

#### **N1102.4. AIR SEALING LEAKAGE**

Building envelope air tightness and insulation installation shall be demonstrated to comply with one of the following options:

- N1102.4.1.1 Visual inspection option. The items listed in the table below, applicable to the method of construction, are field verified.

COMPONENT	CRITERIA <sup>1</sup>
Air barrier and thermal barrier	A continuous air barrier shall be installed in the building envelope. Exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed. Air-permeable insulation shall not used as a sealing material.
Ceiling/attic	The air barrier in any dropped ceiling/soffits shall be aligned with the insulation and any gaps in the air barrier sealed. Access openings, drop down stair or knee wall doors to unconditioned attic spaces shall be sealed.
Walls	Corners and headers shall be insulated and the junction of the foundation and sill plate shall be sealed. The junction of the top plate and top of exterior walls shall be sealed. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier. Knee walls shall be sealed.
Windows and doors	The space between window/door jams and framing and skylights and framing shall be sealed.
Rim Joints	Rim joists shall be insulated and include the air barrier.
Floors (including above-garage and cantilevered floors)	Insulation shall be installed to maintain permanent contact with underside of subfloor decking. The air barrier shall be installed at any exposed edge of insulation.
Crawl space walls	Where provided in lieu of floor insulation, insulation shall be permanently attached to the crawlspace walls. Exposed earth in unvented crawl spaces shall be covered with class I vapor retarder with overlapping joints taped.
Shafts, penetrations	Duct shafts, utility penetrations, and flue shafts opening to exterior or unconditioned spaced shall be sealed.
Narrow cavities	Batts in narrow cavities shall be cut to fit, or narrow cavities shall be filled by insulation that on installation readily conforms to the available cavity space.
Garage Separation	Air sealing shall be provided between the garage and conditioned spaces.
Recessed lighting	Recessed light fixtures installed in the building thermal envelope shall be air tight, IC rated; and sealed to the drywall.
Plumbing and wiring	Batt insulation shall be cut neatly to fit around wiring and plumbing in exterior walls, or insulation that on installation readily conforms to available space shall extend behind piping and wiring.
Show/tub exterior wall	Exterior walls adjacent to showers and tubs shall be insulated and the air barrier installed separating them from the showers and tubs.
Electrical/phone box on exterior wall	The air barrier shall be installed behind electrical or communication boxes or air-sealed boxes shall be installed.
HVAC register boots	HVAC register boots that penetrate building thermal envelope shall be sealed to the subfloor or drywall.
Fireplace	An air barrier shall be installed on fireplace walls. Fireplaces shall have gasketed doors.

<sup>1</sup> In addition, inspection of log walls shall be in accordance with the provisions of ICC-400.

- N1102.4.1.2 Testing option.** Testing shall be conducted with a blower door at a pressure of 0.2 inches (50 Pascals). Testing shall be performed at any time after creation of all penetrations of the building thermal envelope.

During Testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weather-stripping of other infiltration control measures;
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;
3. Interior doors, if installed at the time of the test, shall be open;
4. Exterior openings for continuous ventilation systems and heat recover ventilators shall be closed and sealed;
5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and
6. Supply and return registers, if installed at the time of testing, shall be fully open.

#### **N1103.2.2 (DUCT) SEALING.**

Ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Section M1601.4.1 Duct tightness shall be verified by the following:

- 1. Post-Construction test:** A total leakage less than or equal to 4 cfm (5.66 L/s) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area when tested at a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler end closure. 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 4 cfm (2.83 L/s) per 100ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioner floor area when tested at a pressure differential of 0.1 inch w.g. (25Pa) across the roughed in system, including the manufacturer's air handler enclosure. All registers 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 3 cfm (1.89 L/s) per 100 ft<sup>2</sup> (9.29 m<sup>2</sup>) of conditioned floor area.
3. The total leakage test in not required for duct and air handlers located entirely within the building thermal envelope.