



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OPM-0136-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: ☒ New ☐ Renewal ☐ Update to Pre-CBC 2013 OPA Number: _____

Manufacturer Information

Manufacturer: Becton, Dickinson and Company (BD) Diagnostic Systems

Manufacturer's Technical Representative: Brian Bell

Mailing Address: 7 Loveton Circle, MC: 622, Sparks, MD 21152

Telephone: 410-316-4304

Email: Brian_Bell@bd.com

Product Information

Product Name: Totalys Multiprocessor

Product Type: Cytology Sampler OPM-0136-13

Product Model Number: Totalys Multiprocessor

General Description: Analysis samples for cervical cancer

Applicant Information

Applicant Company Name: Becton, Dickinson and Company (BD) Diagnostic Systems


Contact Person: Brian Bell

Mailing Address: 7 Loveton Circle, MC: 622, Sparks, MD 21152

Telephone: 410-316-4304

Email: Brian_Bell@bd.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant: 

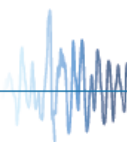
Date: August 18, 2014

Title: Mechanical Engineer

Company Name: BD Diagnostics

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-700 (REV 3/13/14)



osHPD

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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 1950-10
- ☐ Other* (Please Specify): _____

*Use of criteria other than those adopted by the California Building Standards Code, 2013 (CBSC 2013) 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 2013 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 2013 ONLY

Signature: William Staehlin Date: March 06, 2015

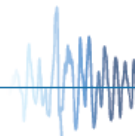
Print Name: William Staehlin

Title: Senior Structural Engineer

Condition of Approval (if applicable): _____

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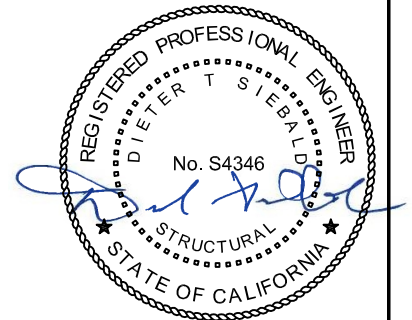
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- NOTES:**
1. THESE DRAWINGS ARE PREPARED FOR BECTON, DICKINSON & COMPANY (BD) DIAGNOSTIC SYSTEMS, SPARKS, MARYLAND.
 2. THE CONTRACTOR AND INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE OSHPD PRE-APPROVAL PROGRAMS WEBSITE.
 3. THIS PRE-APPROVAL COVERS THE SUPPORTS & ATTACHMENTS OF THE COMPONENT (EQUIPMENT) TO THE SUPPORTING STRUCTURE. THE UNIT & SUPPORT & ATTACHMENT HARDWARE ARE SUPPLIED BY BD. THROUGH BOLTS & UNDER FLOOR HARDWARE AND ATTACHMENT AT SOFFIT UNDER METAL DECK AND EXPANSION BOLTS SHOWN ON PAGES 8, 11, 12 & 13 SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.



SHEET TITLE: TABLE OF CONTENTS



CYS STRUCTURAL ENGINEERS, INC.

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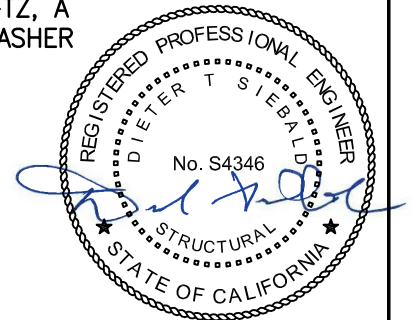
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BD DIAGNOSTIC SYSTEMS
TOTALYS MULTIPROCESSOR - SEISMIC SUPPORTS & ATTACHMENTS



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 FOR A SITE SPECIFIC PROJECT TO VERIFY:
 - A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES AND WEIGHT SPECIFIED FOR EACH EQUIPMENT IN ADDITION TO ALL OTHER LOADS. PROVIDE AND 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 1/2" DIAMETER ANCHOR BOLTS. THE REQUIRED SPACING FROM ANCHORS OF OTHER DIAMETERS AND EMBEDMENTS MAY VARY AND SHALL BE EVALUATED BY THE SEOR.
 - D. THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CBC 2013 AND WITH THE DETAILS SHOWN IN THIS PRE-APPROVAL.
 - E. THAT THE ACTUAL EQUIPMENT'S WEIGHT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS, AND THE MATERIAL AND GAUGE OF THE EQUIPMENT WHERE ATTACHMENTS ARE MADE, AGREE WITH THE INFORMATION SHOWN ON THE PRE-APPROVAL DOCUMENTS.
- 3A. EXPANSION ANCHORS INSTALLED IN NORMAL WEIGHT OR SAND-LIGHTWEIGHT CONCRETE SHALL BE CARBON STEEL HILTI KB-TZ EXPANSION ANCHORS COMPLYING WITH ESR-1917 REISSUED MAY 1, 2013.
- B. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR AND THE PARAMETERS GIVEN IN THE TABLE ON PAGE 3.
- C. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOB SITE TESTING IN ACCORDANCE WITH THE TENSION/TORQUE 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 TENSION/TORQUE IN THE ANCHOR SUCH AS DIRECT PULL WITH A HYDRAULIC JACK OR CALIBRATED SPRING LOADING DEVICES OR CALIBRATED TORQUE WRENCH METHOD. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE INSPECTOR OF RECORD. 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 EQUIPMENT INSTALLATION. ALSO REFER TO CBC 1913A.7 "FIELD TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE".
- D. FAILURE/ACCEPTANCE CRITERIA: THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
 - HYDRAULIC RAM METHOD: APPLY AND HOLD TEST LOAD FOR A MINIMUM OF 15 SECONDS. THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD WHERE WASHERS ARE USED. FOR WEDGE TYPE ANCHORS, SUCH AS HILTI KB-TZ, A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER UNDER THE NUT BECOMES LOOSE.
 - TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS: WEDGE TYPE:
ONE-HALF (1/2) TURN OF THE NUT.



SHEET TITLE: GENERAL NOTES



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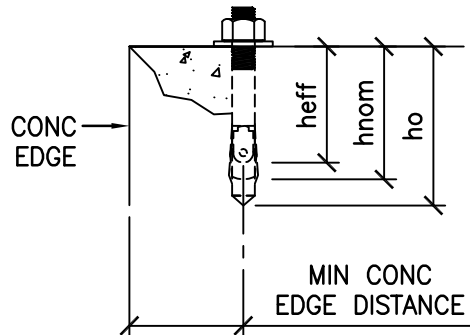
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GENERAL NOTES CONTINUED:

3E. TEST VALUES: APPLY TEST LOADS TO ANCHORS WITHOUT REMOVING THE NUT IF POSSIBLE, SEE TABLE BELOW.



ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) heff	HOLE DEPTH (INCH) ho	MIN CONC THICKNESS (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN AB SPACING (INCH)	TEST LOAD		CONDITION OF ANCHORAGE
							TENSION LOAD (LBS)	TORQUE (FT-LBS)	
1/2	2 3/8	2	2 5/8	4	12	4.25	1023	40	CASE 2

4. BOLTS THROUGH CONCRETE ON METAL DECK:

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



SHEET TITLE: GENERAL NOTES (CONTINUED)



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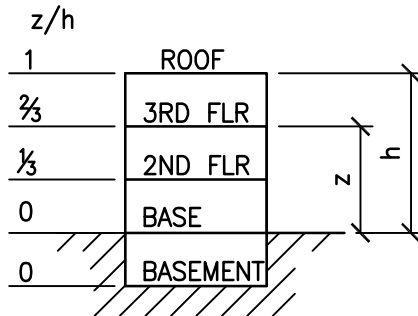
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GENERAL NOTES CONTINUED:

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

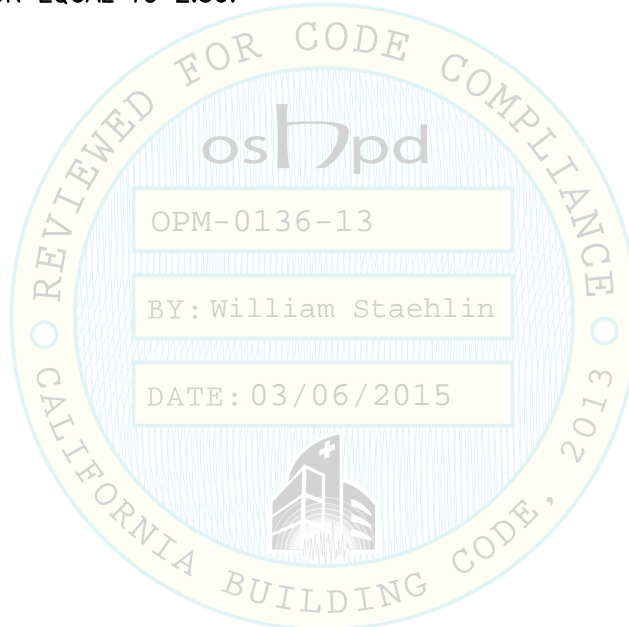


BUILDING ELEVATION

CASE 1: ANCHORAGE DETAILS LOCATED AT UPPER FLOORS ABOVE THE BASE OF A BUILDING ($z/h \leq 1.0$), IT IS ASSUMED THAT THE FLOORS ARE BUILT OF A MIN $3\frac{1}{4}$ " SLWC TOPPING OVER METAL DECK ($f'_c = 3000$ PSI, MIN).

CASE 2: ANCHORAGE DETAILS LOCATED AT OR BELOW THE BASE OF A BUILDING ($z/h = 0$). THE FLOORS ARE ASSUMED TO BE BUILT OF A MINIMUM 4" 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} LESS THAN OR EQUAL TO 2.50.



SHEET TITLE: GENERAL NOTES (CONTINUED)



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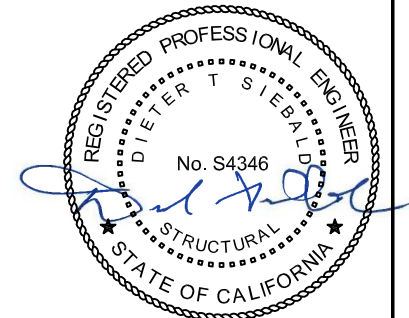
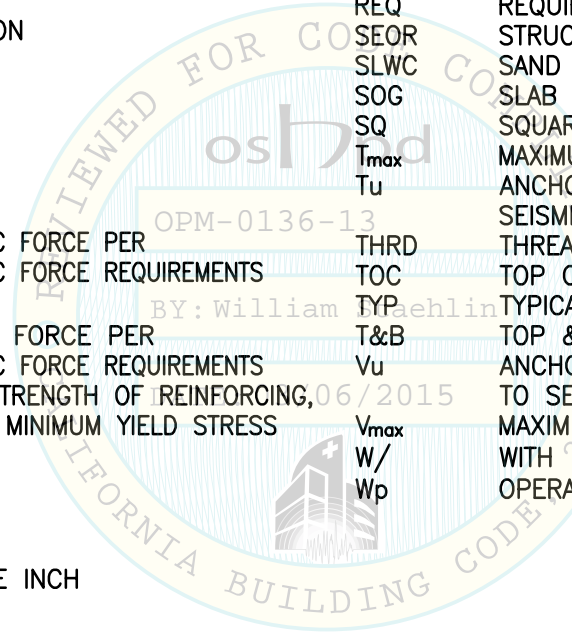
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BD DIAGNOSTIC SYSTEMS
TOTALYS MULTIPROCESSOR - SEISMIC SUPPORTS & ATTACHMENTS



ABBREVIATIONS:

AB	ANCHOR BOLT	LRFD	LOAD & RESISTANCE FACTOR DESIGN
ABV	ABOVE	MAX	MAXIMUM
ADJ	ADJACENT	MFR	MANUFACTURER
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	MIN	MINIMUM
AWS	AMERICAN WELDING SOCIETY	MTL	METAL
BD	BECTON, DICKINSON AND COMPANY	(N)	NEW
BLW	BELOW	NO. (#)	NUMBER OR POUNDS
BOTT	BOTTOM	NWC	NORMAL WEIGHT CONCRETE
CBC	CALIFORNIA BUILDING CODE	OD	OUTSIDE DIAMETER
CG	CENTER OF GRAVITY	OPG	OPENING
CL	CENTERLINE	OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT
CJP	COMPLETE JOINT PENETRATION	PG(S)	PAGE(S)
C _{max}	MAXIMUM COMPRESSION DUE TO SEISMIC FORCE	P	PLATE
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
COORD	COORDINATE	R	RADIUS
DBL	DOUBLE	REQ	REQUIRED
DIA (Ø)	DIAMETER	SEOR	STRUCTURAL ENGINEER OF RECORD
(E)	EXISTING CONDITION	SLWC	SAND LIGHT WEIGHT CONCRETE
EA	EACH	SOG	SLAB ON GRADE
ELEV	ELEVATION	SQ	SQUARE
EQUIP	EQUIPMENT	T _{max}	MAXIMUM TENSION DUE TO SEISMIC FORCE
ES	EACH SIDE	Tu	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE
FF	FINISH FLOOR	THRD	THREAD OR THREADED
FLR	FLOOR	TOC	TOP OF CONCRETE
Fp	HORIZONTAL SEISMIC FORCE PER ASCE 7-10 SEISMIC FORCE REQUIREMENTS	TYP	TYPICAL
FT (')	FOOT/FEET	T&B	TOP & BOTTOM
Fv	VERTICAL SEISMIC FORCE PER ASCE 7-10 SEISMIC FORCE REQUIREMENTS	Vu	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE
Fy	SPECIFIED YIELD STRENGTH OF REINFORCING, PSI OR SPECIFIED MINIMUM YIELD STRESS OF STEEL, KSI	V _{max}	MAXIMUM SHEAR DUE TO SEISMIC FORCE
GA	GAUGE	W/	WITH
HT	HEIGHT	Wp	OPERATING WEIGHT
IN (")	INCH		
KSI	KIPS PER SQUARE INCH		



SHEET TITLE: ABBREVIATIONS



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DESIGN CRITERIA

SUPPORT & ATTACHMENT DESIGN FOR ALL LABORATORY EQUIPMENT IS PER 2013 CBC AT LRFD LEVEL FORCES

$$\alpha_p = 1.0 \quad R_p = 1.5 \quad S_{DS} = 2.50 \quad I_p = 1.5 \quad \Omega_0 = 1.5 \text{ (CONCRETE ANCHORS)}$$

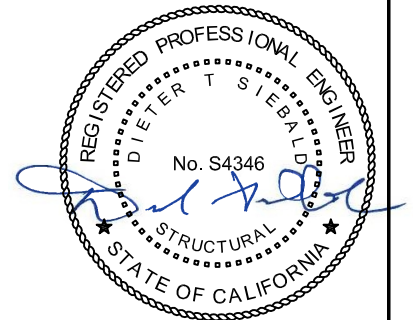
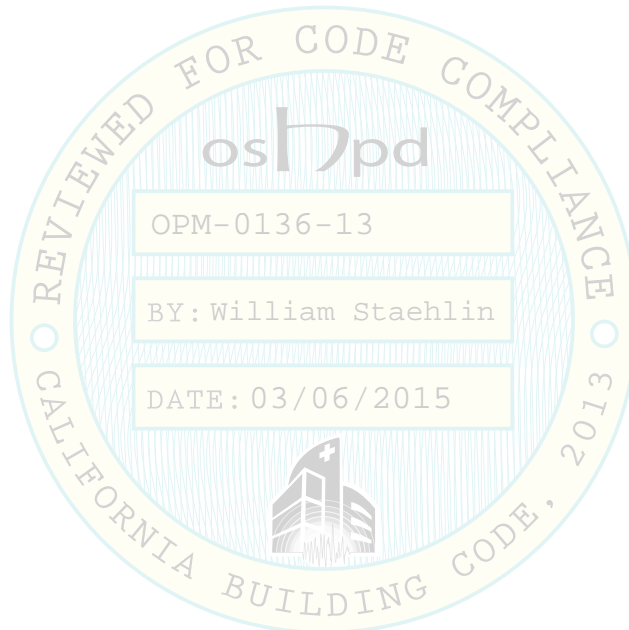
TOTALYS MULTIPROCESSOR: $W_p = 1425 \text{ LBS}$

FOR CASE 1 – UPPER FLOORS ABOVE THE BASE, $z/h \leq 1.0$

$$\begin{aligned} F_p &= 3.00 W_p & F_v &= 0.50 W_p & \text{WITHOUT OMEGA } (\Omega_0) \\ F_p &= 4.50 W_p & F_v &= 0.50 W_p & \text{WITH OMEGA } (\Omega_0) \end{aligned}$$

FOR CASE 2 – SLAB AT OR BELOW BASE, $z/h = 0$

$$\begin{aligned} F_p &= 1.125 W_p & F_v &= 0.50 W_p & \text{WITHOUT OMEGA } (\Omega_0) \\ F_p &= 1.688 W_p & F_v &= 0.50 W_p & \text{WITH OMEGA } (\Omega_0) \end{aligned}$$



SHEET TITLE: DESIGN CRITERIA



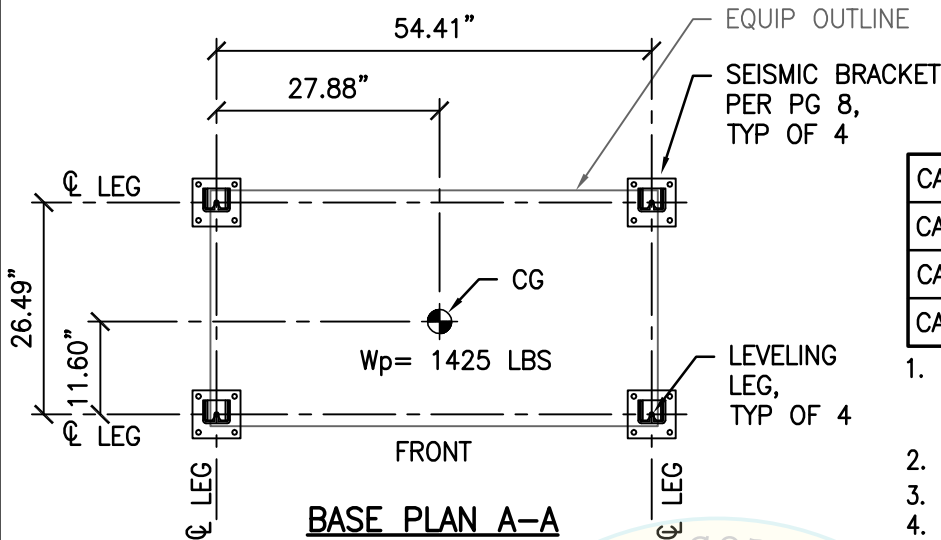
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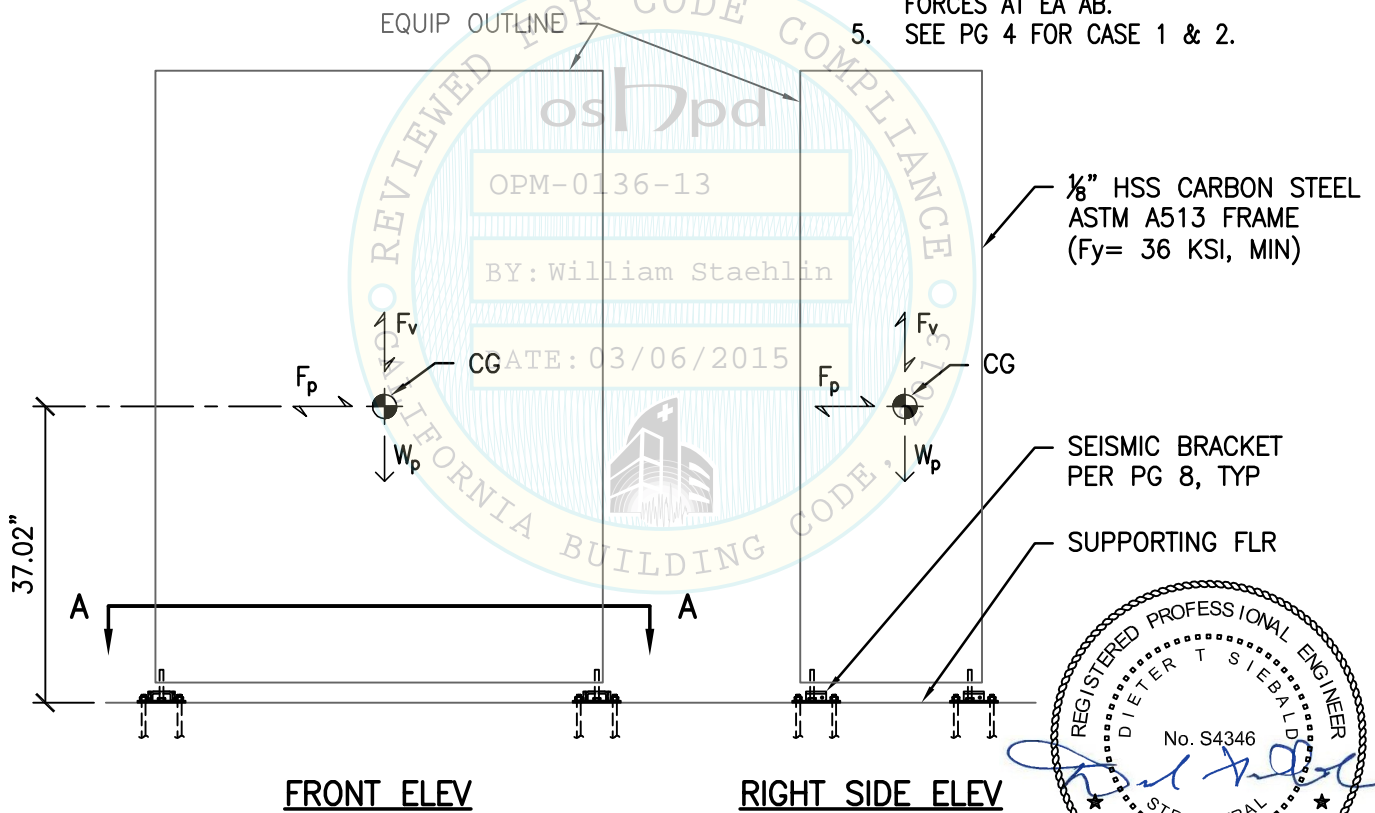
BD DIAGNOSTIC SYSTEMS
TOTALYS MULTIPROCESSOR - SEISMIC SUPPORTS & ATTACHMENTS



MAX ANCHOR FORCES AT LRFD AT LEVELING LEG ¹

	T _{max}	C _{max}	V _{max}
CASE 1 ²	3324#	4158#	1207#
CASE 1 ³	5065#	5899#	1810#
CASE 2 ²	1147#	1981#	452#
CASE 2 ³	1800#	2634#	679#

1. ECCENTRICITY & PRYING ACTION MUST BE CONSIDERED BASED ON THE SEISMIC BRACKET CONFIGURATION.
2. OVERSTRENGTH FACTOR (Ω_0) EXCLUDED.
3. OVERSTRENGTH FACTOR (Ω_0) INCLUDED.
4. SEE PGS 11 & 13 FOR MAX ANCHOR FORCES AT EA AB.
5. SEE PG 4 FOR CASE 1 & 2.



SHEET TITLE: BASE PLAN & ELEVATIONS



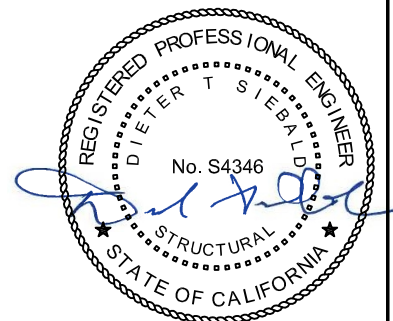
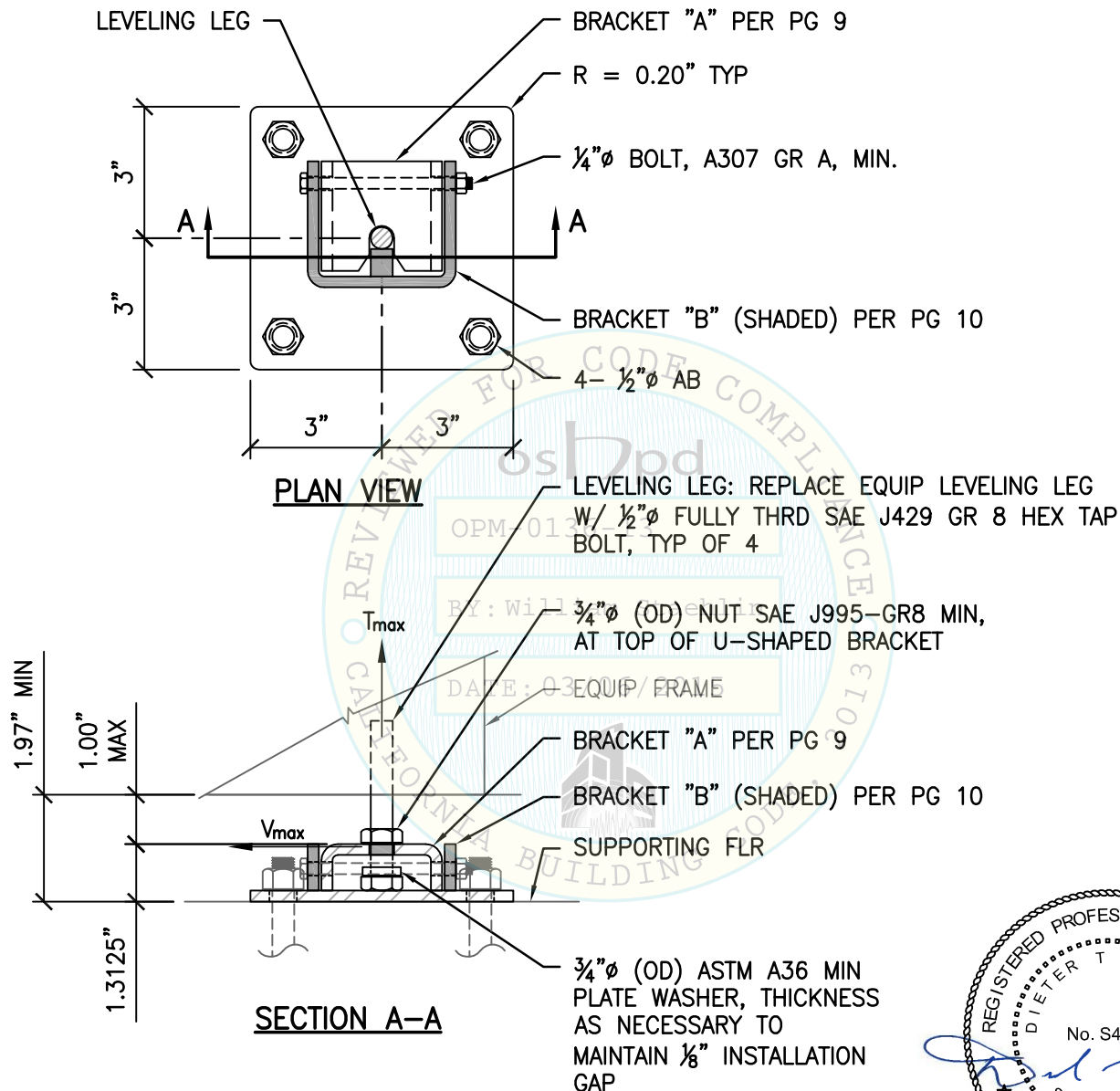
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1. FOR CASE 1 & CASE 2 ANCHORAGE TO FLR, SEE PGS 11 TO 13.
2. BRACKET LAYOUT SHALL BE FOLLOWED AS SHOWN ON PLANS ON PG 7.



SHEET TITLE: SEISMIC BRACKET ASSEMBLY DETAIL



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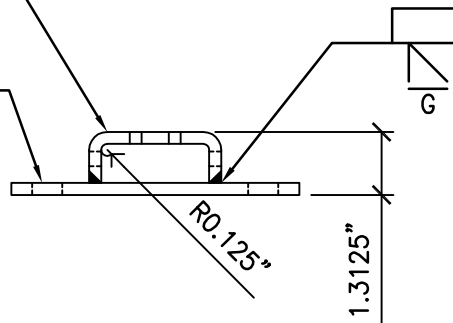
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TOTALYS MULTIPROCESSOR - SEISMIC SUPPORTS & ATTACHMENTS



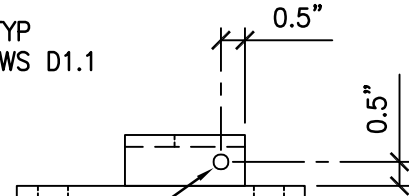
ASTM A572 GR 50
BENT $\frac{1}{4}$ "

ASTM A572 GR 50
BASE $\frac{1}{4}$ "x6"x0'-6",
TYP



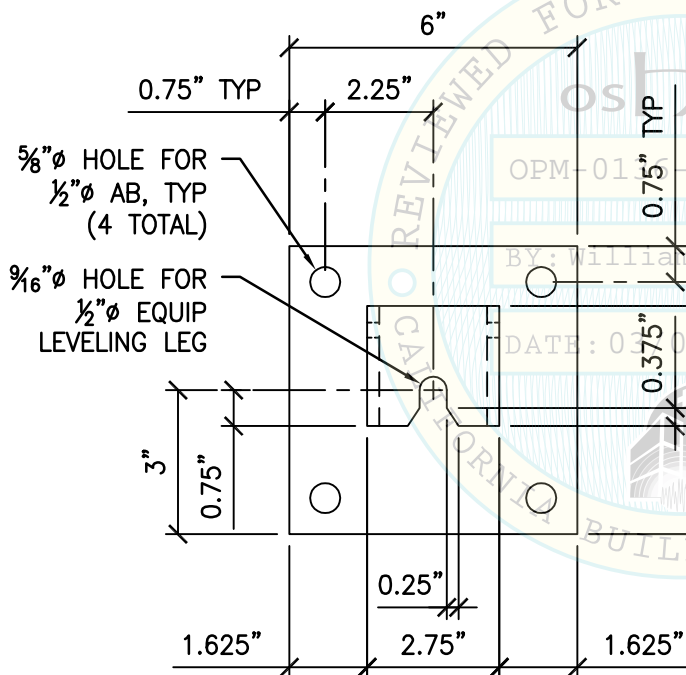
FRONT VIEW

CJP, TYP
PER AWS D1.1



$\frac{5}{16}$ " ϕ HOLE
FOR $\frac{1}{4}$ " ϕ BOLT

SIDE VIEW



PLAN VIEW

NOTE:

DUE TO TIGHT TOLERANCE, TAKE
EXTREME CARE WHEN LAYING OUT
LOCATIONS FOR CONC AB.



SHEET TITLE: BRACKET "A" DETAIL

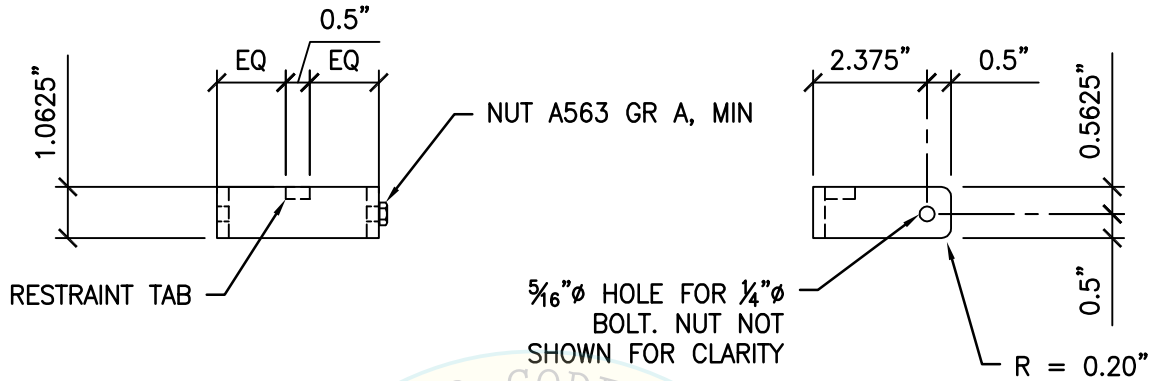


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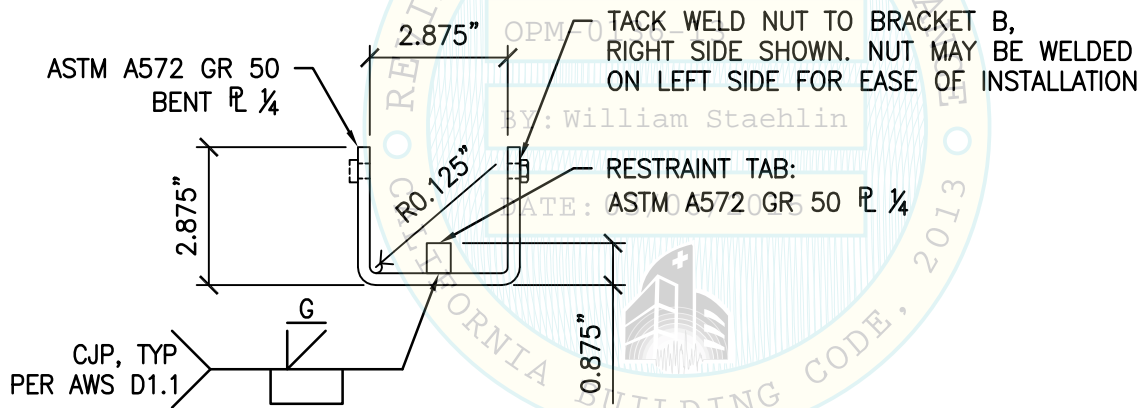
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FRONT VIEW

SIDE VIEW



PLAN VIEW



SHEET TITLE: BRACKET "B" DETAIL



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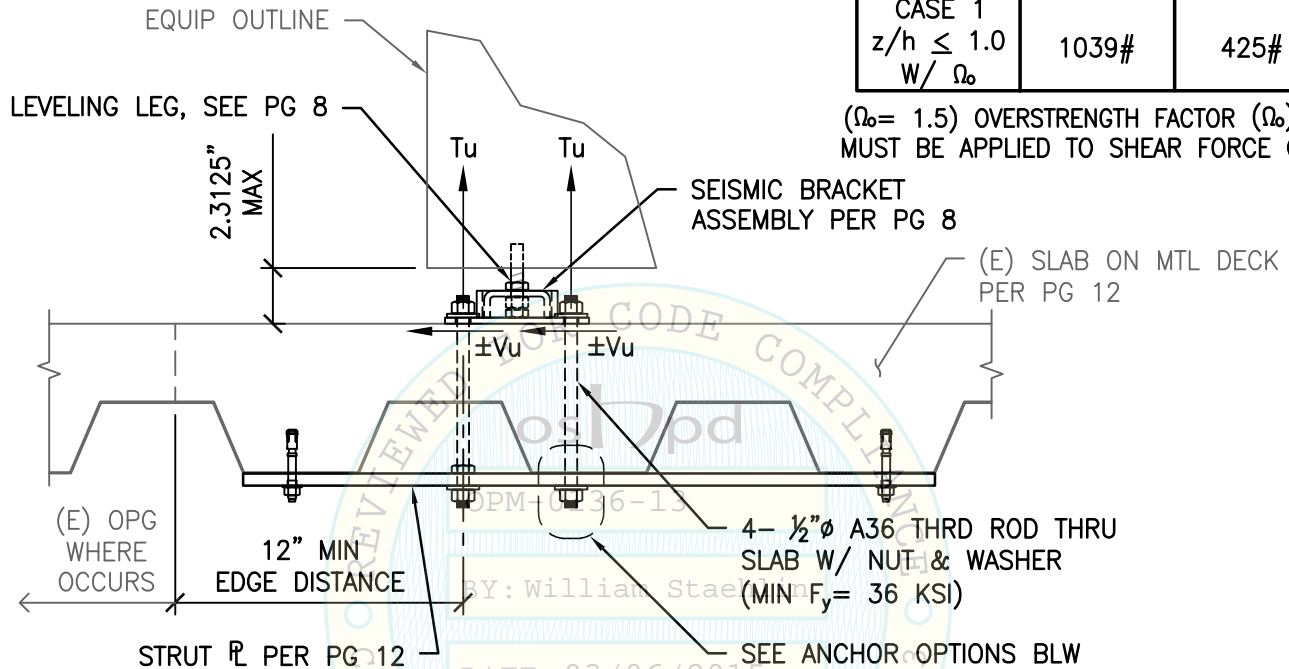
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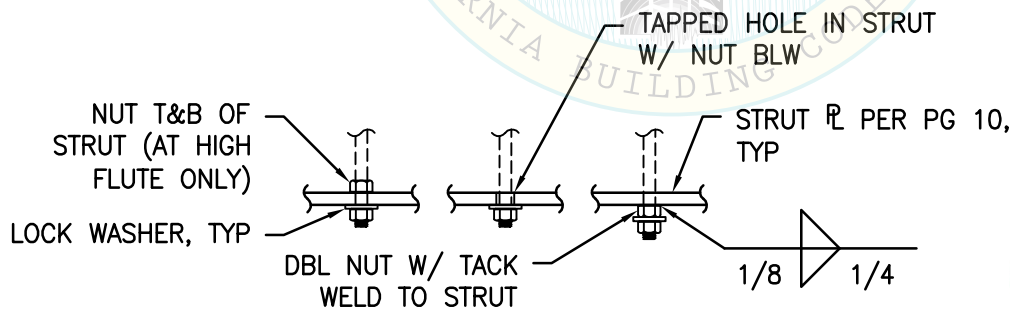


	MAX ANCHOR FORCES AT LRFD AT EA AB	
	Tu	Vu
CASE 1 $z/h \leq 1.0$ W/O Ω_o	1039#	283#
CASE 1 $z/h \leq 1.0$ W/ Ω_o	1039#	425#

($\Omega_o = 1.5$) OVERSTRENGTH FACTOR (Ω_o)
MUST BE APPLIED TO SHEAR FORCE ONLY.



CASE 1 - SUSPENDED FLR W/ THRU BOLTS



ANCHOR OPTIONS



SHEET TITLE: ATTACHMENT DETAIL
TO CONCRETE FILL OVER METAL DECK



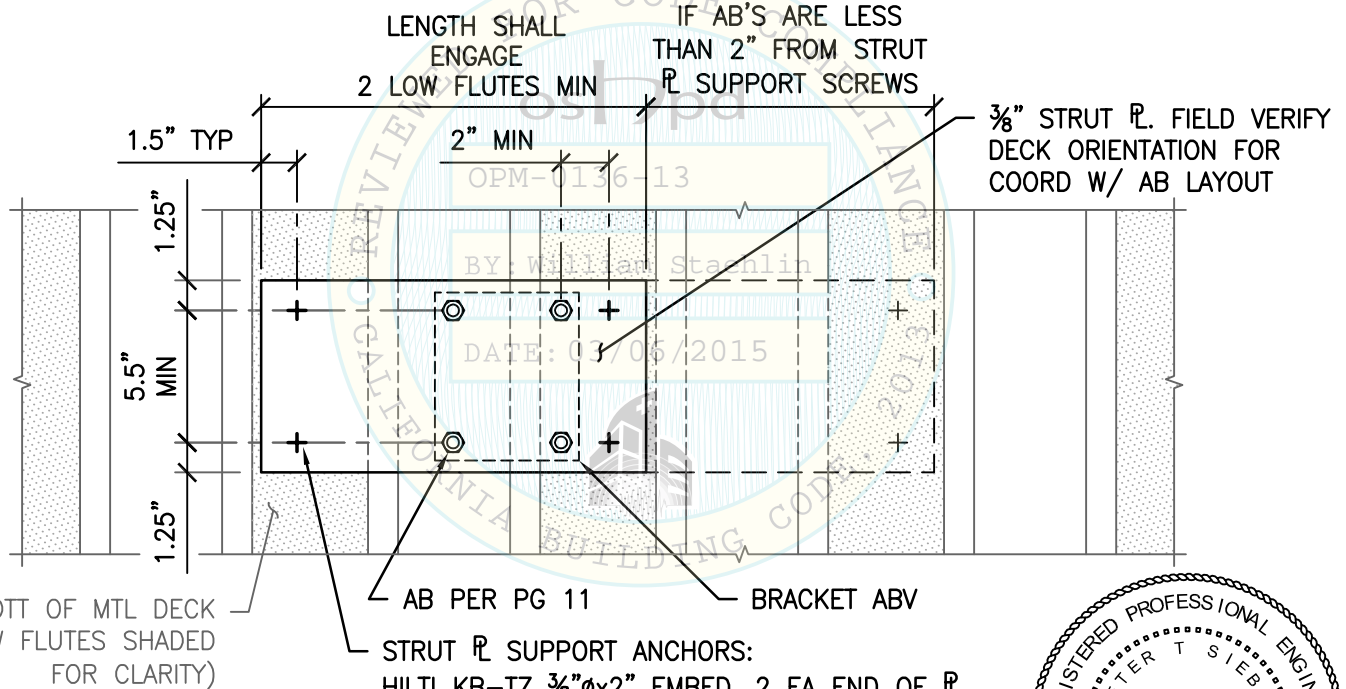
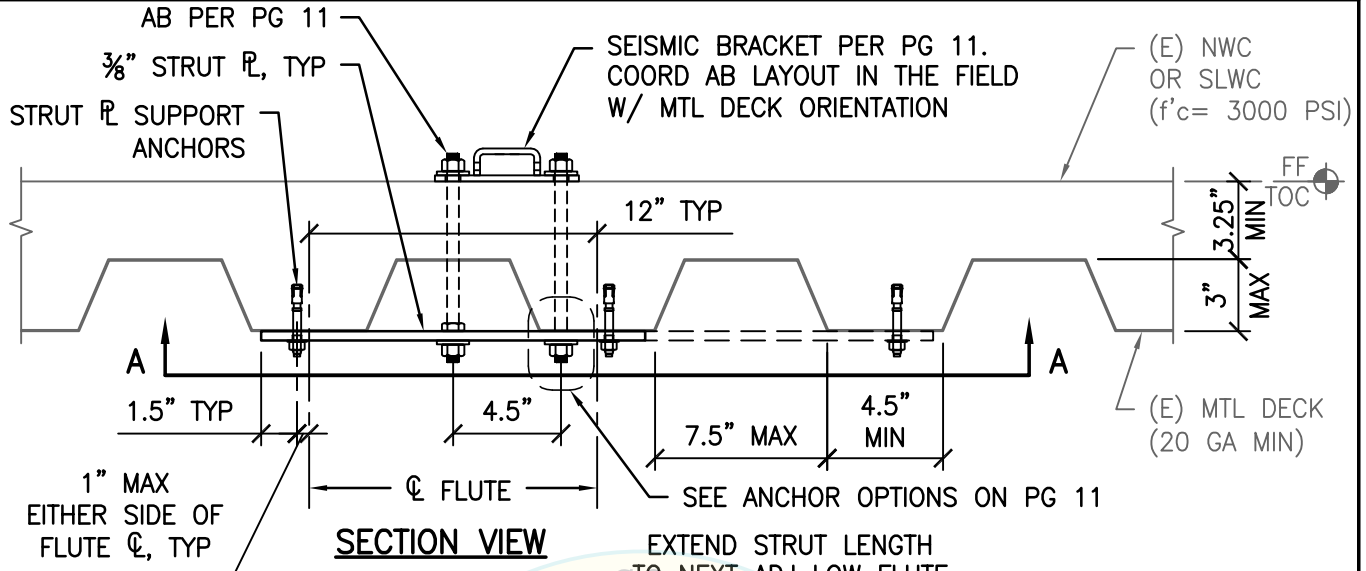
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BD DIAGNOSTIC SYSTEMS
TOTALYS MULTIPROCESSOR - SEISMIC SUPPORTS & ATTACHMENTS



PLAN VIEW A-A



SHEET TITLE: ATTACHMENT DETAIL
TO CONCRETE FILL OVER METAL DECK

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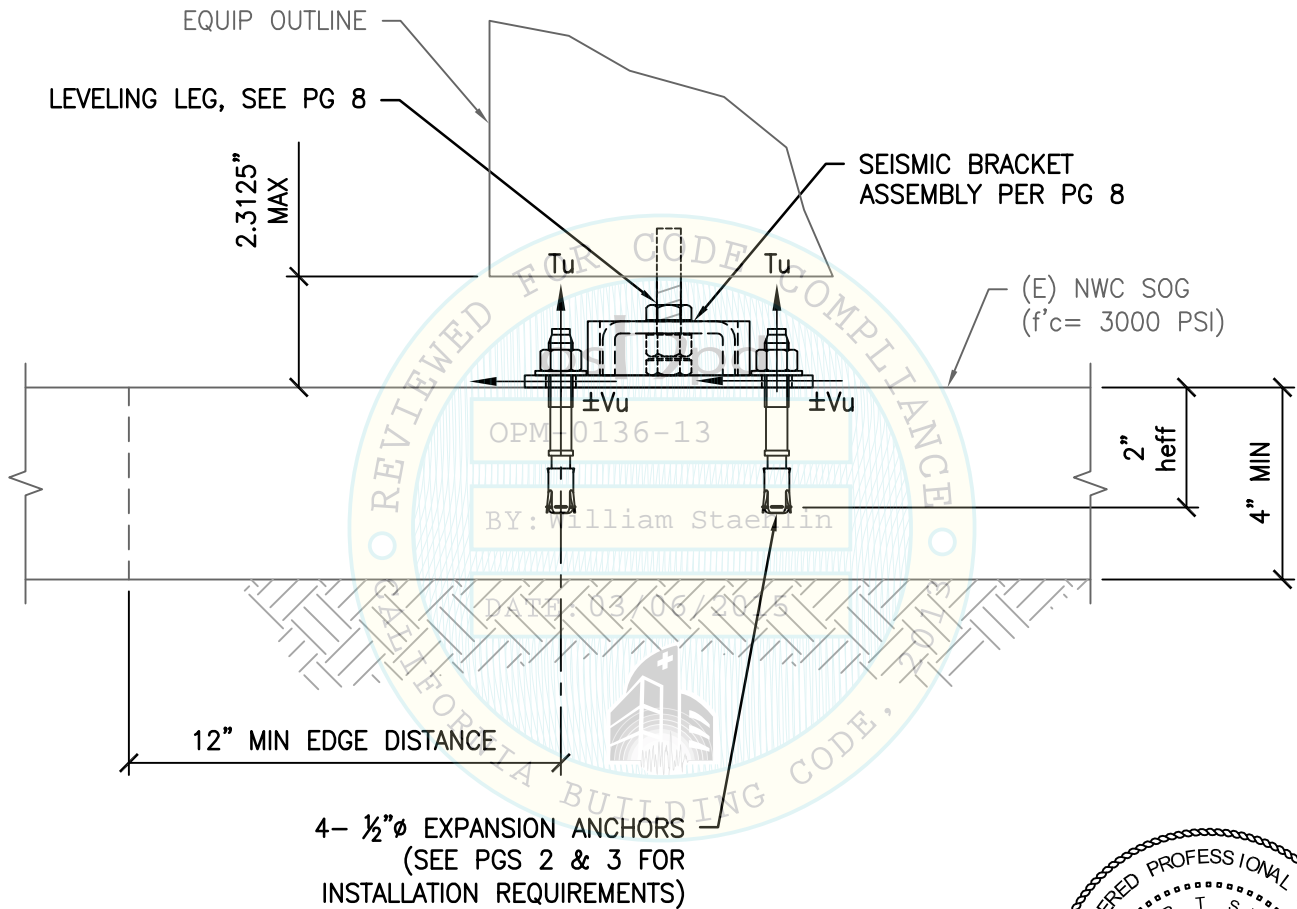
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MAX ANCHOR FORCES AT LRFD AT EA AB		
	Tu	Vu
CASE 2 z/h = 0	567#	159#

OVERSTRENGTH FACTOR (ϕ) INCLUDED.



CASE 2 - SLAB ON GRADE



SHEET TITLE: ATTACHMENT DETAIL
TO CONCRETE SLAB

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

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