Co. 01. 159988

22

CITY OF

PORTLAND, OREGON

OFFICE OF PLANNING AND DEVELOPMENT REVIEW

1900 SW 4th Ave, Suite 5000

Portland, OR 97201

MULTNOMAH COUNTY

COMMERCIAL BUILDING PERMIT

01-159988-000-00-CO

Site Address: 625 SW 4TH AVE

Issued: 10/4/01

CAPLAN BLD/ FAMOUS FOOTWEAR

PROJECT INFORMATION		Occ. Group	Const. Type
Business	Alteration	M	III-1HR

Project Description: TI- NEW TENANT in old Caplan space Famous Footware. Continued use of retail on the 1st and 2nd floor with basement storage. Upper floors vacant.

APPLICANT	CG Construction Company *DAVE CARL*	Phone	(503) 226-1078
OWNER	ROCK 625 LLC	Phone	
CONTRACTOR	CG Construction Company *DAVE CARL*	Phone	

Project Details		Project Details	
Alarm System Required?	Yes	Code Edition (Year)	1997
DS-Others	guardrail	Lot Area (Sq. Ft.)	5000
Maintain Current Fire Protection?	Yes	Smoke Detectors Required?	Yes
Sprinkler System Required?	Yes	Steel stairs/Handrails	Yes
Water District	City of Portland	Zoning - Property (1)	CXdCC

PAID

OCT

CITY OF PORTLAND

BEFORE YOU DIG — ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center. (Note: the telephone number for the Oregon Utility Notification Center is 1-800-332-2344).

CITY CONTACT — PROCESS MANAGEMENT — Phone: 503-823-7357

E-Mail: — Fax: (503) 823-4172

INSPECTION REQUEST PHONE NUMBERS — Building/Trade Inspections - Call Before 6:00 AM: (503) 823-7000

TDD: (503) 823-6868

IVR Inspection Request Number: 2123477

CRITERIA: 1997 UNIFORM BUILDING CODE

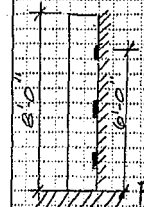
LOADS: LIVE 20#/S.F. (LIGHT DUTY - SHOE BOXES)
DEAD 1#/S.F.

TOTAL DESIGN LATERAL FORCE (SECTION 1632A.2)[32A-2]

$$F_p = \frac{a_p C_a I_p}{R_p}\left(1 + 3\frac{h_x}{h_r}\right) W_p$$

PER TABLE 16-O, E (PERMANENT FLOOR SUPPORTED CABINETS MORE THAN 6' HEIGHT)

$a_p = 1.0$ $C_a = 0.36$ (WEST COAST)
$R_p = 3.0$
$I_p = 1.0$ $W_p = (21\#/S.F.)(1.0')(4.0')(8.0') = 672\#$
$h_x = 6'-0"$ (CENTER HEIGHT OF TOP BRACE)
$h_r = 8'-0"$ (MAX. UNIT HEIGHT)



$$F_p = \frac{(1.0)(.36)(1.0)}{3.0}\left(1 + 3\left(\frac{6}{8}\right)\right)(672\#) = 262\#$$

ASSUME 20 GA. METAL STUDS IN PARTITION WALL

SELECT BUILDEX "ROCK-ON" / HI-LO #9 x 2 1/4" (TWO PER BRACE)

PULLOUT VALUE = 370# > 262#

REGISTERED ARCHITECT
BARRY I. GREENBERG
2982
ST. LOUIS, MO.
STATE OF OREGON

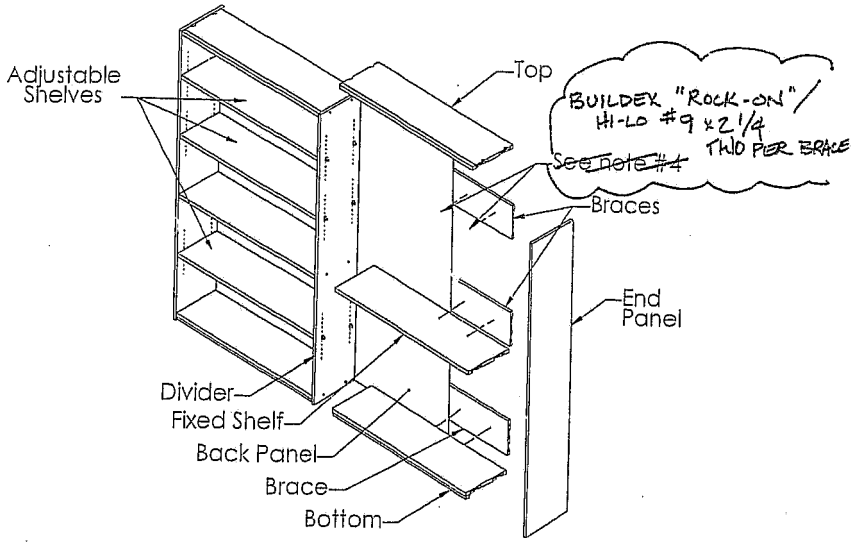
ARCHITECTURAL DESIGN GUILD
2710 SUTTON AVENUE
SAINT LOUIS, MISSOURI 63143
(314) 644-1234 FAX (314) 644-4373

SUBJECT: SEISMIC / WALL SHELVING UNITS
PROJECT NUMBER:
PROJECT: FAMOUS FOOTWEAR
BY: KRS
DATE: 8/21/01
SHT NO: | OF: |

L.R. DARLING COMPANY
150 Business Park Drive • Sun Prairie, Wisconsin 53590 • (608) 837-0700

Securing wall units to store wall

If code requires, screw through the back braces into the studs of the store wall to secure the unit. Place two wall anchors into each brace.



Wall units are available in 7, 8 and 9' heights. Construction is identical only end panel height changes.

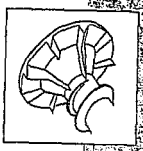
ITW Buildex

BUILDING IDEAS THAT WORK™

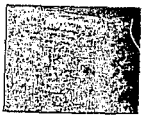
ROCK-ON™

Cement Board Fasteners

High performance rib design is still the best!!!



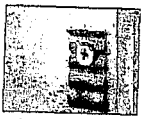
Applications



Cement-type boards or any dense sheathings to steel or wood studs.

Wire lath to steel or wood studs.

Plywood to steel or wood studs.



Brick ties to steel or wood studs.

Product Features

- Rib design under head countersink into dense material while preventing stripouts.
- Two point types for steel and wood applications.
- Larger head diameter increases board surface contact for greater pullover resistance.

Product Specifications

Diameter	#8 - S-12" #9 - Hi-Lo®	*Drill Point*	#8 Type S-12 #9 Type "S"
Thread Form	8-18 S-12" 9-15 Hi-Lo®	*Head Style*	#2 Phillips Wafer with countersinking ribs
		Finish	Climacoat®

Corrosion Resistance

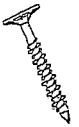
Kesternich Results (DIN 50018, 2.0L)

- 20 Cycles - 10% or less red rust

Salt Spray Results (ASTM B117)

- 500 hours - 10% or less red rust

Selector Guide



*Fully Threaded.

Part Number	Length	Material Attachment Range	Applications
	Hi-Lo®		
2151500*	9 x 1-1/4"	Up to 3/4" Material Thickness to Wood; 3/8" - 1" Material Thickness to Steel	• Cement Board to Wood or Light Gauge Steel 26-20 Gauge
2153500*	9 x 1-5/8"	Up to 1-1/8" Material Thickness to Wood; 3/8" - 1-3/8" Material Thickness to Steel	
2155500	9 x 2-1/4"	Up to 1-3/4" Material Thickness to Wood; 1" to 1-7/8" Material Thickness to Steel	
	S-12™		
2156500*	8 x 1-1/4"	3/8" to 3/4" Material Thickness	• Cement Board to Steel Studs 20-12 Gauge
2159500*	8 x 1-5/8"	3/8" to 1-1/4" Material Thickness	
2139500	8 x 2-1/4"	1" to 1-7/8" Material Thickness	

Performance Data

Pullout Values in Steel (Gauge)								
	26	24	22	20	18	16	14	12
S-12™	120	191	239	285	470	663	910	1424
Hi-Lo®	163	242	314	370	-	-	-	-

Wood (Embedment) #2 SPF 2 X 4				
	1/2"	3/4"	1"	1-1/4"
Hi-Lo®	223	312	555	676

Sheet Steel Gauges								
Gauge No.	12	14	16	18	20	22	24	26
Decimal Equivalent	.105"	.075"	.060"	.048"	.036"	.030"	.024"	.018"

The values listed are ultimate averages achieved under laboratory conditions and apply to Buildex manufactured fasteners only. Appropriate safety factors should be applied to these values for design purposes.

Installation Guidelines

- A standard screwgun with a depth sensitive nosepiece should be used to install Rock-On™. For optimal fastener performance, the screwgun should be a minimum of 4 amps and have a RPM range of 0-2500.
- Adjust the screwgun nosepiece to properly seat the fastener.
- Worn or damaged bit tips should be replaced.
- The fastener is fully seated when the head is flush with the work surface.
- Overdriving may result in torsional failure of the fastener or stripout of the substrate.
- The fastener must penetrate beyond the metal structure a minimum of 3 pitches of thread.

BUILDING IDEAS THAT WORK™
1349 West Bryn Mawr Avenue
Itasca, Illinois 60143
630/595-3500 FAX: 630/595-3549
www.itwbuildex.com

L.A. Darling Company
150 Business Park Drive ♦ Sun Prairie, Wisconsin 53590 ♦ (608) 837-0700

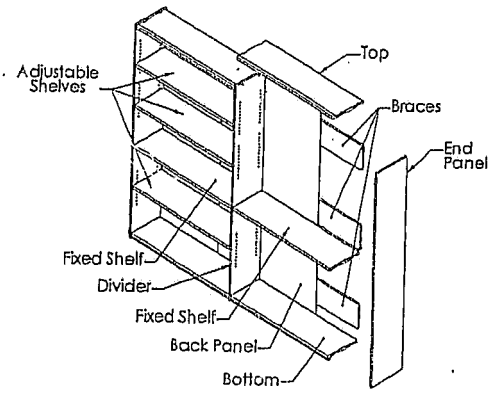
Regular Wall Units Installation Instructions

1 left end panel (FBA-2055H)
1 divider panel (FBA-2057H)
2 top panels (FBA-2004)
2 bottom panels (FBA-2000)
2 fixed shelves (FBA-2005)
6 back braces (FBA-2012)
2 back panels (FBA-2037)
6 adjustable shelves (FBA-1008-00)

The above quantities are for doublewide units.

The end panels are black on both sides; the divider panels are unfinished and have pre-drilled holes on both sides.

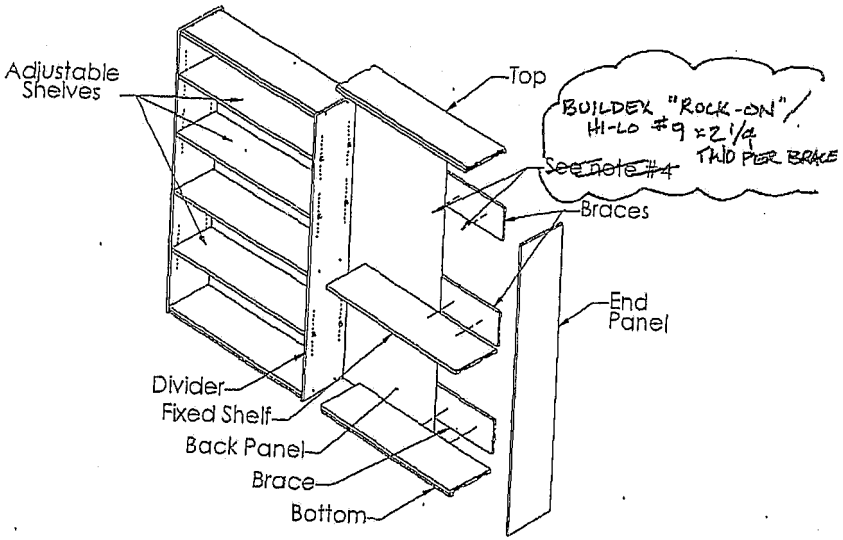
1. Begin by attaching a bottom panel to an end panel. The black finished edge faces the front of the unit. Slide the bottom panel over the shoulder bolts in the end panel until locked in place. Refer to the Mod-eez clip instructions for more information if needed.
2. Now, attach the divider panel to the bottom panel using the shoulder bolts and Mod-eez clips.
3. Next, install the three braces into the end panel and the divider. The braces are placed horizontal in the unit along the back. The braces also use the shoulder bolts and Mod-eez clips like the bottom panel. Refer to the pictorial if needed.
4. If code requires, screw through the back braces into the studs of the store wall to secure the unit. Place two screws into each brace.
5. Place the back panel into the unit. The back panel is held in place by the shelves and top panel.
6. Now, install the fixed shelf. The shelf is located approx. 34" above the floor with the black finished edge facing the front of the unit. The fixed shelf uses the shoulder bolts and Mod-eez clips like the bottom panel.
7. The top panel can now be installed. The finished black edge faces the front of the unit and the dado faces up.
8. Finally, place adjustable shelves as shown in the pictorial. The adjustable shelves use Rasant clips for attachment, refer to Rasant instructions if needed.
9. Verify that the top, bottom, fixed shelves and adjustable shelves are horizontal. Also check the end panels and divider to make sure they are vertical. Use shims if necessary to level units.
10. Repeat steps #1-8 to finish the doublewide unit.



L.A. DARLING COMPANY
150 Business Park Drive • Sun Prairie, Wisconsin 53590 • (608) 837-0700

Securing wall units to store wall

If code requires, screw through the back braces into the studs of the store wall to secure the unit.
Place two wall anchors into each brace.



Wall units are available in 7, 8 and 9' heights. Construction is identical only end panel height changes.

03/13/01

Specifications of wall fixture parts
All components are made from Grade M-2 particleboard (see attached spec sheet)

End Panel – 14.5" deep x 96" tall. Manufactured with ¾" particleboard. Covered with black melamine

Divider panel – 14.5" deep x 96" tall. Manufactured with ¾" particleboard

Top Panel – 47" wide x 13.31" deep. Manufactured with ¾" particleboard

Bottom Panel – 47" wide x 13.31" deep. Manufactured with ¾" particleboard

Fixed shelves – 47" wide x 13.31" deep. Manufactured with ¾" particleboard

Back Braces – 47" wide x 9.7" tall. Manufactured with ¾" particleboard

Adjustable shelves – 47" wide x 13.31" deep. Manufactured with ¾" particleboard

Back Panel – 46 5/16" wide x 95 ¼" tall. Manufactured with 1/8" hardboard.

Bottoms, Tops, Braces, fixed shelves and end panels are connected together with the use of "Mod-Ease" locking clips. (See attached sheets for Mod-Eez clips)

Adjustable shelves are installed using Rasant shelf tabs

buyers & specifiers
GUIDE

Particleboard and MDF Selected Property Requirements*

Grade	Length and Width mm (inches)	Thickness Tolerance		Modulus of Rupture N/mm² (psi)	Modulus of Elasticity N/mm² (psi)	Internal Bond N/mm² (psi)	Screwholding		Formaldehyde (ppm)
		Panel Average from Nominal mm (inches)	Variance from Panel Average mm (inches)				Face N (pounds)	Edge N (pounds)	
ANSI A208.1-1999 PARTICLEBOARD									
H-1	±3.0 (0.080)	+0.200 (0.008)	±0.100 (0.004)	16.5 (2393)	2400 (348100)	0.90 (130)	1800 (405)	1325 (298)	0.30
H-2	±3.0 (0.080)	±0.200 (0.008)	±0.100 (0.004)	16.5 (2393)	2400 (348100)	0.90 (130)	1900 (427)	1550 (348)	0.30
H-3	±2.0 (0.080)	±0.200 (0.008)	±0.100 (0.004)	23.5 (3406)	2750 (398900)	1.00 (145)	2000 (450)	1550 (348)	0.30
M-1	±3.0 (0.080)	±0.250 (0.010)	+0.125 (0.005)	11.0 (1595)	1725 (250300)	0.40 (58)	NS	NS	0.30
M-S	±2.0 (0.080)	±0.250 (0.010)	±0.125 (0.005)	12.5 (1813)	1900 (275600)	0.40 (58)	900 (202)	800 (180)	0.30
M-2	±2.0 (0.080)	±0.200 (0.008)	±0.100 (0.004)	14.5 (2103)	2250 (326300)	0.45 (65)	1000 (225)	900 (202)	0.30
M-3	±2.0 (0.080)	±0.200 (0.008)	±0.100 (0.004)	16.5 (2393)	2750 (398900)	0.55 (80)	1100 (247)	1000 (225)	0.30
LD-1	±2.0 (0.080)	+0.125 (0.005) -0.375 (0.015)	±0.125 (0.005)	3.0 (435)	550 (79800)	0.10 (15)	400 (90)	NS	0.30
LD-2	±2.0 (0.080)	+0.125 (0.005) -0.375 (0.015)	±0.125 (0.005)	5.0 (725)	1025 (148700)	0.15 (22)	550 (124)	NS	0.30
PBU	+0.0 (0) -4.0 (0.160)	±0.375 (0.015)	±0.250 (0.010)	11.0 (1595)	1725 (250200)	0.40 (58)	NS	NS	0.20
D-2	±2.0 (0.080)	±0.375 (0.015)	±0.250 (0.010)	16.5 (2393)	2750 (398900)	0.55 (80)	NS	NS	0.20
D-3	±2.0 (0.080)	±0.375 (0.015)	±0.250 (0.010)	19.5 (2828)	3100 (449600)	0.55 (80)	NS	NS	0.20
ANSI A208.2-1994 MDF									
HD	±1.0 (1/64)	±0.125 (0.005)	±0.125 (0.005)	34.5 (5000)	3450 (500000)	0.75 (110)	1555 (350)	1335 (300)	0.30
MD≤ 21mm (0.825")	±1.0 (1/64)	±0.125 (0.005)	±0.125 (0.005)	24.0 (3500)	2400 (350000)	0.60 (90)	1445 (325)	1110 (250)	0.30
MD>21mm (0.825")	±1.0 (1/64)	±0.125 (0.005)	±0.125 (0.005)	24.0 (3500)	2400 (350000)	0.55 (80)	1335 (300)	1000 (225)	0.30
LD	±1.0 (1/64)	±0.125 (0.005)	±0.125 (0.005)	14.0 (2000)	1400 (200000)	0.30 (40)	780 (175)	670 (150)	0.30

Particleboard Grades

H High Density, generally above 800 kg/m³ (50 lb/ft³)
M Medium Density, generally between 640-800 kg/m³ (40-50 lb/ft³)
LD Low Density, generally less than 640 kg/m³ (40 lb/ft³)
D Manufactured home decking
PBU Underlayment

MDF Grades

HD High Density, generally above 800 kg/m³ (50 lb/ft³)
MD Medium Density, generally between 640-800 kg/m³ (40-50 lb/ft³)
LD Low Density, generally less than 640 kg/m³ (40 lb/ft³)

* Please call the CPA for a complete table of all property requirements.

Composite Panel Association

18922 Premiere Court • Gaithersburg, Maryland, USA 20879
Tel 301/670-0604 • Fax 301/840-1252

B

43

CITY OF

PORTLAND, OREGON

OFFICE OF PLANNING AND DEVELOPMENT REVIEW
1900 SW 4th Ave, Suite 5000
Portland, OR 97201

43

MULTNOMAH COUNTY

COMMERCIAL BUILDING PERMIT

01-159988-DFS-01-CO

Site Address: 625 SW 4TH AVE

Issued: 10/29/01

CAPLAN BLD/ FAMOUS FOOTWEAR

PROJECT INFORMATION		Occ. Group	Const. Type
Business	Alteration	M	III-1HR

Project Description: Deferred submittal for steel stairs.

APPLICANT	CG Construction Company *DAVE CARL*	Phone	(503) 226-1078
OWNER	ROCK 625 LLC	Phone	
CONTRACTOR	CG Construction Company *DAVE CARL*	Phone	

Project Details		Project Details	
Alarm System Required?	Yes	Code Edition (Year)	1997
DS-Others	guardrail	DS-Steel Stairs/Handrails	Yes
Lot Area (Sq. Ft.)	5000	Maintain Current Fire Protection?	Yes
SI-Structural Steel	Yes	Smoke Detectors Required?	Yes
Sprinkler System Required?	Yes	Water District	City of Portland
Zoning - Property (1)	CXdCC		

PAID
OCT 29 2001
CITY OF PORTLAND

BEFORE YOU DIG

ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through OAR 952-001-0090. You may obtain copies of the rules by calling the center. (Note: the telephone number for the Oregon Utility Notification Center is 1-800-332-2344).

CITY CONTACT

Phone:

E-Mail:

Fax: (503) 823-4172

INSPECTION REQUEST PHONE NUMBERS

Building/Trade Inspections - Call Before 6:00 AM: (503) 823-7000

TDD: (503) 823-6868

IVR Inspection Request Number: 2123477

Office of Planning and Development Review

City of Portland Special Inspections 1900 SW 4th Avenue, Suite 5000 Portland, OR 97201

Structural Special Inspection and Observation Program Checksheet

The architect or engineer of record shall prepare and submit a special inspection and structural observation program in accordance with UBC Section 106.3.5. The architect or engineer of record shall confirm that the special inspection and structural observations noted below are indicated on the plans. Major projects may require that a more complete program be prepared.

~ Please Note that a separate Soils Inspection Form may also be required ~

Instructions -- This Checksheet must be fully completed to obtain your permits

⇒ **Part B and Part C** (if indicated) must be completed by the Owner, Architect or Engineer.

⇒ **Part D** must be signed by the Owner, or Architect or Engineer acting as the owner's agent.

When complete, return to Document Services, attn: Special Inspections, or fax to (503) 823-5434.
The information on this form must be provided before your building permit can be issued.

Application #	**01-159988-DFS-01-CO**	**Date:**	**October 24, 2001**
Project Name:	**CAPLAN BLD/ FAMOUS FOOTWEAR**		
Site Address:	**625 SW 4TH AVE**		
Architect of Record (Firm)		**Phone #**	
Engineer of Record (Firm)	**TM Rippey**	**Phone #**	**(503) 443-3900**

The following special inspections and structural observations shall be performed according to the State Building Code and City of Portland Administrative Rules unless a program of inspections is submitted by the Engineer of Record and approved by the Plan Review Division.

PART A

☐ Anchors - Adhesive	☐ Reinforced Concrete	☒ Structural Steel	☐ Wood 5-Story Constr
☐ Anchors - Cast-In-place	☐ Prestressed Concrete	☐ Str. Silicone Glazing	☐ Fireproofing
☐ Anchors - Expansion	☐ Shotcrete	☐ Masonry f'm =	
☐ Special Cases:			

PART B Mandatory – If any box in PART A is checked, PART B must be completed
Indicate the City approved inspection agency to perform the special inspections noted in PART A above:

Carlson Testing

PART C If box below is checked, PART C must also be completed
☐ Structural Observation by Engineer of Record. Indicate stages at which structural observation is to occur:

PART D This Checksheet must be signed by the Owner, Architect or Engineer of Record
The owner hereby agrees to employ the special inspector, approved testing agency and/or engineer for the above noted special inspections and/or structural observation. (*Please Note: Contractors are NOT authorized to sign below*)

Signature of Owner or the Architect or Engineer acting as the Owner's Agent
(Please Note: Contractors are NOT authorized to sign)

Date

Print Name Dale Carl

Phone 503-292-4678

Firm C.G. Construction

Plans Examiner: Mike Walkiewicz

Approved by City of Portland
A
D

APPLICANT – COMPLETE PARTS B, C & D

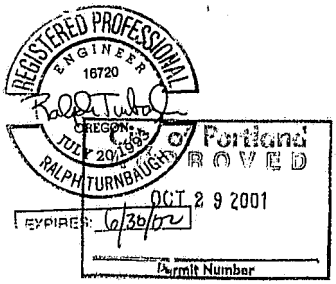
REVISED STRUCTURAL CALCULATIONS
FOR
CAPLAN STAIR AND RAILING

OCTOBER 26, 2001

DESIGN & PARAMETERS

CODE ..... 1997 UBC
STAIR LIVE LOAD ..... 100 psf
RAIL LIVE LOAD ..... 50 plf

TABLE OF CONTENTS



TM RIPPEY
CONSULTING ENGINEERS

7070 S.W. Fir Loop, Suite 100
Tigard, Oregon 97223
Phone (503) 443-3900

BY RW DATE 10-2001
CHK BY _____ DATE _____
JOB NO. 1193.01
SHEET _____ OF _____

STRINGER DESIGN

CENTER STRINGER

L = 16'-0

USE 15 PSF DL

LL = 100 PSF

$w_L = 1/2\,(8.33)(100+15) = 479$ plf

$M = 1/8\,(479)(16)^2 = 15,328$

$S_{REQ} = 15,328\,(12)/.66\,(46,000) = 6.05\ in^3$

12 X 4 X 3/16"

$S = 16.4\ in^3$ $I = 98.2\ in^4$

DEFLECTION

$\Delta = \frac{5}{384}\frac{(479\ 1/2)(16\cdot 12)^4}{29E6\,(98.2)} = .248" \Rightarrow L/774$ OK

USE TS 12X4 X 3/16

HEADER BEAM

$R = 1/2\,(16)(479) = 3832$ lb

$M = 3832\,(4)/4 = 7664$

$S_{REQ} = 7664(12)/.66\,(46,000) = 3.029$

USE 10X4 X 3/16 $S = 12.3\ in^3$

COLUMN

COL $h = 10.67 - 10/12 = 9.83$

TS 4X4 X 3/16 $P_{CAP} = 51$ K >> OK

TM RIPPEY CONSULTING ENGINEERS
7070 S.W. Fir Loop, Suite 100
Tigard, Oregon 97223
Phone (503) 443-3900

CAPLAN STAIR

BY RW DATE 10-2001

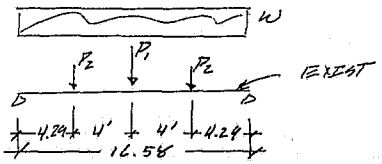
CHK BY ____ DATE ____

JOB NO 1143.01

SHEET 1 OF 18

EXISTING HEADER BEAM

$L = 17'-6" - 11" = 16.58'$



$P_1 = \frac{1}{2}(16)(4)(15+100) = 3680$ lb

$P_2 = \frac{1}{2}(16)(2)(15+100) = 1840$ lb

$w = \frac{1}{2}(7)(15+100) = 402.5$ plf

$R = \frac{1}{2}(402.5)(16.58) + 1840 + \frac{1}{2}(3680) = 7017$ lb

$M = \frac{1}{8}(402.5)(16.58)^2 + 3680(16.58)/4 + 1840(4.29)$

$M = 36,977$ ft-lb

BEAM 9 X 11

$S = \frac{1}{6}(9)(11)^2 = 181.5$ in^3

$A = (9)(11) = 99$ in^2

$f_b = 36,977(12)/181.5 = 2444.7$ psi

$f_v = 1.5(7017)/99 = 106.3$ psi

U.G. ADD BEAM

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CAPLAN STAIR

BY DW DATE 10-2001
CHK BY ____ DATE ____
JOB NO 1453-01
SHEET 2 OF ____

STAIR TREAD DESIGN

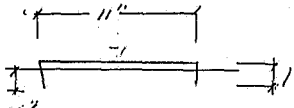
USE 3/16 BENT PLATE

L = 3'-6"

(2) LOAD CASES

100 PSF OR

300 lb POINT LOAD



TRY 3/16 TREAD

TREAD DL

$W_{DL} = \frac{2.548}{144}(1)(490\ pcf)$

$= 8.67\ psf \Rightarrow 10\ psf$

$A = 2.548$

$I_{xx} = 0.30\ in^4$

$S_{TOP} = 1.254\ in^3$

$S_{BOT} = 0.237\ in^3$

CHECK Δ

$\Delta_{DL} = \frac{300(44)^3}{48(29E3)(0.30)}$

$\Delta_{DL} = 0.0612 \Rightarrow$

$\Delta_{DL} = \frac{5}{384}\frac{(7.64)(44)^4}{36(29E3)(.3)}$ $\ell/219$

Δ_{DL} = SMALL

OK

$M_{CASE1} = 1/8\{(1\ 1/12)(100)\}(3.67)^2 = 154.32\ ft\text{-}lb$

$+ 1/16(10)(3.67)^2 = 16.83\ ft\text{-}lb$

$M_{CASE2} = 300(3.67)/4 = 275.25\ ft\text{-}lb$

$\Rightarrow 292.1\ ft\text{-}lb$

$f_{TOP} = 292.1(12)/1.254 = 2.796\ psi$

$f_{BOT} = 292.1(12)/.237 = 14.78\ psi$ $F_b = .6(36) = 21.6\ ksi$ OK

$b/t = 1.5/3/16 = 8.0$ $76/\sqrt{36} = 12.66$

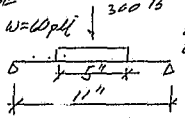
CHECK BENDING TRANSVERSE

$R_R = 150\ lb$ $w = 60\ plf$

$M = (5.5)(150) - 1/2(60)(2.5)^2$

$= 637.5\ in\text{-}lb$

$S_b = 637.5/0.0293 = 21.76$



SPREAD POINT LOAD OVER 5" LENGTH @ 5" WIDTH

$s = 1/6(5)(3/16)^2 = 0.0293$

$F_b = .75(36{,}000) = 27\ ksi$ OK

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CANAL STAIR

BY RLW DATE 10-2001

CHK BY ____ DATE ____

JOB NO. 1163-01

SHEET 3 OF ____

Title :
Dsgnr:
Description :

Job #
Date: 9:43AM, 17 OCT 01

Scope :

Built-Up Section Properties

Description

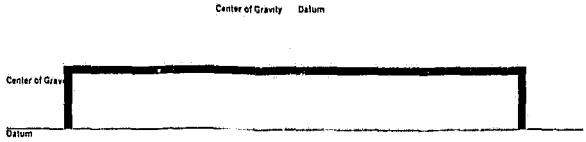
General Information

	Type...					X cg	Y cg
#1	Rectangular	Height	0.187 in	Width	11.000 in	0.000 in	1.406 in
#2	Rectangular	Height	1.312 in	Width	0.187 in	-5.400 in	0.656 in
#3	Rectangular	Height	1.312 in	Width	0.187 in	5.400 in	0.656 in

Summary

Total Area	2.548 in2	Ixx	0.30 in4	r xx	0.343 in
X cg Dist.	0.00 in	Iyy	35.05 in4	r yy	3.709 in
Y cg Dist.	1.26 in	Edge Distances from CG...			
		+X	5.500 in	S left	6.373 in3
		-X	-5.500 in	S right	6.373 in3
		+Y	0.236 in	S top	1.256 in3
		-Y	-1.262 in	S bottom	0.237 in3

Sketch & Diagram

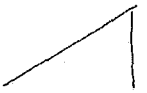


RAILING IN STAIR

EXIT FACILITY

$w = 50$ plf

$c = \frac{1}{2}\sqrt{(8.43)^2 + (6)^2} = 5.33$



$M = \frac{1}{8}(50)(5.33)^2 = 177.5$ Ft-lb

$f_b = 177.5(12)/.235 = 9066$ PSF

$F_b = .66(36) = 23.7$ KSI

1¼" PIPE OK

$M = \frac{1}{4}(5.33)(200)$

$M = 266.5$ Ft-lb

$f_b = 266.5(12)/.235$

$= 13,608$ PSI

POST

$P = 5.33(50) = 266.5$

↑ GREATER THAN HANDRAIL 200 lb LOAD

$M = 266.5(3.5) = 932.75$ Ft-lb

$S_{req} = 932.75(12)/(.66(36,000)) = 0.4710$ in³

USE 2" STD PIPE $S = .561$

WELD TO STRINGER

TRY 3/16 FILLET

$M = 11,193$ in-lb

$V = 266.5$ lb

$S_b = 11,193/0.624 = 17,937$

$S_v = 266.5/1.044 = 255.26$

$f = \sqrt{(17,937)^2 + (255.3)^2} = 17.94$ KSI

$D = 2.375$ $d_1 = 2.375$

$t_c = .707(3/16) = .1325$ $d = 2.375 + 2(.1325) = 2.64$

$A = .785398\left[(2.640)^2 - (2.375)^2\right] = 1.044$

$I = .049087\left[(2.640)^4 - (2.375)^4\right] = 0.4229$

$c = \frac{1}{2}(2.640) = 1.32$

$F_v = .36(70) = 21$ KSI

OK

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CAPLAN STAIR

BY RWL DATE 10-20-01

CHK BY ____ DATE ____

JOB NO. 1163.01

SHEET 5 OF ____

INTERMEDIATE BALLASTERS

$\ell = 2'-11\frac{1}{2}" = 2.95'$

$s = 4"$ O/C

$w = \frac{4}{12}(25\ PSF) = 8.33$

$M = \frac{1}{8}(8.33)(2.95)^2 = 9.06$ Ft-lb

$\frac{1}{2}"$ SQUARE BAR

$S = \frac{1}{6}(.5)(.5)^2 = 0.0208\ in^3$

$f_b = 12(9.06)/.0208 = 5218$ PSI

$F_b = .75(32) = 27$ KSI o.k.

MIN FILLET WELD $\frac{3}{16}$ $t \leq \frac{1}{2}$

$\frac{1}{2}" \times \frac{1}{2} \times$ 0.065 thick

$S = 0.0167\ in^3$

$f_b = 9.06(12)/0.0167 = 7281$ PSI

$F_b = .35(\quad) \quad \frac{1}{2}" = \frac{1}{2}" - 3(0.065) \Big] / .065 = 4.2$

$= 22.5$ KSI

$\sqrt{30} = 7.42$ o.k.

Δ 10-25-2007

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CAPLAN STAIR

BY RW DATE 11-2007
CHK BY _____ DATE _____
JOB NO. 11483.01
SHEET 6 OF _____

HANDRAIL

$P = 200\ lb$

$M_{MAX} = 200(5.33)/4 = 266.5\ ft\text{-}lb$

$S_{REQ'D} = 266.5(12)/.66(36{,}000) = 0.134\ in^3$

1¼ STD PIPE $S = .235\ in^3$ OK.

HANDRAIL CONN.

$P = 200\ lb$ OR $50(5.33) = 266.5\ lb$

$M = (6'')(266.5) = 1599\ in\text{-}lb$

$t_e = .707(3/16)$

$S_b = 1599/.313 = 5108$ $A_w = .247\ in^2$

$S_v = 266.5/.247 = 356.2$ $S_w = .313\ in^3$

$f_R = \sqrt{(S_b)^2 + (S_w)^2} = 5121\ psi$ $F_v = .3(70)$ OK

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CAPLAN STAIR

BY RW DATE 10-2001
CHK BY ____ DATE ____
JOB NO 1163.01
SHEET 7 OF ____

CONN HANDRAIL / GUARDRAIL
TO BEAM @ TOP OF STAIR

$M = 200(3.5) = 700$ FT-LB

POST $S_{REQ} = 700(12)/.66(36.000) = 0.3535$

2" ∅ $S = .561$ OK

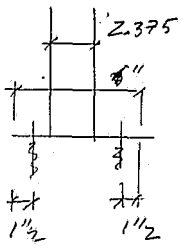
CONN TO BEAM

LAG SCREW

TRY 6" X 3" PLATE

LAG SCREWS

$T = 700(12)/3 = 2800$ LB

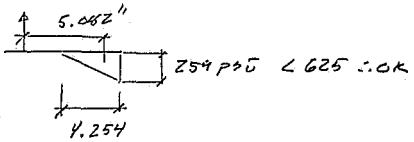


¾ X 8" LAG SCREW $T_{ALLOW} = 7.5(4W7) = 2011.5$ LB

TRY 8" PLATE

$T = 700(12)/5.042 = 1665$ LB

< 2011.5 OK



$C = 3(1/2)(254)(4.254) = 1653$ LB

PLATE BENDING

$M = 1/2(3)(254)(2.48)^2 = 3073$ IN-LB

$t_{REQ} = \sqrt{CM/.75(36.000)(3)} = .47 \Rightarrow 1/2"$

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CHELAN STAIR

BY RW DATE 10-2001

CHK BY _____ DATE _____

JOB NO 1143.01

SHEET 8 OF _____

GUARD RAIL

AROUND OPENING

EXIT FACILITY

W = 50 PLF

SPAN TOP & BOTTOM RAIL BTWN BUILDING COLUMNS

$L = 14 - 1\frac{1}{2} = 13.04'$

$M = \frac{1}{8}(50)(13.04)^2 = 1069.4$ FT-LB

$S_{REQ} = 1069.4(12)/1.66(36000) = 0.540$

2" ϕ STD PIPE $S = .621$

CHECK COMPACT $D = 2.375$

$D/t = 15.42$

$3300/36 = 91.7$ OK

CONN TO POSTS

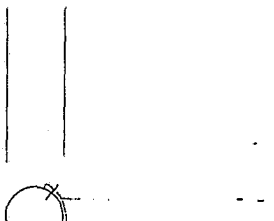
BOLTS

$V = R = \frac{1}{2}(13.04')(150) = 978$ LB

$F_V = 10$ KSI

TRY 2 3/8" BOLTS

$V_{CAP} = 10(2)(.11) = 2200$ LB OK



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CANOPY STAIR

BY RLH DATE 10-2021

CHK BY ____ DATE ____

JOB NO 1161.01

SHEET 9 OF ____

CHECK BOTTOM RAIL AS 1½" PIPE

$L = 13.04\,6/3 = 4.36'$

$w = 25(1/2)(2.95) = 36.875$ p-f

$M = 1/2\,(36.875)(4-36)^2 = 87.6$ FT-LB

$S = 0.172\ in^3$ ⇐ 1½" OD W 1/4" WALLS

$S_b = 87.6(12)/.172 = 6113$ psi OK

REACTION @ POST

$P = 4(36.875) = 147$ LB OK

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BY RW DATE 10-2001
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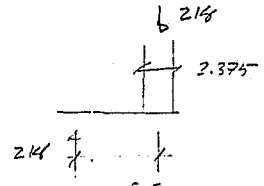
JOB NO 1143.01
SHEET 9.1 OF ____
10-25-20

CONN @ GUARDRAIL POST

EXIT

$P = 50\,(1/3)(13.0\text{ft}) = 216$ lb



$M_{PLATE} = 216\,(4.3125)$

$= 940$ in-lb 8" PLATE

$t_{PLATE}\ t = \sqrt{6M/.75(36.000)(3")} = 0.26$

USE 5/16" PLATE

W/ (2) 3/8" X 3 LAG SCREWS

CONN TO CONC POSTS

3/8 X 2 9/16 EMBED GWA

$V_{LAG} = 1055$ lb @ 5'c = 2000 plf

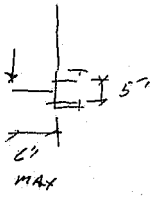
CONN @ WOOD COLUMN

$P = 200$ lb

OR

$P = 12.25(50) = 612$ lb

$M = (.5)(612) = 306$ Ft-lb



TRY 3/8 x 7" PLATE w/ LAG SCREWS

$F = C = 306(12)/5 = 735$ lb

378 lb / 1/2" ø / IN

$(T-E)_{req'd} = 735/378 = 1.94 \Rightarrow 2"$

USE 1/2" ø x 5" LAG SCREWS

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BY RW DATE 10-2001
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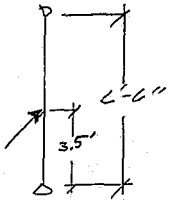
JOB NO 1143.01
SHEET 11 OF ____

CONN @ 2X4 WALL

$P = \frac{1}{2}(7.5)(50) = 187.5$ lb



CHECK [illegible] STUDS

$M = 187.5(4.5)/4 = 316.4$ ft-lb

2X4 DF#2 $M_{LAP} = 2(191) = 382$ ft-lb OK

PL 1/4 W/ 2 #12 SCREW V_{LAP} 190 lb EA

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CAPTAIN STAIR

BY RW DATE 10-2001
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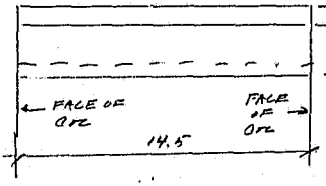
JOB NO 1143.01
SHEET 12 OF 18

CONC BEAM

DL CONC 75 PSF
FLOOR 2 PSF
ME 1.5 PSF
78.5 PSF ⇒ 80

f'_c = 2500 ASSUMED
f_y = 40 KSI ASSUMED



LL = 100 PSF

TA = 16 (14) = 224 FT²

R = 0.08 (224 − 150) = 5.92

w_{DL} = .80 PSF (14) = 1120 PLF + 178 PLF = 1298 PLF
*BEAM

w_{LL} = 100 (1 − 0.0592) (14) = 1317 PLF

w_u = 1.4 (1298) + 1.7 (1317) = 4056 LB/FT

$M_{u\,MAX}$ = 1/8 (4056)(14.5)² = 106.6 K-FT

$V_{u\,@d}$ = 1/2 (4056)(14.5) − 4056 (22.25/12) = 21,485 LB

$M_{u@d}$ = (3806 (1.45)/2) (14.5 − 1.45) = 44,534

ϕM_n = 0.9 (1.75)(40,000)(22 1/4 − 9/2)

ϕM_n = 107.8 K-FT $M_u/\phi M_n$ = 0.99

$a = \frac{1.75(40)}{.85(2.5)(9.625)}$ = 3.43

ϕV_c = 0.85 (2) $\sqrt{2500}$ (9.625)(22.25)

ϕV_c = 16,203 K

$\rho = \frac{1.75}{(9.625)(22.25)}$

$V_c = \left(1.9\sqrt{2500} + 2500\left(\frac{0.00817\,(21.485)(22.25)}{535,446\ \text{in-lb}}\right)\right) 9.625\,(22.25)$

½ ϕV_c = 24,322 (.85) = 10.34 K N.G. W/O SHEAR REINF

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BY RW DATE 10-26-01
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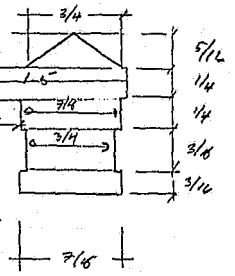
JOB NO. 1163-01
SHEET 13 OF ____

STEEL OBSERVED IN CONC BEAM

SMOOTH



$A = \frac{1}{2}(5/16)(3/4) = 0.11719$

$A = 1.5(.25) = 0.375$

$A = (7/8)(.25) = .21875$

$A = (.75)(3/16) = .28125$

$A = (3/16)(7/8) = 0.16406$

1.16 in²

#7 $A = 0.60$ in² — DEFORMED BAR

$A_{TOTAL} = \boxed{1.75 \text{ in}^2}$

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BY RW DATE 10-2001
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JOB NO 1163.01
SHEET 14 OF ____

CHECK BEAM NEW LOAD CASE

P_u

$P_{1\,DL} = \frac{1}{2}(16)(4)(.15) = 480\ lb \Rightarrow 672\ lb$

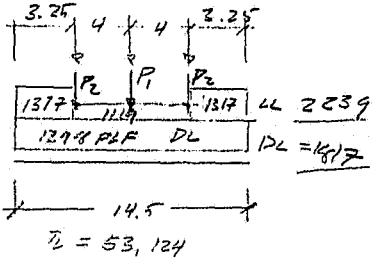
$P_{1\,LL} = \frac{1}{2}(16)(4)(100) = 3200\ lb \Rightarrow 5440\ lb$

$P_{2\,DL} = \frac{1}{2}(16)(2)(.15) = 240\ lb$

$336\ lb$

$P_{2\,LL} = \frac{1}{2}(16)(2)(100) = 1600\ lb$

$2720\ lb$



$R_L = 53,124$

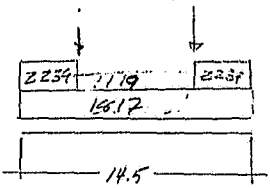
$M_u = 115.12\ K\text{-}Ft$

$R_u = 31.037$

$V_{u\,@\,d} = 31.037 - (2223 + 1917)\,22.25/12 = 23.55$

$P_{DL} = \frac{1}{2}(16)(4)(.15)(1.4) = 672\ lb$

$P_{LL} = \frac{1}{2}(16)(4)(100)(1.7) = 5440\ lb$



$M_u = 102.44\ K\text{-}Ft$

$R_u = 31,037$

$V_{u@d} = 31.037 - (2223 + 1417)\,22.25/12 = 25.55$

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BY RW DATE 10-2001
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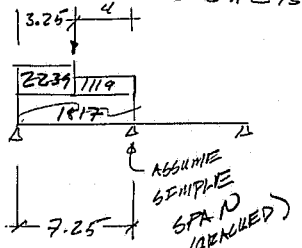
SHEET 15 OF ____

CHECK BEAM W/ POST

$R_u = \left[\frac{1}{2}(2936)(9.25)^2 + 3.25(1120)(5.625) + 4(6112)\right]/7.25$

$P_u = 672 + 5440 = 6112$ lb



$R_{u_A} = 16.84$ K

$R_{u_B} = 14.2$ K

$M_u = 33.29$ K

$V_u = 16.64 - \left(\frac{22.25}{12}\right)(2239 + 1817) \doteq 9.32$

$\frac{1}{2}\phi V_c = 18.34$ K OK

W/ (1) #7

$\phi M_n = (0.9)(.6)(40{,}000)(22.25 - a/2)$

$\phi M_n = 39$ K-FT OK

$a = \frac{(6)(40)}{.85(2.5)(9.625)}$

$a = 1.173$

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BY RLL DATE 10-2001

CHK BY _____ DATE _____

JOB NO 1663.01

SHEET 16 OF _____

ADD POST

$P_{DL} = 5/16(14.5)(1296) + 160\ lb$ ← STAIR $= 12.72\ K$

$P_{LL} = 5/16(14.5)(1317) = 11.935\ K$

$24.66\ K$

$h = 6'-1''$ TS $4X4 \times 3/16$ $P_{ALLOW} = 64\ K$ @ 6'

FOOTINS

4'-4" X4'-4" X1'-0
W/ (4) #5 EA. WAY

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BY RW DATE 10-2001
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SHEET 17 OF ____

Spread Footing Design

Design Parameters

$P_{DL} = 12.72\,kip$	Column dead load	$\gamma_c = 150\,pcf$	Concrete unit weight
$P_{LL} = 11.935\,kip$	Column live load	$\gamma_s = 0\,pcf$	Soil unit weight
$P_{TL} = 24.655\,kip$	Total load	$a_{plt} = 10\,in$	Base plate dimension
$f'_c = 2500\,psi$	Concrete compressive strength	$a_{col} = 4\,in$	Column dimension
$f_y = 60000\,psi$	Steel yield stress		

Footing dimensions

$h = 12\,in$	thickness
$b = 4.333\,ft$	length, width
$d = 8.063\,in$	effective depth

Required reinforcing

NUM = 5	Bar size
n = 4	Number of bars each way

Bending

$\phi := .9$

$\phi \cdot M_n = 42778\,lb\,ft$

$M_u = 15454\,lb\,ft$

$$\frac{M_u}{\phi \cdot M_n} = 0.361$$

Soil bearing

$q = 1463\,psf$

$q_{all} = 1500\,psf$

$$\frac{q}{q_{all}} = 0.975$$

Punching shear

$\phi := .85$

$V_{up} = 34901\,lb$

$\phi \cdot V_{c1} = 82580\,lb$

$\phi \cdot V_{c2} = 151797\,lb$

$$\frac{V_{up}}{\phi \cdot V_{c1}} = 0.423$$

$$\frac{V_{up}}{\phi \cdot V_{c2}} = 0.23$$

Beam shear

$\phi := .85$

$V_{ub} = 10578\,lb$

$\phi \cdot V_{cb} = 35636\,lb$

$$\frac{V_{ub}}{\phi \cdot V_{cb}} = 0.297$$

Baseplate bearing

$\phi := 0.7$

$\phi \cdot P_{brg} = 297500\,lb$

$P_u = 38097.5\,lb$

$$\frac{P_u}{\phi \cdot P_{brg}} = 0.128$$

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15/16