



BCBC Energy Efficiency Requirements for Part 9 Buildings

**Module 4
HVAC & Service Water Heating
BCBC 9.36.
2014**



9.36.3. HVAC Requirements

- Applies to systems used for heating, ventilation and air-conditioning
- Heating systems must be designed in accordance with good practice (as per 9.32. & 9.33.)
- Systems not referenced in 9.36., the building must be designed in accordance with requirements of the NECB



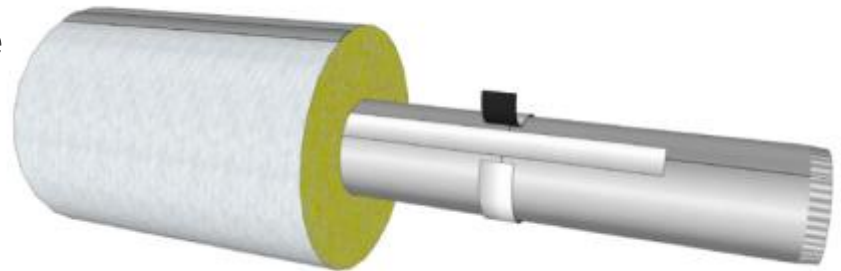
9.36.3. HVAC

- Heating and air-conditioning equipment must be located inside the conditioned space, unless it is designed to be located outside



9.36.3. HVAC Ducts

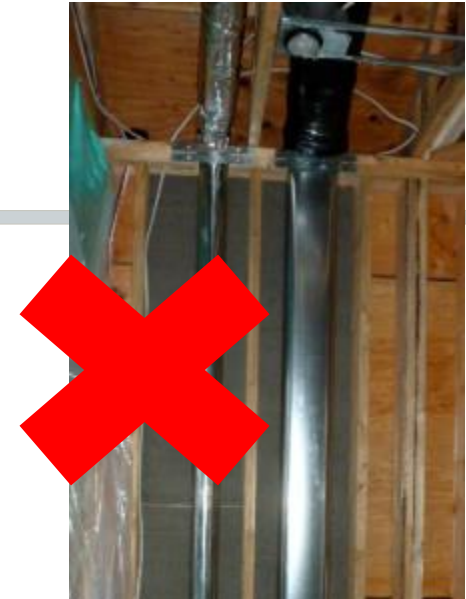
- Ducts outside the heated envelope, or within an exterior assembly:
 - All joints in the ducts must be sealed with sealant, mastic, or foil faced tape
 - Fabric duct tape is not permitted





9.36.3. HVAC Ducts

- Ducts outside the heated envelope, or within an exterior assembly must be insulated to same level as required for above grade walls





9.36.3. HVAC Ducts

- Alternative to placing ducts outside the heated building envelope: insulating the attic and making it conditioned space.





9.36.3. HVAC Ducts

- Insulation under a rectangular duct under an insulated floor can be reduced to RSI 2.11 (R-12) but insulation on both sides of the duct must be increased as per Table A-9.36.3.2.(5)



9.36.3. HVAC

- **Every exhaust duct or opening to the exterior must have a motorized damper or backflow damper, except for:**
 - An intake or exhaust duct that must remain open as covered by other regulations
 - In climates with less than 3500 DD °C
 - HRV supply and exhaust
- **Motorized dampers must remain open position if damper fails**



9.36.3. Piping for Heating & Cooling Systems

- All piping for heating and cooling systems must be located inside the conditioned space.
- If located outside or within an exterior wall, the pipes must be insulated to same level as required for above grade walls





9.36.3.6. Temperature Controls

- Heating & cooling systems must have thermostats accurate $\pm 0.5^{\circ}\text{C}$
- Heating & cooling systems with separate controls must prevent both cooling & heating to be activated simultaneously
- Heating systems must allow for zone controls – either manually or automatically



9.36.3.6. Temperature Controls

- Heat pumps with supplementary heaters – controls should prevent operation of supplementary heater when the heat pump can supply the full heat load



9.36.3.7. Humidification

- If a humidifier is installed, automatic humidity controls are required



9.36.3.8. Indoor Pools or Hot Tubs

- Any pool or hot tub with a surface $>10 \text{ m}^2$ must have an HRV, and HRV must be capable of recovering at least 40% of sensible heat
 - Exception:
 - If there is an alternate dehumidification system to provide at least 80% of required dehumidification
- Indoor hot tubs with a surface area $<10\text{m}^2$ need not have an HRV provided that they have an insulated cover with RSI 2.1 (R-12)



9.36.3.9 Heat Recovery Ventilation

- If an integrated mechanical system (IMS) with heat recovery provides the principal exhaust ventilation, the IMS must be tested in accordance to CSA P.10



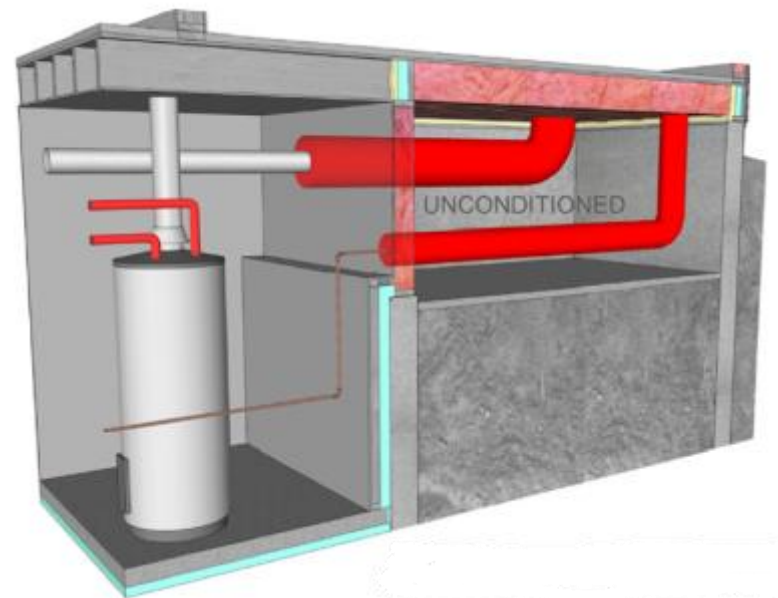
9.36.4 Service Water Heating

- **Equipment efficiency set out in Table 9.36.4.2**
- **Hot water storage tanks not listed must have a minimum thermal insulation of RSI 1.8**
- **Service water heating equipment must be installed indoors (unless it must be outdoors)**



9.36.4. Service Water Heating

- The first 2 m of piping from a storage tank or heater must be insulated with pipe insulation
- If piping is located outside the heated envelope, it must be insulated to no less than the effective R-value of exterior walls.





9.36.4. Service Water Heating

- If hot water piping system has recirculation, the entire hot water system must be insulated.
- Service water heating systems with storage tank must have thermostat controls to control min & max temperature



9.36.4.6. Indoor Swimming Pool Equipment Controls

- Pool heaters must have thermostats
- Be readily accessible for heater to be shut off without adjusting the thermostat setting
- Pumps & heaters must have time switches or other automatic control to turn off pumps when not required