

## Purpose

This guideline has been developed to help improve consistency with the installation, education and enforcement of smoke alarms installed in residential dwelling units within Part 9 of the National Building Code 2019 Alberta Edition.



## Code Reference

National Building Code 2019 Alberta Edition Division B Section 9.10.19.  
2015 Illustrated Users Guide – NBC 2010 Part 9 of Division B Housing and Small Buildings Section 9.10.19.  
STANDATA 19-BCV-006 “Interconnected Smoke Alarms”  
CAN/ULC-S553-14 “Standard for the Installation of Smoke Alarms”



## Summary

This document is specific towards residential single family, duplex, townhouses or row housing where each dwelling unit is an individual unit constructed without a fire alarm system.



## Interpretation

This Guideline provides clarity and direction from Rocky View County on their interpretation of the requirement for smoke alarms installed in residential dwelling units. Smoke alarms should be located where they will be exposed to air flow during a fire condition, so that early detection is provided.

- 1) Locations – Smoke alarms are required by the National Building Code 2019 Alberta Edition to be installed in each dwelling unit, and in every ancillary or common space in a house with a secondary suite. Within a dwelling unit, a smoke alarm must be installed:
  - a) on each storey including the basement,
  - b) in each sleeping room, and
  - c) in a location between the sleeping room and the remainder of the storey, and if the sleeping rooms are served by a hallway, the smoke alarm shall be located in the hallway.
- 2) Sloped Ceilings – In rooms with a slope greater than 1 in 8, the smoke alarm must be located on the ceiling at the high side of the room or on the wall with the top of the smoke alarm mounted

**Smoke Alarms**

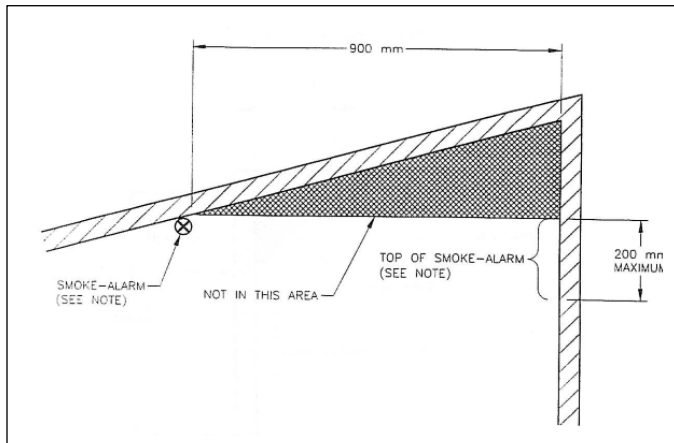
not more than 200 mm (8") below the dead air space. The "dead air space" is the triangular area with the base of the triangle measuring 900 mm (36") at 90 degrees to the wall.

- 3) Raised / Tray Ceilings – Where individual storeys have multiple ceiling heights, such as a tray ceiling, these areas can create an area where smoke will build up before traveling to lower ceiling areas where the smoke alarm is located, causing a delay in the detection of the smoke. For this reason, where a ceiling has a raised / tray ceiling located within the main living area (living room, family room etc.) the smoke alarm(s) must be placed:
  - a) In the hallway to a bedroom if a hallway is provided. An additional smoke alarm should be located within a raised / tray ceiling to ensure early detection is provided for the occupants, or
  - b) Where no hallway to the bedroom(s) is provided on that storey, the smoke alarm required for that storey should be located in the raised tray ceiling.
- 4) Bulkheads – Where a bulkhead is framed into a ceiling, such as in a basement area, a smoke alarm can be located on the underside of the bulkhead, on the ceiling, or on the top 300mm (12") of the wall.
- 5) Dead Air Space – Smoke alarms must be located where they will be exposed to air flow during a fire condition, and not in the vicinity of a dead air space. Corners where the ceiling and wall meet, is an air space where smoke may have difficulty penetrating. In these areas, the "dead air space" is the triangular area with the base of the triangle measuring 100 mm (4") along the ceiling from the corner, and about 100 mm (4") down the wall. These dead air spaces may also be found between joists and beams.
- 6) Basements – In an unfinished basement, the smoke alarm should be located in close proximity to the stairs leading to the level above.
- 7) Bathrooms – Smoke alarms should not be located within 1 m of the center of the doorway header wherever possible.
- 8) Kitchen – Smoke alarms should not be located less than 3000 mm (9'10") from a fixed cooking appliance.
- 9) Exposed/dropped Joists or Beams– Smoke alarms should be located on the bottom of an exposed/dropped joist or beam.
- 10) Proximity to Ceiling Fans – Smoke alarms shall be mounted a minimum of 1 meter (39") from the tip of the blade of a ceiling fan.
- 11) Proximity to Air Supplies – Smoke alarms shall be mounted a minimum of 450 mm (18") away from the edge of supply air and return air outlets.
- 12) Testing – Upon completion of the installation, all installed smoke alarms shall be tested according to the manufacturers specifications and CAN/ULC-S552 "Standard for Inspection" to ensure proper installation and operation.

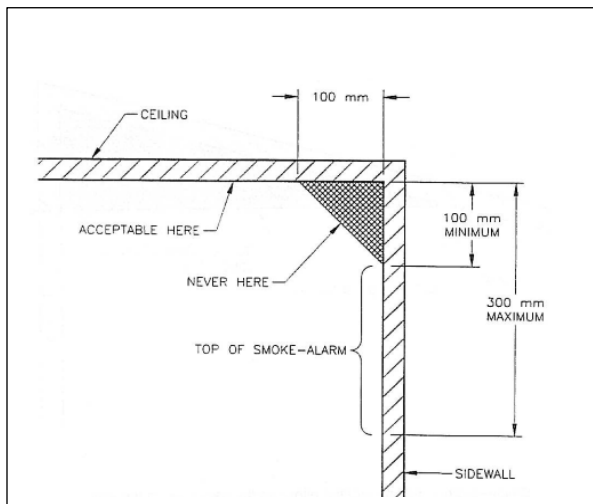
- 13) Certified Wireless Interconnection Devices – As per STANDATA 19-BCV-006 “Interconnected Smoke Alarms” issued by Alberta Municipal Affairs, wireless interconnection of smoke alarms is permitted to be used in new construction and existing construction, so that actuation of one smoke alarm will cause all smoke alarms within the dwelling unit to sound.



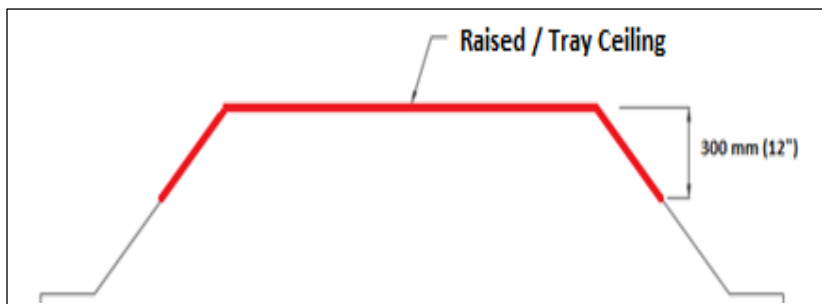
**Illustrations**



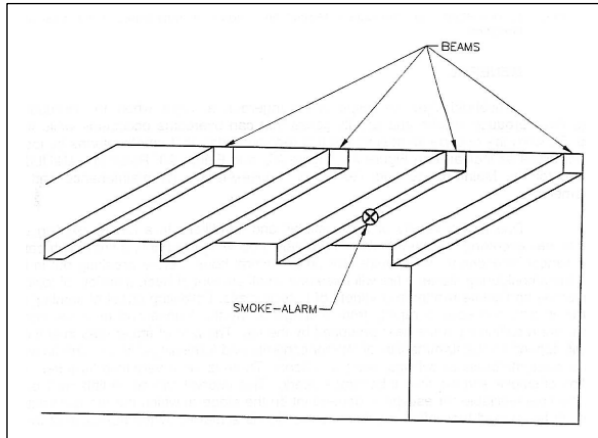
**Do NOT locate smoke alarms in the top peak of a sloped roof.**



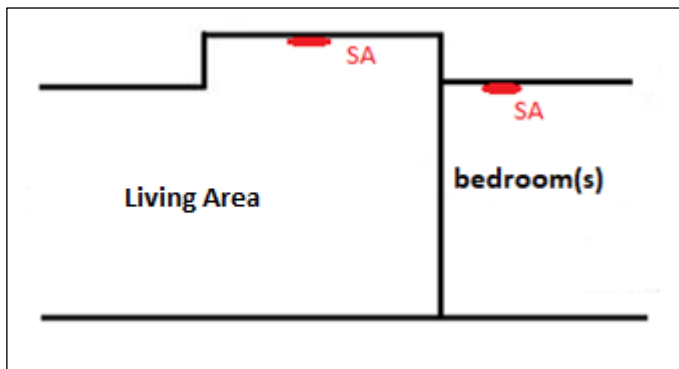
**Do NOT locate smoke alarms in a corner dead air space.**



**Smoke Alarm should be within this area when location in a raised / tray ceiling.**

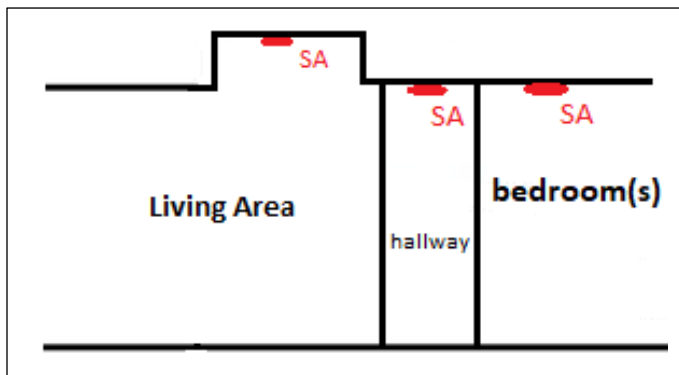


**Smoke Alarms should be placed along the bottom of dropped joists or beams.**



No Bedroom Hallway. Raised / Tray ceiling.

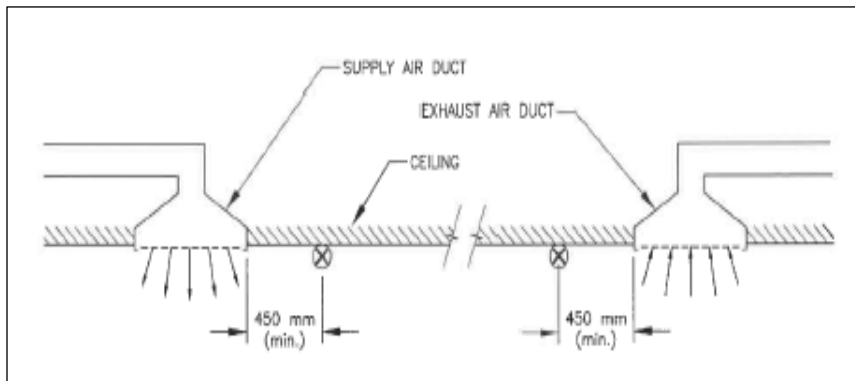
**The smoke alarm should be located in the raised / tray ceiling space.**



Bedroom Hallway provided with Raised / Tray ceiling.

**The smoke alarm must be located in the bedroom hallway. An additional smoke alarm should be located in the raised / tray ceiling.**

## Smoke Alarms



Smoke alarm must be located a minimum of 450 mm (18") to a supply or return air vent.

### Reference

Approval Date

- August, 2020

Last Review Date

- August, 2020