

OVERVIEW

The Client requested Steller Architectural Consulting prepare a Code Review of the duplex/four-plex, located at 3181/3183 Gibbins Road, Duncan, BC. The basis of the review is limited to visual observations from a site visit on February 19th, 2019, and comparisons with the original as-builts and the current configuration.

BUILDING DESCRIPTION

The building was constructed circa 1977, as a side-by-side duplex. At some point in its history, it was converted into a four-plex with 2 units on the ground floor and 2 units on the upper floor.

The existing drawings are somewhat inaccurate, so new drawings depicting the current layout were created. Both are attached to this report.

BC BUILDING CODE

Though the building was built in 1977, this review was completed under the premise that the building will need to be brought up to the current building standards of the British Columbia Building Code 2018 in order to be properly converted into a four-plex.

BUILDING ENVELOPE

The building envelope will need to be more thoroughly inspected and potentially upgraded in the following areas: Thermal Control (Insulation), Air Tightness and Condensation Control.

Insulation

The insulation levels in the building must be brought up to current standards. This property is located within Climate Zone 4, and will require the following insulation levels within the walls.

Insulation requirement (RSI) by location:

- Floor (Slab-on-Grade): 1.96
- Foundation Walls: 1.99
- Walls: 2.78
- Ceiling below attic: 6.91
- Windows/Doors: 1.80 (U-Value)

As the construction of the walls appears to be 2x4 wood studs, this will require a thickening of the walls in some manner to help achieve the necessary thermal barrier. The foundation itself will also have to be insulated. Additionally, as the floor slab appears to be uninsulated, there will need to be an increase in the RSI values of the walls and ceiling to help achieve an efficient building envelope overall.

Air Tightness

The presence of a continuous air barrier that is in accordance with BCBC 9.25.3 and 9.36.2.10 will need to be confirmed. If present, it will be necessary to confirm that is in good repair. If not present, one will be required to be installed.

The doors also show a fair amount of light around the edges, suggesting that they are not adequately weatherstripped and sealed.

The hatches to the attics will need to be properly insulated and sealed.

Condensation Control

The presence of a vapour barrier in all exterior wall, floor and attic/roof spaces that is in accordance with BCBC 9.25.4 will need to be verified and proven to be in good repair.



Roofing

Without intrusive investigation, it is hard to determine the quality and condition of the roofing. A licensed professional should be brought in to verify that the roof meets BCBC 9.26.

Cladding

Visual inspection was unable to determine if the cladding system includes a rainscreen and appropriate protections against the ingress of moisture into the envelope.

SUITE SEPARATION

The original side-by-side duplex was constructed with a proper vertical party wall between the two units. However, the presence of a suitable fire separations between the upper and lower suites will need to be installed to meet various code items. All party walls should be verified that they meet BCBC 9.11.1 for sound proofing purposes as well.

As per BCBC 9.10.81, the floor assembly above the lower suites will need to meet a Fire-resistance Rating (FRR) of 45 minutes. In addition to this, BCBC 9.10.9.14 states that all suite separations shall be fire separations that meet a FRR of 45 minutes. This will include the floors and walls separating the units.

All wall or floor assemblies that separate two suites from one another must also be fire separations that are constructed as a continuous barrier against the spread of fire and retardation of the passage of smoke (BCBC 9.10.9.2). The continuity of this separation shall be maintained where it abuts another fire separation, wall, floor, ceiling, roof or exterior wall assembly.

Additionally, all penetrations through a fire separation must be dealt with in accordance with BCBC 9.10.9.6, to further maintain the combat the spread of fire and the passage of smoke.

EXITING

There are no exiting issues within this structure, as pertains to the doors and paths of egress. However, the handrails on the stairs within the units do not meet BCBC 9.8.7.2, which dictates that they shall be continuously graspable through the length of the flights of stairs, from the bottom riser to the top of the riser.

There are questions regarding the structural integrity of the handrails and guardrails of the rear decks and staircases. This face of the building does not see a lot of sunlight, and there is a fair amount of moisture present, which suggests rot might be an issue. A further review of these items, including the deck columns and beams, for signs of rot should also be undertaken with any work completed on this property.

VENTILATION

The ventilation of appliances and fans within the units is currently in question. All items listed below must be brought into compliance where they are found to be non-compliant.

According to BCBC 9.32.1.3, exhaust ducts or vents connected to laundry-drying equipment shall discharge directly to the outdoors. These exhaust ducts shall also be independent of other exhaust ducts, accessible for cleaning and of a smooth corrosion-resistant material.

Rooms or spaces with these suites meet the standards for non-heating-season ventilation, but there is a lack of heating-season mechanical ventilation. As per BCBC 9.32.3.1, every dwelling unit shall be provided with a mechanical ventilation system that conforms to 9.32.3. This includes Kitchen and Bathroom exhaust fans that conform to 9.32.3.6, and a principal ventilation system that provides supply air in accordance with 9.32.3.4 and includes an exhaust fan that conforms to 9.32.3.5.

All exhaust ducts shall discharge to the outdoors. And additional make-up air for actual appliance exhaust rates shall also be provided for any appliance that discharges air to the exterior. This supply air shall be tempered to either at 1°C before being introduced to a normally unoccupied area of the units, or at least 12°C to occupied areas.

Carbon monoxide alarms shall be installed in accordance with 9.32.4.1 for the units containing fireplaces.



OTHER CONSIDERATIONS

The fireplaces should be inspected by a qualified professional to determine if they meet BCBC 9.21 and 9.22.

Seismic concerns also necessitate an inspection of the structure by a structural engineer to ensure that it meets BCBC 2018 standards.

SUMMARY

Significant items and conditions noted in this review, along with any additions and partition alterations to the original building permit drawings, will need to be addressed in a future building permit to bring this property up to the standards of the BC Building Code 2018.

Prepared by:



Eddie Williams Architect AIBC, MRAIC

