

Purpose

This guideline has been developed to help improve education and the consistency towards enforcement surrounding the design and construction of large residential homes (+/- 600 m²).



Code Reference

National Building Code – 2019 Alberta Edition Division B Part 9 & Part 3

National Building Code – 2019 Alberta Edition Division B Article 2.4.2.

National Building Code – 2019 Alberta Edition Division B Article 3.2.3.19.

National Building Code – 2019 Alberta Edition Division B Article 3.2.4.1.

National Building Code – 2019 Alberta Edition Division B Article 3.2.5.4. & 3.2.5.5.

National Building Code – 2019 Alberta Edition Division B Article 3.2.5.7.



Summary

The requirements of this Guideline are applicable to, and provide clarity towards the options available for ensuring compliance to the National Building Code – 2019 Alberta Edition (NBC-2019AE) for large residential dwelling units where the building area (footprint) up to or exceeding 600 m².



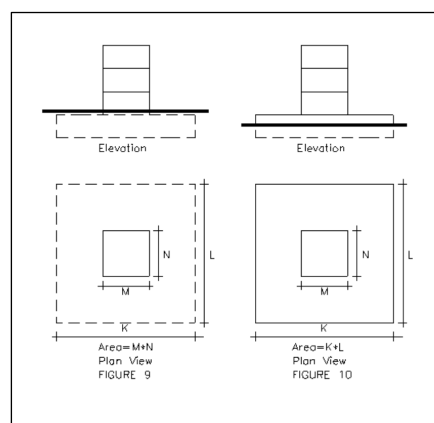
Interpretation

This Guideline provides clarity and direction from Rocky View County on their interpretation of the requirements within the NBC-2019AE regarding residential homes with a building area over 600 m². Based on the information provided within this Guideline, residential homes with a building area above or 600 m² shall be constructed in the following method(s).

- 1) **Definitions** – The following definitions are provided in the NBC-2019AE, and are applicable to this Guideline and the requirements stated within.
 - a) Firewall - means a type of *fire separation of noncombustible construction* that subdivides a *building* or separates adjoining *buildings* to resist the spread of fire and that has a *fire-resistance rating* as prescribed in this Code and has structural stability to remain intact under fire conditions for the required fire-rated time.

Single Family Dwellings (600m²+/-)

- b) Walkway means a covered or roofed pedestrian thoroughfare not more than 9 m wide that is used to connect 2 or more *buildings*.
- c) *Building area* means the greatest horizontal area of a *building* above *grade* within the outside surface of exterior walls or within the outside surface of exterior walls and the center line of *firewalls*.
- 2) **Building Area** – Construction requirements (falling within Part 9 or Part 3) for a building will be determined based on if the total building area is over 600 m² or under 600 m² in building area (footprint area). When a residential home is more than 600 m² in area, Part 3 of the NBC-2019AE must be adhered to, which has more restrictive construction requirements. For this reason, designers have often utilized the options available to divide a building into two separate buildings, reducing each individual building area to less than 600m².
- 3) **How to Calculate Building Area** – Building area means the greatest horizontal area of a building above grade within the outside surface of exterior walls or within the outside surface of exterior walls and the center line of firewalls. A polyline of each building area must be submitted indicating where the area calculations have been measured.
- a) Calculations shall be measured from the exterior face of the wall cladding system(s) and not from the face of the interior walls or wall sheathing.
- b) Covered and unenclosed portions of the building, such as attached carports, outdoor kitchens, screened sunrooms etc. will NOT be required to be included in the building area calculation.
- c) Living space(s) and habitable space(s) that are completely underground are not included in the building area. Where living space / habitable space is above grade for any portion, the area of the space would be included.



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- 4) Building Height – The construction requirements (falling within Part 9 or Part 3) are also determined by the building height. Where a house is more than 3 storeys in building height, which includes a walk-out basement design as providing the first storey, the building will be required to meet Part 3 of the NBC-2019AE and the more restrictive design requirements must be adhered to.
- 5) Pre-Application Meeting Required – Where the total building area of a residential home is over 550 m² or where firewalls or walkways have been incorporated into the design to create two separate buildings, Rocky View County requires a Pre-Application Meeting be conducted between the designer and a Building Safety Codes Officer. This meeting is mandatory as it provides an opportunity to discuss the application of the NBC-2019AE Code requirements during the design phase, rather than after the permit has been applied for. Plans for the design must be developed for the meeting.
- 6) Building Area over 600 m² – When designing a residential home that is more than 600 m² in building area, which includes the size of a subsurface foundation, the design must fall under Part 3 of the NBC-2019AE. Along with other design restrictions, Part 3 necessitates the requirement for the following:
 - a) Sprinkler System - A sprinkler system is required to be installed throughout the building. The sprinkler system must be designed at minimum, to the 2016 edition of NFPA 13D “Installation of Sprinkler Systems in One-and Two-Family Dwellings and Manufactured Homes”, standard. Higher standards such as NFPA 13R – 2013 edition and NFPA 13- 2013 edition are also acceptable.
 - b) Water supply for Firefighting – Water supply for firefighting is required to be provided. This supply of water can be provided by the local municipal water supply where hydrants are available. When a municipal service is not provided to the area, water supply must be provided to meet the 2017 edition of NFPA 1142 “Water Supplies for Suburban and Rural Fire Fighting”.
When designing to NFPA 13D, water supply meeting Article 3.2.5.7. of the NBC-2019AE is required. When designing to NFPA 13R or 13, water supply meeting the requirements within the standards must be provided.
 - c) Fire Alarm System –A fire alarm system is not required where the sprinkler system has been designed to meet NFPA 13D. A fire alarm system is required to be installed within a building where the sprinkler system has been designed in accordance with NFPA 13 or NFPA 13R.
 - d) Fire Department Access – Fire department access routes to the face of the principle entrance must be provided. The access routes must be able to support the weight of firefighting equipment and the minimum dimensions and clearances to the building.

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- 7) Building Area less than 600 m² – When designing a residential home that is under 600 m² in building area, the design could fall under either Part 3 or Part 9. Part 9 is less restrictive, and does not require the installation of a sprinkler system, water supply or a fire alarm system for the building.

- 8) Creating Two Buildings less than 600m² – Under the NBC-2019AE, a single building can be divided into two separate buildings by the installation of a non-combustible firewall (typically concrete block) with a 2 hour fire resistance rating. It is also permitted to attach two separate buildings together via a walkway (with foundation or roof) under specific conditions, and still maintain two separate buildings of less than 600 m².
 - a) Firewall – A firewall is a non-combustible wall (typically made of concrete block or poured concrete) that extends past the outside edges of the buildings, and contains a parapet extending above the roofline. The construction of the firewall must meet the requirements set out in the NBC-2019AE Division B Sub-Section 3.1.10. Where the firewall is installed, the roof parapet must extend up a minimum of 150mm (6”) above the roof cladding material (ie shingles or tiles). Openings in the firewall cannot exceed 11 m² with no dimension more than 3.7 m, and the aggregate area must not be more than 25% of the entire length of the firewall.

 - b) Walkway – A walkway is a covered or roofed pedestrian thoroughfare that connects two buildings. The walkway cannot contain any type of use or occupancy within it and must be separated from the adjoining compartments by a 45 minute fire separation.

- 9) Professional Involvement – Large residential homes have an inherent complexity to them. This complexity in the design is what necessitates the involvement of a Professional Architect and/or Engineer depending on the scope of the project. Where professional involvement is required, the plans must be stamped, and A1, A2, B1, B2, and the final C1 and C2 schedules must be provided.
 - a) Part 3 Building – Residential buildings designed under Part 3 will require professional involvement for all aspects of the design. For example, Architectural including provisions for firefighting, Structural for the design as per Part 4, Mechanical for the heating and ventilation systems and the Fire Protection systems, Electrical for the electrical services, and Geotechnical where a Grade Slip for the specific site has not been provided by the Developer.

 - b) Part 9 Buildings joined by a Firewall or Walkway – Residential buildings utilizing a firewall or walkway to separate one large building into two or more smaller buildings, also require professional involvement for all aspects of the building. For example, Architectural for the fire separations and fire resistance ratings, Structural for the design of the firewall, Mechanical for the heating and ventilation systems, and Electrical for the electrical services.



Reference

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- June, 2020

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- June, 2020