



ARMOUR UNSDERFER ENGINEERING INC., P.S.

555 116th Ave. NE, Suite. 118

Bellevue, WA 98004 (425) 614-0949 Fax (425) 614-0950

STRUCTURAL CALCULATIONS FOR:

Fat Face Portland

Portland ME

04104

Client:

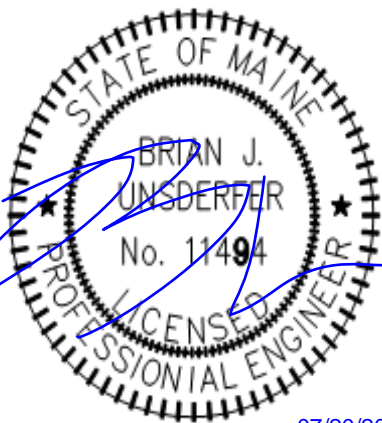
Design Republic

501 Madison Ave, 11th Floor

New York, NY

By

Brian Unsderfer, SE, SECB



07/20/2015

AUE No. 15231

Date

7/20/2015

IBC Seismic	
Non-Structural Systems	IBC 2009

Occ. Category: II <i>Standard-Occupancy Building</i>	Fa = 1.55	Sms = 0.485	
Ss = 0.313	hn = 15 ft	Fv = 2.40	Sm1 = 0.185
S1 = 0.077	Ct = 0.02		
le = 1.00	SDC: B	Sds = 0.323	
		Sd1 = 0.123	
Site Class = D			

Zipcode: 04104

Seismic Variables from USGS			Seismic Variables from User Input		
Max	Loc		Max		
Ss =	-	-	Ss =	0.3130	
S1 =	-	-	S1 =	0.0770	
PGA =	-	-			
Min	Loc				
Ss =	-	-			
S1 =	-	-			
PGA =	-	-			

See ASCE 13.3 Non Structural Systems

MEC6. Generators, Batteries, Inverters, Motors, Transformers, and Other Electrical Components Constructed of High Deformability Materials

Ap = 1.0 z = 15.00 ft Ip = 1.5
 Rp = 2.5 h = 15.00 ft
 Ωo = 2.5

Fp = 0.23 * Wp **Fp = 0.233 * Wp**

Fp max = 0.78 * Wp

Fp min = 0.15 * Wp *With Overstrength factor:*

Fp = 0.582 * Wp

A14. Ceilings - All

Ap = 1.0 z = 15.00 ft Ip = 1.5
 Rp = 2.5 h = 15.00 ft
 Ωo = 2.5

Fp = 0.23 * Wp **Fp = 0.233 * Wp**

Fp max = 0.78 * Wp

Fp min = 0.15 * Wp *With Overstrength factor:*

Fp = 0.582 * Wp

Client Name
 Client Address

Client Address

Ap = #N/A z = 15.00 ft Ip = 1.0
 Rp = #N/A h = 15.00 ft
 Ωo = #N/A

Fp = #N/A * Wp **Fp = #N/A * Wp**

Fp max = 0.52 * Wp

Fp min = 0.10 * Wp *With Overstrength factor:*

Fp = #N/A * Wp

Ap = - z = 15.00 ft Ip = 1.0
 Rp = - h = 15.00 ft
 Ωo = -

Fp = #VALUE! * Wp **Fp = #VALUE! * Wp**

Fp max = 0.52 * Wp

Fp min = 0.10 * Wp *With Overstrength factor:*

Fp = #VALUE! * Wp



Armour Unsderfer Eng Inc., P.S., Job Number

Project: Fat Face Portland	Pg. No: C&C Seis 1
Address: Portland ME	Date: 7/20/15
Client: Design Republic	Job No.: 15231

Design Criteria

Code Summary

Building Code: 2009 International Building Code
 Supplemental Code: 2005 ASCE 7
 Occ. Category: II Standard-Occupancy Building

Seismic Loading:

S _s :	0.3130	S _{ds} :	0.3233	I _e :	1.00	Site Class:	D
S ₁ :	0.0770	S _{d1} :	0.1232	R:	4.00	Seismic Design Category:	B
				Cs:	0.0808		

Wind Loading:

V_{3s}: 101 mph Exposure Category: B
 Risk Category: II Kzt: 1.00

Design Loads

Dead Loads:

Wall:

2x6 wood studs @ 16" O.C.	NA	psf
1/2" Sheathing	NA	psf
5/8" GWB	NA	psf
Insullation	NA	psf
Veneer	NA	psf
Misc.	NA	psf

Total	0.0 psf
Total w/o Veneer	#VALUE! psf

Floor

11" URM Arch	110.0 psf
2" Conc	25.0 psf
	0.0 psf
Flooring	5.0 psf
	0.0 psf
MEP	1.5 psf
Misc.	1.5 psf

Total	143.0 psf
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Live Load:

Roof: 20.0 psf

Soil Properties:

Allowable Vertical Bearing = 1500.0 psf

Deflection Criteria

<u>Roof</u>	<u>Floor</u>	<u>Walls</u>
Live Load: L/ 360	Live Load: L/ 480	Flexible Finishes: L/ 180
Total Load: L/ 240	Total Load: L/ 240	Brittle Finishes: L/ 360
		Supporting Glass: L/ 240



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Project:	Fat Face Portland	Pg. No:	DC 1
Address:	Portland ME	Date:	7/20/15

Floor Opening:

Size: 16 by 10

Span to C4 6.75 FT

Floor Wt: 143 PSF

Live: 100 PSF

Trib: 3.375 FT

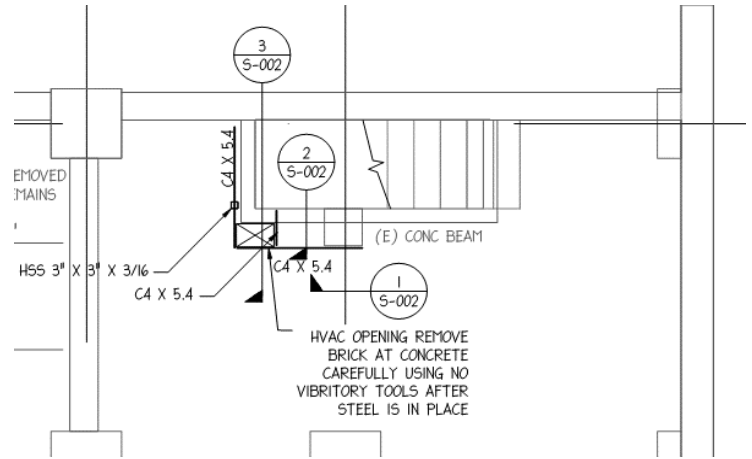
wd: 483 PLF

wl: 338 PLF

Span: (C4) 4 FT

V: 1640.25 LBS

M: 1640.25 LBS FT



C4x5.4 OK. See CH 2

Check Cantilever

Cant: 1.5 FT

Back: 3 FT

P: 1640 LBS

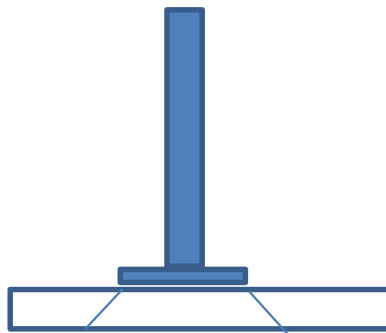
M: 2460 LBS FT

Mcap: 3722 LBS FT (See CH2)

Therefore OK

C4x5.4 OK. See CH 2

P post:
2460 LBS



Assume: 1500 PSF Soil Bearing

Area: 1.64025 SF Or 1.281 FT

Slab: 4 IN

PL size needed: 0.6140558 OR 7.369

Use: 8 x 8 PL



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Project:	Fat Face Portland	Pg. No:	Calc 1
Address:	Portland ME	Date:	7/20/15
Client:	Design Republic	Job No.:	15231

Connection at Brick

Pmax: 1640.25 LBS

Each connection is a (2) 3/4" bolt connection

P / Bolt: 820 LBS

Pcap: 1000 LBS / Bolt. See ESR-3342 Therefore OK



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Project:	Fat Face Portland	Pg. No:	Calc2
Address:	Portland ME	Date:	7/20/15
Client:	Design Republic	Job No.:	15231