the requirements set out above and in the proper use of equipment and procedures for dispensing product; and
  - c) Remains in constant attendance of the vehicle being refueled.
8. The card or key holder shall maintain a training record for each person authorized by the card/holder to dispense product in accordance with the requirements of this Document. The record shall be maintained as long as that person is so authorized.
9. The operator shall inspect the cardlock/keylock daily for spillage, and if found, comply with the requirements for environmental restoration.
10. The operator shall conduct a daily inspection of the cardlock / keylock to ensure the safe operation of all equipment.

#### N.F.P.A. 30A

Responsibility of the attendant:

- (1) Prevent the dispensing of Class 1 liquids into unapproved portable containers
- (2) Prevent use of unapproved hose nozzle valve latch-open devices
- (3) Control sources of ignition
- (4) Immediately activate emergency controls and notify the fire department of any fire
- (5) Handle accidental spills and fire extinguishers

## PROPOSED CHANGE

AFC 4.7.4.1.(1) Clearances

Page: 1 of 1

Document  
Provision

AFC 2006  
4.7.4.1.(1) Clearances

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### EXISTING PROVISION

#### 4.7.4.1.(1) Clearances

- 1) At a loading or unloading facility for tank vehicles or tank cars, the horizontal distance from the fill stem to an aboveground storage tank, a building or a property line shall be not less than
  - a) 7.5 m for Class I liquids, and
  - b) 4.5 m for Class II and IIIA liquids.
- 2) At bulk plant rail loading and unloading facilities, the minimum distance from a loading structure to a railway line shall be in conformance with General Order No. O-32, "Flammable Liquids Bulk Storage Regulations," published by Transport Canada.
- 3) Buildings for the shelter of personnel or pumps shall be considered a part of the loading or unloading facility.

---

### PROPOSED CHANGE

Add an Appendix reference to Sentence (1) to read as follows:

- 1) At a loading or unloading facility for tank vehicles or tank cars, the horizontal distance from the fill stem to an aboveground storage tank, a building or a property line shall be not less than
  - a) 7.5 m for Class I liquids, and
  - b) 4.5 m for Class II and IIIA liquids.

(See Appendix A.)

**A-4.7.4.1.(1)** The setbacks associated with loading and unloading facilities applies to those facilities which use open filling where vapours can be generated outside of the transfer equipment.

---

### RATIONALE

#### Problem

The requirement was written without account for loading without openings that would produce flammable vapours in the transfer area.

#### Justification - Explanation

Since the release of the 1997 AFC the PTMAA and Municipal Affairs have collaborated on an interpretation of this requirement. The intent of this Article is to limit the probability that an ignition source at a building, tank or facility will ignite vapours generated by the loading or unloading operations, which could lead to harm to persons in the building or facility. Conversely, to limit the probability that a fire in the loading or unloading area will not spread to adjacent buildings, tanks, or facilities, which could cause harm persons in adjacent buildings or facilities. The interpretation of this Article has been that a tight-fill connection at the loading point will not generate vapours that could ignite. An Appendix item is needed to explain that a closed loading system is excluded from requirement.

#### Cost implications

None

#### Enforcement implications

None

## PROPOSED CHANGE

AFC 5.2 Hot Works

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Document  
Provision

AFC 2006  
AFC 5.2 Hot Works

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### EXISTING PROVISION

#### Section 5.2. Hot Works

##### 5.2.1. General

##### 5.2.1.1. Application

1) This Section shall apply to hot works involving open flames or producing heat or sparks, including, without being limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes.

2) Except as provided in this Section, hot works described in Sentence (1) shall conform to CAN/CSA-W117.2, "Safety in Welding, Cutting and Allied Processes."

---

### PROPOSED CHANGE

Define the term "hot work" and include the definition in Division A, Section 1.4, Sentence 1.4.1.2. and rewrite Article 5.2.1.1. and add an Appendix reference to read as follows:

**Note:** Where appropriate all additional references to hot work in the AFC will be in italics to direct code users to defined terms

##### 5.2.1.1. Application

1) This Section shall apply to *hot works* involving open flames or producing heat or sparks, including, without being limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes. (See Appendix A.)

2) Except as provided in this Section, *hot works* described in Sentence (1) shall conform to CAN/CSA-W117.2, "Safety in Welding, Cutting and Allied Processes."

#### Definition:

*Hot work* means the burning, welding, heating of a material, or a similar operation that is capable of initiating fires or explosions including, but not limited to cutting, welding, Thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipe, torch applied roofing, adhesive bonding, or any other similar heat producing activity.

#### Appendix Reference:

**A-5.2.1.1.** Measures such as those described in NFPA 241, "Safeguarding Construction, Alteration, and Demolition Operations" may provide additional guidance for the protection of persons and property from injury or damage by fire or other causes arising from hot work operations.

---

### RATIONALE

#### Problem

Hot work activities have resulted in a number of large loss fires in Alberta and it is felt that although the document referenced in Sentence 5.2.1.1.(2) is quite comprehensive it does not encompass all operations that could be considered to be hot works.

#### Justification - Explanation

As suggested at the October FTC meeting this documentation will be considered as an Alberta specific code change during the next code review.

#### Cost implications

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## PROPOSED CHANGE

AFC 5.2 Hot Works

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None anticipated

### **Enforcement implications**

None anticipated

### **Additional Information**

See below

### **Evolution of Hot Works requirements**

#### **National Fire Code of Canada 1977**

##### **Section 5.17 Welding and Cutting      General**

**5.17.1.1.** The protection of persons and property from injury or damage by fire or other causes arising from electric and gas welding and cutting equipment, its installation, operation and maintenance, shall conform to CSA W117.2-1974, "Code for Safety in Welding and Cutting," and to the requirements of this Section.

#### **National Fire Code of Canada 1980**

##### **Section 5.17 Welding and Cutting      General**

**5.17.1.1.** The protection of persons and property from injury or damage by fire or other causes arising from electric and gas welding and cutting equipment, its installation, operation and maintenance, shall conform to CSA W117.2-1974, "Code for Safety in Welding and Cutting (Requirements for Welding Operators)," and to the requirements of this Section.

#### **National Fire Code of Canada 1985**

##### **Section 5.17 Welding and Cutting      General**

**5.17.1.1.** The protection of persons and property from injury or damage by fire or other causes arising from electric and gas welding and cutting equipment, its installation, operation and maintenance, shall conform to CSA W117.2-1974, "Code for Safety in Welding and Cutting (Requirements for Welding Operators)," and to the requirements of this Section.

#### **National Fire Code of Canada 1990**

##### **Section 5.18 Welding and Cutting**

###### **5.18.1.1. General**

**5.18.1.1.** The protection of persons and property from injury or damage by fire or other causes arising from electric and gas welding and cutting equipment, its installation, operation and maintenance, shall conform to CSA W117.2, "Code for Safety in Welding and Cutting (Requirements for Welding Operators)," and to the requirements of this Section.

#### **National Fire Code of Canada 1995**

##### **Section 5.2 Hot Works**

###### **5.2.1. General**

###### **5.2.1.1. Application**

## PROPOSED CHANGE

AFC 5.2 Hot Works

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- 1) This Section shall apply to hot works involving open flames or producing heat or sparks, including, without being limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes.
- 2) Except as provided in this Section, hot works described in Sentence (1) shall conform to CSA W117.2, "Safety in Welding, Cutting, and Allied Processes."

### National Fire Code of Canada 2005

#### 5.2. Hot Works

##### 5.2.1. General

##### 5.2.1.1. Application

- 1) This Section shall apply to hot works involving open flames or producing heat or sparks, including, without being limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes.
- 2) Except as provided in this Section, hot works described in Sentence (1) shall conform to CAN/CSA-W117.2, "Safety in Welding, Cutting and Allied Processes."

#### Suggested wording revisions:

#### 5.2. Hot Works

##### 5.2.1. General

##### 5.2.1.1. Application

- 1) This Section shall apply to hot works involving open flames or producing heat or sparks, including, without being limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying and thawing pipes. (See Appendix A)
- 2) Except as provided in this Section, hot works arising from electric and gas welding and cutting equipment, its installation, operation and maintenance shall conform to CAN/CSA-W117.2, "Safety in Welding, Cutting and Allied Processes."

#### HIRF 5.6.1.7. Hot Surface Applications and Hot Works

The following was taken from the minutes of the FTC meeting October 28, 2008:

## PROPOSED CHANGE

AFC 5.2 Hot Works

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### HIRF 5.6.1.7 – Hot Surface Applications and Hot Works

A document regarding the Evolution of Hot Works Requirements was circulated and reviewed (Handout #5).

It was suggested that during the next code cycle an Alberta-specific proposed code change be added to provide a definition for 'hot work', a new sentence 5.2.1.1.(2) and an appendix referencing NFPA 241.

It was noted that a definition currently exists in Occupational Health and Safety regulations. It was suggested that the definition in the OH&S legislation be reviewed to ensure consistency. [Cox]

---

**The following is in response to the above OHS request from the FTC:**

Occupational Health & Safety Regulation definition of Hot Work:

"hot work" means work in which a flame is used or sparks or other sources of ignition may be produced, including

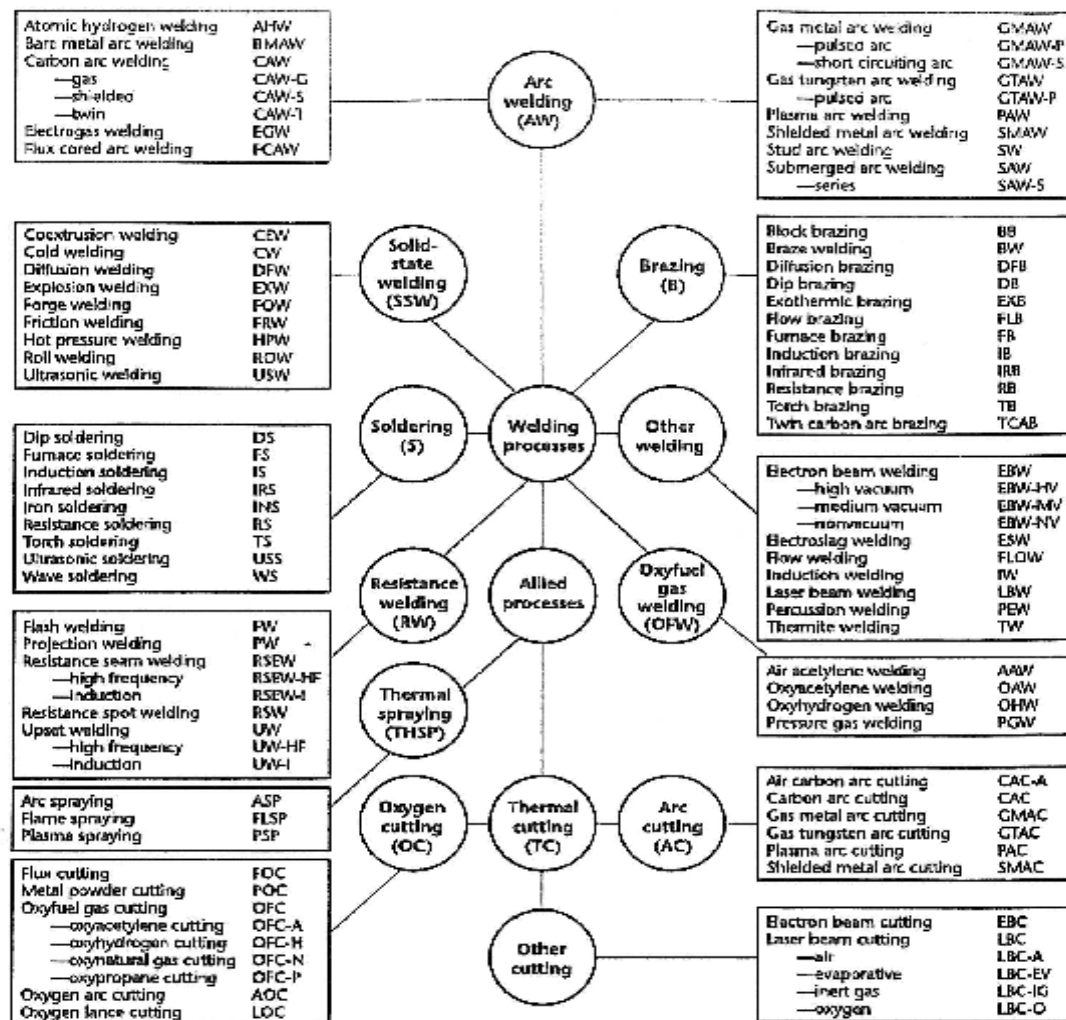
- (a) cutting, welding, burning, air gouging, riveting, drilling, grinding, and chipping,
- (b) using electrical equipment not classified for use in a hazardous location, and
- (c) introducing a combustion engine to a work process

## PROPOSED CHANGE

AFC 5.2 Hot Works

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The following is taken from CAN/CSA-W117.2, "Safety in Welding, Cutting and Allied Processes" and outlines what are deemed to be "allied processes."



**Figure A.1**  
**Master Chart of Welding and Allied Processes**

## PROPOSED CHANGE

AFC 5.6.1.3. Fire Safety Plan

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Document  
Provision

AFC 2006  
5.6.1.3. Fire Safety Plan

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### EXISTING PROVISION

#### 5.6.1.3. Fire Safety Plan

- 1) Except as required in Sentence (2), prior to the commencement of construction, alteration or demolition operations, a fire safety plan shall be prepared for the site and shall include
- a) the designation and organization of site personnel to carry out fire safety duties, including a fire watch service if applicable,
  - b) the emergency procedures to be followed in the event of a fire, including
    - i) initiating a fire warning,
    - ii) notifying the fire department,
    - iii) instructing site personnel on the procedures to be followed once the warning has been initiated, and
    - iv) confining, controlling and extinguishing the fire,
  - c) measures for controlling fire hazards in and around the building (see Appendix A), and
  - d) a maintenance procedure for firefighting measures required in Section 5.6.
- 2) Where construction, alteration or demolition operations occur in an existing building that is required to have a fire safety plan conforming to Section 2.8., the fire safety plan shall take into account the changes occurring to the building.

---

### PROPOSED CHANGE

#### 5.6.1.3. Fire Safety Plan

- 1) Prior to the issuance of a required Building Permit and the commencement of construction, alteration or demolition operations, a fire safety plan, accepted in writing by the fire department and the *authority having jurisdiction* shall be prepared for the site and shall include
- a) the designation and organization of site personnel to carry out fire safety duties, including a fire watch service if applicable,
  - b) the emergency procedures to be followed in the event of a fire, including
    - i) initiating a fire warning,
    - ii) notifying the fire department,
    - iii) instructing site personnel on the procedures to be followed once the warning has been initiated, and
    - iv) confining, controlling and extinguishing the fire,
  - c) measures for controlling fire hazards in and around the building (see Appendix A), and
  - d) a maintenance procedure for firefighting measures required in Section 5.6.
- 2) Prior to the issuance of a Building Permit for construction, alteration or demolition operations which occur in an existing building that is required to have a fire safety plan conforming to Section 2.8., the revised fire safety plan shall take into account the changes occurring to the building and shall be accepted in writing by the fire department and the *authority having jurisdiction*.
- 3) Where construction, alteration or demolition does not require a Building Permit but where hot work is involved, a fire safety plan, accepted in writing by the fire department and the *authority having jurisdiction* shall be prepared for the site.

---

### RATIONALE

#### Problem

The current Alberta Fire Code 2006 makes an assumption that the Fire Safety Plan in this section will involve the fire department and that the plan will be in some way accepted by the fire department prior to the



## PROPOSED CHANGE

### AFC 5.6.1.3. Fire Safety Plan

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commencement of work.

In fact that assumption is not supported by the text. In a limited number of instances since March of 2009, when this became part of the AFC, some owners/developers have ignored or challenged requests from the fire officials to provide a plan.

The existing Standata also fails to provide all the intended clarity based upon similar assumptions.

#### **Justification - Explanation**

Every construction project which requires a Building Permit (and which could involve an enclosed structure, hot work, gas powered equipment and/or heating appliances) will likely require a construction Fire Safety Plan. In all likelihood a deck or an unheated shed may not require a Fire Safety Plan whereas some projects of this type (a shed with a torched on roof or a deck with welded supports) might. There is no firm line and thus the reliance on the judgement of the fire department and the AHJ SCO.

Some jurisdictions currently require the approval of the construction Fire Safety Plan (when required) prior to issuance of a Building Permit.

Some jurisdictions, in consultation between Building and Fire Departments, are also taking the approach that they accept a contractor's Fire Safety Plan (for single and two family dwellings) for ongoing work for all similar projects, a specific number of projects or timeframe of future starts. For larger projects a site specific plan is required.

The proposed amendments would still allow this to happen.

#### **Cost implications**

None

#### **Enforcement implications**

This clarity will allow the fire department and *authority having jurisdiction* to clearly communicate code requirements and enforce the requirements effectively.

## PROPOSED CHANGE

AFC 5.7 Fireworks

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AFC 2006  
5.7 Fireworks

---

### EXISTING PROVISION

#### 5.7.1.6. Authority

1) The fire department, or *forest officer* in the forest protection area, is permitted to seize, take, remove or cause to be seized, taken or removed any *fireworks* offered or exposed for sale or being held or used contrary to this Section.

2) Where *fireworks* are seized in accordance with Sentence (1), the fire department, or *forest officer* in the forest protection area, shall dispose of them in a safe manner

#### 5.7.1.7. Written Permission

(See Appendix A.)

1) No person shall

- a) purchase, possess, handle, discharge, fire or set off *fireworks* unless written permission issued by the fire department for that purpose has been obtained, or
- b) discharge, fire or set off *fireworks* in a forest protection area unless written permission issued by a *forest officer* for that purpose has been obtained.

...

3) Permission shall not be granted under this Section in respect of high hazard *fireworks* unless the applicant possesses a *fireworks* supervisor card issued pursuant to the "Explosives Act" and its Regulations, published by Natural Resources Canada.

#### 5.7.1.8. Fireworks Sales

1) No person shall sell, offer for sale or store for the purpose of sale, *fireworks* unless

- a) permission is obtained from the fire department for the sale and storage, and
- b) the *building* or place used for the sale or storage conforms to Part 3.

...

3) A person who sells *fireworks* or offers them for sale shall ensure that

- a) manufacturer's instructions on the safe use of *fireworks* are provided with each sale,
- b) notices acceptable to the fire department are posted at the sales outlet outlining the instructions referred to in Clause (a),
- c) a record of each sale is kept on the premises where the sale occurs for a period of not less than two years following the date of the sale,
- d) a record referred to in Clause (c) shows
  - i) the date of the sale,
  - ii) the name, address and phone number of the purchaser,
  - iii) a description of the *fireworks* sold,
  - iv) the date and time the *fireworks* will be discharged, and
  - v) the location and a description of the site where the *fireworks* will be discharged.

---

### PROPOSED CHANGE

Reword Articles 5.7.1.6., 5.7.1.7. and 5.7.1.8. to read as follows:

#### 5.7.1.6. Authority

1) The municipal fire department, a peace officer or a safety codes officer employed by the Province, as well as a forest officer in the forest protection area, is permitted to seize, take, remove or cause to be seized, taken or removed any *fireworks* offered or exposed for sale or being held or used contrary to this Section.

2) Where *fireworks* are seized in accordance with Sentence (1), the municipal fire department, peace officer, safety codes officer or *forest officer*, shall dispose of them in a safe manner

## PROPOSED CHANGE

### AFC 5.7 Fireworks

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#### 5.7.1.7. Written Permission

(See Appendix A.)

**1) No person shall**

- a) distribute, sell, purchase, possess, handle, discharge, fire or set off fireworks unless written permission issued by the municipal fire department for that purpose has been obtained, or
- b) discharge, fire or set off fireworks in a forest protection area during the fire season unless a fire permit under the Forest and Prairie Protection Act, issued by a forest officer for that purpose, has been obtained.

...

**3) Permission shall not be granted under this Section in respect of high hazard fireworks unless the applicant possesses a valid fireworks supervisor card issued pursuant to the "Explosives Act" and its Regulations, published by Natural Resources Canada.**

#### 5.7.1.8. Fireworks Sales

**1) No person shall sell, offer for sale or store for the purpose of sale, fireworks unless**

- a) if applicable, approval is obtained from the Chief Fire Administrator in accordance with Division C, Article 2.2.3.3.,
- b) these activities are authorized within the municipality as per Division C Article 2.2.3.4.
- c) permission is obtained from the municipal fire department for the sale and storage, and
- d) the building or place used for the sale or storage conforms to Part 3.

...

**3) A person who sells fireworks or offers them for sale shall ensure that**

...

**d) a record referred to in Clause (c) shows**

- i) the date of the sale,
- ii) the name, address and phone number of the purchaser,
- iii) the quantity and type of the fireworks sold,
- iv) the date and time the fireworks will be discharged, and
- v) the location and a description of the site where the fireworks will be discharged.

---

## RATIONALE

### Problem

A number of proposals for change regarding fireworks were received and after presentation to the Fire Technical Council it was decided to amalgamate many of these into one document. The above proposed changes reflect problems the fire service, fireworks wholesalers, retailers, and Municipal Affairs have encountered with different areas of firework management and regulation.

See also change proposals submitted regarding Section 3.2.10, "Indoor Storage of Fireworks", Article 5.7.1.1. "High Hazard Display" and Div C, New Articles 2.2.3.3. & 2.2.3.4.

### Justification - Explanation

Outlined above

### Cost implications

None anticipated

### Enforcement implications

It is felt that the changes proposed will ensure that fireworks are dealt with by appropriate authorities having jurisdiction and with the introduction of a requirement for wholesalers to obtain permission to sell from the Chief Fire Administrator a number of grey areas will be clarified.

## PROPOSED CHANGE

AFC 5.7.1.11. Fireworks-High Hazard Display

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Document  
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AFC 2006  
5.7.1.11. Fireworks-High Hazard Display

---

### EXISTING PROVISION

#### 5.7.1.11. High-Hazard Display

1) Where *high-hazard fireworks* are discharged, the person responsible for discharging the *fireworks* shall ensure that

- a) they have at least 2 assistants who are competent persons over 18 years of age and have been trained in the proper handling of *fireworks*,
- b) the *fireworks* are set up in conformance with the "Display Fireworks Manual," published by Natural Resources Canada,
- c) at least 2 portable extinguishers each having a rating not less than 2-A shall be not more than 45 m from the location at which the *fireworks* are discharged,
- d) the potential landing area is cleared of spectators, vehicles, dry grass and other combustible material immediately prior to the beginning of the display and during the display,
- e) nothing other than a flashlight or electrical lighting is used for artificial illumination,
- f) no person, other than persons responsible for discharging the *fireworks*, is closer than 45 m from the location at which the *fireworks* are being discharged,
- g) the location at which the *fireworks* are discharged is at least
  - i) 60 m from any highway or other similar means of travel used by the public, and
  - ii) 15 m from the nearest overhead obstruction,
- h) a complete search is conducted of the display area for any duds within 12 hours of the conclusion of the display, and
- i) any unused *fireworks* or duds remaining are disposed of in a safe manner within 12 hours of the conclusion of the display.

---

### PROPOSED CHANGE

Rewrite Sentence 5.7.1.11. by removing Clauses 5.7.1.11.(d)(e)(f)(g)(h) and (i) from the Sentence and placing them in an Appendix reference to read as follows:

#### 5.7.1.11. High-Hazard Display

(See Appendix A)

1) Where *high-hazard fireworks* are discharged, the person responsible for discharging the *fireworks* shall be a Fireworks Supervisor whose certification is current in accordance with the requirements of Natural Resources Canada and who shall ensure that

- a) they have at least 1 assistant who is a competent person over 18 years of age and have been trained in the proper handling of *fireworks*,
- b) the *fireworks* are set up in conformance with the "Display Fireworks Manual," published by Natural Resources Canada, and
- c) at least 2 portable extinguishers each having a rating not less than 2-A shall be not more than 45 m from the location at which the *fireworks* are discharged,

**A-5.7.1.11. High-Hazard Display** The person responsible for the high hazard display shall ensure that

- a) the potential landing area is to be cleared of spectators, vehicles, dry grass and other combustible material immediately prior to the beginning of the display and during the display,
- b) nothing other than a flashlight or electrical lighting is used for artificial illumination,
- c) no person, other than persons responsible for discharging the *fireworks*, is closer than 45 m from the location at which the *fireworks* are being discharged,
- d) the location at which the *fireworks* are discharged is at least 60 m from any highway or other similar means of travel used by the public, and 15 m from the nearest overhead obstruction,

## PROPOSED CHANGE

AFC 5.7.1.11. Fireworks-High Hazard Display

Page: 2 of 2

- 
- e) a complete search is conducted of the display area for any duds within 12 hours of the conclusion of the display, and
  - f) any unused *fireworks* or duds remaining are disposed of in a safe manner within 12 hours of the conclusion of the display.

---

### RATIONALE

#### Problem

See below

#### Justification - Explanation

Replace "2 assistants" with "1 assistant" as often times the Fireworks Supervisor Level 1 only requires 1 assistant to conduct a display.

Remove parts d, e, f, g, h, and i as these are covered in the "Display Fireworks Manual" and course both published and conducted by Natural Resources Canada. Placing this information in the Appendix is more appropriate.

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 6.1.1.5. Records - Approved

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AFC 2012  
AFC 6.1.1.5. Records - Approved

---

### EXISTING PROVISION

#### Part 6 Fire Protection Equipment Section 6.1. General

...

##### 6.1.1.5. Records

...

**3)** Except as permitted by Sentence (4), each portable extinguisher shall have a tag securely attached to it showing

- a) the type of extinguisher,
- b) the size of extinguisher,
- c) the serial number of extinguisher,
- d) the date of last annual maintenance,
- e) the date of last recharge,
- f) a five-year monthly inspection and annual maintenance record,
- g) the name of the *owner* of the extinguisher,
- h) the name, address and telephone number of the service agency,
- i) the certification number of the recognized testing agency, and
- j) the printed name and signature of the service person.

**4)** Bar coding and other technologies acceptable to the *authority having jurisdiction* are permitted to be used as a means of record keeping on portable extinguishers provided

- a) an information record in accordance with Sentence (3) is available at the premise where the portable extinguisher is located, and
- b) the tag on the portable extinguisher contains information indicating
  - i) a five-year monthly inspection record for use by the *owner*,
  - ii) the name of the *owner* of the extinguisher,
  - iii) the name, address and telephone number of the service agency,
  - iv) the certification number of a recognized testing agency, and
  - v) the printed name and signature of the service person.

---

### PROPOSED CHANGE

Replace existing wording in Sentences 6.1.1.5.(3) and (4) with the defined term *approved* to read as follows:

#### Part 6 Fire Protection Equipment Section 6.1. General

...

##### 6.1.1.5. Records

...

**3)** Except as permitted by Sentence (4), each portable extinguisher shall have a tag securely attached to it showing

- i) the certification number of the *approved* testing agency, and
- j) the printed name and signature of the service person.

## PROPOSED CHANGE

AFC 6.1.1.5. Records - Approved

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4) Bar coding and other technologies acceptable to the *authority having jurisdiction* are permitted to be used as a means of record keeping on portable extinguishers provided

...

iv) the certification number of an *approved* testing agency, and

v) the printed name and signature of the service person.

### Division A, 1.4.1.2. Defined Terms

1) The words and terms in italics in this Code shall have the following meanings:

...

*Approved* means acceptable to the *Chief Fire Administrator*.

---

### RATIONALE

#### Problem

It has been recognized for some time that only certain testing agencies are deemed to be approved to certify facilities and equipment for the maintenance and recharging of portable fire extinguishers; namely ULC, Intertek and Factory Mutual. (See AFC 2006, Division C, Article 2.2.3.2.)

#### Justification - Explanation

The revised wording further clarifies that companies involved in the maintenance and recharging of portable fire extinguishers are required to be certified by an approved testing agency.

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC 6.3.1.2. Inspection & Testing F/A

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AFC 2006  
6.3.1.2. Inspection & Testing F/A

---

### EXISTING PROVISION

#### 6.3.1.2. Inspection and Testing

- 1) Fire alarm systems shall be inspected and tested in conformance with CAN/ULC-S536, "Inspection and Testing of Fire Alarm Systems."
- 2) Fire alarm and detection system components shall be accessible for purposes of inspection or maintenance.

---

### PROPOSED CHANGE

In Division B, Table 1.3.1.2. Documents Referenced in the Alberta Fire Code in reference to CAN/ULC-S536, "Inspection and Testing of Fire Alarm Systems" it will state " Except Clause 5.7.4.1.3."

Note: This is an exception with regard to a Variance issued February 2011, AFC 6.3.1.2.(1), Smoke Detector Sensitivity Testing.

---

### RATIONALE

**The following is the text from the above noted Variance that would be reissued as an Information STANDATA after release of the AFC 2012**

February 2011

AFC 6.3.1.2.(1)  
Page 1 of 4

#### Smoke Detector Sensitivity Testing

#### ISSUE:

CAN/ULC S536-04 "Inspection and Testing of Fire Alarm Systems," the referenced standard for fire alarm system maintenance in the Alberta Fire Code 2006 Division B. Sentence 6.3.1.2.(1), states:

#### 6.3.1.2. Inspection and Testing

- 1) *Fire alarm systems shall be inspected and tested in conformance with CAN/ULC-S536, "Inspection and Testing of Fire Alarm Systems."*

Smoke Detector Sensitivity testing is noted in CAN/ULC S536-04 as an annual requirement in Clause 5.7.4.1.3

*"Each smoke detector shall be tested to confirm that it is within its rated operating range using a test method described in Clause 5.7.4.1.6."*

While the requirement to conduct such testing has existed and evolved in the ULC S536 standard since the 1986 version such testing has not, until recently, been conducted in most Canadian jurisdictions and has not been a point of enforcement by the Authority Having Jurisdiction in Alberta.

The current practice in Alberta is that this testing is only required where a detector is found to be non-functioning during a properly conducted smoke test. At this time the smoke detector could be cleaned and tested for sensitivity or replaced with a new detector to bring the system back to full functionality as per the most recent verification. This is noted in the "Alberta Fire Alarm System Guide" (editions published in 2002 and 2010).



## PROPOSED CHANGE

AFC 6.3.1.2. Inspection & Testing F/A

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Questions have been directed to the Chief Fire Administrator as to the discrepancy between the current practice as outlined in the Fire Alarm System Guide and the requirement of Clause 5.7.4.1.3 of ULC S536-04. They include:

- 1) Why would sensitivity testing now be required if it has not been required since 1986?
- 2) Would sensitivity testing provide a greater degree of fire alarm system reliability and functionality than the annual requirements for visual inspection and cleaning and smoke testing prescribed in Clauses 5.7.4.1.1 and 5.7.4.1.2 of the same standard which have been required and enforced since the adoption of the Alberta Fire Code 1997?

### BACKGROUND:

The 1986 ULC S536 Standard introduced the requirement for smoke detector sensitivity testing based upon concerns about the reliability of detectors. The issue of life safety devices and system reliability is a major focus of concern, especially in multi-family residential occupancies where, in most cases, smoke detectors will be the most prevalent type of fire alarm initiating device.

The 1982 version of S536 had required "annual testing each component and device for its intended function". This is the standard referenced in the initial Alberta Fire Code in 1984.

The 1986 version required annual inspection and testing to the manufacturer's recommendations in addition to testing for "operability and the required sensitivity" and recommending the adoption of a cleaning schedule. This would have applied in Alberta with the adoption of the 1992 Alberta Fire Code.

The 1997 version of ULC S536 mandated visual inspection for cleanliness and cleaning in accordance with the manufacturer's recommendations. It also required testing of the sensitivity value and directed that detectors which were out of the operating range be cleaned and retested or replaced. This also introduces the specific requirement to test for operation by introducing smoke or simulated smoke to the detector chamber. This version of ULC 536 coincided with the adoption of the Alberta Fire Code 1997.

Part of the reason for a lack of focus on smoke detector sensitivity testing has been that until recent years there were no non-proprietary "smoke detector sensitivity testers" on the market. Fire alarm equipment manufacturers had developed sensitivity testers specific for their models of detectors but it was difficult or impossible for qualified persons (fire alarm technicians or electricians) to obtain these devices unless they were affiliated with a particular manufacturer and even then they would only have access to that manufacturers' testers and these were not acceptable for testing the equipment made by another company.

This has been addressed in recent years with the development of universal detector sensitivity testing equipment. As ULC S536-04 does not specify a tester which meets a standard, and as there is no Canadian standard for a smoke detector sensitivity tester, these devices, which meet UL 268, could be acceptable for use in Alberta provided they meet the requirements of the electrical regulations adopted under the Safety Codes Act.

Annual sensitivity testing of smoke detectors would be expected to add to the cost of the annual maintenance and testing currently required to be done on every conventional fire alarm system in Alberta as the time needed to test each detector would increase.

It must be noted that newer intelligent, addressable fire alarm systems perform sensitivity tests on all smoke detectors within the system on a continuous basis and that this form of sensitivity testing is acceptable under ULC S536-04. The annual smoke testing is still required for each smoke detector.

## PROPOSED CHANGE

AFC 6.3.1.2. Inspection & Testing F/A

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### DISCUSSION:

The Chief Fire Administrator has enquired throughout North America as to whether any empirical data exists, either from case studies or scientific research, which supports a belief that annual smoke detector sensitivity testing, over and above smoke testing, increases or improves the reliability and functionality of the smoke detectors within a fire alarm system. This has included direct requests to ULC, the Canadian Fire Alarm Association and the National Fire Protection Association.

While data does exist showing that over time the sensitivity of smoke detectors may drift out of range there has been no data presented to date which can be used to validate the premise that annual sensitivity testing of smoke detectors will provide a greater degree of detector reliability and functionality than properly conducted annual smoke testing. Anecdotal evidence suggests that any drift will likely result in the detector becoming more sensitive which creates a concern for nuisance alarms as opposed to reduced sensitivity.

Therefore; is the additional cost of annual sensitivity testing justified with no demonstrated improvement in safety and system reliability?

### CONCLUSIONS:

Despite the initial apparent sense that additional types and forms of testing will result in a better result and the emotional argument that not conducting annual sensitivity testing will put Albertans at risk, the scientific support for requiring this additional testing at an annual frequency has not been found.

Annual visual inspection and cleaning of smoke detectors, and proper smoke testing in accordance with manufacturers and testing agent recommendations, would appear to provide a verifiable indication of proper function and reliability of the smoke alarms within a fire alarm system.

This inspection, cleaning and testing is only of value when the testing is completed by trained and qualified persons following proper procedures and fully recording the results of these activities in the full report format described in the appendices of ULC S536-04 "Inspection and Testing of Fire Alarm Systems". These records must remain on site or in a location acceptable to the authority having jurisdiction for a minimum of two years.

*Using aerosol "Test" smoke - From a distance of 2 to 4 ft. (.6-1.2m) aim spray for 1-2 seconds at the vents or side of the detector. Alarm will sound within 1 to 10 seconds if the detector is functioning properly. Detectors with delay circuits should be sprayed 1 or 2 additional times to activate the alarm. At no time should the aerosol be used more than 3 times and non-aerosolised liquid must not be allowed to enter the detector. The directions of the test agent's manufacturer will take precedent over these procedures.*

It is however reasonable to expect that smoke detectors have a functional life span and that, as critical life safety equipment, they will require additional testing or replacement at a fixed point in their life cycle.

While not explicitly stated by the manufacturer it is reasonable to expect that smoke detectors will have a service life expectancy of ten years. This replacement schedule is consistent with recommendations in the Appendices of CAN/ULC S552-02 "Maintenance and Testing of Smoke Alarms" which strongly recommend that smoke alarms be replaced every ten years. As these devices utilise the same detection principles it seems reasonable to anticipate that they would "age" at a similar rate.

It is anticipated that there are a significant number of smoke detectors on systems currently in service which have exceeded this service life. These detectors cannot continue to remain in place past the end of their service life without additional testing.

## PROPOSED CHANGE

AFC 6.3.1.2. Inspection & Testing F/A

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All smoke detectors on fire alarm systems within Alberta shall therefore be required to either be replaced within ten years of their manufacture, with a smoke detector listed for use with the fire alarm system and appropriate for the location, or they shall be, from the time they reach ten years and forward, tested for sensitivity in conformance with the methods prescribed in ULC S536-04 on an annual basis.

As noted previously intelligent digital addressable systems may already conduct this testing automatically and this provision will not apply to those systems.

In those instances where smoke detectors are already older than ten years the owner must, within 12 months from the issuance of this Variance, successfully sensitivity test or replace all such detectors.

Where the date of manufacture of an existing smoke detector is unknown, and the manufacturer of the detector is unable to provide clarification, absent any proof of the date of installation, the detector will be deemed to have been in place since the time of the installation of the fire alarm system. When a manufacturer has not produced a model of smoke detector in ten years or more that shall be taken as proof of length of service of the detector.

Records of smoke detector replacement shall be retained for the life of the building or fire alarm system along with the fire alarm verification report(s) as per the Alberta Fire Code 2006.

Where a smoke detector is replaced with a new smoke detector, and the replacement does not have a manufacturing date attached to it by the manufacturer, the qualified person conducting the installation shall ensure that the date of installation is recorded on the detector by means of a permanent marker.

This variance applies throughout the Province of Alberta.

---

### Justification – Explanation

See above

### Cost implications

No additional expense anticipated. The inclusion of sensitivity testing would result in a substantial increase in the cost of inspection, testing and maintenance of some fire alarm system.

### Enforcement implications

None anticipated

## PROPOSED CHANGE

6.3.1.7. or Div C, 2.2.1.4. Audit Requirement

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AFC 2006  
6.3.1.7. or Div C, 2.2.1.4.New

---

### EXISTING PROVISION

The intent was to carry over this Article during the review of the 1997 AFC and place it in Division C as an Administrative item.

---

### PROPOSED CHANGE

Insert the following edited text in Section 6.3. "Fire Alarm and Voice Communication Systems as a new Article 6.3.1.6. The text edit replaces the term "he" with "authority having jurisdiction."

#### 6.3.1.6. Audit

1) When an existing fire alarm system has not been subjected to an initial verification as required by CAN/ULC-S524, "Installation of Fire Alarm Systems," and described in CAN/ULC-S537, "Verification of Fire Alarm Systems Installations," the authority having jurisdiction may require the system to be audited in conformance with CAN/ULC-S536, "Inspection and Testing of Fire Alarm Systems," unless the authority having jurisdiction is satisfied that the system has been maintained and is functioning in a manner acceptable to the authority having jurisdiction.

---

### RATIONALE

#### Problem

This Sentence was left out of the AFC 2006 in error. A Standata (FCI-08-09) was issued to indicate that this requirement was still in force

#### Justification - Explanation

As above

#### Cost implications

As above

#### Enforcement implications

As above

#### Additional Information

As above

## PROPOSED CHANGE

AFC 6.4.1.1. Inspection, Testing and Maintenance

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AFC 2006  
6.4.1.1. Inspection, Testing and Maintenance

---

### EXISTING PROVISION

#### 6.4.1. General

##### 6.4.1.1. Inspection, Testing and Maintenance

1) Water-based fire protection systems shall be inspected, tested and maintained in conformance with NFPA 25, "Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems." (See Appendix A.)

**A-6.4.1.1.(1)** Water-based fire protection systems include sprinkler systems, standpipes, private hydrants, hose systems, water spray fixed systems, foam-water sprinkler systems, foam-water spray systems, and fire pumps.

---

### PROPOSED CHANGE

Revise Appendix wording to include both private and municipal hydrants to read as follows:

**A-6.4.1.1.(1)** Water-based fire protection systems include sprinkler systems, standpipes, private and municipal hydrants, hose systems, water spray fixed systems, foam-water sprinkler systems, foam-water spray systems, and fire pumps.

---

### RATIONALE

#### Problem

The inspection, testing and maintenance requirements should be expanded to include all hydrants; private and municipal.

#### Justification - Explanation

The Alberta Fire Code 1997 had a number of requirements for both municipal and private hydrants and it is felt that those requirements or the requirements of NFPA 25 "Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems" would be beneficial in ensuring that all hydrants receive some form of inspection, testing and maintenance.

#### Cost implications

There may be a substantial cost increase to some municipalities who presently do not undertake any inspection, testing and maintenance program.

#### Enforcement implications

None anticipated

#### Additional Information:

The following text is extracted from the Alberta Fire Code 1997 and NFPA 25, "Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems":

#### Alberta Fire Code 1997

##### 6.6.4. Hydrants

###### 6.6.4.1. Maintenance

- 1) Hydrants shall be maintained in operating condition.
- 2) Hydrants shall be kept readily accessible for fire fighting use and their locations shall be clearly identified.

###### 6.6.4.2. Inspection Frequency

## PROPOSED CHANGE

1) Hydrants shall be inspected at intervals not greater than 6 months and after each use in conformance with Article 6.6.4.4.

### 6.6.4.3. Records

1) Records of inspections and tests required in Article 6.6.4.2. shall be retained for examination by the *authority having jurisdiction*, in conformance with Article 1.1.1.2.

### 6.6.4.4. Inspections and Repairs

1) Hydrants shall be inspected to ensure that hydrant caps are in place and caps with worn, rusted or obstructed threads, which might hamper easy removal, shall be repaired or replaced.

2) Hydrant barrels shall be inspected to determine if water has accumulated as a result of a leaking main valve or a plugged or damaged drain valve.

3) Except as provided in Sentence (4), main valves which are leaking and drain valves which are plugged or damaged shall be repaired.

4) Where it is not practical to repair faulty drain valves or where drain valves are intentionally plugged, measures shall be taken to prevent the freezing of accumulated water.

5) When a hydrant is shut down for repairs or alteration, it shall be identified in a manner acceptable to the *authority having jurisdiction*.

### 6.6.4.5. Annual Flushing

1) Hydrants shall be flushed at intervals not greater than 12 months with the main valve and any outlet valves fully opened until the water runs clear.

## NFPA 25, "Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems":

### 7.3 Testing

...

**7.3.2 Hydrants.** Hydrants shall be tested annually to ensure proper functioning.

**7.3.2.1** Each hydrant shall be opened fully and water flowed until all foreign material has cleared.

**7.3.2.2** Flow shall be maintained for not less than 1 minute.

**7.3.2.3** After operation, dry barrel and wall hydrants shall be observed for proper drainage from the barrel.

**7.3.2.4** Full drainage shall take no longer than 60 minutes.

**7.3.2.5** Where soil conditions or other factors are such that the hydrant barrel does not drain within 60 minutes, or where the groundwater level is above that of the hydrant drain, the hydrant drain shall be plugged and the water in the barrel shall be pumped out.

**7.3.2.6** Dry barrel hydrants that are located in areas subject to freezing weather and that have plugged drains shall be identified clearly as needing pumping after operation.

### 7.4 Maintenance

...

**7.4.2 Hydrants.**

**7.4.2.1** Hydrants shall be lubricated annually to ensure that all stems, caps, plugs, and threads are in proper operating condition.

**7.4.2.2** Hydrants shall be kept free of snow, ice, or other materials and protected against mechanical damage so that free access is ensured.

**A.7.4.2.2** The intent of 7.4.2.2 is to maintain adequate space for use of hydrants during a fire emergency. The amount of space needed depends on the configuration as well as the type and size of accessory equipment, such as hose, wrenches, and other devices that could be used.

## PROPOSED CHANGE

AFC 6.5.1.5. Supply of Fresh Fuel

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AFC 2006  
6.5.1.5. Supply of Fresh Fuel

---

### EXISTING PROVISION

#### 6.5.1.5. Supply of Fresh Fuel

1) Liquid fuel *storage tanks* shall be drained and refilled with fresh fuel at intervals not greater than 12 months. (See Appendix A.)

**A-6.5.1.5.(1)** This can be achieved by replenishment as the result of the routine test program required by Article 6.5.1.1.

---

### PROPOSED CHANGE

Reword the Appendix reference to reads as follows:

**A-6.5.1.5.(1)** If the operation of blower engines in Article 2.9.3.6. and the routine test program required by Article 6.5.1.1. does not result in the use of appropriate amounts of liquid fuel, it is deemed acceptable to test liquid fuel, and if required,

- a) drain and replenish fuel in accordance with Article 6.5.1.3. of the Alberta Fire Code, or
- b) drain, filter and condition existing fuel in accordance with Table 5 of CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings"

If option (b) is used the fuel is to be retested in accordance with Clause 11.5.5. of CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings."

---

### RATIONALE

#### Problem

The Alberta Fire Code requires that liquid fuel storage tanks used to supply emergency generators and internal combustion engines used to power supplementary blowers required for air-supported structures shall have fuel drained and refilled every twelve months. This fuel replenishment has been an area of concern for some time and at times is not undertaken due to the fact that very few service companies have the capability of disposing of this drained fuel.

#### Justification - Explanation

The requirements of the AFC for the replacement of liquid fuel has been in the Code for a number of years and does not reflect today's economic and environmental concerns regarding this draining and replenishment. Although this draining and replenishment can be achieved by the replenishment of liquid fuel storage tanks during routine testing of emergency generating equipment and supplementary blowers these tests have, in most cases, been reduced to a level that does not use substantial amounts of fuel and therefore is considered impracticable.

#### Cost implications

Substantial reduction in costs associated with the collection and disposal of used fuel

#### Enforcement implications

None anticipated

#### Additional Information

This requirement resulted in the issuance of a Variance accepting that liquid fuel tested in accordance with Clause 11.5.5. of CAN/CSA-C282, "Emergency Electrical Power Supply for Buildings" met the intent of the Code that was well received by SCO's, fuel supply companies and owners.

**PROPOSED CHANGE**

6.7.1.1.(3) Group Homes

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AFC 2006  
6.7.1.1.(3) Group Homes

---

**EXISTING PROVISION**

---

**6.7.1.1. Inspection, Testing and Maintenance**

...

3) *Smoke alarms* in *suites* of hotels and motels are to be inspected, tested and cleaned every month.

4) A record shall be kept of all testing of *smoke alarms* installed in hotels and motels and shall be retained in conformance with Article 2.2.1.2. of Division C.

...

---

**PROPOSED CHANGE**

---

Revise wording as follows:

**6.7.1.1. Inspection, Testing and Maintenance**

...

(3) Smoke alarms in suites of hotels, motels, and group homes are to be inspected, tested, and cleaned every month.

(4) A record shall be kept of all testing of smoke alarms installed in hotels, motels, and group homes and shall be retained in conformance with Article 2.2.1.2 of Division C.

...

Definition: *Group Homes* - Programs that establish and enforce health, safety and program standards for group homes for dependent children, children, or adults with physical or developmental disabilities or emotional problems.

**NOTE:** A definition for group homes could not be found in any of our related documents. It is defined in the Canadian Oxford Dictionary as follows:

**Group home.** "A home where several unrelated people live together under supervision or care."

---

**RATIONALE**

---

**Problem**

Group Homes are not currently listed within the AFC 2006 for the requirement to inspect, test and clean on a monthly basis.

Group Homes are facilities where care and attention is given to people that are under control of another person, agency and/or licensed by the Alberta Government.

Smoke Alarms in these dwellings currently fall under the recommend practice for home owners to check there smoke alarms twice a year (spring and fall), this is also a national campaign.

**Justification - Explanation**

Currently Group Homes are not required by any code to ensure that the smoke alarm systems that have been required in residential buildings since 1978 are being maintained.

With the addition of Group Homes to 6.7.1.1 Provincial Officials and Fire Authorities can be assured that the smoke alarms located within Group Homes are being properly maintained. If a Fire Safety Codes Official doing an inspection at a Group Home and finds a faulty smoke alarm they could then issue a order for correction under the Fire Code instead of just suggesting that they be fixed.



**PROPOSED CHANGE**

6.7.1.1.(3) Group Homes

Page: 2 of 2

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**Cost implications**

The cost implication to building occupants would be minimal unless a smoke alarm is found faulty then it would be required to be replaced for approximately (\$10 to \$30).

Monthly maintenance and record keeping would take approximately one hour a month of the person in control of the building to conduct.

**Enforcement implications**

There would be limited impact on Fire Safety Codes official as they would be ensured that the smoke alarms in Group Homes are being maintained. During their annual inspection they could review the records to ensure the smoke alarms are also being maintained on a monthly basis.

**Additional Information**

There have been a number of requests by Fire SCO's to add Group Homes into this sentence within the Alberta Fire Code.

## PROPOSED CHANGE

AFC A-2.1.5.1.(1). Extinguishers Comment

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AFC 2006  
A-2.1.5.1.(1). Extinguishers Comment

---

### EXISTING PROVISION

#### 2.1.5. Portable Extinguishers

##### 2.1.5.1. Selection and Installation

1) Portable extinguishers shall be installed in all *buildings* except *dwelling units*.

...

---

### PROPOSED CHANGE

Insert "(See Appendix A)" at the end of Sentence 2.1.5.1.(1) and add the following Appendix reference which will read as follows:

**A-2.1.5.1.(1).** It is not the intent of this Sentence to prohibit the installation of portable fire extinguishers in dwelling units. The exception pinpoints in this case that the Alberta Fire Code does not regulate dwelling units.

---

### RATIONALE

#### Problem

It is felt by some that the manner in which this Sentence is worded gives the impression that there is something wrong or inappropriate with the installation of portable fire extinguishers in dwelling units. This in fact is not the case and the addition of an Appendix reference should help to clarify any confusion or misunderstanding related to this requirement.

#### Justification - Explanation

See above

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC A-4.1.1.1.(3)(c) Application Appendix Reference

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AFC 2006  
A-4.1.1.1.(3)(c)

---

### EXISTING PROVISION

#### Section 4.1. General

##### 4.1.1. Scope

##### 4.1.1.1. Application

...

3) This Part shall not apply to

...

c) the storage of *flammable liquids* or *combustible liquids* on farms for individual farm use and on isolated construction projects (see Appendix A),

...

**A-4.1.1.1.(3)(c)** Such facilities may include isolated construction sites and earth-moving projects, including gravel pits, quarries, and borrow pits where in the opinion of the AHJ, it may not be necessary to comply with the more restrictive requirements of Part 4.

---

### PROPOSED CHANGE

Insert a revised Appendix reference to read as follows:

**A-4.1.1.1.(3)(c)** Such facilities may include isolated construction sites, earth-moving projects, road building, forestation, and fire-fighting base camps where storage tanks will not be in a fixed location for more than one year. In addition facilities such as gravel pits, quarries, and borrow pits where in the opinion of the authority having jurisdiction, it may not be necessary to comply with the more restrictive requirements of Part 4. The design and location of the storage tank system should include requirements such as appropriate construction standards, provisions for secondary containment, devices to prevent spillage during tank and equipment filling, fire extinguishers, and collision protection.

---

### RATIONALE

#### Problem

The Alberta Fire Code does not provide enough description of projects that qualify as “isolated construction sites”. For example, forestry and fire-fighting tankage can be remote but not considered in the Appendix. Road building tanks may qualify as “earth-moving” but aren’t mentioned in the Appendix.

The Appendix should provide examples, but more importantly, explain “isolated projects”. The explanation might include absence of fixed structures like buildings or environmental receptors like surface water. It should include an element of time in keeping with the idea of a “construction project”.

#### Justification - Explanation

Because fuelling equipment is often moved at construction sites some requirements of the Fire Code are not practical. Gaining approval for a specific location is certainly not practical. It is understood that to prevent spilled liquid getting to a water course may not always be available at a temporary construction site. Emergency shutdown would be another example of a Code requirement that would not be practical for this type of dispensing station. However, contractors using these tanks should be using listed tanks and be taking measures to prevent spills. The current wording in the Code should be supported by an Appendix item which gives broader explanation and reduces the ambiguity around this issue.

## **PROPOSED CHANGE**

AFC A-4.1.1.1.(3)(c) Application Appendix Reference

Page: 2 of 2

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### **Cost implications**

There would be no extra cost for companies that are following minimum requirements of the Fire Code. Companies that use farm tanks at temporary construction sites because they believe they are exempt from the Code would have to purchase a mobile fuelling unit which would cost between \$5,000 and \$8,000.

### **Enforcement implications**

There typically is no enforcement of the Fire Code at facilities that are truly “temporary construction projects”.

## PROPOSED CHANGE

AFC Reference to 1.1.2.3. Comment

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Document  
Provision

AFC 2006  
Reference to 1.1.2.3. Comment

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### EXISTING PROVISION

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#### Division C

#### Section 2.1. Application

##### 2.1.1. Application

##### 2.1.1.1. Application

1) Except as permitted by Sentences (2) and (3), this Part applies to all *buildings* and facilities covered in this Code. (See Article 1.1.1.1. of Division A.)

2) Where a provision of this Code requires compliance with one or more requirements of the Alberta Building Code, the provision is deemed to be satisfied if

a) the *building* or fire protection measure was constructed or installed after April 1, 1974, and conforms with regulations in force under the Uniform Building Standards Act or the Safety Codes Act at the time of construction or installation, or

b) the *building* or fire protection measure does not conform to Clause (a) but

i) meets the requirements of an *approved* guideline issued for a specific *occupancy*, or

ii) where no *approved* guideline has been issued, the *building* or fire protection measure is constructed or installed in a manner that provides a level of life safety which is acceptable to the *authority having jurisdiction*.

(See Appendix A.)

3) The *authority having jurisdiction* may accept alternatives to strict compliance with the Alberta Fire Code 2006 and Alberta Building Code 2006 as provided for in Clause 1.2.1.1.(1)(b) of Division A. (See Appendix Notes A-1.2.1.1.(1)(b) and A-1.1.1.1.(1) of Division A and Appendix Note A-1.1.1.2. of Division A of the Alberta Building Code 2006.)

**A-2.1.1.1.(2)** The intent of this provision is to identify areas within the Code where existing conditions are permitted to remain. A building or fire protection measure constructed or installed in compliance with previous editions of the Alberta Building Code is deemed to be in compliance with this Code. Furthermore if an approved guideline has been issued for a specific occupancy and the building has been upgraded to the guideline, the building is deemed to meet the requirements of this Code. An example of an approved guideline is 92-FCR-012, "Approved Fire Safety Guideline for Apartment Buildings," issued under the Alberta Fire Code 1992. The Alberta Fire Code 2006 provides direction where compliance with the Alberta Building Code 2006 is required. Similar provision is not made for issues outside the scope of the Alberta Building Code. In these situations the authority having jurisdiction is called upon to use discretion and good judgment in making a case by case assessment of whether the safety objectives of the Alberta Fire Code 2006 are being met.

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### PROPOSED CHANGE

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The following are alternatives regarding the reference to the removal of the preamble "Except as provided in Article 1.1.2.3. ..."

1) Reinstate the preamble to specific requirements primarily in Part 2 of the AFC 2006,

2) Place more information in Div C, Article 2.1.1.1. Application, to ensure that the intent is clear and understandable, or

3) Leave as is and ensure that the requirement receives attention during SCO training

## PROPOSED CHANGE

AFC Reference to 1.1.2.3. Comment

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### RATIONALE

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#### Problem

Previous editions of the Alberta Fire Code used to preface a number of Code requirements with the statement: "Except as provided in section 6 ..." (1984) and "Except as provided in Article 1.1.2.3. ..." to direct individuals to the fact that if the building or feature met the Codes at the time of construction it would not be required to comply with the latest Code, etc. It was removed as it was felt it was fully understood by "old" SCO's; however it is debatable if new SCO's are being informed of this Div C requirement.

#### Justification - Explanation

A number of enquiries have been received that indicates individuals are not being informed of the requirements of Div C, 2.1.1.1. Application, which clearly states that if a building or building feature conformed with the Alberta Building Code at the time of construction or installation it did not have to meet the requirements of new Code editions. This may not apply in some case when an approved guideline has been issued.

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated

## PROPOSED CHANGE

AFC Div C, 2.2.3.1.(2)(b) Plans Review

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AFC 2006  
Div C, 2.2.3.1.(2)(b) Plans Review

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### EXISTING PROVISION

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#### 2.2.3.1.(2)

...

- 2) No person shall install or alter any storage tank system referred to in this Part, unless
- a) required permits or approvals have been obtained from the *authority having jurisdiction*,
  - b) plans, drawings and specifications of the system or equipment have been examined by the authority having jurisdiction, and
  - c) the plans, drawings and specifications referred to in Clause (b) bear the stamp and seal of a professional engineer licensed to practice in Alberta.

---

### PROPOSED CHANGE

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Reword Division C, Sentence 2.2.3.1.(2) and include an Appendix reference and reword and renumber existing Sentence 2.2.3.1.(2) which will permit the AHJ to approve outside aboveground storage tank installations under certain circumstances to read as follows:

#### 2.2.3.1. Storage Tank Systems

...

- 2) No person shall install or alter any outside aboveground *storage tank system* referred to in Part 4, unless
- a) required permits or approvals have been obtained from the *authority having jurisdiction*,
  - b) plans, drawings and specifications of the system or equipment have been examined and accepted by the *authority having jurisdiction*, and
  - c) all on-site individual *storage tanks* shall not exceed a capacity of 8 000 L and their aggregate capacity shall not exceed 20 000 L.

(See Appendix A.)

- 3) Except as permitted by Sentence (2) for outside aboveground *storage tank systems*, no person shall install or alter any *storage tank system* referred to in Part 4, unless
- a) required permits or approvals have been obtained from the *authority having jurisdiction*,
  - b) plans, drawings and specifications of the system or equipment have been examined and accepted by the *authority having jurisdiction*, and
  - c) the plans, drawings and specifications referred to in Clause (b) bear the stamp and seal of a professional engineer licensed to practice in Alberta.

#### A. 2.2.3.1.(2)

This Sentence only applies to storage tank systems where all storage tanks and piping is aboveground and visible. Plans, drawings and specifications are to be submitted in a form that is acceptable to the authority having jurisdiction and if the installation is deemed by the authority having jurisdiction to be of a complex nature they may be required to bear the stamp and seal of a professional engineer licensed to practice in Alberta. A post-installation inspection cannot be done on components of the system that are buried or normally not visible. It would not be practical, for example, to inspect an aboveground tank system with a secondary containment system that incorporates a liner which has been buried. Plans, drawings and specifications for all storage system installations shall include sufficient information to allow a Safety Codes Officer to complete an examination that shows full compliance to the Alberta Fire Code.

---

### RATIONALE

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#### Problem

For a number of years the Alberta Fire Code has required that all storage tank installations are required to have plans submitted that bear the stamp of a professional engineer. This requirement was introduced to ensure such installations were appropriate with regard to property lines, openings, separation distances, tank

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## **PROPOSED CHANGE**

AFC Div C, 2.2.3.1.(2)(b) Plans Review

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construction, etc. Although all of this information is necessary to ensure code compliance it is considered by many major jurisdictions a hindrance in gaining compliance. An example of this is an automotive company that is quite prepared to install a compliant aboveground storage tank however the cost of providing engineered plans is considered an additional unnecessary expense and they continue to store their used oil in 45 gallon drums at the rear of their building prior to removal. Although this practice is acceptable the installation of an aboveground storage tank may be more appropriate.

### **Justification - Explanation**

When the authority having jurisdiction has staff that are competent in the review of plans for certain aboveground storage tank installations they should be permitted to undertake such plans review.

### **Cost implications**

A substantial cost reduction to individuals wishing to install outside aboveground storage tanks is anticipated.

### **Enforcement implications**

Minor increase in the plans review process for some jurisdictions; however this may result in significant compliance in some situations.



## PROPOSED CHANGE

AFC Div C, New Articles 2.2.3.3. & 2.2.3.4

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AFC 2006  
Div C, New Articles 2.2.3.3. & 2.2.3.4

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### EXISTING PROVISION

None

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### PROPOSED CHANGE

Insert new Articles in Division C, Section 2.2.3. Approvals, as Articles 2.2.3.3. and 2.2.3.4. to read as follows:

#### Division C, Administrative Provisions

##### 2.2.3. Approvals

...

##### 2.2.3.3. Distribution of Low-Hazard Fireworks

- 1) Only persons *approved* by the *Chief Fire Administrator* may distribute *low hazard fireworks* to retail outlets in Alberta.
- 2) Only persons *approved* by the *Chief Fire Administrator* may sell distribute *low hazard fireworks* by means of mail, telephone or online ordering and direct delivery in Alberta.
- 3) Persons *approved* in Sentences (1) and (2) may have their approval withdrawn by the *Chief Fire Administrator* for failure to comply with the provisions of Section 5.7 of Division B of this Code.

##### 2.2.3.4. Municipal Authorization of Low Hazard Fireworks

- 1) The sale, offering for sale, storage for the purpose of sale, storage, possession, purchase, handling, discharge, use, firing, and setting off of *low hazard fireworks* within municipality's boundaries is allowed when the municipality has put in place a bylaw which allows for those activities.
- 2) A bylaw for the purpose of Sentence (1) shall set out a system whereby the municipal fire department may issue the written permissions set out in Section 5.7 of Division B of this Code.  
(See Appendix A.)

**A-2.2.3.4.** Municipalities have the authority to allow low hazard fireworks within their jurisdiction under the Municipal Government Act. Municipalities can use the Municipal Government Act to establish a fireworks permit bylaw allowing the municipality to permit the low hazard fireworks activities noted in Sentence (1). Where no such bylaw is in place any activity related to low hazard fireworks is not allowed.

Due to the fact that fireworks can be purchased in one municipality and discharged in another, individuals must ensure that written permission is obtained from all of the appropriate authorities if this is the case.

---

### RATIONALE

#### Problem

See Fire Code Standata FCI-10-01 and FCI-10-02

**Justification – Explanation** - Questions have arisen regarding requirements of the Alberta Fire Code (AFC) for individuals involved in the sale, purchase, possession, handling, discharge, firing or setting off of low-hazard fireworks. In addition it has been noted that a number of outlets are storing low-hazard fireworks in a manner that constitutes a serious fire hazard. Municipalities have been reluctant to either ban or allow these products, by passing bylaws, based upon the somewhat vague language in the AFC 2006 and the provisions of Section 66 of the Safety Codes Act.

In addition no mention has previously been made of the persons or companies supplying the low-hazard fireworks to the retailer although the existing Standata does consider a sale by a supplier to be a sale covered under the existing AFC. Currently, in many instances, it appears retailers are given little guidance in how to

## PROPOSED CHANGE

AFC Div C, New Articles 2.2.3.3. & 2.2.3.4

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comply with the regulation by the supplier and advise the fire department upon questioning that they were told there were no specific rules they needed to concern themselves with. Other wholesalers have been credited with providing complete directions, advice and equipment to the retailer to assist them in complying with provisions of the AFC.

**Cost implications** – These provisions should not create additional costs to the retailer or municipality beyond the requirements of the current AFC. They also should only create a minimal increase in the costs of the wholesaler from the current code other than they would need to apply to and maintain the approval from the Chief Fire Administrator. From the perspective of the Chief Fire Administrator having full knowledge of, and regular contact with, these wholesalers, will consume less time and energy than the current system where each wholesaler has to be searched out individually and anew when concerns or complaints are received.

**Enforcement implications** – This additional clarity of the choice available to municipalities and the responsibilities of the wholesaler, in combination with other clarifications in this area under revisions to Section 5.7 of Division B of the AFC will make enforcement of the low hazard fireworks provisions more straightforward and less complicated for municipal and provincial safety codes officers, forest officers and peace officers.

## PROPOSED CHANGE

AFC Div C, 2.2.4.1. Qualifications FA Systems

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Div C, 2.2.4.1. Qualifications FA Systems

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### EXISTING PROVISION

#### 2.2.4. Qualifications

##### 2.2.4.1. Qualifications

- 1) Only qualified persons shall install, test or perform maintenance on
- a) a special fire suppression system (see Appendix A),
  - b) portable extinguishers (see Appendix A), or
  - c) a fire alarm and voice communication systems (see Appendix A).

...

---

### PROPOSED CHANGE

#### 2.2.4. Qualifications

##### 2.2.4.1. Qualifications

- 1) Only qualified persons shall install, test, inspect, verify, or maintain
- a) a special fire suppression system (see Appendix A),
  - b) portable extinguishers (see Appendix A),
  - c) a fire alarm and voice communication systems (see Appendix A), or

...

**A-2.2.4.1.(1)(c)** Persons are considered qualified in the inspection, testing and maintenance of fire alarm and voice communication systems when they have acquired a certificate of training in this area of study from

- a) a public post-secondary educational institution, including:
  - an Alberta Journeyman's Electrician certificate on or after September 1, 1991, or
  - an Alberta Journeyman's Electrician certificate prior to September, 1991 and an Alberta Fire Alarm course recognised by the *Chief Fire Administrator*, or
  - a Canadian Red Seal Journeyman's Electrician certificate and an Alberta Fire Alarm course recognised by the *Chief Fire Administrator*, or
- b) Fire Alarm Technician certification issued by the Canadian Fire Alarm Association (CFAA), NAIT or SAIT.

Persons are considered qualified in the installation of fire alarm and voice communication systems when they have

- a) acquired an Alberta Journeyman's Electrician certificate on or after September 1, 1991, or
- b) acquired an Alberta Journeyman's Electrician certificate prior to September, 1991 and have completed an Alberta Fire Alarm course recognised by the *Chief Fire Administrator*, or
- c) acquired a Canadian Red Seal Journeyman's Electrician certificate and have completed an Alberta Fire Alarm course recognised by the *Chief Fire Administrator*.

Fire Alarm verifications are the responsibility of a Professional Engineer. In Alberta this must be the registered professional who will complete a Schedule "C" under the Alberta Building Code.

The verification of other special fire suppression systems is the responsibility of the certified installer with the registered professional obtaining proof of verification from the Installer and including it in their final Schedule C.

## PROPOSED CHANGE

AFC Div C, 2.2.4.1. Qualifications FA Systems

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### RATIONALE

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#### Problem

Need to further clarify the differences between installation, testing, verification and maintenance. An electrician who is certified (out of province) is not qualified to install unless he has completed the Alberta requirement for an electrician.

#### Justification - Explanation

There is some confusion in the industry as to which electricians can install systems in Alberta. Alberta has specifically required electricians installing or maintaining fire alarm systems to have specific training in this area since 1984. Persons coming from other jurisdictions may not have this training. In addition it is possible, in a building where the ABC does not require professional involvement, for an electrician to install a fire alarm system with no engineering design. In this case it is critical that the electrician have the training in the use of the ULC S524 Standard so that the installation meets code requirements.

Further thoughts have been expressed about whether there should be a mandatory cyclical refresher portion to all of these "qualifications" based upon code and standards cycles. This possibility will be considered during policy discussions outside the code process.

#### Cost implications

None anticipated – clarifies the status quo

#### Enforcement implications

None anticipated – clarifies the status quo and provides a better understanding for installers, technicians and safety codes officers.

## PROPOSED CHANGE

AFC Div C, 2.2.4.1. Qualifications Sprinkler Systems

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Div C, 2.2.4.1. Qualifications Sprinkler Systems

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### EXISTING PROVISION

#### 2.2.4. Qualifications

##### 2.2.4.1. Qualifications

- 1) Only qualified persons shall install, test or perform maintenance on
- a) a special fire suppression system (see Appendix A),
  - b) portable extinguishers (see Appendix A), or
  - c) a fire alarm and voice communication systems (see Appendix A).

...

---

### PROPOSED CHANGE

#### 2.2.4. Qualifications

##### 2.2.4.1. Qualifications

- 1) Only qualified persons shall install, test or perform maintenance on
- a) a special fire suppression system (see Appendix A),
  - b) portable extinguishers (see Appendix A),
  - c) a fire alarm and voice communication systems (see Appendix A), or
  - d) an automatic fire sprinkler system (see Appendix A.)

...

**A-2.2.4.1.(1)(d)** Persons are considered qualified in the installation, testing and maintenance of automatic fire sprinkler systems when they have acquired a Journeyman's certificate of training as

- a) a sprinkler fitter, or
- b) a plumber.

The *Permit Regulation* under the Safety Codes Act or other similar regulations may make allowances for home owners to obtain permits allowing them to perform installations of limited types of equipment within their owner/occupied *single family residential dwelling*.

---

### RATIONALE

#### Problem

Right now the AFC does not speak at all to who may install or maintain a fire sprinkler system.

#### Justification - Explanation

Some further thoughts have been expressed about whether there should be a mandatory cyclical refresher portion to all of these "qualifications" based upon code and standards cycles.

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated

**PROPOSED CHANGE**

Div C, A-2.2.4.1.(1)(b) Qualifications – Installation of Portable Extinguishers

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Div C, A-2.2.4.1.(1)(b) Installation of Portable Extinguishers

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**EXISTING PROVISION**

**2.2.4. Qualifications**

**2.2.4.1. Qualifications**

1) Only qualified persons shall install, test or perform maintenance on

...

b) portable extinguishers (see Appendix A), or

...

**A-2.2.4.1.(1)(b)** Persons are considered qualified in the maintenance of portable fire extinguishers when they have acquired a certificate of training from a public post-secondary educational institution, and they own or are employed by an agency that is certified by a recognized testing agency.

---

**PROPOSED CHANGE**

Reword Appendix reference to include installation to read as follows:

**A-2.2.4.1.(1)(b)** Persons are considered qualified in the installation and maintenance of portable fire extinguishers when they have acquired a certificate of training from a public post-secondary educational institution, and they own or are employed by an agency that is certified by a recognized testing agency.

---

**RATIONALE**

**Problem**

Currently most extinguishers are installed in new projects by mechanical contractors or sprinkler fitters. These people are generally not qualified to do this work.

Engineers may provide the requirements on their drawings and in their specifications, but experience tells us that this practice is flawed; generally the installers or their employers do not know NFPA 10, nor do they have a copy of it. There are cases where the common extinguishers are not compatible with the hazard; (examples: ABC extinguisher in storage area for dry chlorine, 10 lb BC extinguishers still being specified for kitchens that require a Type K extinguisher.)

The Code is very clear; you must be qualified to “install” fire extinguishers.

**Justification - Explanation**

The Code is very clear; you must be qualified to “install” fire extinguishers.

**Cost implications**

None stated

**Enforcement implications**

None stated

**Additional Information**

## PROPOSED CHANGE

AFC Div C, Appendix A - Approved

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Div C, Appendix A- Approved

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### EXISTING PROVISION

#### Division C, Appendix A

**A-2.2.4.1.(1)(a)** Persons are considered qualified in the maintenance of special fire suppression systems when

- a) they have acquired a certificate of training from a public post-secondary educational institution,
- b) they comply with the ULC "Certificate Service for the Installation and Servicing of Fire Suppression Systems,"(1) or
- c) they have acquired a certificate of training from a manufacturer.

**A-2.2.4.1.(1)(b)** Persons are considered qualified in the maintenance of portable fire extinguishers when they have acquired a certificate of training from a public post-secondary educational institution, and they own or are employed by an agency that is certified by a recognized testing agency.

**A-2.2.4.1.(1)(c)** Persons are considered qualified in the maintenance of fire alarm and voice communication systems when they have acquired a certificate of training from

- a) a public post-secondary educational institution,
- b) the International Brotherhood of Electrical Workers (IBEW), or
- c) the Canadian Fire Alarm Association (CFAA).

**A-2.2.4.1.(2)** Persons are considered qualified to clean commercial cooking exhaust systems when they have completed recognized training in duct cleaning procedures from outside sources such as those listed below:

- a) International Kitchen Exhaust Cleaning Association (IKECA)
- b) Pressure Washers of North America (PWNA)
- c) Applied Science Technologists & Technicians of BC (ASTTBC), or
- d) Phil Ackland / DELCO Kitchen Exhaust Cleaning School

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### PROPOSED CHANGE

Revise Appendix references to include the word approved where applicable to read as follows:

#### Division C, Appendix A

**A-2.2.4.1.(1)(a)** Persons are considered qualified in the maintenance of special fire suppression systems when

- a) they have acquired an approved certificate of training from a public post-secondary educational institution,
- b) they comply with the ULC "Certificate Service for the Installation and Servicing of Fire Suppression Systems,"(1) or
- c) they have acquired an approved certificate of training from a manufacturer.

**A-2.2.4.1.(1)(b)** Persons are considered qualified in the maintenance of portable fire extinguishers when they have acquired an approved certificate of training from a public post-secondary educational institution, and they own or are employed by an agency that is certified by an approved testing agency.

## PROPOSED CHANGE

AFC Div C, Appendix A - Approved

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**A-2.2.4.1.(1)(c)** Persons are considered qualified in the maintenance of fire alarm and voice communication systems when they have acquired an approved certificate of training from

- a) a public post-secondary educational institution,
- b) the International Brotherhood of Electrical Workers (IBEW), or
- c) the Canadian Fire Alarm Association (CFAA).

**A-2.2.4.1.(2)** Persons are considered qualified to clean commercial cooking exhaust systems when they have completed approved training in duct cleaning procedures from outside sources such as those listed below:

- a) International Kitchen Exhaust Cleaning Association (IKECA)
- b) Pressure Washers of North America (PWNA)
- c) Applied Science Technologists & Technicians of BC (ASTTBC), or
- d) Phil Ackland / DELCO Kitchen Exhaust Cleaning School

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### RATIONALE

#### Problem

Although the use of defined terms does not extend into the Appendices of the AFC the term “approved” is widely recognized throughout the document and may add weight to the Appendix requirements.

#### Justification - Explanation

Use of the term “recognized” is vague in respect to recognised by whom and although defined terms are not used in the AFC 2006 appendices the term “approved” is widely recognised.

#### Cost implications

None anticipated

#### Enforcement implications

None anticipated



## PROPOSED CHANGE

AFC New, Div. C, 2.2.5.3. Fire Protection Equipment

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Div. C, 2.2.5.3. Fire Protection Equipment

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### EXISTING PROVISION

None

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### PROPOSED CHANGE

Add a new Section within the Alberta Fire Code, Division C, Administrative Provisions, Section 2.2.6. Fire Protection Equipment.

#### 2.2 Administration

##### 2.2.6. Fire Protection Equipment

1) No person shall tamper with or vandalize portable extinguishers, water-based fire protection systems, special fire extinguishing systems, fire alarm systems, emergency electrical power supply systems, emergency lighting and municipal fire protection equipment.

---

### RATIONALE

#### Problem

Although there are numerous notices and stickers stating that it is a Criminal offence to tamper with fire protection equipment in fact, there is no such provision in the Criminal Code of Canada or the Alberta Fire Code. There are provisions for an individual to be prosecuted under "mischief" requirements however a provision for a Safety Codes Officer would be valuable in ensuring equipment is not tampered with or vandalized.

#### Justification - Explanation

This proposed addition will allow a provision with which to deter tampering with fire protection equipment as well as present an enforcement option not currently available.

#### Cost implications

None

#### Enforcement implications

There would be no additional infrastructure or resources required to enforce this new provision. This addition is simply another enforceable portion of the Alberta Fire Code.