
STANDATA variance 19-BCV-023

Building

Insulation values for flat or cathedral roofs serving residential garages

Date Issued: April 2022

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Purpose

This variance addresses thermal resistance requirements for flat and cathedral roofs above attached garages and heated detached garages for residential occupancies.

Discussion

The National Building Code - 2019 Alberta Edition (NBC(AE)) Section 9.25.2.1. requires RSI 6.0 effective thermal insulation value for roof ceiling assemblies for roofs above attached garages and heated detached garages. The objective is to eliminate condensation issues for heated detached garages or if attached garages are to be heated in the future. This requirement assumes an attic style roof and not a flat or cathedral style roof. These values are different from the thermal insulation requirements listed in (NBC(AE)) Section 9.36.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the National Building Code - 2019 Alberta Edition

Issued by the Provincial Building Administrator

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Code References

Sentence 9.25.2.1.(1) states:

9.25.2.1. Thermal Insulation Requirements
 1) Except as permitted by Sentence (2) and required by Sentence (3), thermal insulation conforming with Table 9.25.2.1. shall be provided for attached garages and heated detached garages serving a *building of residential occupancy*.

Table 9.25.2.1.
Thermal Insulation Requirements
 Forming Part of Sentence 9.25.2.1.(1)

Assembly in Which Insulation Is Placed	Location of Assembly	Minimum Thermal Resistance, RSI
Wall assembly	Separating attached garage from exterior or unconditioned space	2.1
	Separating heated detached garage from exterior or unconditioned space	2.1
Roof-ceiling assembly	Separating attached garage from exterior or unconditioned space	6.0
	Separating heated detached garage from exterior or unconditioned space	6.0

Tables 9.36.2.6.A and 9.36.2.6.-B states:

9.36.2.6. Thermal Characteristics of Above-ground Opaque Building Assemblies

Table 9.36.2.6.-A
Effective Thermal Resistance of Above-ground Opaque Assemblies in Buildings without a Heat-Recovery Ventilator
 Forming Part of Sentence 9.36.2.6.(1)

Above-ground Opaque <i>Building</i> Assembly	Heating Degree-Days of <i>Building</i> Location, ⁽¹⁾ in Celsius Degree-Days					
	Zone 4 < 3000	Zone 5 3000 to 3999	Zone 6 4000 to 4999	Zone 7A 5000 to 5999	Zone 7B 6000 to 6999	Zone 8 ≥ 7000
	Minimum Effective Thermal Resistance (RSI), (m ² · K)/W					
Ceilings below attics	6.91	8.67	8.67	10.43	10.43	10.43
Cathedral ceilings and flat roofs	4.67	4.67	4.67	5.02	5.02	5.02
Walls ⁽²⁾	2.78	3.08	3.08	3.08	3.85	3.85

Floors over unheated spaces	4.67	4.67	4.67	5.02	5.02	5.02
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Notes to Table 9.36.2.6.-A:

- (1) See Article 1.1.3.1.
- (2) See Sentence 9.36.2.8.(3) for requirements concerning the above-ground portion of *foundation* walls.

Table 9.36.2.6.-B

Effective Thermal Resistance of Above-ground Opaque Assemblies in Buildings with a Heat-Recovery Ventilator

Forming Part of Sentence 9.36.2.6.(1)

Above-ground Opaque <i>Building</i> Assembly	Heating Degree-Days of <i>Building</i> Location, ⁽¹⁾ in Celsius Degree-Days					
	Zone 4 < 3000	Zone 5 3000 to 3999	Zone 6 4000 to 4999	Zone 7A 5000 to 5999	Zone 7B 6000 to 6999	Zone 8 ≥ 7000
	Minimum Effective Thermal Resistance (RSI), (m ² · K)/W					
Ceilings below attics	6.91	6.91	8.67	8.67	10.43	10.43
Cathedral ceilings and flat roofs	4.67	4.67	4.67	5.02	5.02	5.02
Walls ⁽²⁾	2.78	2.97	2.97	2.97	3.08	3.08
Floors over unheated spaces	4.67	4.67	4.67	5.02	5.02	5.02

Notes to Table 9.36.2.6.-B:

- (1) See Article 1.1.3.1.
- (2) See Sentence 9.36.2.8.(3) for requirements concerning the above-ground portion of *foundation* walls.

Application

This variance applies to flat or cathedral roofs serving residential attached garages or heated detached garages.

Variance

This variance provides approximately equivalent or greater safety performance with respect to persons and property as that provided for by the *Safety Codes Act*.

1. Thermal insulation values listed in NBC(AE) Section 9.36. Tables 9.36.2.6.-A and 9.36.2.6.-B are permitted to be used for both flat and cathedral roofs above attached garages and heated detached garages for residential occupancies.

This VARIANCE is applicable throughout the Province of Alberta.