

**DATE:** January 15, 2015

**To:** Brenda Campbell, Director of Building and CBO

**RE:** **Amendments to the Ontario Building Code, O. Reg. 332/12  
Effective January 1, 2015  
O. Reg. 361/13  
O. Reg. 191/14**

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Two recent documents of amendments to the Ontario Building Code and the Supplementary Standards have changes that came into effect on January 1, 2015. The following is a summary of the changes that must be addressed in applications submitted after Dec 31<sup>st</sup> 2014 for production residential development.

### O. Reg. 361/13

OBC Div B, 9.27.13. is a new Subsection that includes provisions for Exterior Insulation Finish Systems (EFIS) wall systems. This provision was previously not included in the code. It was previously addressed through the BMEC approvals process.

OBC Div B, 6.2.1.1.(1)(b) CSA F280, "Determining the Required Capacity of Residential Space Heating and Cooling Appliances." This standard used in the determination of the heat loss and heat gain calculations and the determination of the furnace size was updated from the 1990 standard to the 2012 version. Some of the main differences from the 1990 standard to the 2012 standard are as follows:

- A new method of calculating below grade heat loss was introduced in the 2012 standard. This new method is the BASESIMP algorithm that is used in HOT 2000.
- The 2012 calculation includes an HRV with an apparent latent sensible effectiveness of 60% and the value represented is approximately 40% of the 1990 value.
- A new method of calculating air leakage is the AIM-2 MODEL that is used in HOT2000.
- The new standard assumes present, more air tight construction, to have a natural air leakage rate of 0.168 air changes per hour. This is much less than the 1990 standard that assumed 0.5 air changes per hour for average construction.
- New forms were introduced into the standard, which summarize vital information/values/parameters that are used in the computer programs which summarize the heat loss/gain and furnace size.

(Brief explanation of implications of the above changes:

Prior to January 1, 2015 the principal exhaust fan plus all supplemental fans such as bathroom fans, kitchen exhaust fans, etc., were taken into account in determining the heat loss for the house. The new requirements only consider the principal fan for contribution to the structural heat loss. In addition, homes designed under the 2012 code achieve better air tightness reducing infiltration and air leakage. Therefore the effect is reduced total heat loss resulting in a smaller size furnace.)

## O. Reg. 191/14

### OBC Div B, 12.3.1.5.(2) Residential Furnaces After December 31, 2014

This sentence requires that a furnace servicing a dwelling unit shall be equipped with a brushless direct current motor. (The motor was previously referred to as an 'electronically commutated motor'.)

(Brief explanation of the implications of a brushless motor:

A brushless motor is a variable speed motor. As an example, if the nominal output of the furnace is 60,000 BTU but the heat loss on a sunny day is 42,000 BTU then the furnace output will only require 42,000 BTU. Hence the variable speeds of the motor. The advantage of the brushless motor is that theoretically less energy is used as the motor responds to various output requirements and does not run only at the nominal rate.)

## Summary

The above information is a summary of the 2015 code amendments that most impact applications for production residential housing. Permit applications received as of January 1, 2015 must have HVAC systems designed in accordance with the 2015 requirements as outlined above. Builders will need to apply for HVAC revisions to certified models that have been previously reviewed. Several builders have already submitted CM applications with the 2015 HVAC design requirements (Townwood Homes and Rosedale Village applications are in the process of review).

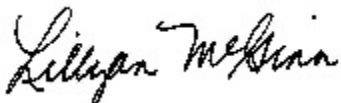
### Plans Review:

Please see Appendix A for a summary of the HVAC design information that will be required in order to review an application for a certified model or a custom home.

### Inspections:

Important items that the HVAC inspector should be aware of during an inspection are:

1. Ensure the furnace motor type is brushless since many manufacturers have a stockpile of old furnaces available.
2. Ensure all ducts are adequately sealed at joints. This is an assumption of the design in order for the system to be balanced and work at optimal level. With a small furnace blowing less air, tightly sealed joints are crucial to ensuring air is supplied on the upper levels of the house.



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Attachment: Appendix A

## Appendix A Information for Builders of Production Residential Housing and HVAC Designers

### **2015 HVAC Requirements for Production Residential CM or RR (Custom Home) Applications**

Revisions for certified models previously approved will be required where repeats are applied for in 2015. New certified model applications submitted after January 1, 2015 shall include, but not be limited to the following information:

1. All furnaces serving dwelling units shall be equipped with brushless direct motors (OBC Div B, 12.3.1.5).
2. Design shall comply with good engineering practice as described in OBC Div B, 9.33.1.1 and 9.33.2.2 (Please note OBC Div B, 6.2.1.1 – acceptable methods of calculation: ASHRAE or HRAI / CSA-F280-12).
3. Load calculations shall meet the energy efficiency performance as described in OBC Div B, 12.2.1.1(3). Please identify selected energy efficiency compliance option. (NRCan 80 or SB-12)
4. Should ASHRAE method of calculation be used, please include in following in the submission package:
  - a. Floor plans with clearly identified energy efficiency compliance option and full detailed wall section from foundation to roof for standard, look-out and/ or walk-out basement conditions.
  - b. Ventilation design summary sheet based on total room count– only principal fan heat loss shall be added to structure heat loss.
  - c. Duct design – please ensure return air from upper floor is not less than supplied air.
5. Should CSA-F280-12 method of calculation be used, please include the following in the submission package:
  - a. Floor plans with clearly identified energy efficiency design package and full wall section from foundation to roof for standard basement, look-out and/or walk-out basement conditions.
  - b. Submit calculation of ventilation contribution to heat loss if extra credit is claimed for HRV effectiveness.
  - c. Ventilation Design Summary sheet based on total room count – only principal fan heat loss shall be added to structure heat loss.
  - d. Air Infiltration Residential Load Calculator (Supplemental tool for CAN/CSA-F280).
  - e. Residential Foundation Thermal Load Calculator (Supplemental tool for CAN/CSA-F280) for standard basement, or Residential Slab on Grade Thermal Load Calculator (Supplemental tool for CAN/CSA-F280) for look-out and/ or walk-out basement condition, whichever is applicable.
  - f. Duct design – please ensure the return air from upper floor is not less than supplied air.