



F.A.Q.

Question: (Ontario Specific)

Should the Airtightness Value (ACH50) used for the F280 Calculation be the same as that entered on the SB12 EEDS Performance Form?

Quick Answer:

No. The airtightness value (ACH50) used in the F280 Calculation does not have to be the same as that entered on the SB12 EEDS Performance Form, but if it is different, the F280 value should always be higher than the SB12-EEDS value.

Detailed Answer:

The airtightness value used for the F280 calculation is always expressed as ACH50 (air changes per hours at 50 pa) which is an airtightness (blower door) test result. The default value for that value is usually 3.57 ACH50, which is the default value used by most CSA F280-12 Software for new homes.

CSA F280-12 calculations satisfy OBC 2024 9.33.5.1.(3) and code objective of HVAC equipment sizing. Airtightness values used in SB12 relate to a separate code objective, that is Green House Gas Reduction.

3.0 ACH50 is sometimes used for detached homes (3.5 ACH50 for attached homes). The values of 3.0 & 3.5 ACH50 arise from SB12 table 3.1.2.1. as the values for the reference building where energy modelling is carried out. These values are also implied in SB12 sentence 3.1.1.4.9.(1). It is understood that if an airtightness value lower than 3.0 or 3.5 ACH50 is claimed in a design, then an air-tightness test should be provided when the building is complete in order to validate the design assumption.

Values of ACH50 higher or lower than 3.57 ACH50 may be used by the HVAC designer based on their judgement. Some popular default values are 3.0 & 3.5 ACH50 as explained above and 4.55 ACH50 which is the default value used by most CSA F280 software for an older home of unknown airtightness.

If an HVAC Designer uses a value for ACH50 less than 3.0 for a detached home or 3.5 for an attached home, then that decision should be based on the knowledge that the builder intends to verify the airtightness on completion. Usually these homes are enrolled in a labeling program such as Better than Code, EnerGuide, Energy Star, or Net Zero. In such cases, the intended airtightness will be declared on the SB12 performance EEDS.

It should be noted that for the purposes of energy performance and the interpretation of air tightness test results, the equivalent of 3.0 ACH50 is considered to be an NLA of $2.12 \text{ cm}^2/\text{m}^2$ or NLR of 1.32 L/s/m^2 (0.26 cfm/ft^2 detached, 0.28 cfm/ft^2 attached)

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