

ADVISORY COMMITTEE COMMENT FORM FOR PROPOSED CODE CHANGES

(This form must be submitted electronically)

Author/requestor: Karen Linner

Email address: karenl@bamn.org

IECC RE- 12

Telephone number: 651-646-7959 x166

Firm/Association affiliation, if any: Builders Association of Minnesota

Proposed Code Change - Language

Please provide your proposed code change in strikeout/underline format. Provide the *specific* language you would like to see changed, with new words underlined and words to be deleted should be ~~stricken~~. Also, state whether the language contained in your proposal is from a code book or from an amendment currently found in Minnesota Rule. (You may provide the language (electronically) on a separate, attached sheet).

R402.4.1.2 Testing.

~~The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour in Climate Zones 1 and 2, and 3 air changes per hour in Climate Zones 3 through 8. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.~~

During testing:

- ~~1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures;~~
- ~~2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;~~
- ~~3. Interior doors, if installed at the time of the test, shall be open;~~
- ~~4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;~~
- ~~5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and~~
- ~~6. Supply and return registers, if installed at the time of the test, shall be fully open.~~

Proposed Code Change – Need and Reason

Please provide a thorough explanation of the need for this change and why this proposed code change is a reasonable change. During the rulemaking process, the Agency must defend the need and reasonableness of all its proposed changes. The Agency must submit evidence that it has considered all aspects of the proposal. (You may provide the need and reason (electronically) on a separate attached sheet).

Testing every newly constructed home with a blower door does not make sense in Minnesota since home builders have been building under a very stringent energy code since April of 2000 which requires a sealed air barrier. The air tightness levels are so strict in Minnesota the residential energy code has required mechanical ventilation. Adding mechanical ventilation in other states would seem like a very strange way to build. However, the motto in Minnesota residential construction has been to “build it tight and ventilate it right.” Building code officials and home builders have been well trained to construct homes with well sealed air barriers. To answer whether this code change is needed and reasonable for Minnesota home owners the question has to be established. Why is the maximum air changes per hour at 50 Pascals (ACH50) for natural ventilation ~ leakage into the home ~ set at 3.0? There are two reasons.

- One, less ACH50 means less energy use. Of course with most energy measures there is a law of diminishing returns. Cutting ACH50 from 5.0 to 3.0 will save far more energy than cutting ACH50 from 3.0 to 1.0.
- Two, the other reason is that when houses have 3.0 or less ACH50 they normally require mechanical ventilation to prevent moisture problems from too much interior humidity in the winter. Building scientists also say it is important to have fresh air brought into these very tight homes.

How close are Minnesota builders getting to 3.0 or less ACH50 in new construction? If you ask most energy raters who perform blower doors in Minnesota they will tell you, “The average for new single family homes is 1.5 ACH50” That number has been proven with large databases of Minnesota homes. For instance, BAM ran a program to earn home builders a \$2,000 per home federal energy efficient tax credit if the homes they built were 3rd party tested, verified and were more than 50% more efficient than the 2004 IECC. A total of 519 homes were tested in 2006 and 2007. They averaged 1.7 ACH50. The highest air leakage for this data set was 3.22 ACH50. All but 3.5% of the homes tested at or below 3.0 ACH50. What is very interesting about this data set is that many of the homes were already built and occupied when they were tested for the tax credit. This means that the builders, crews, and insulation subcontractors had no idea these homes would be scrutinized with a blower door test.

Since October 2009, one of the largest production builders in Minnesota tests every new single family home that is located in a utility service territory that provides free blower door tests. They have third party tested 175 homes and the average is 1.1 ACH50. Since June of 2010 they have also third party tested multi family homes in the same utility service territory areas. These 75 multifamily homes averaged 1.9 ACH50. BAM is working to have the 3rd party tester who conducted these tests, and hundreds of others, submit their database of all blower door tests to the Minnesota Department of Commerce for review and analysis.

Under the proposed code all 250 of these homeowners described above would be paying for a blower door test that would tell them absolutely nothing. More importantly these blower door tests would NOT save even one Btu of energy for the homeowners or the public.

BAM has requested data from the utilities that offer blower door testing as part of their residential Conservation Improvement Programs (CIP). We have not been able to obtain this data. The Minnesota Department of Commerce oversees the reporting for these programs for the Minnesota Public Utilities Commission. Commerce does not collect blower door information or testing results from the utilities. BAM would suggest that the Department of Labor & Industry and the industry together request this information from the Public Utilities Commission to better inform us as a new energy code is promulgated. The data is very important to determine the need of new provisions in a new energy code.

Without proving that Minnesota home builders are not properly air sealing houses it is not reasonable to make Minnesota homeowners pay for a blower door test. This requirement would make sense in a state that was moving to the 2012 IECC when their previous energy code did not require a sealed air barrier.

Proposed Code Change – Cost/Benefit Analysis

Please consider whether this proposed code change will increase/decrease costs or indicate that it will not have any cost implications and explain how it will not. If there is an increased cost, will this cost be offset somehow by a life safety or other benefit? If so, please explain. Are there any cost increases/decreases to enforce or comply with this proposed code change? If so, please explain. (You may provide the cost/benefit analysis (electronically) on a separate, attached sheet).

Currently blower door tests are subsidized by utilities to meet their residential Conservation Improvement Program objectives. This means all utility rate payers subsidize blower door tests. If blower door tests were required as part of the Minnesota Residential Energy Code it is highly likely that subsidized utility blower door tests would become a thing of the past. That means that homeowners would pay for this cost directly. BAM is surveying its members to find out how much unsubsidized blower door tests would cost in the Twin Cities metro area and rural areas around Minnesota. We are also analyzing how much energy a homeowner would save by dropping their ACH50 from 3.22 to 3.0 versus the cost of a blower door test.

There will be a ZERO benefit to homeowners who are forced to pay for mandatory blower door tests only to prove what is known ~ Minnesota home builders are already building very tight homes.

Other Factors to Consider Related to Proposed Code Change

1. Is this proposed code change meant to:
 - change language contained in a published code book? If so, list section(s).
 - change language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
 - delete language contained in a published code book? If so, list section(s).
 - delete language contained in an existing amendment in Minnesota Rule? If so, list Rule part(s).
 - neither; this language will be new language, not found in the code book or in Minnesota Rule.
2. Is this proposed code change required by a Minnesota Statute or new legislation? If so, please provide the citation to the Statute or legislation.
3. Will this proposed code change impact other sections of a published code book or of an amendment in Minnesota Rule? If so, please list the affected sections or rule parts.
4. Will this proposed code change impact other parts of the Minnesota State Building Code? If so, please list the affected parts of the Minnesota State Building Code.
5. Who are the parties affected or segments of industry affected by this proposed code change?
6. Can you think of other means or methods to achieve the purpose of the proposed code change? If so, please explain what they are and why your proposed change is the preferred method or means to achieve the desired result.
7. Are you aware of any federal requirement or regulation related to this proposed code change? If so, please list the regulation or requirement.