

Certificate of Design Application

From Designer:	latthew 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:

Type of Construction VB (shelter) Will the Structure have a Fire suppression system in Accordance with Section 903.3.1 of the 2009 IBC Is the Structure mixed use? No	Building Code	& Year IBC 2009	_ Use Group Classification (s)	S-2 (shelter)	
Structure mixed use? No	O	\/D (abaltar)	- 1 ()		
Structure mixed use? No	Will the Structu	re have a Fire suppression s	system in Accordance with Section	on 903.3.1 of the 20	No No
Structural Design Calculations See note 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 See note 300psf min. Loads Shown See in Minimum Roof live loads (1603.1.2, 1607.11) 60 Roof snow loads (1603.7.3, 1608) 60 Ground snow load, Pg (1608.2) 60 If Pg > 10 psf, flat-roof snow load pg 60 If Pg > 10 psf, snow exposure factor, Q 1.2 If Pg > 10 psf, snow load importance factor, Q 1.2 If Pg > 10 psf, snow load importance factor, Q 1.2 If Pg > 10 psf, snow load importance factor, Q 60 Sloped roof snowload, Pg (1608.4) 60 Sloped roof snowload pg snowload importance factor, Q (1616.5) 60 E=4.0 Response modification coefficient, Ry and deflection amplification factor Q (1617.6.2) 60 Equiv Later. Analysis procedure (1616.6, 1617.5) 60 ASCE7 Design option utilized (1609.1.1, 1609.6.2.1) 61 Plood loads (1803.1.6, 1612) 62 Outside Flood Hazard area (1612.3) 63 AMSL Elevation of structure Other loads 10 Occentrated loads (1607.4) 10 Partition loads (1607.3, 1607.6, 1,1607.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.7, 1611, 2014.1007.7, 1607.					
Design Loads on Construction Documents (160.1 - 106.11) 20 Minimum Roof live loads (1603.1.2, 1607.11) 60 Roof snow loads (1603.1.2, 1607.11, 1609.62) 60 If Pg > 10 psf, snow exposure factor, G 1.2 If Pg > 10 psf, snow exposure factor, G	Supervisory alar	rm System? Yes	Geotechnical/Soils report requir	ed? (See Section 18	02.2) Yes
Submitted for all structural members (106.1 - 106.11) 60	Structural Des	ion Calculations		No	Live load reduction
Design Loads on Construction Documents (1603) 60	soo noto			20 Minimum	,
Uniformly distributed floor live loads (7603.11, 1807) Floor Area Use Loads Shown See note. 300psf min. 1 If $P_g > 10$ psf, snow exposure factor, G 1.2 If $P_g > 10$ psf, snow load importance factor, G 1.2 If $P_g > 10$ psf, snow load importance factor, G 1.2 If $P_g > 10$ psf, snow load importance factor, G 1.2 If $P_g > 10$ psf, snow load importance factor, G 1.2 If G importance factor, G 1.3 Roof thermal factor, G (1608.4) 60 Sloped roof snowload, G (1608.4) 61 Precast conc 60 Sloped roof snowload, G (1608.4) 61 Precast conc 60 Sloped roof snowload, G (1608.4) 61 Precast conc 60 Sloped roof snowload, G (1616.5, 61617.5.2) 80 See note 61 Precast conc 60 Sloped roof snowload, G (1616.5, 61617.5.2) 80 See note 61 Precast conc 60 Sloped roof snowload, G (1616.5, 61617.5.2) 80 See n			issimized for all ordered in members (100.11 100.11)	60	_Roof snow loads (1603.7.3, 1608)
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Mind loads (1603.1.4, 1609) C				1	_
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ASCE7 Design option utilized (1609.1.1, 1609.6) 98 Basic wind speed (1809.3) III, 1.15 Building category and wind importance Factor, 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, SDs & SDI (1615.1) D Site class (1615.1.5) Note: Precast conc Basic seismic force resisting system (1617.6.2) Response modification coefficient, All deflection amplification factor (1616.6, 1617.5) Response modification coefficient, All deflection amplification factor (1617.6.2) Analysis procedure (1616.6, 1617.5) See note Design base shear (1617.4, 1617.5.1) See note Design base shear (1617.4, 1617.5.1) 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	Wind loads (1603.1.4, 1609)			С	13
Basic wind speed (1809.3) III, 1.15	ASCE7	Design option utilized (1609.1.1, 1609.6)		Precast cond	
Equiv Later					
See note Design base shear (1616.6, 1617.5)	III, 1.15	_Building category and wind imp	ortance Factor, j _v	Envisor Later	deflection amplification factor _{Cl} (1617.6.2)
See note Component and cladding pressures (1609.1.1, 1609.6.2.2) Flood loads (1803.1.6, 1612) See note Main force wind pressures (7603.1.1, 1609.6.2.1) outside Flood Hazard area (1612.3) Earth design data (1603.1.5, 1614-1623) 63' AMSL Elevation of structure ASCE7 Design option utilized (1614.1) Other loads II Seismic use group ("Category") no Concentrated loads (1607.4) D Spectral response coefficients, SDs & SDI (1615.1) no Partition loads (1607.5) D Site class (1615.1.5) battery stack Misc. loads (Table 1607.8, 1607.6.1, 1607.7, 1607.13, 1610, 1611, 2404					Analysis procedure (1616.6, 1617.5)
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Earth design data (1603.1.5, 1614-1623) ASCE7 Design option utilized (1614.1) Seismic use group ("Category") 0.331, 0.125 Spectral response coefficients, SDs & SDI (1615.1) D Site class (1615.1.5) Note: Solution Flood Hazard area (1612.3) 63' AMSL Elevation of structure 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				Flood loads (1	803.1.6, 1612)
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ASCE 7 Design option utilized (1614.1) II	,		63' AMSL		
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1607.12, 1607.13, 1610, 1611, 2404		Site class (1615.1.5)			
					1607.12, 1607.13, 1610, 1611, 2404

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.



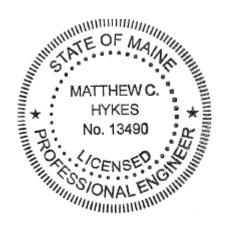
Certificate of Design

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: Mathe C Type

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