

MEMBER GUIDE TO THE 2015 MINNESOTA ENERGY CODE BLOWER DOOR TESTING REQUIREMENTS



BUILDING AIR LEAKAGE TESTING

2015 Minnesota Residential Energy Code section R402.4.1.2 requires air leakage testing for all new residential buildings and additions. The requirement is met if the building has a leakage rate not exceeding 3.0 air changes per hour when depressurized with a blower door to 50 Pascals (3.0 ACH₅₀).

- Air Changes per Hour (ACH at 50 Pa) is a commonly used measure of building airtightness.
- ACH at 50 Pa is the number of complete air changes that will occur in one hour with a 50 Pascal pressure being applied uniformly across the building envelope.
- The pressure exerted by a blower door, 50 Pascals, equals about 1 lb. per square foot (about equal to the pressure of a 16-mph wind).

The test must be performed using a Blower Door device which consists of a large fan, a frame and panel. A manometer (pressure gauge) is used to read house and fan pressures.

The test may be performed at any time after creation of all penetrations in the building thermal envelope. In practice the test is typically performed close to the final inspection after all penetrations in the building thermal envelope are sealed including those for utilities, plumbing, electrical, ventilation and combustion appliances.

To help assure that you do not exceed the required air leakage rate, we recommend that you benchmark test one of your current homes and work closely with a professional certified rater that can provide additional diagnostics to locate air leaks and recommend strategies to improve air tightness in future projects.

To conduct the test:

1. Electrical power must be available to operate the blower door
2. Measure the building, calculate the total conditioned floor area and volume
3. Close all windows and doors, including fireplace and stove doors
4. Close all dampers including exhaust, intake, make-up air, backdraft and flue dampers. Since you will be depressurizing the house, dampers in bath fans, etc. will be pulled closed during the test and will therefore not negatively affect the results
5. Make sure plumbing traps are filled with water
6. Leave all interior doors open

7. Turn off heating, cooling and ventilation systems
8. Open supply and return registers
9. Seal exterior openings for continuously operating ventilation systems and heat recovery ventilators
10. Adjust all combustion appliances so that they do not turn on during the test
11. Install the blower door in an exterior door opening and connect hoses from the manometer to the blower door fan and the exterior pressure tap. See manufacturer's instructions for correct set-up
12. Depressurize the house to -50 Pascals
13. During testing doors cannot be opened or closed
14. Collect data, calculate and record the test results

A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

The test results also must be recorded on the required energy certificate that is posted on or near the electrical panel.

Where required by the building official, the test shall be conducted by an approved third party.

The code does not require the blower door test to be performed by a professional certified rater. However, professional certified raters are properly trained and must meet code of ethics, code of conduct and rigorous quality assurance standards. They are recognized by federal government agencies such as the Environmental Protection Agency (EPA), the U.S. Department of Energy (DOE).

The following resources can help you find a professional certified rater:

RESNET: http://www.resnet.us/directory/search/searchtype/auditor/zip/mn/trade_id/29/slug/find-raters-auditors/page/1

BPI: http://www.bpi.org/individual_locator.aspx

MNBPA: <http://mbpa.us>

There are also established standards for conducting airtightness testing using a blower door (ASTM E779, ASTM E1827, and RESNET Standard for Performance Testing and Work Scope: Enclosure and Air Distribution Leakage Testing), however these standards are not referenced or required by the 2015 Minnesota Residential Energy Code.



BUILDERS ASSOCIATION OF MINNESOTA

MEMBER FIELD GUIDE TO THE 2015 MINNESOTA ENERGY CODE BLOWER DOOR TESTING REQUIREMENTS V.1.0

bamn.org/regulation