

Commercial Energy Code – Effective 1 June 2009

The new Commercial Energy Code is based on ASHRAE Standard 90.1 (2004) with Minnesota amendments. Here are some of the Minnesota amendments that affect mechanical contractors:

- Recessed lighting fixtures – Section 1323.0320 section 3.2
- Load calculations for heating and cooling system design loads – Section 1323.0642 Section 6.4.2
- Heating and cooling controls: Setback controls for heating and cooling systems; Optimum start controls for supply fans; Zone isolation; Ventilation controls for high-occupancy areas – Section 1323.0643 Section 6.4.3
- Insulation and sealing for ducts and piping – 1323.0644 Section 6.4.4
- Prohibition of heating commercial parking facilities – Section 1323.0646 Section 6.4.6
- Economizers – Section 1323.0651 Section 6.5.1
- Zone controls – Section 1323.0652 Section 6.5.2.1
- Air system design and control – Section 1323.0653 Section 6.5.3
- Water chilling packages and once-through cooling systems – Section 1323.0690 Section 6.9
- Load calculations for service water heating system loads – Section 1323.0741 section 7.4.1
- Pools – Section 1323.0745 section 7.4.5

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A Dozen Reasons to Look at the new Residential Energy Code

#1 REScheck Is Now Optional

Say good-bye to most energy calculations. Local code officials no longer can require you to use MnCheck or REScheck to prove you are meeting the energy code [Residential Energy Code Chapter 1323 Sections N1102.1 and N1102.1.1] Instead follow the code...minimum R-values, maximum u-factors, etc. [Table N1102.1] The only energy calculations you'll need are the calculated heat loss/gain and the calculated cooling load required for the new construction building certificate.[N1101.8] If you just love running ResCheck you can still use it as an option but there will be default minimum R-values and maximum U-factors [N1102.1.4]

#2 Sunrooms

Sunrooms made easy. If the sunroom is “capable of maintaining, through design or heat loss, 50 degrees Fahrenheit, during the heating season” the new energy code treats it as conditioned space. In reality if the sunroom is heated, build it as if it was another bedroom or bedroom addition. The sunroom windows, doors, walls, ceilings, and floors have to meet the new energy code requirements. If the sunroom is “thermally isolated” and isn't heated then there are no requirements for the windows, doors, walls, ceilings, and floors. See BAM Illustration #3. [N1102.2.10]

#3 Northern Climate Zone R-values

Minimum R-values increase in the northern climate zone.

- Attics = R-44. See BAM Illustration #4 [Table N1102.1]
- No R-5 trade-offs for exterior or integral foundations. N1102.2.6.4]

#4 New Building Certificate

Every new dwelling now requires a building certificate that lists R-values, insulation types, HVAC equipment specs, etc. We are guessing most of you will choose the mechanical room as the ‘permanent location.’ [N1101.8] While you’re posting they are also requiring a duplicate attic insulation card be posted in the mechanical room. [N1101.4.1.2]

#5 Basement HVAC Ducts

At least one supply and one return duct has to be installed in all unfinished basements and crawlspaces for new construction. The supply and return ducts have to be separated by one-half the diagonal dimension of the basement. [N1104.1]

#6 Labeling Mechanical Ventilation

The outdoor air intake for an air-to-air exchanger (HRV or ERV) has to be labeled with a weather resistant identification label that states, “OUTDOOR AIR INTAKE.” You guessed it “EXHAUST AIR OUTLET” has to label the exhaust air outlet. Controls for the mechanical ventilation system have to be labeled as “VENTILATION SYSTEM” or with ventilation symbols as appropriate. [N1104.4.11]

#7 Continuously Exhausting Fans

Continuously exhausting fans (those that run 24/7) can still be used to meet the continuous mechanical ventilation requirement for new homes and townhome units. They must be labeled with “VENTILATION SYSTEM” or “VENTILATION FAN.” [N1104.4.11] You can hardwire the continuously exhausting fan according to the electrical code. If you do provide a switch for the continuously exhausting fan, it cannot be located in a bathroom. If the switch is centrally located it must have a light that shows when it is on. If the switch is remotely located, there has to be a light that is centrally located that shows when it is on. To translate, you don’t need to provide a switch or an indicator light if the continuously exhausting fan is hardwired. [N1104.4.10]

#8 Townhomes

Most town homes will now require stricter standards including; mechanical ventilation, continuously exhausting fans may be used [1322.1104]. Multi-family buildings with the following characteristics must be built to the requirements of the Residential Energy Code [N1101.1]: Are not more than three stories in height, Contain no conditioned (heated/cooled) space that is shared between dwellings like a foyer, hallway or laundry room, and Each dwelling unit has a separate means of egress. Any multi-family building that does not include the previous three requirements must follow the Commercial Energy Code.

#9 Passive Radon Systems

Passive radon systems are required for all NEW single-family, two-family and multi-family dwellings built to this energy code. Passive radon systems may or may not actually reduce the level of radon in homes.

Other Important Radon Issues. A passive or “radon ready” system does not require a continuously exhausting fan and monometer or other system monitoring device, but an active system does. [AF102, Definition of Sub-Slab Depressurization System (Active) & Exemption to AF103.6.1]

Radon systems are required in all new residential construction, even slab-on-grade homes.

The Minnesota Residential Energy Code does not require a builder to perform a radon test.

Furthermore, builders are not required to reduce the level of radon in a new home if a homeowner discovers that they have high post-construction radon readings. Remodeled homes are exempt from radon requirements. [See 1322.2101, Subpart 1]

#10 Remodeling, Air Tightening & Carbon Monoxide Alarms

Add carbon monoxide detectors if you do any of the following during a remodel or upgrade:

- A) Replace at least 50% of the siding or other type of cladding.
- B) Replace at least 50% of the exterior windows and doors. This is measured in total numbers of windows or numbers of doors, not the total window/door area.
- C) Install attic insulation (no minimum percentage is required to trigger this, you also have to seal bypasses).
- D) Insulate at least 50% of the total above grade wall area.
- E) Insulate at least 50% of the total rim joist area on all levels.

Although very unlikely, remodeling work that reduces air leakage in existing houses could cause health or safety issues for the occupants. Short of testing every home, installing carbon monoxide detectors within 10 feet of every bedroom/sleeping room was the best way to help homeowners perform routine upgrades on their homes without adding significant costs and another inspection. The energy code also allows other ways to comply with the code change including checking to see if the combustion air supply is sized correctly or performing mechanical system safety tests on combustion appliances. Houses with only direct vent appliances or all electric space and water heating appliances are exempt from this requirement no matter what air tightening measures are taken. [N1102.6.1]

#11 Requirements for Existing Houses

Additions must follow all of the requirements of the code with the exception of mechanical ventilation in most cases. [N1104.1.1] Alterations, and repairs do not trigger compliance with the energy code for the entire house and sometimes not even the entire alteration or repair. However, the alterations have to meet as many requirements of the energy code as possible. [N1101.1, Exceptions 3 & 4]

#12 Heating & Cooling Equipment Sizing

If you add heating or cooling equipment it has to be sized according to Manual J. If your HVAC contractor has no idea what that means...find a new one! [N1103.2.6] Also, mechanical ventilation systems are not required in additions or remodels as long as the original new construction permit was pulled before April 15, 2000. [N1104.1.1, Exception]

This summary is a modified version of Builders Association of Minnesota's "Top 20 Changes to the Residential Energy Code for New Construction, Additions and Remodels" which was produced through a grant from the U.S. Department of Energy and the Minnesota Department of Commerce.