

Company

Address
City
Phone
Other

JOB TITLE

JOB NO.
CALCULATED BY
CHECKED BY

SHEET NO.
DATE
DATE

CMU11 Ver 2013.04.30

CMU SLENDER WALL (ACI 530-11)

www.struware.com

DESCRIPTION: CMACN Example 5.5.3 with openings

PANEL PROPERTIES

Wall Height: h =	20.00 ft	fm =	1,500 psi
Parapet Height =	3.00 ft	fy =	60,000 psi
Nominal Thickness (t) =	8.0 in		
Running Bond?	Yes	ungrouted fr =	63.0 psi
All cells grouted?	Yes	interpolated fr =	163.0 psi
Block Weight = Medium WT		Em factor =	900
Grout Weight =	140 psi	Deflection limit =	0.0070 h
		Min Defl ratio =	142.9
Vert Bar Location :	Each Face		
Cover if Bar Ea Face =	2.000 in	.20fm =	300.0 psi
Bar Depth: d =	5.375 in	Em =	1350.0 ksi
		n =	21.48
Vertical Bar Size =	# 4	Wall Weight =	78 psf
Typical Bar Spacing =	24.0 in	Tributary width =	6.33 ft
As =	0.098 in ² /ft	Strip Width Properties	
Opening Properties		b =	16.0 in
Leg between 2 opngs? =	Yes	Ag =	122.0 in ²
Opening Width(s) =	10.00 ft	Sg =	155.1 in ³
EL Top of Opening =	7.33 ft	Ig =	591.1 in ⁴
EL Bottom Opening =	3.00 ft	Mcr =	2,106 'lb
Opening Material Wt =	10.0 psf	ρ =	0.00456
# cells reinf @ opng =	2	ρ max =	0.00608
First cell reinforced? =	Yes	As =	0.39 in ²
		Opng Wall Wt =	78 psf

LOADING

Lateral Loading		plf	Ms ('lb)
Nominal Wind Pressure =	0.0 psf	0.0	0
Seismic Factor =	0.449	188.6	9,431
	Use this wind moment instead :		0
	Use this seismic moment instead :		0
Vertical Loading			
Sds =	1.210		
Uniform Vertical Loading		eccentricity	lb Ms ('lb)
Full ht wall wt =	1,014 plf	0.000 in	1,352 0
Dead Load =	80 plf	7.300 in	507 154
Floor Live Load =	0 plf	7.300 in	0 0
Roof Live Load =	80 plf	7.300 in	507 154
Roof Snow Load =	0 plf	7.300 in	0 0
Concentrated Vertical Loading		eccentricity	
Opening wt midht =	5.1 k	0.000 in	5,070 0
Dead Load =	0.0 k	2.000 in	0 0
Floor Live Load =	0.0 k	2.000 in	0 0
Roof Live Load =	0.0 k	2.000 in	0 0
Roof Snow Load =	0.0 k	2.000 in	0 0
Garage, assembly or LL>100psf:	<input type="radio"/>	Roofs that don't shed snow:	<input checked="" type="radio"/>
All Others:	<input checked="" type="radio"/>	All Others:	<input type="radio"/>

WALL OPENING REINFORCING RESULTS

NO GOOD - see below

LRFD Combinations

	1.4D	1.2D +1.6L +0.5Lr	1.2D +0.5L +1.6Lr	1.2D +0.8W +1.6Lr	1.2D (1.2+.2Sds)D +1.6W +0.5L +0.5Lr	+1.0E +0.5L +0.7S	0.9D (0.9-.2Sds)D +1.6W +1.0E	
Mua ('lb) =	216	262	432	432	262	9,654	139	9,533
Pu (lb) =	9,700	8,568	9,125	9,125	8,568	9,991	6,236	4,559
Pu /Ag (psi) =	79.5	70.2	74.8	74.8	70.2	81.9	51.1	37.4
Ase (in ²) =	0.554	0.535	0.544	0.544	0.535	0.559	0.496	0.468
c (in) =	2.163	2.089	2.125	2.125	2.089	2.182	1.937	1.828
Icr (in ⁴) =	176.7	172.7	174.6	174.6	172.7	177.7	164.7	159.1
a (in) =	1.786	1.721	1.753	1.753	1.721	1.803	1.586	1.489
δu (in) =	0.021	0.025	0.042	0.042	0.025	3.273	0.013	3.072
Mu ('lb) =	233	280	463	463	280	12,378	146	10,700
Capacity: φMn ('lb) =	10,266	10,071	10,168	10,168	10,071	10,315	9,652	9,334

COMPRESSION OKAY

N.G. MOMENT CAPACITY LESS THAN Mu

DEFLECTION

Service Load Combinations

N.G. DEFLECTION EXCEEDS ALLOWABLE

	D	D +L or +Lr	D +Lr or +S	D +1.0W	D+0.75W (1+.105Sds)D +0.75L +0.75Lr	+0.525E +0.75(L+S)	0.6D (0.6-.14Sds)D +1.0W +0.7E	
Msa ('lb) =	154	308	308	154	270	92	92	6,675
Ps (lb) =	6,929	7,435	7,435	6,929	7,309	1,115	4,157	3,277
M (lb) =	163	326	326	163	285	93	95	7,193
δs (in) =	0.015	0.029	0.029	0.015	0.026	0.008	0.009	1.896
Defl Ratio =	L / 9999	L / 8147	L / 8147	L / 9999	L / 9320	L / 9999	L / 9999	L / 127

Company

Address
City
Phone
Other

JOB TITLE

JOB NO.
CALCULATED BY
CHECKED BY

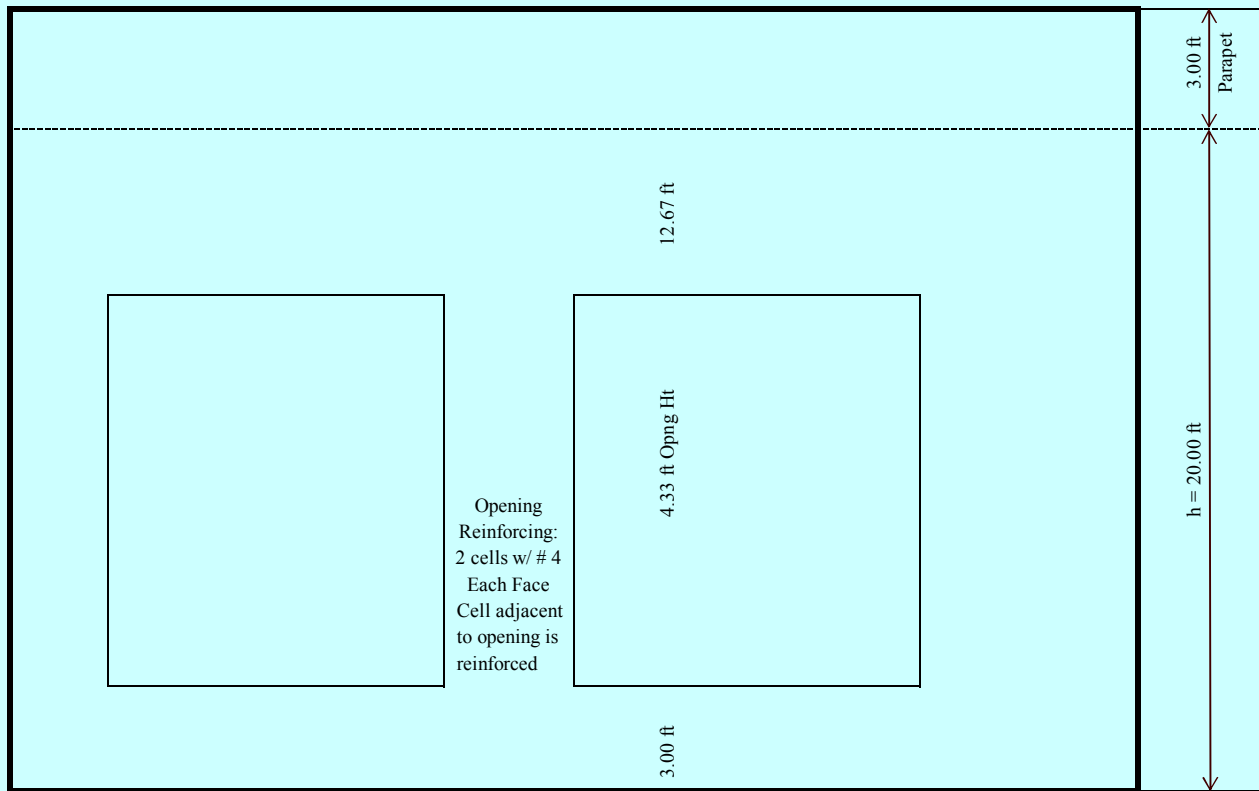
SHEET NO.
DATE
DATE

CMU11 Ver 2013.04.30

CMU SLENDER WALL (ACI 530-11)

www.struware.com

DESCRIPTION: CMACN Example 5.5.3 with openings



NO GOOD - see calculations

WALL ELEVATION