

BC BUILDING CODE INTERPRETATION COMMITTEE

A joint committee with members representing
AIBC, EGBC, BOABC

File No: 18-0027

INTERPRETATION

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Interpretation Date:	October 15, 2019
Building Code Edition:	BC Building Code 2018
Subject:	Height Factor A_x in Table 4.1.8.18.
Keywords:	Height factor, A_x
Building Code Reference(s):	4.1.8.2.(1), Table 4.1.8.18.

Question:

1. When a water storage tank is fastened directly to the slab on grade at ground level, is the Height Factor $A_x = 1.0$?
2. Is the maximum possible value for $A_x = 3.0$?

Interpretation:

1. Yes

A_x is defined in Sentence 4.1.8.2.(1) as the response amplification factor to account for type of attachment of mechanical/electrical equipment as defined in Sentence 4.1.8.18.(1).

h_x is defined in Sentence 4.1.8.2.(1) as the height above the base to level X, where the base of the structure is the level at which horizontal motions are considered to be imparted to the structure.

Level i is defined as any level in the building, $i = 1.0$ for first level above the base

Level n is defined as the level that is uppermost in the main portion of the structure (i.e. the main roof level).

Level x is defined as the level that is under design consideration.

Since the water storage tank is fastened directly to the slab on grade, the h_x factor would = 0.

Therefore $A_x = 1 + 2 \times (h_x / h_n) = 1 + 2 \times (0 / h_n) = 1.0$



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

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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2. No

If the water storage tank were located on the roof at a height of 30m above the ground, the h_x / h_n factor would = 1.0

Therefore $A_x = 1 + 2 \times (h_x / h_n) = 1 + 2 \times (30 / 30) = 3.0$

If the water storage tank were located in a service room above the roof level at a height of 33m above the ground, the h_x / h_n factor would = $33/30 = 1.1$

Therefore $A_x = 1 + 2 \times (h_x / h_n) = 1 + 2 \times (33 / 30) = 3.2$



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