



# Certificate of Design Application

From Designer: Timothy C. Braun, RA

Date: 4-2015

Job Name: Science Lab Upgrades: Labs A303, B160, B266

Address of Construction: 70 Falmouth Street, Portland, Maine 04104

## 2009 International Building Code

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

Building Code & Year 2009 Use Group Classification (s) Business

Type of Construction 2b

Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2009 IRC Yes

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

Supervisory alarm System? yes 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, 1897)

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,  $I_w$  (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,  $S_D$  &  $S_1$  (1615.1)

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

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

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

\_\_\_\_\_ Roof snow loads (1603.7.3, 1608)

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

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

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

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

\_\_\_\_\_ 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)