Protection of Adjacent Buildings During Construction
Buildings > 4 Storeys

Alberta Fire Code - 5.6.1.2. Protection of Adjacent Buildings
1) Protection shall be provided for adjacent *buildings* and facilities that would be exposed to fire originating from *buildings*, parts of *buildings*, facilities and associated areas undergoing construction, alteration or demolition operations.

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 for construction sites under the Alberta Fire Code. 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.

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.

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).

For combustible structures exceeding four storeys in height, the following is required to reduce risk to exposures.

1. Provide a Construction Fire Safety Plan in accordance with Section 5.6. of the AFC.
2. Restrict access to the site with a secure fence.
3. Provide a Fire Watch with continual supervision for all hours that the general contractor is absent from the site.
4. Apply NFPA 80A to determine applicable protection of buildings from exterior fire exposures.
    a. NFPA 80A provides criteria to determine the percentage of openings and heat release rate, which will define the required separation distances to adjacent buildings. Alternative protective measures may be required if the required distances cannot be achieved. The alternative protection is site specific due to heat release rate.
    b. It is recommended that professional involvement review NFPA 80A and provide a report for review.
5. Detailed Construction Fire Safety Plan and NFPA 80A report must be submitted to Red Deer Emergency Services – Fire Prevention Bureau for review and approval 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, it is important that each site is evaluated independently. For example, a large site in an undeveloped green-field area would require substantially less protection than a site developed in an infill location.

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 Alberta Building Code, specifically Fire and the Spatial Separation of Buildings, McGuire, 1966.

For further information, assistance or to arrange for a site visit contact
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