

Mike Sawka

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Project Number: 23-05-057

RE: Fortress Evolution Ontario Code Compliance

11.30.2023

Mike,

Per your request, Eclipse Engineering, P.C. (EEPC) has analyzed the report, "CCRR-0313: Evolution Steel Framing," for code compliance with the 2012 Ontario Building Code (OBC 2012).

The calculations assume a single residence dwelling only, with a maximum live loading of 1.9kPa (40psf), and a dead load of 0.5kPa (10psf). With snow loading assumed to be zero, the minimum load table in CCRR-0313 shall be the equivalent of 75psf unfactored loading (Tables 4 & 10). Any table with a total unfactored load below 75psf will not be in accordance with NBC-AE and shall not be implemented.

EEPC has analyzed "CCRR-0313: Evolution Steel Framing" for OBC 2012 code compliance only. We take no responsibility for any element of Evolution Steel Framing, any element that may attach to it, nor for any element it may attach to.

Please contact us with any questions.

Sincerely,

Sean Smith, E.I.T.

Staff Engineer

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Attachments: Structural Calculations



Fortress Evolution Loading Checks

LRFD conversion for lowest possible loading

$DL := 10 \text{ psf}$	Design Dead Load
$LL := 40 \text{ psf}$	Design Live Load
$R_n := DL + LL = 50 \text{ psf}$	Total Unfactored Loading

ASD Load Combos

$LC := DL + LL = 50 \text{ psf}$	Governing Load Combo
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$\Omega := \frac{(DL + LL)}{LC} = 1$	ASD Reduction Factor
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$\phi := \frac{1.5}{\Omega} = 1.5$	Conversion to LRFD Reduction Factor (Assuming Live Load is equivalent to approximately 3x(DL) - Ref AISC 2015 - Comm B3)
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$R_n \cdot \phi = 75 \text{ psf}$	Minimum Loading required
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$ULS := 1.25 DL + 1.5 LL = 72.5 \text{ psf}$	Equivalent Canadian Loading Combo (2019 NBC-AE, Table 4.1.3.2.-A)
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Result - Per the CCRR-0313 report, Span Table 4 shall be the minimum values allowed for single span beams, and Table 10 shall be the minimum values allowed for double span beams

See www.mathcad.com for more information.