



City of Fort Collins Building Code Protocol for *New Multifamily Building Air Tightness Testing* (Effective January 12, 2019)

Code Reference and Intent

2018 International Energy Conservation Code (IECC) Section R402.4.1.2, as amended by the City of Fort Collins, requires that the exterior building envelope and individual dwelling units meet the air tightness requirement referenced below in order to minimize air leakage through the building shell and the transfer of smoke and other indoor pollutants between individual units.

Application

This protocol can be used to meet the air barrier testing requirement for **any stacked multifamily building** built under the current City of Fort Collins amended residential or commercial I-Codes, replacing the whole building air barrier test. It **does not apply to attached-single-family dwellings** such as duplexes, townhomes, and row-houses.

Approved Testers

Test results will only be accepted from individuals that hold any of the following certifications: RESNET Rater, BPI Multifamily Auditor or Building Analyst, LEED Multifamily Auditor, approved City of Fort Collins large commercial building air barrier tester; or other building performance professionals 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 within the building.
- Units must be compartmentalized to minimize uncontrolled pathways for smoke and other indoor air pollutants to transfer between units. Walls, ceilings and floors that separate each apartment from neighboring apartments, corridors, common space, trash chutes, utility chases, floors above and below, stairwells and elevator shafts must be air sealed by sealing all penetrations in walls, ceilings, floors and chases. Weather-strip all doors that lead to common hallways.
- It is highly recommended that the contractor provide access for the tester to 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 unit enclosure surface area (the total surface area of all walls, floors and ceiling).

Unit Sampling

- When the air barrier is completed, tester must select a minimum of 20% of the units in each building to test, including at least one of each unit type and approximately an equal number of units on each floor level.
- Each of these units must be tested and pass without a failure. If a failure occurs, items causing the failure must be diagnosed, corrected, and the unit must be re-tested until it passes. A minimum of at least two additional units of this type in the same building must also be tested and pass.

Testing

- A multi-point air tightness test shall be conducted based on the Residential Energy Services Network (RESNET) Standard, Chapter 8, Section 802, Procedures For Building Enclosure Air Tightness Testing, (available for download at [RESNET Standards](#)), and RESNET/ICC 380, ASTM E779 or ASTM E1827.
- Uncertainty in the corrected CFM50 of each unit tested, at 95% confidence, shall not exceed +/- 5%.

Test Report Submittal Requirement (to the Building Department)

- Building information including address and unit type data: enclosure surface area of each unit type, and the # and type of each unit per building that were tested.
- Testing results summarized in table reporting:
 - Building and unit numbers.
 - Unit results including: corrected CFM50, percent uncertainty at 95% confidence level, CFM50/sf unit enclosure area, mechanical compartment pressure WRT unit core, each test pass/fail result.
- Tester information: name, company, certification, signature and date
- Test reports shall be submitted to the Building department prior to Certificate of Occupancy.