



City of Whitehorse

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## DOES MY CAST-IN-PLACE OR ICF FOUNDATION REQUIRE ENGINEERING?

January 20, 2025

Use of cast-in-place concrete and ICF (flat wall Insulating concrete form units) is permitted for Part 9 Buildings (houses, townhouses, small commercial buildings) as defined in the National Building Code (NBC) without professional engineering oversight if the specific parameters are met. See Articles 9.15.1.1 and 9.15.4.1 NBC that set out the limits of Part 9 foundations and permission to use ICF so long as they comply with the NBC requirements.

National Building Code of Canada 2020 is available free here:

<https://nrc.canada.ca/en/certifications-evaluations-standards/codes-canada/codes-canada-publications/national-building-code-canada-2020>

In order to determine if professional oversight is required, please consider the following questions:

- Are there small repetitive structural members (wall studs) that are spaced **greater** than 600 mm o.c., or does the clear span for roof trusses exceed 12.2 m (NBC Article 9.4.2.1. and Article 9.23.1.1)?
- Will there be any surcharges on the footings or foundation wall (NBC Clause 9.15.1.1(1)(b))? Surcharges can include parking areas on grade higher/lower than the basement/crawlspace floor, other building foundations in close proximity and higher than the proposed footing (the opposite is also possible whereby the new footing would impose surcharge on existing)? Note that this would not include lighter weight items such as oil and propane tanks.
- Will the footings be founded on disturbed (fill) soils (NBC Sentence 9.12.2.1.(1))?
- Are the footings located **above** the site-specific frost penetration depth (generally up to 3 m around residential buildings) (NBC Sentence 9.12.2.2.1(1) and Table 9.12.2.2)?
- Is the building area (largest footprint) greater than 600 sq m and/or more than 3 stories in building height (NBC Article 1.3.3.2 Division A)?
- Is the safe soil bearing pressure for footings **less** than 75 kPa (Article 9.15.1.1)?
- Does the live load of any floor exceed 2.4 kPa (50 psf)(NBC Clause 9.23.1.1.(1)(d))?
- Is the floor framing **other than** standard platform or balloon framing, as recognized in Section 9.23 NBC, such as knee wall support?
- Are snow retention devices (snow stops or retainer/clips) or solar panels proposed (a material change to the loading conditions that are outside the scope of Part 9)?

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If you answered **YES** to any of the above questions, your project requires the services of a licenced professional engineer for all or parts of the project, as necessary. For clarity, any of the prescriptive items in the NBC that are not met must be designed in accordance with Part 4 of the NBC, which requires design by a professional engineer

Please note that in addition to the above, the NBC contains numerous tables and other requirements that inform the design and construction of foundations. It is incumbent on the applicant to provide sufficient details on the building permit plans to show how the NBC prescriptive requirements will be met (Sentence 2.2.2.1.(1) Div C NBC).

If you have any specific questions or require clarification, please contact Land and Building at [inquirybuilding@whitehorse.ca](mailto:inquirybuilding@whitehorse.ca)

Sincerely,

**CITY OF WHITEHORSE**



Richard Diamond, RBO  
Supervisor Building Inspections  
Land and Building Services