EDMONTON FIRE
RESCUE SERVICES

Building Owners Responsibilities

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The purpose of the Building Owners Responsibilities is to provide additional information on the requirements for building and business owners and operators. These requirements are all based in the *National Fire Code – Alberta Edition.*

The information in this document is not an exhaustive list of requirements. Instead, it is information on the most serious systems and requirements, most common questions, and most frequent deficiencies. This guide is intended to be a support to the Fire Safety Checklist for Business Owners, and not all information contained in this document may apply to your building or business.

Fire Prevention Contact Information

Edmonton Fire Rescue Services Fire Prevention and Education is staffed Monday through Friday, from 7:00 a.m. to 6:00 p.m..

We can be contacted by any of the methods below. Our website also contains a wide range of information on fire safety.

WEBSITE	edmonton.ca/FireSafety	Fire Prevention
	edmonton.ca/AftertheFire	Fire Investigations
	edmonton.ca/FuelTankPermits	Fuel Tank Information
	edmonton.ca/ConstructionFireSafety	Construction Safety
EMAIL	fireprevention@edmonton.ca	General
	fueltankinquiries@edmonton.ca	Fuel Tank Inquires
	publicsafetyandeducation@edmonton.ca	Public Education
	efrsspecialevents@edmonton.ca	Special Events
PHONE	780-496-3628	
FAX	780-442-7364	
ADDRESS	10425 106 Avenue NW Edmonton, Alberta T5H 0P5	

Emergency Contact Information

For all emergencies call 911

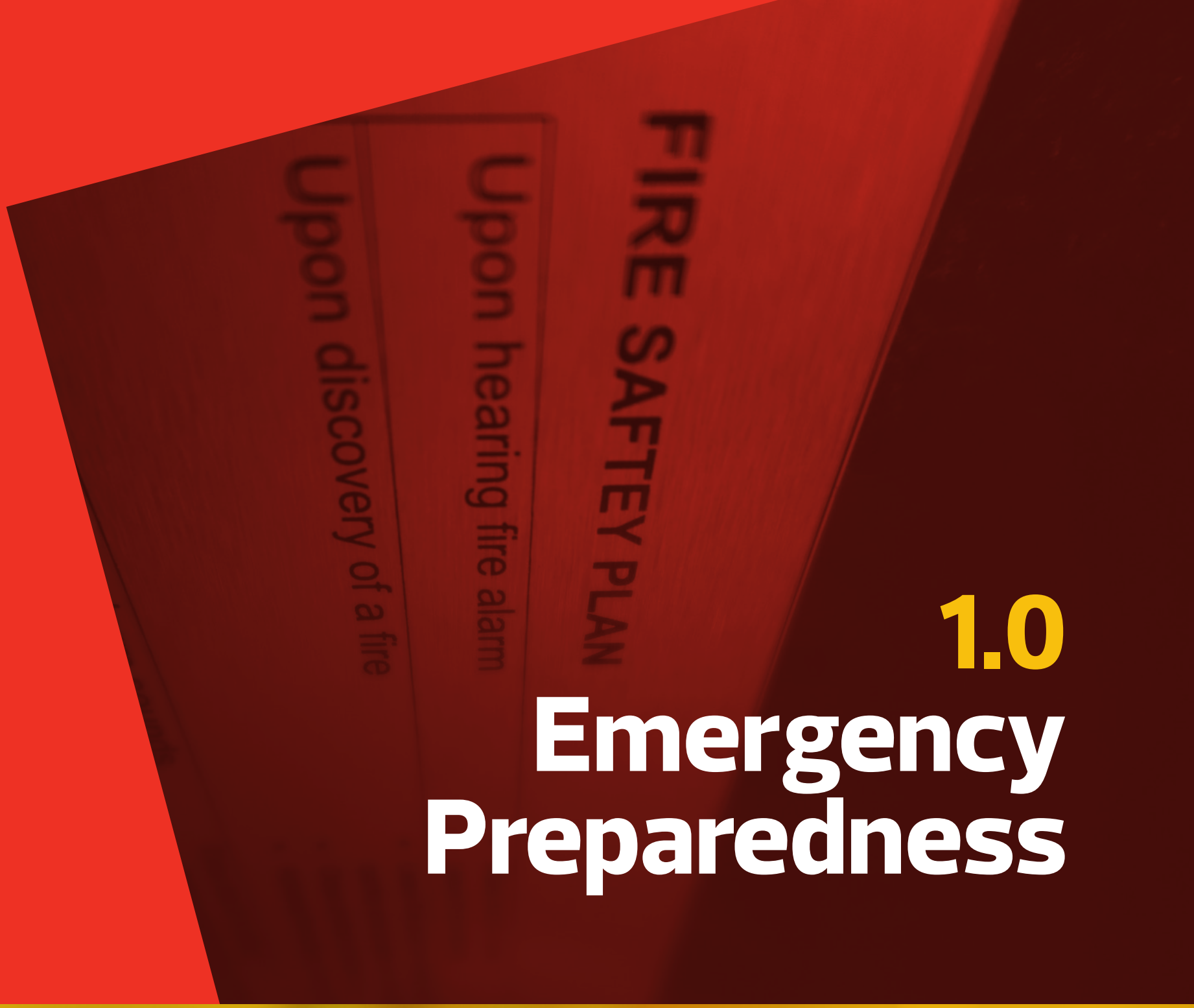
For non-emergency matters involving police, fire, bylaw, or city services, or for emergencies involving utilities or elevating devices, the following list of contacts may be helpful.

ORGANIZATION	SERVICE	PHONE
Police non-emergency	Police matters where there is no need for immediate response	780-423-4567
Fire dispatch drill line	Alert Fire dispatch before conducting a drill	780-414-7332
City of Edmonton	General Enquires, Bylaw Services, Animal Control, Forest Rangers	Inside Edmonton: 311 Outside Edmonton: 780-442-5311
EPCOR	Power, Water and Drainage Emergencies	780-412-4500
ATCO Gas	Natural Gas Emergencies	1 (800) 511-3447
Alberta Elevating Devices & Amusement Rides Safety Association	Emergencies involving elevating devices or amusement rides	1 (888) 222-7281

Business Contact Information

The following list of contacts are City of Edmonton or Government of Alberta services related to inspections, preparedness, and business continuity planning.

ORGANIZATION	SERVICE	PHONE	PHONE
Permits, Development and Construction	Building Inspections	Inside Edmonton: 311 Outside Edmonton: 780-442-5311	selfserve.edmonton.ca
Business Licensing	Business Licensing		
Office of Emergency Management	Business Continuity Planning		Office of Emergency Management
EPCOR	Power, Water, and Drainage	780-310-4300	epcor.com
ATCO Gas	Natural Gas Enquires	780-310-5678	gas.atco.com
Alberta Elevating Devices & Amusement Rides Safety Association	Elevator, Escalator, and Amusement Ride Inspections	780-448-0184	aedarsa.com
Safety Codes Council	Safety Codes Regulation and Oversight	1 (888) 413-0099	safetycodes.ab.ca
Government of Alberta: Department of Municipal Affairs	STANDATA, Code interpretations, and variances	780-310-0000	alberta.ca



1.0 Emergency Preparedness

1.1 EMERGENCY PLANNING

Knowing what to do in an emergency is essential for every person in your building. Having an emergency plan helps ensure that the people who operate or occupy your building are informed and ready to react to any emergency. A timely reaction to emergencies protects life, and minimizes damage to property or the environment.

If you're any of the following, you should have a Fire Safety Plan:

- A building that contains a care, home-type care, treatment or detention occupancy
  - Hospitals, assisted living, secure group homes
- A building containing a school, college or university, or daycare facility
  - Schools, daycares, day homes
- A building containing a licensed beverage establishment, or licensed restaurant
  - Bars, night clubs, restaurants
- A building containing an assembly occupancy intended for 30 or more people to congregate
  - Libraries, court rooms, exhibition halls
- A building where treatment is provided in a business and personal services occupancy
  - Dental or medical offices with recovery rooms for minor procedures
- A building equipped with a fire alarm
- Any demolition or construction site
- A building for commercial storage or with areas for commercial storage
  - Warehouses
- Any outdoor storage area for commercial storage of regulated products
  - Lumber yards, tire storage, or large quantities of combustibles
- A building, part of a building, or areas where flammable and/or combustible liquids are handled, stored or used
  - Gas stations, factories, distilleries
- A building, part of a building, or areas where hazardous activities occur
  - Hot works, wood working, spray painting, drycleaning with flammable liquids

Once you have an emergency plan it should be submitted to Edmonton Fire Rescue Services for review and acceptance. Once accepted it should be reviewed at least once every 12 months, and during every fire drill.

1.2 BUSINESS CONTINUITY PLANNING

A business continuity plan empowers businesses to effectively respond to an emergency, maintain operations, minimize losses, reduce down-time and improve business resiliency. By making a plan, you will have a better understanding of the risks your business could face and will be better equipped to deal with an emergency.

1.3 BUILDING EGRESS

Building egress refers to all of the things that come together in an emergency to help people get from wherever they are in the building to a safe place outside the building. This includes things like aisles for people to travel, emergency lights to help them see, exit signs to guide them to an exit door, and exit doors that lead them out of the building.

1.3.1 EMERGENCY EXITS

1.3.2 EXIT SIGNS

1.3.3 EMERGENCY LIGHTING

1.3.1 Emergency Exits

All emergency exits from a building must be clear of obstructions at all times, and operate without special instruction. Exit doors should open in the path of travel to exit the building. If there are over 100 people in the building or area that might use the exit, it should be equipped with panic proof hardware.

In a building with stairwells, these stairwells are separated from the remainder of the building by fire separations. This is to protect the stairwell and afford occupants the time necessary to exit the building.

Once outside the building, the exterior features of the exit must also be maintained properly. Doors should open fully with no obstructions. Snow and ice should be cleared on a regular basis to prevent accumulation.

1.3.2 Exit Signs

Exit signs play a vital role in people evacuating a building and finding the fastest route to safety. Exit signs should be illuminated at all times, but especially during periods of no power, or emergencies. These signs should be inspected and function tested monthly to ensure they illuminate in periods without power.

Did you know: The direction the running man is travelling through the exit door tells you what direction you should go when you go through the exit?

1.3.3 Emergency Lighting

Like exit signage, emergency lighting performs a critical function in helping people get to safety during an emergency. Emergency lighting is intended to operate on backup power for at least 30 minutes during periods without power.

Like exit signs, these units should be function tested monthly to ensure they operate and that their components are in working order. Additionally, these units require annual inspection and testing to ensure they will meet the installation requirements.

1.4 RECORDS RETENTION

Safety systems installed in your building that require periodic inspection or testing are required to have written records of those inspections or tests. These records must be retained and depending on the system and the inspection, the records must be retained for different time periods. Refer to the table below for detailed information on record retention.

SYSTEM	SERVICE	FREQUENCY	RETENTION
Fire Safety Plan (NFC(AE))	Full review and update	Annual	Current year
	Fire Drills: ▪ Daycares, ▪ Schools, ▪ High Buildings (over 6 storeys) ▪ Laboratories ▪ All other buildings	Monthly 3 in each fall/spring Every 2 Months Quarterly Annual	Current year of drills
Emergency Power Generators (CSA C282)	Commissioning	Installation	Life of system
	Weekly Inspection, Test, Maintenance: ▪ Consumables, ▪ Starter system, ▪ Batteries and charging equipment, ▪ Engine, ▪ Control Panel ▪ Air control settings	Weekly	40 weekly inspections of listed systems for current and previous year
	Monthly Inspection, Test, Maintenance: ▪ All weekly items, ▪ Entire system test,	Monthly	10 monthly inspections and tests of listed systems for current and previous year
	Semiannual Inspection, Test, Maintenance: ▪ All weekly items, ▪ All monthly items, ▪ Inspect engine crankcase breathers, ▪ Inspect engine linkages ▪ Lubrication ▪ Test protective devices	Semiannual	Current and previous year
	Annual Inspection, Test, Maintenance: ▪ All weekly items, ▪ All monthly items, ▪ All semiannual items, ▪ Full operational test of all systems, ▪ 2 hour load test	Annual	Current and previous year
	Quinquennial Inspection, Test, Maintenance: ▪ Full load test, ▪ Engine fluid replacement	5 years	Current and previous cycle

SYSTEM	SERVICE	FREQUENCY	RETENTION
Fire Separations (NFC(AE) and NFPA 80)	General closure maintenance	As needed	Life of the building
	Operational test of doors in fire separations	Monthly	Current and previous year
	Operational test of doors in fire separations equipped with self-close devices	Daily	Current and previous year
	Inspection of fire dampers	Annual	Current and previous year
	Testing of fire dampers	1 Year after installation and every 4 years thereafter	Current and previous cycle
Portable Fire Extinguishers (NFPA 10)	Check	Monthly	Life of tag
	Maintenance	Annual	Current and previous year
	Internal visual	6 year (dry chemical)	Life of extinguisher
	Hydrostatic test	12 year (dry chemical)	Life of extinguisher
Fire Alarm (CAN/ULC S524, S536, S537)	Verification	Installation	Life of system
	Inspection	Annual	Current and previous year
Sprinkler System (NFPA 25)	Commissioning	Installation	Life of system
	Quarterly Inspection: ▪ Gauges ▪ Supervisory signals ▪ Waterflow alarm	Quarterly	All four quarterly reports for each system retained for current and previous year.
	Annual Inspection: ▪ Hangars and support ▪ Hydraulic design ▪ nfo signs ▪ Pipe and fittings ▪ Sprinklers (installed) ▪ Sprinklers (spare)	Annual	Current and previous year
	Annual Test: ▪ Antifreeze solution ▪ Control valves ▪ Main drain ▪ Supervisory signals ▪ System valves	Annual	Current and previous year

SYSTEM	SERVICE	FREQUENCY	RETENTION
Sprinkler System (NFPA 25)	5 Year Test: ▪ Gauges	5 Year	Current and previous cycle
	Sprinkler Testing: ▪ High temp ▪ Harsh environment ▪ Dry ▪ Fast response ▪ All sprinklers	5 Years 5 Years 10 Years 20 Years 50 Years	Current and previous cycle
Standpipe (NFPA 25)	Commissioning	Installation	Life of system
	Inspection of all components	Annual	Current and previous year
	Testing of all components except those in 5 year testing cycles	Annual	Current and previous year
	5 Year Testing: ▪ Flow test ▪ Hose ▪ Hydrostatic test	5 Years	Current and previous cycle
Private Hydrant (NFPA 25)	Commissioning	Installation	Life of system
	Inspection	Annual and after every use	Current and previous year
	Flow Test	Annual	Current and previous year
	Piping Flow Test	5 Years	Current and previous cycle
Fire Pump (NFPA 25)	Commissioning	Installation	Life of system
	Weekly Inspections: ▪ Diesel/Electric/Steam pump systems ▪ Pump ▪ Pump house	Weekly	All 52 weekly inspections for each system for current and previous year
	Inspection of all fire pump components	Annual	Current and previous year
	Diesel engine or Electric motor	Weekly	All 52 weekly inspections for current and previous year
	Fuel tank float switch	Quarterl	All four quarterly reports for current and previous year.
	Testing of all fire pump components	Annual	Current and previous year

SYSTEM	SERVICE	FREQUENCY	RETENTION
Commercial Cooking System Ventilation Hood (NFPA 96)	Check	Installation	Life of system
	Grease buildup inspection: ▪ Solid fuel cooking (wood/charcoal) ▪ High-volume (24h, charbroil, wok) ▪ Moderate-volume ▪ Low-volume (churches, seasonal)	Monthly Quarterly Semiannual Annual	Current and previous year
	Hood cleaning: ▪ Solid fuel cooking (wood/charcoal) ▪ High-volume (24h, charbroil, wok) ▪ Moderate-volume	As required or: Monthly, Quarterly, Semiannual, Annual	Current and previous year
Commercial Cooking System Fire Suppression (NFPA 17A)	Commissioning	Installation	Life of system
	Owners inspection of: ▪ Components in correct locations ▪ No obstructions ▪ Tag or certificate present ▪ Blow-off caps in place	Monthly	All 12 monthly inspection reports for current and previous year
	Maintenance inspection	Semiannual	Current and previous year
	Hydrostatic testing of: ▪ Wet chemical containers, ▪ Auxiliary pressure containers ▪ Hose assemblies	12 Year	Current and previous cycle
Flammable and Combustible Liquids Tanks and Product Inventory (NFC(AE))	Permit for tanks with a volume of 230 L or greater	Installation	Life of the tank
	Registration for tranks with a volume of 2500 L or greater	Annual	Life of the tank
	Registration for all underground tanks	Annual	Life of the tank
	Flammable and/or combustible liquid inventory and water level in tank at places other than fuel dispensing stations	Weekly	At least three consecutive months of inventory records
	Flammable and/or combustible liquid inventory and water level in tank at fuel dispensing stations	Every day of operation	At least three consecutive months of inventory records

2.0 Preventing Fires

2.1 COMMON FIRE HAZARDS

2.1 COMMON FIRE HAZARDS

The majority of fire hazards stem from human behaviour. The things we do, or don't do, create situations or conditions which could cause a fire, or if a fire started, could make it worse. The following are a list of common fire hazards identified by inspectors. Addressing these hazards before they occur will help create a fire safe building.

- Exit door latches or hardware not functioning properly which can delay people from exiting a building.
- Materials blocking the exit, or access aisle which can delay people from exiting a building.
- Extra or non-compliant locking devices installed on the doors which can make an exit door inoperative.
- Storage inside an exit stairwell which could impede people from exiting, or could catch fire.
- Combustible materials accumulating in unsafe areas like elevator shafts, ventilation shafts, rooftops, and service rooms which could catch fire.
- Concealed spaces such as crawl spaces and ceiling spaces being used to store combustible materials which could catch or spread fire.
- Outdoor storage areas or equipment, like sheds or dumpsters, being located too close to buildings which endanger the building if a fire occurred in one of these spaces.
- Hot ashes or smokers materials being stored or disposed of improperly.
- Work requiring permits, such as electrical work, construction, or renovations being conducted without permit or qualified personnel.
- Excessive or long term use of extension cords. Extension cords are intended for temporary use only, and should not be used for permanent solutions.

2.2 EXTERIOR FIRE SAFETY

2.2 EXTERIOR FIRE SAFETY

One of the best ways to ensure a quick and timely response from the fire department in an emergency is to ensure the outside of your building is prepared for the arrival of emergency services. This section will introduce the requirements of the City of Edmonton Bylaws and the *National Fire Code – Alberta Edition.*

2.2.1 Fire Department Access

Every building is required to be accessible by a street, yard, or roadway by the *National Fire Code – Alberta Edition.* For most places in Edmonton these are public roads or parking lots. These access routes may require fire lanes which should be clearly identified with signs.

Other things the fire department will want to access include fire hydrants and fire department connections to your building. These features should be kept clear at all times. That may require additional signage.

2.2.2 Civic Address

As part of ensuring a timely response from emergency responders, the address for the building or business should be clearly legible from the access route. The City of Edmonton Bylaw No. 9668 has distinct requirements for the size and colour of addresses.

The requirements for address size depends on the distance from the access route, and whether or not the address is internally illuminated. In any case, the address must be visible from the access street, yard, or roadway.

DISTANCE BUILDING SETBACK FROM ADJACENT CURBLINE	MINIMUM CHARACTER SIZE (non-illuminated)	MINIMUM CHARACTER SIZE (internally illuminated)
0 – 15 m (0 – 49.2 ft.)	10 cm (4 in.)	7.5 cm (3 in.)
15 – 20 m (49.2 – 65.6 ft.)	15 cm (6 in.)	10 cm (4 in.)
Greater than 20 m (65.6 ft.)	20 cm (8 in.)	15 cm (6 in.)

These requirements are the primary requirements for addressing. However, Bylaw No. 9668 should be consulted for more information.

2.2.3 FIRE DEPARTMENT KEY BOX

2.2.3 Fire Department Key Box

A fire department key box is a requirement of the *National Fire Code – Alberta Edition.* These key boxes can only be opened by a key that Edmonton Fire Rescue Services personnel possess. The purpose of a fire department key box is to give emergency responders access and control of emergency systems. Not every building requires a key box.

If your building contains any of the following systems, a key box is required:

- Fire Alarm
- Sprinkler System
- Standpipe System
- Elevators with firefighter functions
- Stairways with locked doors on the stairway side
- Roof areas for firefighting purposes
- Sleep or resting facilities for employees

If your building contains any of the systems noted above, a key box is required with keys to all of the systems from that list that your building contains. Additionally, you will need to provide keys for the following:

- Main entrance
- Any locked doors between the main entrance and any of the systems noted above.

3.0
Fire Protection Systems

3.1 FIRE SEPARATIONS

3.1 FIRE SEPARATIONS

Fire separations exist throughout buildings to contain a fire if one should occur. There are many components which make part of a fire separation. These include walls, doors including hardware and closing devices, dampers, and windows. These separations usually exist in buildings to make a large building into smaller areas or compartments. Rooms and areas like service rooms, common corridors in residential buildings, the walls between suites, and stairwells are typically protected by fire separations which isolate these areas from the remainder of the building.

3.1.1 Fire Separation Closures

The most important thing about fire separations is that they remain intact to function. This means closures in fire separations such as doors and dampers should not be wedged, secured or blocked open. If a closure needs, or is desired to be opened at all times, then it should have an approved hold open device. These devices can activate under instruction from the fire alarm and release the door to close. It may seem like an inconvenience to constantly open a door you go through regularly, but it plays an important role in your safety.

3.1.2 Inspection and Maintenance of Fire Separations

Closures in fire separations have to be inspected at regular intervals to ensure they operate as intended. For your average fire separation closure, like a door to a stairwell, this should be every month. For a door equipped with a hold-open device, the inspection should be daily to ensure it releases the door and that the door closes. As part of the regular inspections of these doors, any obstructions such as blocks, or wedges should be removed.

Other components of a fire separation should be visually inspected at regular intervals for signs of any damage like holes, damaged components, or missing hardware. Any damage that's identified should be repaired as soon as possible.

SYSTEM	SERVICE	FREQUENCY	RETENTION
Fire Separations (NFC(AE) and NFPA 80)	General closure maintenance	As needed	Life of the building
	Operational test of doors in fire separations	Monthly	Current and previous year
	Operational test of doors in fire separations equipped with self-close devices	Daily	Current and previous year
	Inspection of fire dampers	Annual	Current and previous year
	Testing of fire dampers	1 Year after installation and every 4 years thereafter	Current and previous cycle

3.2 PORTABLE FIRE EXTINGUISHERS

Portable fire extinguishers are an essential fire safety device. They're meant to be a quick control measure for fires in their early phases. Portable fire extinguishers are required in all buildings.

3.2.1 Types and Locations of Fire Extinguishers

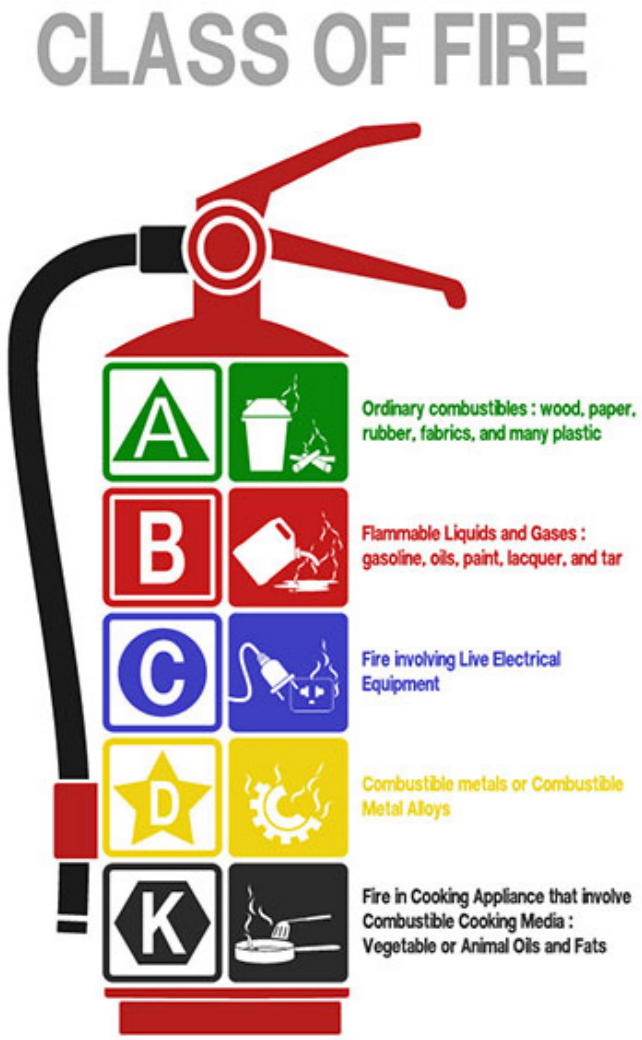
There are fire extinguishers for each class of fire, and many are rated for more than one class of fire. The size and weight of a fire extinguisher isn't as important as its rating. The minimum rating for most applications is **2-A:10-B:C.** This type of fire extinguisher works on most common hazards.

Fire extinguishers should be installed so that nobody has to travel more than 23 m (75 ft.) to access one. Even if they're closer together sometimes, it's necessary to have more than one extinguisher per area in a building. In general, it's a good idea to locate fire extinguishers near exits, and safety features like a fire alarm pull station.

3.2.2 Inspection of Portable Fire Extinguishers

For every fire extinguisher, there are different inspection and maintenance requirements. All fire extinguishers should be inspected monthly by the owner to ensure they're ready to work and accessible.

Maintenance requirements vary on the type of fire extinguisher. For a multipurpose (ABC) dry chemical fire extinguisher, annual maintenance is required. Every six years, the annual maintenance needs to include an



3.2 PORTABLE FIRE EXTINGUISHERS

internal visual examination of the extinguisher. Every twelve years, the annual maintenance and internal visual examination must also include hydrostatic testing.

3.2.3 Operation of Portable Fire Extinguishers

All portable fire extinguishers can be operated in the same manner, but if you ever forget, the instructions are always located on the label. Just remember PASS and follow these steps:

P – Pull the pin

A – Aim at the base of the fire

S – Squeeze the handle to activate the extinguisher

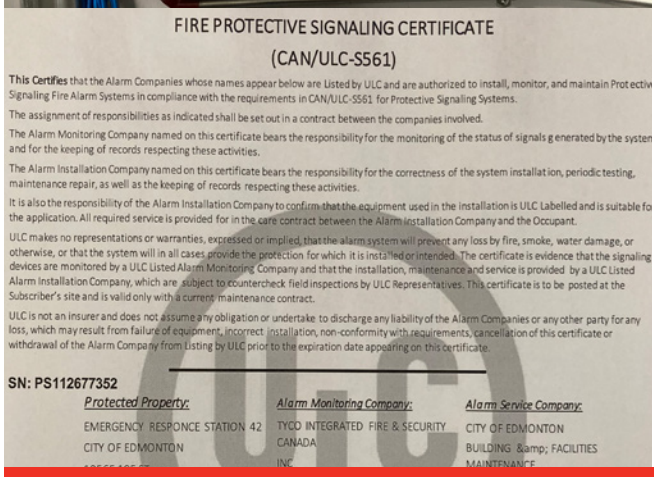
S – Sweep from side to side of the fire

3.2.4 Fire Extinguisher Maintenance Requirements

The following table details the regular maintenance required for portable fire extinguishers. The annual maintenance inspection is essential to diagnose other service requirements.

3.2.3 OPERATION OF PORTABLE FIRE EXTINGUISHERS

SYSTEM	SERVICE	FREQUENCY	RETENTION
Portable Fire Extinguishers (NFPA 10)	Check	Monthly	Life of tag
	Maintenance	Annual	Current and previous year
	Internal visual	6 year (dry chemical)	Life of extinguisher
	Hydrostatic test	12 year (dry chemical)	Life of extinguisher



FIRE PROTECTIVE SIGNALING CERTIFICATE

(CAN/ULC-S561)

This Certifies that the Alarm Companies whose names appear below are Listed by ULC and are authorized to install, monitor, and maintain Protective Signaling Fire Alarm Systems in compliance with the requirements in CAN/ULC-S561 for Protective Signaling Systems.

The assignment of responsibilities as indicated shall be set out in a contract between the companies involved.

The Alarm Monitoring Company named on this certificate bears the responsibility for the monitoring of the status of signals generated by the system and for the keeping of records respecting these activities.

The Alarm Installation Company named on this certificate bears the responsibility for the correctness of the system installation, periodic testing, maintenance repair, as well as the keeping of records respecting these activities.

It is also the responsibility of the Alarm Installation Company to confirm that the equipment used in the installation is ULC Labelled and is suitable for the application. All required service is provided for in the care contract between the Alarm Installation Company and the Occupant.

ULC makes no representations or warranties, expressed or implied, that the alarm system will prevent any loss by fire, smoke, water damage, or otherwise, or that the system will in all cases provide the protection for which it is installed or intended. The certificate is evidence that the signaling devices are monitored by a ULC Listed Alarm Monitoring Company and that the installation, maintenance and service is provided by a ULC Listed Alarm Installation Company, which are subject to countercheck field inspections by ULC Representatives. This certificate is to be posted at the Subscriber's site and is valid only with a current maintenance contract.

ULC is not an insurer and does not assume any obligation or undertake to discharge any liability of the Alarm Companies or any other party for any loss, which may result from failure of equipment, incorrect installation, non-conformity with requirements, cancellation of this certificate or withdrawal of the Alarm Company from Listing by ULC prior to the expiration date appearing on this certificate.

SN: PS112677352

Protected Property:	*Alarm Monitoring Company:*	*Alarm Service Company:*
EMERGENCY RESPONCE STATION 42 CITY OF EDMONTON	TYCO INTEGRATED FIRE & SECURITY CANADA INC	CITY OF EDMONTON BUILDING & FACILITIES MAINTENANCE

3.3 FIRE ALARM SYSTEMS

3.3 FIRE ALARM SYSTEMS

A Fire Alarm system is one of the most important safety systems which can be installed in a building. The fire alarm connects the various devices throughout a building and provides fast detection and early notification to occupants in the event of an emergency.

3.3.1 Inspection and Maintenance of Fire Alarms

The inspection and maintenance of fire alarms follows the CAN/ULC S536 standard. This standard requires fire alarms to undergo annual inspections and testing. The inspections and testing must be completed by a qualified individual or company. Qualified persons must be one of the following:

- Certified Alberta electrical journeyperson on or after September 1, 1991
- Certified Alberta electrical journeyperson before September 1, 1991 with a recognized fire alarm course by the Provincial Fire Administrator
- Certified Canadian Red Seal electrical journeyperson with a recognized fire alarm course by the Provincial Fire Administrator
- Certified Fire Alarm Technician by the Canadian Fire Alarm Association which has been properly maintained.

3.3.2 When Alarm Monitoring is Required

In some buildings fire alarms are required to be monitored by a ULC certified company. When monitoring is required, the certificate of monitoring must be displayed with the fire alarm, or the monitoring device in the building. Buildings requiring monitoring include the following:

- Buildings with an intended occupant load greater than 300
- Buildings with sprinkler or standpipe systems that are monitored by the fire alarm
- Buildings equipped with a 2-stage fire alarm system

3.3.3 Fire Alarm Maintenance Requirements

The following table details the maintenance requirements for fire alarm systems. The annual inspection and certification is essential for compliance. However, if new components are added they require a special inspection known as a verification.

SYSTEM	SERVICE	FREQUENCY	RETENTION
Fire Alarm (CAN/ULC S524, S536, S537)	Verification	Installation	Life of system
	Inspection	Annual	Current and previous year

3.4 SPRINKLER SYSTEMS

Sprinkler systems are an important and effective life safety system in buildings. Sprinkler systems save lives when they're working. In most cases, when they're not working it's due to a lack of water from improper maintenance, closed valves, or disruptions to local water supplies.

When functioning properly, a sprinkler system should contain a fire in the area it originated. This buys time for occupants to escape the building, and emergency responders to arrive and begin more comprehensive firefighting measures.

3.4.1 Types of Sprinkler Systems

There are many different types of sprinkler systems. The most common sprinkler systems are wet and dry sprinkler systems and they may have a variety of different sprinkler heads installed throughout the building. A wet sprinkler system is installed throughout a building and is filled with water all the time. When these systems are activated they discharge water immediately.

Dry systems are whole or partial systems that are in areas which may be subject to freezing temperatures where a wet system would freeze up. These systems are filled with air, and when activated quickly release the air and charge with water. Dry systems may be used in conjunction with wet systems in buildings that are heated, but have areas that could freeze like apartments and condos with unheated attic spaces.

3.4.2 Inspection, and Maintenance of Sprinkler Systems

Caring for your sprinkler system is essential to ensuring that it will operate as intended when needed. This means completing the regular and ongoing maintenance required. There are many components to a sprinkler system which require maintenance at different intervals. Within a year there are items which require monthly, quarterly, semiannual, and annual inspections. After a while the sprinkler heads themselves will need additional inspection or replacement.

3.4 SPRINKLER SYSTEMS

SYSTEM	SERVICE	FREQUENCY	RETENTION
Sprinkler System (NFPA 25)	Commissioning	Installation	Life of system
	Quarterly Inspection: ▪ Gauges ▪ Supervisory signals ▪ Waterflow alarm	Quarterly	All four quarterly reports for each system retained for current and previous year.
	Annual Inspection: ▪ Hangars and support ▪ Hydraulic design ▪ nfo signs ▪ Pipe and fittings ▪ Sprinklers (installed) ▪ Sprinklers (spare)	Annual	Current and previous year
	Annual Test: ▪ Antifreeze solution ▪ Control valves ▪ Main drain ▪ Supervisory signals ▪ System valves	Annual	Current and previous year
Sprinkler System (NFPA 25)	5 Year Test: ▪ Gauges	5 Year	Current and previous cycle
	Sprinkler Testing: ▪ High temp ▪ Harsh environment ▪ Dry ▪ Fast response ▪ All sprinklers	5 Years 5 Years 10 Years 20 Years 50 Years	Current and previous cycle
Standpipe (NFPA 25)	Commissioning	Installation	Life of system
	Inspection of all components	Annual	Current and previous year
	Testing of all components except those in 5 year testing cycles	Annual	Current and previous year
	5 Year Testing: ▪ Flow test ▪ Hose ▪ Hydrostatic test	5 Years	Current and previous cycle
Private Hydrant (NFPA 25)	Commissioning	Installation	Life of system
	Inspection	Annual and after every use	Current and previous year
	Flow Test	Annual	Current and previous year
	Piping Flow Test	5 Years	Current and previous cycle

SYSTEM	SERVICE	FREQUENCY	RETENTION
Fire Pump (NFPA 25)	Commissioning	Installation	Life of system
	Weekly Inspections: ▪ Diesel/Electric/Steam pump systems ▪ Pump ▪ Pump house	Weekly	All 52 weekly inspections for each system for current and previous year
	Inspection of all fire pump components	Annual	Current and previous year
	Diesel engine or Electric motor	Weekly	All 52 weekly inspections for current and previous year
	Fuel tank float switch	Quarterl	All four quarterly reports for current and previous year.
	Testing of all fire pump components	Annual	Current and previous year

3.5 COMMERCIAL COOKING SYSTEMS

Commercial cooking systems are required any time your cooking operations produce more grease-laden vapours than an average household. These systems are engineered and purpose built, and must be installed correctly by certified persons. Modifications to the system once it's installed must also be completed through a permit, and by certified persons. Cutting a hole in a hood system to attach another appliance voids the protection of the system.

3.5.1 Vent Hood Cleaning

When performing commercial cooking, grease and grease-laden vapours are the greatest concerns. However, all cooking produces vapours that may cool, condense, and stick to cooking surfaces. Sometimes the fuel used, such as wood or charcoal, can produce particulates too. In any case, it depends on what kind of cooking, and how frequent the cooking operations occur that determine the cleaning schedule for the ventilation hood system. The table below sets out the inspection frequency, and cleaning will most likely be required on the same schedule.

The cleaning required in the table above will require a certified person or company, but some cleaning can be completed by employees. The ventilation filters, the grease traps, and the surfaces of the cooking equipment can all be cleaned by employees. Everything else behind the filters, the suppression equipment, and the vent duct to the exhaust must be cleaned by professionals.

TYPE OR VOLUME OF COOKING	INSPECTION FREQUENCY
Vent hood systems for solid fuel cooking operations ▪ Wood and charcoal fuels are an example	Monthly
Vent hood for high volume cooking operations ▪ 24 hour cooking, charbroiling, and wok cooking are examples	Quarterly
Vent hood systems for moderate volume cooking operations ▪ Most restaurants operating regular hours are an examples	Semiannually
Vent hood systems for low volume cooking operations ▪ Churches, day camps, seasonal businesses, and senior centres are examples	Annually

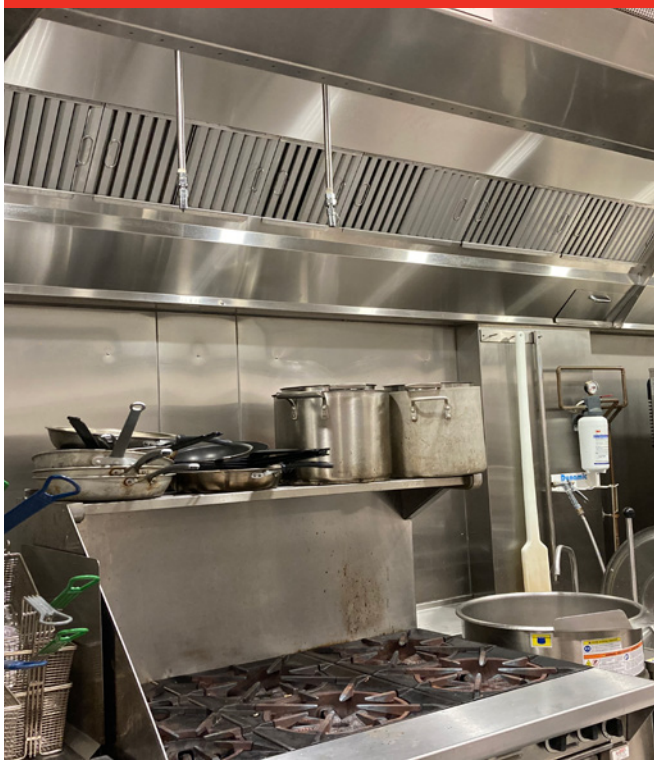
3.5.2 When do I Need Suppression Systems

When the commercial cooking operations produce grease-laden vapors, the ventilation hood and cooking equipment may need to be protected with a wet-chemical fire suppression system. These systems are designed to operate automatically, or manually. Wherever one of these systems is installed it must be maintained properly. This includes inspections and maintenance every six months. The pull stations should be kept clear and accessible at all times, and staff should be trained on the operation of the kitchen systems. Wherever one of these systems is installed, a special class K portable fire extinguisher should also be installed as backup to the suppression system.

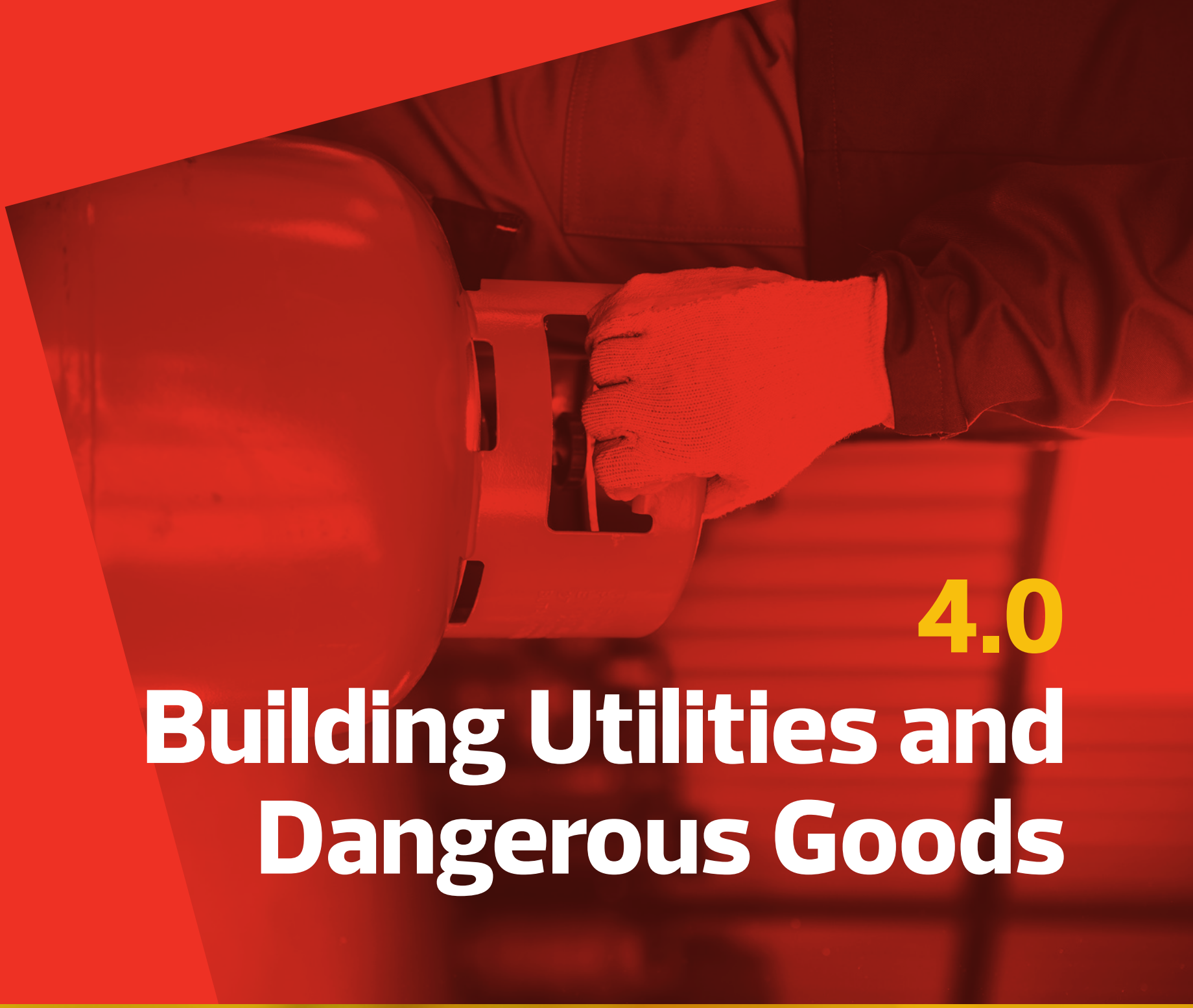
3.5.3 Commercial Cooking Ventilation and Suppression System Maintenance

The following table details the maintenance requirements for commercial cooking ventilation systems, and commercial cooking suppression systems. In general the required inspections are semi-annual, and include the service inspection of the Class K portable fire extinguisher.

3.5 COMMERCIAL COOKING SYSTEMS



SYSTEM	SERVICE	FREQUENCY	RETENTION
Commercial Cooking System Ventilation Hood (NFPA 96)	Check	Installation	Life of system
	Grease buildup inspection: ▪ Solid fuel cooking (wood/charcoal) ▪ High-volume (24h, charbroil, wok) ▪ Moderate-volume ▪ Low-volume (churches, seasonal)	Monthly Quarterly Semiannual Annual	Current and previous year
	Hood cleaning: ▪ Solid fuel cooking (wood/charcoal) ▪ High-volume (24h, charbroil, wok) ▪ Moderate-volume	As required or: Monthly, Quarterly, Semiannual, Annual	Current and previous year
Commercial Cooking System Fire Suppression (NFPA 17A)	Commissioning	Installation	Life of system
	Owners inspection of: ▪ Components in correct locations ▪ No obstructions ▪ Tag or certificate present ▪ Blow-off caps in place	Monthly	All 12 monthly inspection reports for current and previous year
	Maintenance inspection	Semiannual	Current and previous year
	Hydrostatic testing of: ▪ Wet chemical containers, ▪ Auxiliary pressure containers ▪ Hose assemblies	12 Year	Current and previous cycle



4.0
Building Utilities and Dangerous Goods

4.1 ELECTRICAL INSTALLATIONS AND APPLIANCES

Electrical installations and appliances are the items which need electricity to run, or provide electricity to other items in your home or or workplace. All electrical devices should be certified for their intended use. The major certifying companies in Canada are the Underwriters Laboratories of Canada (ULC), the Canadian Standards Association (CSA) or Intertek ETL. Electrical devices bearing these markings have been tested and certified to Canadian standards and deemed safe for use.

Before using any electrical device, even those certified for use in Canada, you should first consult the owners manual. In addition to any requirements of the *National Fire Code – Alberta Edition*, the owners manual may provide information on the safe use of the device. This could include things like clearances that should be maintained around the device, warnings for the type or purpose of use, and maximum durations which the device can be in use. The owners manual will also provide all necessary information on how to properly maintain the device.

4.1.1 Common Issues with Electrical Installations and Appliances

The most common issue with electrical installations and appliances is using the device in a way other than it was intended. This can cause overheating, or an overload, which can damage the device or cause a fire.

4.1.1.1 Extension Cords

Extension cords are intended to provide temporary power only. These devices are not meant for permanent installations. They are considered to be permanent if they are secured in place, or go through a wall, door, window, or ceiling. Extension cords should not be energized when coiled up, but extended out. This is to help dissipate any heat that builds up when energized. Damaged extension cords should be removed and safely discarded. Another common issue with extension cords is linking multiple extension cords together to make a longer cord.

In general it is recommended that if you find that you are dependent on the use of an extension cord, you should have an electrician install additional outlets or devices as necessary.

4.1.1.2 Multi-taps or Power Bars

Similar to extension cords, multi-taps or power bars are electrical devices which extend the capabilities of a regular outlet. Some multi-taps or power bars are equipped with overcurrent protection, commonly referred to as circuit breakers. These devices will activate if too much power is drawn, or if they overheat.

In general a multi-tap or power bar is a safer device than an extension cord if it's equipped with a circuit breaker. However, just because a multi-tap or power bar has multiple available outlets, doesn't mean it can safely operate all of them at the same time. Care should be taken not to overload multi-taps and power bars.

4.1.1.3 Appliances

Different appliances have different purposes and concerns. To best use any appliance, you should consult the owners manual for operating concerns. One common issue encountered is using residential appliances for commercial purposes such as home cooking appliances for commercial cooking operations. These appliances are not designed to operate for the periods of time that commercial applications require.

Another common consideration is the use of high-wattage appliances such as kettles, microwave ovens, and portable space heaters. These appliances require a lot of energy to operate and may draw more power than the circuits can provide. These appliances should be plugged directly into a wall outlet, and not extension cords or multi-taps or power bars.

4.1.2 Electrical Installations

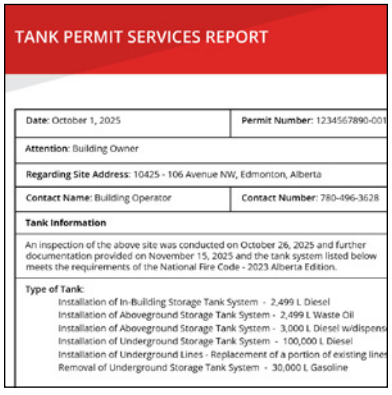
When a new electrical installation is required, a certified electrician must make the installation or connection to existing circuits. These types of connections may also require a permit. This could be installing new electrical outlets, upgrading existing wiring or circuits, and installing some appliances. All commercial installations are required to be completed under permit by certified electricians.

4.2 FLAMMABLE AND COMBUSTIBLE LIQUIDS AND STORAGE TANKS

The storage, handling, and use of flammable and combustible liquids represents a special hazard in any occupancy, whether they're stored, handled or used indoors or outdoors. For that reason the *National Fire Code – Alberta Edition* regulates flammable and combustible liquids carefully.

Where flammable and combustible liquids are stored there are requirements on how much can be stored, whether the liquids can be stored together, and there may be additional requirements for storage tanks to have permits or be registered with Edmonton Fire Rescue Services.

4.2.1 Permits for Storage Tanks


TANK PERMIT SERVICES REPORT

Date: October 1, 2025 | Permit Number: 1234567890-001

Attention: Building Owner

Regarding Site Address: 10425 - 106 Avenue NW, Edmonton, Alberta

Contact Name: Building Operator | Contact Number: 780-496-3628

Tank Information

An inspection of the above site was conducted on October 26, 2025 and further documentation provided on November 15, 2025 and the tank system listed below meets the requirements of the National Fire Code - 2023 Alberta Edition.

Type of Tank:
Installation of In-Building Storage Tank System - 2,499 L Diesel
Installation of Aboveground Storage Tank System - 2,499 L Waste Oil
Installation of Aboveground Storage Tank System - 3,000 L Diesel w/dispens
Installation of Underground Storage Tank System - 100,000 L Diesel
Installation of Underground Lines - Replacement of a portion of existing line
Removal of Underground Storage Tank System - 30,000 L Gasoline

Any storage tank containing flammable or combustible liquids with a volume of 230 L (60 Gal), and all underground storage tanks, requires a permit for installation or alteration. A permit ensures that a tank is installed correctly by involving Fire Prevention Officers early in the installation. Fire Prevention Officers will require detailed plans and specifications of the installation, and ensure that the tank is installed by a certified petroleum mechanic.

City of Edmonton Flammable/Combustible Liquid Storage Tank Permits

Please note that a permit application does not grant permission to install or utilise a tank. A tank permit must be issued by Edmonton Fire Rescue Services in order for a tank to be installed. Once the tank is installed, a Permit Services Report is required before a tank can be filled or utilised.

It is important to note that if any portion of the tank system is located underground or within a building, signed and/or sealed drawings are required as part of the tank permit application. This includes tank system components located within buildings for the collection and evacuation of used oil (such as catch basins). Drawings must be authenticated by a registered engineering professional, as defined in the National Building Code – Alberta Edition.

The installation and subsequent use of flammable/combustible liquid storage tanks without a permit is a direct violation of the Safety Codes Act and the *National Fire Code – Alberta Edition* and could result in fees and/or fines.

4.2.1.1 Certified Petroleum Mechanics

The installation or alteration of new or existing storage tanks must be performed by Certified Petroleum Mechanics. These mechanics must have a valid CPCA, PTMAA or TSSA certification. Visit the links below to find companies who are capable of providing certified services.

Directory of Aboveground Storage Tank Installation Companies

Directory of Underground Storage Tank Installation Companies

CPCA Certified Petroleum Mechanics Registry

4.2.2 Registration for Storage Tanks


City of Edmonton
Tank Registration Certificate

Registration Number: 1234567890
Business Name: City Of Edmonton
Business Address: 10425 106 Avenue NW
Owner Name: Edmonton Fire Rescue Services

Tank #	Type	Material	Specification	Contents	Volume (L)	Status	Expiry
1	Aboveground	Steel	ULC 601	Diesel	4,500	Active	8/31/2025

Edmonton Fire Rescue Services is to be notified of any changes to the storage tanks at this location at fueltankinquiries@edmonton.ca

Any storage tank containing flammable or combustible liquids with a volume of 2500 L (660 Gal), and all underground storage tanks, require registration which is renewed annually. Registration ensures that the storage tank is maintained correctly, and that the City of Edmonton meets its requirements under the *National Fire Code – Alberta Edition* to monitor the inventory of storage tanks within the city.

4.2.3 Storage Tank Resources

The following checklist provides important information and guidance for the installation, use, and decommissioning of storage tanks for flammable or combustible liquids. If after review of the information in this manual and the links below, you have further questions about storage tanks for flammable or combustible liquids, you can contact the Edmonton Fire Rescue Services Tanks group at fueltankinquiries@edmonton.ca.

Aboveground Storage Tanks Checksheet

In-Building Storage Tank – General Requirements Check Sheet

In-Building Storage Tank – Supplying Appliances Requirements Check Sheet

Underground Tanks Checksheet

Underground Storage Tank Removal/ Decommissioning Report

4.2.4 Inspection and Maintenance of Tank Systems

The following table is a summary of the required permits, registration, and inventory and leak monitoring.

SYSTEM	SERVICE	FREQUENCY	RETENTION
Flammable and Combustible Liquids Tanks and Product Inventory (NFC(AE))	Permit for tanks with a volume of 230 L or greater	Installation	Life of the tank
	Registration for tranks with a volume of 2500 L or greater	Annual	Life of the tank
	Registration for all underground tanks	Annual	Life of the tank
	Flammable and/or combustible liquid inventory and water level in tank at places other than fuel dispensing stations	Weekly	At least three consecutive months of inventory records
	Flammable and/or combustible liquid inventory and water level in tank at fuel dispensing stations	Every day of operation	At least three consecutive months of inventory records

4.3 COMPRESSED GAS CYLINDERS

Dangerous goods are discussed in the following section, and the requirements of dangerous goods apply to compressed gases. However, there are some unique requirements for compressed gases that apply in addition to those requirements. This section will explain those requirements.

4.3.1 General Requirements for Compressed Gases

The *National Fire Code – Alberta Edition* has requirements that apply to all compressed gas cylinders regardless of their contents, or location indoors or outdoors. These general requirements are to protect the lives of the people in and around buildings, and to prevent the release of compressed gases.

Compressed gas cylinders are not permitted to be stored within 1 m (3 ft.) of any exit. This includes access to exits such as aisles and corridors which lead to exits. The only exception to this rule is portable fire extinguishers are permitted to be located in these areas.

Cylinders that are not in use must also be protected from valve damage. This means the installation of valve caps so the valve assembly cannot be damaged or opened accidentally. This also protects the valves in the instance that a cylinder is knocked over.

Lastly, cylinders in storage must be secured to prevent tipping over. Multiple cylinders can be secured together, provided the method to secure them will prevent them all from accidentally tipping over.

4.3.2 Indoor Storage of Compressed Gases

When compressed gases are stored indoors, the *National Fire Code – Alberta Edition* recognizes compressed gases in two broad categories. These are: "Flammable Gases" and "Anhydrous Ammonia and Toxic or Oxidizing Gases"

4.3.2.1 Flammable Gases

Flammable gases are those gases that have a primary hazard of fire. These gases form ignitable, or explosive mixtures with air and include gases like acetylene, ethylene, hydrogen, and many others. These gases should be stored in a specially designed room which is separated from the remainder of the building, and only entered from the exterior of the building. These special storage rooms are designed to be well ventilated, and even withstand an explosion.

Propane is regulated under a different code, but that code adheres to all of the same provisions. However, heavier than air gases like propane, represent a special and extreme explosion hazard. These heavier than air gases are not allowed to be stored indoors. The only exception is small volume cylinders, like those for blowtorches or camping stoves, in places of retail.

4.3.2.2 Anhydrous Ammonia and Toxic or Oxidizing Gases

The gases in this category may catch fire, or support fire, but their primary hazard is generally one other than their flammability. Like cylinders containing flammable gases, these cylinders must also be stored in a specially designed room that is separated from the remainder of the building, and can only be entered from the outside. This room has to be equipped with sufficient ventilation to prevent a buildup of dangerous gases in the event of a leak.

Unlike flammable gas storage rooms, this room is not required to be designed to withstand explosion. However, this room cannot be used for the storage of any combustible materials. This includes any packaging for transporting the cylinders if necessary.

4.3.3 Outdoor Storage of Compressed Gases

Outdoor compressed gas storage is generally safer, and larger volumes of compressed gas can be stored. For that reason, the *National Fire Code – Alberta Edition* focuses primarily on separating the stored gases from building openings so leaked gases cannot enter the building. These cylinders must be installed safely on noncombustible platforms, and in a fenced enclosure.

When gases are stored under pressure, they are known as compressed gases. When released to the atmosphere they expand. The amount they expand is called the expansion ratio. Every gas has a different expansion ratio which is why each must be considered separately. However, the more compressed gas that is stored, the greater the requirement for separation distance from buildings. This is because of how much that gas will expand if it's released.

4.4 DANGEROUS GOODS

Dangerous goods are those materials which present a special danger, but are necessary in our day-to-day lives, or special circumstances to do various tasks. These include anything from simple household cleaners, to industrial chemicals. In general, the term 'dangerous goods' denotes a large quantity or a serious hazard. In the United States, these goods are referred to as 'Hazardous Materials', and often the terms are used interchangeably.

In Canada, the transportation of dangerous goods is governed by the Transportation of Dangerous Goods Act and its regulations. However, once those goods are at a place to be used, or sold, the storage, handling, and use falls under the jurisdiction of the *National Fire Code – Alberta Edition.*

4.4.1 *National Fire Code – Alberta Edition* Requirements for Dangerous Goods

This section will briefly describe some of the key safety concerns for dangerous goods addressed in the National Fire Code – Alberta Edition. This is not an exhaustive list of requirements, and a Fire Prevention Officer should be consulted for further information.

In general, areas where dangerous goods are stored or used must be designed and constructed in a way that if a spill or release of the dangerous goods were to occur, it would not have a dangerous reaction, harm people, or damage property. This may require chemically resistant materials used for flooring or storage surfaces, increased or specialized ventilation equipment, and clear signage that indicates what the hazard is, and any other controls that may be necessary.

The National Fire Code – Alberta Edition also has requirements around the quantity of any dangerous goods that can be stored, and whether or not materials of different categories can be stored near each other, in the same room or if they need to be in a separate building. The compatibility of materials is important to understand, as some dangerous goods will react with water or other dangerous goods potentially causing a serious fire or health concern.

4.4.2 Department of Transportation Hazard Classifications

In North America, dangerous goods are categorized into nine categories. These categories are prioritized by risk of explosion, fire, and health hazards. For each category there are specific requirements for storage, handling, and use. To help identify each category there are placards with different colours, symbols, and numbers which correspond to the table on the following page.

DOT CLASS	CATEGORY	DESCRIPTION OF CATEGORY	DOT PLACARD	WHIMIS SYMBOL
1	Explosives	Materials that can rapidly release energy in the form of heat, light, sound, or gas – otherwise known as an explosion. ***Example: dynamite, and fireworks***		
2	Gases	Gaseous materials that can be flammable, non-flammable, toxic, or may pose an inhalation hazard ***Example: acetylene, and oxygen***		
3	Flammable Liquids	Liquid materials that can easily ignite, burn, and spread fire. ***Example: gasoline, and diesel***		
4	Flammable Solids	Solid materials that can burn readily or react with other substances to cause a fire. ***Example: magnesium, and lithium***		
5	Oxidizers and Organic Peroxides	Materials that can cause or promote combustion in other materials, or materials that can release or fill the role of oxygen in combustion. ***Example: chlorine, and fertilizer***		
6	Toxic and Infectious Substances	Materials that can cause harm if inhaled, ingested, or absorbed. ***Example: pesticides, and biohazardous waste***		
7	Radioactive Materials	Materials that emit ionizing radiation. ***Example: nuclear fuel, and radioactive waste***		
8	Corrosives	Materials that can cause damage to other materials or skin upon contact. ***Example: acids, and bases***		
9	Miscellaneous	Materials that don't fit into any of the other classes but still pose a hazard, or small quantities of materials of multiple categories that are packaged together.		

5.0 Acknowledgements

Photos courtesy of the following contributors:

City of Edmonton

Commonwealth Recreation Centre

Ellerslie Integrated Fleet Services

Air Liquide

Christian Labour Association of Canada

Getty Images