

STANDATA bulletin 23-BCB-001

Building

Energy efficiency Tier 1 of section 9.36.

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Purpose

To provide information regarding the changes to the adopted energy efficiency Tier 1 of Section 9.36. of the National Building Code - 2023 Alberta Edition (NBC(AE)).

Discussion

In Alberta, Tier 1 is the minimum province-wide standard for building energy efficiency for housing and small buildings as identified in Section 9.36. of the NBC(AE).

The Tier 1 reference is Article 9.36.1.3. for compliance and application. Article 9.36.7.3. is identified as an option where an owner voluntarily builds to a tier higher than Tier 1.

The following has been adopted/incorporated into the NBC(AE):

1. The airtightness used in the energy code calculations for the proposed house would comply with Clause 9.36.5.10.(9)(a) or 9.36.5.10.(9)(b).
2. The use of a single air change per hour(ACH) of 2.5 provides consistency in the application of the code requirements, instead of a two-level system for ACH for houses.

The following is not applicable for Tier 1 of the NBC(AE):

1. Peak cooling load requirements of 9.36.7.
2. This method would be used when calculating energy performance improvement compliance for the higher tiers and applying the same equipment and loads from Tier 1 to higher tiers.

For the NBC(AE), Subsections 9.36.2 to 9.36.4. Prescriptive Path and 9.36.5 Performance Path are deemed as the minimum for compliance with Alberta's Tier 1.

Sentence 9.36.1.3.(2) of Alberta's code edition is important to note, as the higher tiers referenced in accordance with Subsection 9.36.7. or 9.36.8. are optional. The Appendix note for Sentence 9.36.1.3.(2) explains that while the higher levels of tier code are presented, they are not enforceable under the *Safety Codes Act*.

Alberta specific changes in Section 9.36 have been implemented to improve and smooth the application of the move to energy tiers.

1. In Article 9.36.2.7. window U-values have been slightly increased (made easier).
2. In Article 9.36.3.10. equipment performance standards and references have been updated (HSPF2, SEER2, UEF) to align with US suppliers and expand product accessibility.
3. Use of 2.5 ACH for houses in prescriptive or modeling application.

Code References

Article 9.36.1.3.

Compliance and Application

- 1) Except as provided in Sentences (3) to (7), *buildings* shall comply with
 - a) the prescriptive or trade-off requirements in Subsections 9.36.2. to 9.36.4.,
 - b) the performance requirements in Subsection 9.36.5., or
 - c) the NECB.
- 2) Compliance with Subsections 9.36.7. or 9.36.8. is deemed to meet the requirements of Clauses (1)(a) or (b). (See Note A-9.36.1.3.(2).)

Sentence 9.36.5.10.(9)

Modeling Building Envelope of Proposed House

- 9) The airtightness used in the energy model calculations for the proposed house shall be
 - a) 2.5 air changes per hour at 50 Pa pressure differential with a pressure exponent of 0.67, where it can be shown that the air barrier system is constructed in accordance with Subsection 9.25.3. and Articles 9.36.2.9. and 9.36.2.10., or
 - b) the airtightness determined in accordance with Sentence 9.36.6.3.(1) expressed as
 - i) the number of air changes per hour at 50 Pa pressure differential with a pressure exponent determined through a multi-point test, and
 - ii) the equivalent leakage area.

Sentences 9.36.7.3.(1)(2) and (4)

Energy Performance Improvement Compliance Calculations

- 1) Except where otherwise stated in this Article, the proposed and reference houses shall be modeled in accordance with Subsection 9.36.5. to determine
 - a) the annual energy consumption of the proposed house and the house energy target of the reference house,
 - b) the annual gross space heat loss of the proposed and reference houses calculated in accordance with Sentence (5), and
 - c) the peak cooling load of the proposed and reference houses (see Sentence (4)). (See Note A-9.36.7.3.(1).)
- 2) The peak cooling load for the proposed house shall not be greater than the peak cooling load for the reference house. (See Sentence (4).)
- 4) Where cooling systems are not installed in the proposed house, both the proposed and reference houses shall have additional models using appropriately sized space-cooling equipment serving all conditioned spaces to determine the peak cooling load. (See Note A-9.36.7.3.(4).)

Unless stated otherwise, all Code references in this STANDATA are to Division B of the National Building Code - 2023 Alberta Edition

Issued by the Provincial Building Administrator

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