



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

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

OFFICE USE ONLY

**APPLICATION #: OPM-0485**

**OSHPD Preapproval of Manufacturer's Certification OPM)**

Type:  New  Renewal/Update

**Manufacturer Information**

Manufacturer: LOGIQUIP, LLC

Manufacturer's Technical Representative: MARK ROBERTS

Mailing Address: 1456 S 35th STREET, GALESBURG, MI 49053

Telephone: (616) 706-0429

Email: Mark.roberts@logiquip.net

**Product Information**

Product Name: STATIC WIRE SHELVING

Product Type: MEDICAL STORAGE SHELVES

Product Model Number: 435, 436, 455, 456, 465, 466, 475, 476, 835, 836, 855, 856, 865, 866, 875, 876

General Description: FREE STANDING, FLOOR MOUNTED, SINGLE & DOUBLE SHELVING UNITS

**Applicant Information**

Applicant Company Name: LOGIQUIP, LLC

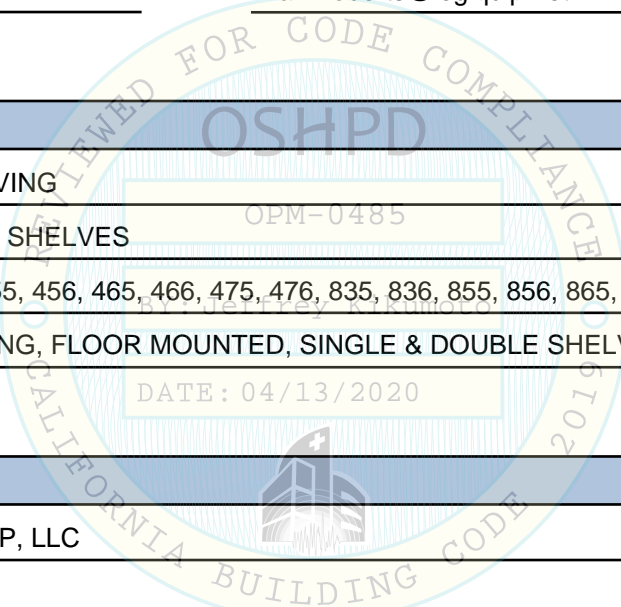
Contact Person: MARK ROBERTS

Mailing Address: 1456 S 35th STREET, GALESBURG, MI 49053

Telephone: (616) 706-0429

Email: Mark.roberts@logiquip.net

Title: PRODUCT DEVELOPMENT MANAGER





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
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**Registered Design Professional Preparing Engineering Recommendations**

Company Name: CYS STRUCTURAL ENGINEERS, INC.

Name: Dieter Siebald California License 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 OSP Number: \_\_\_\_\_

**Certification Method**

Testing in accordance with:  ICC-ES AC156  FM 1950-16

Other(s) (Please Specify): \_\_\_\_\_

\*Use of criteria other than those adopted by the California Building Standards Code, 2019 (CBSC 2019) 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 2019 may be used when approved by OSHPD prior to testing.

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

**OSHPD Approval**

Date: 4/13/2020

Name: Jeffrey Kikumoto Title: Senior Structural Engineer

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

# STATIC WIRE SHELVING



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- NOTES:**
1. THESE DRAWINGS ARE PREPARED FOR LOGIQUIP, LLC, GALESBURG, MICHIGAN.
  2. THE CONTRACTOR AND INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT (OSHDP) PRE-APPROVAL PROGRAMS WEBSITE.
  3. THIS PRE-APPROVAL COVERS THE SUPPORTS & 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 & INSTALLED BY THE CONTRACTOR.



SHEET TITLE: TABLE OF CONTENTS



**CYS STRUCTURAL ENGINEERS, INC.**

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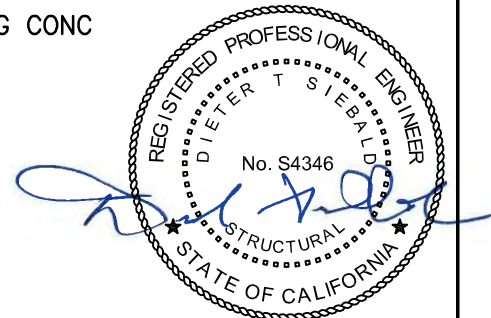
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# STATIC WIRE SHELVING



## GENERAL NOTES:

1. THIS OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2019.
2. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD FOR A SITE SPECIFIC PROJECT TO VERIFY:
  - A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
  - B. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS.
  - C. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPCG SHOWN IN THE TEST TORQUE TABLE ON PG 3 IS THE REQ MIN SPCG OF THE  $\frac{5}{8}$ " DIA AB'S. THE REQ SPCG FROM ANCHORS OF OTHER DIAMETERS & EMBEDMENTS MAY VARY & SHALL BE EVALUATED BY THE SEOR.
  - D. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE CBC 2019 & W/ THE DETAILS SHOWN IN THIS PRE-APPROVAL.
  - E. THAT THE ACTUAL EQUIP'S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS, & THE MATERIAL & GA OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN ON THE PRE-APPROVAL DOCUMENTS.
  - F. THAT THE PROJECT SPECIFIC VALUES OF  $S_{DS}$  &  $z/h$  RESULT IN SEISMIC FORCES ( $E_h$ ,  $E_v$ ) THAT DO NOT EXCEED THE VALUES IN THE DETAILS.
3. EXPANSION ANCHORS INSTALLED IN NORMAL WEIGHT OR SAND-LIGHTWEIGHT CONC SHALL BE CARBON STL HILTI KB-TZ EXPANSION ANCHORS COMPLYING W/ ESR-1917 REISSUED SEPTEMBER 2019.
  - A. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE W/ THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS GIVEN IN THE TABLE ON PG 3.
  - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOB SITE TESTING IN ACCORDANCE W/ THE TORQUE TEST TABLE PROVIDED IN THIS DOCUMENT. TEST 50% OF THE INSTALLED ANCHORS. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE SPECIAL INSPECTOR & REPORT OF TEST RESULTS SHALL BE SUBMITTED TO INSPECTOR OF RECORD, OWNER & ARCHITECT OR ENGINEER IN RESPONSIBLE CHARGE. 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 EQUIP INSTALLATION, HOWEVER, THE NUT SHALL BE RETORQUED TO INSTALLATION TORQUE AFTER EQUIP INSTALL. ALSO REFER TO 2019 CBC 1910A.5 "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 ( $\frac{1}{2}$ ) TURN OF THE NUT.
  - D. AVOID DAMAGING EXISTING STL REINF IN CONC SLAB WHEN INSTALLING CONC EXPANSION ANCHORS.
  - E. PROVIDE FOR FULL THRD ENGAGEMENT OF NUT & WASHER.



SHEET TITLE: GENERAL NOTES



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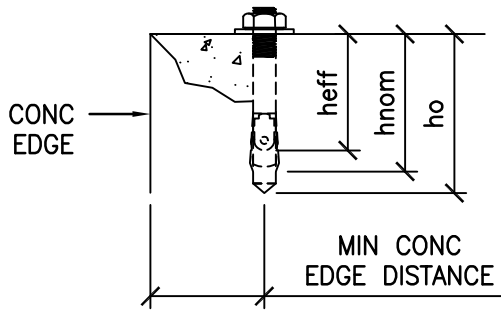
# STATIC WIRE SHELVING



## GENERAL NOTES CONTINUED:

### 3F. TEST VALUES:

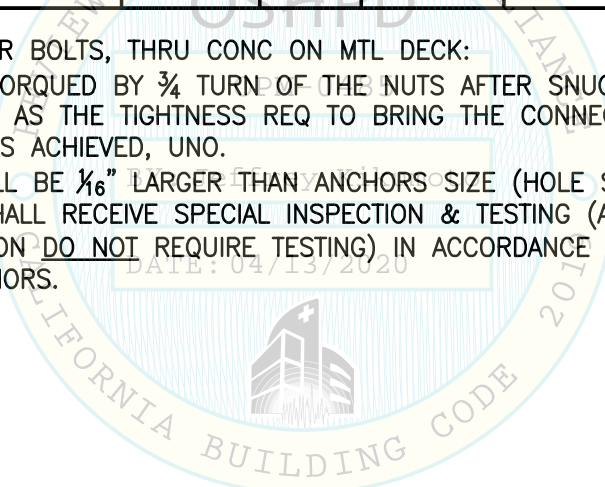
APPLY TEST LOADS TO ANCHORS WITHOUT REMOVING THE NUT IF POSSIBLE, SEE TABLE BLW.



CONDITION OF ANCHORAGE	ANCHOR DIA (INCH) $d_a$	INSTALLATION EMBED (INCH) $h_{nom}$	EFFECTIVE EMBED (INCH) $h_{ef}$	MIN HOLE DEPTH (INCH) $h_o$	MIN CONC THK (INCH) $h_{min}$	MIN CONC EDGE DISTANCE (INCH)	MIN AB SPCG (INCH)	TEST TORQUE (FT-LBS)
CASE 2	$\frac{5}{8}$	$3\frac{9}{16}$	$3\frac{3}{8}$	$3\frac{3}{4}$	5	6	5	60

### 4. ALL-THREAD ROD (ATR) OR BOLTS, THRU CONC ON MTL DECK:

- ANCHORS SHALL BE TORQUED BY  $\frac{3}{4}$  TURN OF THE NUTS AFTER SNUG TIGHT (THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQ TO BRING THE CONNECTED PLIES INTO FIRM CONTACT) CONDITION IS ACHIEVED, UNO.
- ANCHORS HOLES SHALL BE  $\frac{1}{16}$ " LARGER THAN ANCHORS SIZE (HOLE SIZE = ANCHORS SIZE +  $\frac{1}{16}$ " )
- ANCHORS IN CONC SHALL RECEIVE SPECIAL INSPECTION & TESTING (ANCHORS W/ STL-TO-STL CONNECTION IN TENSION DO NOT REQUIRE TESTING) IN ACCORDANCE W/ REQUIREMENTS FOR POST-INSTALLED ANCHORS.



SHEET TITLE: GENERAL NOTES (CONTINUED)

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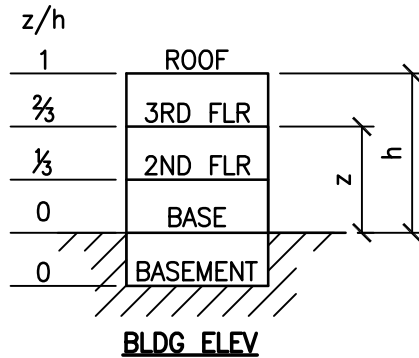


# STATIC WIRE SHELVING



## GENERAL NOTES CONTINUED:

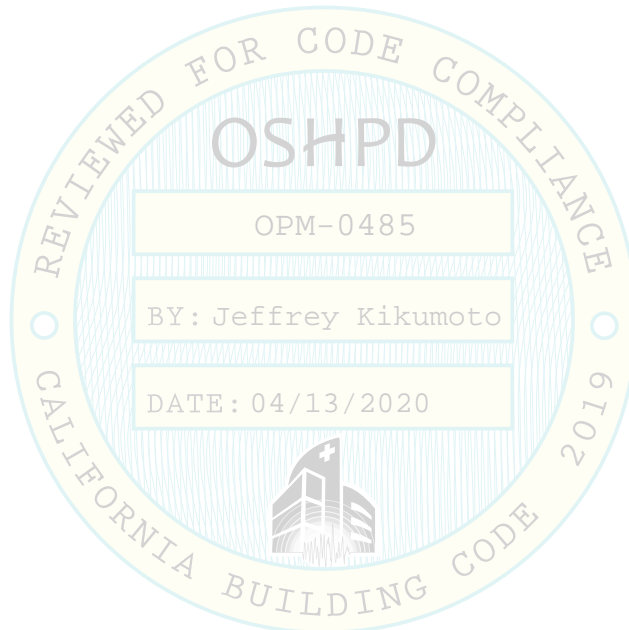
5. TWO (2) CASES OF ANCHORAGE ARE SPECIFIED & PRESENTED IN THIS PRE-APPROVAL:



**CASE 1:** ANCHORAGE DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG ( $z/h \leq 0.9$ ), IT IS ASSUMED THAT THE FLRS ARE BUILT OF A MIN 3/4" SLWC TOPPING OVER MTL DECK ( $f'c = 3000$  PSI, MIN). MAY BE USED AT ANY GEOGRAPHICAL LOCATION IN THE STATE OF CALIFORNIA WHERE  $S_{ps}$  IS LESS THAN OR EQ TO 2.5.

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

**FOR THIS CASE THE MAX  $S_{ps}$  IS LIMITED TO 2.4.**



SHEET TITLE: GENERAL NOTES (CONTINUED)



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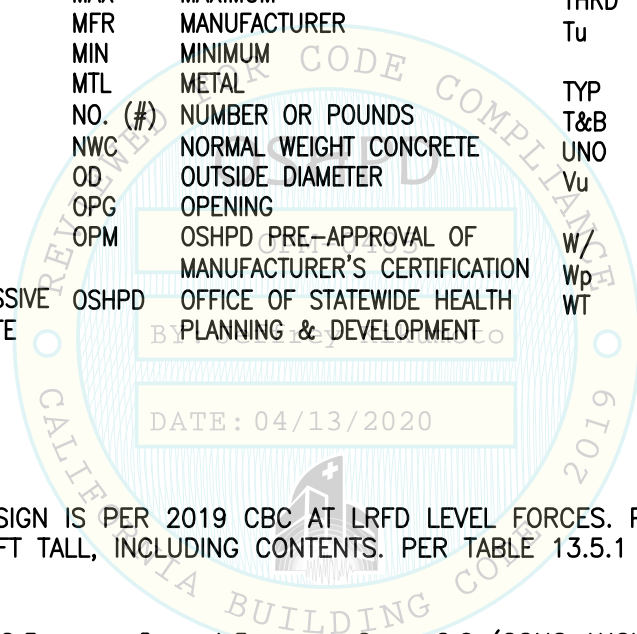
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# STATIC WIRE SHELVING



## ABBREVIATIONS:

@	AT	F <sub>p</sub>	HORIZONTAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS	PERP	PERPENDICULAR
AB	ANCHOR BOLT			PG	PAGE
ABV	ABOVE			PL	PLATE
ADJ	ADJACENT	F <sub>y</sub>	SPECIFIED MINIMUM YIELD STRESS OF STEEL	PSI	POUNDS PER SQUARE INCH
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	GA	GAUGE	PSF	POUNDS PER SQUARE FOOT
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	GR	GRADE	REINF	REINFORCING
ATR	ALL-THREAD ROD	ICC	INTERNATIONAL CODE COUNCIL	REQ	REQUIRED
BLDG	BUILDING	IN (")	INCH	SEOR	STRUCTURAL ENGINEER OF RECORD
BLW	BELOW	INFO	INFORMATION	SIM	SIMILAR
BOTT	BOTTOM	KSI	KIPS PER SQUARE INCH	SLWC	SAND-LIGHTWEIGHT CONCRETE
BTW	BETWEEN	LBS	POUNDS	SPCG	SPACING
CBC	CALIFORNIA BUILDING CODE	LRFD	LOAD AND RESISTANCE FACTOR DESIGN	STD	STANDARD
CG	CENTER OF GRAVITY			STL	STEEL
CL	CENTERLINE	MAX	MAXIMUM	THK	THICK/THICKNESS
CONC	CONCRETE	MFR	MANUFACTURER	THRD	THREAD/THREADED
COORD	COORDINATE	MIN	MINIMUM	Tu	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE
CTR	CENTER	MTL	METAL	TYP	TYPICAL
DIA (φ)	DIAMETER	NO. (#)	NUMBER OR POUNDS	T&B	TOP & BOTTOM
EA	EACH	NWC	NORMAL WEIGHT CONCRETE	UNO	UNLESS NOTED OTHERWISE
EE	EACH END	OD	OUTSIDE DIAMETER	Vu	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE
ELEV	ELEVATION	OPG	OPENING	W/	WITH
EQ	EQUAL	OPM	OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION	Wp	OPERATING WEIGHT
EQUIP	EQUIPMENT	OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT	WT	WEIGHT
f'c	MIN ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE				
FLR	FLOOR				
FT (')	FOOT/FEET				



## DESIGN CRITERIA

SUPPORT & ATTACHMENT DESIGN IS PER 2019 CBC AT LRFD LEVEL FORCES. PERMANENT FLR SUPPORTED STORAGE CABINETS OVER 6 FT TALL, INCLUDING CONTENTS. PER TABLE 13.5.1 OF ASCE 7-16 SUPPLEMENT #1 & ERRATA

$$q_p = 1.0 \quad R_p = 2.5 \quad I_p = 1.5 \quad \Omega_0 = 2.0 \text{ (CONC ANCHORS)}$$

W<sub>p</sub> AS APPROVED ON PG 6.

FOR CASE 1 - UPPER FLRS ABV THE BASE, z/h ≤ 0.9

$$S_{ps} = 2.50 \quad F_p = 1.68 W_p \quad F_v = 0.50 W_p$$

FOR CASE 2 - SLAB AT OR BLW BASE, z/h = 0

$$S_{ps} = 2.40 \quad F_p = 1.08 W_p \quad F_v = 0.48 W_p$$



SHEET TITLE: ABBREVIATIONS & DESIGN CRITERIA

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# STATIC WIRE SHELVING



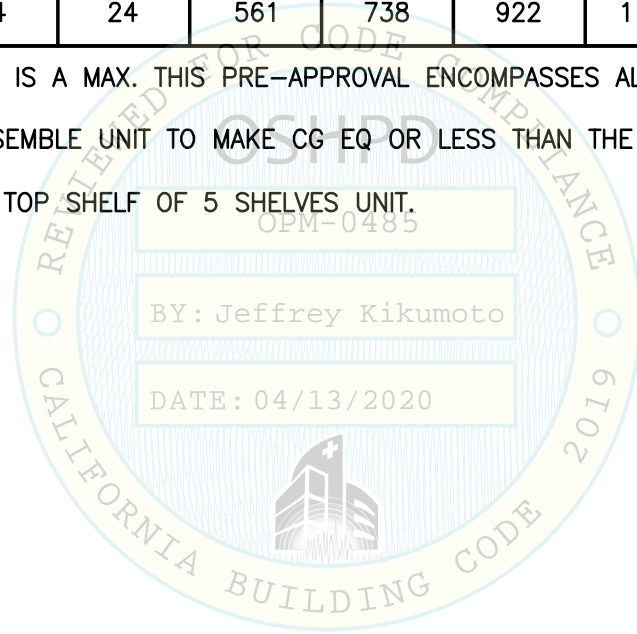
## SHELVING UNIT WEIGHTS

THE FOLLOWING TABLE PRESENTS THE OPERATING WTS ( $W_p$ ) IN POUNDS FOR EA AVAILABLE SHELVING UNIT SIZE. THE OPERATING WT IS THE SUM OF MAX ASSEMBLED UNIT WT OF THE SHELF (INCLUDING TOP SHELF & POSTS) PLUS CONTENT WT OF 20 PSF PER SHELF (OTHER MEDIA).

## SHELVING UNIT WEIGHT (LBS) (1,2)

NO. OF SHELVES	MODEL #'S	HEIGHT (IN)	WIDTH (IN)	LENGTH (IN)			
				36	48	60	72
4	836, 856 866, 876	63	18	413	543	682	814
	436, 456 466, 476	63	24	545	719	898	1080
5 (3)	835, 855 865, 875	74	18	425	558	702	837
	435, 455 465, 475	74	24	561	738	922	1109

1. CTR OF GRAVITY (CG) WT IS A MAX. THIS PRE-APPROVAL ENCOMPASSES ALL WTS UP TO THE MAX WT SHOWN.
2. THE INSTALLER MUST ASSEMBLE UNIT TO MAKE CG EQ OR LESS THAN THE CG HT DIM SHOWN ON ELEVS. (PG 7 OF 15).
3. DO NOT LOAD ABSOLUTE TOP SHELF OF 5 SHELVES UNIT.



SHEET TITLE: SHELVING UNIT WEIGHTS



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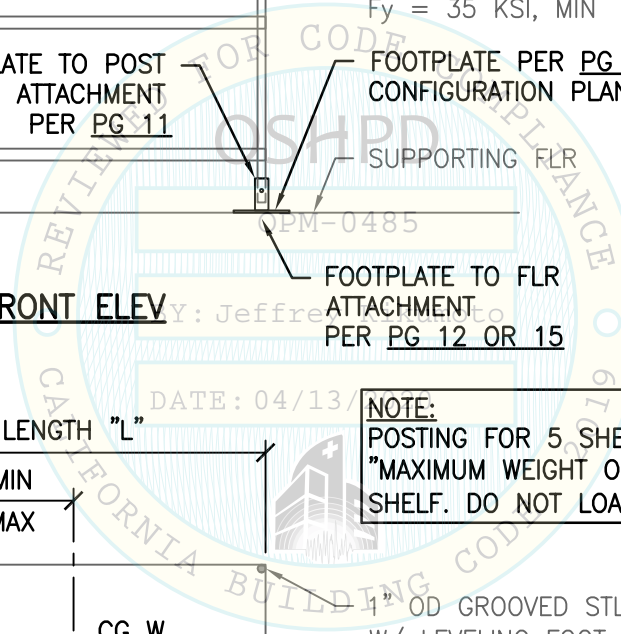
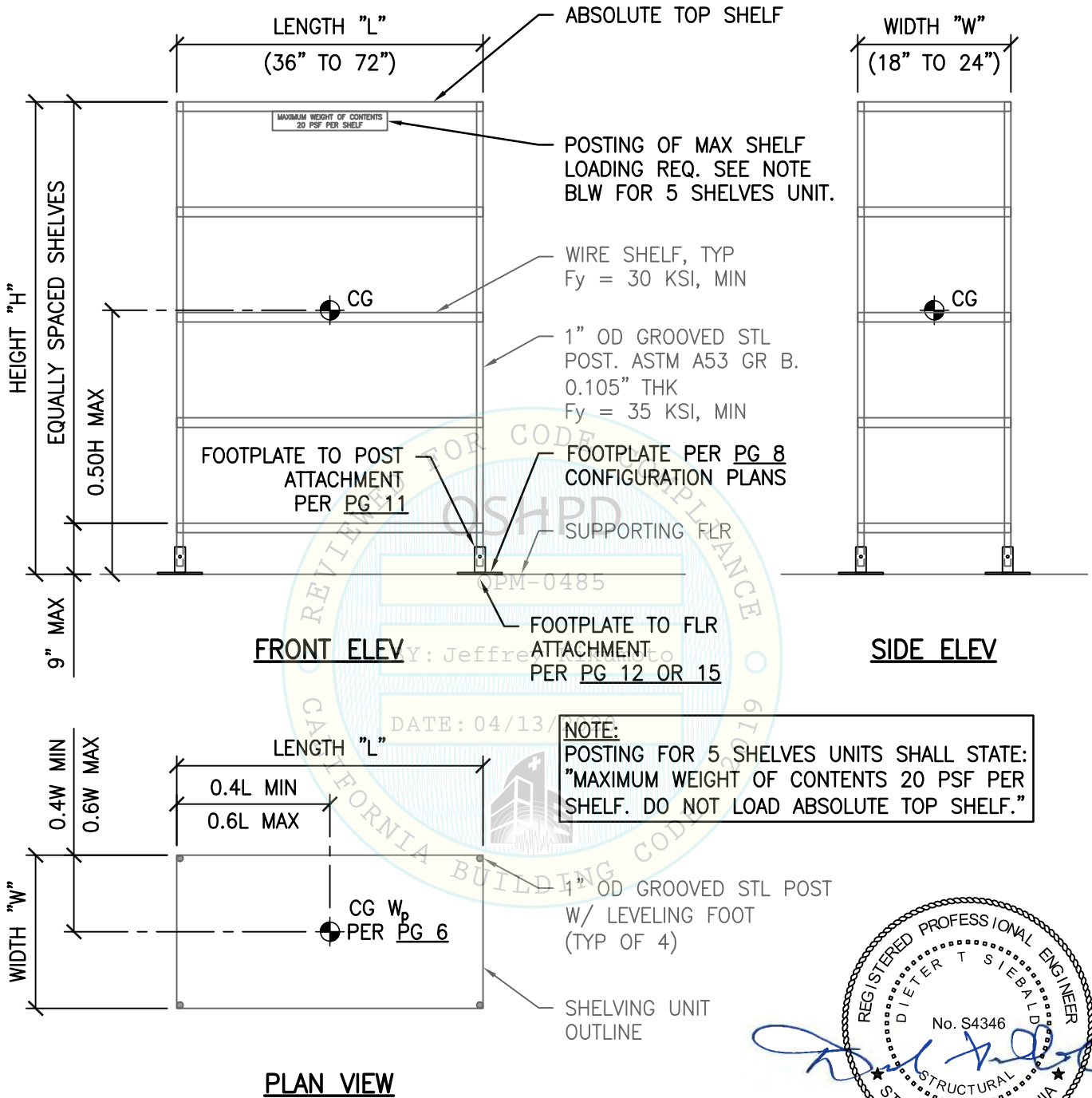
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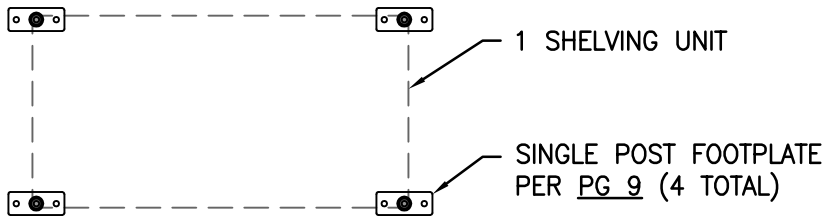
REGISTERED PROFESSIONAL ENGINEER  
DIETER T. SIEBOLD  
No. S4346  
STRUCTURAL  
STATE OF CALIFORNIA

SHEET TITLE: SINGLE SHELVING UNIT PLAN & ELEVATIONS

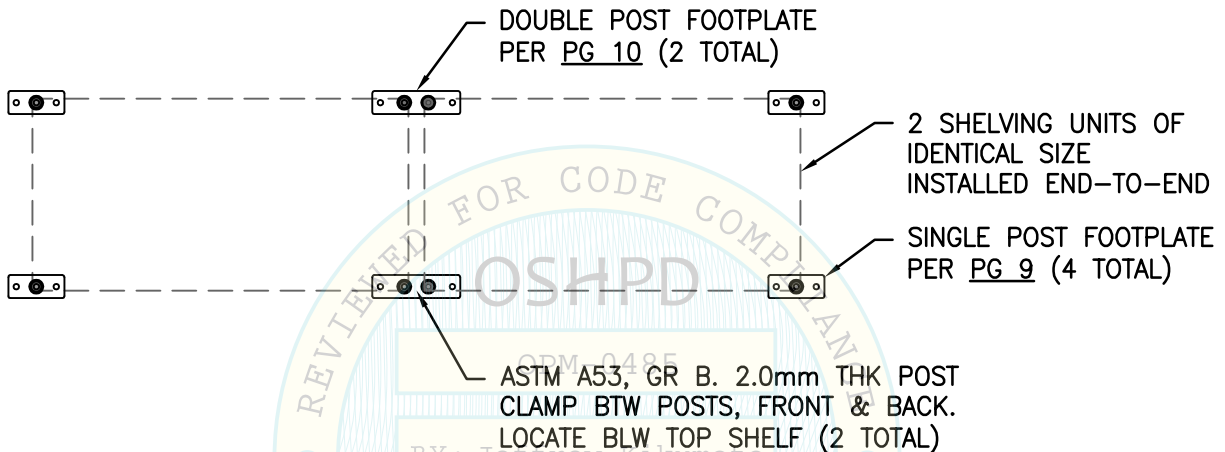
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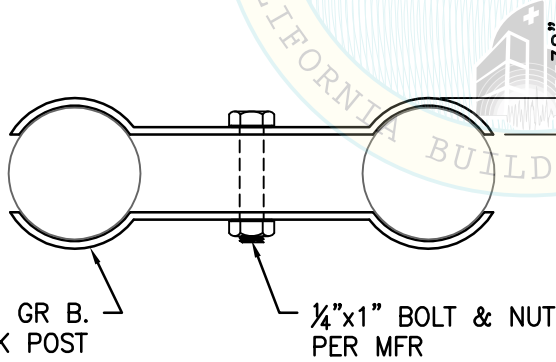
# STATIC WIRE SHELVING



## SINGLE SHELVING UNIT



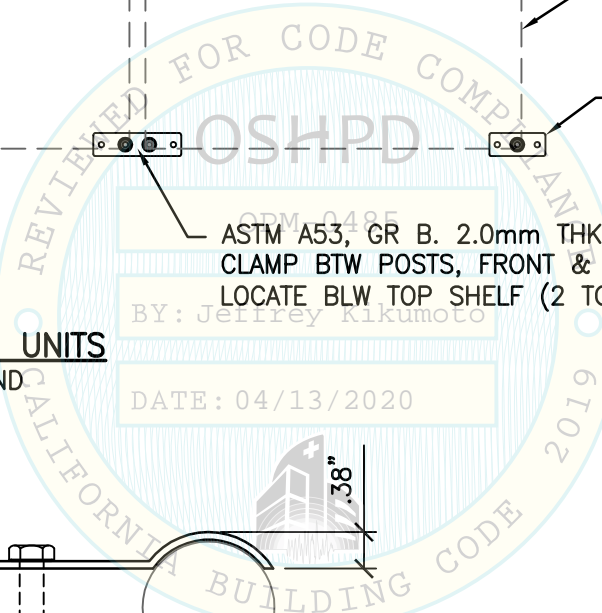
## TWO SHELVING UNITS END-TO-END



ASTM A53 GR B.  
2.0mm THK POST  
CLAMP PROVIDED  
BY MFR

1/4"x1" BOLT & NUT  
PER MFR

## POST CLAMP



SHEET TITLE: CONFIGURATION PLANS



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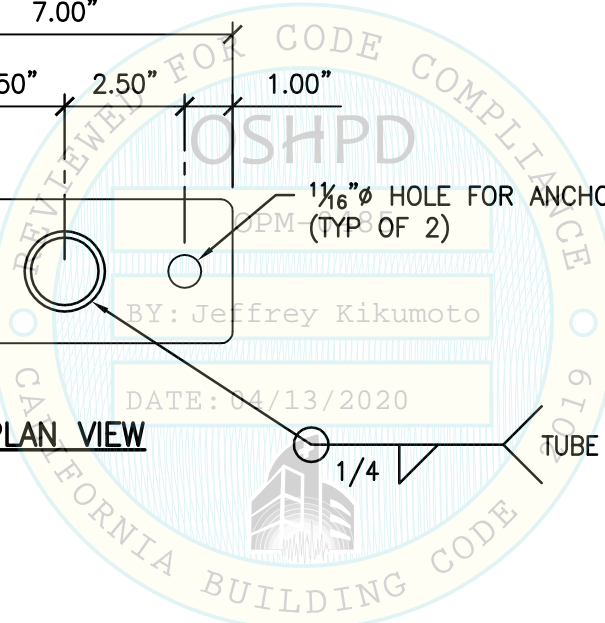
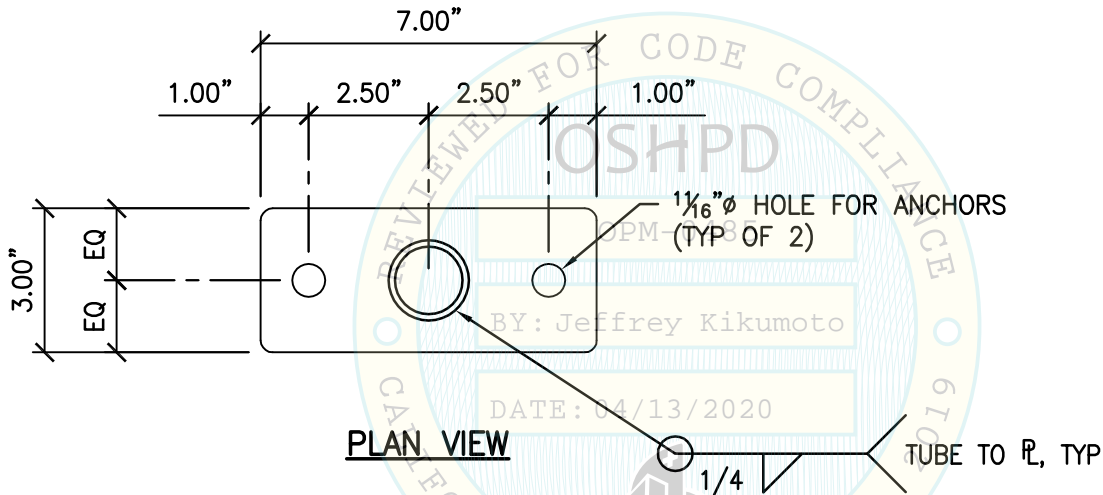
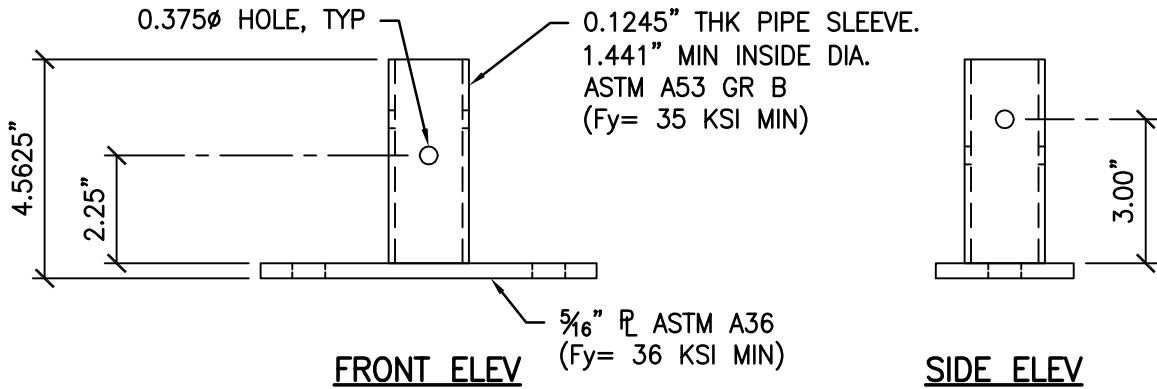
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# STATIC WIRE SHELVING



SHEET TITLE: SINGLE POST FOOTPLATE DETAIL



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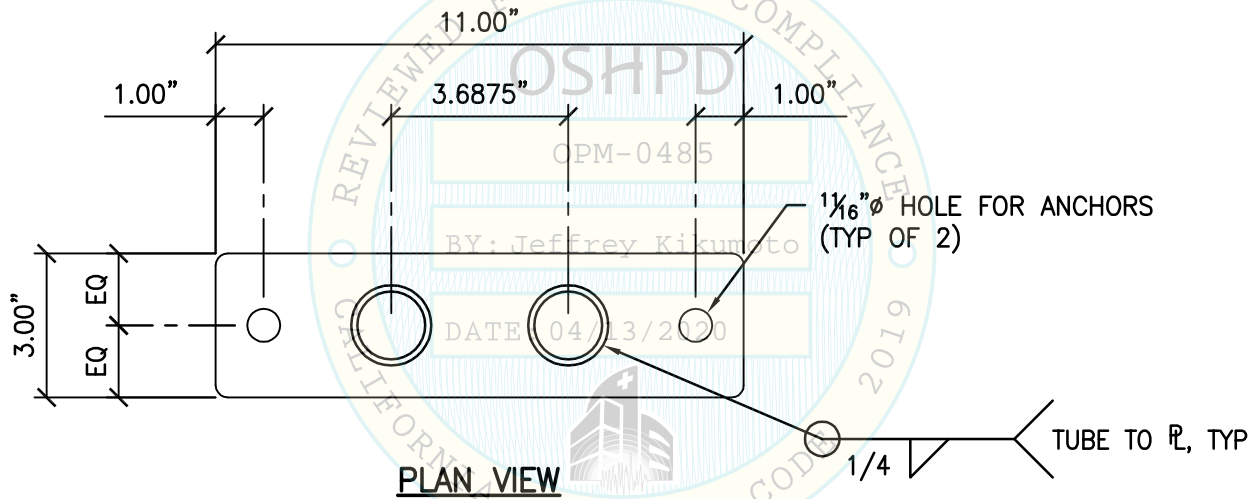
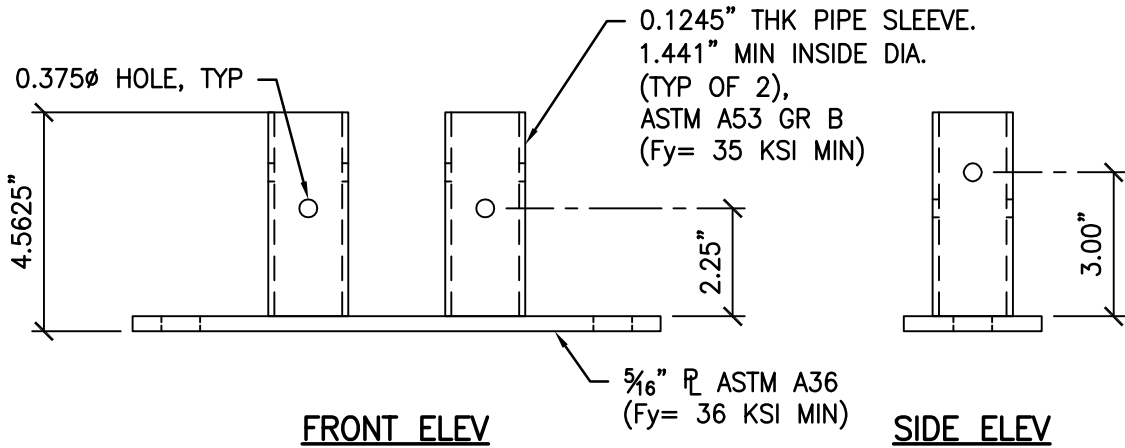
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# STATIC WIRE SHELVING



SHEET TITLE: DOUBLE POST FOOTPLATE DETAIL



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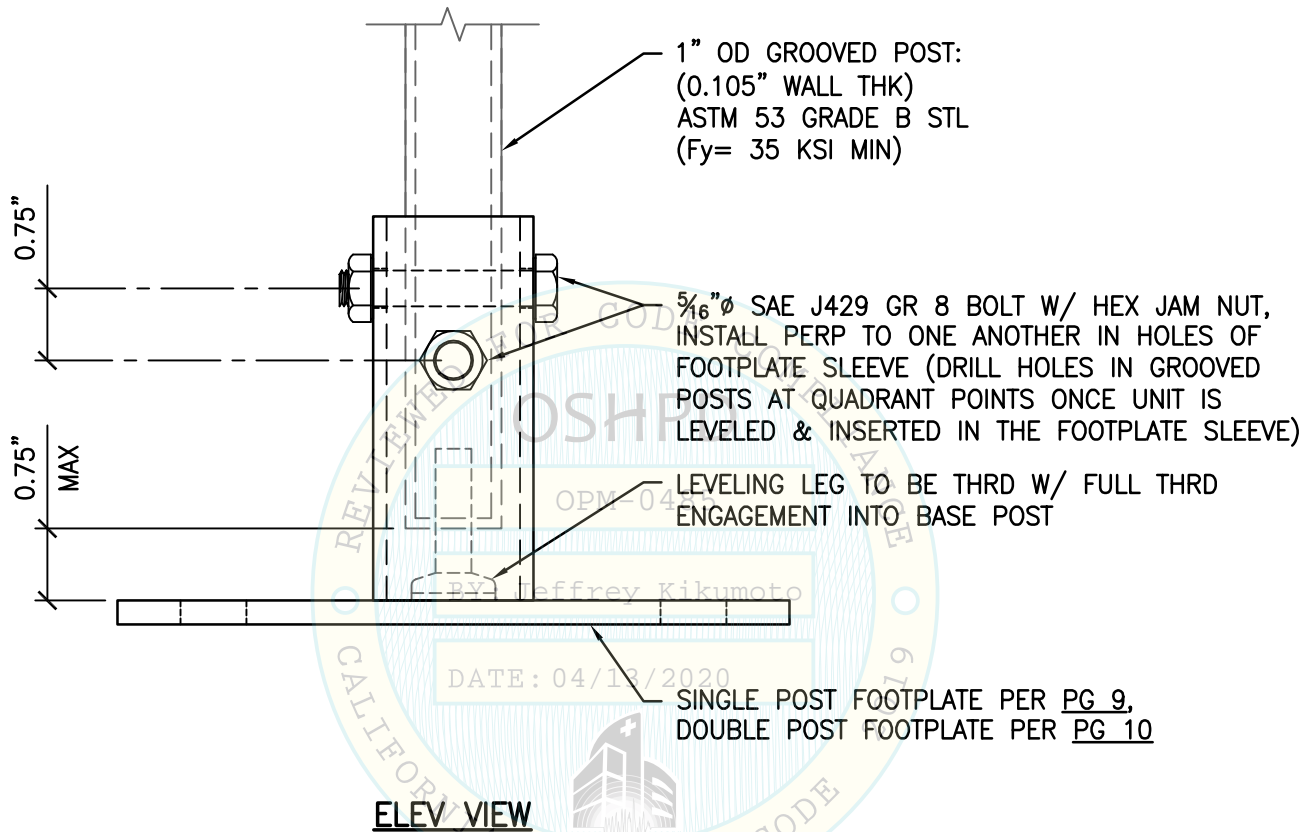
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# STATIC WIRE SHELVING



**NOTES:**

1. FOR ATTACHMENT TO SUPPORTING FLR, SEE PGS 12 & 15.
2. FOR FOOTPLATE LOCATIONS, SEE CONFIGURATION PLANS ON PG 8.



SHEET TITLE: POST TO FOOT PLATE CONNECTION



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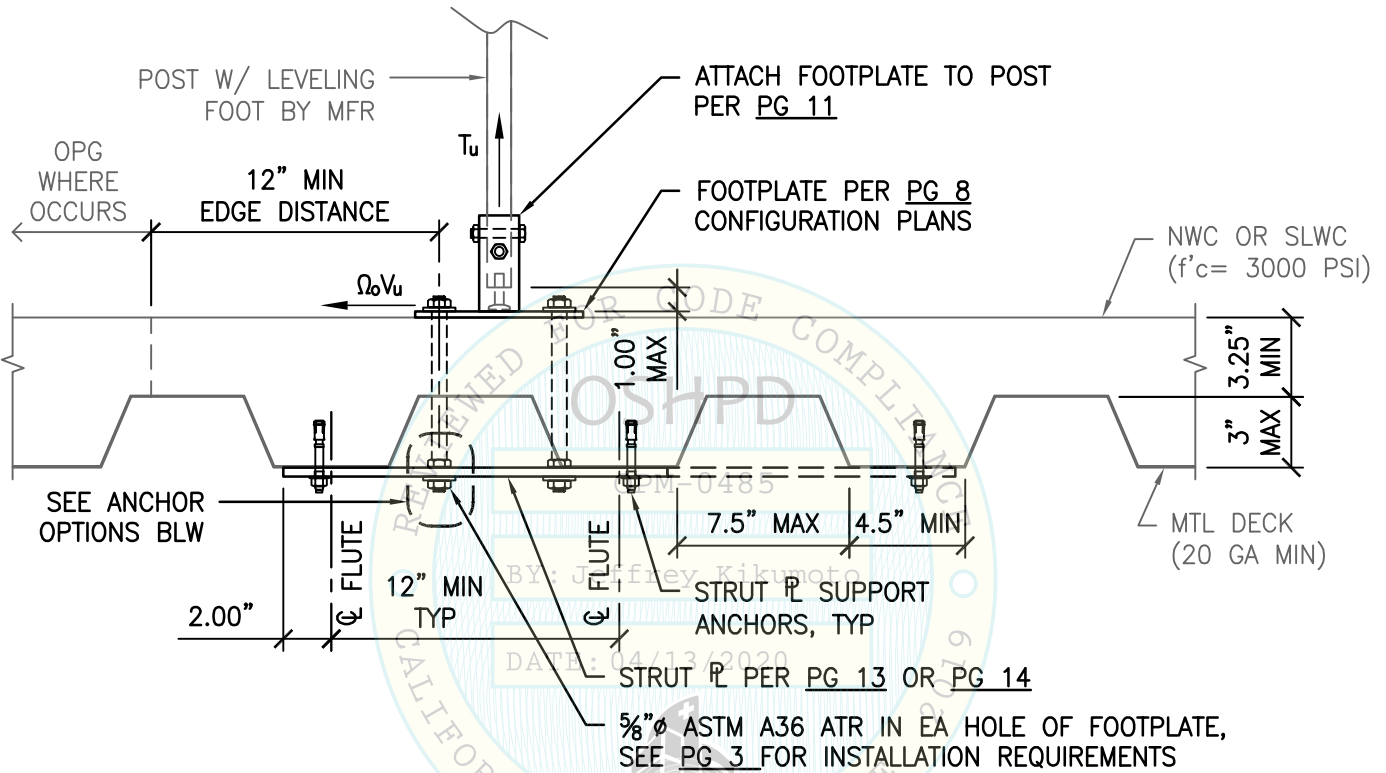


# STATIC WIRE SHELVING

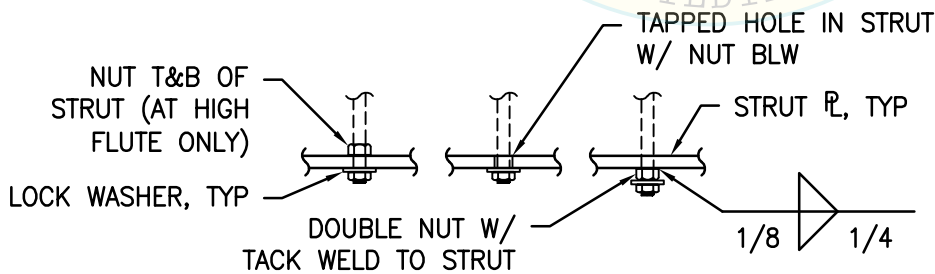


	MAX LRFD FORCES AT EA ANCHOR (LBS)			
	SINGLE POST FOOTPLATE		DOUBLE POST FOOTPLATE	
	$T_u$	$\Omega_o V_u$	$T_u$	$\Omega_o V_u$
CASE 1	834#	636#	6101#	1272#

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



## SUSPENDED FLR W/ THRU-BOLTS



## ANCHOR OPTIONS

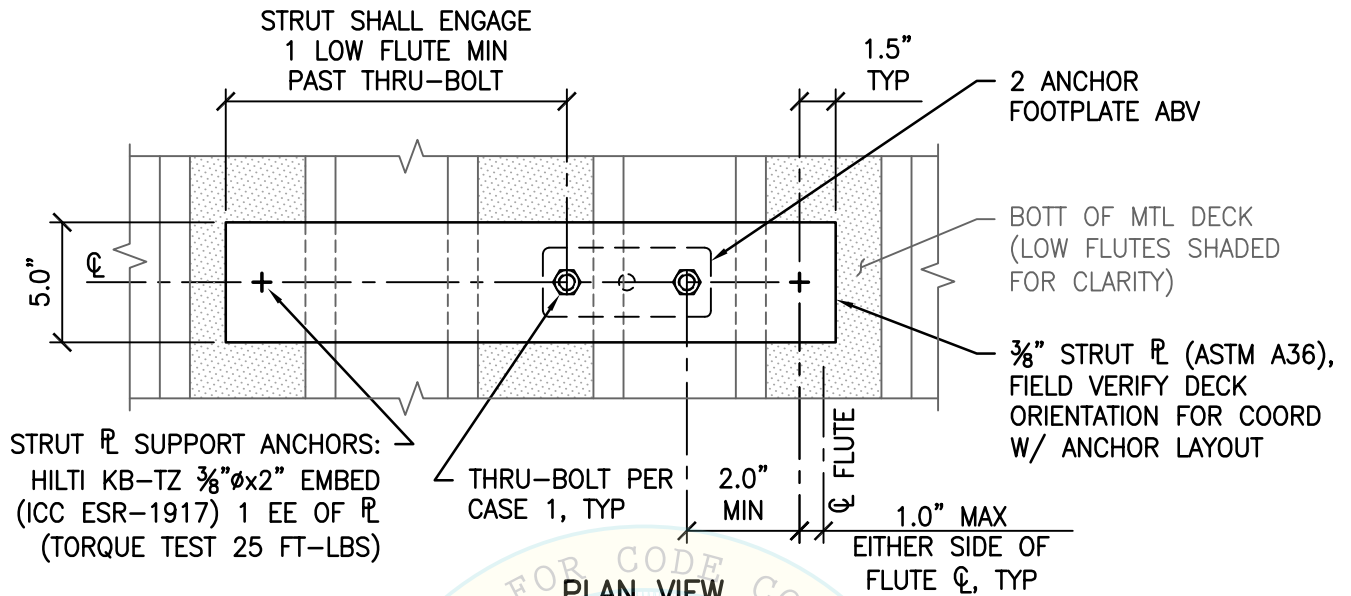


SHEET TITLE: ATTACHMENT DETAIL  
TO CONCRETE FILL OVER METAL DECK (CASE 1)

<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: 18024 Date: 03-20-2020 Page: 12 of 15
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L:\Jobs\18024 LogiQuip - Static Wire Shelves OPM-04xx-13\ACAD\S1.dwg Time: Apr 09, 2020 - 02:34pm LogIn: camachom DimScale: 1 LScale: 6

# STATIC WIRE SHELVING

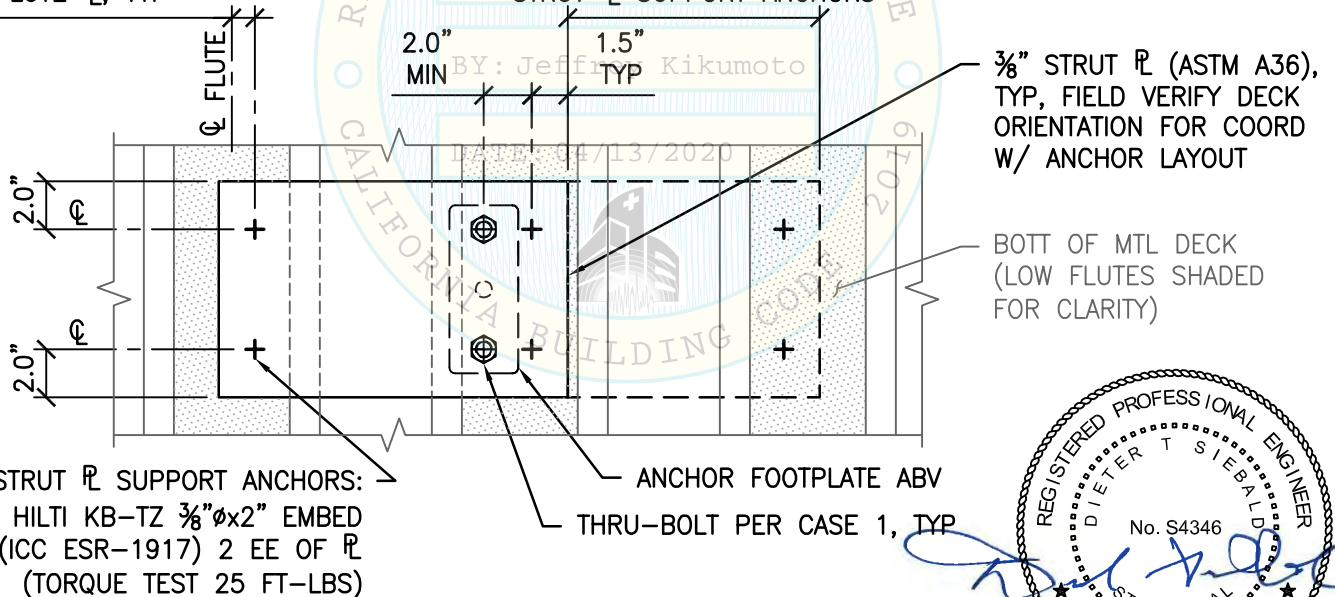


## PLAN VIEW

BRACKET PERP TO FLUTES

1.0" MAX  
EITHER SIDE OF  
FLUTE  $\bar{C}$ , TYP

EXTENT STRUT TO NEXT ADJ LOW FLUTE  
IF THRU-BOLTS ARE LESS THAN 2" FROM  
STRUT  $\bar{P}$  SUPPORT ANCHORS



## PLAN VIEW

BRACKET PARALLEL TO FLUTES



SHEET TITLE: STRUT PLATE DETAIL AT  
SINGLE POST FOOTPLATE



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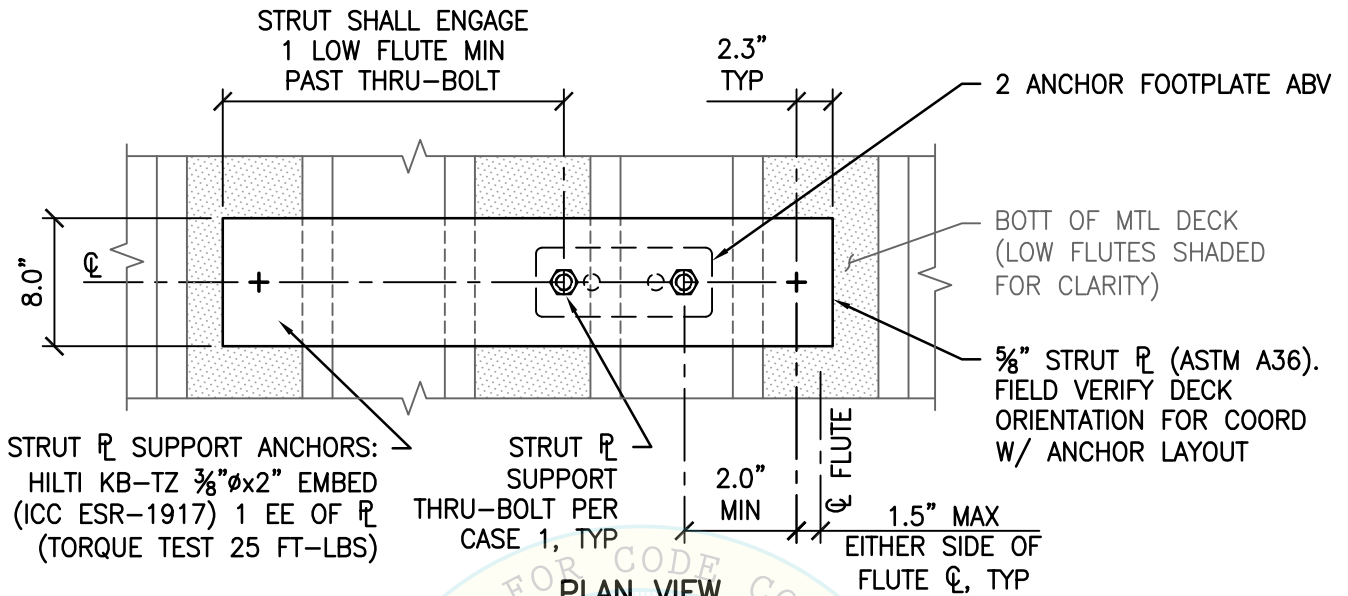
2495 NATOMAS PARK DRIVE, SUITE 650  
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L:\Jobs\18024 LogiQuip - Static Wire Shelves OPM-04xx-13\ACAD\St1.dwg Time:Apr09,2020-02:34pm LogIn:camachom DimScale:1 LScale:6

# STATIC WIRE SHELVING

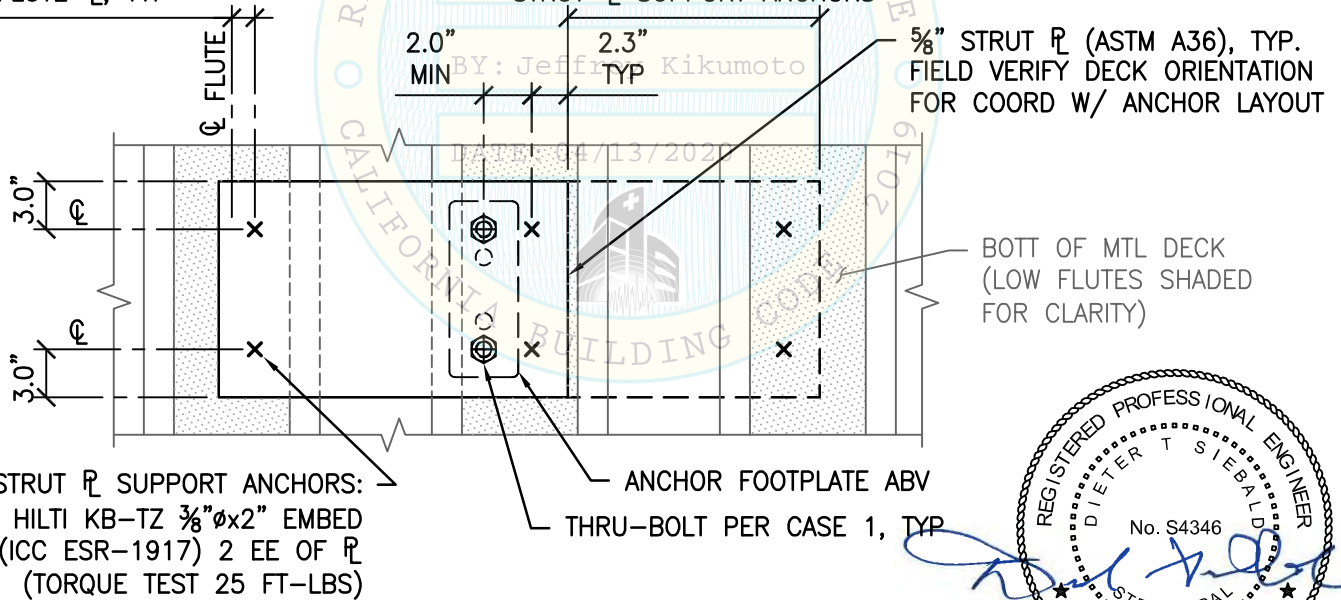


## PLAN VIEW

BRACKET PERP TO FLUTES

1.4" MAX  
EITHER SIDE OF  
FLUTE  $\bar{c}$ , TYP

EXTEND STRUT TO NEXT ADJ LOW FLUTE  
IF THRU-BOLTS ARE LESS THAN 2" FROM  
STRUT  $\bar{r}$  SUPPORT ANCHORS



## PLAN VIEW

BRACKET PARALLEL TO FLUTES



SHEET TITLE: STRUT PLATE DETAIL AT  
DOUBLE POST FOOTPLATE



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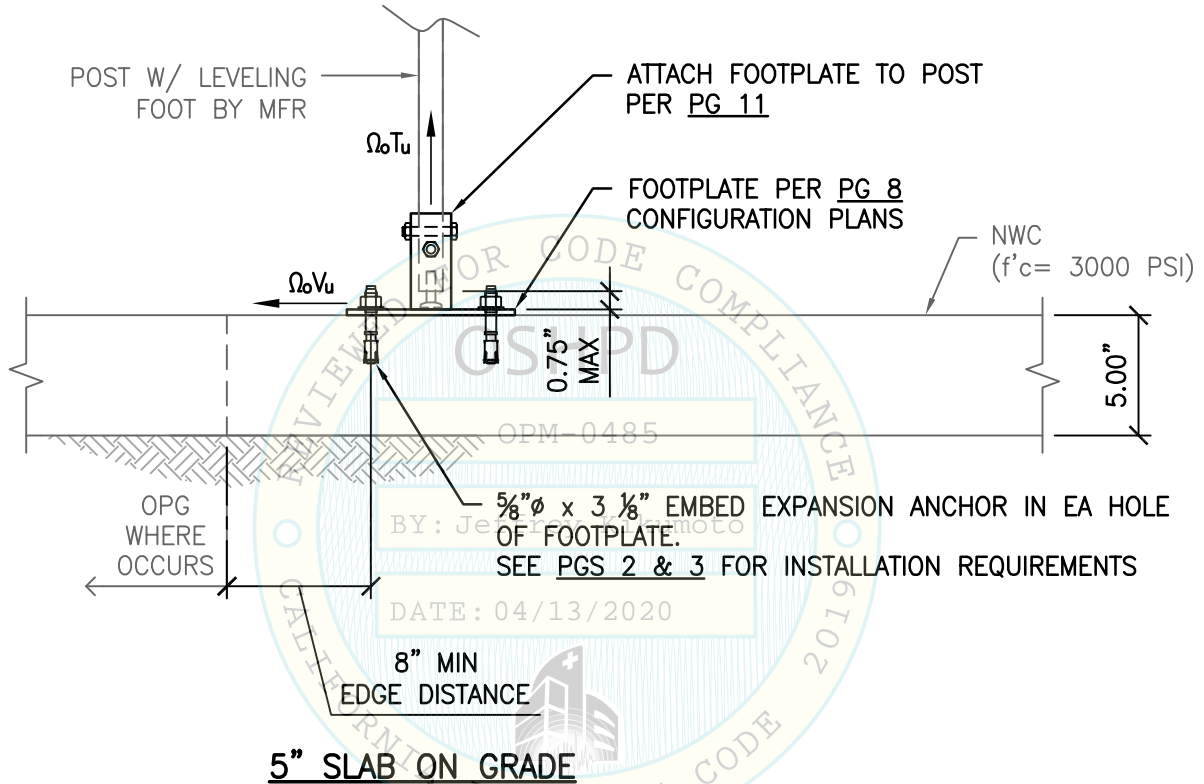
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# STATIC WIRE SHELVING



	MAX LRFD FORCES AT EA ANCHOR (LBS)			
	SINGLE POST FOOTPLATE		DOUBLE POST FOOTPLATE	
	$\Omega_o T_u$	$\Omega_o V_u$	$\Omega_o T_u$	$\Omega_o V_u$
CASE 2	1041#	308#	2081#	617#

OVERSTRENGTH FACTOR ( $\Omega_o$ ) INCLUDED.



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

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