

Commonwealth of Pennsylvania
Uniform Construction Code
Review and Advisory Council

PENNSYLVANIA UNIFORM CONSTRUCTION CODE
2012 CODE CHANGE RECOMMENDATION FORM

Date Submitted:	November 7, 2011
Proposer's Name	Donald J. Vigneau
Company Affiliation (if any):	Northeast Energy Efficiency Partnerships Inc.
Address:	91 Hartwell Ave, Lexington MA 02421
Telephone:	781-860-9177, Ext. 136
Email:	dvigneau@neep.org
ICC Code:	2012 International Energy Conservation Code
ICC Code Change Number :	EC 81-09/10, Part I.
Code Section(s):	Section R402.4
This is a Recommendation:	<input checked="" type="checkbox"/> To Adopt the Change <input type="checkbox"/> To Not Adopt the Change
For the Following Reasons: (Provide Details Below)	<input checked="" type="checkbox"/> Health Safety and Welfare <input checked="" type="checkbox"/> Technical Feasibility <input checked="" type="checkbox"/> Economic and Financial Impacts <input checked="" type="checkbox"/> Other (Specify Below)

Detailed reasons for your recommendation. Provide relevant data to support your position when possible.

Reason.

The specific criteria outlined in Section 107(B)(3) of the Pennsylvania Construction Code Act apply to this proposal as follows:

1. The impact that the provision may have upon the health, safety, and welfare of the public.

- **Homes will use less energy as the thermal envelope is tightened and verified by air leakage testing.** Under the 2012 *IECC*, all new Pennsylvania homes will be more tightly sealed, with tested air leakage meeting a reasonable performance standard at the minimum ASHRAE 62 standard below which mandatory ventilation would be required. Air leakage testing is objective and more reliable than a visual inspection, will reduce the burden on code officials to inspect for air leakage, and the energy savings will be substantial in many cases.
- **Ducts will leak less in HVAC distribution systems.** As in the 2009 *IECC*, duct testing is required unless ducts and air handler are located inside conditioned space. The improved duct tightness standard in the 2012 *IECC* will result in more efficient delivery of heated or cooled air to the entire house, reducing the amount of energy used to heat and cool and helping to avoid the need for occupants to adjust the thermostat to address discomfort.

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2. The economic and financial impact of the provision.

- Air testing is now performed in the region at an average cost of about \$375 plus travel time per test. This testing first sets the base performance of the construction and, after all leaks have been identified and corrected, verifies performance. The code language allows for penetrations to be cut where equipment and systems installations are not completed, but sealed off for the test. This test can be acceptable where visual inspection of the final installations at penetrations can be made and proper sealing verified. As with any construction procedure, practice makes for good techniques and improves performance; a truism borne out by builders now constructing Energy Star homes.

3. The technical feasibility of the provision.

- This provision depends upon certified testers. The EPA Energy Star program has developed a cadre of qualified testing companies/individuals who can certify performance; more companies can also be developed by builders associations throughout the Commonwealth that work with their local weatherization programs to have qualified testers available.

Completed forms may be e-mailed to ra-uccrac@pa.gov or mailed to:
Bureau of Occupational & Industrial Safety
PA Department of Labor and Industry
651 Boas Street, Room 1613
Harrisburg, PA 17121

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Address:	91 Hartwell Ave, Lexington MA 02421	
Telephone:	781-860-9177, Ext. 136	
Email:	dvigneau@neep.org	
ICC Code:	2012 International Energy Conservation Code	
ICC Code Change Number :	EC 107-09/10.	
Code Section(s):	R402.2.2	
This is a Recommendation:	<input checked="" type="checkbox"/> To Adopt the Change <input type="checkbox"/> To Not Adopt the Change	
For the Following Reasons: (Provide Details Below)	<input checked="" type="checkbox"/> Health Safety and Welfare <input checked="" type="checkbox"/> Technical Feasibility <input checked="" type="checkbox"/> Economic and Financial Impacts <input checked="" type="checkbox"/> Other (Specify Below)	

Detailed reasons for your recommendation. Provide relevant data to support your position when possible.

Reason.

The specific criteria outlined in Section 107(B)(3) of the Pennsylvania Construction Code Act apply to this proposal as follows:

- 1. The impact that the provision may have upon the health, safety, and welfare of the public.**
 - **Ducts will leak less in HVAC distribution systems.** As in the 2009 *IECC*, duct testing is required unless ducts and air handler are located entirely inside conditioned space. The improved duct tightness standard in the 2012 *IECC* will result in more efficient delivery of heated or cooled air to the entire house, reducing the amount of energy lost to unconditioned spaces and the outdoors when heating or cooling must be oversized, and helping to avoid the need for occupants to adjust room temperatures to address discomfort.
- 2. The economic and financial impact of the provision.**

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- Testing is not new in the 2012 IECC, only the level of performance of the duct systems. Since all ducts must continue to be sealed to assure the performance of any duct system design, use of the correct materials does not represent a financial impact. As proper workmanship continues to be specified in adequate contract documents, any financial impact is a result of lack of attention to workmanship.

3. The technical feasibility of the provision.

- Each provision of the 2012 IECC has undergone several rounds of review, and ultimately every proposal has been approved, disapproved, or modified by a representative body of the nation’s building officials and governmental officials. Many of these officials are Pennsylvania citizens. The ICC’s consensus-driven process ensures that each section of the code is technically feasible, understandable, and enforceable.

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PENNSYLVANIA UNIFORM CONSTRUCTION CODE
2012 CODE CHANGE RECOMMENDATION FORM

Date Submitted:	November 24, 2011
Proposer's Name	Donald J. Vigneau
Company Affiliation (if any):	Northeast Energy Efficiency Partnerships Inc.
Address:	91 Hartwell Ave, Lexington MA 02421
Telephone:	781-860-9177, Ext. 136
Email:	dvigneau@neep.org
ICC Code:	2012 International Energy Conservation Code
ICC Code Change Number :	EC27
Code Section(s):	Section R402.1; Tables 402.1.1, 402.1.3 and 402.2.5
This is a Recommendation:	<input checked="" type="checkbox"/> To Adopt the Change <input type="checkbox"/> To Not Adopt the Change
For the Following Reasons: (Provide Details Below)	<input checked="" type="checkbox"/> Health Safety and Welfare <input checked="" type="checkbox"/> Technical Feasibility <input checked="" type="checkbox"/> Economic and Financial Impacts <input checked="" type="checkbox"/> Other (Specify Below)

Detailed reasons for your recommendation. Provide relevant data to support your position when possible.

Reason. Reason: The proposed changes improve the thermal integrity of the building envelope by decreasing the allowed U-factors for several building components that are currently below their reasonable potential in the Commonwealth's climate zones. Improvements in available technologies and the demonstrated viability of the proposed levels in programs such as Energy Star, Building America, and other beyond-code efforts make these changes viable improvements in the context of the current and increasing need for lower energy consumption by buildings.

Cost Impact: The code change proposal will increase the cost of construction.

The specific criteria outlined in Section 107(B)(3) of the Pennsylvania Construction Code Act apply to this proposal as follows:

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1. The impact that the provision may have upon the health, safety, and welfare of the public.

- **Improvements to the components of the permanent thermal building envelope, including more efficient window requirements and better insulation requirements, will bring efficiency benefits to Pennsylvania homes over the useful life of the dwellings.** Chapter 4[RE] of the 2012 IECC improves insulation requirements for more efficient attics, walls, basements, and crawl spaces. These measures are cost-effective at initial construction of the dwelling, and will yield energy savings for the useful lifetime of the home. The 2012 IECC also includes better glazing U-factors and tighter window seals, and now includes a moderate limitation on solar heat gain (SHGC) in climate zone 4, typically at no additional cost for the window. SHGC can contribute to reduced HVAC equipment cost, as equipment is sized smaller to account for less heat gain. This will also help control summer peak electric demand in the Philadelphia area, allow cooling systems to be down-sized, and keep homes more comfortable during the summer months, with or without air conditioning.

2. The economic and financial impact of the provision.

- As highlighted above, improvements to the building thermal envelope are most cost-effective at initial construction. For example, a study by ICF International Consulting and the Building Codes Assistance Project (BCAP) shows that the incremental cost increase for a typical Philadelphia row house built to 2012 IECC requirements is between \$1,222 and \$1,847. However, with energy cost savings between \$194 and \$205 annually, these measures will completely offset the first cost within the first four years of the home’s occupancy. More importantly, these modern and efficient homes continue to save fuel expenses for the homeowner for decades to come. After 30 years, the home will have saved its owner(s) up to \$3,500 beyond the cost of the efficiency improvements. The result will be similar across the other climate zones of the Commonwealth. These improvements are smart investments in Pennsylvania’s energy future. A copy of the ICF/BCAP analysis can be provided on request.

3. The technical feasibility of the provision.

- Each provision of the 2012 IECC undergoes several rounds of review, and ultimately every proposal has been approved, disapproved, or modified by a representative body of the nation’s building officials and governmental officials who are responsible for enacting and administering their jurisdiction’s building codes. Many of these representative officials are Pennsylvania citizens. The ICC’s consensus-driven process ensures that all section of the code are technically feasible, coordinated for consistency among the model code documents, and enforceable.

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