

700 SW 5TH AVE

DFS-01 FA10-201901

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MAY 21 2012
MICROFILMED

15

10-201901

FITCH

Transmittal

☒ Reimbursable ☐ Direct

16435
North
Scottsdale Road
Suite 105
Scottsdale
Arizona
85254
USA

T+1.460.998.4200
F+1.460.998.7223

www.fitch.com

9

DATE 17-Feb-11
PROJECT # ADO10005 STUDIO Omega
SENT VIA UPS - Next Day COST
TRACKING #

PROJECT ALDO
Pioneer Place
Space 1053, Store #2127
Portland, OR

TO Bureau of Development - Facility Permit Program

1900 SW. 4th Avenue

Suite 5000

Portland, OR 97201 - U.S.A.

PHONE # 503.823.4020 ATTENTION David Rock

☐ For approval ☐ Review & Comment ☒ Use ☐ Records ☐ Distribution

COPIES DATED SHEETS DESCRIPTION

~~24~~ 47-Feb-11 24 ~~24 x 36~~ Revised Complete Set
2/24/11 sheets TO DP, DM1, DM2, 1, 1A, 2, 3
3A, 4, 4A, 4B, 4C, 4D, 4E, 4F, 4G, 4H, 4I, 4J, 4K, 4L, 4M, 4N, 4O, 4P, 4Q, 4R, 4S, 4T, 4U, 4V, 4W, 4X, 4Y, 4Z, 5, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 5I, 5J, 5K, 5L, 5M, 5N, 5O, 5P, 5Q, 5R, 5S, 5T, 5U, 5V, 5W, 5X, 5Y, 5Z, 6, 6A, 6B, 6C, 6D, 6E, 6F, 6G, 6H, 6I, 6J, 6K, 6L, 6M, 6N, 6O, 6P, 6Q, 6R, 6S, 6T, 6U, 6V, 6W, 6X, 6Y, 6Z, 7, 7A, 7B, 7C, 7D, 7E, 7F, 7G, 7H, 7I, 7J, 7K, 7L, 7M, 7N, 7O, 7P, 7Q, 7R, 7S, 7T, 7U, 7V, 7W, 7X, 7Y, 7Z, 8, 8A, 8B, 8C, 8D, 8E, 8F, 8G, 8H, 8I, 8J, 8K, 8L, 8M, 8N, 8O, 8P, 8Q, 8R, 8S, 8T, 8U, 8V, 8W, 8X, 8Y, 8Z, 9, 9A, 9B, 9C, 9D, 9E, 9F, 9G, 9H, 9I, 9J, 9K, 9L, 9M, 9N, 9O, 9P, 9Q, 9R, 9S, 9T, 9U, 9V, 9W, 9X, 9Y, 9Z, 10, 10A, 10B, 10C, 10D, 10E, 10F, 10G, 10H, 10I, 10J, 10K, 10L, 10M, 10N, 10O, 10P, 10Q, 10R, 10S, 10T, 10U, 10V, 10W, 10X, 10Y, 10Z, 11, 11A, 11B, 11C, 11D, 11E, 11F, 11G, 11H, 11I, 11J, 11K, 11L, 11M, 11N, 11O, 11P, 11Q, 11R, 11S, 11T, 11U, 11V, 11W, 11X, 11Y, 11Z, 12, 12A, 12B, 12C, 12D, 12E, 12F, 12G, 12H, 12I, 12J, 12K, 12L, 12M, 12N, 12O, 12P, 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10-201901 Shelving

SAJO

C REG

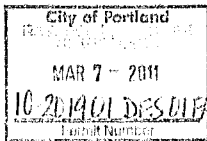
CONTRACT SCOPE OF WORK RI

Project: Aldo
Location: Pioneer Place, Portland, OR

STORE NO: 2127
PHASE: 10670 STOCKROOM SHELVING

10670 STOCKROOM SHELVING - SEISMIC

- ☐ Include unloading of stockroom shelving.
- ☐ Assemble (bolt together with supplied nuts and bolts and gussets) all owner supplied shelving in location as indicated; brace and fasten to wall and cross brace laterally as required from wall to wall with included metal angles. Fasten and brace laterally free standing shelving. Include installation of gussets. Wall shelving will be set up as individual units with four posts for each shelving section joined down the line. Sections must be bolted together with an average of 12 bolts and 8 gussets per shelf.
- ☐ Provide and install 2" x 3" x 10' slotted angle at wall shelving studs and top of wall shelving unit.
- ☐ Install X bracing as indicated on seismic drawings.
- ☐ Drill holes and install owner supplied anchor bolts at wall and stationary shelving.
- ☐ "A" shelving at 2' OC "B" shelving at 1' OC
- ☐ Brace free standing fixed units to wall and each other as required for stability
- ☐ Furnish and install (1) 4 x 10 masonite panel at back of managers desk (SD unit) and (4) 3 x 10 masonite panels at back of narrow shelving next to SD unit
- ☐ Install all shelving types as per stockroom detail book
- ☐ PROVIDE MSDS SHEETS FOR ALL MATERIALS PROVIDED BY THIS TRADE



BY G. OHANIAN
DATE 12-10-10
SUBJECT

RAK DESIGN & ENGINEERING CO.
412 WEST BROADWAY, SUITE #204
GLENDALE, CA. 91204
TEL(618)240-3810 FAX(618)240-3813

SHEET NO. 1
JOB NO. RD-15234

SEISMIC ANALYSIS OF "DEXION" STORAGE SHELVING SYSTEM FOR:

ALDO

7000 SW. 5th AVE. & MORRISON STREET
SUITE 1053
PORTLAND, OR. 97204

PER OSSC 2007 EDITION

STORAGE SHELVING CAPACITY:

50 # / LEVEL



EXP. 12-31-12

CALCS. 1 THRU 3

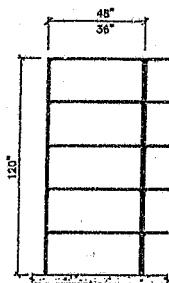
DRAWINGS: RD-15234

BY G. OHANIAN
 DATE 12-10-10
 SUBJECT

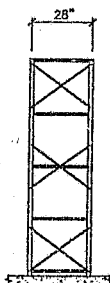
RACK DESIGN & ENGINEERING CO.

412 WEST BROADWAY, SUITE #204
 GLENDALE, CA. 91204
 TEL:(818)240-3810 FAX:(818)240-3813

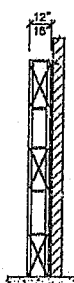
SHEET NO. 2
 JOB NO. RD-15234



FIXED SHELVING



SIDE VIEW



SEISMIC DESIGN

$$V = \frac{S_{DS} \times I}{R} \times W \times .75$$

OSSC 2007-SEC. 2208, PER RMI SPECS.
 ASCE 7-05 (SEC. 15.5.3)

$$S_{DS} = .73 \text{ (USGS WEB SITE, "SITE CLASS D")}$$

I=1 NO PUBLIC ACCESS

R=6 MOM. CONN.

R=4 BRACED

$$W = D.L. + \frac{2}{3} \text{ SHELF LOAD}$$

Continuous 48 Stiles
 2005 ASCE 7 Standard
 Latitude = 45.5188
 Longitude = -122.6775
 Spectral Response Accelerations S_M and S_M1
 $S_M = F_a \times S_s$ and $S_M1 = F_v \times S1$
 Site Class D - $F_a = 1.106$, $F_v = 1.71$

Period (sec)	S_a (g)
0.2	1.089 (S_M , Site Class D)
1.0	0.590 (S_M1 , Site Class D)

Continuous 48 Stiles
 2005 ASCE 7 Standard
 Latitude = 45.5188
 Longitude = -122.6775
 Design Spectral Response Accelerations S_D and S_D1
 $S_D = 2/3 \times S_M$ and $S_D1 = 2/3 \times S_M1$
 Site Class D - $F_a = 1.106$, $F_v = 1.71$

Period (sec)	S_a (g)
0.2	0.725 (S_D , Site Class D)
1.0	0.393 (S_D1 , Site Class D)

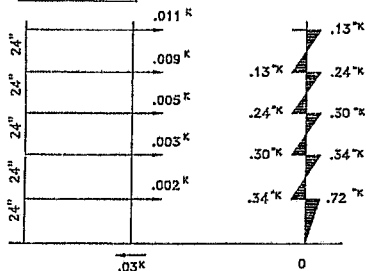
$$\text{LOAD PER COL.} = \frac{5 \times .05^k}{2 \text{ COL.}} = .13^k$$

$$W = 2_{DL} + (.13_{PL} \times .67) = .28^k$$

$$V_{LONGIT.} = .03^k$$

$$V_{TRANS.} = .05^k$$

LONGIT. SEISMIC



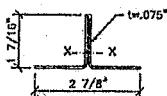
BY G. OHANIAN
 DATE 12-10-10
 SUBJECT _____

RACK DESIGN & ENGINEERING CO.

412 WEST BROADWAY, SUITE #204
 GLENDALE, CA. 91204
 TEL: (818) 240-3810 FAX: (818) 240-3813

SHEET NO. 3
 JOB NO. RD-15234

COLUMN ANALYSIS



$$F_y = 36 \text{ ksi}$$

$$A = .28$$

$$S_{min} = .075$$

$$r_{min} = .52$$

$$Q = .7$$

$$\frac{Kl}{r_{min}} = \frac{24 \times 1.7}{.52} = 78$$

$$F_a = 11.4 \text{ ksi}$$

$$P_a = F_a \times A = 3.2 \text{ k}$$

$$M_a = S_x \times F_b = 1.6 \text{ k}$$

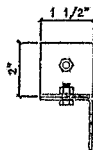
COMBINED STRESS RATIO

$$\frac{P}{P_a} + \frac{M}{M_a} = \frac{.28}{3.2} + \frac{.72}{1.6} = .54 < 1.0$$

BASE PLATE

$$\text{ANCHOR SHEAR} = .03 \text{ k}$$

USE (1)-3/8" ϕ HILTI KB-TZ ANCHOR
 PER BASE PLATE, 2" EMB., ESR-1917
 SPECIAL INSPECTION IS REQ'D



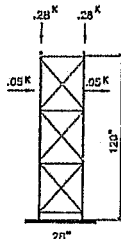
OVERTURNING

$$M_{OT} = .05 \text{ k} \times 2 \times 120 \times .66 = 7.9 \text{ k}$$

$$M_R = .28 \text{ k} \times 28 = 7.8 \text{ k}$$

NO UPLIFT

ALL 12" & 15" DEEP SINGLE
 SHELVING TO BE CONNECTED
 TO THE BUILDING WALL
 PER DETAIL DRAWING



TOP LEVEL LOADING

$$W = .2 \text{ k} \times .025 \text{ k} = .225 \text{ k LOAD PER COL.}$$

$$V = .04 \text{ k}$$

$$M_{OT} = .04 \text{ k} \times 2 \times 120 = 9.6 \text{ k}$$

$$M_R = .225 \text{ k} \times 28 = 6.3 \text{ k}$$

$$\text{UPLIFT} = \frac{9.6 - 6.3}{28} = .11 \text{ k}$$

MOMENT AT BEAM CONNECTION

$$M_{CONH} = \frac{.72 + .34}{2} = .53 \text{ k}$$

$$V_{\frac{3}{8} \text{ } \phi \text{ BOLT}} = .75 \text{ k}$$

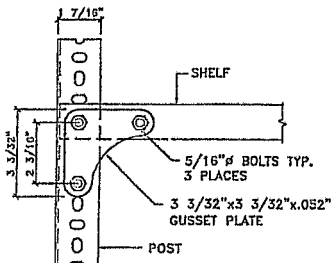
$$M_{a \text{ CONH}} = .75 \text{ k} \times 1.5 = 1.3 \text{ k}$$

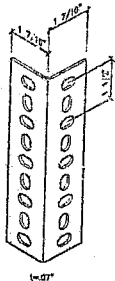
7/8" x .075" "K" BRACING

$$P_a = .875 \times .075 \times 36 \times .6 = 1.4 \text{ k}$$

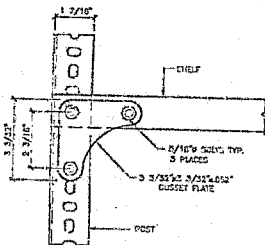
$$1/4" \phi \text{ M. BOLT } P_a = .55 \text{ k}$$

$$T = 2 \times .05 \text{ k} \times 1.44 = .14 \text{ k}$$

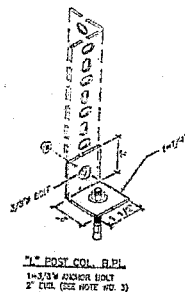




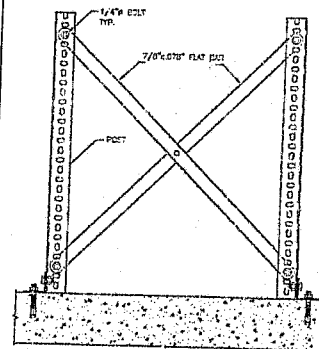
ANGLE POST



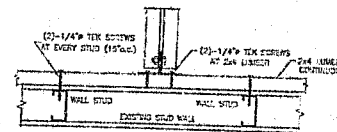
(1) SHELF CONNECTION



(2) BASE PLATE DETAIL

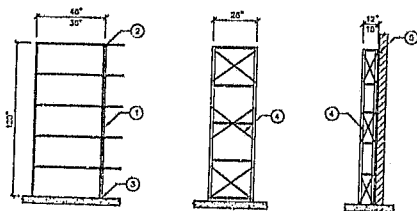


(3) "X" BRACING DETAIL



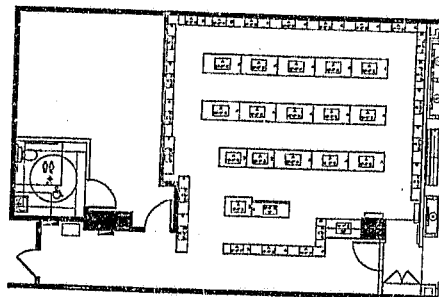
(4) WALL CONNECTION

- NOTES:
- 1-DESIGN OF STEEL STORAGE SHELVING AS SHOWN BY THESE DRAWINGS AND CALCULATIONS ARE IN COMPLIANCE WITH THE REQUIREMENTS OF THE CODE BOOK EDITION
 - 2-STEEL FOR ALL SHAPES P1-38 KILL ASTM A572-53 C133 (EXCEPT AS NOTED)
 - 3-ANCHORS SET IN CONCRETE PER-1917 SPECIAL INSPECTION IS REQUIRED
 - 4-STORAGE SHELVING CAPACITY 50 #/LEVEL
 - 5-SPRINGS RETAINERS SHALL BE PLACED IN ONE OR MORE CONSPICUOUS LOCATIONS A PERMANENT SIGN OF 60 SQUARE INCHES IN AREA, SHOWING THE CAPACITY OF THE SHELVING 50 #/ LEVEL
 - 6-STORAGE SHELVING SHALL BE INSTALLED WITH A MAXIMUM TOLERANCE FROM THE VERTICAL OF 1/2" IN 10'-0" OF HEIGHT



FRONT VIEW

SIDE VIEW



SHELVING LAYOUT



RACK DESIGN AND ENGINEERING
412 WEST BROADWAY, SUITE #204, GLENDALE, CA 91204
SCALE: NONE
DATE: 12-10-12
DRAWN BY: JLD
PROJECT: 2300 ON SAN AN AVENUE, ANDERSON STREET, SUITE 100, PORTLAND, OR
"DEXION" SHELVING DETAILS
ALDO
1008 NO. 154437
12-10-12