City of Fort Collins Building Code Air Tightness Testing Protocol,
New Attached and Detached Single Family Dwellings

Updated February 10, 2020

Approved Testers

Test results will only be accepted from individuals that hold any of the following certifications: RESNET Rater, BPI Building Analyst, or other building performance professionals approved by the Building Official.

Whole-house Air Leakage

2018 I-Code references: IRC N1102.4.1.2, IECC R402.4.1.2

This testing is a mandatory requirement (all residential energy code compliance paths) for new attached (SFA) and detached single family dwellings. SFA dwellings include duplexes, triplexes, townhomes and row-houses where each dwelling unit extends from foundation to roof or ceiling.

Testing Protocol

- A multi-point air tightness test shall be conducted based on the ANSI/Residential Energy Services Network (ANSI/RESNET)/ICC 380 or RESNET Standard 800, Section 802, Procedures For Building Enclosure Air Tightness Testing.
- A multi-point air tightness test shall be conducted, per Section 802.6.

Compliance requirement

The building air change rate at 50 Pascal test pressure (ACH50) shall not exceed 3.0 ACH50 for either gas or electric heated homes.

Submittal requirement

Output from blower-door testing / analysis software showing, at minimum, the following information:

- Building address
- Date of test
- Technician and company conducting the test
- Building volume (cubic feet)
- Building leakage rate at 50 Pascal test pressure (corrected CFM50)
- Percent uncertainty in the corrected CFM50, at the 95% confidence level (+/- 5%)*
- Building air change rate at 50 Pascal test pressure (ACH50 = CFM50 x 60 / Volume)

The Tester must be identified on the software report. This information may be hand-written on the software output.

* If uncertainty exceeds this limit, use Section 802.8.1 to calculate "Adjusted CFM50." Calculate "Adjusted ACH50" = (Adjusted CFM50 x 60)/Volume and write this value on software report.

Notes

- "Building volume" is the volume enclosed by the conditioned space boundary, participating in the blower-door test. If not printed in the software output, volume may be handwritten on the output.

- An example of software meeting most of the test protocol's requirements is Tectite, published by The Energy Conservatory. It is available for free download at www.energyconservatory.com/products/product/tectite.

Attached Garage Isolation

Code references: IRC N1102.4.1.2, IECC R402.4.1
This is a Mandatory requirement (all residential energy code compliance paths) for new construction, for buildings with an attached garage.

Testing protocol
- Set up the building in accordance with the protocol for whole-house air leakage, above.
- Garage doors to the exterior shall be closed.
- Place a pressure tap in the garage and close the door between house and garage, without crimping the sensing tube (recommendation: use rigid metal tube where it passes through doorway).
- Adjust the blower door fan speed to so that the building interior is depressurized to -50 Pascal with respect to the outdoors.
- Measure the house pressure with respect to the garage.

Compliance requirement
The house pressure with respect to the garage shall be in the range of -45 to -50 Pascals.

Submittal requirement
Provide the test result by writing "House pressure WRT garage = ____ Pa" on the software output submitted for the whole-house air leakage requirement, above.

Mechanical Room Isolation

Code references: IRC G2406.4
This is a Mandatory requirement (all residential code compliance paths). All new buildings with natural- draft combustion appliances (which must be located in isolated mechanical rooms).

Testing protocol
- Set up the building in accordance with the protocol for whole-house air leakage, above.
- Place a pressure tap in the mechanical room and close the door between house and mechanical room, without crimping the sensing tube (recommendation: use rigid metal tube where it passes through doorway).
- Adjust the blower door fan speed to so that the building interior is depressurized to -50 Pascals with respect to the outdoors.
- Measure the house pressure with respect to the mechanical room.

Compliance requirement
- The house pressure with respect to the mechanical room shall be in the range of -45 to -50 Pascal.
- Natural draft appliances must also pass a Combustion Safety Test.

Submittal requirement
Provide the test result by writing "House pressure WRT mechanical room = ____ Pa" on the software output submitted for the whole-house air leakage requirement, above.