


# BC BUILDING CODE INTERPRETATION COMMITTEE

A joint committee with members representing  
**AIBC, EGBC, BOABC**

**File No: 18-0084**

**INTERPRETATION**

**Page 1 of 2**

Interpretation Date:	December 15, 2020
Building Code Edition:	BC Building Code 2018
Subject:	Required RSI for Spray Foam Insulation applied directly to underside of roof sheathing within an attic with HRV equipment
Keywords:	RSI, effective thermal resistance value, spray foam insulation, thermal protection, cathedral ceiling, attic, HRV equipment.
Building Code Reference(s):	9.36.2.6.(1), Table 9.36.2.6.-B, 9.36.3.9, 9.36.2.6.(3)
<b>Question:</b>	<p>A Part 9 building located in zone 5 for heating degree-days, has an enclosed attic having heat-recovery equipment conforming to Article 9.36.3.9, with a ceiling between the attic and the indoor spaces below.</p> <p>If, within the attic, spray foam insulation is applied directly to the underside of roof sheathing and the top chord of supporting engineered roof trusses above the attic, can the assembly thus insulated be considered as "cathedral ceiling" thereby only requiring minimum 4.67 RSI effective thermal resistance (instead of minimum 6.91 RSI effective thermal resistance required at ceilings immediately below attics)?</p>
<b>Interpretation:</b>	<p>No, unless the attic is fully conditioned as interior space, or if there is no ceiling between the attic and indoor spaces below.</p> <p>Tables 9.36.2.6.-A and 9.36.2.6.-B set out the expected minimum RSI effective thermal resistance for various types of above-ground opaque assemblies in buildings based on what can be reasonably achieved for typical construction assemblies. Reduced minimum RSI values are given where it is acknowledged limited space is available for implementing increased minimum RSI values, such as for cathedral ceilings, flat roofs, exterior walls, and floors over unheated spaces.</p> <p>For example, a specific reduction to 3.52 RSI is also given for localized conditions such as in Sentence 9.36.2.6.(3) for ceiling assemblies under sloped roofs near the exterior wall where vertical space is restricted.</p> <p></p> <hr/> <p>Patrick Shek, P.Eng., CP, FEC, Committee Chair</p>

The views expressed are the consensus of the joint committee with members representing AIBC, EGBC and BOABC, which form the BC Building Code Interpretation Committee. The Building and Safety Standards Branch, Province of BC and the City of Vancouver participate in the committee's proceedings with respect to interpretations of the BC Building Code. The purpose of the committee is to encourage uniform province wide interpretation of the BC Building Code. These views should not be considered as the official interpretation of legislated requirements based on the BC Building Code, as final responsibility for an interpretation rests with the local *Authority Having Jurisdiction*. The views of the joint committee should not be construed as legal advice.

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**Page 2 of 2**

Note A-9.36.2.6.(3) "Reduced Effective Thermal Resistance Near the Eaves of Sloped Roofs", indicates: "The exemption in Sentence 9.36.2.6.(3) recognizes that the effective thermal resistance of a ceiling below an attic near its perimeter will be affected by roof slope, truss design and required ventilation of the attic space. It is assumed that the thickness of the insulation will be increased as the roof slope increases until there is enough space to allow for the installation of the full thickness of insulation required."

Therefore, where the attic volume allows for implementing higher RSI values directly above the ceiling, the Building Code expects higher minimum RSI values as compared to building assemblies where increasing the volume or thickness of insulation is not practical.

Within an attic space, providing insulation directly to the underside of roof sheathing and top chord of roof trusses above the attic, whether sloped or flat; cannot reclassify these assemblies as cathedral ceilings or flat roofs for the purposes of applying minimum required RSI values.

Building envelope integrity, durability, and compliance with Part 10 must also be reviewed when considering applying spray foam insulation directly to the underside of roof sheathing and the top chords of engineered roof trusses.

If the attic space is fully conditioned and is effectively interior conditioned space, or if the ceiling between the attic and indoor spaces below is removed, it is not considered an attic space, and the RSI values used for cathedral ceilings could be implemented, subject to all the other building envelope requirements.



**Patrick Shek, P.Eng., CP, FEC, Committee Chair**

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