



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OPM-0136

HCAI Preapproval of Manufacturer's Certification (OPM)

Type:  New  Renewal/Update

Manufacturer Information

Manufacturer: BD Integrated Diagnostics Solutions

Manufacturer's Technical Representative: Mathew Mellarkey

Mailing Address: 7 Loveton Circle, Sparks, MD 21152

Telephone: (410) 316-4810

Email: Mathew.Mellarkey@bd.com

Product Information

Product Name: TOTALYS MULTIPROCESSOR

OPM-0136

Product Type: Cytology Sampler

Product Model Number: Totalys Multiprocessor

BY: William Staehlin

General Description: Analysis samples for cervical cancer

DATE: 05/18/2022

Applicant Information

Applicant Company Name: CYS Structural Engineers, Inc.

Contact Person: Dieter Siebald

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

Telephone: (916) 920-2020

Email: dieters@cyseng.com

Title: Structural Engineer

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION**

**Registered Design Professional Preparing Engineering Recommendations**

Company Name: CYS STRUCTURAL ENGINEERS, INC.  
Name: Dieter Siebald California License Number: S4346  
Mailing Address: 2495 Natomas Park Drive, Suite 650, Sacramento, CA 95833  
Telephone: (916) 920-2020 Email: dieters@cyseng.com

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

Special Seismic Certification is preapproved under OSP OSP Number: \_\_\_\_\_

**Certification Method**

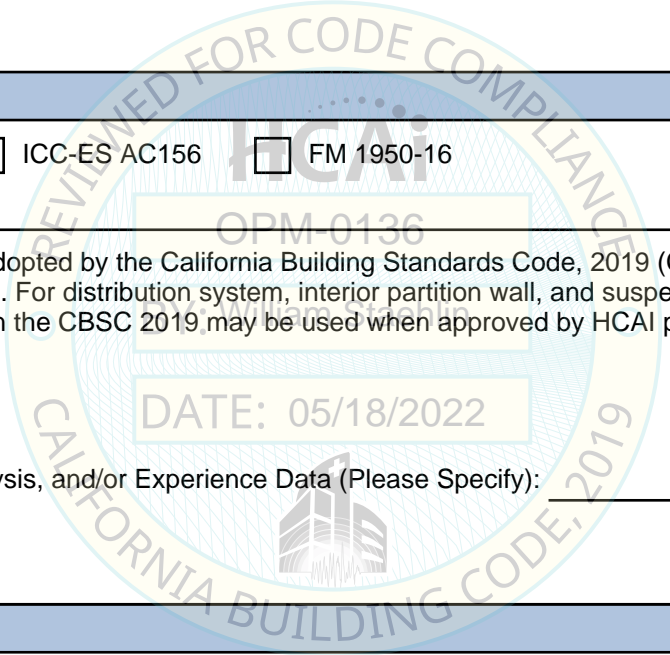
Testing in accordance with:  ICC-ES AC156  FM 1950-16  
 Other(s) (Please Specify): \_\_\_\_\_

\*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 HCAI prior to testing.

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

**HCAI Approval**

Date: 5/18/2022  
Name: William Staehlin Title: Senior Structural Engineer  
Condition of Approval (if applicable): \_\_\_\_\_



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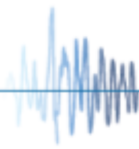
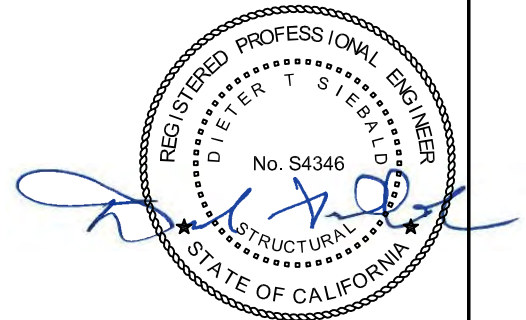




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- NOTES:**
1. THESE DRAWINGS ARE PREPARED FOR BD INTEGRATED DIAGNOSTIC SOLUTIONS, SPARKS, MARYLAND.
  2. THE CONTRACTOR & INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE CALIFORNIA DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION (HCAI) PRE-APPROVAL PROGRAMS WEBSITE.
  3. THIS PRE-APPROVAL COVERS THE SUPPORTS & ATTACHMENTS OF THE EQUIPMENT TO THE SUPPORTING STRUCTURE. THE EQUIPMENT, SEISMIC BRACKETS & 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

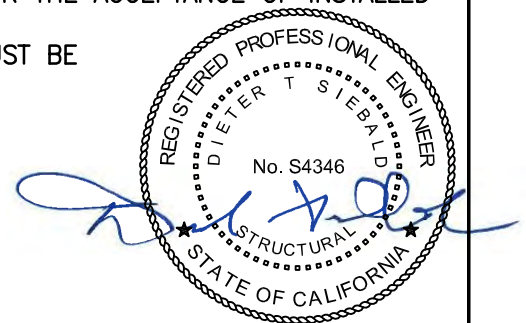
	<b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833	TEL (916) 920-2020 www.cyseng.com	Job No: 22018.02
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**GENERAL NOTES:**

1. THIS HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE W/ THIS OPM SHALL BE BASED ON THE CBC 2019.
2. IT IS THE RESPONSIBILITY OF THE SEOR 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 BLW IS THE REQ MIN SPCG OF THE GIVEN DIA ANCHORS. 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 & GAUGE 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 THAT DO NOT EXCEED THE VALUES IN THE DESIGN CRITERIA.
3. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STL HILTI KB-TZ OR HILTI KB-TZ2 EXPANSION ANCHORS AS NOTED COMPLYING W/ ESR-1917 REISSUED MAY 2021 OR ESR-4266 REVISED DECEMBER 17, 2021 RESPECTIVELY.
  - 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 BLW.
  - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE TESTING IN ACCORDANCE W/ THE TEST LOAD TABLE PROVIDED IN THIS DOCUMENT. TORQUE 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 HCAI. 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 NUT SHALL BE RETORQUED TO INSTALLATION TORQUE AFTER EQUIP INSTALL. ALSO REFER TO CBC 1910A.5 "TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE". REPORT OF TEST RESULTS SHALL BE SUBMITTED TO HCAI. TESTING SHALL BE PERFORMED BY AN APPROVED TESTING AGENCY EMPLOYED BY THE FACILITY OWNER. TEST REPORTS SHALL BE SUBMITTED TO THE IOR, OWNER & THE ARCHITECT OR ENGINEER IN RESPONSIBLE CHARGE. (CAC 7-149)
  - 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 (1/2) TURN OF THE NUT.
  - D. AVOID DAMAGING (E) 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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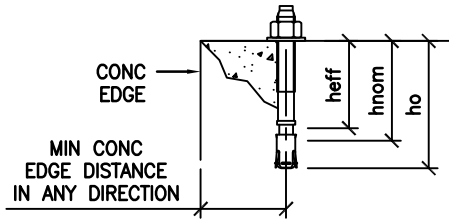
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**GENERAL NOTES CONTINUED:**

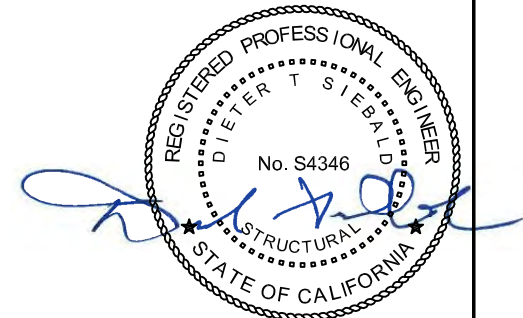
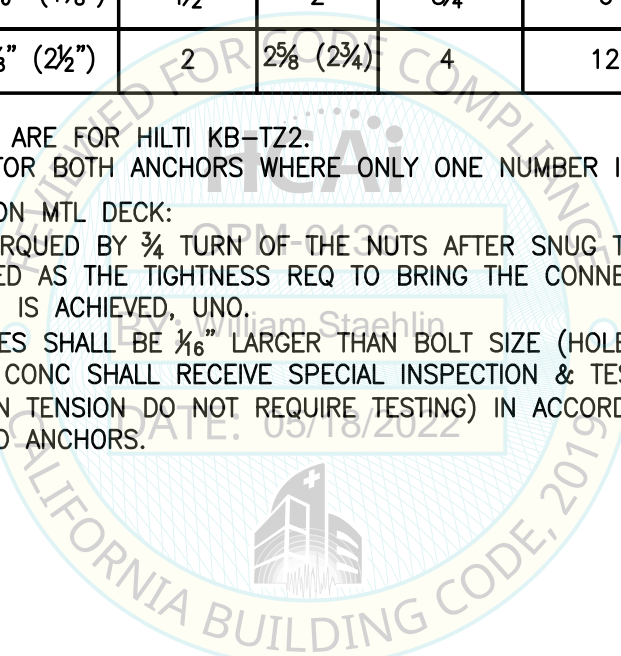
3F. EXPANSION ANCHOR TABLE FOR HILTI KB-TZ & KB-TZ2 ANCHORS:



CONDITION OF ANCHORAGE	ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) hef	HOLE DEPTH (INCH) ho	MIN CONC THK (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN ANCHOR SPCG (INCH)	TEST TORQUE (FT-LBS)
CASE 1 STRUT P'S	3/8	1 3/16" (1 7/8")	1 1/2	2	3/4	6	5	25 (30)
CASE 2	1/2	2 3/8" (2 1/2")	2	2 5/8" (2 3/4")	4	12	4 1/4	40 (50)

**NOTES:**

1. VALUES IN PARENTHESES ARE FOR HILTI KB-TZ2.
2. VALUES ARE THE SAME FOR BOTH ANCHORS WHERE ONLY ONE NUMBER IS REPORTED.
4. BOLTS THROUGH CONC ON MTL DECK:
  - A. BOLTS SHALL BE TORQUED BY 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.
  - B. THROUGH BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + 1/16")
  - C. THROUGH BOLTS IN CONC SHALL RECEIVE SPECIAL INSPECTION & TESTING (THROUGH BOLTS W/ STL TO STL CONN IN TENSION DO NOT REQUIRE TESTING) IN ACCORDANCE W/ REQUIREMENTS FOR POST-INSTALLED ANCHORS.



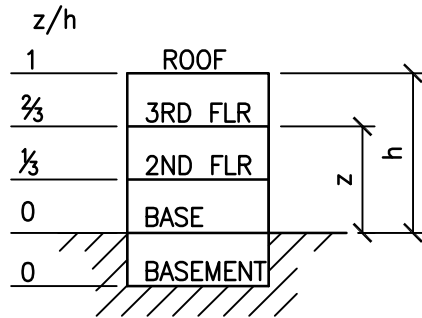
SHEET TITLE: GENERAL NOTES (CONTINUED)

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**GENERAL NOTES CONTINUED:**

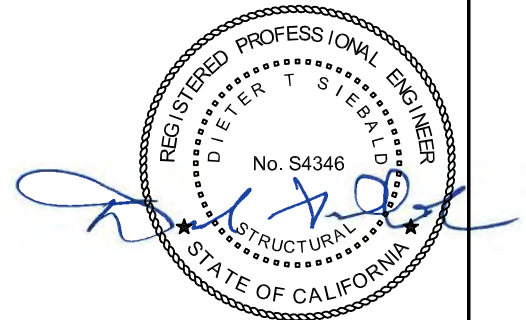
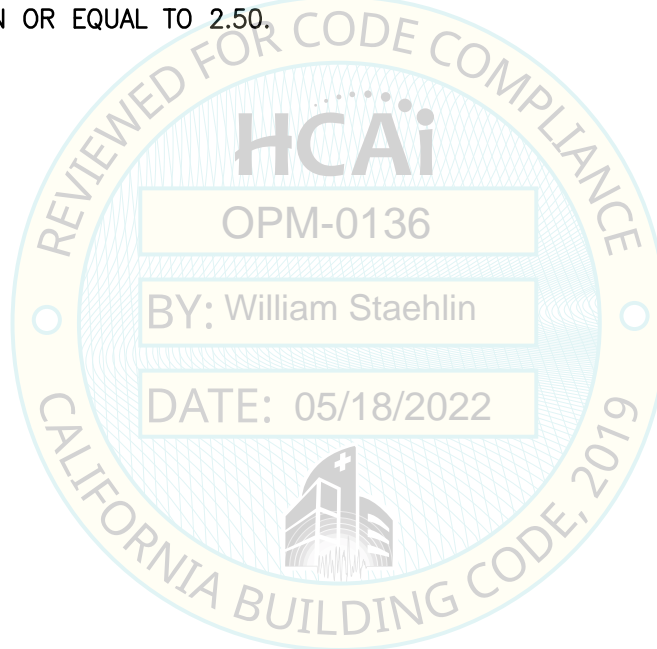
5. TWO (2) CASES OF ANCHORAGE ARE SPECIFIED AND PRESENTED IN THIS PRE-APPROVAL:



**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). NOTE THAT CASE 1 MAY ALSO OCCUR AT GRADE OR BLW.  
**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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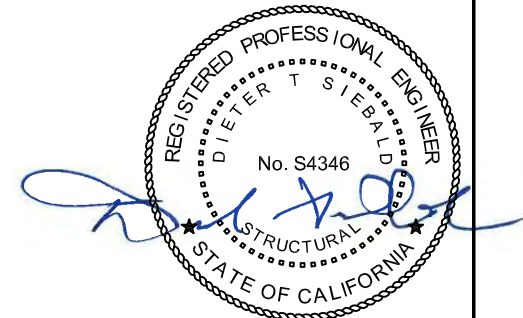
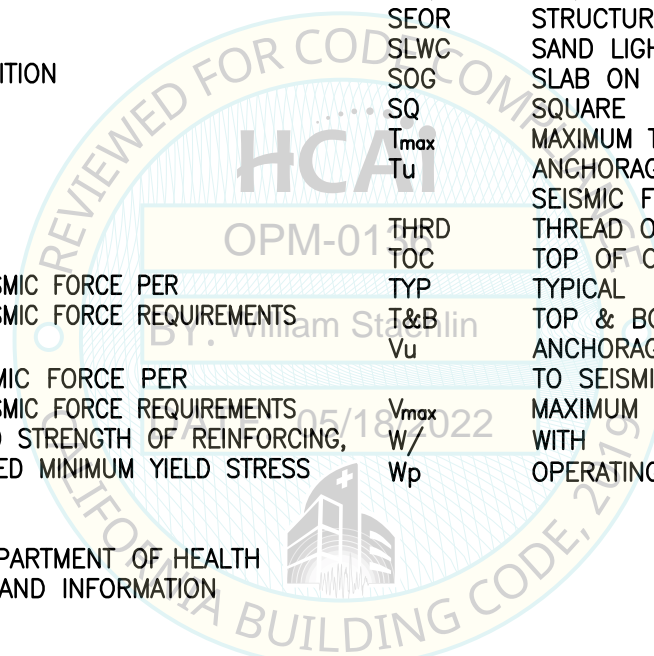
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BD INTEGRATED DIAGNOSTIC SOLUTIONS  
TOTALYS MULTIPROCESSOR



**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
Ⓞ	CENTERLINE	PG(S)	PAGE(S)
CJP	COMPLETE JOINT PENETRATION	Ⓞ	PLATE
C <sub>max</sub>	MAXIMUM COMPRESSION DUE TO SEISMIC FORCE	PSI	POUNDS PER SQUARE INCH
CONC	CONCRETE	R	RADIUS
COORD	COORDINATE	REQ	REQUIRED
DBL	DOUBLE	SEOR	STRUCTURAL ENGINEER OF RECORD
DIA (⌀)	DIAMETER	SLWC	SAND LIGHT WEIGHT CONCRETE
(E)	EXISTING CONDITION	SOG	SLAB ON GRADE
EA	EACH	SQ	SQUARE
ELEV	ELEVATION	T <sub>max</sub>	MAXIMUM TENSION DUE TO SEISMIC FORCE
EQUIP	EQUIPMENT	T <sub>u</sub>	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE
ES	EACH SIDE	THR	THREAD OR THREADED
FF	FINISH FLOOR	TOC	TOP OF CONCRETE
FLR	FLOOR	TYP	TYPICAL
F <sub>p</sub>	HORIZONTAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS	T&B	TOP & BOTTOM
FT (')	FOOT/FEET	V <sub>u</sub>	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE
F <sub>v</sub>	VERTICAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS	V <sub>max</sub>	MAXIMUM SHEAR DUE TO SEISMIC FORCE
F <sub>y</sub>	SPECIFIED YIELD STRENGTH OF REINFORCING, PSI OR SPECIFIED MINIMUM YIELD STRESS OF STEEL, KSI	W/	WITH
GA	GAUGE	W <sub>p</sub>	OPERATING WEIGHT
HCAI	CALIFORNIA DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION		
HT	HEIGHT		
IN (")	INCH		
KSI	KIPS PER SQUARE INCH		



SHEET TITLE: ABBREVIATIONS

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**DESIGN CRITERIA:**

1. SUPPORT & ATTACHMENT DESIGN IS PER 2019 CBC AT LRFD LEVEL FORCES.

OTHER MECHANICAL OR ELECTRICAL COMPONENTS PER TABLE 13.6-1 OF ASCE 7-16:

$$a_p = 1.0 \quad R_p = 1.5 \quad I_p = 1.5 \quad \Omega_0 = 1.5 \text{ (FOR CONC ANCHORS ONLY)}$$

UPPER FLRS ABV THE BASE OF BLDG

CASE 1:  $S_{DS} \leq 2.50 \quad F_p = 3.00 W_p \quad z/h \leq 1.0$

FLRS AT OR BLW THE BASE OF BLDG

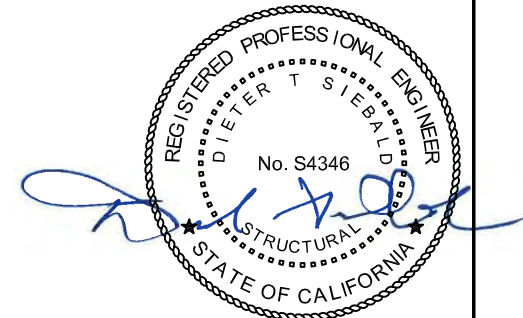
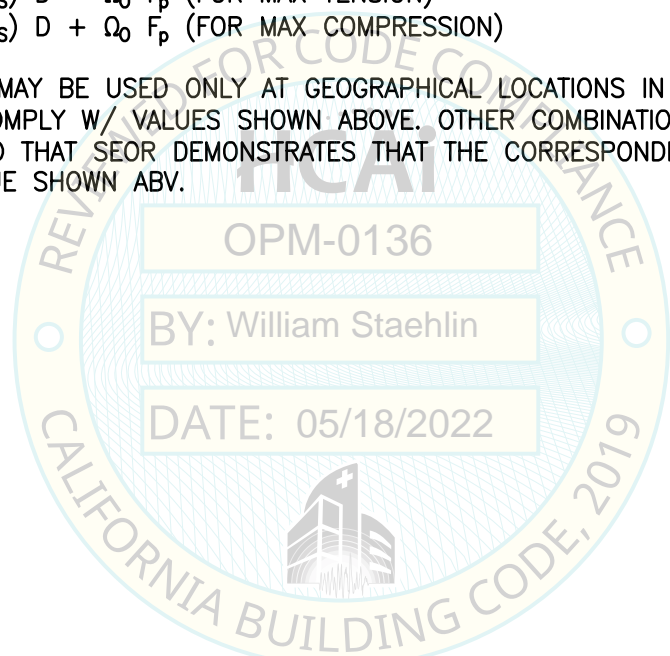
CASE 2:  $S_{DS} \leq 2.5 \quad F_p = 1.125 W_p \quad z/h = 0$

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)

2. THIS PRE-APPROVAL MAY BE USED ONLY AT GEOGRAPHICAL LOCATIONS IN THE STATE OF CALIFORNIA WHERE  $S_{DS}$  &  $z/h$  COMPLY W/ VALUES SHOWN ABOVE. OTHER COMBINATIONS OF  $S_{DS}$  &  $z/h$  ARE ACCEPTABLE PROVIDED THAT SEOR DEMONSTRATES THAT THE CORRESPONDING  $F_p$  VALUE IS LESS THAN OR EQ TO VALUE SHOWN ABV.

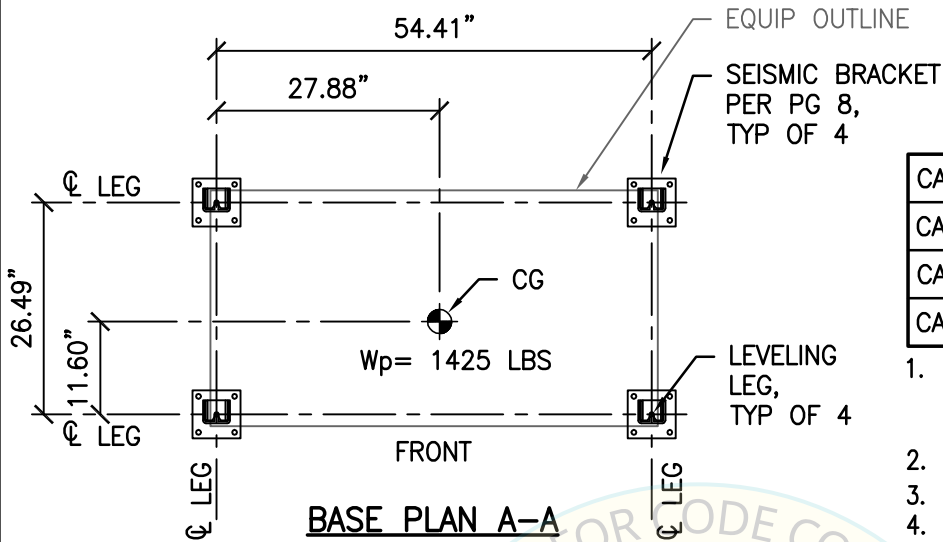


SHEET TITLE: DESIGN CRITERIA

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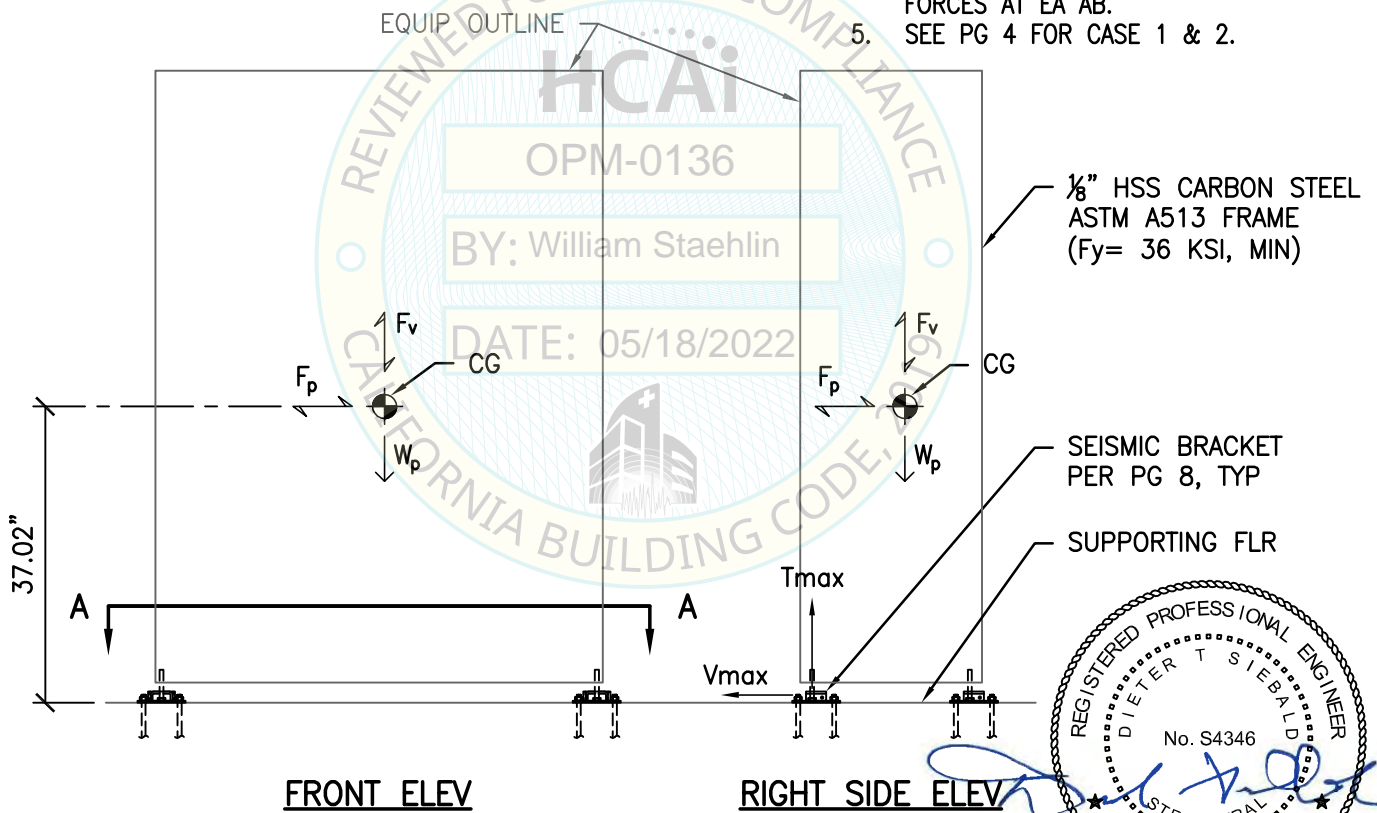
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MAX ANCHOR FORCES AT LRFD AT LEVELING LEG <sup>1</sup>			
	Tmax	Cmax	Vmax
CASE 1 <sup>2</sup>	3324#	4158#	1207#
CASE 1 <sup>3</sup>	5065#	5899#	1810#
CASE 2 <sup>2</sup>	1147#	1981#	452#
CASE 2 <sup>3</sup>	1800#	2634#	679#

1. ECCENTRICITY & PRYING ACTION MUST BE CONSIDERED BASED ON THE SEISMIC BRACKET CONFIGURATION.
2. OVERSTRENGTH FACTOR ( $\Omega_o$ ) EXCLUDED.
3. OVERSTRENGTH FACTOR ( $\Omega_o$ ) 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

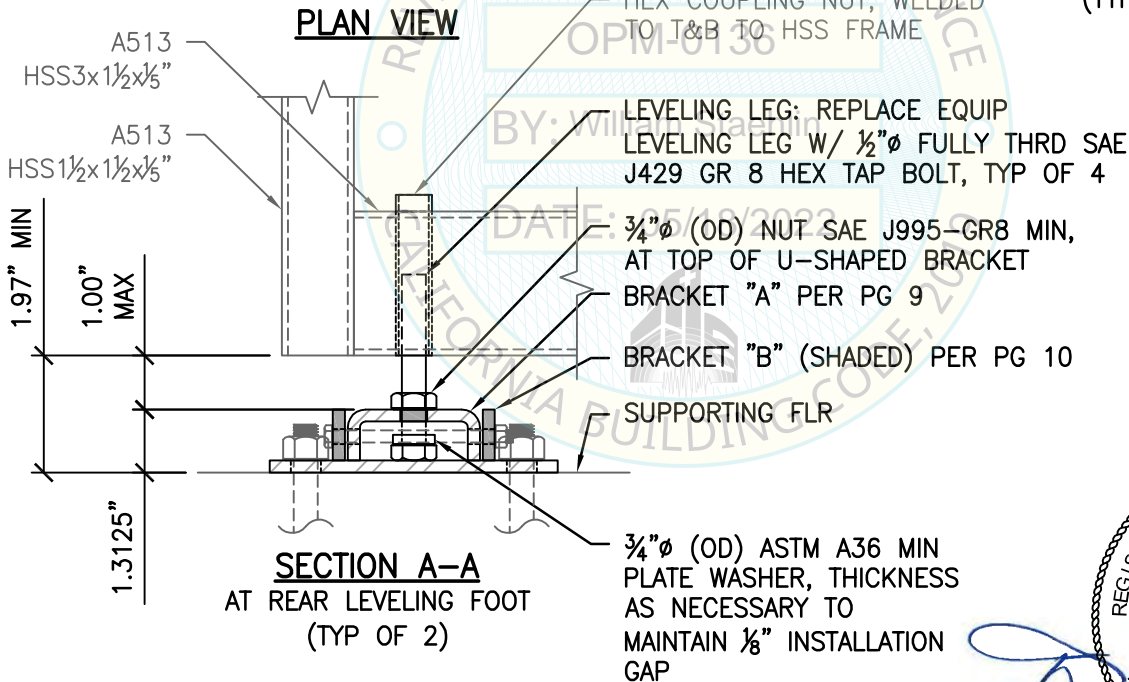
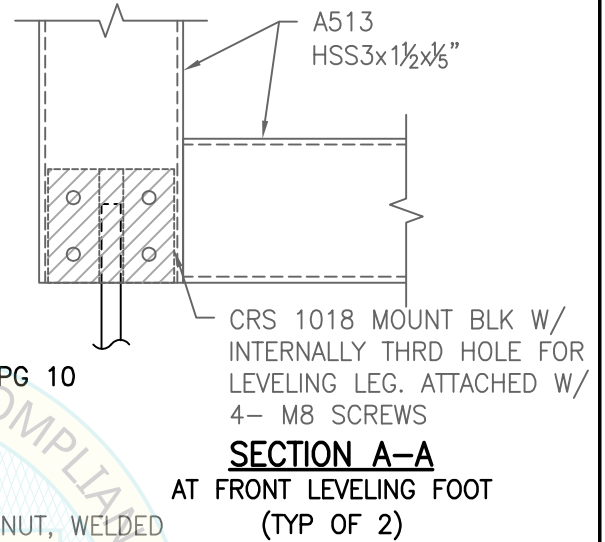
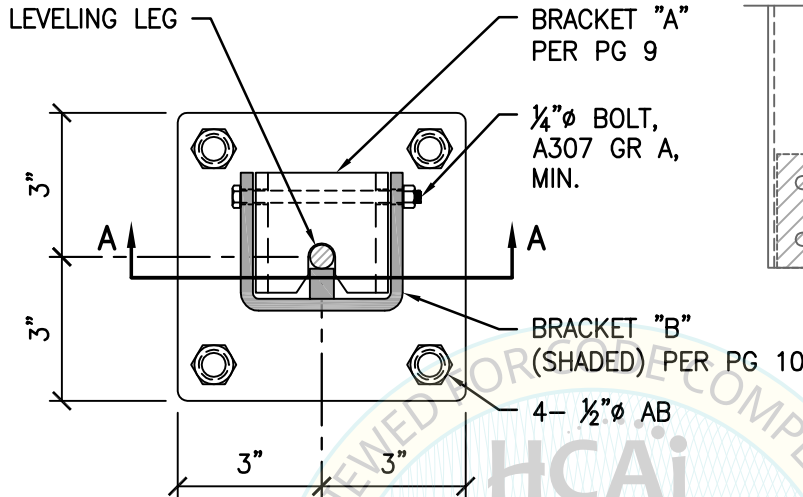
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**NOTES:**

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



SHEET TITLE: SEISMIC BRACKET ASSEMBLY DETAIL

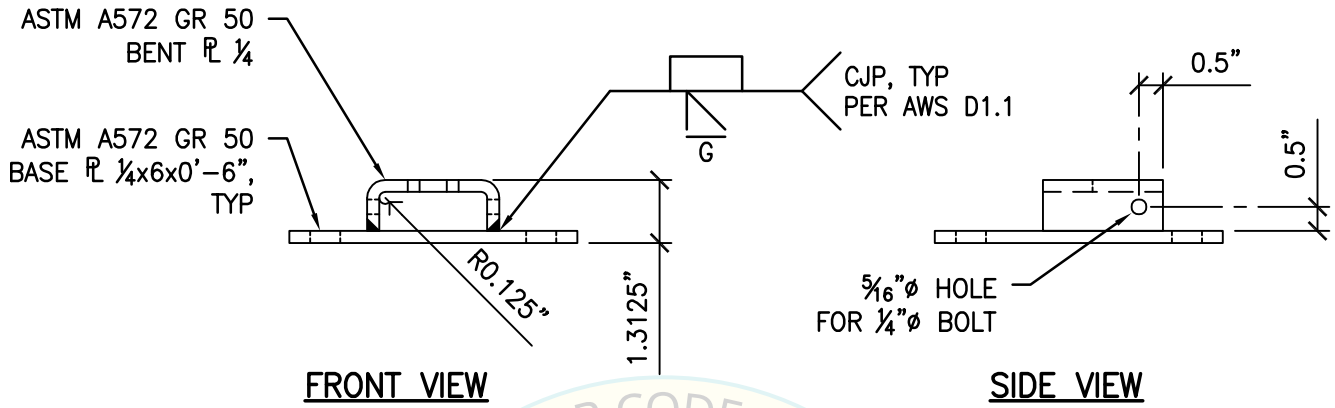


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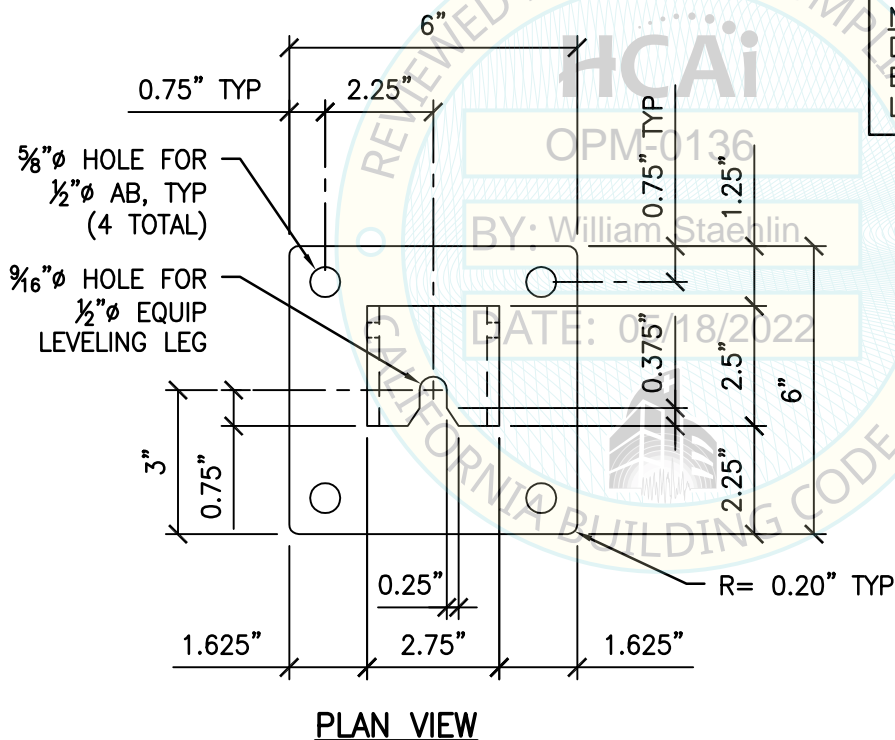
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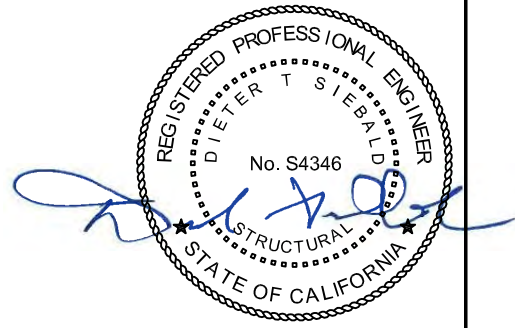
**FRONT VIEW**

**SIDE VIEW**



**PLAN VIEW**

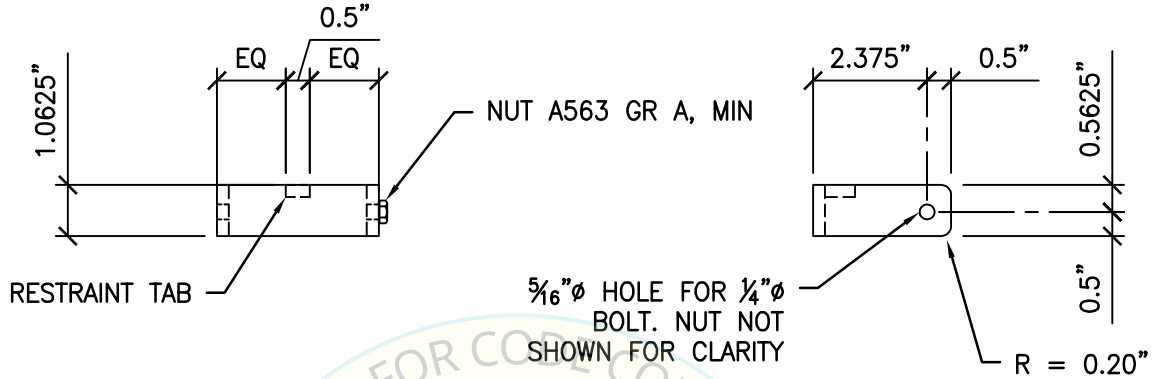
**NOTE:**  
DUE TO TIGHT TOLERANCE, TAKE EXTREME CARE WHEN LAYING OUT LOCATIONS FOR CONC AB.



SHEET TITLE: BRACKET "A" DETAIL

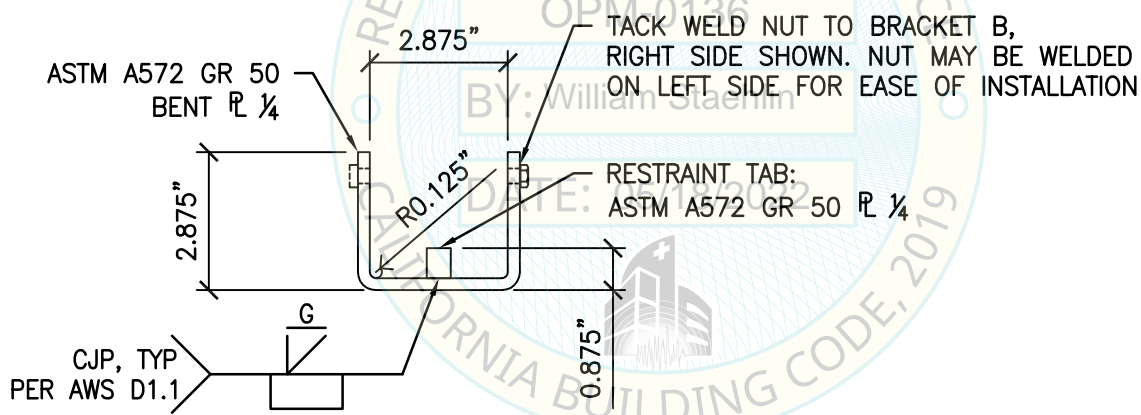
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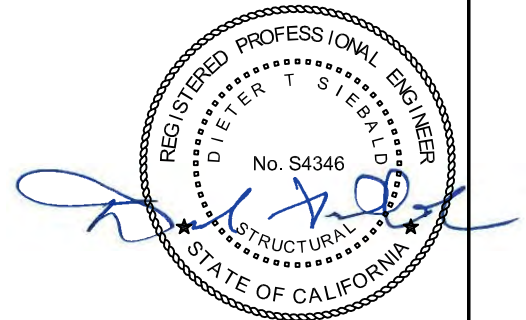


**FRONT VIEW**

**SIDE VIEW**



**PLAN VIEW**



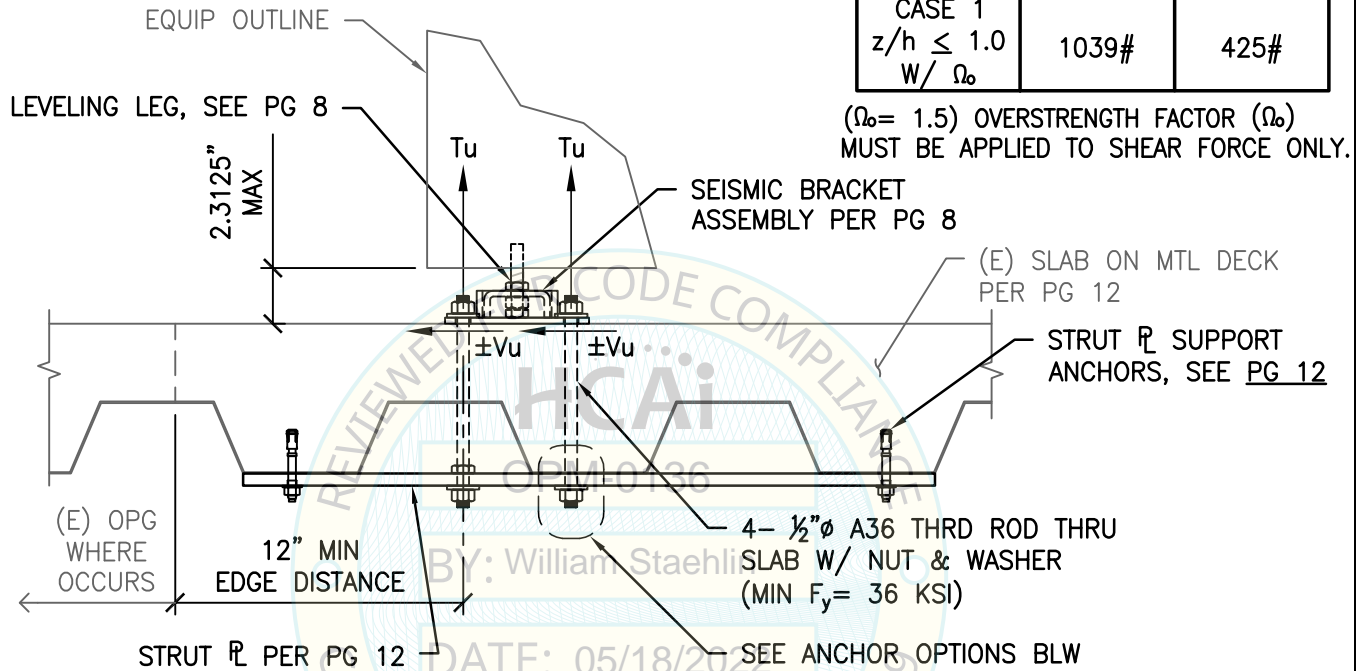
SHEET TITLE: BRACKET "B" DETAIL

	<b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833	TEL (916) 920-2020 www.cyseng.com	Job No: 22018.02
			Date: 05/17/2022
			Page: 10 of 13

C:\Users\comachom\appdata\local\temp\AcPublish\_28420\S1\_TASK 02.dwg Time:May17,2022-02:43pm Login:comachom Dimscale:1 LTScale:6

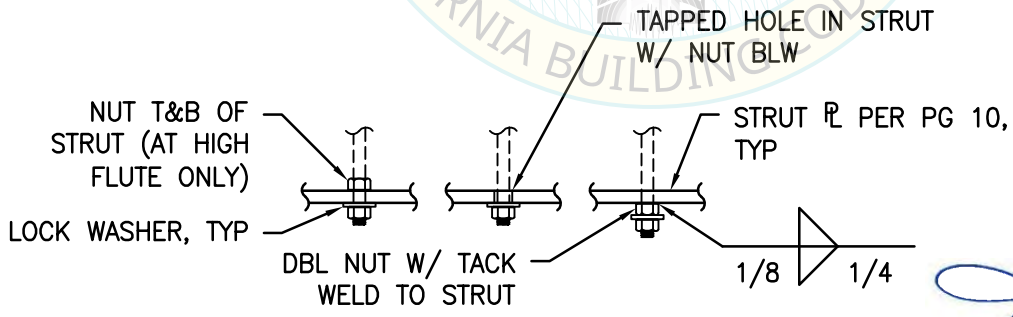
MAX ANCHOR FORCES  
AT LRFD AT EA AB

	Tu	Vu
CASE 1 $z/h \leq 1.0$ W/O $\Omega_o$	1039#	283#
CASE 1 $z/h \leq 1.0$ W/ $\Omega_o$	1039#	425#

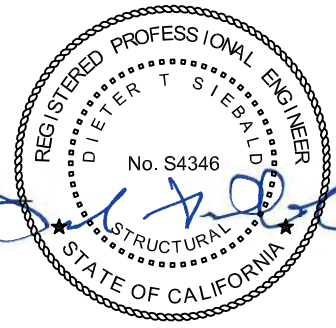


( $\Omega_o = 1.5$ ) OVERSTRENGTH FACTOR ( $\Omega_o$ )  
MUST BE APPLIED TO SHEAR FORCE ONLY.

**CASE 1 - SUSPENDED FLR W/ THRU BOLTS**



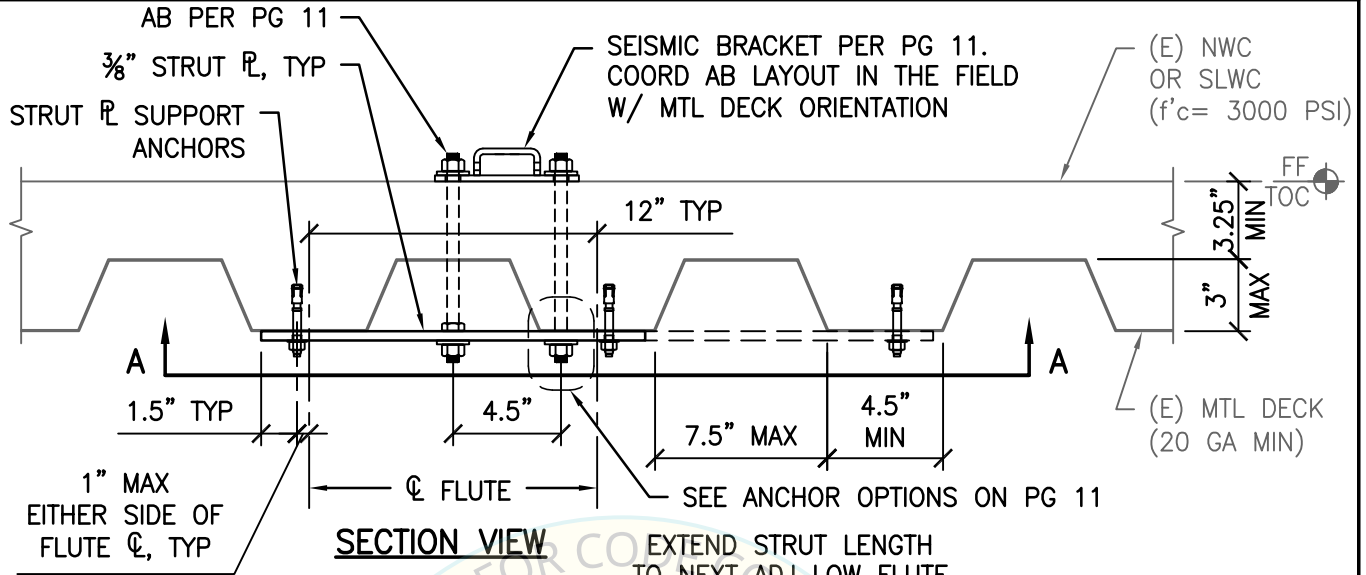
**ANCHOR OPTIONS**



SHEET TITLE: ATTACHMENT DETAILS  
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: 22018.02 Date: 05/17/2022 Page: 11 of 13
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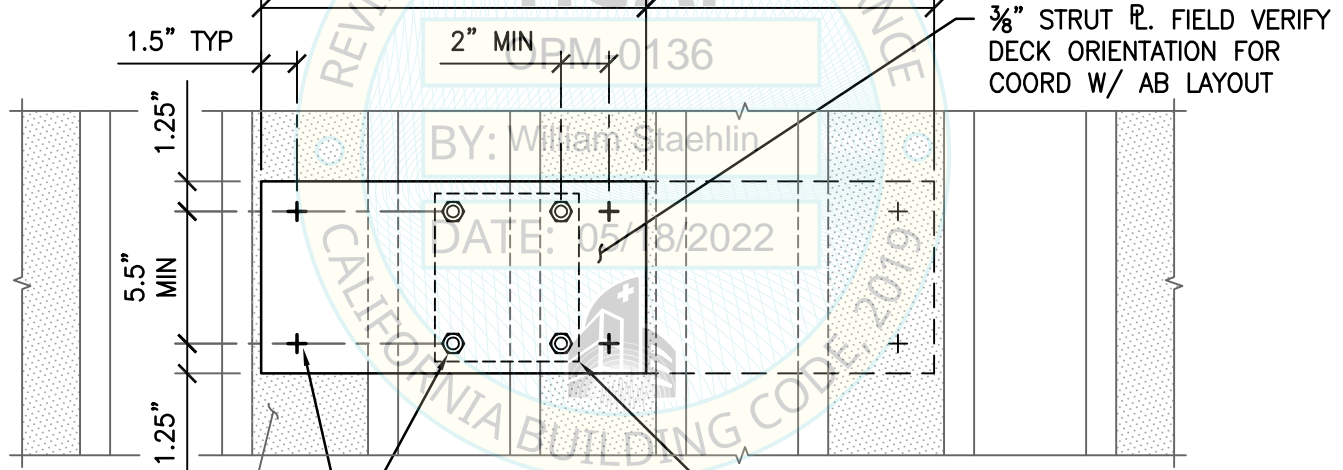
c:\Users\comachom\appdata\local\temp\AcPublish\_28420\S1\_TASK 02.dwg Time: May 17, 2022 - 02:43pm Login: comachom DimScale: 1 L7Scale: 6



**SECTION VIEW**

EXTEND STRUT LENGTH TO NEXT ADJ LOW FLUTE IF AB'S ARE LESS THAN 2" FROM STRUT  $\bar{r}$  SUPPORT SCREWS

LENGTH SHALL ENGAGE 2 LOW FLUTES MIN



**PLAN VIEW A-A**

STRUT  $\bar{r}$  SUPPORT ANCHORS: 3/8"  $\bar{o}$  EXPANSION BOLTS. SEE PGS 2&3 FOR INSTALLATION REQUIREMENTS. TYP OF 2 EA END OF  $\bar{r}$



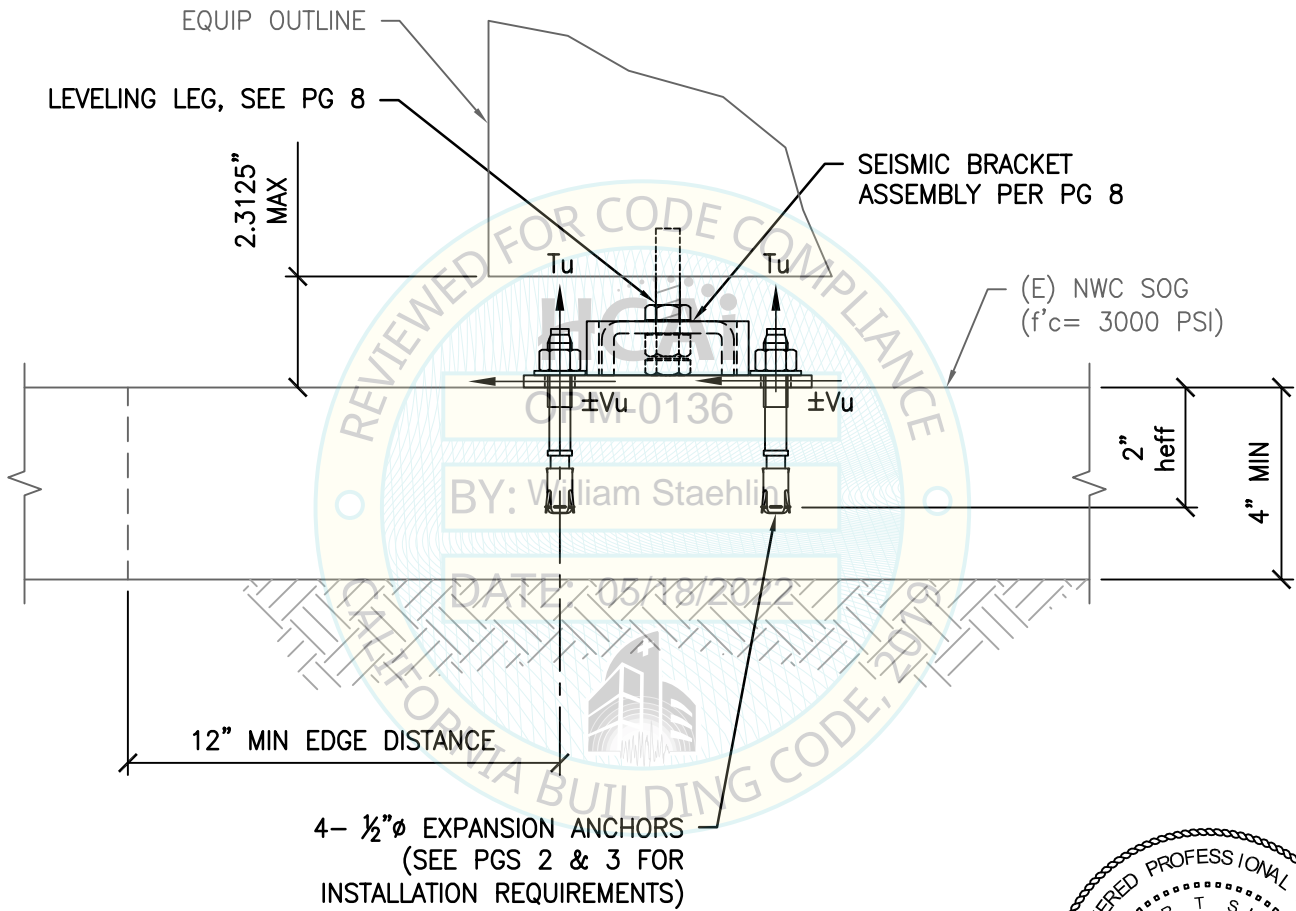
SHEET TITLE: ATTACHMENT DETAILS  
CONCRETE FILL OVER METAL DECK (CASE 1)

	<b>CYS STRUCTURAL ENGINEERS, INC.</b>		Job No: 22018.02
	2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833		Date: 05/17/2022
TEL (916) 920-2020 www.cyseng.com		Page: 12 of 13	

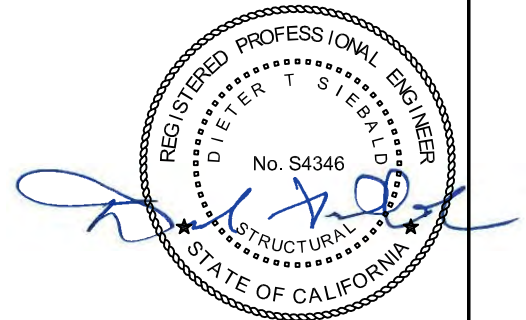
c:\Users\comachom\appdata\local\temp\AcPublish\_28420\S1\_TASK 02.dwg Time: May 17, 2022 - 02:43pm Login: comachom DimScale: 1 L7Scale: 6

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

OVERSTRENGTH FACTOR ( $\phi_b$ ) INCLUDED.



**CASE 2 - SLAB ON GRADE**



SHEET TITLE: ATTACHMENT DETAILS  
STAND TO SLAB ON GRADE (CASE 2)



**CYS STRUCTURAL ENGINEERS, INC.**

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SACRAMENTO, CA 95833

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