

City of Fort Collins New Multifamily Air Tightness Testing Protocol



Code reference and application

2021 International Energy Conservation Code (IECC) Sections C402.5.2 and R402.4.1.2 as amended by the City of Fort Collins, requires that stacked multifamily individual dwelling units meet the air tightness requirement below. It does not apply to attached-single-family dwellings such as duplexes, townhomes, and rowhouses.

Approved testers

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

Compliance requirements

- Apartment exterior air barrier must be continuous and unbroken, separating the conditioned space of the building from the exterior and any unconditioned spaces or mechanical rooms.
- Units must be compartmentalized to minimize uncontrolled pathways for smoke and other indoor air pollutants to transfer between units. Walls, ceilings, floors, and doors that separate each apartment from neighboring apartments, corridors, common space, utility chases, floors above and below, stairwells and elevator shafts must be air sealed.
- It is highly recommended that the tester visually inspect air barrier components as each building reaches pre-drywall stage, so as to help ensure units pass the tests.
- **The maximum air leakage rate** at 50 Pascal test pressure **shall not exceed 0.30 CFM50/square foot of dwelling unit enclosure area** as defined within the IECC.

Unit sampling

- Where buildings have fewer than eight testing units, each testing unit shall be tested.
- For *buildings* with eight or more testing units, 20 percent of the testing units in the *building* shall be tested, including at least one of each unit type and approximately an equal number of units on each floor level. For each tested unit that exceeds the maximum air leakage rate, corrections to the unit must be made and the unit re-tested until it meets the required air leakage, and an additional two units of this type in the same *building* shall be tested and meet the required air leakage.

Testing

- 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.
- The multi-point airtightness test shall be conducted per in section 4.4.2 Multi-Point Airtightness Test of (ANSI/RESNET)/ICC 380 or section 802.6 Procedure for Conducting a Multi-Point Airtightness Test of RESNET Standard Chapter 8.

Submittal requirement

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

- Building address, dwelling model unit type and unit number
 - Date of test
- ...continued

- Test technician* and company conducting the test
- Sq ft of dwelling unit enclosure area as defined within the IECC
- Percent uncertainty in the corrected CFM50, at the 95% confidence level (+/- 5%)**
- Dwelling unit air change rate (CFM50 / sq ft dwelling unit enclosure area)

*The test technician must be identified on the software report.

**If uncertainty exceeds this limit, use Section 802.8.1 of RESNET Standard 800 to calculate an adjusted CFM50 and adjust the ACH50 result. This may be handwritten on the report.

Note

An example of measurement software meeting the requirements above is TECTITE, published by 'The Energy Conservatory'. TEC software options are available at www.energyconservatory.com.