



 **Morinville**

SAFETY AND CONSTRUCTION PLANNING



SAFETY AND CONSTRUCTION PLANNING

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At the time a development permit for Construction, Demolition or Renovation is being applied for in the Town of Morinville the owner, developer or contractor responsible for a construction or demolition site is required to develop a Fire Safety Plan acceptable to a Fire Safety Codes Officer, as mandated in the National Fire Code — 2019 Alberta Edition.

Construction Fire Safety Plan for Major Projects

Includes new buildings, additions, exterior alterations and full-building demolitions. For renovations or partial demolitions use Construction Fire Safety Plan for Renovations.

Background Information

National Fire Code – 2019 Alberta Edition (NFC – 2019(AE)): NFC – 2019(AE) Division B, Section 5.6 requires a Fire Safety Plan for all construction, renovation and demolition sites.

Division B, Section 5.6

This Section applies to the fire safety for buildings, parts of buildings, facilities, adjacent buildings or facilities, and associated areas undergoing construction, alteration or demotion operations.

Division B, Section 5.6.1.3.(1)

Prior to 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.

The Fire Safety Plan

Will be site specific and may be reviewed at any time by the authority having jurisdiction (Morinville Fire Department – Fire Safety Codes Officer (SCO Fire)). The Fire Safety Plan should be reviewed and updated as the construction site progresses. The Contractor, as a representative of the owner, is responsible for the Fire Safety Plan until occupancy.

The owner, developer or contractor responsible for a construction or demolition site is required to develop a Fire Safety Plan acceptable to a SCO-Fire.

A Fire Safety Plan must address, in a manner acceptable to the SCO-Fire, all topics of (applicable to the site) covered in each of the perspective Articles in Section 5.6 of the NFC – 2019(AE).

It is required that a Fire Safety Plan be accepted in writing by the Fire Department and the Authority Having Jurisdiction.

A Fire Safety Plan

- Shall be submitted for review and acceptance.
- Shall be accepted prior to construction or demolition, including renovations.
- Must conform to the requirements of the NFC – 2019(AE).
- Shall be complete, blank sections will result in a rejected Fire Safety Plan.

If certain provisions listed in this plan do not pertain to your specific site please enter “NOT REQUIRED” in the section.

Details for any provision that is applicable to your site MUST be included in this plan.

For more information contact the Morinville Fire Prevention Office

Phone Number: 780-939-4162

Fax: 780-939-4379

Email: fireprevention@morinville.ca

This information is being provide for the construction industry and is an aid in preventing injury and fires in and around constructions sites and to address life and property fire safety issues. Keeping in mind it is the sole responsibility of the owner or representatives of the owner to:

- Be aware of all regulations within the jurisdiction.
- Carry out or make provision to adhere to the various codes and standards applicable to their project or business. Please submit your completed fire safety plan to the Town of Morinville Planning and Development department at the time of commercial building permit application.

Fire Safety Plan A Fire Safety Plan should include but is not limited to the following information:

Please check off all applicable provisions and provide additional detail where required for your specific Fire Safety Plan. All applicable provisions must be adhered to. Construction sites may be inspected for compliance at any stage of construction. The accepted Fire Safety Plan shall be posted on site and is intended for use by your contractors, subcontractors and any site personnel.

Commercial Final Permit Number:

Building Name:

Site Address:

Construction Fire Safety Plan for Major Projects

Description of Project

1) Emergency Procedures to be used in THE EVENT OF AN EMERGENCY. A building under construction, without functional fire protection equipment is at its most vulnerable stage, therefore it is imperative to initiate emergency response at the earliest possible opportunity. What are your provisions for initiating emergency evacuation procedures on this site and how will you notify emergency responders? Example: sounding of air horn – 3 blasts, activating fire alarm, calling 9-1-1.

Provide a list of instructions for site personnel to follow when an alarm is sounded:

- Exit routes are provided with clearly identified signage to indicate egress from floor areas/building.
- Designated gathering location (muster point) will be off site with signage.
- Location of Muster Point:

- Updated and current list of personnel on site (you should always know who is on site).
- Person assigned to meet the fire department and give information such as:
 - Where the fire or injury is located on site
 - Is everybody accounted for
 - Name of person responsible:

- Assigned site fire wardens(s), various trades represented. Directions and training for confining, controlling and extinguishing the fire:

2) Training of site personnel on evacuation procedures including:

- Site orientation (familiarize on personnel visitors on emergency procedures.)

Name of person responsible:

- Regular site safety meetings incorporated into regular safety meetings.
- Simulated fire drills as applicable and warranted.

3) Assigned site personnel responsible for fire prevention activities such as:

- Control of combustibles on the site and around the buildings including removal of excess garbage material on a regular basis and general housekeeping.

Name of person responsible:

- Ensure that combustible hoarding is secured to prevent contact with the heaters.

Name of person responsible:

- Maintain clear unobstructed access for fire department apparatus to building(s) and to firefighting services such as hydrants and fire department connections i.e. sprinkler and/or standpipes.

Name of person responsible:

- Parking of vehicles or delivery trucks, directed so as to not obstruct fire department access to the site and buildings (offsite parking and storage may be considered).

Name of person responsible:

- Maintenance and operation of at least one exit from every floor.

Name of person responsible:

- Smoking shall not be permitted in areas where conditions are hazardous, or potential of ignition exists.

Construction Fire Safety Plan for Major Projects

4) Fire Fighting Services – unobstructed hydrant, siamese, sprinkler, temporary access route, standpipe.

Check all applicable firefighting services that are installed, tested and activated at the start of the construction. These must be maintained and accessible for fire fighters at all times.

- Hydrants (maintain two (2) meter access around hydrants).
- Standpipes (existing).
- Siamese connections.
- Emergency access routes.

Provide a drawing, detailing your emergency response plan, including:

- Nearest fire hydrant locations.
- Fire department connections (siamese and/or standpipe).
- Site muster point.
- Emergency access to the building and site – primary and secondary access points.
- The site is properly addressed, and the sign is visible and legible to the emergency crews.
- An all-weather road shall be constructed prior to the commencement and must be designed to support the expected loads imposed by firefighting equipment (38,500 kg) and have a clear width not less than 6 meters.

Refer to the following code for Water Supply and Access for Fire Fighting:

NFC – 2019 (AE) 5.6.1.4 Access for Firefighting

- 1) Unobstructed access to fire hydrants, portable extinguishes and to fire department connections for standpipe and sprinkler systems shall be maintained.
- 2) A means shall be provided to allow firefighters to perform their duties on all levels of the building.
- 3) Provision shall be made for the use of existing elevators, hoists or lifts to assist firefighting personnel in reaching all levels of the building.
- 4) Access routes for fire department vehicles shall be provided and maintained to construction and demolition sites.
- 5) Where a construction or demolition site is fenced so as to prevent general entry, provision shall be made for access by fire department equipment and personnel.

NFC – 2019 (AE) 5.6.3.5 Water Supply

- 1) An adequate water supply for firefighting shall be provided as soon as combustible construction materials arrive on site.

5) Fire Extinguishers:

- Provide sufficient numbers and sizes. (3-A:20-B:C on all moveable equipment, and 4-A:40-B:C in all other locations, including on or near any combustion engines.)
- Serviced and tagged by a certified agency, within the last year.
- Mounted, with proper signage, where workers are present and at all exit locations on every level, and meet the required travel distance between extinguishers (75 feet or 22.86 m).
- At or near gas or propane fuel operated equipment.
- At or near areas where combustibles are stored.
- Adjacent to any hot works operations.

6) Hot Works Operations:

Does your scope of work require Hot Work Operations?

- Yes No

If “Yes”, refer to the following code requirements and describe (at the bottom of this section) how these provisions will be met, and check all applicable provisions.

Definition: 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, torchapplied roofing or membrane adhesive bonding, or any other similar heat producing activity.

- Hot work must be performed by trained or certified personnel.
- A fire extinguisher (4-A:40-B:C) is present at all times.
- Proper ventilation, as required.
- If hot tar pots are on site, provide fire extinguishers. Hot tar posts must only be used by trained personnel and located away from combustible materials.

NFC - 2019 (AE) 5.2.3 Prevention of Fires

NFC - 2019 (AE) 5.2.3.1 Location of Operations

- 1) Except as provided in Sentence (2), hot work shall be carried out in an area free of combustible and flammable contents, with walls, ceilings and floors of noncombustible construction or lined with noncombustible materials.

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- 2) When it is not practicable to undertake hot work in an area described in Sentence (1),
 - a) combustible and flammable materials within a 15 m distance from the hot work shall be protected against ignition in conformance with Article 5.2.3.2.,
 - b) a continuous fire watch shall be provided during the hot work and for a period of not less than 60 min after its completion in conformance with Article 5.2.3.3., and
 - c) a final inspection of the hot work area and adjacent exposed areas shall be conducted
 - i. 4h after completion of the work, or
 - ii. after completion of the fire watch required in Clause(b), in which case a more comprehensive inspection shall be conducted.
- 3) When there is a possibility of sparks or open flames reaching combustible material in areas adjacent to the area where hot work is carried out,
 - a) openings in walls, floors or ceilings shall be covered or closed to prevent the passage of sparks or open flames to such adjacent areas, or
 - b) Sentence (2) shall apply to such adjacent areas.

NFC - 2019 (AE) 5.2.3.2 Protection of Combustibles and Flammable Materials

- 1) Any combustible and flammable material, dust or residue shall be
 - a) removed from the area where hot work is carried out, or
 - b) except as provided in sentence (2), protected against ignition by the use of noncombustible material.
- 2) Combustible materials or building surfaces that cannot be removed or protected against ignition as required in clause (1)(b) shall be thoroughly wetted where hot work is carried out.
- 3) The fire watch described in clauses 5.2.3.1.(2)(b) and (c) shall be carried out by more than one person if combustible materials are exposed to the hot work operations but cannot be directly observed by the initial person performing the fire watch.
- 4) Any process or activity that produces flammable gases or vapours, combustible dusts or combustible fibers in quantities sufficient to create a fire or explosion hazard shall be interrupted and the hazardous conditions shall be removed before any hot work is carried out.

7) Flammable/Combustible Liquid and Compressed Gas Storage

Does your scope of work require the storage of flammable/ combustible liquids or compressed gases?

Yes No

If “Yes”, all provisions below are applicable:

- Storage area separated from combustible material by 3m.
- Storage area locked and vented.

- Storage area protected from vehicular/industrial motorized traffic.
- Portable pressurized (full or empty) cylinders secured when not in use.
- Area is to have proper signage or placards in place.
- A current list of dangerous goods must on site.
- A portable 4-A:40-B:C fire extinguisher in close proximity to storage and work areas.
- Storage area is away from egress and access routes to the site.

8) Security

What are your provisions for site security when workers are absent from the site?

9) Contact Personnel

- Provide a list of names and telephone numbers of persons to be contacted during non-operating hours or in emergency situations to be posted on site:

In addition to the above, please check off all of the following provisions that may be relevant to your scope of work:

NFC – 2019 (AE) Section 5.6 Construction and Demolition Sites

Will any part of this building continue to be occupied during construction, alteration or demolition operations?

Yes No

If “Yes”, refer to the following code requirements and describe how these provisions will be met, and check all applicable provisions.

NFC – 2019 (AE) 5.6.1.12.(1) Fire Separations in Partly Occupied Buildings

- Where a part of a building continues to be occupied, the occupied part shall be separated from the part being demolished or constructed by a fire separation having a fire-resistance rating of not less than 1 h.

Building/Fire Code Bulletin Standata 14-BCB-004 14-FCB-003

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Occupancy of Buildings Under Construction

- 8. Exits and accesses to exit are complete including fire separations, doors, door hardware, self-closing devices, guards and handrails from the uppermost story to be occupied down to the level from which occupants will exit the building (or the lowest level in the basement up to the exit level if the exit serves the basement). Means of access to the building may need to be enclosed to protect the building occupants from falling objects.

This document in full can be found at:

<http://www.municipalaffairs.alberta.ca/documents/14-BCB-004-14-FCB-003-OccupancyofBuildingsUnderConstructionV10.pdf>

For alteration, construction of an addition or demolition operations:

Is the existing building protected by a fire alarm system, sprinkler system or standpipe system?

- Yes No

If “Yes”, refer to the following code requirements and describe how these provisions will be met, check all provisions that apply.

NFC – 2019 (AE) 5.6.1.13. Protection during Shutdown

- 1) Except as permitted in Sentence (2), where a fire protection system is provided, it shall remain operational throughout the construction, alteration or demolition area where reasonably practical.
- 2) When any portion of a fire protection system is temporarily shut down during construction, alteration or demolition operations, protection during shutdown shall comply with Article 6.1.1.4.

NFC – 2019 (AE) 6.1.1.4. Protection during Shutdown

- 1) When any portion of a fire protection system is temporarily shut down, alternative measures shall be taken to ensure that protection is maintained.

NFC – 2019 (AE) 5.6.1.14. Watch

- 1) A watch, with tours at intervals of not more than 1h, shall be provided throughout demolition sites when there are occupants in the portion of the building not being demolished.
- 2) Except where a building is provided with a fire alarm system or similar equipment, a watch, with tours or intervals of not more than 1 h, shall be provided when a portion of the building is occupied while construction operations are taking place.
- 3) Facilities shall be provided to enable the watcher referred to in Sentences (1) and (2) to

- a) ensure a fire warning is sounded to notify occupants, and
 - b) communicate with fire department.
- If yes please describe:

Does your scope of work require a standpipe system?

- Yes No

If “Yes”, refer to the following code requirements and describe how these provisions will be met.

If Yes, please describe:

NFC – 20109 (AE) 5.6.1.6. Standpipe Systems

- 1) Where a standpipe system is to be installed in a building under construction or alteration, the system shall be installed progressively in conformance with Subsection 3.2.5 of Division B of the NBC – 2019 (AE) in areas permitted to be occupied.
- 2) Where a standpipe system is to be installed in portions of a building under construction or alteration that are not occupied, the following shall apply:
 - a) a permanent or temporary standpipe system is permitted in accordance with clauses (b) and (c),
 - b) the standpipe system shall be provided with conspicuously marked and readily accessible fire department connections on the outside of the building at street level and shall have at least one hose outlet at each floor,
 - c) the pipe size, hose valves and water supply shall conform to Subsection 3.2.5. of Division B of the NBC – 2019 (AE),
 - d) the standpipe system shall, as a minimum be securely supported and restrained on alternate floors,
 - e) at least one hose valve for attaching fire department hose shall be provided at each intermediate landing or floor level in the exit stairway,
 - f) valves shall be kept closed at all times and guarded against mechanical damage,
 - g) the standpipe shall not be more than one floor below the highest forms, staging, and similar combustible elements at all times, and
 - h) temporary standpipe system shall remain in service until the permanent standpipe installation is complete.
- 3) Where a building being demolished floor by floor is equipped with a standpipe system, the system, together

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with fire department connections and valves, shall be maintained in operable condition on all storeys below the one being demolished, except for the storey immediately below it.

This Fire Safety Plan has been designed and submitted by:

Name:

Phone Number:

E-mail:

Construction Fire Safety Plan for Renovations (includes interior demolitions)

For new buildings, additions, major exterior alterations and full-building demolitions see above for Construction Fire Safety Plan for Major Projects.

Buildings are at a greater risk for fire during construction.

The National Fire Code - Alberta Edition requires a Fire Safety Plan for all construction, renovation and demolition sites.

You must submit this document before demolition and/or construction begins.

For more information: National Fire Code – 2019 Alberta Edition (NFC – 2019(AE)): Division B, Section 5.6.

You can order a free copy of the code from the National Research Council Canada website.

SECTION 1: PROJECT INFORMATION

Project address or legal description (plan, block, lot):

When do you think you will start your project?:

Site contacts: (provide at least one emergency (24 hour) contact

Name:

Phone:

Name:

Phone:

Name:

Phone:

SECTION 2: FIRE SAFETY PLAN

1. In the event of an emergency

Initials of person responsible: _____

- a. Start an emergency evacuation by using one of the following:
 - (i) pull the fire alarm
 - (ii) 3 long blasts on an air horn
- b. Notify the fire department (call 911).
- c. Shut off all equipment if it is safe to do so.
- d. All people use the safest emergency exit and go to the muster point.
- e. Fire Wardens confirm all people are out of the building.
- f. Only try to stop the fire if it is very small and you are trained to use a fire extinguisher.

2. Preparing for an emergency

Initials of person responsible: _____

- a. Ensure signs are in place to show how to exit each floor and how to exit the building. All exit signs are easy to see.
- b. A muster point sign is located away from the work site.
- c. A current list of workers is in a known location on the site.
- d. Assign Fire Wardens for different trades or worker groups. Fire wardens will be the first contact to meet the Fire Department and provide them with information such as: the location of the incident, the name of the person responsible for the site, that all personnel are accounted for, etc.
- e. At least one exit is always available on every floor

3. Training on emergency procedures

Initials of person responsible: _____

- a. Workers and visitors know the location of emergency exits and muster points.
- b. All workers are trained on confining, controlling and extinguishing a fire.
- c. A list of instructions tells workers what to do when an alarm is sounded. The list is posted in a known location.
- d. Talk about fire safety at safety meetings.
- e. Do fire drills, if needed.

4. Construction site set up

Initials of person responsible: _____

- a. Place combustible materials in safe places in buildings and around the site.
- b. Remove garbage to reduce the amount of combustible material on site.
- c. Keep the site clean and clear to reduce the amount of combustible material on site.
- d. Move hoarding made of combustible materials away from heaters.
- e. Park vehicles away from Fire Department vehicles access routes.
- f. Smoking is not allowed in hazardous areas or near flammable materials.
- g. Ensure proper security is in place when workers are not onsite.
- h. Ensure water for firefighting is available when combustible materials are on site.

Construction Fire Safety Plan for Renovations (includes interior demolitions)

5. Access for emergency crews

Initials of person responsible: _____

- Emergency crews can easily find the site address.
- Keep emergency access routes, hydrants, fire department connection (Siamese) and standpipes clear at all times.
- Keep a 6.5 feet (2 metres) area clear around hydrants at all times.
- Keep access to fire extinguishers clear at all times.
- Keep stairs or elevators clear for firefighters to access all floors affected by the project.

6. Portable fire extinguishers

Initials of person responsible: _____

- Check that extinguishers have been serviced and tagged by a certified agency within the past year.
- Place extinguishers rated as 4-A:40-B:C:
 - near exits on every floor
 - within 75 feet (23 metres) of every part of the work area
 - inside storage areas for combustibles or flammable materials, liquids or gases
 - near hot works operations, including hot tar pots
 - near gas or propane powered equipment
- Place extinguishers rated as 3-A:20-B:C on all forklifts, scissor lifts or other mechanized construction equipment.

7. Dangerous goods storage areas

Initials of person responsible: _____

(or) Not applicable

Dangerous goods are flammable or combustible liquids and compressed gases.

- Dangerous goods are locked, vented, and labelled with official signs (placards) when stored.
- Store dangerous goods away from exits and exit routes.
- Store dangerous goods to protect them from vehicle traffic.
- Secure cylinders with a chain or strap in an upright position.
- Store cylinders a minimum of 10 feet (3 meters) from combustible materials.
- Place a current list of dangerous goods in a known location.

8. Hot Works

Initials of person responsible: _____

(or) Not applicable

Hot works is the burning, welding, or heating of a material. Hot works includes any activity that can create heat, and possibly cause a fire or explosion. Activities include: cutting, welding, thermit welding, brazing, soldering, grinding, thermal spraying, thawing pipes, applying roofing or membrane adhesive bonding with torches.

- Hot works must be done by trained or certified workers in a properly ventilated space.
- Place fire extinguishers rated as 4-A:40-B:C nearby.
- Remove all combustible and flammable materials, dust or residue.

- Close all openings in walls, floors or ceilings with non-combustible materials to reduce the risk that sparks, or open flames can reach combustible materials.
- Before starting hot works, stop any other work that can cause a fire or explosion hazard. This includes work that creates flammable gases or vapours, or, combustible dust or fibers.
- Place hot tar pots away from combustible materials. Ensure hot tar pots are only used by trained workers with fire extinguishers located nearby. When combustibles or flammable materials are located within 50 feet (15 meters) of the hot works and are not able to be removed:
- Protect combustible and flammable materials located within 50 feet (15 meters) of the hot works. Cover materials in noncombustible material, or make sure they are completely wet.
- Do a continuous fire watch during the hot works and for at least 1 hour after hot works are complete. The person doing the fire watch must have a fire extinguisher (or fire hose) and they must be trained on how to use it.
- Add more people to the fire watch if the first person doing the watch cannot see the hot works and combustibles at the same time.
- Do a final inspection of the area 4 hours after the hot work is complete or a more comprehensive inspection after the one (1) hour fire watch is complete.

9. Construction in An Occupied Building

Initials of person responsible: _____

- The occupied part of the building is separate from the construction. The separation has a fire resistance rating of 1 hour or better.
- Construction is complete in the occupied areas including the exits and access to exits. All doors, self-closing devices, guard and handrails are in place.
- Protect people in the building from falling objects.

10. Shutting Down A Fire Protection System

Initials of person responsible: _____

Fire protection systems include fire alarms, sprinklers and standpipe systems. Allow fire protection systems to stay on whenever possible.

- Provide a fire watch when systems need to be shut down and people are in the building.
- The person doing the watch must tour the occupied areas at least every hour. The fire watch must be documented.
- Ensure the person doing the watch has the ability to contact the Fire Department and alert people in the building.

Construction Fire Safety Plan for Renovations (includes interior demolitions)

SECTION 3: ACKNOWLEDGEMENT

Applicant/company name:

Phone number:

Email:

I confirm that:

- I will use my best efforts to obey the standards listed above, as they relate to my project.
- I will share the information above to all others involved in the project such as the property owner, building permit holder, constructor, and all trades and services.
- I understand that Morinville Fire Department may conduct inspections at any time during construction.
- I understand that if my project does not meet the National Fire Code - Alberta Edition Morinville Fire Department under the Town Of Morinville Quality Management Plan has the authority to close my work site.

Signature:

Date:

SECTION 4: NEXT STEPS

Submission

Submit completed Safety and Construction Planning form (along with a copy of the appropriate permit: building, renovation, development, demolition or associated permit) to the Morinville Fire Department at 10021 100 Street, Morinville or email fireprevention@morinville.ca.

If you are not the original building permit applicant:

Option 1: Give this form to the applicant to add to the application.

Option 2: Ask the applicant to provide you with delegate access. You will then be able to add this form to the application file.

A paper or electronic version of this form must be available to workers and visitors at all times.

If you have any questions or concerns please contact the Fire Prevention Office at the Town of Morinville by email at fireprevention@morinville.ca or call: 780-939-4162 and request the Fire Prevention Office.

Protection of Adjacent Property During Construction

Adjacent and Neighboring Properties

To meet the requirements of the National Fire Code – 2019 Alberta Edition, Sentence 5.6.1.2.(1), protection of adjacent properties during construction must be considered. The options listed are based on the assumption that the site supervisor has implemented fire prevention initiatives to reduce the risk of fire. A Fire Safety Codes Officer may visit the construction site to evaluate the method of protection of adjacent properties.

Buildings - 4 Storeys or Greater

Problem Statement

Fires in buildings under construction provide a special risk not only to the structures involved, but to workers, firefighters, the public, and adjacent buildings. The fire experience in Alberta has led to requirements for Adjacent Property Protection (APP) for construction sites under the National Fire Code - 2019 Alberta Edition. The purpose of this code requirement is to limit the risk associated with fire spread from construction sites to exposures, including not just buildings but features such as wildland interface areas. Whilst prevention efforts are intended to reduce the frequency of fire events, APP is fundamentally in place to provide mitigation, or reduce the consequences of fires.

Typical protection for small combustible buildings can be achieved through moderate separation space, physical barriers to heat transfer, products to limit the heat release rate of fires (passive protection), and automatic suppression (active fire protection).

Large combustible construction projects represent a greater risk due to their inherent size, which increases the potential total heat and heat release rate, thereby affecting exposures to a larger degree. The purpose of this guideline is to provide an appropriate performance-based guideline to protect adjacent exposures. As covered in Construction Site Fire Safety: A Guide for Construction of Large Buildings (Canadian Wood Council 2015), this guideline represents a reasonable means to address exposure protection.

Performance-Based Approach

Overview

Preventing fire spread from a construction site is relative to many dynamic factors, including issues such as site planning, and material storage, which for the purpose of this guideline are assumed to meet the best-practice requirements available, as well as regulatory requirements in the National Building Code - 2019 Alberta Edition and National Fire Code - 2019 Alberta Edition. The requirements herein are based on site-specific evaluation. The primary means of fire spread from a construction site to adjacent exposures is via radiant heat exposure. This is particularly true of tall buildings with combustible exteriors

as fire spread may create large radiating surfaces (emitters). As the exterior surface area of an under-construction building increases, it poses a greater risk to exposures (targets) through radiant heat transfer during a fire. Further, the distance between an emitter and a target exponentially affects the rate of heat transfer. The purpose of this approach is to address the size of the emitting surface, relative to the distance between it and potential exposures. The performance-based approach takes into account the potential size of a structure fire, the proximity and combustion potential of exposures, as well as a reasonable time for intervention/suppression (such as time to establish a water curtain between the fire and exposures).

Ignition Criteria

Piloted ignition of wood-based materials is generally agreed to occur at radiant heat flux values around 12.5kW/m², however this is a conservative value considering that this rate of heat exposure must occur from some duration to initiate combustion. Similarly, non-piloted ignition occurs at heat flux values of about 35 kW/m² and up (i.e. auto-ignition of exposed surfaces), again after some term of exposure. This phenomenon is typical to fire spread from construction sites where flame impingement is not necessary to ignite exposures. For the purpose of establishing a performance approach to exposure protection, if intervention can be provided to limit the radiant heat flux to exposures (for example through water curtains) radiant flux on exposures should be no greater than 25 kW/m². Lower values are required for instances where intervention is not expected in a reasonable time frame, or where adjacent fuels are not wood-based.

Procedure

For combustible structures exceeding four storeys in height, the following procedure can be applied to establish a low risk to exposures.

1. Conduct an assessment identifying the worst-case fire scenario from the construction site. This would include identifying construction materials and fire protection features relative to the construction process (e.g. staged installation and operation of sprinklers)
2. Identify exposures, including those within and adjacent to the construction site. Note that this evaluation should include all occupied buildings and combustibles exposures, including wildland interface areas.
3. Apply NFPA 80A1 to determine the required separation distance, or alternatively the allowable percentages of openings on the emitter wall (note that combustible exterior is equivalent to 100% openings). Apply any credits with respect to means of protection as identified from the previous assessment.
4. Note as above, for exposed walls, an I value of 25kW/m² can be used assuming it can be shown that active protection of exposures is available within 20 minutes of fire initiation. Ensure that assumptions on detection and response time, accessibility, and available resources (such as water supplies) are substantiated.

Protection of Adjacent Property During Construction

5. Atypical and non-cellulose exposures will be required to be evaluated for ignition propensity, and similarly a value for twice the piloted ignition heat flux will be acceptable, provided this value is still less than the non-piloted ignition value.
6. Establish that the provided protection features, separation distance, or exposed openings meet the criteria as above. Note: that this may be an iterative process, where the conclusion may be that additional protection features are required.
7. Provide a report to the fire AHJ outlining the process above included with the construction site Fire Safety Plan, for review prior to issuance of a building permit.

There are many measures which can affect the outcome of the NFPA 80A process, including introducing features which incorporate passive or active fire protection, non-combustibility of exterior surfaces, and exterior protection. Many of these are listed in publications from the Canadian Wood Council, as well as in the explanatory material in NFPA 80A. As these sites tend to be very unique with respect to building sitting, and exposure potential, it is important that each site is evaluat-

ed independently. For example, a large site in undeveloped green-field areas would require substantially less protection than a site developed in an infill location.

1. NFPA 80A Protection of Buildings from Exterior Fire Exposures is based in part on research conducted by the National Research Council as part of the St. Lawrence Burns experiments. This same data was used to create the spatial separation tables utilized in the model National Building Code of Canada, and subsequently the National Fire Code - 2019 Alberta Edition, specifically Fire and the Spatial Separation of Buildings, McGuire, 1966. This process provides an equal level of protection as that inherent within Alberta safety codes. NFPA 80A can be viewed free here: <http://www.nfpa.org/codes-and-standards/document-information-pages?mode=code&code=80A>
2. Exposure protection must be evaluated for availability of resources (e.g. water supplies) and infrastructure (acceptable access routes).

Protection of Adjacent Properties During Construction

Buildings - 4 Storeys or Less

To meet the requirements of the National Fire Code - 2019 Alberta Edition Sentence 5.6.1.2.(1), protection of adjacent properties during construction must be considered. The options listed are based on the assumption that the site supervisor has implemented fire prevention initiatives to reduce the risk of fire. A Fire Safety Codes Officer may visit the construction site to evaluate the method of protection of adjacent properties.

Item #1 is a mandatory requirement for all construction sites. In addition, either #2a or #2b is required for buildings constructed at distances of < 40 meters from adjacent properties.

1. Restrict access to site with a secure fence. Provide a fire safety plan in accordance with Article 5.6.1.3 of the National Fire Code - 2019 Alberta Edition.

AND

2a. Provide an accepted site security protocol with continual supervision for all hours that the general contractor is absent from the site.

OR

2b. The installation of an accepted monitored fire detection system complete with Audible alarm throughout the

building to detect early signs of fire may be considered for buildings located within a fenced site.

This information is being provided for the construction industry as an effort to reduce the risk of fire exposure to buildings adjacent to new construction. It is the sole responsibility of the owner or representatives of the owner to be aware of all regulations within the jurisdiction and to carry out or make provisions to adhere to the various codes and standards applicable to their project or business.

For further information, assistance or to arrange for a site visit contact, Fire Prevention at 780-939-4162 or fireprevention@morinville.ca.

Protection of Adjacent Properties During Construction

Row Housing and Semi-Detached Homes

To meet the requirements of the National Fire Code - 2019 Alberta Edition, Sentence 5.6.1.2.(1), protection of adjacent properties during construction must be considered. The options listed are based on the assumption that the site supervisor has implemented fire prevention initiatives to reduce the risk of fire. A Fire Safety Codes Officer may visit the construction site to evaluate the method of protection of adjacent properties.

Acceptable methods of protection may be achieved by application of the following measures:

1. Install fire resistant sheathing or sheathing treated with a factory applied fire resistant coating on the exterior surface of all side yard walls and gables located less than 20m from adjacent buildings. The minimum sheathing criteria are as follows;
The treated sheathing must be listed, or the manufacturer must have the authority to mark indicating that the material complies with CAN/ULC S102 having a flame spread rating of < 25.
(Confirmation of listing or authority to mark is required.)
(Listed or authority to mark means the mark of a third-party certified body accredited by the Standards Council of Canada)

The sheathing must also have a fire resistance rating, minimum of 15 minutes tested to a CAN/ULC S 101 standard. The Pilot Scale test (6ft. 0in. x 4ft. 0in. sample) is acceptable for meeting this requirement. The Pilot Scale test shall also have an ongoing follow up program to ensure continued consistency with the

tests ample. The AHJ recognizes the Pilot Scale test will not qualify for the authorization to mark or listing as required with CAN/ULC-S102 test.

AND

- 2a. Install fire resistant sheathing or sheathing that meets the criteria detailed in item #1, on the adjoining walls of row housing suites limiting the fire compartments to less than 350 m².

OR

- 2b. Restrict site access via perimeter fencing or other accepted security method.

Note; All products or methods used to achieve the adjacent property protection must not contradict requirements of the National Building Code - 2019 Alberta Edition.

This information is being provided for the construction industry in an effort to reduce the risk of fire exposure to buildings adjacent to new construction. It is the sole responsibility of the owner or representatives of the owner to be aware of all regulations within the jurisdiction and to carry out or make provisions to adhere to the various codes and standards applicable to their project or business.

For further information, assistance or to arrange for a site visit contact, Fire Prevention at 780-939-4162 or fireprevention@morinville.ca.

Protection of Adjacent Properties During Construction

Single Attached and Detached Homes

To meet the requirements of the National Fire Code - 2019 Alberta Edition, Sentence 5.6.1.2.(1), protection of adjacent properties during construction must be considered. The options listed are based on the assumption that the site supervisor has implemented fire prevention initiatives to reduce the risk of fire. A Fire Safety Codes Officer may visit the construction site to evaluate the method of protection of adjacent properties.

Acceptable methods of protection can be achieved by using one of the following methods:

1. Install sheathing with a factory applied fire resistant coating on the exterior surface of all side yard walls and gables located adjacent to properties that have potential of hosting a structure. The sheathing criteria are as follows;

The sheathing must be listed, or the manufacturer must have the authority to mark indicating that the material complies with CAN/ULC S102 having a flame spread rating of < 25.

(Confirmation of listing or authority to mark is required.)

(Listed or authority to mark means the mark of a third-party certified body accredited by the Standards Council of Canada)

The wall assembly with the sheathing must also have a fire resistance rating, minimum of 15 minutes tested to a CAN/ULC S 101 standard. The Pilot Scale test (6ft. 0in. x 4ft. 0in. sample) is acceptable for meeting this requirement. The Pilot Scale test shall also have an ongoing follow up program to ensure continued consistency with the test sample. The AHJ recognizes the Pilot Scale test will not qualify for the

authorization to mark or listing as required with CAN/ULC-S102 test.

OR

2. Install fire resistant panels/sheathing that meet the CAN/ULC standards as above on all vertical surfaces adjacent to a side yard property line.

OR

3. For redevelopment or infill projects where a building is removed and replaced by a new structure the fire-resistant treatment shall face inside the building or be inherently fire resistant as indicated in item #2.

Note: All products or methods used to achieve the adjacent property protection must not contradict requirements of the National Building Code - 2019 Alberta Edition.

This information is being provided for the construction industry in an effort to reduce the risk of fire exposure to buildings adjacent to new construction. It is the sole responsibility of the owner or representatives of the owner to be aware of all regulations within the jurisdiction and to carry out or make provisions to adhere to the various codes and standards applicable to their project or business.

For further information, assistance or to arrange for a site visit contact, Fire Prevention at 780-939-4162 or fireprevention@morinville.ca

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