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Subject: Energy Efficiency Amendments, 780 CMR

Advisory on Energy Efficiency Requirements MA Building Code, 780 CMR, 7th Edition

In accordance with the statutory requirements of the Green Communities Act, the Board of Building Regulations and Standards (BBRS) has amended the Building Code as of January 1, 2010, requiring the use of the 2009 International Energy Conservation Code (IECC) with MA amendments, instead of IECC 2006. Recognizing the burden this may place on projects under design, **BBRS is allowing a 6-month concurrency period, through June 30, 2010**, during which either the IECC 2006 w/2007 IECC Supplement and MA amendments or IECC 2009 with MA amendments may be used.

Regards,

Don Finocchio
Technical Analyst
BBRS/DPS



780 CMR 13.00

ENERGY EFFICIENCY

780 CMR 1301.0 JURISDICTION

1301.1 Energy Efficiency. Energy Efficiency is to be met via compliance with the International Energy Conservation Code (IECC) 2006 with the 2007 Supplement, or the International Energy Conservation Code (IECC) 2009, or ASHRAE 90.1-2007.

1301.1.1 Amendments. To meet Massachusetts energy efficiency requirements, the amendments in 780 CMR 1301.1.1, as indicated for IECC 2006 or IECC 2009, shall apply to ASHRAE 90.1-2007 where this standard does not have a similar requirement, or does have a similar but less restrictive requirement than that found in the amendments. The IECC 2006 or IECC 2009 is amended as follows:

Insert new sections:

101.5.3 Compliance Alternative. Buildings with total floor area not greater than 10,000 square feet may be designed and constructed using the envelope requirements of 780 CMR 61.00.

101.5.4 Heating, Pumping, Process Piping and Refrigeration Systems. Heating, pumping, process piping and refrigeration systems shall be installed by contractors and personnel appropriately licensed in the Commonwealth of Massachusetts (Installing Contractor). Engineered designs and specifications prepared by Registered Professional Engineers shall identify systems requiring compliance with appropriate sections of M.G.L. c. 146 and 528 CMR. Shop drawings and design layout prepared by licensed installing contractors shall note the name(s), license number(s) and license expiration date(s) of the contractor(s) installing the heating, pumping, process piping and refrigeration systems.

101.5.5 Exempt Buildings. Portions of aircraft hangars where aircraft are housed or stored and/or aircraft servicing, repairs or alterations may occur are exempt from the provisions of 780 CMR 13.00.

Add these four Default Door U-Factors to TABLE 102.1.3(2)

Table with 2 columns: Material and U-Factor. Rows: Glass (0.92), Air Lock Entry (0.50), Revolving (0.50), Overhead (1.45)

Add the following paragraphs to 104.2 Information on Construction Documents.

The construction documents shall contain sufficient information to completely describe the heating, ventilation, and air conditioning (HVAC); lighting; and electric power distribution systems,

including operational features and controls. The information required for each system shall include a summary of:

- 1. A description of the design intent providing a detailed explanation of the ideas, concepts and criteria that are defined by the owner to be important.
2. A description of the basis of design of the systems including all information necessary to prepare a design to accomplish the design intent.
3. A description of the sequence of operation of the systems and their interaction with other systems, including fire prevention and fire protection systems.
4. A description of the systems including the capacities of the equipment or systems.
5. A description of the testing requirements and the criteria for passing to be used for final systems acceptance.
6. A requirement for submittal of operation manuals and maintenance manuals as a condition of final acceptance, and a description of their format and content.
7. A requirement for submittal of record drawings and control documents as a condition of final acceptance, per 780 CMR 116.0.

Add the following sections to 104 CONSTRUCTION DOCUMENTS

104.3 Approval. Approval by the building official of the design concepts, testing procedures, and acceptance criteria of Section 104 is not required, but the building official shall reject the construction documents if these sections are incomplete, or if they specify any design elements that violate other requirements of 780 CMR.

104.4 Design. All HVAC, lighting, and electric power distribution systems including sequence of operation, controls and supporting documentation shall be designed and specified by a qualified Registered Professional Engineer except as provided in M.G.L. c. 143, § 54A and any profession or trade as provided in M.G.L. c. 112, § 60L and M.G.L. c. 112, § 81R. The Registered Professional Engineer(s) or other legally recognized professional (M.G.L. c. 112, § 81R) shall be responsible for the review and certification that all submittals and shop drawings conform to the approved HVAC, lighting, and electric power distribution construction documents as submitted for the building permit and approved by the building official, per 780 CMR 116.0.

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

104.5 Acceptance. In accordance with the provisions of 780 CMR 120.0, a certificate of occupancy shall not issue until the building official or his designees have witnessed a satisfactory test of all HVAC, lighting control, and electric power distribution systems installed in accordance with the construction documents. All systems shall be tested in accordance with the applicable standards of 780 CMR and documents. In addition, the following documents shall be simultaneously submitted to the building official prior to the issuance of a permanent certificate of occupancy.

1. Certification from the Registered Professional, as allowed in 780 CMR 116.2, stating that the HVAC, lighting, and electric power distribution systems have been installed in substantial accord with the approved construction documents.
2. Confirmation by the building owner/developer or authorized representative that they have received all HVAC, lighting, and electric power distribution system record drawings from the installing contractors and that the Registered Professional Engineer or other legally recognized professional (M.G.L. c. 112, § 81R) has reviewed their reasonable accuracy.
3. Confirmation by the building owner/developer or authorized representative that they have received all construction documents required in Section 104 including reports, controls documentation, operation manual(s) and maintenance manual(s).

Exception. In lieu of witnessing a satisfactory functional test, the building official or their designees may accept a final performance acceptance test report from a Registered Professional Engineer or other legally recognized professional (M.G.L. c. 112, § 81R). Said report shall certify that the systems have been tested and satisfactorily meet their performance requirements.

104.6 Unsafe Lighting and Ventilation. The building official may require or accept the documentation required in Section 104.5 in enforcing the provisions of 780 CMR 34.00.

104.7 Conditional Acceptance. The requirements of 780 CMR 104.0 shall not preclude the issuance of a temporary certificate of occupancy by the Building Official in accordance with 780 CMR 120.3 as long as it can be demonstrated that compliance can be accomplished with the building occupied.

Change 105.1 Compliance Materials to read:

The Code official shall be permitted to approve specific computer software, worksheets, compliance manuals and other similar materials that meet the intent of **this code**. This includes, but is not limited to REScheck and COMcheck software with compliance to the IECC 2006 or IECC 2009 code.

Add these two definitions to CHAPTER 2

CONTINUOUS AIR BARRIER. The combination of interconnected material and assemblies joined and sealed together with flexible joints that provide the air-tightness of the building envelope above and below grade that separate conditioned from unconditioned space, or from space with temperature and/or humidity conditions that differ by more than 50%.

OUTDOOR AIR. Air taken from the outdoors, and therefore not previously circulated through the system.

Add this exception to SECTION 302 DESIGN CONDITIONS

Exception. Buildings or portions of buildings which require different temperatures and humidity, such as, but not limited to, hospitals, laboratories, museums, art galleries, supermarkets, thermally sensitive equipment rooms, archival storage facilities, and facilities for the elderly, may require the use of alternative indoor design conditions. Any such use of alternative indoor design conditions shall be documented by a licensed professional.

Replace 502.2.4 Below-grade Walls with the following:

The minimum thermal resistance of the insulating material installed in, or continuously on, below grade walls of conditioned spaces shall be specified in Table 502.2(1) and shall extend from the top of the wall to the depth of the bottom of the floor slab.

Make the following changes to Table 502.2(1) BUILDING ENVELOPE REQUIREMENTS - OPAQUE ASSEMBLIES

Walls, above Grade; Metal Framed: Add: or R10 ci
Walls, below Grade: Below Grade wall: Replace NR with R-5 ci.

Slab-on-Grade Floors; Unheated Slabs; Replace NR with R-5 for 24 inches below

Add a second paragraph to 502.2.6 Slabs on Grade.

The entire area of the slab on grade shall be insulated with a minimum of R-5 rigid insulation in the following buildings: schools K-12, including daycare; buildings of use groups R-1, R-2, I-1 and I-2, and; college and university buildings of B and A use groups.

Delete entire content of 502.4 Air Leakage and replace with:

502.4 Air Leakage.

502.4.1 Air Barriers. The building envelope shall be designed and constructed with a continuous air barrier to control air leakage into, or out of the conditioned space and shall also be provided