



Residential Code FAQs:

2012 International Energy Conservation Code (IECC) with MA Amendments & MA Stretch Energy Code

Brief answers have been provided to commonly received questions regarding the 2012 IECC with MA Amendments and the MA Stretch Energy Code. If additional information is needed, please call Mass Save® Energy Code Technical Support toll-free at **855-757-9717**.

GENERAL

Q: Is a HERS Rater required for all new home construction?

A: In Stretch Code communities, a HERS Rater is required for new home construction. In non-Stretch Code communities, testing and verification for air leakage, duct leakage, and ventilation system performance shall be done by one of the following: HERS Rater, HERS Rating Field Inspector, BPI Certified Professional or BBRS approved third party. Note this information may change with the promulgation of the 9th Edition of 780 CMR.

Q: What is a BBRS approved third party?

A: A BBRS approved third party is: "An individual who, in a notarized letter of verification, swears in writing under the penalties of perjury that he/she has demonstrated competence and at least two (2) years of experience in the field of blower door, and/or duct blasting and/or, mechanical ventilation testing" and that the building official shall accept said letter as part of the permit application, and that this policy shall expire on the date that the 9th edition of 780 CMR is in effect.

Q: Do all buildings that need a permit have to meet the 2012 IECC?

A: Any work done under a permit issued after July 1, 2014 not otherwise excluded (see section C101.4 for applicability and exclusions), has to meet the current code (2009 IECC for Stretch Code communities, and 2012 IECC for all others).

Q: Which code is required in Stretch Code communities?

A: As of July 1, 2014 the Stretch Energy Code is based on the 2009 IECC. BBRS Official Interpretation No. 2014_04 provides additional information on the Stretch Code.

Q: What qualifications do duct testers need?

A: According to 780 CMR, duct testing and verification shall be done by a HERS Rater, HERS Rating Field Inspector, BPI Certified Professional, or a BBRS approved third party.

Q: Are there any checklists available to aid in compliance with the 2012 IECC and the Stretch Code?

A: In Stretch Code communities, residential new construction must comply with the ENERGY STAR® Homes Thermal Bypass Inspection Checklist in addition to the HERS rating and 2009 IECC Mandatory sections. Projects not in Stretch Code communities must comply with Air Barrier and Insulation Installation Table R402.4.1.1 in the 2012 IECC.

Q: Is there a checklist that addresses all the requirements of the 2012 IECC?

A: Not all of the items lend themselves to a checklist. A copy of the 2012 IECC and the 780 CMR Eighth Edition including MA Amendments to the 2012 IECC will provide the most complete coverage.

Q: Where is it stated that gasketed fireplace doors are now required?

A: The gasketed fireplace door requirement is stated in Air Barrier and Insulation Installation Table R402.4.1.1 in the 2012 IECC.

Q: Can REScheck be used for the Performance Path?

A: No, REScheck cannot be used for the Simulated Performance Alternative (R405 of the 2012 IECC). REScheck can be used for the Total UA alternative (R402.1.4), which allows for building thermal enclosure tradeoffs only, under the Prescriptive path.

Q: Is a blower door test required in conjunction with REScheck?

A: Air leakage testing is mandatory for all projects complying with the 2012 IECC or Stretch Code, regardless of prescriptive or performance pathway compliance.

Q: In current Stretch Code communities, are buildings with exemptions required to meet the 2009 IECC or the 2012 IECC?

A: Buildings in Stretch Code communities that are exempted from the Stretch Code become subject to the 2012 IECC. Exemptions are listed in the Stretch Code - 780 CMR 115.AA Sections 101.4.3 and 501.1. Historic buildings are exempt from both the Stretch Code and the Base Code.

Q: What version of the IECC are open/pending projects from before July 1, 2014 required to meet?

A: Projects that were permitted between July 1, 2013 and July 1, 2014 may comply with either 2009 IECC or 2012 IECC. Projects permitted prior to July 1, 2013 are required to comply with the 2009 IECC.

Q: Are there any financial incentives available for energy efficient construction?

A: Yes. The Mass Save® program which is sponsored by the gas and electric Program Administrators in the state offers a variety of energy efficiency incentives for residential buildings. Information is available at: www.masssave.com/residential, or by calling 1-866-527-7283.

ENCLOSURE/INSULATION

Q: Is Kraft facing allowed on fiberglass batts?

A: Yes, Kraft faced batts can be used. If Kraft facing is used as the air barrier, the seams and edges must be sealed. If the Kraft facing is serving as the vapor retarder, the assembly must be eligible to use a Type II vapor retarder (see R601.3.2 of the 2009 IRC).

Q: How is the conditioned floor area calculated in a 2-story dwelling with a finished basement?

A: The 2012 IECC defines conditioned space as “an area or room within a building being heated or cooled, containing uninsulated ducts, or with a fixed opening directly into an adjacent conditioned space.” If the basement meets the definition above, the basement floor area is included in the calculation and the surrounding surfaces must meet all the prescriptive or performance requirements of the 2012 IECC associated with conditioned space (e.g. R-15 continuous insulation or R-19 cavity insulation in the walls).

Q: Furring strips in a ceiling assembly prevent fiberglass batts from lying flat against the ceiling air barrier, creating an air gap. What is the proper way to insulate a ceiling with furring strips and fiberglass batt insulation?

A: The use of batt insulation and furring strips in an attic requires installing the air barrier (e.g. a poly vapor barrier) before the furring strips are put up, to maintain alignment between the air barrier and the insulation. Alternatively, rigid foam of the same thickness as the furring strips can be installed between the furring strips to create a continuous air barrier. The presence of furring strips between fiberglass insulation and wall board means that the drywall cannot serve as the air barrier that is required to be in continuous alignment and contact with the insulation.

Q: What is the minimum thickness requirement for the vapor barrier?

A: The 2009 International Residential Code (2009 IRC) defines vapor retarder classes by perm rating rather than thickness. Please see 2009 IRC Chapter 6, Section R601.3, for guidance on vapor control in building assemblies.

Q: Is polyethylene acceptable as an air barrier?

A: Polyethylene can be effective as an air barrier if it is installed, sealed, and maintained properly during and after construction. Since polyethylene is also a vapor retarder, the guidance for vapor control in assemblies included in the 2009 IRC Chapter 2 should also be followed when using this material.

Q: Can poly be sealed as an air barrier for a shower wall?

A: It is difficult to install poly as a continuous air barrier in this location. Any screw installed through the poly could twist and tear the poly, compromising the material’s performance as an air barrier. Rigid air barriers are preferable. If the poly is visibly sealed and continuous after all work penetrating the poly is complete, it may be effective. Since polyethylene is also a vapor retarder, the guidance for vapor control in assemblies included in 2009 IRC Chapter 2 should also be followed when using this material.

Q: Can the back of knee wall insulation be covered with polyethylene?

A: No. Although not expressly prohibited by code, polyethylene at the exterior of kneewall insulation would present a condensation risk due to its properties as a vapor retarder. Instead, a vapor permeable air barrier such as Tyvek® should be used in this location.

Q: Is an air barrier required behind shower units installed against an exterior wall?

A: An air barrier must be installed against the insulation at all exterior walls, including behind showers and tub enclosures. A rigid air barrier represents best practice. Wall board may be used, however, in a wet location, it would be better to use non-paper faced wall board or another paperless board product (e.g. xps foam board) as the air barrier to reduce mold potential.

Q: Does the top side of attic insulation need an air barrier?

A: The top side of attic insulation does not need an air barrier.

Q: What areas of the home should be included in the volume calculation for the air leakage requirement?

A: For the purpose of the blower door metric, only the volume of the conditioned space should be measured.

Q: An exception states that R-38 attic insulation is acceptable if uncompressed over the top plate. Is R-38 acceptable just at the perimeter where R-49 will not fit, or can you use R-38 over the entire ceiling?

A: For attics which can install uncompressed R-38 over the top plate, R-38 can be used in the entire attic for the Prescriptive approach as stated in R402.2.1 (not the UA alternative).

HVAC

Q: Why is duct sealing required within conditioned space?

A: Duct sealing ensures that air is delivered to the space as designed. Duct sealing supports the right sizing and proper selection of HVAC systems.

Q: What about ducts in insulation bays? Can you put a duct in a floor joist space and not achieve the mandatory insulation requirements?

A: Ducts located in the thermal enclosure typically diminish the insulation in that space. If a project reduced a floor section from R-30 to R-11 to accommodate a duct, then the floor assembly does not meet the Prescriptive requirement for R-value under Table R402.1.1. The project may still meet the Prescriptive thermal enclosure requirements by meeting the total UA alternative (R402.1.4) or through the Performance option.

Q: If duct elbows are not sealed with mastic can a system still pass the duct leakage test?

A: The 2012 IECC requires that all ducts shall be sealed regardless of their location. If an elbow is not sealed with mastic, it is out of compliance with the 2012 IECC, and is also unlikely to meet the leakage requirements.

Q: What is a “remote fan”?

A: A remote fan is a fan which is not immediately adjacent to the space it serves. A remote fan is frequently located in the attic or basement and can serve more than one space. These units are also sometimes referred to as in-line fans.

Q: Where does make-up air come from when a home uses an exhaust-only ventilation strategy?

A: The make-up air will come into the home through the path of least resistance, which may include existing leakage pathways such as found around window and doors.

Q: What is an ECM?

A: ECM stands for electronically commutated motor. ECMs are a brushless DC technology which offers higher efficiencies. ECMs are included in the exception to R403.5.1 “Whole-house mechanical ventilation system fan efficacy”. Under the Mass Save® program, incentives may be available for this technology.

Q: Is mechanical ventilation required in Stretch Code communities?

A: Yes, mechanical ventilation is required in Stretch Code communities because, although not explicitly stated in the 2009 IECC, mechanical ventilation is required for tight homes under the 2009 IMC. Under section 403.1 of the 2009 IMC, it states, “mechanical ventilation shall be provided by a method of supply air and return or exhaust air.” The 2009 IMC goes on to state that mechanical ventilation flow rates are required based on Table 403.3, which states that private dwellings require mechanical ventilation of 15 cfm/person when the air tightness of the building is less than 0.35 Air Changes per Hour (ACH natural). This air leakage metric is different from the ACH50 metric used in 2009 IECC or 2012 IECC, but it roughly equates to about 7 ACH50.

Q: Is a balanced system like an HRV (Heat Recovery Ventilators) or ERV (Energy Recovery Ventilators) required to meet the mechanical ventilation requirement? What about in Stretch Code communities?

A: Both Stretch Code and non-Stretch Code communities allow for balanced or exhaust-only systems to be used to satisfy the mechanical ventilation requirement.

LIGHTING

Q: What are the lighting efficacy requirements?

A: 75% of lamps in permanently installed lighting fixtures within a home must be high efficacy.

Q: What are the requirements for recessed lighting?

A: Recessed luminaires penetrating the building envelope shall be sealed, IC-rated, and labeled as having an air leakage rate of not more than 2.0 cfm when tested in accordance with ASTM E 283 at a 1.57 psf (75 Pa) pressure differential. The housing of all recessed lights must be sealed to the interior wall or ceiling covering with either a gasket or caulk.