

Achieving Air Leakage of 3.5 ACH50 or Lower in One and Two Family Homes

Overview

The 2014 Vancouver Building By-Law requires all new one and two family homes are required to achieve air leakage of 3.5 ACH50 or less. Air leakage is measured in Air changes per Hour (ACH) when a house is pressurized to 50 Pascal's. 3.5 ACH50 is 3.5 air changes of the entire volume of the air in a house in one hour.

Energy Advisors (EA's) use blower door tests to determine a home's airtightness. A blower door test pressurizes a house and measures the amount of air that escapes to the outside. If a home achieves 3.5 ACH50 or less, then the builder can move forward with the City of Vancouver's building inspection.

Mid-Construction

You are required to do a mid-construction blower door test once the air tightness layer has been installed. This blower door test should be performed pressurizing the house if a polyethylene air barrier is being used.

The target is 3.5 ACH50 or less, if that is not met then corrective action should be taken to improve the airtightness of the envelope before the final blower door test. An EA will help you identify cost-effective changes to lower air leakage at this early stage.

Post-Construction / Final

Following the construction of a one or two family home, a final blower test must be performed. If 3.5 ACH50 is not achieved on the first test, the City of Vancouver's building inspection cannot proceed.

The builder has two options in moving forward:

1. If the blower door test is below 5.5ACH50 then the project can pay for two staff responsible for airtightness (perhaps a site supervisor or crew responsible for the air tight layer) and show proof of registration along with the EnerGuide report showing 5.5ACH50 or lower. At this point the City of Vancouver building inspection can proceed.
2. If the blower door test shows air leakage in excess of 5.5ACH50 then the project has no other option but to reduce air leakage. This may include but is not limited to, caulking where materials meet, removing drywall to repair or install the air tightness layer, replacing pot lights with air tight pot lights and reducing air leakage in a variety of ways. Once a result of 5.5 ACH50 has been achieved the project must show proof of registration for two staff for the below course along with the EnerGuide report showing 5.5ACH50 or below.

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Recognized courses that fulfill the educational requirement include the following:

A. Get on the Right Side of the Blower Door Test: [One Day Air Tightness Course]

\$350.00 Register two staff here and print proof for your inspector.

<http://www.smallplanetsupply.com/vancouver-airtightness-1>

Alternative for Lane Homes

For lane homes (all homes under 1200 square feet) Normalized Leakage Area (NLA) can be used as an alternative measure to Air Changes per Hour (ACH). In particular a NLA of 2.1 cm^2/m^2 or lower is acceptable for VBBL compliance for lane homes. If this option is pursued the NLA must be shown on the EnerGuide report provided to Inspections staff.

Quality Control

In all cases the City reserves the right to have a separate blower door test run (at City cost) at the time of final inspection.