

5625 JILLSON ST.
COMMERCE, CA
PROVISOR BUILDING

PROJECT:

• EXISTING ONE STORY BUILDING

a: EXTERIOR WALLS: Reinforced brick

b: Roof structure

12 - 8x8 wood post 2-ROWS of 6

WOOD TRUSSES SPAN between posts

Roof Rafters SPAN between trusses

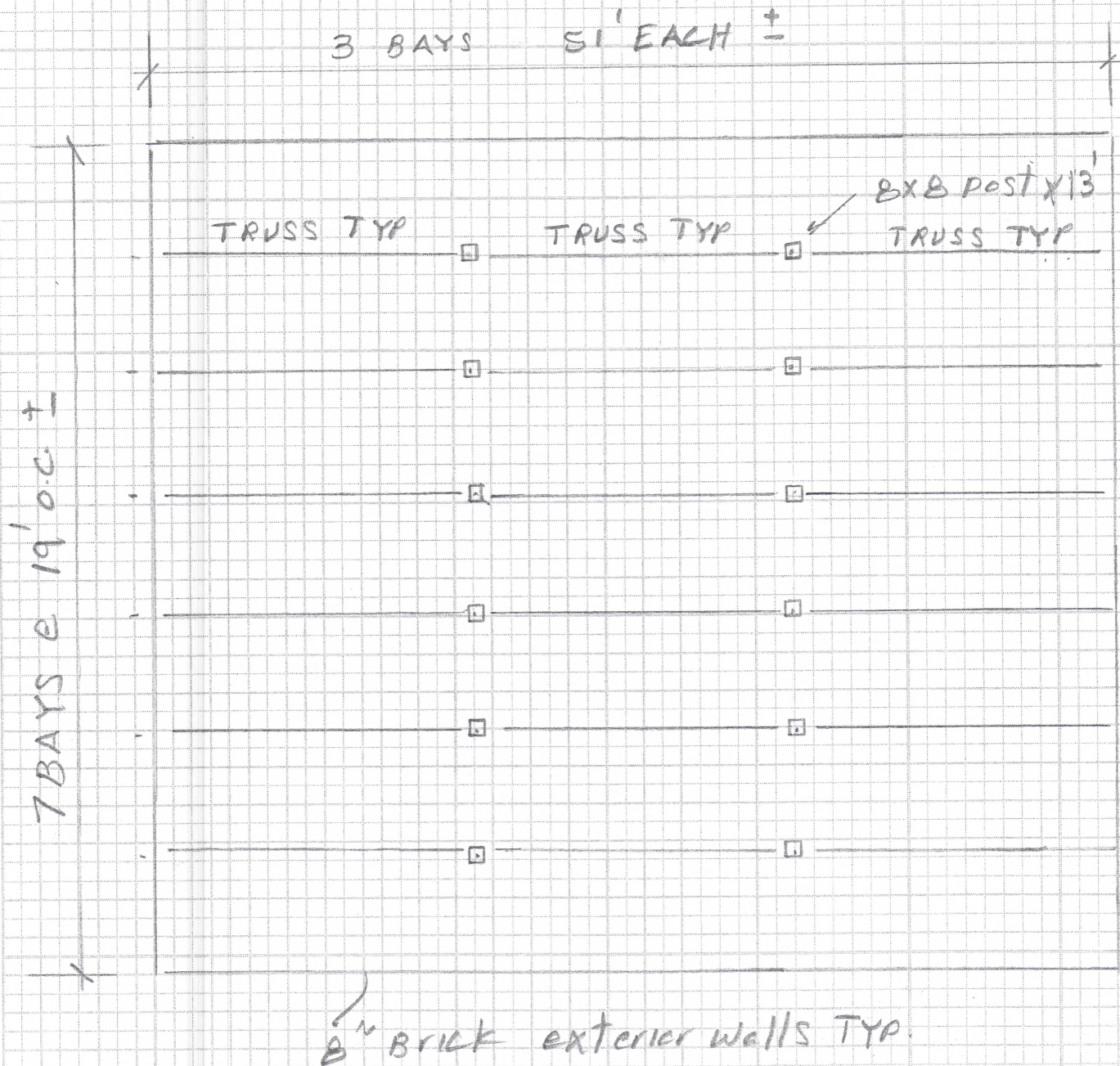
• SCOPE OF WORK

wood posts are experiencing some cracking

REPAIR ASSUMPTION

CHECK THE DEMAND / capacity of the posts
and suggest a fix





LOADING

Roofing	5 psf
sht'g	2
Ermy	3
MIS	2

DL 12 psf

LL 20 psf

TL = 32 psf

TRIB Area = $19 \times 51 = 969 \text{ ft}^2$

LL = 12 TL = 24

$P_{\text{post}} = 969 \times 24 = 23256 \text{ \#}$

Demand / Capacity = 0.6

DO NOT NEED TO REPLACE THE POSTS

JUST ADD steel angles around them
to confine the posts

Title Block Line 1
You can change this area
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and then using the "Printing &
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Title Block Line 6

Project Title:
Engineer:
Project Descr:

Project ID:

4

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Wood Column

File = c:\Users\Mehdi\DOCUME~1\ENERCA~1\PROVIS~1\EC6
ENERCALC, INC. 1983-2015, Build:6.15.1.19, Ver:6.14.12.31

Lic. #: KW-06010319

Licensee: Saberi & Associates Inc.

Description: --None--

Code References

Calculations per 2012 NDS, IBC 2012, CBC 2013, ASCE 7-10

Load Combinations Used: IBC 2012

General Information

Analysis Method :		Allowable Stress Design		Wood Section Name		8x8	
End Fixities		Top & Bottom Pinned		Wood Grading/Manuf.		Graded Lumber	
Overall Column Height		13.0 ft		Wood Member Type		Sawn	
(Used for non-slender calculations)							
Wood Species		Douglas Fir - Larch		Exact Width		7.50 in	
Wood Grade		No. 1		Exact Depth		7.50 in	
Fb - Tension		1,200.0 psi		Fv		170.0 psi	
Fb - Compr		1,200.0 psi		Ft		825.0 psi	
Fc - Prll		1,000.0 psi		Density		32.210 pcf	
Fc - Perp		625.0 psi					
E : Modulus of Elasticity . . .		x-x Bending		y-y Bending		Axial	
Basic		1,600.0		1,600.0		1,600.0 ksi	
Minimum		580.0		580.0			
Allow Stress Modification Factors							
Cf or Cv for Bending 1.0							
Cf or Cv for Compression 1.0							
Cf or Cv for Tension 1.0							
Cm : Wet Use Factor 1.0							
Ct : Temperature Factor 1.0							
Cfu : Flat Use Factor 1.0							
Kf : Built-up columns 1.0 NDS 15.3.2							
Use Cr : Repetitive ? No (non-glb only)							
Brace condition for deflection (buckling) along columns :							
X-X (width) axis :				Lu for X-X Axis buckling : 13 ft, K = 1.0			
Y-Y (depth) axis :				Fully braced against buckling along Y-Y Axis			

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Column self weight included: 163.566 lbs * Dead Load Factor

AXIAL LOADS...

Axial Load at 13.0 ft, D = 12.0, Lr = 12.0 k

DESIGN SUMMARY

Bending & Shear Check Results

PASS	Max. Axial+Bending Stress Ratio =	0.5938 : 1	Maximum SERVICE Lateral Load Reactions ..		
	Load Combination	+D+Lr+H	Top along Y-Y	0.0 k	Bottom along Y-Y 0.0 k
	Governing NDS Formula	Comp Only, f_c/F_c'	Top along X-X	0.0 k	Bottom along X-X 0.0 k
	Location of max. above base	0.0 ft	Maximum SERVICE Load Lateral Deflections ...		
	At maximum location values are ...		Along Y-Y	0.0 in at	0.0 ft above base
	Applied Axial	24.164 k	for load combination: n/a		
	Applied Mx	0.0 k-ft	Along X-X	0.0 in at	0.0 ft above base
	Applied My	0.0 k-ft	for load combination: n/a		
	Fc: Allowable	723.46 psi	Other Factors used to calculate allowable stresses ...		
PASS	Maximum Shear Stress Ratio =	0.0 : 1		Bending	Compression
	Load Combination	+D+Lr	Cf or Cv: Size based factors	1.000	1.000
	Location of max. above base	13.0 ft			
	Applied Design Shear	0.0 psi			
	Allowable Shear	212.50 psi			

Load Combination Results

Load Combination	C _D	C _P	Maximum Axial + Bending Stress Ratios			Maximum Shear Ratios		
			Stress Ratio	Status	Location	Stress Ratio	Status	Location
+D+Lr+H	1.000	0.646	0.5938	PASS	0.0 ft	0.0	PASS	13.0 ft
+D+Lr	1.250	0.646	0.5320	PASS	0.0 ft	0.0	PASS	13.0 ft

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction @ Base
	@ Base	@ Top	@ Base	@ Top	
+D+H		k		k	12.164 k
+D+L+H		k		k	12.164 k
+D+Lr+H		k		k	24.164 k
+D+S+H		k		k	12.164 k
+D+0.750Lr+0.750L+H		k		k	21.164 k

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Maximum Reactions

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Load Combination	X-X Axis Reaction		Y-Y Axis Reaction		Axial Reaction @ Base
	@ Base	@ Top	@ Base	@ Top	
+D+0.750L+0.750S+H		k		k	12.164 k
+D+0.60W+H		k		k	12.164 k
+D+0.70E+H		k		k	12.164 k
+D+0.750Lr+0.750L+0.450W+H		k		k	21.164 k
+D+0.750L+0.750S+0.450W+H		k		k	12.164 k
+D+0.750L+0.750S+0.5250E+H		k		k	12.164 k
+0.60D+0.60W+0.60H		k		k	7.298 k
+0.60D+0.70E+0.60H		k		k	7.298 k
D Only		k		k	12.164 k
Lr Only		k		k	12.000 k
L Only		k		k	k
S Only		k		k	k
W Only		k		k	k
E Only		k		k	k
H Only		k		k	k

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection		Max. Y-Y Deflection	
	Distance	Distance	Distance	Distance
+D+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+L+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+Lr+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+S+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750Lr+0.750L+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750L+0.750S+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.60W+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.70E+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750Lr+0.750L+0.450W+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750L+0.750S+0.450W+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750L+0.750S+0.5250E+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D+0.60W+0.60H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D+0.70E+0.60H	0.0000 in	0.000 ft	0.000 in	0.000 ft
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
Lr Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
L Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
S Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
W Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
E Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
H Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

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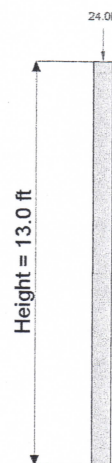
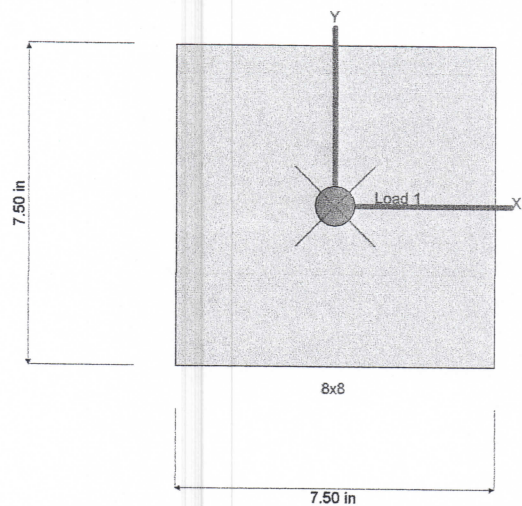
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Sketches



Loads are total entered value. Arrows do not reflect absolute direction.