



# Certificate of Design Application

Bruce W. MacLeod, PE

From Designer:

Date:

07/19/16

Job Name:

Addition to single family residence

Address of Construction:

45 Birchvale

## 2009 International Building Code

Construction project was designed to the building code criteria listed below:

Building Code & Year 2009 IRC Use Group Classification (s) Residential

Type of Construction V

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2009 IRC no

Is the Structure mixed use? no If yes, separated or non separated or non separated (section 302.3) \_\_\_\_\_

Supervisory alarm System? no Geotechnical/Soils report required? (See Section 1802.2) no

### Structural Design Calculations

\_\_\_\_\_ Submitted for all structural members (106.1 – 106.11)

### Design Loads on Construction Documents (1603)

Uniformly distributed floor live loads (7603.11, 1807)

Floor Area Use	Loads Shown
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

### Wind loads (1603.1.4, 1609)

\_\_\_\_\_ Design option utilized (1609.1.1, 1609.6)

\_\_\_\_\_ Basic wind speed (1809.3)

\_\_\_\_\_ Building category and wind importance Factor,  $w$ ,  
table 1604.5, 1609.5)

\_\_\_\_\_ Wind exposure category (1609.4)

\_\_\_\_\_ Internal pressure coefficient (ASCE 7)

\_\_\_\_\_ Component and cladding pressures (1609.1.1, 1609.6.2.2)

\_\_\_\_\_ Main force wind pressures (7603.1.1, 1609.6.2.1)

### Earth design data (1603.1.5, 1614-1623)

\_\_\_\_\_ Design option utilized (1614.1)

\_\_\_\_\_ Seismic use group ("Category")

\_\_\_\_\_ Spectral response coefficients,  $S_D$  &  $S_{D1}$  (1615.1)

\_\_\_\_\_ Site class (1615.1.5)

\_\_\_\_\_ Live load reduction

\_\_\_\_\_ Roof *live* loads (1603.1.2, 1607.11)

46psf + drift \_\_\_\_\_ Roof snow loads (1603.7.3, 1608)

60 psf \_\_\_\_\_ Ground snow load,  $P_g$  (1608.2)

46 psf \_\_\_\_\_ If  $P_g > 10$  psf, flat-roof snow load  $P_f$

1.0 \_\_\_\_\_ If  $P_g > 10$  psf, snow exposure factor,  $C_e$

1.0 \_\_\_\_\_ If  $P_g > 10$  psf, snow load importance factor,  $I_s$

1.1 \_\_\_\_\_ Roof thermal factor,  $C_t$  (1608.4)

\_\_\_\_\_ Sloped roof snowload,  $P_s$  (1608.4)

\_\_\_\_\_ Seismic design category (1616.3)

\_\_\_\_\_ Basic seismic force resisting system (1617.6.2)

\_\_\_\_\_ Response modification coefficient,  $R$ , and  
deflection amplification factor  $C_d$  (1617.6.2)

\_\_\_\_\_ Analysis procedure (1616.6, 1617.5)

\_\_\_\_\_ Design base shear (1617.4, 1617.5.1)

### Flood loads (1803.1.6, 1612)

\_\_\_\_\_ Flood Hazard area (1612.3)

\_\_\_\_\_ Elevation of structure

### Other loads

\_\_\_\_\_ Concentrated loads (1607.4)

\_\_\_\_\_ Partition loads (1607.5)

\_\_\_\_\_ Misc. loads (Table 1607.8, 1607.6.1, 1607.7,  
1607.12, 1607.13, 1610, 1611, 2404)



# Certificate of Design

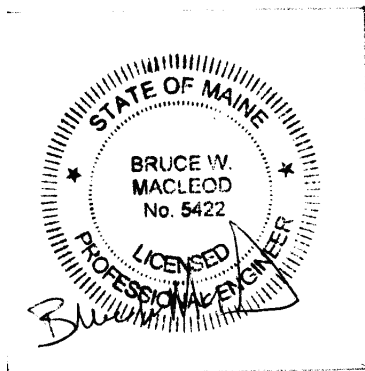
**Date:** 07/19/2016

**From:** Bruce W. MacLeod, PE

These plans and / or specifications covering construction work on:

45 Birchvale

Have been designed and drawn up by the undersigned, a Maine registered Architect / Engineer according to the **2009 International Building Code** and local amendments.



Signature: 

Title: Professional Engineer

Firm: MacLeod Structural Engineers, PA

Address: 90 Bridge Street  
Westbrook, Maine 04096

Phone: 207-839-0980

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