

SOME “RAMBLING” THOUGHTS REGARDING VENTILATION AND INSULATION REQUIREMENTS OF THE MA STATE BUILDING CODE (780 CMR)



MA Department of Public Safety

The following presentation is developed by staff to the Board of Building Regulations and Standards (BBRS) and does not represent an official position of the BBRS

**The following presentation is not
a substitute for requirements of
the detailed MA State Building
Code**

IECC-2012 Development

- “Virgin” IECC-2012 development was heavily influenced by the current MA Stretch Energy Code.
- Measurable air sealing and blower door and duct blaster testing are required in the IECC-2012 and in the MA-amended IECC-2012.

EFFECTIVE BUILDING ENVELOPE AIR SEALING

- Although not the only approach, judicious use of spray-applied foam plastic insulation, coupled with good construction practices can result in building air tightness at or below 0.35 ACH (natural) level.

MANDATED MECHANIAL VENTILATION

- The “virgin” IECC-2012, Low-Rise Residential Section R403.5 mandates new construction Low Rise Residential buildings be MECHANICALLY VENTILATED!

BASELINE ENERGY CODE

Commencing July 1, 2014 the BASELINE Energy Code of MA will be:

The MA-amended IECC-2012

Therefore new construction low-rise Residential buildings will need to be mechanically ventilated!

SOME CONCERNS REGARDING SPRAY FOAM INSULATION

- Is the spray foam product properly mixed and applied such that SPF outgassing issues do not exist/persist?

(Isocyanates are known to cause “chemically-induced” asthma!)

- SPF cures through an “exothermic” reaction (releases large quantities of heat) / applying too thick a coat or too early multiple coats of SPF can/will result in a fire!

SOME CONCERNS REGARDING SPRAY FOAM INSULATION-contd.

- Given that the building will be fairly air tight,
“What should be the minimum, safe fresh air
mechanical ventilation rate?”

REGULATED MINIMUM MECHANICAL VENTILATION RATE

The MA-amended IECC-2012, Section R403.5 recognize/allow:

- i. Mechanical ventilation per Energy Star Home's Version 3, or;
- ii. ASHRAE 62.2-2013, or;
- iii. A special mathematical formula

See Link:

<http://www.mass.gov/eops/docs/dps/buildingcode/inf3/51-0-n1101-iecc-2012.pdf>

OBSERVATIONS wrt MECHANICAL VENTILATION SCHEMES

- ASHRAE 62.2 recognizes “supply”, “exhaust” and “balanced” mechanical ventilation schemes.
- Exhaust-only schemes have often been utilized in MA, but w/exhaust-only methods:
 - What infiltration paths will outside air take in entering the building (healthful or not so healthful paths)?
 - What impact will “exhaust-only” mechanical ventilation have on open combustion appliances?
 - Can “exhaust-only” schemes aggravate radon infiltration into the building?

OBSERVATIONS wrt LOCAL MECHANICAL VENTILATION SCHEMES

- Local mechanical exhaust systems associated w/kitchen cooking exhaust can be very powerful (sometimes over 1000 cfm!).
- For local mechanical exhaust systems that are “powerful” , one needs to assess open combustion back drafting issues.

PRESENTLY PROMULGATED ENERGY CODES OF MA

- 1a. MA-amended IECC-09 (ceases to be allowed after 6/30/14) / BASELINE
- 1b. For “commercial” buildings MA-amended ASHRAE 90.1-2007 (ceases to be allowed after 6/30/14) / BASELINE
- 1c. Per MA-amended –IECC-09, Section R405.7, “APPROVED ALTERNATIVE ENERGY PERFORMANCE METHODS” either Energy Star or Passive House, USA

PRESENTLY PROMULGATED ENERGY CODES OF MA – contd.

- 2a. MA-amended IECC-2012 (allowed now and becomes the only BASELINE Energy Code on 7/1/14)
- 2b. For “commercial” buildings MA-amended ASHRAE 90.1-2010 / BASELINE (IECC-2012 option)
- 2c. Per MA-amended –IECC-2012, Section R407.7, “APPROVED ALTERNATIVE ENERGY PERFORMANCE METHODS” either Energy Star or Passive House, USA

PRESENTLY PROMULGATED ENERGY CODES OF MA- contd.

For STRETCH CODE COMMUNITIES:

3. The current Stretch Energy Code (780 CMR Appendix 115.AA)

Are there any QUESTIONS?

DEPARTMENT OF PUBLIC SAFETY INFORMATION

www.mass.gov/dps