



Code Outreach Program – ACH 50 testing or "blower door test"

This edition of the Code Outreach Program discusses the envelope tightness test, commonly referred to as “blower door testing,” required by the “Residential Provisions” of the [2015 International Energy Conservation Code](#) (2015 IECC), as modified by Part 3 of the [2016 Supplement to the State Energy Conservation Construction Code](#) (2016 ECS). The test, which is defined below, is **mandatory** for all new residential buildings, including modular residential buildings, multi-family buildings, and thermally isolated modifications to existing buildings.

While a “blower door” test is required for *modular homes* (also known as *factory manufactured homes*), the test is not required for *manufactured homes* (also known as HUD homes) which are manufactured in compliance with applicable Department of Housing and Urban Development (HUD) Manufactured Home Construction and Safety Standards (24 CFR Part 3280). Definitions of the terms “*factory manufactured home*” and “*manufactured home*” are found in the [2017 Uniform Code Supplement](#).

Work performed in existing buildings generally does not trigger a blower door test unless the work area is thermally isolated from existing construction. The reasoning is that since existing construction is not subject to testing, and may not comply with the prescribed infiltration threshold, testing both areas would potentially invalidate the test results. For more information on the subject, refer to the Technical Bulletin that is listed as “Air Infiltration” on [our Technical Support webpage](#), or, download it by clicking [here](#).

The code sections that require “blower door” testing are as follows:

2015 IECC, Section R402.4 Air leakage (Mandatory), as modified by the 2016 ECS: *The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.6.*

2015 IECC, Section R402.4.1.2 (Testing), as modified by the 2016 ECS: *The building or dwelling unit shall be tested and verified as having an air leakage rate not exceeding three air changes per hour. Testing shall be conducted in accordance with ASTM E 779 or ASTM E 1827 and reported at a pressure of 0.2 inch w.g. ... Where required by the code official, testing shall be conducted by an approved third party ...*

The 2015 IECC, as modified by the 2016 ECS, defines “building thermal envelope” as:

The exterior walls (above and below grade), floor, roof, and any other building elements that enclose conditioned space or provides a boundary between conditioned space and exempt or unconditioned space.

The test requirements are modified by the 2016 ECS by adding an optional test procedure for buildings with two or more dwelling units (see 2015 IECC Section R402.4.1.3, as added by the 2016 EC Supplement). The test procedure also allows for evaluation of each dwelling unit based on a maximum of 0.3 CFM per square foot of enclosure surface area within the testing area. To put it simply, the “*enclosure surface area*” is the sum of the conditioned surfaces of the dwelling unit (walls, floor, and ceiling). Section R402.4.1.3.1 of the 2015 IECC, as added by the 2016 ECS, allows for representative sampling of buildings containing “*more than seven dwelling units.*”

What is required to document the test results?

According to Section R402.4.1.2 of the 2015 IECC, as amended by the 2016 ECS, “*a written report of the results of the test shall be prepared and signed by the party conducting the test and provided to the code [enforcement] official*” and “*testing shall be performed at any time after creation of all penetrations of the building thermal envelope.*” The items required in the report are listed in Section R402.4.1.2 of the 2015 IECC, as amended by the 2016 ECS.

Who can perform this testing?

While CEOs are permitted to perform this testing, DBSC does not recommend that CEOs do so, unless they have adequate training. Section R402.4.1.2 of the 2015 IECC, as amended by the 2016 ECS, provides that the CEO may require the testing be performed by an *approved* third party. The term *approved* is defined in Section R202 of the 2015 IECC. Before *approving* a third-party tester, the CEO should review the qualifications of the third party and determine that the third party is competent to perform the test.

Please look for our next edition of the Code Outreach Program at the beginning of next month.

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If you have questions pertaining to the Code Outreach Program, email us at COP.codes@dos.ny.gov

If you have questions pertaining to the Uniform Code or Energy Code, email our technical support group at: codes@dos.ny.gov

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