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## MECHANICAL VENTILATION & HVAC ENERGY EFFICIENCY

This information bulletin is intended to provide information pertaining to mechanical ventilation and HVAC energy efficiency requirements of the BC Building Code. With recent increases to the minimum energy efficiency and airtightness targets, it is important to be aware of these requirements throughout both the design and construction process. Failure to comply may have significant implications.

### PASSIVE PRINCIPAL VENTILATION SYSTEM AND THE ENERGY STEP CODE

A principal ventilation system that provides supply air passively from outdoors through dedicated inlets (Passive Ventilation System) is not permitted to be installed in a building conforming to Subsection 9.36.6. or 10.2.3.(Energy Step Code), except for a secondary suite. Ref: [Division B – 9.32.3.4.\(6\)\(a\) \(iv\)](#)

All new dwellings are required to be designed and constructed to Step 3 therefore, **Passive Ventilation Systems are not permitted to be installed in new homes, except for secondary suites.** Heat Recovery Ventilators or Energy Recovery Ventilators may be the best alternative moving forward.

### HVAC DUCT SEALING AND INSULATION

Except for exhaust ducts leading directly to the exterior, **ducts and plenums carrying conditioned air that are located in unconditioned space are required to be sealed and be insulated to the same level for exterior above-ground walls.** According to the current prescriptive requirements for Zone 4, this is equal to 2.78 RSI or R 15.8. Ref: [Division B – 9.36.3.2.\(3\)](#)

It is highly recommended that ductwork outside of the conditioned space of the building envelope be avoided by planning for, and possibly incorporating, drop ceilings, bulkheads, and/or chases within the heated space. If this is not possible, the ducts **must be sealed and insulated accordingly.**

### ADDITIONAL PROTECTION AGAINST DEPRESSURIZATION: WOOD-BURNING APPLIANCES

Tempered make-up air must be provided by a supply fan for any appliance that discharges air to the exterior at an installed rate exceeding 0.5 air changes per hour when it is located within a dwelling unit that contains a vented appliance that is subject to back drafting (Naturally Aspirating Fuel Fired Vented Appliance - NAFFVA). NAFFVA are appliances that are subject to back drafting when a negative pressure condition occurs in a dwelling. **All solid fuel burning appliances, including sealed woodstoves and wood-burning fireplaces, are considered by code to be NAFFVAs, unless they are certified for use in mobile homes and installed to mobile home installation standards.** There are no provisions in the BC Building Code that allow for unheated make-up air to be supplied via passive air inlets. Heated make-up air must be supplied by a fan, rated to deliver outdoor air at the rate of the installed exhaust appliance, that is interconnected with the exhaust for which make-up air is required. Reference: [Division B – 9.32.4.1.](#) and [A-9.32.4.1.](#)

When planning to install a NAFFVA within a dwelling, it is important to be aware of both the total volume of air inside the building, as well as the exhaust rate of the largest exhaust appliance (typically the kitchen exhaust fan), as they are the two factors that will dictate whether a tempered make-up air system is required.