

Alberta Building Code requirements in relation to fire response time

This document provides an overview of the construction requirements for a building according to the Alberta Building Code (ABC) in relation to the time that it takes for fire department response to arrive on-scene.

The following key points are relevant to an understanding of how the Alberta Building Code addresses the risk of structure fire:

1. The ABC governs how a building is constructed; the municipality governs where a building can be constructed
2. The fire department response time requirement in the ABC is applicable in other provincial codes across Canada
3. The ABC provisions related to fire response time specify that where the fire response time is beyond a response time of 10 minutes, 90% of the time, the construction requirements must be more fire resistant
4. The stated objective of the ABC construction provisions for exterior wall fire resistance and the fire department response time is to prevent the spread of fire to the adjacent structure
5. Construction requirements under the ABC are less restrictive when the building is sprinklered
6. Smoke alarms are being added in more locations in buildings under the ABC2014 due to their effectiveness in early fire detection
7. When sprinklers are combined with smoke alarms for providing protection in buildings, the safety of the occupants is drastically increased
8. The 10 minute measure is the only threshold in ABC related to fire department response time. The fire department response is specified to be from the time of notification of the incident by the fire department to the time the first apparatus capable of performing suppression operations arrives on site
9. If the house is sprinklered or another alternative solution is reached, a house that is outside the 10 minute response time is treated as though it were inside the 10 minute response time

Construction to control fire spread

The appendix to the ABC provides a summary of the firefighting objectives. The main assumption is that there is some sort of firefighting response in the event of a fire. Also within this note is the connection between the fire department response and the construction requirements. The ABC references only fire response from the fire department, not any other form of emergency response.

In article 9.10.15.3., the ABC specifies that the minimum exterior wall construction requirements of a house must be based on the distance to a property line, otherwise known as the spatial separation requirements. This is usually 1.2m (4'). If the fire department response is going to be

greater than 10 minutes to that building site and the building is not sprinklered, then the construction of that exterior wall would have to be more fire resistant.

The following table describes the construction requirements for the exterior wall of a house facing a property line. The requirements are dependent on whether the residence is determined to be outside the 10 minute response time boundary and not sprinklered or outside the 10 minute response time boundary and sprinklered. This is based on the distance to the property line being maintained at 1.2m (4'). (References to the Alberta Building Code provisions are set out in brackets.)

Construction requirements for exterior side yard walls of a single detached dwelling located beyond the ten minute response zone

| Building Component (1.2m (4') side yard) | Building – <u>not</u> sprinklered | Building – sprinklered |
|---|--|--|
| Max. Window area facing side yard (9.10.15.4.) | Windows not permitted in side yard | 7% of wall area |
| Minimum Fire Resistance Rating (9.10.15.5.(3)) | 45 minute fire resistance rating (5/8" type X gypsum on the interior of the exterior wall) | Not Required |
| Minimum fire resistance of Cladding (9.10.15.5.(3)) | Noncombustible (i.e. cement board siding or stucco) OR Combustible (i.e vinyl) installed over gypsum sheathing | No restrictions |
| Roof Soffits 9.10.15.5.(8) | Face of soffit not within 0.45m (18") of property line | Face of soffit not within 0.45m (18") of property line |

- Detached zero lot line homes can be accommodated with sprinklers or with enhanced building components to help control the spread of fire
- This table reflects the basic Alberta Building Code 2014 requirements for buildings located outside of a 10 minute fire response zone. For complete details the Alberta Building Code must be consulted

In addition to the prescriptive solutions that are included in the ABC there is the option for a builder to provide an alternative solution that will still achieve the objectives of the ABC. This is a formal process acknowledged in the ABC.