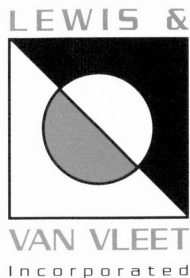


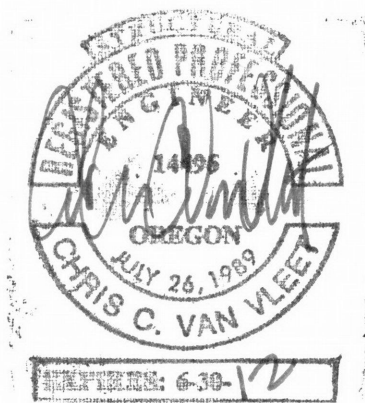
plr_cksheet_resp_form 11/04/05



principals
chris c. van vleet, p.e.
gary j. lewis, p.e.

Hayden Harbor II

Structural Calculations



October 14, 2011

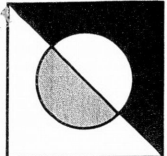
Structural Calculations

Roof Framing.....	R1 – R9
Lateral Loads.....	L1 – L8
Masonry.....	M1 – M7
Foundations.....	Ft1 – Ft4
Miscellaneous.....	Ms1 – Ms5

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06-164263-REV. 01-10

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Job Hartman II
Client _____
Job No. _____ By C.J.
Date 9/00 Sheet No. 11

Roof FRAG -

Load:

LIVE - 25 PSF
DEAD - 15 "

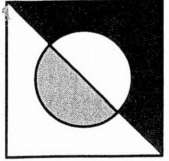
TOTAL 40 PSF

DEAD Load:

BUR - 3.5 PSF
INSUL. - 1.0 "
PLY - 2.8 "
FRAG. - 2.5 "
CON. - 2.8 "
MECH. - 2.0 "
MISC. - 2.4 "

TOTAL 15 PSF

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Job Hoffman II
Client _____
Job No. _____ By C.V.
Date 9/00 Sheet No. 22

DRIFTING SHOW:

$P_g = 15$ pcf $P_g = 10.5$
 $D = 15.95$ pcf $h_b = 1.5'$

BRIDGE:

$W_b = 110' \therefore h_d = 2.0$

DRIFT = 32 pcf
 $W_d = 8.1'$

$W_b = 60' \therefore h_d = 1.4$

DRIFT = 23 pcf
 $W_d = 5.0'$

$W_b = 24' \therefore h_d = 1.0$

DRIFT = 9 pcf
 $W_d = 2.3'$

$W_b = 80' \therefore h_d = 1.7$

DRIFT = 27 pcf
 $W_d = 6.7'$



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Job HAFDEN II
Client _____
Job No. _____ By W.
Date 9/00 Sheet No. 23

30' JAIL -

$$W_1 = 40 \text{ psf}$$

$$W_2 = 23 \text{ psf S.B.}$$

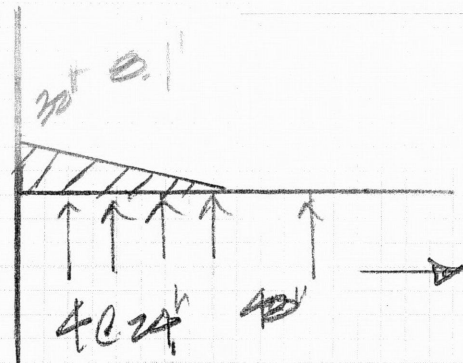
$$P = 12 \text{ psf} \times 8' (\text{HEAD})$$

USE: 76" FBDW @ 48" OC.
(SEE P-32)

PARALLEL DRAFT -

$$24'' \text{ OUF} - W_1 (40 + 24) 2 = 136 \text{ psf}$$

$$96'' \text{ OUF} = (40)(4+2)(1/2) + 8 = 128 \text{ psf}$$



USE: 76" FBD-W
(SEE P-32)



RedSpec™ by RedBuilt™
v7.0.13

Project: Project
Location: Hayden Harbor II
Folder: Folder
Date: 10/11/11 11:42 AM
Designer:
Comment:

R-32
Type: Type

36" Red-W™ @ 48" O/C

This product meets or exceeds the set design controls for the application and loads listed

This truss design is feasible. The finished design shall be produced by RedBuilt Engineering. All open-web trusses are custom designed to carry the specific design loads for each project. Actual truss capacity when fabricated is limited to that required to resist the specific loads. Do not use this analysis to verify the capacity of existing trusses.

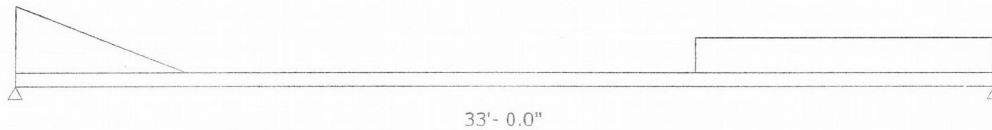
DEFLECTIONS (in)	% Allow.	Design	Allow.	Design	Allow.	Pass/Fail
Span Live	29%	0.479	1.650	L / 827	L / 240	PASS
Span Total	33%	0.737	2.200	L / 538	L / 180	PASS

SUPPORTS	Support 1	Support 2
Live Reaction, Critical (lb) (DOL%)	2003 (115)	2102 (115)
Dead Reaction (lb)	1007	1008
Total Reaction (lb) (DOL%)	3010 (115)	3110 (115)
Bearing	Top Chord	Top Chord
Support	Ledger	Beam
Bearing Clip	6" No-Notch Clip	6" No-Notch Clip
Approx. Clip Height	1.5"	1.5"
Approx. Clip Width	8.4375"	8.4375"
Assumed Bearing Width	3.5"	3.5"

SPANS AND LOADS

Dimensions represent horizontal clear span.

Member Slope: 0.25/12



APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	25	15	0	48"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	12	0	23'-0.0" to 33'-0.0"	Adds To	
Tapered	psf	Snow(115%)	23 to 0	0 to 0	0'-0.0" to 5'-9.6"	Adds To	

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Truss design includes consideration for partial span application live load.
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Pricing Load (plf) = 182
- Pricing Index (plf) = 182

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Job HAYDEN II
Client _____
Job No. _____ By C.V.
Date 9/06 Sheet No. 24

24' JAW -

$$W_1 = 40 \text{ psf}$$

$$W_2 = 23 \text{ psf} \times 5.8'$$

$$W_3 = 12 \text{ psf} \times 3' \text{ (roof.)}$$

$$UWB = \underline{10'' \text{ ROD IGS @ } 32'' \text{ o.c.}}$$

(SEE P. 4a)

JAW BRACKET

$$W_1 = 40 \text{ psf}$$

$$W_2 = 10 + 15 = 25 \text{ psf}$$

$$W_3 = 9 \text{ psf} \times 2.3'$$

$$W_4 = 12 \text{ psf} \times 0'$$

$$pc = 40(10/2) + 25(0) + 10(10) = 740 \text{ pc} \text{ (225 u, 515 du)}$$

$$UWB = \underline{36'' \text{ FBD W @ } 24'' \text{ o.c.}}$$

(SEE P. 4b)

24' JAW @ TOWER

DEB CASE,
APPROX
FOR
LOADS

$$UWB = \underline{20'' \text{ ROD IGS @ } 16'' \text{ o.c.}}$$

(SEE P. 4c)



RedSpec™ by RedBuilt™
v7.0.13

Project: Project
Location: Hayden Harbor II
Folder: Folder
Date: 10/11/11 11:45 AM
Designer:
Comment:

R-42
Type: Type

16" Red-I65™ @ 32" O/C

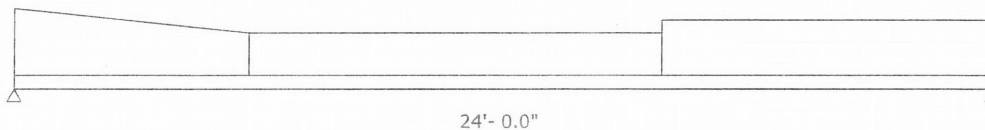
This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS		% Allow.	Design	Allow.	DOL - Control		Pass/Fail
Positive Moment (ft-lb)	Shear (lb)	47%	-1507	3232	115% - All Loads		PASS
		79%	8368	10592	115% - All Loads		PASS
DEFLECTIONS (in)		% Allow.	Design	Allow.	Design	Allow.	Pass/Fail
Span Live		58%	0.693	1.200	L / 416	L / 240	PASS
Span Total		66%	1.053	1.600	L / 274	L / 180	PASS
SUPPORTS		Support 1	Support 2				
Live Reaction, Critical (lb) (DOL%)		1006 (115)	1028 (115)				
Dead Reaction (lb)		480	480				
Total Reaction (lb) (DOL%)		1486 (115)	1508 (115)				
Bearing Support		Flush Ledger	Flush Beam				
HANGERS	Model	Top	Face	Member	Header	Size	
Left	None Selected						
Right	None Selected						

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: 0.25/12 ↙



APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	25	15	0	32"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Uniform	psf	Snow(115%)	12	0	16'-0.0" to 24'-0.0"	Adds To	
Tapered	psf	Snow(115%)	23 to 0	0 to 0	0'-0.0" to 5'-9.6"	Adds To	

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Min end bearing = 1.75 inches, web stiffeners not required.
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.



RedSpec™ by RedBuilt™
v7.0.13

Project: Project
Location: Hayden Harbor II
Folder: Folder
Date: 10/11/11 1:30 PM
Designer:
Comment:

R46
Type: Type

20" Red-I65™ @ 16" O/C

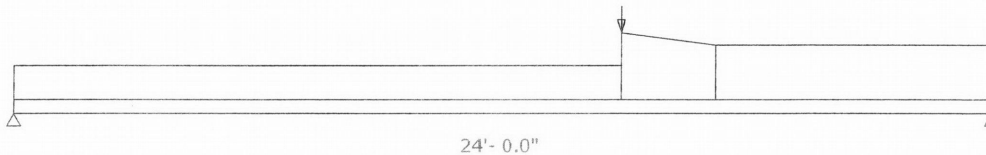
This product meets or exceeds the set design controls for the application and loads listed

DESIGN CONTROLS		% Allow.	Design	Allow.	DOL - Control		Pass/Fail
Positive Moment (ft-lb)	Shear (lb)	30%	-1172	3847	115% - All Loads		PASS
		63%	8378	13271	115% - All Loads		PASS
DEFLECTIONS (in)		% Allow.	Design	Allow.	Design	Allow.	Pass/Fail
Span Live		18%	0.212	1.200	L / 999+	L / 240	PASS
	Span Total	34%	0.552	1.600	L / 522	L / 180	PASS
SUPPORTS		Support 1	Support 2				
Live Reaction, Critical (lb) (DOL%)		311 (115)	503 (115)				
	Dead Reaction (lb)	498	669				
	Total Reaction (lb) (DOL%)	809 (115)	1172 (115)				
	Bearing Support	Flush Ledger	Flush Beam				
HANGERS	Model	Top	Face	Member	Header	Size	
Left	None Selected						
Right	None Selected						

SPANS AND LOADS

Dimensions represent horizontal design spans.

Member Slope: 0.25/12 ↙



APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	25	15	0	16"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Tapered	psf	Snow(115%)	9 to 0	0 to 0	15'-0.0" to 17'-3.6"	Adds To	
Point	plf	Snow(115%)	225	515	15'-0.0"	Adds To	
Uniform	psf	Floor(100%)	10	15	0'-0.0" to 15'-0.0"	Replaces	

NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Min end bearing = 1.75 inches, web stiffeners required.
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.



RedSpec™ by RedBuilt™
v7.0.13

Project: Project
Location: Hayden Harbor II
Folder: Folder
Date: 10/11/11 1:32 PM
Designer:
Comment:

PAC
Type: Type

36" Red-W™ @ 24" O/C

This product meets or exceeds the set design controls for the application and loads listed

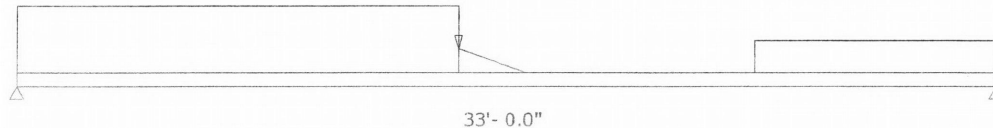
This truss design is feasible. The finished design shall be produced by RedBuilt Engineering. All open-web trusses are custom designed to carry the specific design loads for each project. Actual truss capacity when fabricated is limited to that required to resist the specific loads. Do not use this analysis to verify the capacity of existing trusses.

DEFLECTIONS (in)		% Allow.	Design	Allow.	Design	Allow.	Pass/Fail
Span Live		18%	0.293	1.650	L / 999+	L / 240	PASS
Span Total		30%	0.667	2.200	L / 594	L / 180	PASS
SUPPORTS							
Live Reaction, Critical (lb) (DOL%)			Support 1	Support 2			
Dead Reaction (lb)			750 (115)	1141 (115)			
Total Reaction (lb) (DOL%)			1019	1019			
Bearing			1769 (115)	2160 (115)			
Support			Top Chord	Top Chord			
Bearing Clip			Ledger	Beam			
Approx. Clip Height			6" No-Notch	6" No-Notch			
Approx. Clip Width			Clip	Clip			
Assumed Bearing Width			1.5"	1.5"			
			8.4375"	8.4375"			
			3.5"	3.5"			

SPANS AND LOADS

Dimensions represent horizontal clear span.

Member Slope: 0.25/12



APPLICATION LOADS

Type	Units	DOL	Live	Dead	Partition	Tributary	Member Type
Uniform	psf	Snow(115%)	25	15	0	24"	Snow Roof Joist

ADDITIONAL LOADS

Type	Units	DOL	Live	Dead	Location from left	Application	Comment
Tapered	psf	Snow(115%)	9 to 0	0 to 0	15'-0.0" to 17'-3.6"	Adds To	
Point	plf	Snow(115%)	225	515	15'-0.0"	Adds To	
Uniform	psf	Floor(100%)	10	15	0'-0.0" to 15'-0.0"	Replaces	
Uniform	psf	Snow(115%)	12	0	25'-0.0" to 33'-0.0"	Adds To	

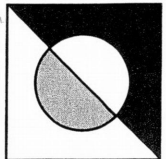
NOTES

- Building code: IBC. Methodology: Allowable Stress Design
- Applied point loads require special hardware. Please contact your local RedBuilt™ representative for more information or call (866) 859-6757.
- Truss design includes consideration for partial span application live load.
- Continuous lateral support required at top edge. Lateral support at bottom edge shall be per RedBuilt recommendations.
- Pricing Load (plf) = 117
- Pricing Index (plf) = 161

C:\Documents and Settings\Chris V\My Documents\Misc\RedSpec\Sample.red

The products noted are intended for interior, untreated, non-corrosive applications with normal temperatures and dry conditions of use, and must be installed in accordance with local building code requirements and RedBuilt™ recommendations. The loads, spans, and spacing have been provided by others and must be approved for the specific application by the design professional for the project. Unless otherwise noted, this output has not been reviewed by a RedBuilt™ associate. PRODUCT SUBSTITUTION VOIDS THIS ANALYSIS.

RedBuilt™, RedSpec™, Red-I™, Red-I45™, Red-I65™, Red-I65T™, Red-I90™, Red-I90H™, Red-I90HS™, Red-L™, Red-LT™, Red-W™, Red-S™, Red-M™, Red-H™, RedLam™, FloorChoice™ are trademarks of RedBuilt LLC, Boise ID, USA. Copyright © 2010-2011 RedBuilt LLC. All rights reserved.



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Job

Hafren II

Client

Job No.

By

C.V.

Date

9/00

Sheet No.

25

30' BM. - (2)

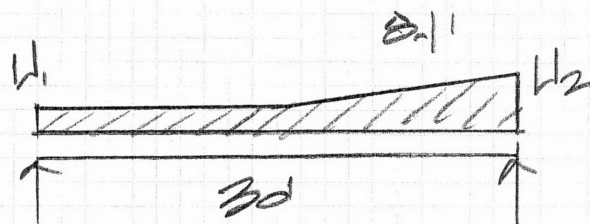
$$W_1 = (40 + 32) (100/2) = 2.5 \text{ KLF}$$

$$W_2 = 40 (100/2) = 1.4 \text{ KLF}$$

$$R_L = 2.4 \text{ K}$$

$$R_R = 28.1 \text{ K}$$

$$+M = 104 \text{ K}$$



$$S_x = 711 \text{ IN}^3 - \text{GL } 5/8 \times 30$$

$$A_x = 130 \text{ IN}^2 < 154 \text{ IN}^2 \text{ OK}$$

$$T_o = 1.20'' = 1/20$$

$$U_{FB}: \text{GL } 5/8 \times 30 \text{ C} = 3/4''$$

28' BM. - (2)

$$W = 1.4 \text{ KLF}$$

$$M = 1.4 (28^2/2) = 137 \text{ K}$$

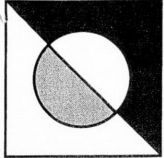
$$R = 1.4 (28/2) = 19 \text{ K}$$

$$S_x = 597 \text{ IN}^3 - \text{GL } 5/8 \times 28/2$$

$$A_x = 107 \text{ IN}^2 < 140 \text{ IN}^2 \text{ OK}$$

$$T_o = 1.09'' = 1/20$$

$$U_{FB}: \text{GL } 5/8 \times 28/2 \text{ C} = 3/4''$$



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Job HAYDEN II
Client _____
Job No. _____ By C.J.
Date 9/00 Sheet No. 26

36' BM. - ②

$$W_1 = 40(33+20)(1/2) = 1.1 \text{ KLF}$$

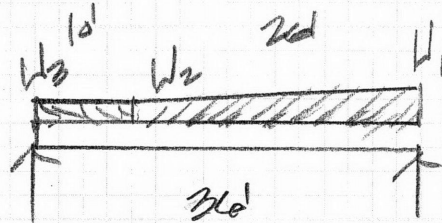
$$W_2 = 40(33+15)(1/2) = .76 \text{ KLF}$$

$$W_3 = 40(33+15)(1/2) + 740(15/33) + 10 = 1.1 \text{ KLF}$$

$$R_L = 17.7 \text{ K}$$

$$R_R = 17.7 \text{ K}$$

$$+M = 151 \text{ K}$$



$S_x = 658 \text{ IN}^3 - 5/8 \times 30$

$A_{FL} = 96 \text{ IN}^2 < 154 \text{ IN}^2 \text{ OK}$

$$T_{LD} = 1.70'' = 1/254$$

$$O_{5B} = 658/8 \times 30 < 24''$$

33' BM. BELOW TOWER

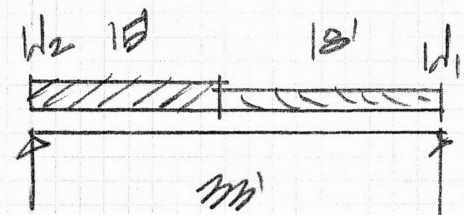
$$W_1 = 40(2.07) = .107 \text{ KLF}$$

$$W_2 = 40(8 1/2)(1/2) + 36(3) + 10(10) = .60 \text{ KLF}$$

$$R_L = 7.7 \text{ K}$$

$$R_R = 7.4 \text{ K}$$

$$M = 47 \text{ K}$$



$S_x = 203 \text{ IN}^3 - 5/8 \times 16 1/2$

$A_{FL} = 41 \text{ IN}^2 < 112 \text{ IN}^2 \text{ OK}$

$$T_{LD} = 2.7'' \text{ H.G.}$$

$$O_{5B} = 658/8 \times 37 < 0''$$

$$T_{LD} = 0'' = 1/605$$

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Job HARPER II
Client _____
Job No. _____ By C.V.
Date 9/00 Sheet No. 2-7

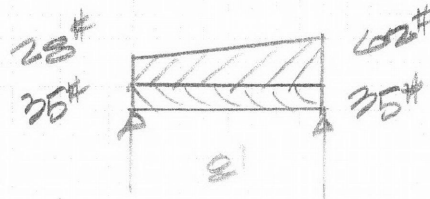
CANOPUS:

DRIFT: $Wb = 1140'$ $Wd = 77.6'$

$DRIFT = 602 \text{ pcf}$
 $Wd = 144'$

$R_L = 297 \text{ pcf}$

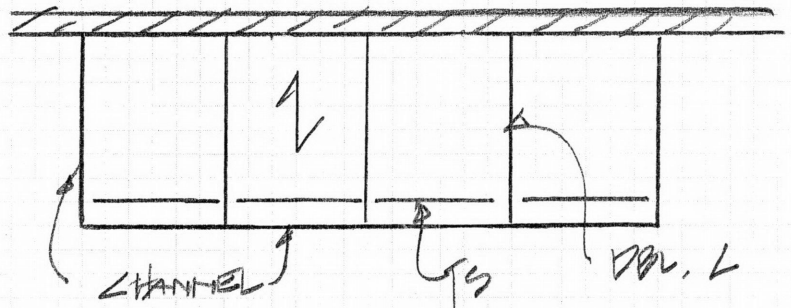
$R_F = 343 \text{ pcf}$



TS BR.

$W = 297 \text{ pcf}$
 $L = 6'$

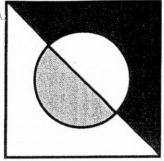
$M = 1336 \text{ #}$
 $R = 891 \text{ #}$



$S_L = .53 \text{ IN}^3$

VAR: TS 24 3/4

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Job HAFDEN II
Client _____
Job No. _____ By C.V.
Date 9/06 Sheet No. R-2

DR. L

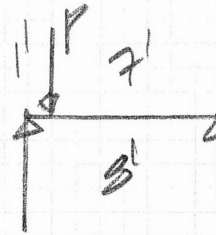
$$P = 291 (2) = 1782 \#$$

$$R = 1559 \#$$

$$P_2 = 223 \#$$

$$H = 1560 \#$$

$$S_2 = .78 \text{ IN}^3 - \underline{\underline{(2) - L 5 + 20' / 4}}$$



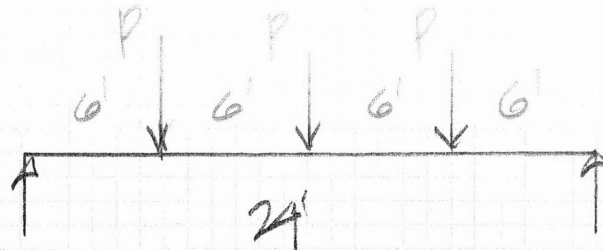
CHANNEL

$$P = 1559 \#$$

$$R = 2339 \#$$

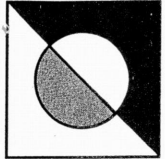
$$H = 18,708 \#$$

$$S_2 = 9.3 \text{ IN}^3$$



DR. C10X15.3

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Job HATPAN
Client _____
Job No. _____ By C.V.
Date 10/11 Sheet No. P-9

old en. WINN -

$$W = 40 (35/2) + 67 = .80 \text{ KIP}$$

$$M = 4.2 \text{ K}$$

$$R = 2.6 \text{ K}$$

$$S_x = 2.1 - \text{HSS } 8 \times 4 \times 1/4$$

$$T_b = .05''$$

$$DSS: \text{HSS } 8 \times 4 \times 1/4$$

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Job HAYDEN II
Client _____
Job No. _____ By C.V.
Date 9/06 Sheet No. L-1

LATERAL ANALYSIS:

ASCM10: PORTLAND, OR

$$S_{ps} = 2/3 (1.129) = .75$$

$$S_D = 2/3 (.807) = .39$$

DESIGN CAT. = b

USE GROUP = I

$$R = 5$$

$$I = 1.0$$

$$V = .75 / (5/1) \times W = .15 W - LRFD$$

$$V = .15 / 1.4 \times W = \underline{\underline{.107 W}} - ASD$$

50% PORT

$$\left\{ \begin{array}{l} S_{ps} = .67 (.91) = \underline{.61} \\ S_D = .67 (.807) = \underline{.54} \end{array} \right\}$$

OK

Hayden Harbor II

Conterminous 48 States

2009 International Building Code

Latitude = 45.6139

Longitude = -122.67170999999999

Spectral Response Accelerations SMs and SM1

SMs = $F_a \times S_s$ and SM1 = $F_v \times S_1$

Site Class D - $F_a = 1.127$, $F_v = 1.743$

Period S_a

(sec) (g)

0.2 1.050 (SMs, Site Class D)

1.0 0.572 (SM1, Site Class D)

Period S_a

(sec) (g)

0.2 0.700 (SDs, Site Class D)

1.0 0.382 (SD1, Site Class D)

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WIND: 95 MPH - Exp. B

$$V = 95 \text{ MPH}$$

$$K_d = .85$$

$$I = 1.0$$

$$K_z = .70$$

$$K_{gt} = 1.0$$

$$q_z = .00256 (.85) (.70) (1.0) (95^2) (1) = 15 \text{ psf}$$

$$G = .95$$

$$C_p = .80 \text{ (WINDWARD WALL)}$$

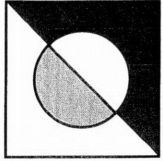
$$C_{pe} = -.50 \text{ (LEEWARD WALL)}$$

$$C_{pi} = .40 \text{ (WINDWARD ROOF)}$$

$$C_{pe} = .60 \text{ (LEEWARD ROOF)}$$

$$P_{wall} = 15 (.80) (.95) + 15 (.5) (.95) = 17 \text{ psf} - \text{WALL}$$

$$P_{roof} = 15 (.40) (.95) + 15 (.60) (.95) = 17 \text{ psf} - \text{ROOF}$$

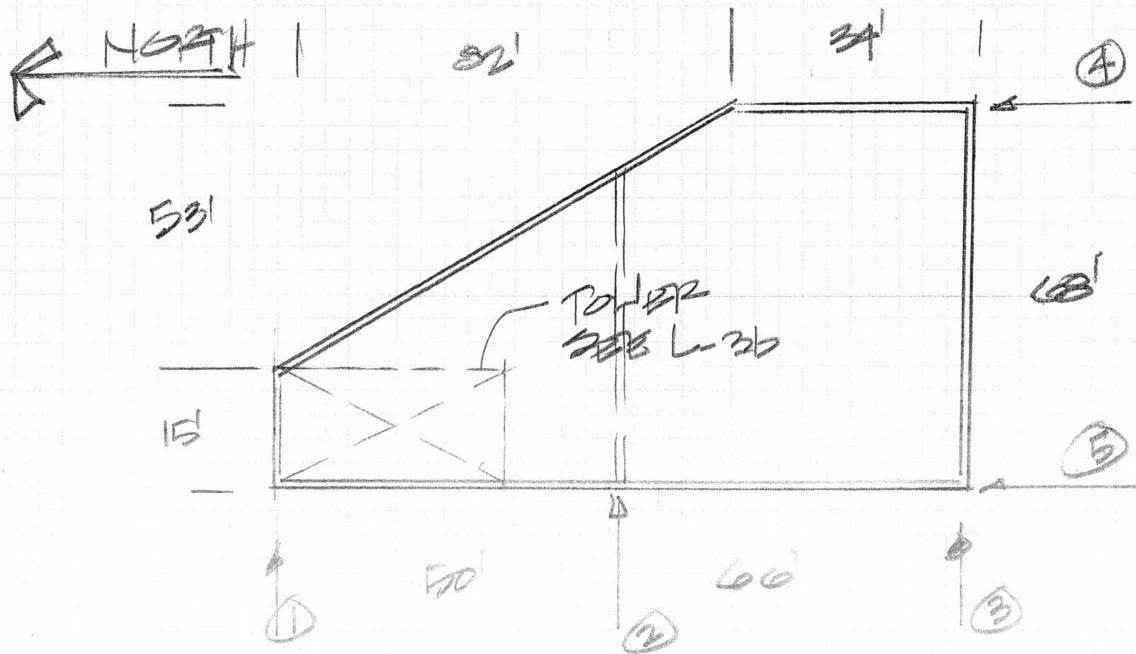


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Job No. _____ By C.N.Date 9/00 Sheet No. L-3ROOF DIAGRAM:E/W -

$$S_{\text{snow}} = -1.07 [63(15) + 8(2.5/2)(2)] = 293 \text{ psf}$$

$$W_{\text{ind}} = 14(2.5^2/2)(1/10) = 120 \text{ psf}$$

$$V @ 1 = 640 \text{ k}$$

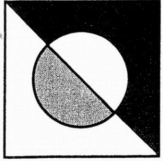
$$V = 640/4 = 160 \text{ psf} \quad \text{---} \quad 100 \text{ @ } 4' \text{ o.c.}$$

$$V_{\text{all}} = 480 \text{ psf}$$

$$V @ 3' = 480/2 = 240 \text{ psf} \quad \text{---} \quad 100 \text{ @ } 6' \text{ o.c. UNBULKED}$$

$$V_A = 320/240 \text{ psf}$$

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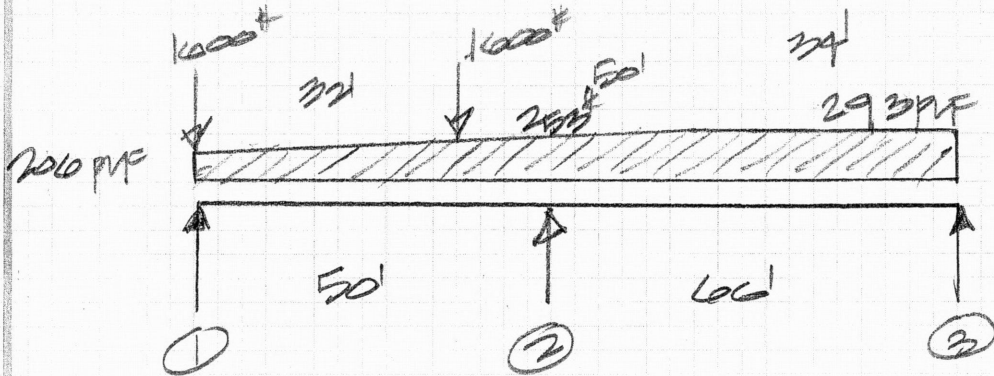
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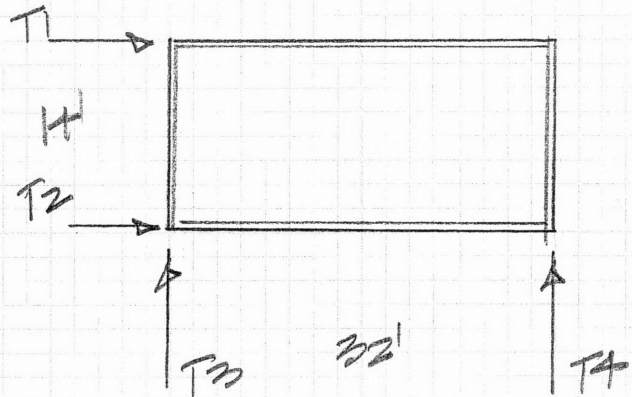
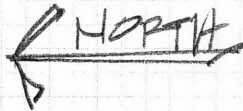


$$① = 6481\# + 1000\# = 7481\#$$

$$② = 16,977\#$$

$$③ = 9643\#$$

TOWER



NORTH SOUTH

$$SLOTTING = .157 [32(15) + 45(10/2/2)] = 100 \text{ PLF}$$

$$WIND = 17(10/2) + 6(15) = 163 \text{ PLF}$$

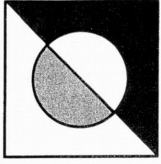
$$\checkmark @ T1 = T2 = 163(15/2) = 1141 \#$$

$$\checkmark = 1141 / 32 = 36 \text{ PLF}$$

EAST - WEST

$$\checkmark @ T3 = T4 = 163(32/2) = 2608 \#$$

$$\checkmark = 2608 / 4 = 652 \text{ PLF}$$



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POWER LANS -

T1

$$V = 114 / 32 = 3.6 \text{ PF} - \triangle$$

$$15/32" - \#20 \text{ @ } 6", \#20 \text{ @ } 12"$$

$$M_{OT} = 11.4 \text{ K}$$

$$M_{PS} = 24.2 \text{ K} \text{ OK.}$$

T2

$$V = 114 / 4(4) = 7.1 \text{ PF} - \triangle$$

$$- \text{STRIP W/ SIMPLY S.C.C.}$$

T3

$$V = 2408 / 14 = 172 \text{ PF} - \triangle$$

$$M_{OT} = 20.1 \text{ K}$$

$$M_{PS} = [64 + 10(10)] 14^2 / 2 = 160.1 \text{ K}$$

$$20.1 \text{ K} - \text{COMP TO MOMENT W/ ALL}$$



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$$\textcircled{2} = 10,977\#$$

$$V_n = 7600/40 = 190 \text{ PF}$$

$$V_s = 9400/40 = 235 \text{ PF}$$

$$\textcircled{3} = 9043\#$$

$$V = 146 \text{ PF}$$

N/A -

$$305700 \cdot 1.07 [110(15) + 30(2.5/2)(2)] = 370 \text{ PF}$$

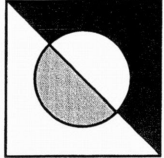
$$\text{WIND} = 180 \text{ PF}$$

$$V \textcircled{4} = 370(60/2) = 11100\#$$

$$V = 11100/110 = 101 \text{ PF}$$

$$V \textcircled{5} = 11100\#$$

$$V = 101 \text{ PF}$$



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 Date 1/00 Sheet No. 15
SHEAR WALLS:

$$\textcircled{1} \quad V = 9009 \# \quad - \textcircled{3} - 40 \text{ PARS}$$

$$V = 9009 / 2 = 4545 \# \text{ EA.}$$

$$F = 4545 \quad (11.77 / 2) = 26.7 \text{ in}$$

$$b = 9' \quad d = 36'$$

$$V / d = 29.1$$

$$n \ell \downarrow = .0156 \quad \therefore n \ell = .017 \quad C = .0013$$

$$A_{sv} = .0013 (5)(14) = .39 \text{ IN}^2 - \textcircled{3} - \#5$$

$$M / V d = 1.9 \quad \therefore F_v = \sqrt{F_{cr}} = 51 \text{ psi}$$

$$F_v = 1.5 (4545) / 3 (36) = 24 \text{ psi OK}$$

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Date 9/00 Sheet No L-6

① CONT...

FIG.

40%
or

$$M_1 = 225.6k$$

$$T_1 = 40 \times 180 \times 10''$$

$$M_2 = 4(18)(1.33)(150) = 144 \times 9 = 130$$

$$4(18)(125)(1) = 9 \times 9 = 81$$

$$60(243) = 140 \times 9 = 13$$

$$45(15)(6.5) = 4.6 \times 9 = 41$$

$$\underline{42.6}$$

$$\underline{282.1k}$$

$$2 = \frac{282.1 - 225.6}{42.6} = 1.35$$

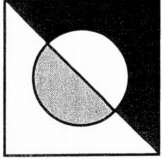
$$V = 1919 \text{ PCF}$$

$$M_0 = 1.4(1.1)(1.9)(242) = 529k$$

$$b = 12' \quad d = 16' \quad f = .25k$$

$$K_0 = 23 \quad \therefore 20.00/23 \quad A_0 = 10 \text{ IN}^2$$

(4) - #5 LONGIT.



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1-7

$$\textcircled{2} \quad V = 16977 / 43 = 394 \text{ psf}$$

Use:

$$M_x = 16977 (19) = 322,611 \text{ lb-ft}$$

$$M_z = [15(2) + 10(19)] 43^2 / 2 = 253,115 \text{ lb-ft}$$

psf - 15/1002

$$\textcircled{3} \quad V = 4643 \text{ lb} - 25' \text{ Masonry Wall}$$

$$M_x = 196 \text{ lb-ft}$$

$$M_z = 571 \text{ lb-ft}$$

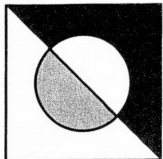
$$F_v = 11 \text{ psf}$$

$$\textcircled{4} \quad V = 12,500 \text{ lb} - \text{Masonry Wall of observation}$$

SHEAR WALL SCHEDULE			
MK	SHEATHING AND NAILING	BASE ANCHORAGE	NOTES
	15/32" APA RATED SHEATHING, ONE SIDE ALL EDGES BLOCKED, WITH #8 SCREWS AT 6" O.C. ALL PANEL EDGES AND #8 SCREWS AT 12" O.C. FIELD.	3/4" DIA. ANCHOR BOLTS AT 48" O.C. OR Ø.145" DIA. POWER DRIVEN ANCHORS AT 12" O.C.	WIND = 50/2 PWF SEAFLOOR = 236 PWF
	15/32" APA RATED SHEATHING, ONE SIDE ALL EDGES BLOCKED, WITH #8 SCREWS AT 4" O.C. ALL PANEL EDGES AND #8 SCREWS AT 12" O.C. FIELD.	3/4" DIA. ANCHOR BOLTS AT 48" O.C. OR Ø.145" DIA. POWER DRIVEN ANCHORS AT 8" O.C.	
	15/32" APA RATED SHEATHING, ONE SIDE ALL EDGES BLOCKED, WITH #8 SCREWS AT 3" O.C. ALL PANEL EDGES AND #8 SCREWS AT 12" O.C. FIELD.	3/4" DIA. ANCHOR BOLTS AT 48" O.C. OR Ø.145" DIA. POWER DRIVEN ANCHORS AT 6" O.C.	
	15/32" APA RATED SHEATHING, ONE SIDE ALL EDGES BLOCKED, WITH #8 SCREWS AT 2" O.C. ALL PANEL EDGES AND #8 SCREWS AT 12" O.C. FIELD.	3/4" DIA. ANCHOR BOLTS AT 48" O.C. OR Ø.145" DIA. POWER DRIVEN ANCHORS AT 6" O.C.	

SHEAR WALL NOTES:

- 1.) ALL SCREWS TO BE #8 X 1" FLAT HEAD SELF DRILLING SCREWS WITH A MINIMUM HEAD DIAMETER OF Ø.292".
- 2.) BLOCK ALL UNSUPPORTED PANEL EDGES ALL WALLS WITH CONT. 2" X 18 GA. METAL STRAPPING. SPLICE STRAPPING BY LAPPING 16" AND SCREWING WITH (8) #8 SCREWS.
- 3.) ALL STUDS TO HAVE A MINIMUM FLANGE WIDTH OF 1 5/8". ALL TRACKS TO HAVE A MINIMUM WIDTH OF 1 1/4".



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By C.V.Date 9/00Sheet No. 1-B

④ $\sqrt{12500^2 - 0^2}$
 $\sqrt{12,240^2}$

- (E) - 4° GIV PERS

$\sqrt{12,240/5} = 2442^{\#}$ EA. - 150'. (E) - #5 EA
END.
/SEE NO. ①)

FB -

$11.9 = 2442 / (11.33/2) = 13.8^{\#}$

TRF 3° x 60 x 20"

$11.9 = 3(6)(1.67)(150) = 4.5^{\#} \times 3 = 13.5^{\#}$

$3(6)(125)(1) = 2.2^{\#} \times 3 = 6.8^{\#}$

$20(21.5)(4) = 69^{\#} \times 3 = 20.7^{\#}$

$30(11.5)(24/2) = \frac{11.0^{\#} \times 3}{24.0^{\#}} = \frac{33.0^{\#}}{74.0^{\#}}$

$2 = 24$

$\therefore \text{BRE} = P/2 \text{ F A/S}$

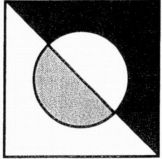
$\text{BRE} = 24.4/3 \text{ F } 13.8/1.3 = 2335 \text{ PSF NG.}$

$4^{\circ} \times 8^{\circ} \times 20''$

$\text{BRE} = 29.9/32 + 13.8/42.7 = 1260 \text{ PSF}$

USE 4° x 8° x 20"
W/(4) - #5
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HAYDEN II -

$$f_m = 1400 \text{ psi} \quad n = 12.4$$

GRADE 60 REINF.

$$WIND = 17 \text{ psf}$$

$$SEISMIC = .40 (75) (1) / 1.4 \times W = \underline{\underline{.21 W}}$$

$$= .21 (20) = 17 \text{ psf}$$

(24 psf UFFD)

TYPICAL WALL

$$U_{lc} = 25(33/2) + 24(3/2) = 549 \text{ psf} \quad (3569 \text{ lb})$$

$$U_{dl} = 15(33/2) = 248 \text{ psf} \quad (1612 \text{ lb})$$

$e = 6 \frac{1}{2}''$

$$S = 17 \text{ psf}$$

$$e = 17 \text{ psf}$$

$$L = 10'0''$$

$$U_{98} = \underline{\underline{\#5 @ 48'' \text{ o.c.}}}$$

(SEE M-12 TO M-10)

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CMD09.00.02

Filename: Hayden II Typical Wall.dat

Reinforced Clay Masonry Out-Of-Plane Loaded Wall per 2010 CBC Section 2108 (2008 MSJC Section 3.3.5)

- Ultimate Strength Design -

Input:

7.625 in.

# 5 @ 48 inches on center
at 3.815 inches from the loaded face

Support Condition: Pinned Top and Bottom

Wall Section**Wall Geometry:**

18.00' high, 8" nominal thickness CMU wall

Cells Grouted at 48" o.c.

Wall Material Properties: $f'_m = 2,600$ psi $f_y = 60,000$ psi $E_m = 1,820$ ksi $E_s = 29,000$ ksi $n = 15.93$ **Applied Loads:**

	P plf	M plf-in	Wall Weight psf
Dead Load	248	1,612	80
Floor Live Load	0	0	
Roof Live Load	0	0	
Snow Load	549	3,569	
Horizontal Seismic Load	0	0	
Vertical Seismic Load	0	0	0
Vertical Wind Load	0	0	

Lateral Loading:

#	Load Condition	Load Type	Load Start Location ft	Load End Location ft	Value plf, psf, plf-in	Value psf
1	E	T	0.0	18.0	24	24
2	W	T	0.0	18.0	17	17

Seismic Performance Category: E

Output:**Input Reinforcing:**# 5 @ 48 inches o.c., $A_s = 0.08$ in²/ft, $\rho = 0.0017$
maximum $\rho = 0.0017 \leq 0.0118 = \rho_{max}$ - OK**Wall Design Geometry, Gross Moment of Inertia and Section Modulus:**Positive Moments: $b = 48.00$ in $b' = 8.56$ in $d = 3.82$ inNegative Moments: $b = 48.00$ in $b' = 8.56$ in $d = 3.81$ inGross Section: $b = 48.00$ in $b' = 8.56$ in

$$I_g = 2[b \cdot t^3/12 + b \cdot t(t/2 - t_f/2)^3] + b' \cdot (t - 2 \cdot t_f)^3/12 = 1,331 \text{ in}^4 = 333 \text{ in}^4/\text{ft}$$

$$S_g = I_g/(t/2) = 349 \text{ in}^3 = 87 \text{ in}^3/\text{ft}$$

Allowable Stresses and Cracking Moment:

$$h'/t = 28.33 \leq 30 \quad - F_{a \max} = 0.2 f'_m$$

$$\text{Maximum Axial Stress for } h'/t > 30 = 0.05 f'_m = 130 \text{ psi}$$

$$\text{Maximum Axial Stress for } h'/t \leq 30 = 0.2 f'_m = 520 \text{ psi}$$

$$f_r \text{ (per MSJC Table 3.1.7.2.1)} = 79.7 \text{ psi}$$

$$M_{cr} = S_g \cdot f_r / 1000 = 7.0 \text{ kip-in/ft}$$

1. E = Earthquake Force, W = Wind Force, H = Soil Pressure Load

2. P = Point Load, T = Trapezoidal or Uniform Load, M = Concentrated Moment

T:
F:

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Reinforced Clay Masonry Out-Of-Plane Loaded Wall per 2010 CBC Section 2108 (2008 MSJC Section 3.3.5)
- Ultimate Strength Design -

Factored Input Out-Of-Plane Loads and Moments:

	Load Type	Load Factor	P_u klf	M_u klf-in	w_u start ksf	h_{start} ft	w_u end ksf	h_{end} ft
Load 1	E	1.0			0.024	0.00	0.024	18.00
Load 2	W	1.6			0.027	0.00	0.027	18.00
	W	0.8			0.014	0.00	0.014	18.00

Ultimate Axial Loads and Stress Checks:

Load Case	$P_{u0} + P_{uw}$ lbs	@ h ft	$P_{u0} + P_{uw}/A_g$ psi	Stress Ratio	
1.2D+1.6L+0.5S	1,297.9	10.44	31.68	0.061	OK
1.2D+1.6S+0.8W	1,970.9	9.72	48.10	0.093	OK
1.2D+1.6W+0.5L+0.5S	1,401.5	9.36	34.21	0.066	OK
1.2D+1.0E+0.5L+0.2S	1,271.4	9.00	31.03	0.060	OK
1.2D-1.0E+0.5L+0.2S	1,320.4	8.49	32.23	0.062	OK

Service Load Moments and Maximum Deflections:

- Maximum Allowable Deflection, $\Delta_{s \max} = 0.007h = 1.512$ in

Equivalent Unfactored Load Case	P_s kips	M_{s0} kip-in	$M_s P_{\Delta}$ kip-in	@ h ft	Δ_s in	@ h ft	
D+0.75[S+W]	1.26	8.53	8.94	10.56	0.3313	10.56	$\leq \Delta_{\max}$ - OK
D+W	0.93	9.09	9.48	9.44	0.4249	9.44	$\leq \Delta_{\max}$ - OK
0.6D+W	0.57	8.75	8.96	9.26	0.3644	9.26	$\leq \Delta_{\max}$ - OK
D+0.7E	0.93	8.99	9.37	9.44	0.4087	9.44	$\leq \Delta_{\max}$ - OK
0.6D+0.7E	0.57	8.66	8.85	9.27	0.3481	9.27	$\leq \Delta_{\max}$ - OK

Ultimate and Nominal Shear:

Load Case	Governing Location	V_u kips	ϕV_n kips	$\phi = 0.80$ Strength Ratio	
1.2D+1.6W+0.5L+0.5Lr	Top	0.24	1.55	0.15	OK
1.2D+1.6W	Top	0.24	1.55	0.15	OK
0.9D+1.6W	Top	0.24	1.53	0.16	OK
1.2D-1.0E	Top	0.22	1.55	0.15	OK
0.9D-1.0E	Top	0.22	1.53	0.15	OK

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Reinforced Clay Masonry Out-Of-Plane Loaded Wall per 2010 CBC Section 2108 (2008 MSJC Section 3.3.5)
- Ultimate Strength Design -

Ultimate Axial Load and Data for Ultimate Positive Moment Calculations:

Load Case	P_u kips	@ h ft	A_{se} in ²	c in	I_{cr} in ⁴
1.2D+1.6W+0.5L+0.5Lr	1.13	9.33	0.10	0.29	19.2
1.2D+1.6W+0.5L+0.5S	1.38	9.63	0.10	0.30	19.9
1.2D+1.6W	1.13	9.33	0.10	0.29	19.2
0.9D+1.6W	0.85	9.25	0.09	0.28	18.4
1.2D+1.0E+0.5L+0.2S	1.22	9.51	0.10	0.29	19.4

Ultimate Positive Moment and Deflection:

Load Case	M_n kip-in	ϕM_n kip-in	M_{u0} kip-in	$M_{uP\Delta}$ kip-in	$\phi = 0.90$ Strength Ratio	Δ_u in	
1.2D+1.6W+0.5L+0.5Lr	21.4	19.2	14.20	15.65	0.81	1.282	OK
1.2D+1.6W+0.5L+0.5S	22.3	20.0	15.14	17.14	0.86	1.451	OK
1.2D+1.6W	21.4	19.2	14.20	15.65	0.81	1.282	OK
0.9D+1.6W	20.4	18.3	13.95	15.01	0.82	1.237	OK
1.2D+1.0E+0.5L+0.2S	21.7	19.5	13.03	14.36	0.73	1.090	OK

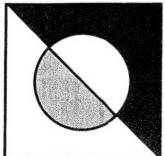
Ultimate Axial Load and Data for Ultimate Negative Moment Calculations:

Load Case	P_u kips	@ h ft	A_{se} in ²	c in	I_{cr} in ⁴
1.2D+1.0E+0.5L+0.2S	2.14	0.00	0.11	0.34	21.9
1.2D-1.0E+0.5L+0.2S	1.32	8.64	0.10	0.30	19.6
1.2D+1.0E	2.03	0.00	0.11	0.33	21.6
1.2D-1.0E	1.20	9.00	0.10	0.29	19.2
0.9D-1.0E	0.89	9.00	0.09	0.28	18.4

Ultimate Negative Moment and Deflection:

Load Case	M_n kip-in	ϕM_n kip-in	M_{u0} kip-in	$M_{uP\Delta}$ kip-in	$\phi = 0.90$ Strength Ratio	Δ_u in	
1.2D+1.0E+0.5L+0.2S	-24.9	-22.4	0.00	0.00	0.00	0.000	OK
1.2D-1.0E+0.5L+0.2S	-22.0	-19.8	-10.38	-11.17	0.56	-0.612	OK
1.2D+1.0E	-24.5	-22.1	0.00	0.00	0.00	0.000	OK
1.2D-1.0E	-21.5	-19.3	-10.72	-11.48	0.59	-0.672	OK
0.9D-1.0E	-20.4	-18.4	-10.95	-11.56	0.63	-0.715	OK

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A-2

24' Lintel - (7)

$$W_v = 40(11/2) + 24(8/2) + 90(4) + 60(7.5) + 249 = 1.95 \text{ KLF}$$

$$M = 140 \text{ K'}^2$$

$$P = 23.4 \text{ K}$$

$$b = 24" \quad d = 16"$$

$$2/3K = 19.04$$

$$n e_1 = .0235 \quad n e = .025 \quad C = .0020$$

$$A_s = 1.10 \text{ in}^2$$

3#5

$$W_H = 17(10/2) = 153 \text{ PLF} \quad \text{OR } 17(8/2) = 108 \text{ PLF}$$

$$M_H = 275 \text{ K'}^2$$

$$P_H = 91.8 \text{ K}$$

$$b = 24" \quad d = 16"$$

$$2/3K = 20.6$$

$$n e_1 = .023$$

$$\therefore n e = .031 \quad C = .0014$$

$$A_s = .41 \text{ in}^2 - \underline{2\#5 \text{ Ea. FACE}}$$

$$f_m = 194 \text{ PSI}$$

$$f_s = 7980$$

$$UNIT F = .04$$

$$UNIT F = 1.25$$

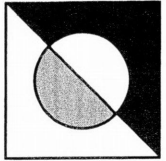
OK

L-1

BRAC
PROG
L-12

$A_c = 1.24 \text{ in}^2$
 $n e = .0972$
 $I = .076$
 $K = .373$

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10' LINT

$$W = 40 + 34 + 4(90) + 7.5(100) + 743 = 1.2 \text{ kV}$$

$$M = 131 \text{ k}$$

$$R = 60 \text{ k}$$

TRY 48" LINT

$$b = 8" \quad d = 44"$$

$$2/11 = 74.6$$

$$n \epsilon = -0.006$$

$$\therefore n \epsilon = -0.007 \quad \epsilon = 0.000$$

$$A_s = 20 \text{ in}^2$$

$$(E) - 1.5$$

$$F_v = 17 \text{ psi}$$

$$F_v = \sqrt{2000} = 44.7 \text{ psi}$$

JAMB @ FRONT HALL

BRACE @ 11'0"

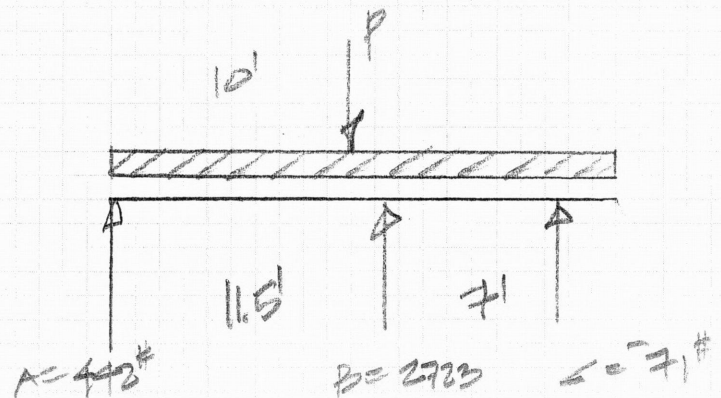
$$W = 17(4) = 68 \text{ PF}$$

$$P = 918(2) = 1836^{\#}$$

$$+M = 1420^{\#}$$

$$-M = 2105^{\#}$$

$$b = 48" \quad d = 30.1"$$



$$Z_{x-x} = 23.3 \quad \therefore n_e = .021 \quad e = .007$$

$$n_e = .019$$

$$A_s = .31 \text{ IN}^2 \rightarrow \text{②-}\#5 \text{ @ MIN.}$$

$$P_1 = 234(2) + 1.95(4) = 54.6^{\#}$$

$$F_a = 142 \text{ PSI}$$

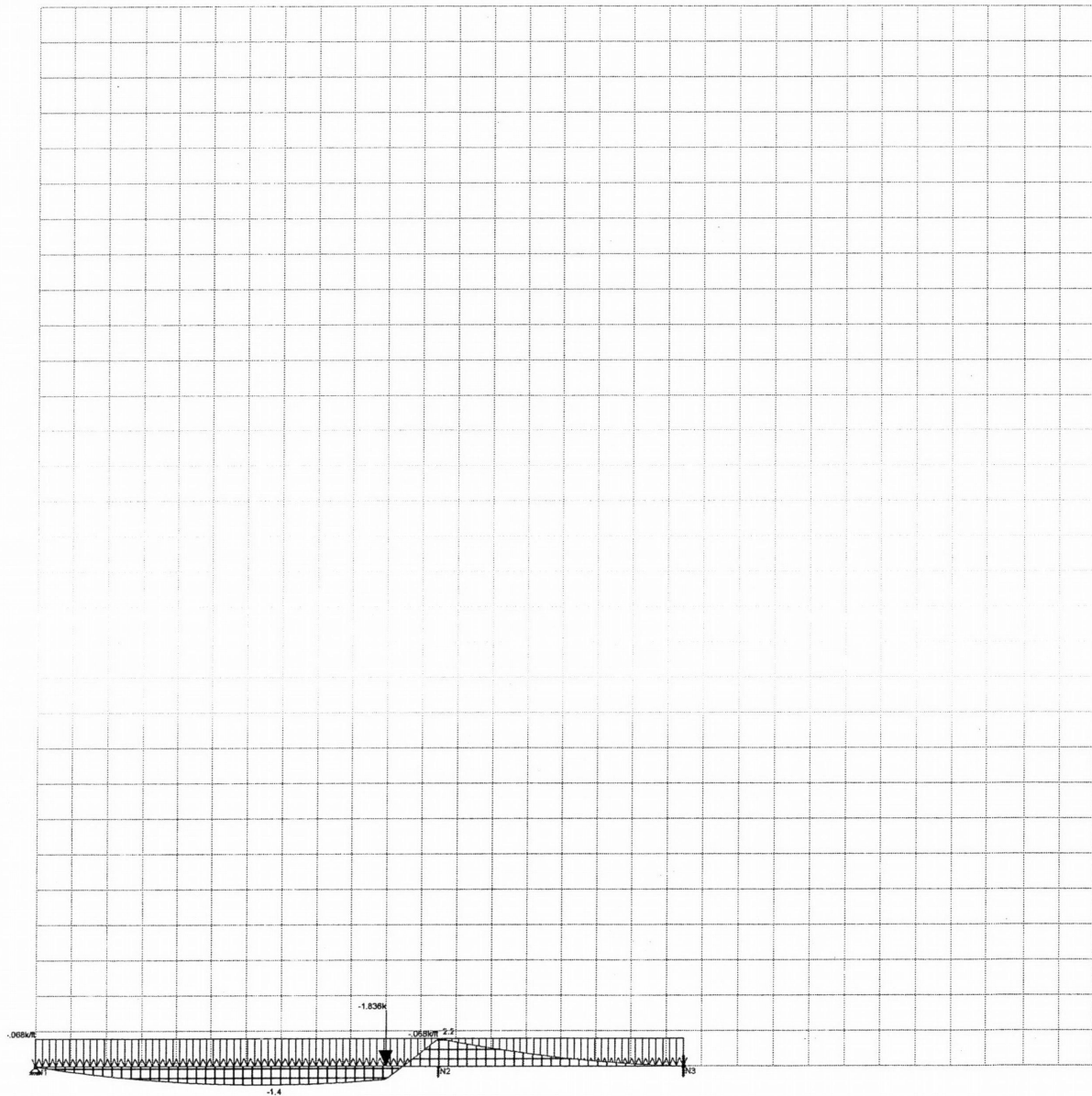
$$h/r = 63 \quad \therefore P_2 = 134^{\#} \quad \therefore F_2 = 2550 \text{ PSI}$$

$$F_b = 222 \text{ PSI}$$

$$222/866 + 142/2550 = .66 < 1.0 \text{ OK.}$$

USE (5) #5
 $n_e = .106$
 $J = .871$
 $K = .386$

M5



Loads: LC 1, vert
Results for LC 1, vert
Member Bending Moments (k-ft)

Oct 5, 2011 at 10:28 AM

Haydenn II Jamb.r2d

Company :
 Designer :
 Job Number :

Oct 5, 2011
 10:27 AM
 Checked By: _____

M6

Joint Reactions (By Combination)

LC	Joint Label	X [k]	Y [k]	MZ [k-ft]
1	N1	0	.442	0
2	N2	0	2.723	0
3	N3	0	-.071	0
4	Totals:	0	3.094	
5	COG (ft):	X: 9.695	Y: 0	

Member Section Forces (By Combination)

LC	Member Label	Sec	Axial[k]	Shear[k]	Moment[k-ft]
1	M1	1	0	.442	0
2		2	0	.247	-.99
3		3	0	.051	-1.419
4		4	0	-.144	-1.285
5		5	0	-2.176	2.165
6	m2	1	0	.547	2.165
7		2	0	.428	1.311
8		3	0	.309	.666
9		4	0	.19	.229
10		5	0	.071	0

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JAGG @ 10° angle. (H) - (D)

$$R_1 = [20(4) + 60(7.5) + 40(2)] 10/2 = 3125 \#$$

$$W = 17(12.0) = 204 \text{ PC}$$

$$P_1 = 17(18/2)(10/2) = 765 \#$$

$$R_2 = 505 \#$$

$$P_2 = 505 \#$$

$$P_3 = 2800 \#$$

$$b = 24 \text{ in } d = 21 \text{ in}$$

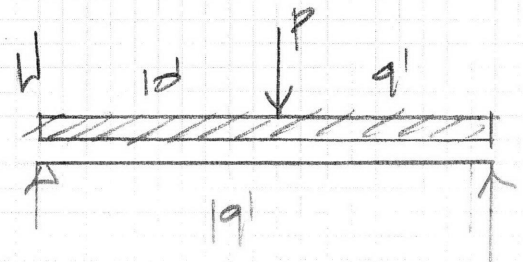
$$2/H = 9.0$$

$$n_e = .0064$$

$$f_c = 4000 \text{ psi}$$

$$f_s = 60 \text{ psi}$$

$$U_{eff} = 27 \text{ OK}$$



$$n_e = .0039$$

$$C = .0031$$

$$A_s = .23 \text{ in}^2 - (2) \#5 @ \phi$$

$$n_e = .005$$

$$I = .002$$

$$K = 254$$

$$F_2 = 247 \text{ psi}$$

$$U_{eff} = (2) \#5 @ \phi$$

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FOOTINGS:

$$f'_c = 3000 \text{ psi}$$

CRACK 60 PSI MP.

$$\text{DESIGN SOL BRG.} = 1300 \text{ ksf}$$

Foot #1

$$P = 24 + 19.6 = 43.6 \text{ k}$$

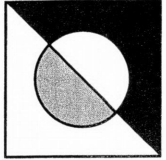
$$\sqrt{43.6 / 1.5} = 5.2 - \quad \underline{5'-4" \times 5'-4" \times 16"} \quad \underline{\hspace{1cm}}$$

$$A_v = 1.0(1.5)(2.5^2/2) = 7.5 \text{ k}$$

$$b = 12' \quad d = 12' \quad f = .144$$

$$K_u = 52 \quad \therefore e = .003 \quad A_s = 100 \text{ in}^2$$

USE: (4) - #5 EX. VAY



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Job

HARPER II

Client

Job No.

By

C.V.

Date

9/06

Sheet No.

FP2

FIG #2

$$p = 25.1 + .03(23')(A) = 32.5'k$$

$$\sqrt{32.5/1.5} = 4.7' - \text{USB: } 5'-0" \times 5'-0" \times 16" \text{ W/}$$

(5) - #5 EA. LAT

FIG 2 DET

$$p = 54.6'k$$

$$54.6/3'(6') = 18.2 \text{ psf NG.}$$

$$54.6/4.5(8) = 15.16 \text{ psf} \quad \text{USB: } 4'-0" \times 3'-0" \times 16"$$

$$f_u 4.0(1.5)(2.0 \frac{1}{2}) = 40'k$$

$$b = 12" \quad d = 12" \quad f = 144$$

$$K_u = 33 \quad \therefore \ell = .0013 \quad A_g = .19 \text{ in}^2 -$$

$$\#4 @ 12" \text{ c. B.W.}$$

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FIG C CORNER

$$P_1 = 23.4k$$

$$P_2 = 20(4)(123) = 7.4k$$

$$P_3 = 12.8k$$

$$P_4 = 7.4k$$

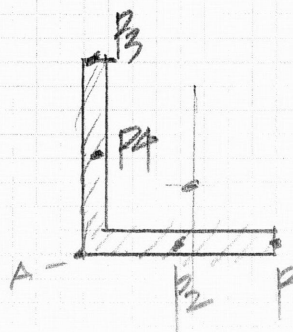
$$P_5 = 4.4k$$

$$\sqrt{4.4/1.5} = 5.4 -$$

$$70 \times 70 \times 10$$

OR

$$\frac{23.4 + 7.4}{15(4)} = 5.1 -$$

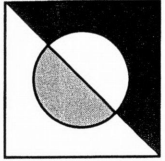


$$7 = 1.4$$

$$7 = 2.30$$

40 x 60 E.A. WADEN

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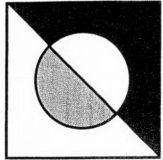
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Date 9/00 Sheet No. FF-4

Cont. Fig. -

$$W = 40(100/2) + 24(8/2) + 80(24) = 2640 \text{ pf}$$

$$2640/1500 = 1.76' - \text{OSB } 2'-0" \times 12' \text{ FR}$$

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Job No. _____ By C.V.Date 9/00 Sheet No. 15-1OUT OF PLUMB -

$$F_p = .90(.75)(1)/1.4 \times W = .43W =$$

$$= .43(100) = 20 \text{ psf}$$

$$W @ \text{Roof} = 20(21.5^2/2)(1/18) = 334 \text{ psf}$$

$$4 @ @ \text{ walls} - p = 1335^\# - \text{'LTROB'}$$

$$4 @ @ \text{ parap} - p = 1335^\# - \text{'LTROB' + 'OAG'}$$

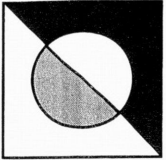
SUBDIAPHRAGM -

$$V = 334(776/2) = 5511^\#$$

$$L = 5511/400 = 11.5 - \text{Block \& Nail @ 4" c.,}$$

pd @ 4" c. $\nearrow$ FOR 12'0" MIN.

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Date 9/00 Sheet No. HS-2

$$\sqrt{Q_{DA}} = 324(33) - 1.5$$

$$3/4" \times 205 \text{ IN } 5/8" \text{ DIA. } \sqrt{Q_{DA}} = 2400^{\#}$$

$$110/2.4(1.33) = 3.5 - \text{USE: } \underline{4 \text{ BOLTS}}$$



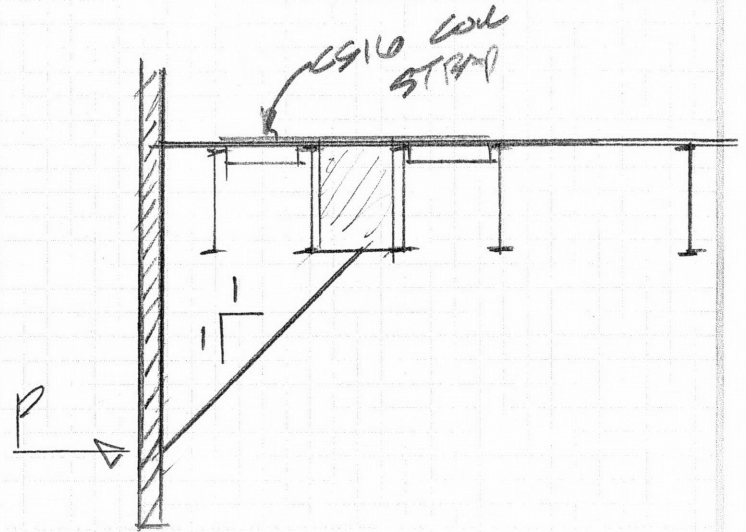
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Date 9/100 Sheet No. 15-3

LINTEL BRACE

$$P = 126(24/2) = 1512^{\#}$$



BRACE -

$$A \times L = 2138^{\#}$$

$$L = 9' - 0" \quad \text{TRT } 15' 3" + 2' + 3' / 6$$

$$K L / r = 104$$

$$F_b = 1.64(13.6) = 22^{\#} \text{ OK.}$$

$$\text{STRAP - 'CS10' } T_A = 1705^{\#}$$

$$\text{LENGTH} = 1512 / 400 = 3.8' - \text{STRAP } 6' \text{ MIN.}$$



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Job HAFDEN II
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Job No. _____ By LV
Date 9/00 Sheet No. 134

BOLTS

$$V = 2130 \# \text{ C45}$$

3/4" ϕ C45 - 3/2" - DBL. J.

3340
1370

$$V_A = \frac{3340 (1370)}{3340 (\sin 45)^2 + 1370 (\cos 45)^2} = 1943 \#$$

$$(2) - \text{BOLTS} - V_A = 1943 (2) (1.33) = 5168 \# \text{ OK.}$$

EPDM - (2) - 5/8" ANCHORS

$$V = 1512 \#$$

$$T = 1512 \#$$

$$V = 756 \#$$

$$T = 756 \#$$

$$T_A = 1210 \#$$

$$V_A = 4495 \#$$

$$756/1210 + 756/4495 = .59 \text{ OK.}$$



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Job HADEN
Client _____
Job No. _____ By C.J.
Date 6/11 Sheet No. 1155

ANCHOR BOLTS -

$$A_{PT} = 20.7 \text{ in}^2$$

$$A_{PV} = 28.4 \text{ in}^2$$

$$e_b = 4.25$$

TENSION:

$$3/4" \phi \times 5" \text{ E1820} = 3614 \#$$

||

$$= 1422 \# \leftarrow$$

||

$$= 6730 \#$$

$$1" \phi \times 5" \text{ E1820} = 3614 \#$$

||

$$= 2874 \# \leftarrow$$

||

$$= 8040 \#$$

SHARP:

$$3/4" \phi \times 5" \text{ E1820} = 1810 \# \leftarrow$$

$$= 2076 \#$$

$$= 7228 \#$$

$$= 3202 \#$$

$$1" \phi \times 5" \text{ E1820} = 1810 \# \leftarrow$$

$$= 2200 \#$$

$$= 7228 \#$$

$$= 5104 \#$$