

Bulletin: Suspended Garage Slabs

Single-Family and Two-Family Dwellings



Purpose

To inform Staff, Building Contractors and Structural Engineers of the requirements for Suspended Garage Slabs in single- and two-family dwellings.

Background

Over the past few decades, the City of Kelowna has observed several different construction techniques for suspended garage slabs and various uses for the areas below the slab.

The City of Kelowna has always required a Structural Engineer of record to be involved in the design and field review of a Suspended Garage Slab when used for single- & two-family dwellings (Part 9).

The suspended slab as per BCBC shall be protected by using an approved membrane system as defined in CAN/CSA S413-14. Insulation below the slab is to be spray applied rigid medium density polyurethane foam (minimum R-28 closed cell) unless cross ventilation or mechanical ventilation can be provided.

Requirements

The City of Kelowna will now require the following professionals in the design and field review of a Suspended Garage Slab:

- 1) Structural Engineer
- 2) Building Envelope Engineer (optional) based on type and location of the membrane selected

The reason for the change of policy is that the British Columbia Building Code makes no reference to this assembly within Part 9 or about how to install them.

There is concern that moisture penetration thru the slab may eventually weaken the structural members causing failure and/or moisture related damage, eg. mold and rot, to the interior finishes below the slab.

Building Permit drawings must include details &/or specifications showing the proposed suspended slab assembly including a code compliant waterproof membrane. It is our understanding that the majority of the designs will fall into one of the following categories:

- 1) Waterproof membrane designed and installed on the surface of the suspended garage slab. (Contractor solely responsible)
- 2) Waterproof membrane installed between a 75mm thick non-structural concrete slab on top and a structural slab below. This is similar to the requirements for waterproofing in Part 9 of the code. Refer to Article 9.13.3.5 (Contractor solely responsible)
- 3) A Professional design which is designed in combination between the Structural Engineer and the Building Envelope consultant.
- 4) A design in which the structural engineer takes sole responsibility for the structural design plus initials the schedule B for moisture related disciplines with the architectural portion of the schedules.

Bulletin # 05-01
Updated: March 01, 2024
Created: Feb 22, 2005

This information is provided for your convenience only and it should be clearly understood that you must satisfy all applicable Zoning Regulations and ensure that the premises conforms to the B.C. Building Code and all Bylaws/Regulations of the City of Kelowna.

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