

HIRF – ATTACHED GARAGE INSULATION VALUES

DISCUSSION

The amendments to the Alberta Building Code 2006 addressing high-intensity residential fires include a requirement to provide a drywall finish (or other similar performing material), along with insulation and vapour barrier to the interior of attached garages.

The requirement for the interior finish was added to delay the spread of a fire originating in an attached garage and to give occupants extra time to evacuate the associated dwelling unit. The requirement for insulation and a vapour barrier was added to the amendments as a precautionary measure due to the presence of the interior finish. It was felt that homeowners who purchase a house with a finished garage may be unaware that there was no insulation in the walls. If that homeowner were to then provide heat to the garage, thinking that it was in fact insulated, condensation would form within the exterior wall assembly which could lead to deterioration of the garage structural supports and the potential for the formation of mould and mildew.

Sentence 9.25.2.1.(1) and Table 9.25.2.1. contain requirements for insulating heated garage, but does not contain any requirements for an unheated garage. This STANDATA has been developed to clarify what minimum insulation values are to be supplied in unheated attached garages.

CODE REFERENCES

1. Sentence 9.25.2.1.(1) and Table 9.25.2.1. state:

9.25.2.1. Thermal Insulation Requirements

1) Except as permitted by Sentence (2), thermal insulation conforming with Table 9.25.2.1. shall be included in exterior assemblies of a heated *building of residential occupancy* and of a heated garage serving a *building of residential occupancy*.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the Alberta Building Code 2006.

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

Location of Assembly in Which Insulation is Placed		Minimum Thermal Resistance RSI
Wall assembly (except basements)	<i>Building exterior</i>	2.1
	Between building and attached garage	2.1
	Exterior of heated garage	2.1
<i>Basement and crawl space</i>	Perimeter walls - top to 600 mm below grade	1.4
Floor Assembly	Perimeter	2.1
	Exposed cantilevers	3.5
Roof -ceiling assembly	<i>Building - general</i>	6.0
	Heated garage	6.0

2. Article 9.25.4.1. states:

9.25.4.1. Required Barrier to Vapour Diffusion
 1) Thermally insulated wall, ceiling and floor assemblies shall be constructed with a *vapour barrier* so as to provide a barrier to diffusion of water vapour from the interior into wall spaces, floor spaces or *attic or roof spaces*.

3. Article 9.35.4.1. states:

9.35.4.1. Interior Finish
 1) Except as required by Sentence (2), interior finish need not be applied to garage and carport walls.
 2) The walls and ceilings of an attached garage shall have an interior finish consisting of

- a) not less than 12.7 mm thick gypsum board conforming to Subsection 9.29.5.,
- b) lath and plaster conforming to Subsection 9.29.4., or
- c) any material that can be shown to remain in place and prevent the passage of flames for not less than 15 min when subjected to the standard fire exposure in CAN/ULC-S101, "Fire Endurance Tests of Building Construction and Materials."

4. Article 9.35.4.4. states:

9.35.4.4. Thermal Insulation
 1) The walls and ceilings of an attached garage shall be provided with thermal insulation conforming to Subsection 9.25.2.

INTERPRETATION

Due to the possibility of the attached garage being heated after the homeowner takes occupancy, the walls and ceilings of unheated attached garages shall be insulated to the same minimum insulation values in Table 9.25.2.1. as a heated garage.

If the fire protection of the garage walls and ceiling is provided by a material meeting the criteria of Clause 9.35.4.1.(2)(c) and the material does not create a concealed space between the wall studs or roof trusses, the insulation and vapour barrier described in Article 9.35.4.4. would not be required.

This INTERPRETATION is applicable throughout the province of Alberta.