

Duct Testing Standard (RS-33) **For New and Existing Construction (2015 WSEC)**

New Construction

Based on the protocol for “Total Leakage Testing,” or “Leakage Testing to Outdoors” duct leakage in new construction shall not exceed $0.04 \text{ CFM}_{25} \times \text{floor area}$ (in square feet) served by the system for leakage to outdoors or for total leakage when tested post construction. When testing at rough-in, targets should not exceed $0.04 \text{ CFM}_{25} \times \text{floor area}$ (in square feet) for total leakage or $0.03 \text{ CFM}_{25} \times \text{floor area}$ (in square feet) if the air handler is not installed.

Exception:

1. The total leakage or leakage to outdoors test is not required for ducts and air handlers located within the building thermal envelope. Ducts located in vented or conditioned crawl spaces do not qualify for this exception.
2. A maximum of 10 feet of return ducts and 5 feet of supply ducts are allowed to be located outside of the building thermal envelope.

Existing Construction

When a space-conditioning system is altered by the installation or replacement of space-conditioning equipment (including replacement of the air handler, outdoor condensing unit of a split system air conditioner or heat pump, cooling or heating coil, or the furnace heat exchanger), the duct system that is connected to the new or replacement space-conditioning equipment shall be tested. The test results shall be provided to the building official and the homeowner.

Exception 1: Duct systems that are documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in RS-33.

Exception 2: Ducts with less than 40 linear feet in unconditioned spaces.

Exception 3: Existing duct systems constructed, insulated or sealed with asbestos.

Exception 4: Additions of less than 750 square feet of conditioned floor area.

In addition, the following requirements must be met:

1. All testing must be done by a qualified technician. The minimum qualification requirement is documented attendance at a duct testing training course approved by the building official. The following existing training programs are recognized as equivalent to this requirement:
 - a. Northwest ENERGY STAR Homes Program, Performance Testing training for new construction.
 - b. Performance Tested Comfort Systems (PTCS) training for existing homes and new construction.

2. Where required by the code official, testing shall be conducted by an approved third party.
3. Duct systems must be designed, sized, and installed using recognized industry standards and International Residential Code (IRC) requirements, so that calculated heating and/or cooling loads are delivered to each zone.

Total Duct Leakage Test

Testing Procedure Application:

This test is appropriate in new construction when ducts are to be tested at the rough-in stage before the house envelope is intact and can also be done post construction. The test measures the total collected leaks in the system at an induced pressure of 25 Pascals (PA). Compared to the leakage to exterior test, the total leakage test is simpler, but does not discriminate between leakage to inside and outside the heated space; as such, this test is not recommended for homes with complete house envelopes and HVAC systems. In such cases, the leakage to outside test is recommended.

Standard:

- 1) For certification, the measured duct leakage must not exceed ***0.04 CFM₂₅ x floor area*** (in square feet) served by the system at rough-in **when the air handler is installed.**
- 2) The measured duct leakage at rough-in must not exceed ***0.03 CFM₂₅ x floor area*** (in square feet) served by the system **when the air handler is not installed.**
- 3) If testing post construction, the total leakage must not exceed ***0.04 CFM₂₅ x floor area*** (in square feet) served by the system.