

Calgary Fire Department

Indoor Events Guide

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## Introduction

This guide is intended for indoor special events including the requirements for trade shows, music concerts, religious gatherings, and any other special event with public assemblage. Establishing the criteria that organizers of indoor special events and assemblies must meet. Satisfying the requirements of the National Fire Code and all other reference documents for the purpose of safe, compliant, and entertaining indoor events within the City of Calgary.

## On-Site Review and Inspection

Prior to the event, an on-site inspection shall be done by a CFD Fire Safety Codes Officer (Fire SCO) and relevant event staff and/or organizers, to confirm and review the indoor event requirements and provided floor plans.

Once the event has opened, scheduled and unscheduled daily visits by a CFD Fire SCO may be conducted.

If the authority having jurisdiction (AHJ) determines that a requirement does not ensure reasonable safety, it may be modified if its application poses a hazard under normal occupancy conditions. The AHJ or Fire Safety Codes Officer can alter occupancy or interrupt operations for any safety concerns, whether imminent or ongoing, before, during, or after an event.

## Floor Plan Review and Approval

Submitted floor plans for review must contain the below requirements. Modifications to approved plans must be detailed and will require review by the CFD prior to utilization of the changed plan. Copies of the approved plans will be stamped and returned to the event coordinator prior to set-up. Approvals may be subject to final inspection by a CFD Fire SCO at the expense of the event organizer.

Floor plans must include the following information:

1. Detailed physical layout of the event to include exhibit/booth floor plans.
2. All measurements must be in metric.
3. Floor plans must specify:
  - Access to exits, exit size and locations.
  - Booth layout (to scale) of the entire show.
    - Location and dimensions of all aisles and cross aisles. (Aisles shall be a minimum of 2.5 m wide with 3.5 m for the main aisles at front and rear of exhibit hall.)
  - Size and location of stages or other performing areas.
    - Location and accessibility of all required fire alarm 'pull stations, fire extinguishers and fire department standpipe connections and cabinets.
  - Travel distance to means of egress and/or exits





## Fire Protection

- Fire extinguishers, hose cabinets, fire hose standpipe connections and other fire appliances shall be maintained, clearly visible and accessible at all times. A minimum of 1 metre clearance shall be provided with full frontal access to firefighting equipment.
- Vehicles, RV's, trailers and booths that include tents, canopies and/or other structures inside a building having between 9.3 m<sup>2</sup> (100 ft.<sup>2</sup>) and 27.9 m<sup>2</sup> (300 ft.<sup>2</sup>) of roof, ceiling or other obstruction shall be provided with a listed single smoke alarm.
- Vehicles, RV's, trailers and booths that include tents, canopies and/or other structures inside a building having between 9.3 m<sup>2</sup> (100 ft.<sup>2</sup>) and 27.9 m<sup>2</sup> (300 ft.<sup>2</sup>) of roof, ceiling and/or other obstruction with **a source of ignition** shall be provided with a listed single smoke alarm plus a 2A-10BC fire extinguisher.
- Any booth utilizing cooking and/or warming appliances shall have a 2A-10BC extinguisher. A "K" Class fire extinguisher is required if oil and/ or fats are being used or if grease laden vapours are produced.
- A 2A-10BC fire extinguisher rating shall be located within 7.5 m of a propane cylinder.
- All extinguishers must be listed, labelled and inspected annually by accredited service provider.

## Trade Shows

Indoor trade shows and exhibitions with temporary vendor displays or booths within any indoor occupancy classification shall be in accordance with the CFD Indoor Guide and documents reference herein.



## Tents/Canopy/Booths

- Tents and canopies must be approved for indoor use and have a permanently attached label indicating conformance to CAN/ULC-S109, “Flame Tests of Flame-Resistant Fabrics and Films”.
- Tents and air-supported structures shall not be erected closer than 3 m to other structures on the same property
- Tents and air-supported structures NOT occupied by the public
  - a. need not be separated from one another, and
  - b. are permitted to be erected less than 3 m from other structures on the same property provided this spacing does not create a hazard to the public.
- Tents and air-supported structures shall be sufficiently distant from one another to provide an area to be used as a means of emergency egress.
- Booths that include tents, canopies and/or other structures inside a building shall not be constructed with any roof, ceiling or other obstruction larger than 27.9 m<sup>2</sup> (300 ft.<sup>2</sup>) without written approval of the CFD.

## Decorative Material

Decorative material, such as, but not limited to, drapes, theatre curtains, signs, banners, acoustical material, hay/straw, split bamboo, table cloth, plastic cloth, plastic displays, canvas, cardboard, etc, shall be of flame retardant material conforming to CAN/ULC-S109, “Flame Test of Flame-Resistant Fabrics and Films”, or shall be treated and maintained in a flame retardant condition by means of a flame retardant solution to ensure the material will pass the match flame test in NFPA 705, “Field Flame Test for Textiles and Films.”

- Samples to be provided and Field Flame Test to be conducted upon request of CFD and/or AHJ.
- Plastics cloth and certain other plastic materials, tar-paper, nylon, oilcloth, etc. cannot be rendered flame retardant and are prohibited.
- Combustible materials that are 10 mm ( $\frac{3}{8}$  in.) or more in thickness or glass may be used without flame retardant treatment. Exception: paper, cardboard, or foam products.
- Any material may be subject to testing. Materials in violation shall be immediately removed from the building.





## Exiting/Aisles

- All required “EXIT” signs shall be visible from any location in the room. Drapes, curtains or displays shall not obstruct view of “EXIT” signs. Temporary directional “EXIT” signs may be required to clearly indicate the direction of egress.
- Any additional “EXIT” signs should match the existing signs of the room.
- Exits and aisles shall be clear and free of obstructions and trip hazards.
- If there are over 1,000 people in attendance then the front of hall and back of hall main aisles shall be 3.5 m wide and all other aisles shall be a minimum of 2.5 m wide.
- If under 1,000 people in attendance then front of hall and back of hall main aisles should be 2.5 m wide and all other aisles shall be a minimum of 1.1 m wide.

## Motorized/Non-Motorized Vehicles

Events with displayed motorized vehicles shall comply with the following:

- Vehicles shall not be started or operated within any assembly building during show hours without the written approval of CFD.
- Adding or removing fuel on site or indoors is prohibited.
- Vehicle fuel shall not exceed one quarter (25%) of the tank capacity or 20 L whichever is less.
- All fuel tank openings shall be locked or sealed to prevent the escape of vapours.
- All fuel tank openings shall be locked or sealed to prevent unauthorized tampering.
- Vehicles fueled by LPG/LNG are not permitted in assembly occupancies unless tanks are empty.
- Vehicle batteries shall be rendered inoperable. Batteries in liquid and gas fueled vehicles shall be disconnected. Batteries in electric vehicles shall be rendered inoperable by the removal of fuses or other approved methods but shall not be required to be disconnected.



## Electric Vehicles (Cars, Bikes, Scooters, Etc.) & Lithium-Ion Batteries

### Charging Infrastructure

- **Use Certified Equipment:** Ensure that all EV charging equipment complies with relevant safety standards, such as UL 2594 and CSA C22.2 No. 280, which cover the safety and performance requirements for EV charging systems. These standards ensure that the equipment is safe for use and meets necessary safety criteria.
- **Inspect Charging Stations:** Before use, inspect EV charging stations and equipment for any damage or wear. This practice is crucial to prevent potential electrical hazards.

### Charging Procedures

- **Charging of Batteries:** Charging of batteries in Cars, Motorcycles, Scooters, etc. shall be prohibited indoors (i.e. Batteries with more than 45Ah capacity.)
- **Charge During Non-Show Hours:** Charging of smaller batteries (less than 30Ah) only during non-show hours when the exhibit is manned by staff. This reduces the risk of unattended electrical issues.
- **Avoid Overnight Charging:** Do not charge batteries overnight when the show is closed. This practice helps minimize the risk of overheating or electrical failures.
- **Use Proper Cords and Hardware:** Employ undamaged electrical cords and hardware rated for the expected load. Ensure that safety devices, such as circuit breakers, are not bypassed.
- **Unplug Before Full Charge:** Unplug EVs before reaching a full charge or 80%, keep the battery charge between 20% and 80% for display purposes. This range helps ensure the vehicle remains operational for the duration of the event while minimizing risks associated with overcharging or deep discharging.
- **Use Dedicated Charging Stations:** Only use dedicated charging stations as recommended by the manufacturer, which ensures compatibility and safety.

### Battery Management

- **Follow Manufacturer Instructions:** Adhere to the manufacturer's guidelines for charging and handling lithium-ion batteries. This includes using approved chargers and avoiding overcharging.
- **Certified Charging Devices:** Only use charging devices with recognized Canadian certification marks (e.g., CSA, cUL, cETL) to ensure safety and compliance with standards.
- **Avoid Soft Surfaces:** Do not charge batteries on soft surfaces, which can trap heat and increase fire risk.
- **Monitor for Damage:** Regularly check batteries for signs of overheating, odor, discoloration, or leakage. Do not use or charge batteries exhibiting any of these issues.
- **Remove Batteries When Not in Use:** If recommended by the manufacturer, remove batteries from devices when they are not in use for extended periods to reduce risk.
- **Transportation in Elevators:** Batteries shall not be transported, whether in vehicles or out, in occupied elevators to ensure safety and prevent potential hazards.

This section of the guide is subject to change at the discretion of the authority having jurisdiction as new information regarding electric vehicles and lithium-ion batteries becomes available.



## Electrical

All electrical fixtures and appliances must be approved and carry the appropriate ULC or CSA listing:

- Three wire (grounded) cords shall not be plugged into two (2) wire extension cords.
- Extension cords shall not run under carpets/rugs unless designed to be used in these locations. (Flat Conductor Cable Type FCC)
- There shall be sufficient clearance from lights or other heat sources to any combustible or display materials to prevent any possible ignition or heat damage (melting).
- All electrical plugs and cords shall be free from defects. Only listed electrical devices and cords shall be allowed.

## Propane

- Pressurized tanks and other similar hazards shall be properly secured to prevent tipping over or damage. Portable holders will be allowed.
- A cylinder shall be labeled “Propane”, “Liquid Petroleum (LP) Gas”, or “Danger: flammable gas”. This label shall be easily readable and affixed in a conspicuous location.
- A cylinder in use within a building shall not be located within 15 m of an exit or stairway.
- A cylinder containing a maximum of 20 lbs of propane and not connected to any other cylinder may be used indoors to supply propane to an appliance.
- When a cylinder is not connected for use, the valve shall be closed and it shall be stored outdoors.
- Connections at a cylinder, and at the appliance connected to the cylinder, shall be tested for leaks with a leak detection solution or any other leak detection method at the time the cylinder is connected.

Event organizers will need the approval and sign off from a certified City of Calgary Gas & Plumbing inspector if propane or any other flammable gases are being used in their event.

## Storage

Storage of packing materials and surplus literature shall be confined to areas that are coordinated with the Facility Staff and approved by the CFD.



## Indoor Cooking & Indoor Mobile Food (Food Trucks)

- Cooking and/or warming appliances shall be listed and labelled for commercial use (not residential) by a recognized testing laboratory (e.g. CSA or ULC). Residential appliances shall only be permitted if they are part of the demonstration and approved by the CFD.
- Cooking and/or warming appliances shall be electric. Sterno fuel may be used for warming trays; other open flame devices are prohibited without appropriate approval and/or permits from the CFD.
- The surfaces, on which cooking and/or warming appliances are located, shall be constructed and arranged such that their proximity to combustibles will not pose a fire danger. When cooking equipment generates high temperature heat, the surface will be provided with adequate protection.
- Cooking and/or warming appliances, except for electric or sterno fuel chafing dishes, shall be isolated from the public, having a minimum of 1m separation on all sides, or by providing a sturdy, mounted separation shield between the device and the public.
- Cooking and/or warming appliances that produce grease laden vapours must meet NFPA 96 requirements, "Ventilation Control and Fire Protection of Commercial Cooking Operations."
- Grease discharge at the exhaust duct of a test hood placed over the appliance shall not exceed 5 mg/m<sup>3</sup> when operated with a total airflow of 0.236 m<sup>3</sup>/s (500 cfm)
- All cooking vendors will require final approval from the CFD.



## Occupancy

- The number of persons allowed within any event shall not exceed the occupant load permitted for the facility.

## Event Management Plan

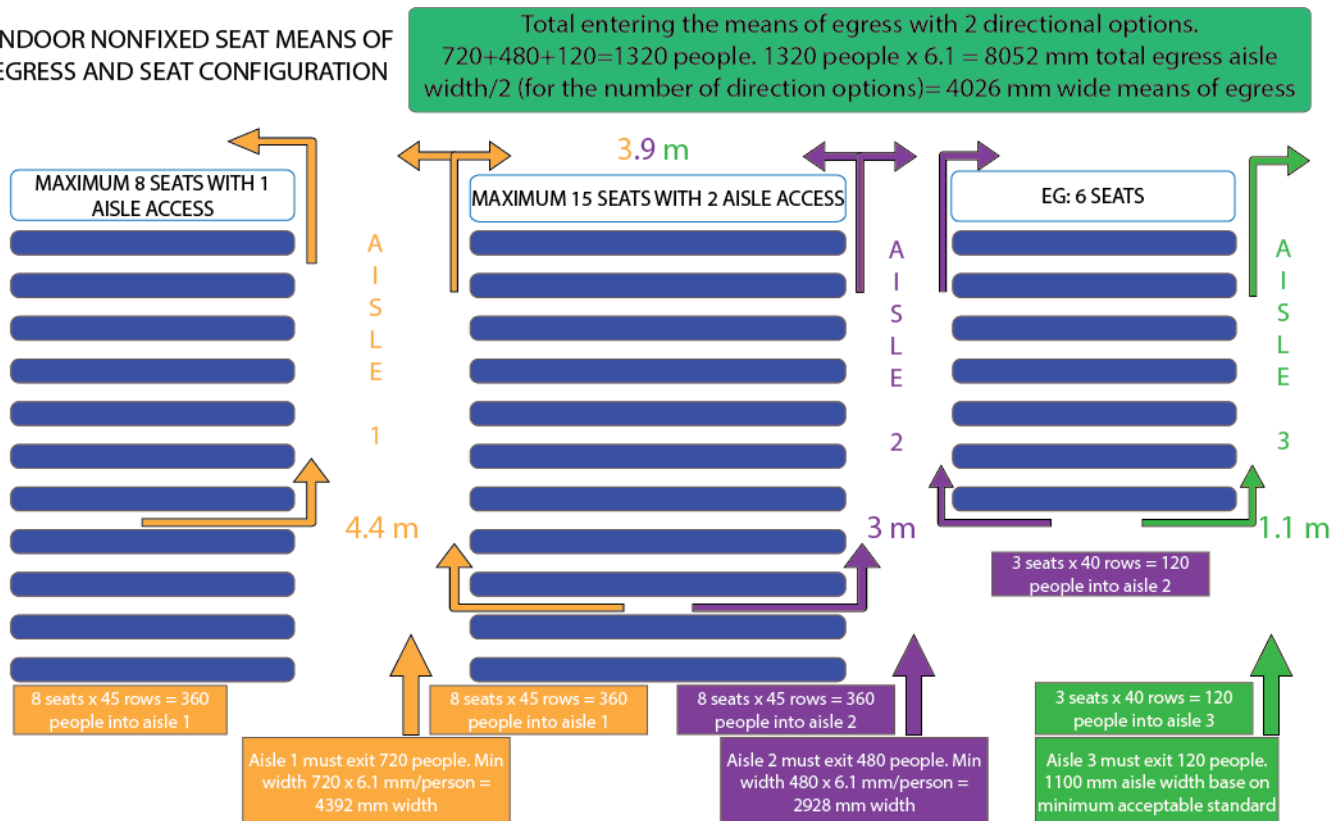
- An Event Management Plan incorporating a Crowd Management Plan specific to the indoor event, shall be provided upon request by the AHJ in conjunction with venues Fire Safety and Emergency Response Plan.

## Non-Fixed Seating

Indoor Assembly occupancies (as per the National Fire Code - AE)

- 400 mm minimum between seat back and seat front.
- Aisles need to be no more than 7 seats between every seat and the nearest aisle.
- Aisles need to be a minimum width (in mm) of the number of seats served multiplied by 6.1mm with a minimum aisle width of 1100 mm.
  - Example: If an aisle is meant to serve 790 seats, then the aisle needs to be:  
 $790 \text{ seats} \times 6.1\text{mm} = 4819 \text{ mm}$
- Minimum aisle width can be reduced to 750 mm if it serves less than 60 people.
- If Occupant loads exceeds 200 people- seats need to be fastened together in units of no fewer than 8 seats. If rows are less than 8, all seats in row shall be fastened.
- Every aisle shall terminate in a cross aisle, foyer, or exit. The width of the cross aisle, foyer, or exit shall be at least the required width of the widest aisle that it serves plus 50% of the remaining aisles that it serves.

INDOOR NONFIXED SEAT MEANS OF  
EGRESS AND SEAT CONFIGURATION





## Arena Floors

Where the floor area of auditoriums and arenas is used for assembly occupancy activities/events, not less than 50 percent of the occupant load shall have means of egress provided without passing through adjacent fixed seating areas.



## Obtaining a Fireworks/Pyro/Open Flame Permit

Fireworks are not permitted for indoor use at any time. Any Pyrotechnics or Open Flame permits required you can refer to the appropriate application on the City of Calgary website.

These permits are required separately from any other Special Events Permit or requirements.

[Fireworks, pyrotechnics and movie special effects \(calgary.ca\)](http://calgary.ca)

## On-Site Fire SCO

When it is deemed appropriate for the safeguarding of life and property from fire, explosion, panic, or other hazardous conditions that may arise in the temporary use of an occupancy and/or premises, one or more standby Fire SCO may be required to be present before and during the event.

Additional fees may apply.



## Definitions

**Flame Retardant:** A listed chemical, chemical compound, or mixture which when applied in an approved manner to any fabric or other material, will render such fabric or material incapable of supporting combustion.

**Authority Having Jurisdiction:** A safety codes officer in the fire discipline exercising authority pursuant to designation of powers and terms of employment in accordance with the Safety Codes Act.

**Canopy:** Any fixed roof-like structure that is self-supporting in whole or in part, but having no sidewalls or curtains other than valances not exceeding 18 in. (455 mm) in depth.

**Crowd Control:** The restriction or limitation of group behaviour. Crowd control may be part of a crowd management plan or occur as an unplanned reaction to a group problem. It can include extreme measures to enforce order, such as the use of force, arrest, or threat of personal injury. It may employ barriers that alter the space available for occupancy and patterns of group movement.

**Crowd Management:** The systematic planning for, and supervision of, the orderly movement and assembly of people. Crowd management involves the assessment of the people handling capabilities of a space prior to use. It includes the evaluation of projected levels of occupancy, adequacy of means of ingress and egress, processing procedures such as ticket collection, and expected types of activities and group behaviour.

**Tent:** A temporary structure, the covering of which is made of pliable material that achieves its support by mechanical means such as beams, columns, poles, or arches, or by rope or cables, or both. Used at an open-air event such as a fair or an exhibition. A tent will normally be constructed of a fabric held up by poles and attached to the ground by ties.

**Marquee:** Permanent roofed structure attached to and supported by a building.

**Means of Egress:** A continuous path of travel provided for the escape of persons from any point in a building or contained open space to a separate building, an open public thoroughfare, or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare. Means of egress includes exits and access to exits.

**Source of ignition:** As an object, device, or condition that can initiate combustion by providing the necessary heat or spark.



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