808 SW CAMPUS DR DFS-01 FA10-119854

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CITY OF PORTLAND, OREGON - BUREAU OF DEVELOPMENT SERVICES

1900 SW Fourth Avenue • Portland, Oregon 97201 • www.portlandonline.com/bds • 503-823-0652 • FAX 503-323-7425

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Project Name and Descrip	tion 6th FLODR - 0	R #24		*******
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PO Box 23784 Tigard, Oregon 97281 • Pixone: (503) 620-2086 • Fax: (503) 684-3636

DETAILS & STRUCTURAL CALCULATIONS

FOR:

GYPSUM BOARD CEILINGS AND SOFFIT FRAMEIG

FOR:

OHSU - KOHLER PAVILION 6th FLOOR O.R. #24

3181 SAM JACKSON PARK RD. PORTLAND, OR



THE REVIEWED DESIGNATIONS NOTED

JUN 0 9 2010

Note: Nicoli Engineering's design responsibility is limited to only those specific areas of the structure and/or project as presented herein. The attached calculations and/or construction details have been prepared for the above referenced project for the one—time—use—atry of Portland the noted site.

CLIENT: HARLEN'S DRYWALL CO.

JOB NO.: 100410 PREPARED BY : SET

CHECKED BY: .
DATE: 5-21-10

10-119854 DFS 01 FAPAGE _ OF 14

GENERAL NOTES

- 1.) THE DRAWINGS/DETAILS CONTAINED HEREIN COVER THE MOST TYPICAL CONDITIONS IN THE FRAMING, MINOR VARIANCES SHALL BE FRAMED SIMILARLY. VERIFY WITH ENGINEER/DETAILER FOR ALL OTHER CONDITIONS.
- 2.) THE CONTRACTOR SHALL VERIFY AND COORDINATE THE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION, THE CONTRACTOR IS RESPONSIBLE FOR ALL BRACING AND SHORING DURING CONSTRUCTION.
- ALL METHODS, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE BUILDING GENERAL STRUCTURAL NOTES AND THE PROJECT SPECIFICATIONS.
- 4.) ALL ITEMS NOTED B.O. (BY OTHERS) INCLUDE INSTALLATION OF THE B.O. ITEMS.

LIGHT GAUGE STEEL

- I.) GAUGE MATERIALS SHALL BE FORMED FROM GALVANIZED ASTM A653, GRADE 50, CLASS I STEEL FOR 12, 14, AND 16 GAUGE MATERIALS WITH A MINIMUM YIELD OF 50 KSI AND ASTM A653, GRADE 33 FOR 18 GAUGE AND LIGHTER WITH A MINIMUM YIELD OF 33 KSI. ALL EXTERIOR MEMBERS SHALL BE GALVANIZED WITH A G60 (MIN.) COATING MEETING THE REGUIREMENTS OF ASTM A525 UNLESS NOTED OTHERWISE.
- ALL MEMBERS SHALL HAVE THE MINIMUM EFFECTIVE PHYSICAL AND STRUCTURAL PROPERTIES AS INDICATED IN THE SSMA (STEEL STUD MANUFACTURERS ASSOCIATION) ICBO. ER-493P.

ENSTENERS

- 1) ALL SCREWS REFERRED TO IN THESE DRAWINGS SHALL BE AS FOLLOWS:
 - A.) ALL *IØ SCREWS NOTED IN THE DRAWINGS SHALL BE ZINC COATED AND MANUFACTURED BY GRABBER, OR APPROVED EQUAL. *IØ SCREWS SHALL BE *IØ IØ SELF DRILLING *S FOINT SCREWS.
 - B.) ALL *8 SCREWS NOTED IN THE DRAWINGS SHALL BE ZING COATED AND MANUFACTURED BY GRABBER, OR AFPROVED EQUAL. *8 5CREWS SHALL BE *8-18 SELF DRILLING *2 POINT SCREWS.
- 2.) FOR FASTENING LIGHT GAUGE MEMBERS TO STRUCTURAL STEEL OR TO CONCRETE, POWER DRIVEN OR PNEUMATIC FASTENERS SHALL BE ZINC PLATED AND SHALL BE MANUFACTURED BY HILTI, RAMBET, POWERS, OR EQUAL AS INDICATED IN THE DRAWINGS. WHEN FASTENING TO STRUCTURAL STEEL, THE FASTENERS SHALL BE OF SUFFICIENT LENGTH SO THAT THE TAPERED TIP COMPLETELY PENETRATES THE STEEL, CONSULT W/ ENGINEER IF THIS CANNOT BE ACHIEVED.
- 3.) ALL MECHANICAL CONCRETE ANCHORS, I.E. EXPANSION ANCHORS, SCREW ANCHORS, ETC., SHALL BE OF THE BE OF THE TYPE AND SIZE AS NOTED IN THE DRAWINGS AND INSTALLED PER THE STRICT REQUIREMENTS OF THE MANUFACTURER.

~CONT.~

GENERAL NOTES - CONTINUED

DESIGN CRITERIA

2006 INTERNATIONAL BUILDING CODE W OREGON AMENDMENTS (2007 059C)

LATERAL FORCES:

MIN. LATERAL FORCE = 5 PSF (REF; 2001 055C 1601.13)

SEISMIC: SEE LATERAL FORCE CALCULATIONS

GRAVITY FORCES:

DEAD LOAD = 3 PSF (MAX. (1) LAYER 5/8" GYP. BOARD + GRID/FRAMING)

OTHER:

CONCRETE STRENGTH = 3000 pai, ASSUMED (CONCRETE OVER METAL DECK)

STATEMENT OF SPECIAL INSPECTIONS:

- 1.) WHERE REQUIRED AS NOTED IN THE DRAWINGS, THESE NOTES, OR THE CONTRACT DOCUMENTS. SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER IT OF THE IBC.
- 2.) PERIODIC SPECIAL INSPECTION IS REQUIRED FOR THE POWERS WEDGE BOLT+ SCREW ANCHORS NOTED IN THESE DRAWINGS. REF. ICC ESR-2526.
- 3.) SPECIAL INSPECTION IS REQUIRED FOR POWER DRIVEN FASTENERS INSTALLED IN CONCRETE OVER METAL DECKING APPLICATIONS, AS NOTED IN DETAIL "A". THIS INSPECTION SHALL BE IN THE FORM OF PULL TESTING AS DESCRIBED IN SECTION V-G OF THE OREGON STATEWINDE CODE INTERPRETATION NO. 2001 035C SECTION [613.].
- 4.) PERIODIC SHALL BE DEFINED AS FOLLOWS: INSPECTION BY THE SPECIAL INSPECTOR OF THE SPECIFIED MATERIAL AND/OR SYSTEM DESCRIBED ABOVE PRIOR TO COMMENCEMENT OF THE WORK, AT SOME POINT DURING INSTALLATION, AND UPON COMPLETION OF THE WORK. THESE INTERVALS SHALL APPLY TO EACH BUILDING LEVEL AND/OR DIFFERING APPLICATION AS DEFINED BY DIFFERING DETAILS WITHIN THE DRAWINGS. ALL NON-CONFORMING WORK SHALL BE CORRECTED BY THE CONTRACTOR PRIOR TO OTHER RELATED WORK PROCEEDING AND COVERING THE SUBJECT WORK.
- 5.) THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO HAS DEMONSTRATED COMPETENCE, TO THE SATISFACTION OF THE BUILDING CHICIAL, FOR INSPECTION OF EACH OF THE SPECIFIED MATERIALS AND/OR SYSTEMS DESCRIBED ABOVE.

Project: OHSU KOHLER PAVILION - 6TH FLR OR 24 Client: HARLEN'S DRYWALL CO., INC. Page: By: GET ENGINEERING, INC. Job No.: 100410 Date: 5-21-10 3 1/2"-20 GA DIAG. STUD W/ (2) *8 SCREWS AT EA. STUD 4 TOP TRACK, PROVIDE (1) DIAG. STUD PER WALL AND 10'-0" O.C. MAX, (NOT REQ'D IF GYP, BD. IS FULL HT. REF: DETAIL "C" FOR TYP. ON AT LEAST ONE SIDE) CONNECTIONS TO STRUCTURE MAX (N.T.S.) 3 1/2"-18 GA TRACK W/ *8 SCREW EA. LEG AT EA. STUD ō 3 1/2"-20 GA DIAG. STUD @ 48" O.C. -TYP. 3 1/2"-20 GA STUDS 9 24" O.C. - TYP. Λ X (2) % SCREWS AT ALL STUD LAPS -TYP. UN.O. (1) LAYER 5/8" GYP. BD.

TYP. INTERIOR SOFFIT FRAMING

2'-2" MAX/TYP.

CEILING SYSTEM

PER DETAIL "D"

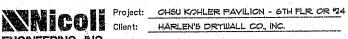
1 1/2" = 1'-0"

AS SHOWN

L 1 1/2 x 1 1/2 x 25 GA -CONT, W/ (1) 18

ALTERNATE FRAMING METHOD

SCREW EA. LEG AT EA. STUD



Page: 5

By: SET Date: 5-21-10

ENGINEERING, INC. Job No.: 100410

PROVIDE HANGER WIRES @ 24" O.C. MAX. PER DETAIL "D" DIRECTLY OVER EA.

TRACKS AS SHOWN. ADD MAIN RUNNERS

e 24" O.C. AS REQUIRED.

GEILING SYSTEM PER DETAIL "D"

2 1/2"-20 GA TRACK W/ (2) 6 x 1 1/4" SCREWS INTO GRID MEMBERS # 24" O.C. MAX. -TYP

GYP. BD. TO RUN CONT. ABOVE SOFFIT

2 1/2"-25 GA STUDS # 24" O.C. -TYP.

2 1/2"-25 GA STUDS BRACES 9 48" O.C.

(2) % SCREWS AT ALL STUD LAPS -TYP.

L 11/2 x 11/2 x 25 GA -CONT. W/ (1) *8 SCREW EA. LEG AT EA. STUD -TYP.

2'-2" MAX.

(I) LAYER 5/8" GYP. BD.



ALTERNATE INTERIOR SOFFIT FRAMING

11/2" = 1'-0"

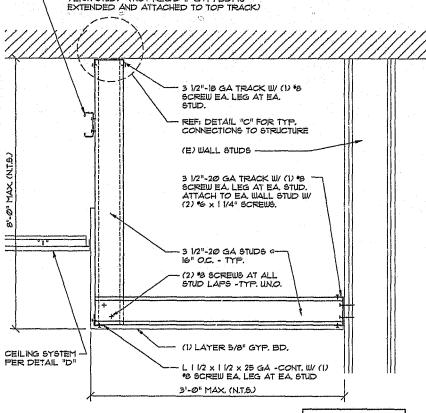
Project: OHSU KOHLER PAVILION - STH FLR. OR 24 Page: 6 Client: HARLEN'S DRYWALL CO, INC. By: SE

Date: 5-21-10

By: SET

ENGINEERING, INC. Job No.: 100410

3 1/2"-20 GA CONT. STUD W/ (2) *8 SCREWS AT EA. VERT. STUD. (NOT REQ'D IF GYP. BD. IS





INTERIOR SOFFIT FRAMING ALONG FULL HEIGHT WALLS

SEE DETAIL "BI" FOR ALTERNATE FRAMING METHOD

11/2" = 1'-0"

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OHSU KOHLER PAVILION - 6TH FLR OR 24

Client: HARLEN'S DRYWALL CO., INC. Page: 7 By: SET

PERIMETER CONNECTION

PER DETAIL "E" (E) WALL STUDS

Date: 5-21-10

ENGINEERING, INC. VOD NO.:

100410

Project:

FROYIDE HANGER WIRES # 24" O.C. MAX. PER DETAIL "D" DIRECTLY OVER EA. TRACKS AS SHOWN. ADD MAIN RUNNERS 9 24" O.C. AS REQUIRED.

CEILING SYSTEM PER DETAIL "D

GYP. BD. TO RUN CONT. ABOVE SOFFIT

2 1/2"-25 GA STUDS 5 24" O.C. -TYP. 2 1/2"-20 GA TRACK W/ (2) % x 1 1/4" SCREWS INTO GRID MEMBERS # 24" O.C. MAX. -TYP

3 1/2"-20 GA TRACK W/ (1) *8 SCREW EA, LEG AT EA, STUD. ATTACH TO EA. WALL STUD W/ (2) % x 1 1/4" SCREWS.

(2) % SCREWS AT ALL STUD LAPS -7YP.

L 1 1/2 x 1 1/2 x 25 GA -CONT. W/ (I) *8 SCREW EA, LEG AT EA, STUD -TYP.

(1) LAYER 5/8" GYP. BD.

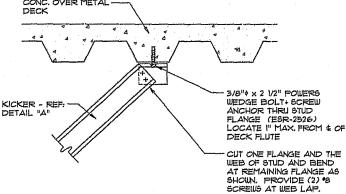
2'-2" MAX.



ALTERNATE INTERIOR SOFFIT FRAMING ALONG FULL HEIGHT WALLS

1 1/2" = 1'-0"

Project: OHSU KOHLER PAVILION - 6TH FLR OR 24 Page: 8 Client: HARLEN'S DRYWALL CO., INC. By SF By: SET ENGINEERING, INC. Job No.: 100410 Date: 5-21-10 I" MAX, OFFSET FROM CONC. OVER METAL CENTER OF FLUTE - TYP. DECK 8 (2) 3/8" + x 2 1/2" POWERS 肥 16 GA x 6" x WEDGE BOLT+ SCREW 6" \$ 24" O.C. ANCHOR (ESR-2526) @ EA. P. (2) % SCREUS 3/8" 4 x 2 1/2" POWERS O EA E WEDGE BOLT+ SCREW REF. DETAIL "A" .-REF: DETAIL "A" ANCHOR 9 24" O.C. (ESR-2526) LOCATE !" NOTE: WHEN WALL IS UNDER MAX, FROM & OF DECK FLUTE FLUTE USE DETAIL AT LEFT AT CONC. OVER METAL DECK AT CONC. OVER METAL DECK PERPENDICULAR TO FLUTES PARALLEL TO FLUTES CONC. OVER METAL DECK



KICKER CONNECTION



SOFFIT FRAMING CONN. TO STRUCTURE

1 1/2" = 1'-0"

Project: OHSU KOHLER PAVILION - 6TH FLR OR 24 Client: HARLEN'S DRYWALL CO.

Page: 9

SET By: Date: 5-21-10

ENGINEERING, INC. Job No.:

100410

(E) CONCRETE SLAB

∢ 4 d RAMSET SPC 114 ANGLE CLIP ASSEMBLY (0.150/0.180 PIN W/ 1 1/8" EMBEDMENT) OR APPROVED EQUAL WITH CAPACITY OF 100 POUNDS. 12 GA HANGER WIRES 9 4'-0" O.C. ALONG MAIN RUNNERS W/ NOTE: SPECIAL INSPECTION IN THE FORM (3) TIGHT TURNS AT OF PULL TESTING IS REQUIRED FOR CONNECTIONS POWER DRIVEN FASTENERS INTO CONCRETE OVER METAL DECK PER SECTION V-g OF OREGON STATEWIDE CODE INTERPRETATION NO.: 2007 059C SECTION 1613.1, DATED APRIL 20, 2001. USG DGLW-26 MAIN RUNNERS 9 48" O.C. MAX. (REF: ESR-1222.) USG DGLW-424 CROSS TEES @ 24" O.C. MAX. (REF: ESR-1222)

> SEE DETAIL "E" FOR TYPICAL PERIMETER REQUIREMENTS AND SESMIC BRACING NOTE

*6 x 1 1/4 TYPE-S DRYWALL SCREWS @ 6" O.C. AT PANEL

EDGES 4 12" O.C. ALONG INTERMEDIATE GRID MEMBERS



(I) LAYER 5/8" DYRWALL

TYP. CEILING CONSTRUCTION

Project: OHSU KOHLER PAVILION - 6TH FLR. OR 24

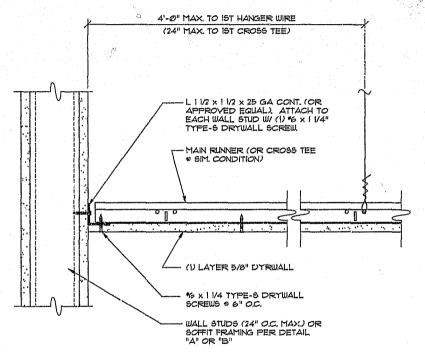
Client: HARLEN'S DRYWALL CO.

Page: 10 Βy:

SET

ENGINEERING, INC. Job No.: 100410

5-21-10 Date:



SEISMIC BRACING NOTE:

SEISMIC BRACING IN THE FORM OF STRUTS AND SPLAYS IS NOT REQUIRED IN ROOMS UP TO 35 FEET WIDE PROVIDED THE ABOVE DETAIL IS USED AT THE PERIMETER.



TYP. PERIMETER DETAIL

Page: By: SET

HAKLEN'S DRYWALL, INC

Date: 5-20-10

LATERAL FORCE:

REF: ASCE 7-05, SECTION 13.3

Using ASD load combination including 0.7E, where E = Q = F.

· Ref: a,= 1.00 [T13.5-1] S_{cs}= 0.728 From project specifications or calculated using USGS Seismic Ground Motion Calculator with assumed Site Class = D 4.00 psf (MIN. CODE REQ'D) W_p ≃ [13.5.6.1] [13.1.3] 1,= 1,50 R,= For bracing components except anchors in concrete. IT13.5-11 2.50 R_p= 1,50 For anchors in concrete not governed by the strength [13.4.2] of a ductile steel element or not complying w/ ACI 355.2. z= 0/50 ft 6TH FLOOR AT APPROX. MID. HEIGHT

OF STRUCTURE IN Z/L = 0,50 For all bracing components except anchors in concrete:

 $F_n = (0.7)(0.4)a_nS_{os}W_n(1/R_n/I_n)(1+2(z/h))$ 0.98 psf [13.3-1]

For anchors in concrete not governed by the strength of a ductile steel element or not complying w/ ACI 355.2:

1.00ft

 $F_{p2} = (0.7)(1.3)(0.4)a_p S_{ps} W_p (1/R_p/I_p)(1+2(z/h))$ [13.3-1],[13.4.2] 2.12 psf F.MAX = (0.7)1.65 ps 1, W. 4.89 psf [13.3-2] F = (0.7)0.35 SS W [13.3-3] 0.92 psf

> USE F. = 0.98 psf 4 USE F = 2,12 psf

PERMETER SHEAR IN CEILINGS UP TO 35 PEET WITE:

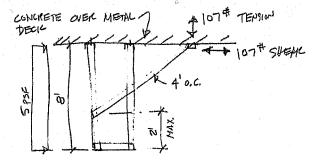
V= 35 (0.98 psf)= 17 #/L.F.

* SHEAR RESISTED BY WALL ANGLE TO FIALL/SOIFFIT CONFECTION, OL BY INSPECTION

Date: 5-20-10

CHECK 3/2" & POWERS WEDGE BOUT +:

MOUST CASE OCCURS AT DETAIL "A" AT KICKER CONNECTION !



ANCIEC CAPACITY (PETE ESR-2526) ,

TENSION (3000 PS) CICACKED CONG. GVER METAL DECIL)

BY INSPECTION, PULLOUT STRENGHI GOVIERNS

X = 1.6 CONSERVATIVELY FOR ASD CONVERSION

Pa = (075)(0,65)(1425)(300)/2 (1/6) = 424#

SHEAR

BY INSTECTION, STEEL STRENGTH GOVERNS

CHECK COMBINED LCAPING: 107 + 107 = 0.49 4 1.00

ENGINEERING, INC. Job No.:

100410

Date: 5-20-10

CHECK USG DOLW-ZG MAIN RUNNERS:

W= 3psf (402) = 12 +/L.F.

Wa = 16 + 1. F. REF: ESR- 1222

16 1/6 F > 12 1/6 F OF

CHECK USG DGLW- 424 CROSS TEES:

W= 3 psr (3/2)= 6#/6.F.

Wa = 12,1 \$/LE PEF: ESK-1222

12.1 * KE > 6 * KE OIC

of FOR SCIEN CONFECTIONS TO EXID, GRID MATERAL = 25 GA THICKNESS

> On Pa FOR # 6 SCREW = 33#/SCREW REFL ER. 49 43 P

Fasteners (Screws and Welds

Screw Table Notes

- Screw spacing and edge distance shall not be less than 3 x d. (d = Nominal screw diameter)
- The allowable loads are based on the steel properties of the members being connected, per AISI section E4.
- When connecting materials of different steel thicknesses or tensile strength (Fu), the lowest applicable values should be used.
- 4. The nominal strength of the screw must be at least 3.75 times the allowable loads.
- 5. Values Include a 3.0 factor of safety.
- 6. Applied loads may be multiplied by 0.75 for seismic or wind loading, per AISI A 5.1.3.
- Penetration of screws through joined materials should not be less than 3 exposed threads, Screws should be instelled and tightened in accordance with screw manufacturer's recommendations.

Allowable Loads for Screw Connections (lbs/screw)

0-4	Steel Mas	Thickness Dasign (in)	Steel Proporties Fy (kel) Fu (kel)		No. 10 Dia. = 0.180 (in) Sheet Pullout	Ma. 8 Dis. = 0,164 (in) Shear Pullout	No.6 Dbs. = 0.138 (in) Sheer Puloig
C5 GA-7	18 27	0.0188	33 45 33 45			66 39 121 59	60 33 111 50
20 GA	30 33	0.0312	33 45 33 45	1,175.4	151 76 177 84	141 65 164 72	129 55 151 81
	43 54	0.0451	33 45 33 45	280 124 394 156	263 109 370 137	244 94 344 118	224 79
	68	0.0713	33 45	557 198	523 173		

Weld Table Notes

- Weld capacities based on AISI, section E2
- When connecting materials of different steel thicknesses or tensile strength (F_u), the lowest applicable values should be used.
- Values include a 2.5 factor of safety.
- 4. Based on the minimum allowance load for fillet or flare groove welds, longitudinal or transverse loads.
- Allowable loads based on E60xx electrodes.
- For material less than or equal to .1242" thick, drawings show nominal weld size. For such material, the effective throat of the weld shall not be less than the thickness of the thinnest connected part.

Allowable Loads for Fillet Welds and Flare Groove Welds

Steel	Thickness	Steel Pr	opertiss	Nominel	Allowable
Mila .	Design (in)	Fy (kel)	Fu(ksl)	World Eliza	Load (lbfn)
43	0.0451	33	45	1/16	609
54	0.0566	33	45	3/32	764
68	0.0713	33	45	1/6	963
97	0.1017	33	45	1/8	1373
118	0.1242	33	45	1/8	1677
54	0.0566	50	65	3/32	1104
68	0.0713	50	65	1/8	1390
97	0.1017	50	65	1/3	1963
118	0.1242	50	69	1/8	2422

