Duct Leakage Testing - Applicable Codes

2021 Virginia Codes — Effective January 18, 2024

Virginia Blower Door Testing, LLC - VaBlowerDoor.com

(804) 898-8740 – Richmond (757) 739-1378 – Va. Beach (813) 659-7940 - Tech Direct

(This information is deemed reliable, but is not guaranteed.)

N1103.3.4 (R403.3.4) Sealing (Mandatory).

Ducts, air handlers and filter boxes shall be sealed. Joints and seams shall comply with either the International Mechanical Code or Section M1601.4.1 of this code, as applicable.

Exceptions:

1. Air-impermeable spray foam products shall be permitted to be applied without additional joint seals.
2. For ducts having a static pressure classification of less than 2 inches of water column (500 Pa), additional closure systems shall not be required for continuously welded joints and seams, and locking-type joints and seams of other than the snap-lock and button-lock types.

N1103.3.4.1 (R403.3.4.1) Sealed air handler.

Air handlers shall have a manufacturer's designation for an air leakage of no more than 2 percent of the design air flow rate when tested in accordance with ASHRAE 193.

N1103.3.5 (R403.3.5) Duct testing (Mandatory).

Ducts shall be pressure tested in accordance with ANSI/RESNET/ICC 380 or ASTM E1554 to determine air leakage by one of the following methods:

1. Rough-in test:
   Total leakage shall be measured with a pressure differential of 0.1 inch water gauge (25 Pa) across the system, including the manufacturer's air-handler enclosure where installed at the time of the test. Registers shall be taped or otherwise sealed during the test.
2. Postconstruction test:
   Total leakage shall be measured with a pressure differential of 0.1 inch water gauge (25 Pa) across the entire system, including the manufacturer's air-handler enclosure. Registers shall be taped or otherwise sealed during the test.
3. Test for ducts within the thermal envelope:
   Where all ducts and air handlers are located entirely within the building thermal envelope, total leakage shall be measured with a pressure differential of 0.1 inch water gauge (25 Pa) across the entire system, including the manufacturer's air-handler enclosure. Registers shall be taped or otherwise sealed during the test.

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

The licensed mechanical contractor installing the mechanical system shall be permitted to perform the duct testing. The contractor shall have been trained on the equipment used to perform the test.

N1103.3.6 (R403.3.6) Duct leakage (Prescriptive).

The total leakage of the ducts, where measured in accordance with Section N1103.3.5 (R403.3.5), shall be as follows:

1. Rough-in test:
   The total leakage shall be less than or equal to 4.0 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m²) of conditioned floor area where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3.0 cubic feet per minute (85 L/min) per 100 square feet (9.29 m²) of conditioned floor area.
2. Postconstruction test:
   Total leakage shall be less than or equal to 4.0 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m²) of conditioned floor area.
3. Test for ducts within the thermal envelope:
   Where all ducts and air handlers are located entirely within the building thermal envelope, total leakage shall be less than or equal to 8.0 cubic feet per minute (226.6 L/min) per 100 square feet (9.29 m²) of conditioned floor area.

Note: *These are the current Virginia code references from the 2021 Virginia Residential Code and corresponding 2021 Virginia Energy Conservation Code, effective January 18, 2024. Confirm project-specific requirements with the local building official.*