



New Castle County Government Center
87 Reads Way
New Castle, DE 19720
Department of Land Use - Building Inspections

Date: **May 11, 2011**
Subject: **Duct tightness testing**
References: **2009 International Energy Conservation Code**

This Staff Code Interpretation is intended to be used to clarify Section 403.2.2 (Sealing) and Table 402.4.2 (Air Barrier and Insulation Inspection Criteria) in the above referenced Code Edition.

Below is the exact text from the section of the code in question:

Section 403.2.2, Sealing (Mandatory). All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.4.1 of the International Residential Code.

Duct tightness shall be verified by either of the following:

1. Postconstruction test: Leakage to the outdoors shall be less than or equal to 8 cfm per 100 square feet of conditioned floor area or a total leakage less than or equal to 12 cfm per 100 square feet of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. across the entire system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test.

2. Rough-in test: Total leakage shall be less than or equal to 6 cfm per 100 square feet of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. across the roughed in system, including the manufacturer's air handler enclosure. All register boots shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 4 cfm per 100 square feet of conditioned floor area.

Exceptions: Duct tightness test is not required if the air handler and all ducts are located within conditioned space.

STAFF CODE INTERPRETATION

Question 1: Section 403.2.2 of the code requires a duct leakage test for duct outside the conditioned space. The section 202 definition of conditioned space includes 'areas containing uninsulated duct.' When an HVAC duct is installed in a framed exterior wall on the conditioned side of the required insulation and air barrier, is the duct considered to be installed within the conditioned space and thus not subject to a duct leakage test?

Answer: In section 403.2.2, a duct tightness test is not required if the air handler and all the ducts are located within conditioned space. Putting ducts inside a wall cavity, inside of the insulation is not within conditioned space.

NCC Stance: Ductwork installed in exterior walls, insulated floors over unconditioned spaces, and ceiling assemblies bordering attics are considered to be outside the thermal envelope and a duct tightness test is required.

Question 2: When taken together, the criteria for Air barrier and thermal barrier, and Floors (including above-garage and cantilevered floors) in Table 402.4.2 seem to indicate that the joist bays supporting floors over unconditioned space must be completely filled with insulation. Is this a correct analysis?

Answer: No, the code intends only that insulation be in full contact with the sheathing.

Code Updates: The adoption of the 2012 IECC has not changed the requirements for when a duct tightness test is required.

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