



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD PREAPPROVAL
OF MANUFACTURER'S CERTIFICATION (OPM)

OFFICE USE ONLY
APPLICATION #: OPM-0349-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal [ ] Update to Pre-CBC 2013 OPA Number:

Manufacturer Information

Manufacturer: Eagle Group
Manufacturer's Technical Representative: Tim Oliphant
Mailing Address: 100 Industrial Blvd., Clayton, DE 19938
Telephone: (302) 653-3169 Email: toliphant@eaglegrp.com

Product Information

Product Name: QuadTruss® Wire Shelves, Solid Shelves, Quad-Adjust® Shelves, QuadPLUS™
Product Type: Wire and solid shelving products and accessories
Product Model Number: Eagle Shelving, Quad-Adjust, QuadPLUS, and Eagle Solid Shelving
General Description: Wire and solid shelving system with the ability to add, remove, and adjust shelves in one inch increments.

Applicant Information

Applicant Company Name: Eagle Group
Contact Person: Tim Oliphant
Mailing Address: 100 Industrial Blvd., Clayton, DE 19938
Telephone: (302) 653-3169 Email: toliphant@eaglegrp.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: Timothy Oliphant Date: May 20, 2016
Title: R & D Supervisor Company Name: Eagle Group

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
FACILITIES DEVELOPMENT DIVISION**

**Registered Design Professional Preparing Engineering Recommendations**

Company Name: CYS Structural Engineers, Inc.

Name: Dieter T. Siebald California License Number: S4346

Mailing Address: 2495 Natomas Park Drive, Suite #650, Sacramento, CA 95833

Telephone: (916) 920-2020 Email: dieters@cyseng.com

**OSHPD Special Seismic Certification Preapproval (OSP)**

- Special Seismic Certification is preapproved under OSP-  
(Separate application for OSP is required)
- Special Seismic Certification is not preapproved

**Certification Method(s)**

- Testing in accordance with:  ICC-ES AC156  FM 1950-15
- Other\* (Please Specify): \_\_\_\_\_

\*Use of criteria other than those adopted by the California Building Standards Code, 2016 (CBSC 2016) for component supports and attachments are not permitted. For distribution system, interior partition wall, and suspended ceiling seismic bracings, test criteria other than those adopted in the CBSC 2016 may be used when approved by OSHPD prior to testing.

- Analysis
- Experience Data
- Combination of Testing, Analysis, and/or Experience Data (Please Specify): \_\_\_\_\_

**List of Attachments Supporting the Manufacturer's Certification**

- Test Report  Drawings  Calculations  Manufacturer's Catalog
- Other(s) (Please Specify): \_\_\_\_\_

**OFFICE USE ONLY – OSHPD APPROVAL VALID FOR CBC 2016 & ALL PRE-2016 CODE BASED PROJECTS**

Signature: *Jeffrey Enzler* Date: 09-15-2016

Print Name: Jeffrey Enzler

Title: DSE

Condition of Approval (if applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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OPM-0349-13

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- NOTES:**
1. THESE DRAWINGS ARE PREPARED FOR EAGLE GROUP, CLAYTON, DELAWARE.
  2. THE CONTRACTOR AND INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT (OSHPD) PRE-APPROVAL PROGRAMS WEBSITE.
  3. THIS PRE-APPROVAL COVERS THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE SUPPORTING STRUCTURE. THE EQUIPMENT & ATTACHMENT HARDWARE ARE SUPPLIED BY THE MANUFACTURER. THE EXPANSION ANCHORS, THRU-BOLTS & STRUT PLATES SHOWN IN THIS OPM SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.



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**CYS STRUCTURAL ENGINEERS, INC.**

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SACRAMENTO, CA 95833

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www.cyseng.com

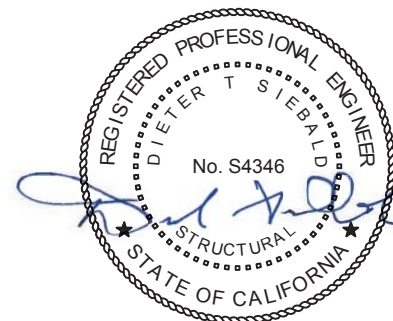
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**GENERAL NOTES:**

1. THIS OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2013. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2013.
2. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD (SEOR) FOR A SITE SPECIFIC PROJECT TO VERIFY:
  - A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WEIGHT SPECIFIED FOR EACH COMPONENT IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQUIRED.
  - B. THAT THE FLOOR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPENINGS.
  - C. THAT THE FLOOR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPACING SHOWN IN THE TEST LOADS TABLE ON PAGE 3 IS THE REQUIRED MINIMUM SPACING OF THE GIVEN DIAMETER ANCHORS. THE REQUIRED SPACING FROM ANCHORS OF OTHER DIAMETERS & EMBEDMENTS MAY VARY & SHALL BE EVALUATED BY THE SEOR.
  - D. THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CBC 2013 & WITH THE DETAILS SHOWN IN THIS PRE-APPROVAL.
  - E. THAT THE ACTUAL COMPONENT'S WEIGHT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS, & THE MATERIAL & GAGE OF THE COMPONENT WHERE ATTACHMENTS ARE MADE, AGREE WITH THE INFORMATION SHOWN ON THE PRE-APPROVAL DOCUMENTS.
3. EXPANSION ANCHORS INSTALLED IN NORMAL WEIGHT CONCRETE SHALL BE CARBON STEEL HILTI KB-TZ EXPANSION ANCHORS COMPLYING WITH ESR-1917 REISSUED MAY 2015.
  - A. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS GIVEN IN THE TABLE ON PAGE 3.
  - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOB SITE TESTING IN ACCORDANCE WITH THE TEST LOAD TABLE PROVIDED IN THIS DOCUMENT. TEST 50% OF THE INSTALLED ANCHORS. THE TEST LOAD MAY BE APPLIED BY ANY METHOD THAT WILL EFFECTIVELY MEASURE THE TORQUE IN THE ANCHOR SUCH AS CALIBRATED TORQUE WRENCH METHOD. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE INSPECTOR OF RECORD (IOR). IF ANY ANCHOR FAILS THE TEST, TEST ALL ANCHORS. THE TEST SHALL BE PERFORMED 24 HOURS OR MORE AFTER INSTALLATION. TESTING MAY BE DONE PRIOR TO COMPONENT INSTALLATION. ALSO REFER TO CBC 1913A.7 "TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE".
  - C. FAILURE/ACCEPTANCE CRITERIA: THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
    - TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS:  
WEDGE TYPE: ONE-HALF (½) TURN OF THE NUT.



SHEET TITLE: GENERAL NOTES



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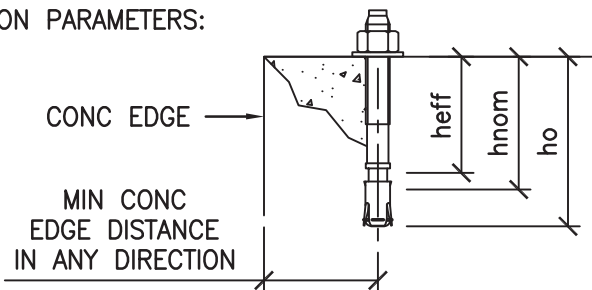
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**GENERAL NOTES CONTINUED:**

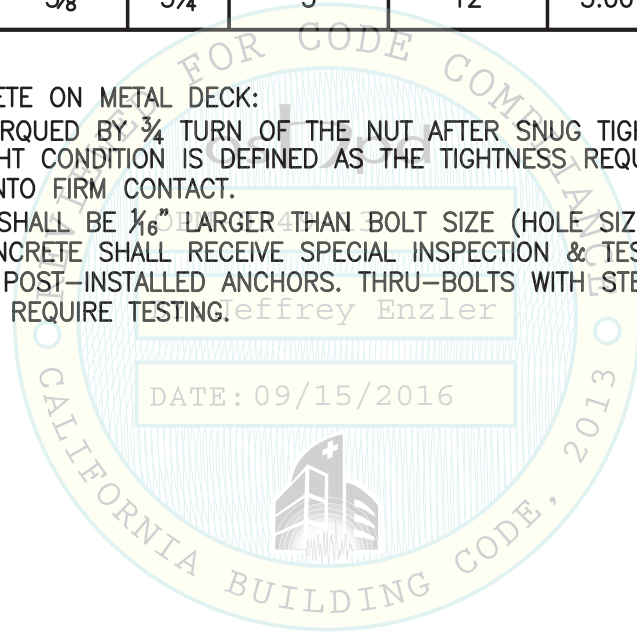
**3D. ANCHOR INSTALLATION PARAMETERS:**



ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) heff	HOLE DEPTH (INCH) ho	MIN CONCRETE THICKNESS (INCH) h	MIN CONCRETE EDGE DISTANCE (INCH)	MIN ANCHOR SPCG (INCH)	TEST TORQUE (FT-LBS)	CONDITION OF ANCHORAGE
5/8	3 9/16	3 3/8	3 3/4	5	12	5.00	60	CASE 2

**4. BOLTS THROUGH CONCRETE ON METAL DECK:**

- A. BOLTS SHALL BE TORQUED BY 3/4 TURN OF THE NUT AFTER SNUG TIGHT CONDITION IS ACHIEVED, UNO. THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
- B. THRU-BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + 1/16").
- C. THRU-BOLTS IN CONCRETE SHALL RECEIVE SPECIAL INSPECTION & TESTING IN ACCORDANCE WITH REQUIREMENTS FOR POST-INSTALLED ANCHORS. THRU-BOLTS WITH STEEL TO STEEL CONNECTION IN TENSION DO NOT REQUIRE TESTING.



SHEET TITLE: GENERAL NOTES (CONTINUED)



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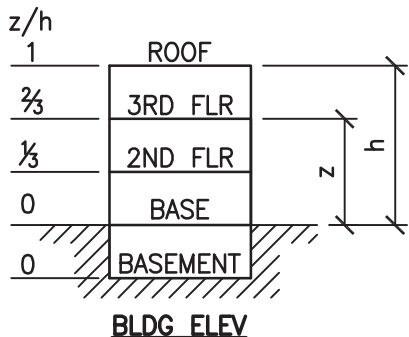
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**GENERAL NOTES CONTINUED:**

5. TWO (2) CASES OF ATTACHMENT ARE SPECIFIED & PRESENTED IN THIS PRE-APPROVAL:



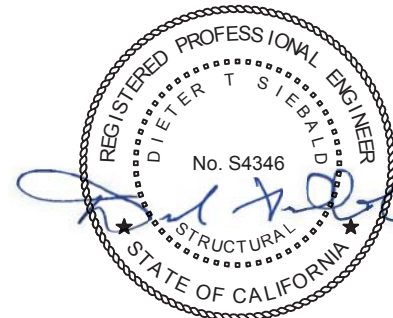
**CASE 1:** ATTACHMENT DETAILS LOCATED AT UPPER FLOORS ABOVE THE BASE OF A BLDG ( $z/h \leq 0.9$ ). THE FLOORS ARE ASSUMED TO BE BUILT OF A MIN 3/4" SLWC TOPPING OVER MIN 20 GA MTL DECK ( $f'c = 3000$  PSI, MIN).

**CASE 2:** ATTACHMENT DETAILS LOCATED AT OR BELOW THE BASE OF A BLDG ( $z/h = 0$ ). THE FLOORS ARE ASSUMED TO BE BUILT OF A MIN 5" NWC SLAB ( $f'c = 3000$  PSI, MIN).

6. THIS PRE-APPROVAL MAY BE USED AT ANY GEOGRAPHICAL LOCATION IN THE STATE OF CALIFORNIA WHERE  $S_{DS}$  (OR  $F_p$ ) IS LESS THAN OR EQUAL TO THE VALUE SPECIFIED FOR A GIVEN SHELVING UNIT SIZE AS PRESENTED ON PG 6 & 7.

**ABBREVIATIONS:**

@	AT	GA	GAUGE	REQ	REQUIRED
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	ICC	INTERNATIONAL CODE COUNCIL	SEOR	STRUCTURAL ENGINEER OF RECORD
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	IN (")	INCH	SIM	SIMILAR
BLDG	BUILDING	INFO	INFORMATION	SLWC	SAND-LIGHTWEIGHT CONCRETE
BOTT	BOTTOM	KSI	KIPS PER SQUARE INCH	SPCG	SPACING
CBC	CALIFORNIA BUILDING CODE	LBS	POUNDS	STD	STANDARD
CG	CENTER OF GRAVITY	LRFD	LOAD AND RESISTANCE FACTOR DESIGN	STL	STEEL
CL	CENTERLINE	MAX	MAXIMUM	Tu	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE
CONC	CONCRETE	MFR	MANUFACTURER	TYP	TYPICAL
COORD	COORDINATE	MIN	MINIMUM	T&B	TOP & BOTTOM
CTR	CENTER	MTL	METAL	Vu	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE
DIA (Ø)	DIAMETER	NO. (#)	NUMBER OR POUNDS	W/	WITH
EA	EACH	NWC	NORMAL WEIGHT CONCRETE	Wp	OPERATING WEIGHT
ELEV	ELEVATION	OD	OUTSIDE DIAMETER	WT	WEIGHT
EQ	EQUAL	OPG	OPENING		
$f'c$	MIN ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE	OPM	OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION		
FLR	FLOOR	OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT		
FT (')	FOOT/FEET	PERP	PERPENDICULAR		
$F_p$	HORIZONTAL SEISMIC FORCE PER ASCE 7-10 SEISMIC FORCE REQUIREMENTS	PG	PAGE		
$F_y$	SPECIFIED MINIMUM YIELD STRESS OF STEEL	PL	PLATE		
		PSI	POUNDS PER SQUARE INCH		
		PSF	POUNDS PER SQUARE FOOT		



SHEET TITLE: GENERAL NOTES (CONTINUED)  
ABBREVIATIONS

<p><b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833</p>	TEL (916) 920-2020 www.cyseng.com	Job No: 16010 Date: 08-09-2016 Page: 4 of 19
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**SYSTEM OVERVIEW & DESIGN CRITERIA:**

1. THE EAGLE GROUP SHELVING PRODUCTS COVERED BY THIS OPM ARE THE EAGLE QuadTruss® WIRE SHELVES, THE EAGLE SOLID SHELVES, & THE EAGLE Quad-Adjust® SHELVES. ANY SHELVES MAY INCLUDE THE USE OF EAGLE QuadPLUS™ POLYMER SHELF MATS.
2. THE SHELVING SYSTEMS ARE MODULAR FREE-STANDING SHELVING UNITS SUPPORTED ON FOUR POSTS THAT CAN BE ARRANGED INTO DIFFERENT CONFIGURATIONS. THE OPERATING WEIGHT FOR THE UNITS IS BASED ON COMPONENT WEIGHT PLUS THE WEIGHT OF MEDIA AS FOLLOWS:  
OTHER MEDIA: 20 PSF PER SHELF AREA  
(FOR MAX NO. OF SHELVES PER UNIT, SEE PGS 6 & 7)
3. THREE (3) INSTALLATION CONFIGURATIONS OF THE SHELVING UNITS ARE COVERED BY THIS OPM, A SINGLE SHELVING UNIT, TWO SHELVING UNITS INSTALLED END-TO-END, & FOUR SHELVING UNITS INSTALLED END-TO-END & BACK-TO-BACK. SEE PG 9 FOR CONFIGURATION DIAGRAMS.
4. SUPPORT & ATTACHMENT DESIGN IS PER 2013 CBC AT LRFD LEVEL FORCES.

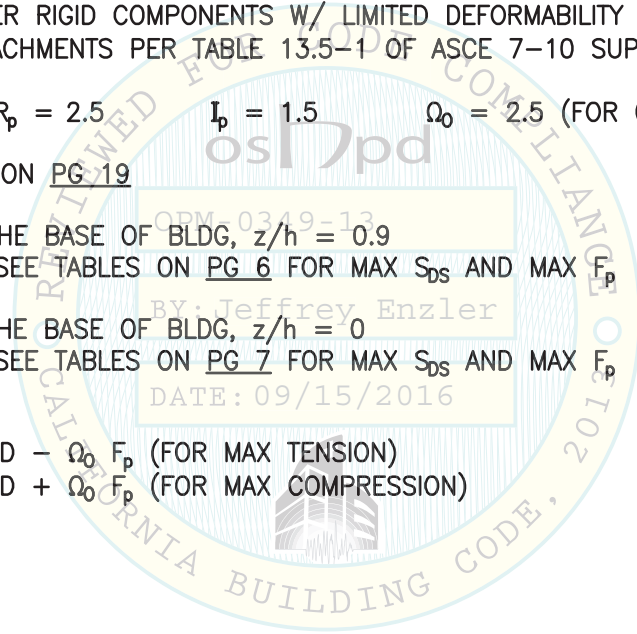
CABINETS & OTHER RIGID COMPONENTS W/ LIMITED DEFORMABILITY  
ELEMENTS & ATTACHMENTS PER TABLE 13.5-1 OF ASCE 7-10 SUPPLEMENT #1:

$q_p = 1.0$        $R_p = 2.5$        $I_p = 1.5$        $\Omega_0 = 2.5$  (FOR CONC ANCHORS ONLY)  
 $W_p$  AS PROVIDED ON PG 19

UPPER FLOORS ABOVE THE BASE OF BLDG,  $z/h = 0.9$   
CASE 1: SEE TABLES ON PG 6 FOR MAX  $S_{DS}$  AND MAX  $F_p$

FLOORS AT OR BELOW THE BASE OF BLDG,  $z/h = 0$   
CASE 2: SEE TABLES ON PG 7 FOR MAX  $S_{DS}$  AND MAX  $F_p$

LOAD COMBINATIONS  
( $0.9 - 0.2 S_{DS}$ ) D -  $\Omega_0 F_p$  (FOR MAX TENSION)  
( $1.2 + 0.2 S_{DS}$ ) D +  $\Omega_0 F_p$  (FOR MAX COMPRESSION)



SHEET TITLE: SYSTEM OVERVIEW & DESIGN CRITERIA



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**SHELVING SCHEDULES FOR UPPER FLOORS**

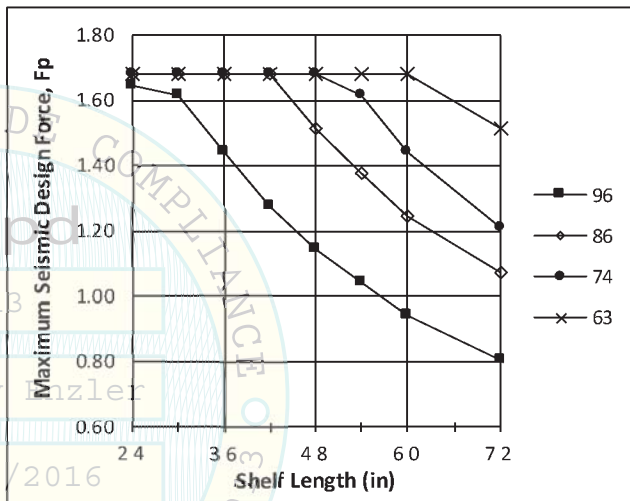
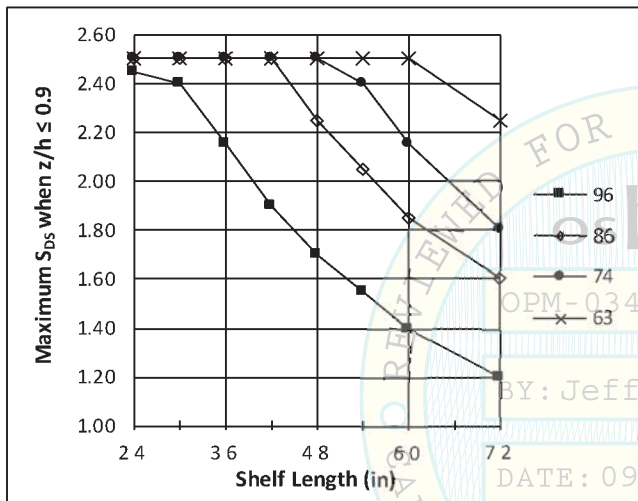
THE FOLLOWING TABLES PRESENT EACH AVAILABLE SHELVING UNIT SIZE & IT'S CORRESPONDING MAX  $S_{DS}$  & MAX  $F_p$  WHERE IT MAY BE INSTALLED PER THE DETAILS OF THIS OPM. THE TABLES ONLY APPLY TO SHELVING UNITS MEETING ALL OF THE CRITERIA GIVEN IN THE TABLE FOOTNOTES.

**MAX  $S_{DS}$  (when  $z/h \leq 0.9$ )**

HEIGHT (IN)	LENGTH (IN)							
	24	30	36	42	48	54	60	72
96	2.45	2.40	2.15	1.90	1.70	1.55	1.40	1.20
86	2.50	2.50	2.50	2.50	2.25	2.05	1.85	1.60
74	2.50	2.50	2.50	2.50	2.50	2.40	2.15	1.80
63	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.25

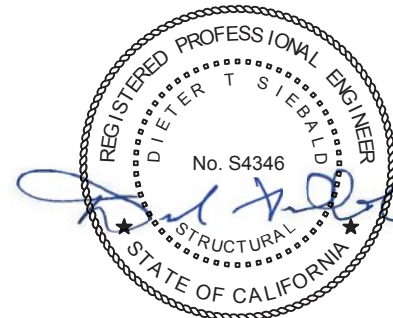
**MAX  $F_p$  (dependent on  $S_{DS}$  &  $z/h$ )**

HEIGHT (IN)	LENGTH (IN)							
	24	30	36	42	48	54	60	72
96	1.65	1.61	1.44	1.28	1.14	1.04	0.94	0.81
86	1.68	1.68	1.68	1.68	1.51	1.38	1.24	1.08
74	1.68	1.68	1.68	1.68	1.68	1.61	1.44	1.21
63	1.68	1.68	1.68	1.68	1.68	1.68	1.68	1.51



**TABLE FOOTNOTES**

1. UNITS MAY HAVE WIRE SHELVES OR SOLID SHELVES.
2. UNIT WIDTHS MAY BE 14", 18", 21", 24" OR 30".
3. UNIT LENGTHS RANGE FROM 24" TO 72" AS PER TABLES ABOVE.
4. MAX WEIGHT OF CONTENT IS 20 PSF PER SHELF.
5. 96" HIGH UNITS MAY HAVE A MAX OF 6 SHELVES.
6. 86" & 74" HIGH UNITS MAY HAVE A MAX OF 5 SHELVES.
7. 63" HIGH UNITS MAY HAVE A MAX OF 4 SHELVES.



SHEET TITLE: SHELVING SCHEDULES FOR UPPER FLOORS



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**SHELVING SCHEDULES FOR SLAB ON GRADE**

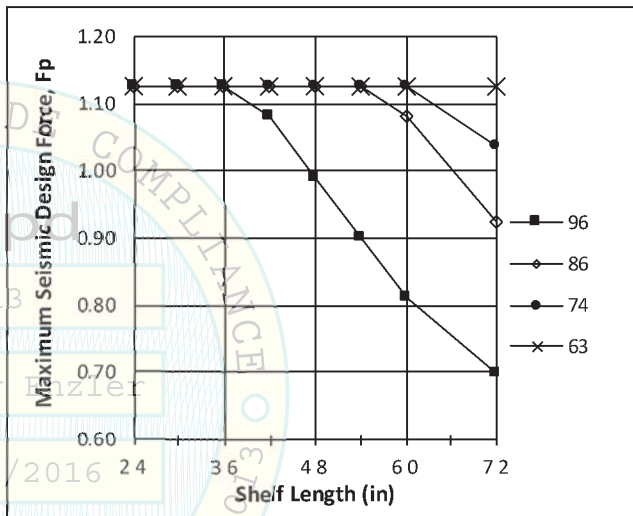
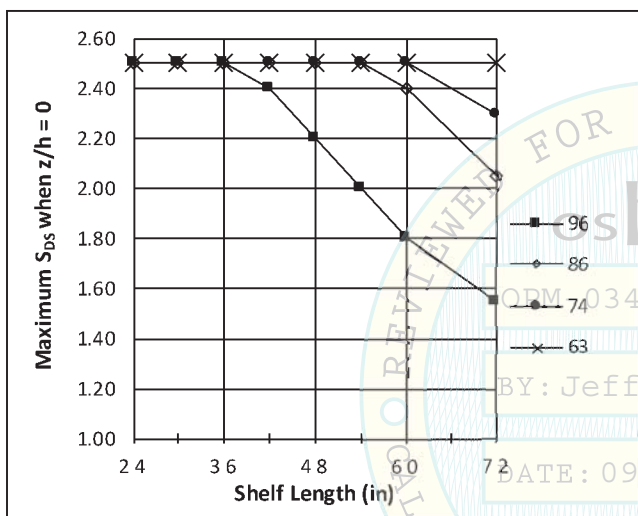
THE FOLLOWING TABLES PRESENT EACH AVAILABLE SHELVING UNIT SIZE & IT'S CORRESPONDING MAX  $S_{DS}$  & MAX  $F_p$  WHERE IT MAY BE INSTALLED PER THE DETAILS OF THIS OPM. THE TABLES ONLY APPLY TO SHELVING UNITS MEETING ALL OF THE CRITERIA GIVEN IN THE TABLE FOOTNOTES.

**MAX  $S_{DS}$  (when  $z/h = 0$ )**

HEIGHT (IN)	LENGTH (IN)							
	24	30	36	42	48	54	60	72
96	2.50	2.50	2.50	2.40	2.20	2.00	1.80	1.55
86	2.50	2.50	2.50	2.50	2.50	2.50	2.40	2.05
74	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.30
63	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50

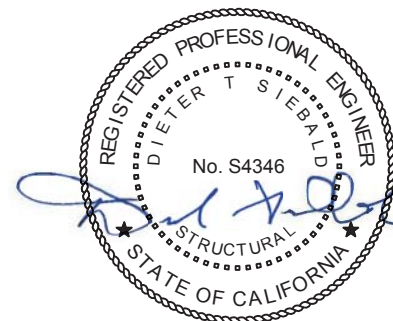
**MAX  $F_p$  (dependent on  $S_{DS}$  with  $z/h = 0$ )**

HEIGHT (IN)	LENGTH (IN)							
	24	30	36	42	48	54	60	72
96	1.13	1.13	1.13	1.08	0.99	0.90	0.81	0.70
86	1.13	1.13	1.13	1.13	1.13	1.13	1.08	0.92
74	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.04
63	1.13	1.13	1.13	1.13	1.13	1.13	1.13	1.13



**TABLE FOOTNOTES**

1. UNITS MAY HAVE WIRE SHELVES OR SOLID SHELVES.
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SHEET TITLE: SHELVING SCHEDULES FOR SLAB ON GRADE



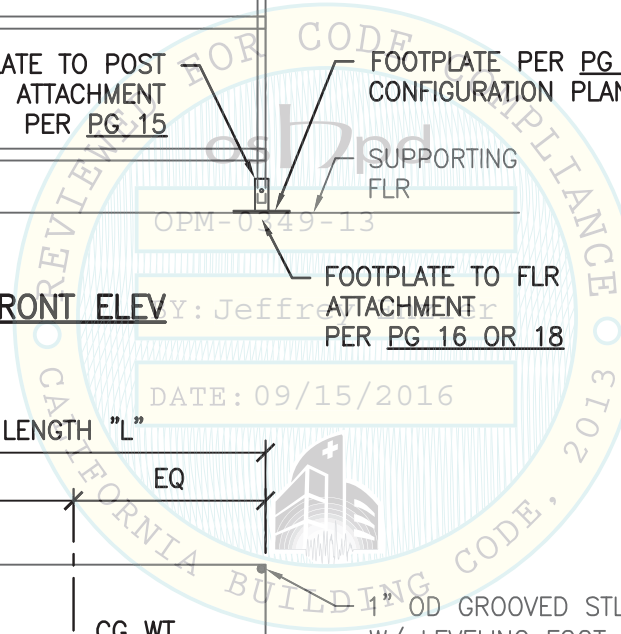
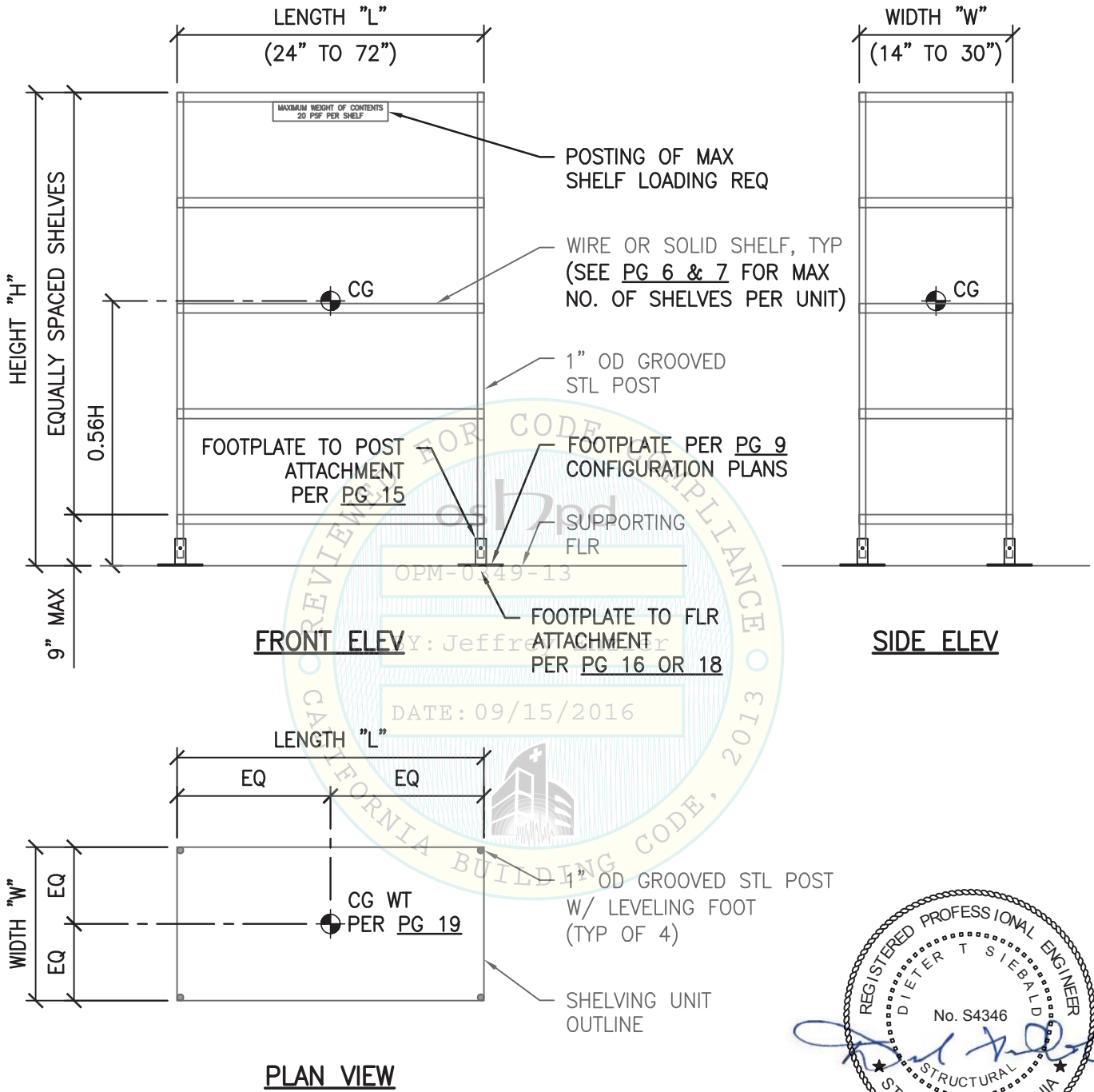
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SHEET TITLE: SHELVING UNIT PLAN & ELEVATIONS



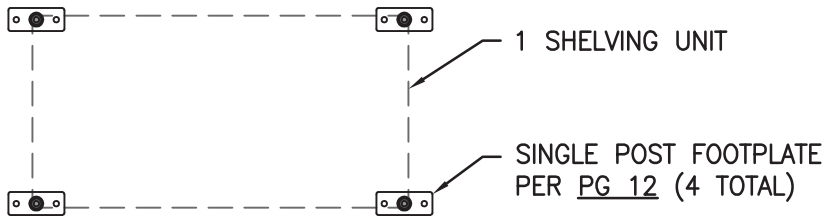
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L:\Jobs\16010 Eagle - Shelving OPM-0349-13\STRU\S1.dwg Time: Aug 09, 2016 - 01:11pm Login: camachorn Dimstyle: 1 LScale: 6

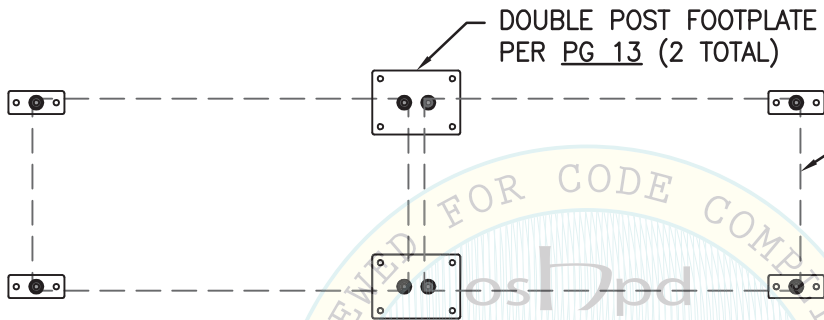


1 SHELVING UNIT

SINGLE POST FOOTPLATE  
PER PG 12 (4 TOTAL)

**SINGLE SHELVING UNIT**

FOR INTERCONNECTION OF  
MULTIPLE UNITS AT TOP,  
SEE PG 10 & 11



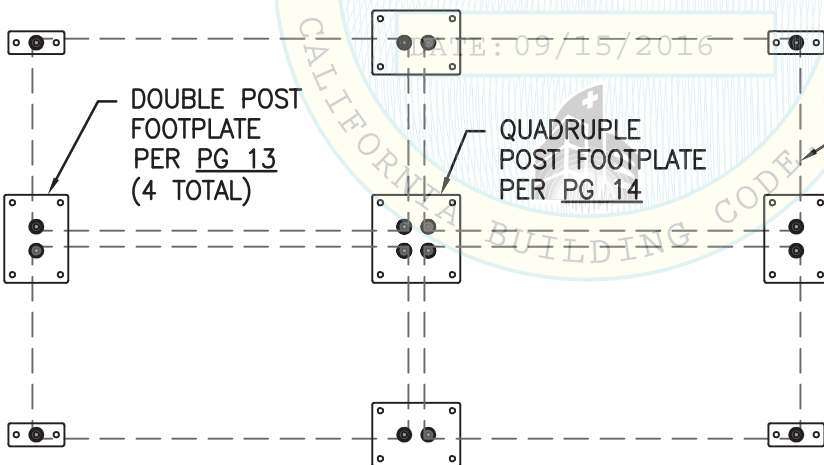
DOUBLE POST FOOTPLATE  
PER PG 13 (2 TOTAL)

2 SHELVING UNITS OF  
IDENTICAL SIZE  
INSTALLED END-TO-END

SINGLE POST FOOTPLATE  
PER PG 12 (4 TOTAL)

**TWO SHELVING UNITS**

END-TO-END



DOUBLE POST  
FOOTPLATE  
PER PG 13  
(4 TOTAL)

QUADRUPLE  
POST FOOTPLATE  
PER PG 14

SINGLE POST FOOTPLATE  
PER PG 12 (4 TOTAL)

4 SHELVING UNITS OF  
IDENTICAL SIZE  
INSTALLED END-TO-END  
& BACK-TO-BACK

**FOUR SHELVING UNITS**

END-TO-END & BACK-TO-BACK



SHEET TITLE: CONFIGURATION PLANS



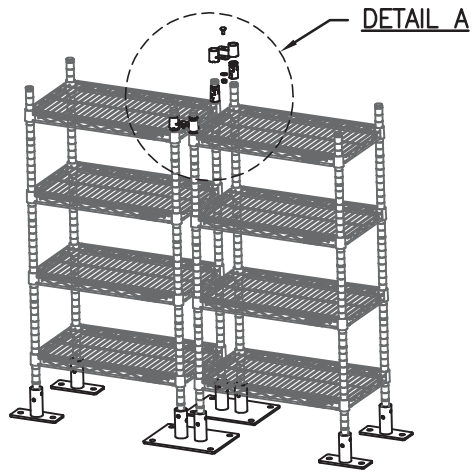
**CYS STRUCTURAL ENGINEERS, INC.**

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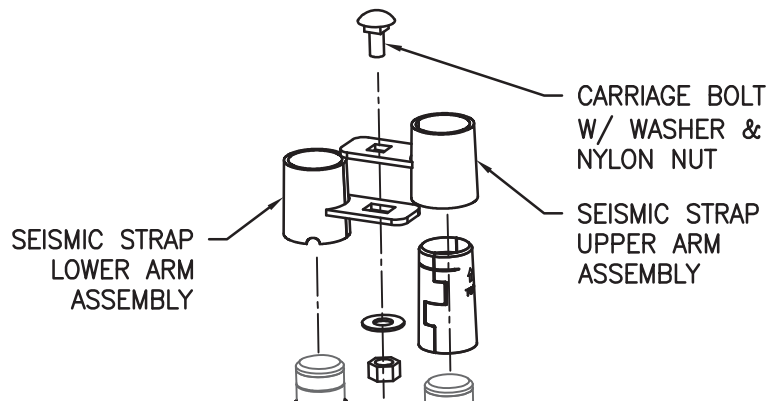
TEL (916) 920-2020  
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L:\Jobs\16010 Eagle - Shelving OPM-0349-13\STRU\S1.dwg Time: Aug 09, 2016 - 01:11pm Login: camachorn Dim: scale: 1 L7Scale: 6



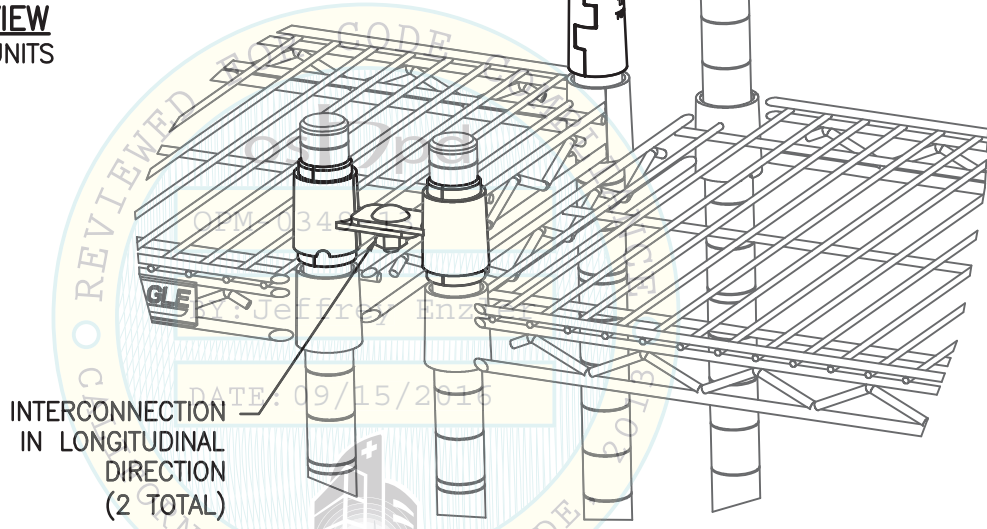
**ISOMETRIC VIEW**  
END-TO-END UNITS



SEISMIC STRAP  
LOWER ARM  
ASSEMBLY

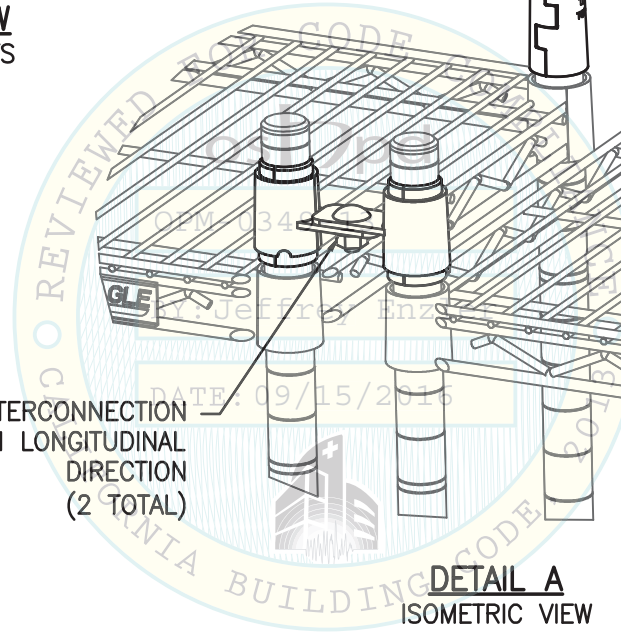
CARRIAGE BOLT  
W/ WASHER &  
NYLON NUT

SEISMIC STRAP  
UPPER ARM  
ASSEMBLY



INTERCONNECTION  
IN LONGITUDINAL  
DIRECTION  
(2 TOTAL)

**DETAIL A**  
ISOMETRIC VIEW  
OF SEISMIC STRAP ASSEMBLY



SHEET TITLE: TOP INTERCONNECTION DETAIL  
FOR TWO SHELVING UNITS



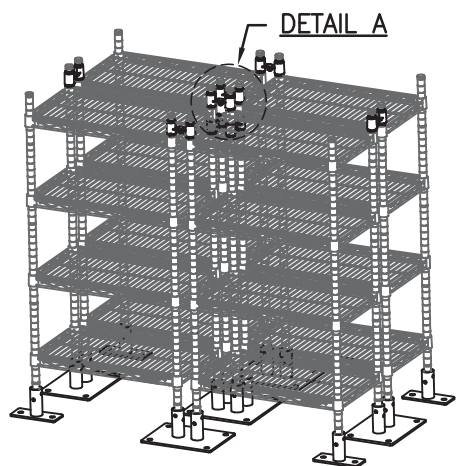
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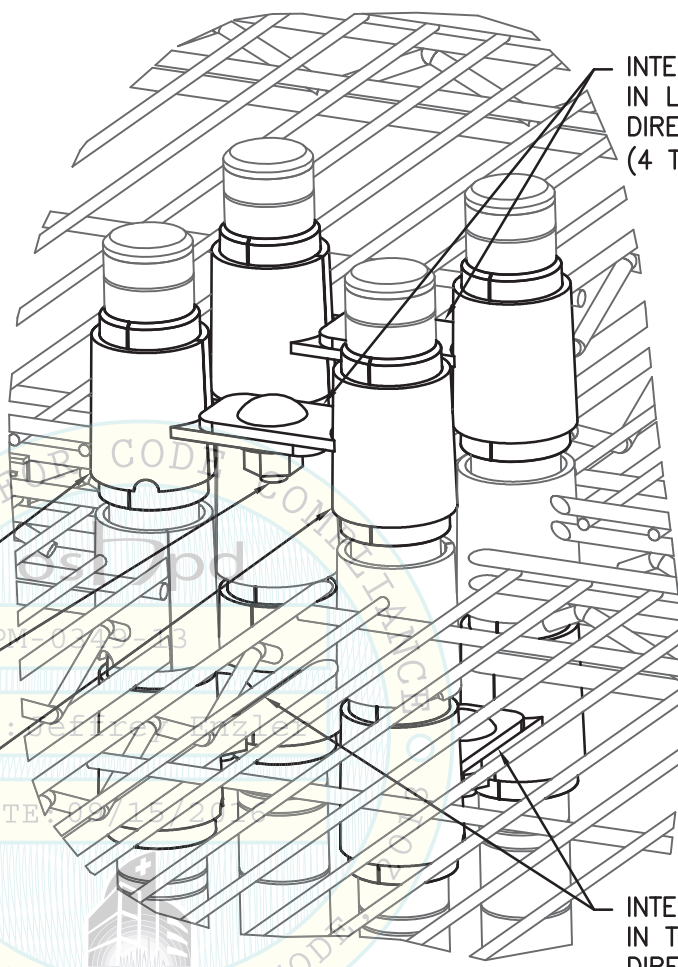
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**ISOMETRIC VIEW**

END-TO-END & BACK-TO-BACK UNITS



SEISMIC STRAP  
LOWER ARM ASSEMBLY

CARRIAGE BOLT W/  
WASHER & NYLON NUT

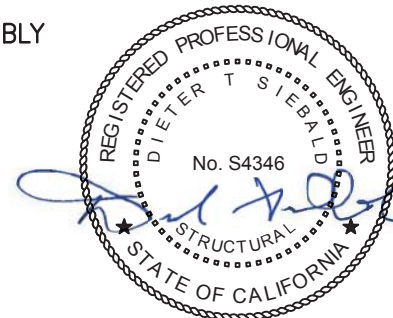
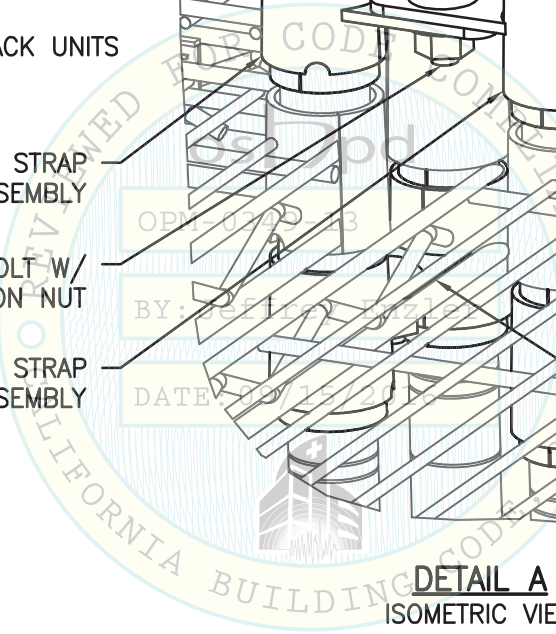
SEISMIC STRAP  
UPPER ARM ASSEMBLY

**DETAIL A**

ISOMETRIC VIEW  
OF SEISMIC STRAP ASSEMBLY

INTERCONNECTION  
IN LONGITUDINAL  
DIRECTION  
(4 TOTAL)

INTERCONNECTION  
IN TRANSVERSE  
DIRECTION  
(4 TOTAL)



SHEET TITLE: TOP INTERCONNECTION DETAIL  
FOR FOUR SHELVING UNITS



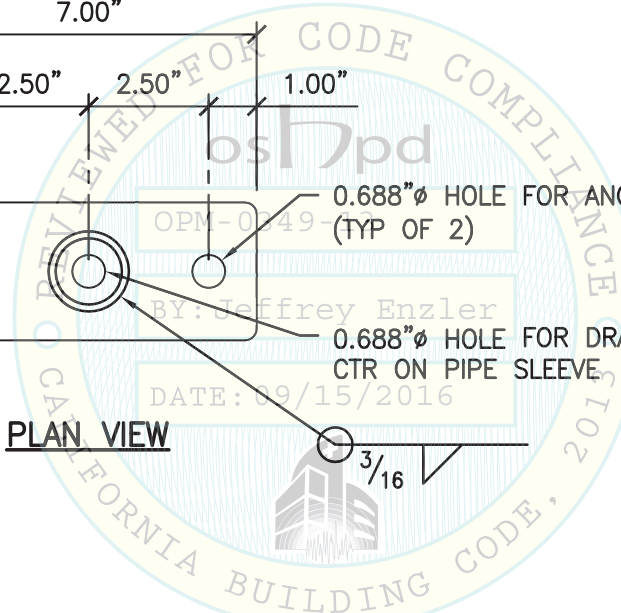
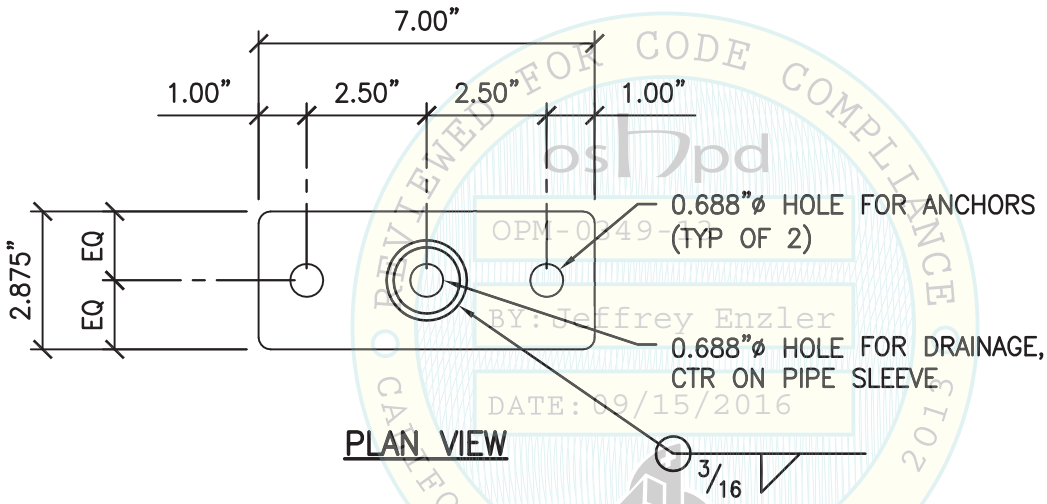
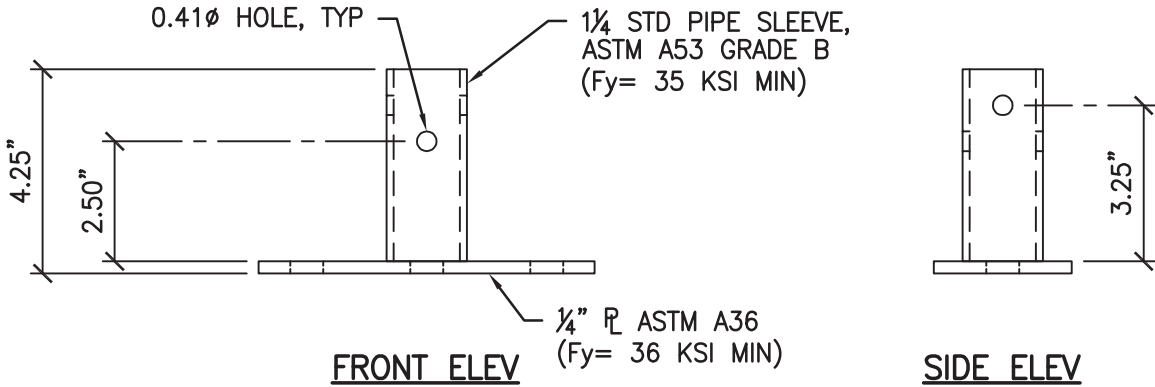
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SHEET TITLE: SINGLE POST FOOTPLATE DETAIL



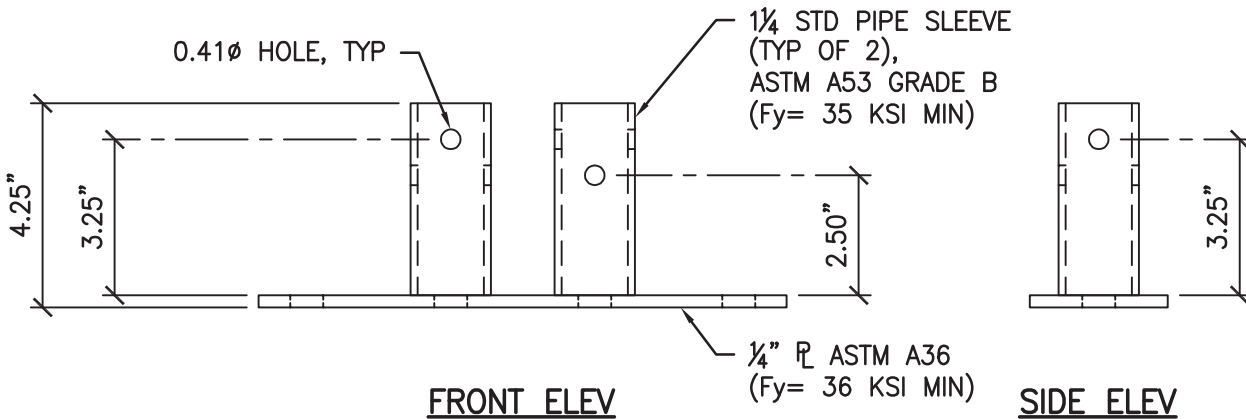
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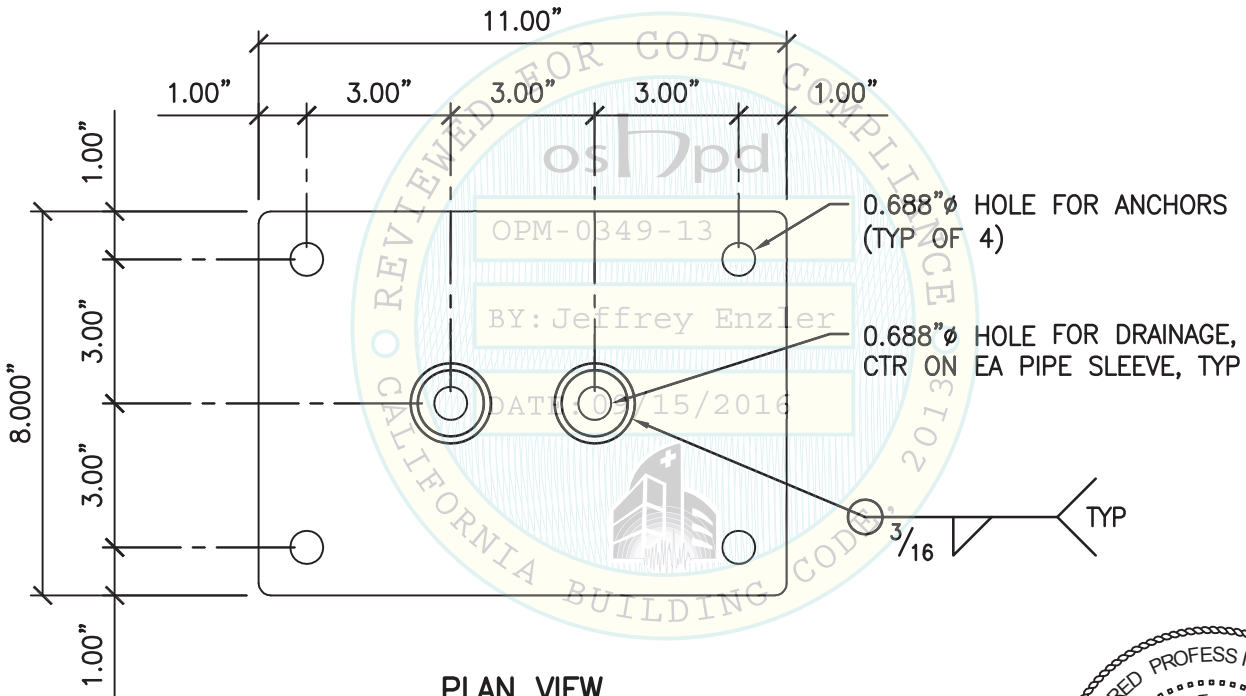
Job No:	16010
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**FRONT ELEV**

**SIDE ELEV**



**PLAN VIEW**



SHEET TITLE: DOUBLE POST FOOTPLATE DETAIL



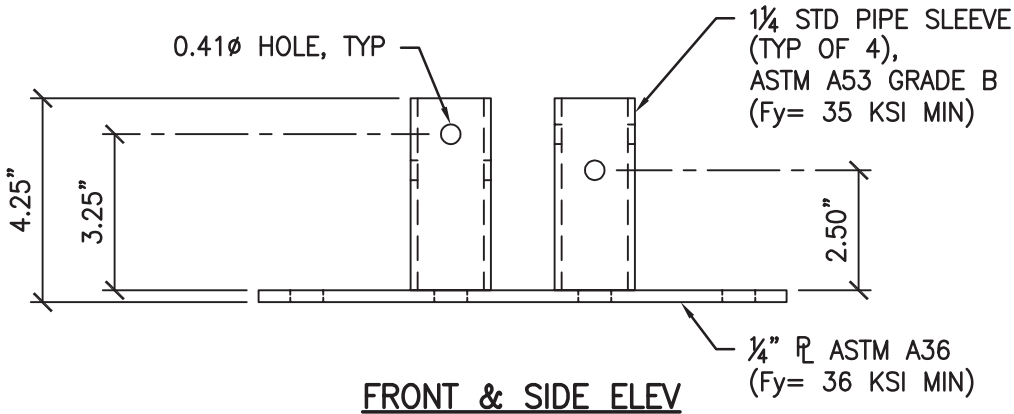
**CYS STRUCTURAL ENGINEERS, INC.**

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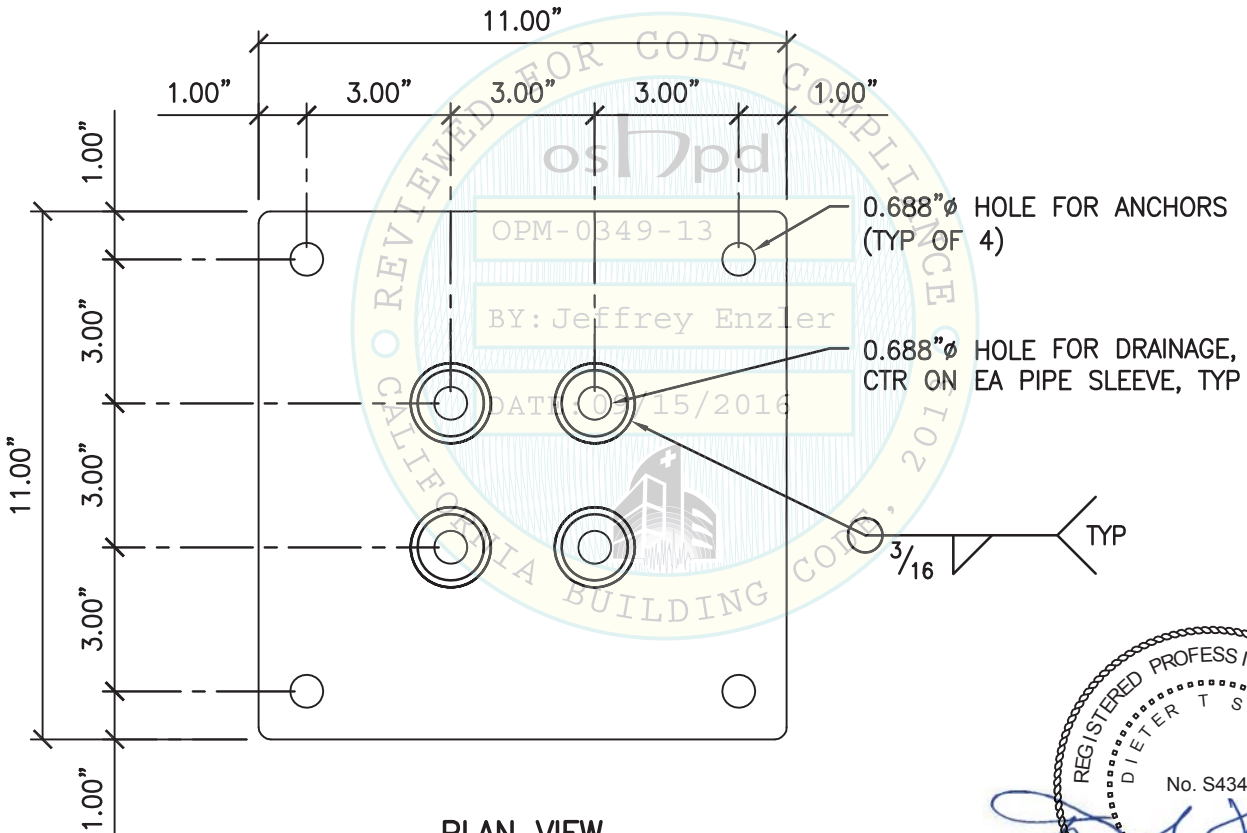
TEL (916) 920-2020  
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**FRONT & SIDE ELEV**



**PLAN VIEW**



SHEET TITLE: QUADRUPLE POST FOOTPLATE DETAIL



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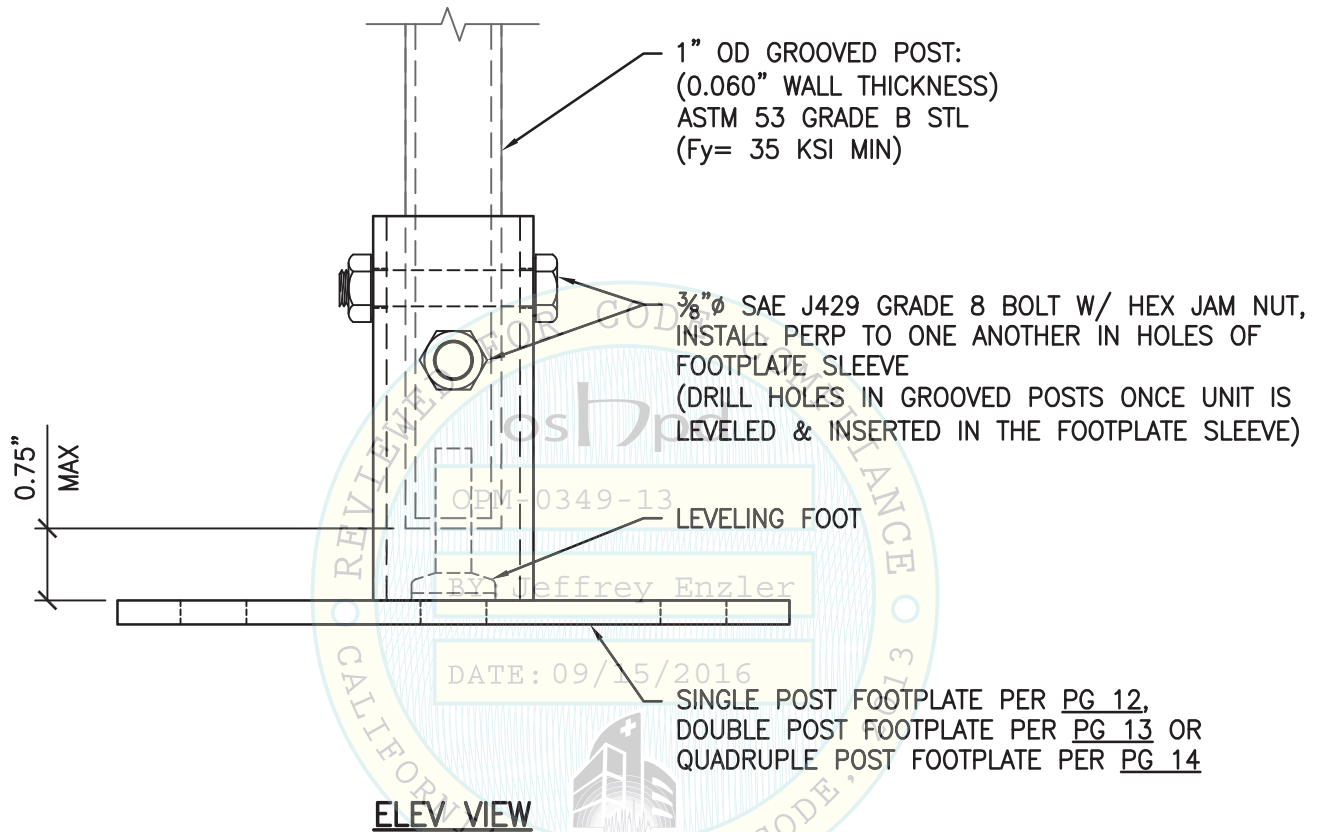
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**NOTES:**

1. FOR ATTACHMENT TO SUPPORTING FLR, SEE PGS 16 & 18.
2. FOR FOOTPLATE LOCATIONS, SEE CONFIGURATION PLANS ON PG 9.



SHEET TITLE: ATTACHMENT DETAIL  
FOOTPLATE TO POST



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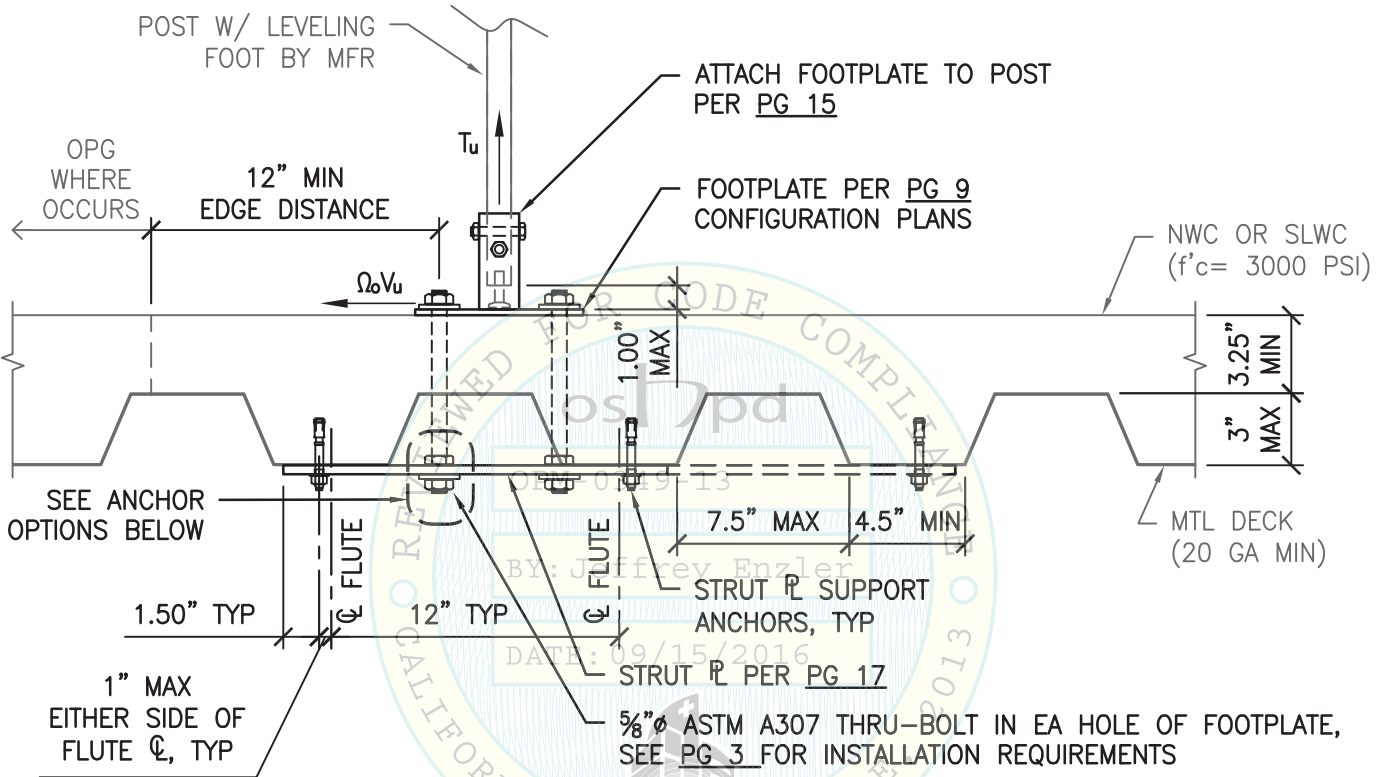
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L:\Jobs\16\16010 Eagle - Shelving OPM-0349-13\STRU\S1.dwg Time: Aug 09, 2016 - 01:11:11 pm Login: camachorn Dimstyle: 1 LTScale: 6

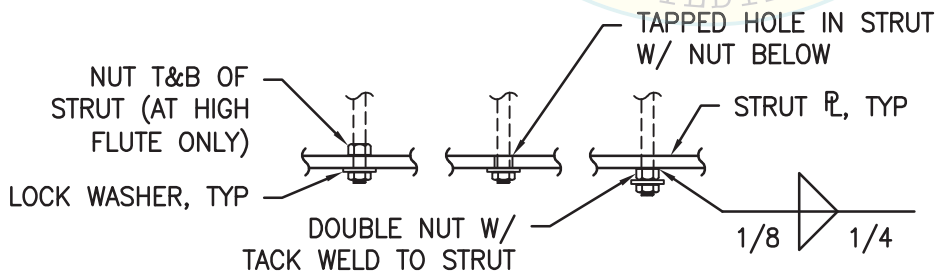


	MAX LRFD FORCES AT EA ANCHOR (LBS)					
	SINGLE POST FOOTPLATE		DOUBLE POST FOOTPLATE		QUADRUPLE POST FOOTPLATE	
	$T_u$	$\Omega_o V_u$	$T_u$	$\Omega_o V_u$	$T_u$	$\Omega_o V_u$
CASE 1	875#	710#	840#	1360#	0#	2835#

OVERSTRENGTH FACTOR ( $\Omega_o$ ) INCLUDED ONLY IN SHEAR VALUE.



**SUSPENDED FLOOR W/ THRU-BOLTS**



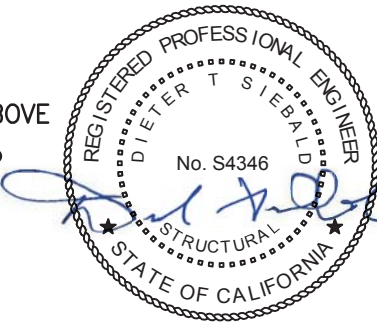
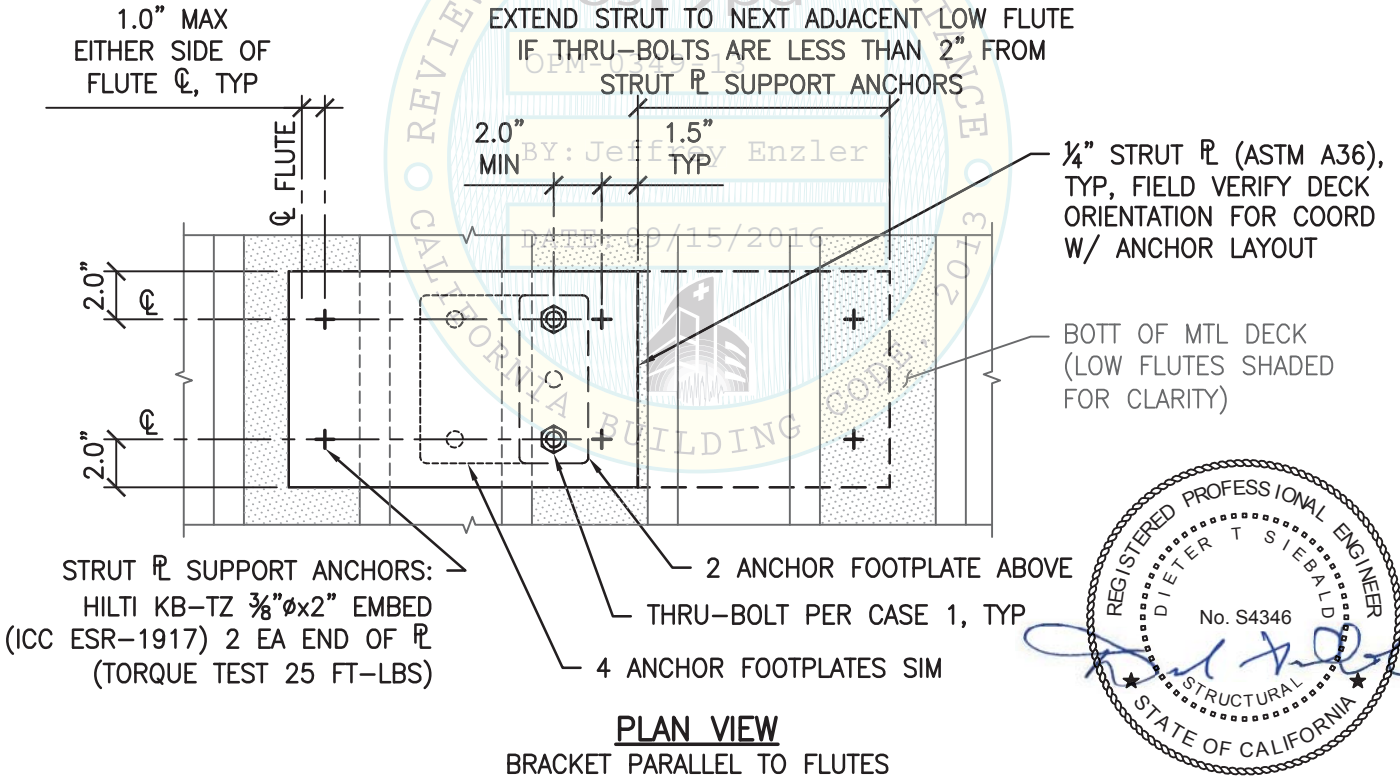
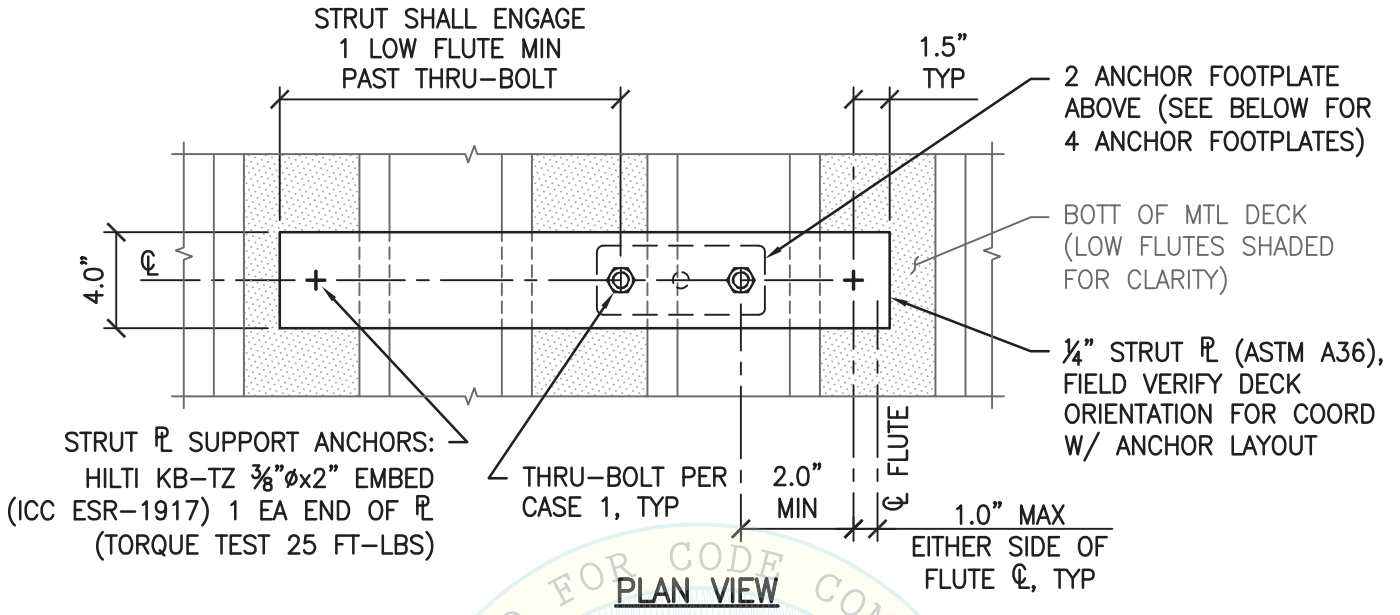
**ANCHOR OPTIONS**



SHEET TITLE: ATTACHMENT DETAIL  
TO CONCRETE FILL OVER METAL DECK (CASE 1)

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SHEET TITLE: STRUT PLATE DETAIL

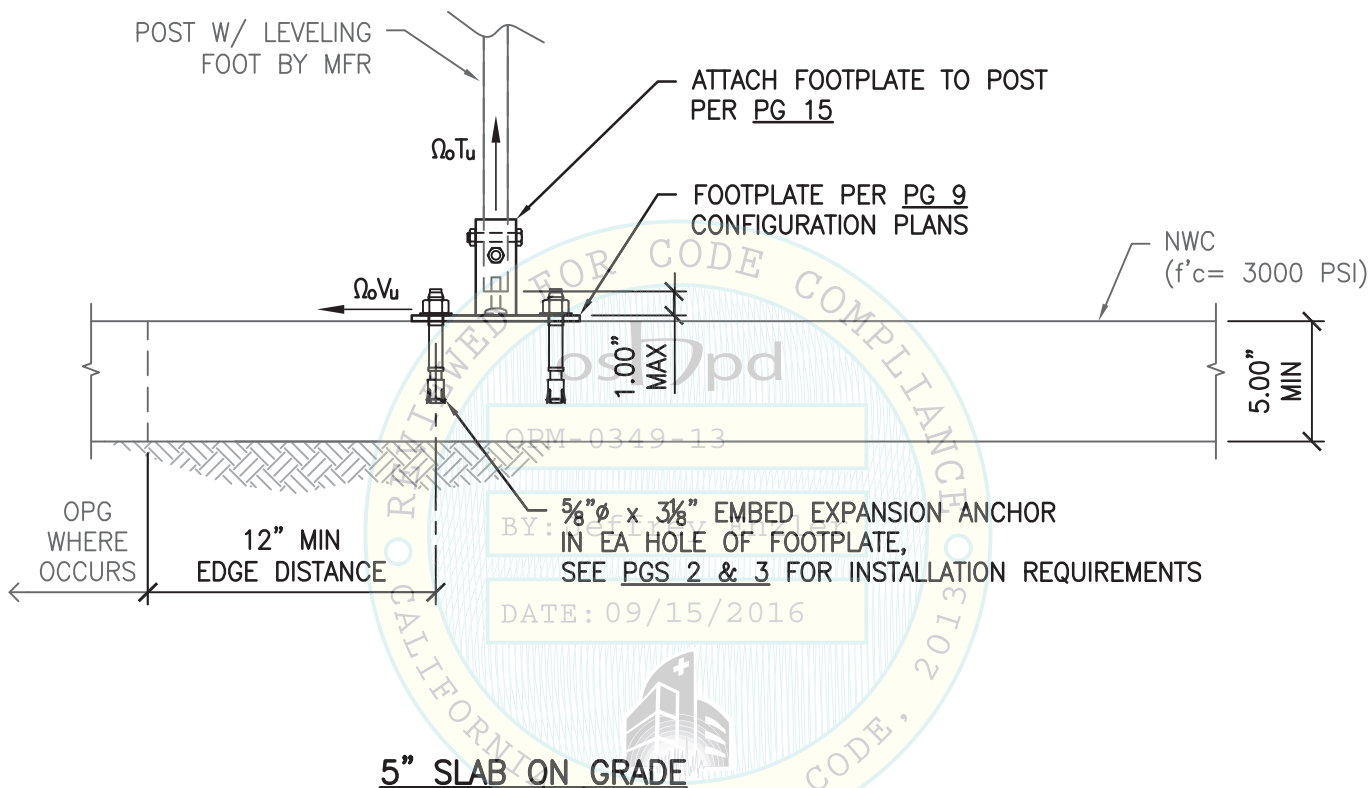
<p><b>CYS STRUCTURAL ENGINEERS, INC.</b>                  2495 NATOMAS PARK DRIVE, SUITE 650                  SACRAMENTO, CA 95833</p>	TEL (916) 920-2020 www.cyseng.com	Job No: 16010 Date: 08-09-2016 Page: 17 of 19
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	MAX LRFD FORCES AT EA ANCHOR (LBS)					
	SINGLE POST FOOTPLATE		DOUBLE POST FOOTPLATE		QUADRUPLE POST FOOTPLATE	
	$\Omega_o T_u$	$\Omega_o V_u$	$\Omega_o T_u$	$\Omega_o V_u$	$\Omega_o T_u$	$\Omega_o V_u$
CASE 1	1930#	605#	1850#	580#	0#	1210#

OVERSTRENGTH FACTOR ( $\Omega_o$ ) INCLUDED.



SHEET TITLE: ATTACHMENT DETAIL  
 TO 5" SLAB ON GRADE (CASE 2)



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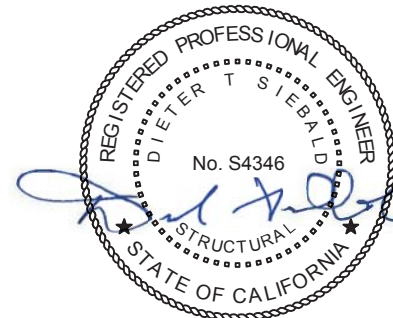
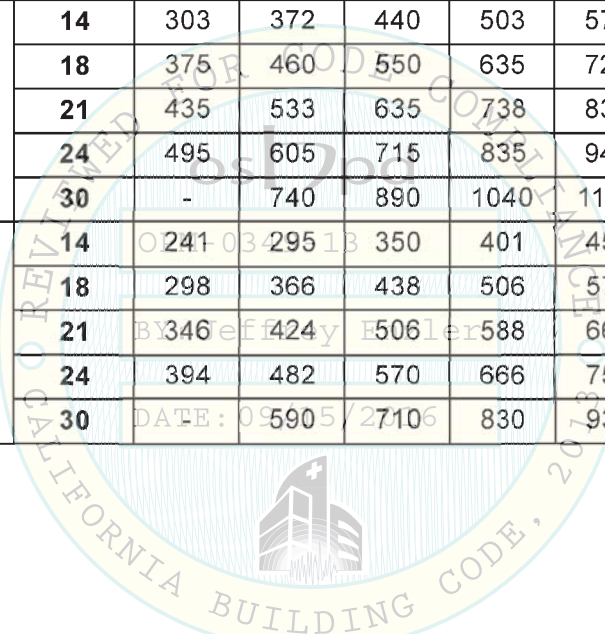


**SHELVING UNIT WEIGHTS**

THE FOLLOWING TABLES PRESENT THE OPERATING WEIGHT,  $W_p$ , FOR EACH AVAILABLE SHELVING UNIT SIZE. THE OPERATING WEIGHT IS THE SUM OF MAXIMUM ASSEMBLED UNIT WEIGHT FOR SOLID SHELVES PLUS CONTENT WEIGHT OF 20 PSF PER SHELF.

**SHELVING UNIT WEIGHT (including content)**

POST HEIGHT (IN)	NUMBER OF SHELVES	WIDTH (IN)	LENGTH (IN)							
			24	30	36	42	48	54	60	72
96	6	14	362	444	526	602	684	772	854	1018
		18	448	550	658	760	862	964	1072	1270
		21	520	637	760	883	1000	1117	1240	1462
		24	592	724	856	1000	1126	1264	1408	1660
		30	-	886	1066	1246	1402	1576	1756	2098
74 OR 86	5	14	303	372	440	503	572	645	713	850
		18	375	460	550	635	720	805	895	1060
		21	435	533	635	738	835	933	1035	1220
		24	495	605	715	835	940	1055	1175	1385
		30	-	740	890	1040	1170	1315	1465	1750
63	4	14	241	295	350	401	455	514	569	678
		18	298	366	438	506	574	642	714	846
		21	346	424	506	588	666	744	826	974
		24	394	482	570	666	750	842	938	1106
		30	590	710	830	934	1050	1170	1398	



SHEET TITLE: SHELVING UNIT WEIGHTS



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