



School Fire Safety

A Guide for Educators

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Introduction

Schools present unique fire and life safety risks. School fires fall into several categories. Cooking, heating, electrical and intentionally set fires are the leading causes. Although fatalities from school fires are rare – students and staff do suffer injuries. Preventing school fires means taking action in three areas. The first is emergency planning. The second is education for staff and students about what actions to take in case of fire. The third step is ensuring the school building is kept fire-safe. The requirements in these three areas are contained in the National Fire Code: Alberta Edition 2019.

Fire Safety Plan

Every school must have a fire safety plan as part of their overall emergency planning. The plans include details on fire alarm procedures, building floor plans, staff duties in a fire, exiting and holding fire drills. The plan also helps fire departments preplan their response to a school fire.

Staff and Student Fire Safety Education

Training in fire safety should go beyond preparing students for fire drills. Keeping a school fire-safe is a daily job. Staff and students need to know about the causes of fires and how they can prevent a fire at their school.

Fire Code Compliance

Fire happens when a source of heat and material that will burn come together. The amount of flammable and combustible material in any area of a school building must be controlled. Sources of heat and potential ignition must also be controlled.

Decorative Materials

Decorative materials are considered to be anything applied over the existing wall or ceiling finishes. This includes bulletin boards, posters, sports banners, maps, photographs and artwork. The National Fire Code, Alberta Edition 2019 states that all decorative materials must have the same resistance to the spread of fire as the walls and ceilings of the building.

Educators and parents agree; a visually enriched environment is good for students. This means posting student artwork, projects and notices, as well as teaching materials. The issue is that these displays and notices are almost exclusively made of paper or other readily combustible materials, with extremely high flame- spread characteristics. The challenge for educators is to achieve a situation where combustible materials may be posted in schools while maintaining an acceptable level of fire and life safety.

Combustible materials, such as student artwork and teaching aids, attached to school classroom and exit walls and ceilings shall not exceed 20% of a wall or ceiling surface unless:

- a) the combustible materials have been tested to CAN/ULC-S102, "Surface Burnings Characteristics of Building Materials and Assemblies," and

b) the flame-spread rating does not exceed that required for the interior finish of the space which they are located.

Ceiling Decorations

Ceilings in most classrooms are made of suspended acoustic tiles. These tiles play a role in preventing the smoke from a fire getting into hidden spaces above the ceiling. Like every other surface in a classroom, the tiles must be resistant to the spread of fire. Painting ceiling tiles will affect how the tiles resist fire and is not recommended due to the alteration of the flame spread rating. The suspended ceiling tiles must span the whole ceiling with no gaps or missing tiles.

When fire is located close to the floor or in the corner of the room there are usually safe pathways out of the classroom at the initial stage of the fire. Fires overhead, burning in suspended materials can quickly block escape routes. Suspended items will spread a fire across a room quicker and could potentially drop burning material to ignite additional fires on desks, furniture and other combustibles.

Nothing should be hung from the ceiling and sprinkler heads in any part of a school.

Materials suspended from the ceiling could speed up the spread of a fire and interfere with the proper function of the sprinklers, limiting the effectiveness of the fire suppression.

Hallways and Corridors

Hallways are usually the only means of exit from a school. Decorative materials should be kept to a minimum. No more than 20% of the hallway wall area should be covered with combustible material.

Combustible materials are not to be hung on classroom, office or exit doors. All doorways must have at least a 1 meter clearance free of any combustible materials.

Care must be taken not to obscure exit signs. Materials in locked glass-fronted wall display cabinets do not count in the 20% calculation as they have a lower probability of ignition. It is essential that hallways are clear of furniture, appliances combustible materials etc. The width of a hallway should never be reduced to less than the width of exit doors serving the hallway.

Exit doors, fire alarm pull stations, fire extinguishers and hose cabinets must remain unobstructed and free of decorations



Electrical Equipment

A fire can start from a sufficient heat source making contact with a combustible item; an open flame is not required. An overheated extension cord left in contact with a stack of papers will dry out the paper over time, eventually causing ignition. All fire safety measures in schools are designed to keep potential sources of heat away from combustibles materials.

Extension Cords

Misuse of electrical cords and devices is a pressing concern. Overloaded power bars and outlets can be found in many classrooms. There are more electronic devices in classrooms now than just a few years ago.

Most often these devices are plugged into extension cords or power bars. Drawing too much current from the outlet can lead to overheating, providing a source of ignition. Extension cords may not be used as permanent wiring. These cords are intended for temporary use. They can become damaged or overheated and lead to a fire. Particular concerns are cords that run up walls and across ceilings and those located under or behind furniture. No outlet should supply more than one power bar. Power bars must have a circuit breaker and an on/off switch.

Computers, monitors, lamps and other equipment must be plugged directly into a wall outlet or into a single power bar.

There is only so much power to go around. Trying to draw too much electricity from an outlet will heat the wires. Problems appear where the current draw is the highest – like at a power bar or at the plugs of an extension cord. Carefully touch cords to see if they are warm. If so, unplug and reduce load.



Lamps and Appliances

Lamps designed for home use are not listed for commercial use. Decorative light strings are not permitted in school except for Christmas lights during the Christmas season. The light strings cannot be hung from ceilings or surface mounted in contact with any combustible material (e.g. poster board).

Microwaves, hot plates and other cooking appliances must be used only in rooms or areas set aside for cooking.

Furnishings

The National Fire Code, Alberta Edition 2019 sets standards for the fire safety of fabrics and upholstery. Curtains and draperies used in residential buildings do not meet these fire code requirements for commercial applications. In schools all fabrics must be flame resistance. Acceptable materials will have a tag indicating they meet the appropriate Underwriter's Laboratories of Canada (ULC) standard. Fire resistance ratings are most often achieved by a combination of safe fabrics and use of flame-retardant treatments. Over time retardants break down and need to be renewed. Follow manufacturers guidelines to reapply the flame-retardant treatment. Document all changes for your annual fire inspection.

Housekeeping

Combustible classroom supplies must be kept in closed cabinets or out of reach of students. Material stored on top of bookcases or cupboards must not be closer than 1m (3 feet) from the ceiling. In sprinklered buildings a 0.5m (18 inches) clearance must be kept around and below sprinkler heads. Many intentional school fires are set in accumulations of paper and other refuse; therefore, clutter should be kept to a minimum. Collections of paper close to cords and outlets also play a role in many electrical fires. Proper storage, away from sources of ignition greatly reduces the risk of a classroom fire. Proper storage of custodial supplies and maintenance materials is also required. Flammable and combustible liquids and gases must be stored in appropriate rooms, containers and/or cabinets. Propane may not be stored inside school buildings and must be stored appropriately outside. Cleaning materials and other combustibles must not be stored in furnace, mechanical or electrical rooms.

The National Fire Code, Alberta Edition 2019 requires drapes, curtains and other decorative materials, including textiles conform to ULC Standard S109. The standard sets out how resistant fabrics must be to flame and heat exposure. It also details how much smoke may be produced. All fabrics in schools must meet the S109 standard.

Intentionally Set Fires

Student playing with fire account for approximately 25% of fires in elementary schools and up to 40% of fires in high schools. Care should be taken to remove decorative materials from areas where students can gather unobserved by staff. Many schools have policies that prohibit students from bringing matches and lighters to school.

Even the smallest intentionally set fire must be reported to the local fire department and police. Positive skilled intervention – particularly with young fire setters – is essential.

Fire Safety Checklist

Use the attached checklist to confirm the fire safety of the classroom and school. Creating a fire safe learning environment is essential to the safety of staff and students.

Classroom Fire Safety Checklist		
Item	Details	Complete
Fire Safety Plan	Exit diagrams are posted in each room – A copy of the fire safety plan is available to all staff.	
Staff/Student Education	Teacher and students are aware of their duties in event of emergency. Six fire drills are held each year – three in the fall and three in the spring.	
Decorative Materials – Classroom Walls	Combustible material, such as student artwork and teaching aids attached to school classrooms not to exceed 20% of the wall.	
Decorative Materials – Ceilings	Kept clear of any items hanging from the ceiling. This will reduce the risk of spread as well as prevent false security alarms.	
Ceiling tiles	No tiles missing.	
Decorative Materials – Hallways	Combustible material, such as student artwork and teaching aids attached to school hallways not to exceed 20% of the wall. Materials should be kept at least 1 m from doorways and exit doors.	
Hallways and Corridors	Kept clear of furniture, appliances and combustible materials.	
Fire Safety Systems	Fire alarm pull stations, extinguishers and hose cabinets unobstructed.	
Extension Cords	In perfect condition and used appropriately. (Not used as permanent wiring)	
Power Bars	Only one per outlet-have circuit breaker and on/off switch.	
Furnishings	Meet ULC requirements for flame resistance <i>CAN/ULC-S109</i> .	
Housekeeping	Classroom supplies kept in closed cabinets or out of reach of students. Clutter Free.	
Storage	Flammable/combustible materials stored in appropriate cabinet or rooms.	