



Certificate of Design Application

From Designer: Matthew Hykes, PE
 Date: 11-17-16
 Job Name: Lucas Tree Property
 Address of Construction: 636 Riverside Street, Portland, ME 04103

2009 International Building Code

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

Building Code & Year IBC 2009 Use Group Classification (s) S-2 (shelter)
 Type of Construction VB (shelter)
 Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2009 IBC No
 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) Yes

Structural Design Calculations

see note Submitted for all structural members (106.1 – 106.11)

Design Loads on Construction Documents (1603)

Floor Area Use	Loads Shown
Uniformly distributed floor live loads (7603.11, 1807)	
<u>see note.</u>	
<u>300psf min.</u>	

Wind loads (1603.1.4, 1609)

ASCE7 Design option utilized (1609.1.1, 1609.6)
98 Basic wind speed (1809.3)
III, 1.15 Building category and wind importance Factor, I_w (table 1604.5, 1609.5)
C Wind exposure category (1609.4)
.55-shelter Internal pressure coefficient (ASCE 7)
see note Component and cladding pressures (1609.1.1, 1609.6.2.2)
see note Main force wind pressures (7603.1.1, 1609.6.2.1)

Earth design data (1603.1.5, 1614-1623)

ASCE7 Design option utilized (1614.1)
II Seismic use group ("Category")
0.331, 0.125 Spectral response coefficients, S_D & S_{DI} (1615.1)
D Site class (1615.1.5)

Note:

Shelter and Tower design and calculations will be submitted as shop drawings with the above minimum design criteria. See those submissions for items not noted above. Shelter is designed for multiple states and will be designed for loading much above values above.

No Live load reduction
20 Minimum Roof *live* loads (1603.1.2, 1607.11)
60 Roof snow loads (1603.7.3, 1608)
60 Ground snow load, P_g (1608.2)
60 If $P_g > 10$ psf, flat-roof snow load P_f
1 If $P_g > 10$ psf, snow exposure factor, C_e
1.2 If $P_g > 10$ psf, snow load importance factor, I_s
1 Roof thermal factor, C_t (1608.4)
60 Sloped roof snowload, P_B (1608.4)
C Seismic design category (1616.3)
Precast conc Basic seismic force resisting system (1617.6.2)
R=4.0 Response modification coefficient, R_f and deflection amplification factor C_d (1617.6.2)
Equiv Later. Analysis procedure (1616.6, 1617.5)
see note Design base shear (1617.4, 16175.5.1)
Flood loads (1803.1.6, 1612)
outside Flood Hazard area (1612.3)
63' AMSL Elevation of structure
Other loads
no Concentrated loads (1607.4)
no Partition loads (1607.5)
battery stack Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.12, 1607.13, 1610, 1611, 2404)



Certificate of Design

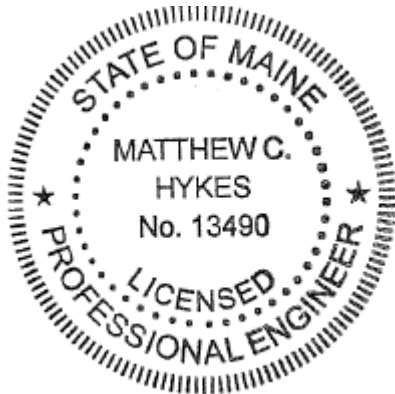
Date: 11-17-16

From: EBI Consulting

These plans and / or specifications covering construction work on:

Tower, shelter, generator pad, and compound at 636 Riverside Street, Portland, ME 04103.

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: *Matthew C Hykes*

Title: Professional Engineer

Firm: EBI Consulting

Address: 21 B Street

Burlington, MA 01803

Phone: 717-542-5578

For more information or to download this form and other permit applications visit the Inspections Division on our website at www.portlandmaine.gov