



Certificate of Design Application

From Designer: L & L STRUCTURAL ENGINEERING SERVICES INC.

Date: 7/22/16

Job Name: 96 Federal Street Renovations

Address of Construction: 96 Federal Street, Portland, Maine 04101

2009 International Building Code

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

Building Code & Year IBC 2009 Use Group Classification (s) R-2

Type of Construction IIIB

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

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

YES 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
<u>DWELLING AREAS</u>	<u>40 PSF</u>
<u>STAIRS & CORRIDORS</u>	<u>100 PSF</u>
<u>REAR EXT. DECK</u>	<u>60 PSF</u>

Wind loads (1603.1.4, 1609)

1609.1.1 Design option utilized (1609.1.1, 1609.6)
100 MPH Basic wind speed (1809.3)
II / 1.0 Building category and wind importance Factor, w
table 1604.5, 1609.5)
B Wind exposure category (1609.4)
+1.0 / -1.0 Internal pressure coefficient (ASCE 7)
+18.1 / -23.6 PSF Component and cladding pressures (1609.1.1, 1609.6.2.2)
11.0 / 16.7 PSF Main force wind pressures (7603.1.1, 1609.6.2.1)

Earth design data (1603.1.5, 1614-1623)

1613 Design option utilized (1614.1)
II / C Seismic use group ("Category")
0.36 / 0.13 Spectral response coefficients, S_D & S_{D1} (1615.1)
D Site class (1615.1.5)

NA Live load reduction
— Roof live loads (1603.1.2, 1607.11)
42 PSF Roof snow loads (1603.7.3, 1608)
50 PSF Ground snow load, P_g (1608.2)
42 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
1.2 Roof thermal factor, C_t (1608.4)
42 PSF Sloped roof snowload, P_s (1608.4)
C Seismic design category (1616.3)
I, J. Basic seismic force resisting system (1617.6.2)
1.5 Response modification coefficient, R , and
1.25 deflection amplification factor, C_d (1617.6.2)
1617.5 Analysis procedure (1616.6, 1617.5)
0.284 W 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)