



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

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

OFFICE USE ONLY

APPLICATION #: OPM-0763

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: ☒ New ☐ Renewal/Update

Manufacturer Information

Manufacturer: Roche Diagnostics Corporation

Manufacturer's Technical Representative: Ron Silverman

Mailing Address: 9115 Hague Road, PO Box 50457, Indianapolis, IN 46250

Telephone: (317) 521-4975

Email: ron.silverman@roche.com

Product Information

Product Name: cobas pro i 601 Analytical System

Product Type: Medical Analyzer

Product Model Number: cobas pro i 601 Analytical System

General Description: Mass Spectrometry

Applicant Information

Applicant Company Name: Roche Diagnostics Corporation

Contact Person: Ron Silverman

Mailing Address: 9115 Hague Road, PO Box 50457, Indianapolis, IN 46250

Telephone: (317) 521-4975

Email: ron.silverman@roche.com

Title: Senior Regional Support Engineer

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY





DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
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Registered Design Professional Preparing Engineering Recommendations

Company Name: CYS STRUCTURAL ENGINEERS, INC.

Name: Dieter Siebald

California License Number: S4346

Mailing Address: 2710 Gateway Oaks Drive, Suite 190N, Sacramento, CA 95833

Telephone: (916) 920-2020

Email: dieters@cyseng.com

Certification Method

Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950 ☐ ASHRAE 171 ☐ FEMA 461

☐ Other(s) (Please Specify): _____

*Use of criteria other than those adopted by the California Building Standards Code, 2025 (CBSC 2025) 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 2025 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: 6/29/2026

Name: William Staehlin

Title: Senior Structural Engineer

Condition of Approval (if applicable): _____

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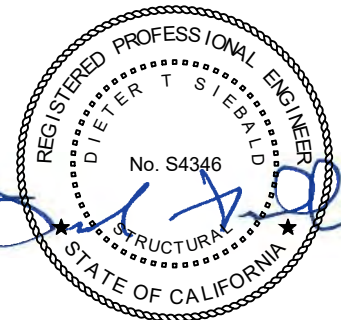


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NOTES:

1. THESE DRAWINGS ARE PREPARED FOR ROCHE DIAGNOSTICS CORPORATION, INDIANAPOLIS, INDIANA.
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 UNIT TO THE SUPPORTING STRUCTURE. THE EQUIPMENT UNITS ARE SUPPLIED BY ROCHE. THE SEISMIC BRACKETS, THRU-BOLTS, ANGLES & EXPANSION ANCHORS SHOWN ON PAGES 21-28 SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.



SHEET TITLE: TABLE OF CONTENTS



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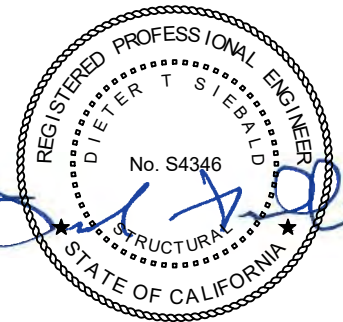
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www.cyseng.com

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GENERAL NOTES:

1. THIS OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2025. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2025.
2. EQUIP ANCHORAGES SUCH AS EXPANSION ANCHORS, BOLTS, SCREWS & FITTINGS SHALL BE DESIGNED IN COMPLIANCE W/ THE FORCE LEVEL REQUIREMENTS OF THE CBC 2025, TITLE 24, PART 2, VOLUME 2. LOAD COMBINATION FOR LOAD & RESISTANCE FACTOR DESIGN (LRFD) SHALL BE USED.
3. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD (SEOR) FOR A SITE SPECIFIC PROJECT TO VERIFY:
 - A. THE ADEQUACY OF THE (N) OR (E) STRUCTURE TO RESIST THE FORCES AND WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
 - B. THAT THE (N) ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS. SEE TABLE 1 ON PG 5.
 - C. THAT THE (N) ANCHORS ARE LOCATED AT LEAST 18" AWAY FROM ADJ (E) ANCHORS OR THE SEOR SHALL EVALUATE THE ANCHORAGES FOR THE EQUIP IN THIS OPM FOR ADVERSE AFFECTS OF ADJ ANCHORS. THE SPACING SHOWN IN TABLE 1 ON PG 5, IS THE REQ MIN SPACING OF THE ½" DIA AB'S. THE REQ SPACING FROM ANCHORS OF OTHER DIA & EMBEDMENTS WILL VARY & SHALL BE EVALUATED BY THE SEOR.
 - D. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE CBC 2025 AND W/ THE DTLS SHOWN IN THIS PRE-APPROVAL.
 - E. THAT THE ACTUAL EQUIP'S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DTLS, & THE MATERIAL & GA OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN IN THIS PRE-APPROVAL.
 - F. THAT THE CONC SLAB TO WHICH THE EQUIP IS ANCHORED SHALL MEET THE REQUIREMENTS OF THE APPLICABLE ICC REPORT & THIS OPM.
4. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STEEL HILTI KWIK BOLT TZ2 EXPANSION ANCHORS COMPLYING W/ ESR-4266 MOST RECENT EDITION.
 - A. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE W/ THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR AND THE PARAMETERS GIVEN IN THE TABLE ON PG 5.
 - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOB SITE TESTING IN ACCORDANCE W/ 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 SPRING LOADING DEVICES OR CALIBRATED TORQUE WRENCH METHOD. REPORT OF TEST RESULTS SHALL BE SUBMITTED TO OSHPD. 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 EQUIP INSTALLATION. ALSO REFER TO CBC 2025 1910A.5 "TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE".



SHEET TITLE: GENERAL NOTES



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GENERAL NOTES: (CONTINUED)

4C. 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. ANCHOR REQUIREMENTS:

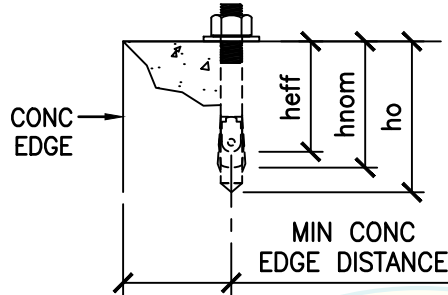


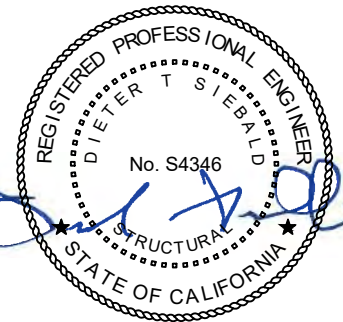
TABLE 1

CONDITION OF ANCHORAGE (*)	ANCHOR DIA (INCH) da	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) hef	HOLE DEPTH (INCH) ho	MIN CONC THICKNESS (INCH) hmin	MIN CONC EDGE DISTANCE (INCH)	MIN AB SPACING (INCH)	TEST TORQUE (FT-LBS)
CASE 1 STRUT PLS	$\frac{3}{8}$ KB-TZ2	$1\frac{3}{16}$	$1\frac{1}{2}$	2	$\frac{3}{4}$	6	10	30
CASE 2	$\frac{1}{2}$	$2\frac{1}{2}$	2	$2\frac{3}{4}$	$\frac{3}{4}$	12	6	50
CASE 3	$\frac{1}{2}$	$2\frac{1}{2}$	2	$2\frac{3}{4}$	4	12	6	50

(*) - SEE PG 4 FOR CASE DEFINITIONS

5. BOLTS THROUGH CONC ON MTL DECK:

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



SHEET TITLE: GENERAL NOTES (CONTINUED)



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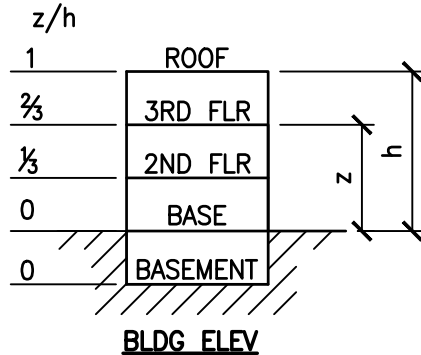
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GENERAL NOTES: (CONTINUED)

6. THREE (3) CASES OF ATTACHMENT ARE SPECIFIED AND PRESENTED IN THIS PRE-APPROVAL:



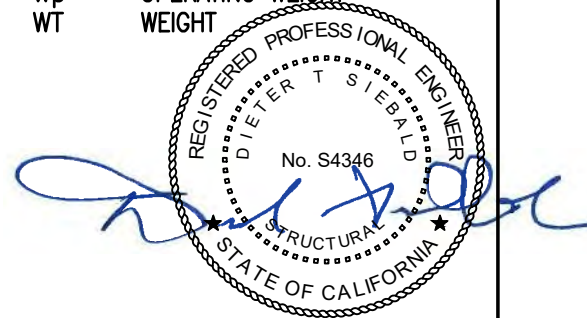
CASE 1: ATTACHMENT DTLs FOR THRU-BOLTS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG ($z/h \leq 0.95$), THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 3/4" SLWC TOPPING OVER MTL DECK ($f'_c = 3000$ PSI, MIN).

CASE 2: ATTACHMENT DTLs FOR ABs INTO CONC FILL LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG ($z/h \leq 0.95$), THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 3/4" SLWC TOPPING OVER MTL DECK ($f'_c = 3000$ PSI, MIN).

CASE 3: ATTACHMENT DTLs FOR ABs INTO CONC SLAB LOCATED AT OR BLW THE BASE OF A BLDG ($z/h = 0$). THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 4" NWC SLAB ($f'_c = 3000$ PSI, MIN).

ABBREVIATIONS:

AB	ANCHOR BOLT	F_p	HORIZONTAL SEISMIC FORCE PER	PG(S)	PAGE(S)
ABV	ABOVE		ASCE 7-22 SEISMIC FORCE	P	PLATE
ADJ	ADJACENT		REQUIREMENTS	PSI	POUNDS PER SQUARE INCH
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	F_v	VERTICAL SEISMIC FORCE PER	REQ	REQUIRED
			ASCE 7-22 SEISMIC FORCE	SEOR	STRUCTURAL ENGINEER OF RECORD
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS		REQUIREMENTS	SIM	SIMILAR
		F_y	SPECIFIED MINIMUM YIELD	SLWC	SAND-LIGHTWEIGHT CONCRETE
BLDG	BUILDING		STRESS OF STEEL	SS	STAINLESS STEEL
BLW	BELOW	GA	GAUGE	STL	STEEL
BOTT	BOTTOM	HCAI	CALIFORNIA DEPARTMENT OF HEALTHCARE	THK	THICK/THICKNESS
BRG	BEARING		ACCESS AND INFORMATION	THRD	THREAD/THEADED
CBC	CALIFORNIA BUILDING CODE	IN (")	INCH	TRAN	TRANSVERSE
CG	CENTER OF GRAVITY	INFO	INFORMATION	Tu	ANCHORAGE TENSION REACTION
$\bar{C}$	CENTERLINE	KSI	KIPS PER SQUARE INCH		DUE TO SEISMIC FORCE
CONC	CONCRETE	LBS	POUNDS	TYP	TYPICAL
CONN	CONNECTION	LRFD	LOAD AND RESISTANCE	T&B	TOP & BOTTOM
COORD	COORDINATE		FACTOR DESIGN	UNO	UNLESS NOTED OTHERWISE
DBL	DOUBLE	MAX	MAXIMUM	Vu	ANCHORAGE SHEAR REACTION
DTL	DETAIL	MFR	MANUFACTURER		DUE TO SEISMIC FORCE
DIA (ϕ)	DIAMETER	MIN	MINIMUM	W/	WITH
(E)	EXISTING CONDITION	mm	MILLIMETER	Wp	OPERATING WEIGHT
EA	EACH	MTL	METAL	WT	WEIGHT
ELEV	ELEVATION	(N)	NEW CONDITION		
EQ	EQUAL	NO. (#)	NUMBER OR POUNDS		
EQUIP	EQUIPMENT	NWC	NORMAL WEIGHT CONCRETE		
f'_c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE	OP	OPERATING		
		OPG	OPENING		
FLR	FLOOR	OPM	OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION		
FT (')	FOOT/FEET	OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT		



SHEET TITLE: GENERAL NOTES (CONTINUED)
& ABBREVIATIONS

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DESIGN CRITERIA & SEISMIC DESIGN FORCES (LRFD)

$$C_{PM} = F_p/W_p = 0.4 S_{DS} I_p \left[\frac{H_f}{R_{\mu}} \right] \left[\frac{C_{AR}}{R_{po}} \right] \quad \text{ASCE 7-22 (13.3-1)}$$

$$C_{PM} = F_p/W_p \text{ (MAX)} = 1.6 S_{DS} I_p \quad \text{ASCE 7-22 (13.3-2)}$$

$$C_{PM} = F_p/W_p \text{ (MIN)} = 0.3 S_{DS} \quad \text{ASCE 7-22 (13.3-3)}$$

$$C_{VM} = F_v/W_p = \pm 0.2 S_{DS} \quad \text{ASCE 7-22 (12.4-4a)}$$

$$H_{f_{MIN}} = 1.0 \quad \text{AT OR BELOW GRADE PLANE}$$

$$H_{f_{MAX}} = 1+2.5 (z/h) = 3.375 \quad \text{ABOVE GRADE } z/h = 0.95$$

$$R_{\mu_{MIN}} = 1.0 \quad \text{AT OR BELOW GRADE PLANE}$$

$$R_{\mu_{MIN}} = 1.3 \quad \text{ABOVE GRADE FOR UNSPECIFIED BUILDING SFERS}$$

$$[H_f/R_{\mu}]_{MAX} = 2.60 \quad \text{ABOVE GRADE } z/h = 0.95$$

$$[H_f/R_{\mu}]_{MIN} = 1.00 \quad \text{AT OR BELOW GRADE PLANE}$$

SUPPORT & ATTACHMENT DESIGN IS PER 2025 CBC AT LRFD LEVEL FORCES PER TABLE 13.6-1 OF ASCE 7-22. "OTHER MECHANICAL OR ELECTRICAL COMPONENTS"

$$C_{AR} = 1.0$$

$$R_{po} = 1.5$$

$$I_p = 1.5$$

$$\Omega_{op} = 2.0$$

$$W_p = \text{AS NOTED ON "COMPONENT PLANS & ELEVATIONS" PAGES}$$

THEREFORE,

$$F_p = 0.4 S_{DS} 1.5 W_p (1.0/1.0)(1.0/1.5) = 0.4 S_{DS} W_p \quad \text{AT OR BELOW GRADE PLANE}$$

$$\text{MIN } F_p = 0.3 S_{DS} 1.5 W_p = 0.45 S_{DS} W_p \quad \text{GOVERNS AT OR BELOW GRADE PLANE}$$

$$F_p = 0.4 S_{DS} 1.5 W_p (3.375/1.3)(1.0/1.5) = 1.04 S_{DS} W_p \quad \text{AT } z/h = 0.95$$

TABLE 2 (LRFD)

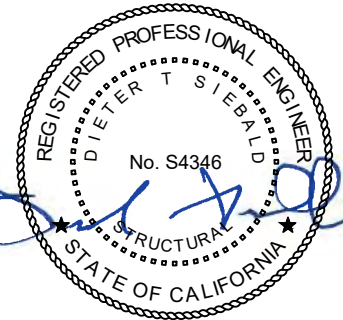
	S_{DS}	z/h	$C_{PM} = F_p/W_p$	$C_{VM} = F_v/W_p$
CASE 1	2.23	0.95	2.316	0.446
CASE 2	0.525	0.95	0.609	0.105
	1.015	0.25	0.609	0.203
CASE 3	1.870	0	0.842	0.374

LOAD COMBINATIONS

- $(1.2 + 0.2 S_{DS}) D + 1.0E$ ASCE 2.3.6
- $(0.9 - 0.2 S_{DS}) D + 1.0E$ ASCE 2.3.6

LOAD COMBINATIONS W/ OVERSTRENGTH (USE FOR ATTACHMENT TO CONCRETE)

- $(1.2 + 0.2 S_{DS}) D + \Omega_{op}E$ ASCE 12.4.3
- $(0.9 - 0.2 S_{DS}) D + \Omega_{op}E$ ASCE 12.4.3



SHEET TITLE: DESIGN CRITERIA



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SYSTEM OVERVIEW

1. THE ROCHE cobas pro i 601 ANALYTIC SYSTEM CONSISTS OF THE FOLLOWING MAJOR COMPONENTS:

- SAMPLE SUPPLY UNIT (SSU)
- SAMPLE BUFFER (SB)
- SAMPLE BUFFER LINE (SBL)
 - iSBL1 + DRIVE LINE (DL) RACK DRIVE LINE LOCATED BEHIND THE SP
 - iSBL2 + BLANK LINE (BL) LOCATED BEHIND LC & MS
- ANALYTICAL UNITS (AU) – i 601 IS MADE UP OF THE FOLLOWING:
 - SAMPLE PREPARATION (SP)
 - LIQUID CHROMATOGRAPHY (LC)
 - MASS SPEC (MS)

EQUIPMENT FRAME MATERIAL:

SUS430, GRADE 430SS, ASTM A240:

2.0mm THK (14 GA)

Fy= 45 KSI MIN; Fu= 70 KSI MIN

OR

JFE-CC-EZ-JN 20/20, CHROMATE FREE COATED STEEL:

2.5mm THK (13 GA)

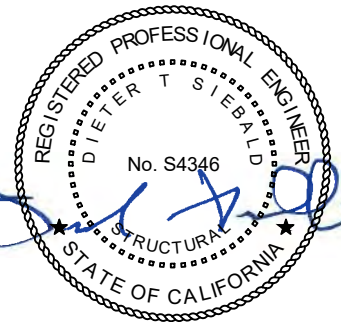
Fy= 18.1 KSI MIN; Fu= 39.1 KSI MIN

2. SCHEMATIC OVERVIEW DWGS FOLLOW THAT SHOW THE DIFFERENT COMBINATIONS FOR THE SYSTEM.

OPM-0763

BY: William Staehlin

DATE: 06/29/2026



SHEET TITLE: SYSTEM OVERVIEW



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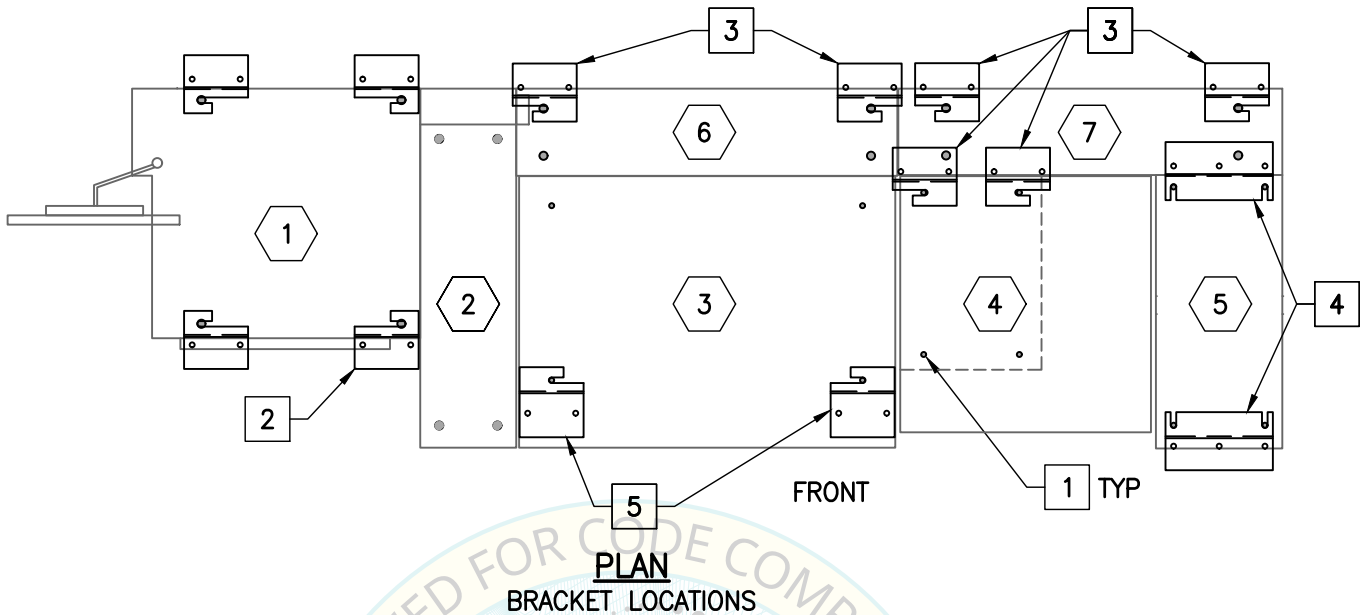
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NOTES:

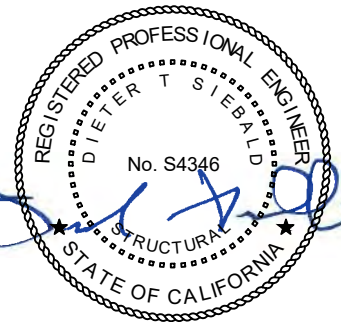
1. SEE BLW FOR APPLICABLE KEY NOTES & COMPONENTS.
2. DRAWINGS ARE NOT TO SCALE. SEE COMPONENT DRAWINGS FOR DIMENSIONS.
3. CASTERS NOT SHOWN FOR CLARITY.

COMPONENT:

KEY NOTES

- 1 SAMPLE SUPPLY UNIT (SSU)
PER PG 13
- 2 SAMPLE BUFFER (SB)
PER PG 14
- 3 i 601 SAMPLE PREPARATION (SP)
PER PG 15
- 4 i 601 LIQUID CHROMATOGRAPHY (LC)
PER PG 16
- 5 i 601 MASS SPEC (MS)
PER PG 17
- 6 iSBL1 + DRIVE LINE (DL) RACK DRIVE
PER PG 18
- 7 iSBL2 + BLANK LINE (BL)
PER PG 19

- 1 LEVELING LEG PER PG 20, TYP
- 2 SEISMIC BRACKET PER PG 21
AT SSU UNIT
- 3 SEISMIC BRACKET PER PG 22
AT LC, DL, AND BL UNITS
- 4 SEISMIC BRACKET PER PG 23
AT MS UNIT
- 5 SEISMIC BRACKET PER PG 24
AT SP UNIT



SHEET TITLE: SYSTEM CONFIGURATION
SINGLE - BRACKET LOCATIONS

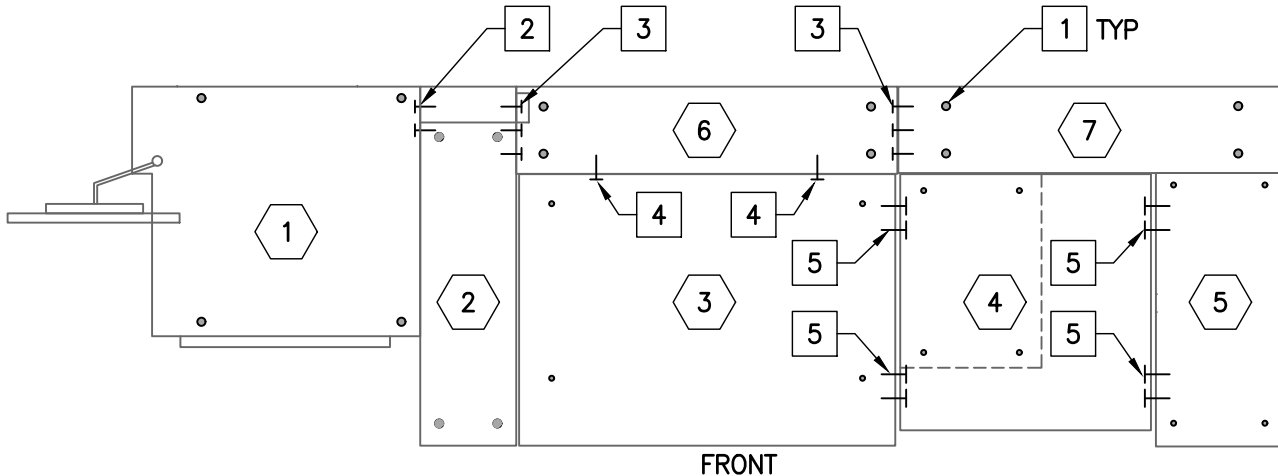


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FRONT

PLAN

UNIT INTERCONNECTIONS

HEX HEAD CAP SCREW PROPERTIES			
Specification:	M10	M8	UNITS
Material:	SUS304	SUS304	
Tensile Stress:	520	520	N/mm ²
Effective Section Area:	58	36.6	mm ²
Tensile Load:	30160	19,032	N
Shear Stress:	147	47	N/mm ²
Shear Load:	8526	5380	N

NOTES:

- SEE BLW FOR APPLICABLE KEY NOTES & COMPONENTS.
- DRAWINGS ARE NOT TO SCALE. SEE COMPONENT DRAWINGS FOR DIMENSIONS.
- CASTERS NOT SHOWN FOR CLARITY.

COMPONENT:

KEY NOTES

- SAMPLE SUPPLY UNIT (SSU)
PER PG 13
- SAMPLE BUFFER (SB)
PER PG 14
- i 601 SAMPLE PREPARATION (SP)
PER PG 15
- i 601 LIQUID CHROMATOGRAPHY (LC)
PER PG 16
- i 601 MASS SPEC (MS)
PER PG 17
- iSBL1 + DRIVE LINE (DL) RACK DRIVE
PER PG 18
- iSBL2 + BLANK LINE (BL)
PER PG 19

- LEVELING LEG PER PG 20, TYP
- TWO M8 x 16 HEX BOLTS
- THREE M8 x 16 HEX BOLTS
- ONE M8 x 20 HEX BOLT
- TWO M10 x 20 HEX BOLTS



SHEET TITLE: SYSTEM CONNECTIONS

SINGLE - UNIT INTERCONNECTIONS

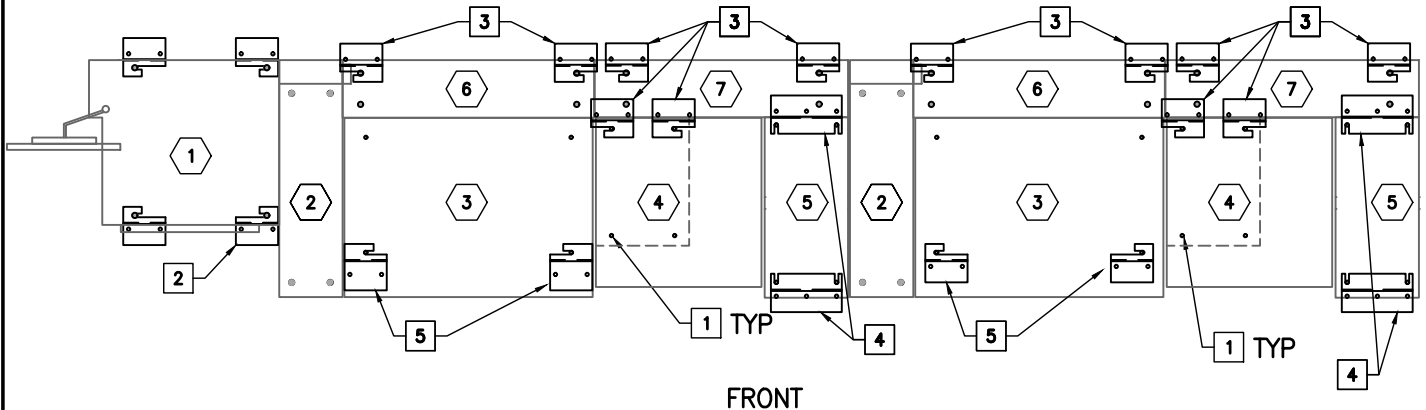


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PLAN
BRACKET LOCATIONS

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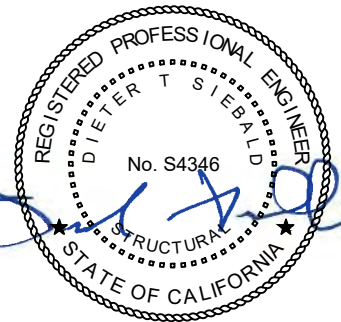
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3. CASTERS NOT SHOWN FOR CLARITY.

COMPONENT:

KEY NOTES

- 1 SAMPLE SUPPLY UNIT (SSU)
PER PG 13
- 2 SAMPLE BUFFER (SB)
PER PG 14
- 3 i 601 SAMPLE PREPARATION (SP)
PER PG 15
- 4 i 601 LIQUID CHROMATOGRAPHY (LC)
PER PG 16
- 5 i 601 MASS SPEC (MS)
PER PG 17
- 6 iSBL1 + DRIVE LINE (DL) RACK DRIVE
PER PG 18
- 7 iSBL2 + BLANK LINE (BL)
PER PG 19

- 1 LEVELING LEG PER PG 20, TYP
- 2 SEISMIC BRACKET PER PG 21
AT SSU UNIT
- 3 SEISMIC BRACKET PER PG 22
AT LC, DL, AND BL UNITS
- 4 SEISMIC BRACKET PER PG 23
AT MS UNIT
- 5 SEISMIC BRACKET PER PG 24
AT SP UNIT



SHEET TITLE: SYSTEM CONFIGURATION
DOUBLE - BRACKET LOCATIONS

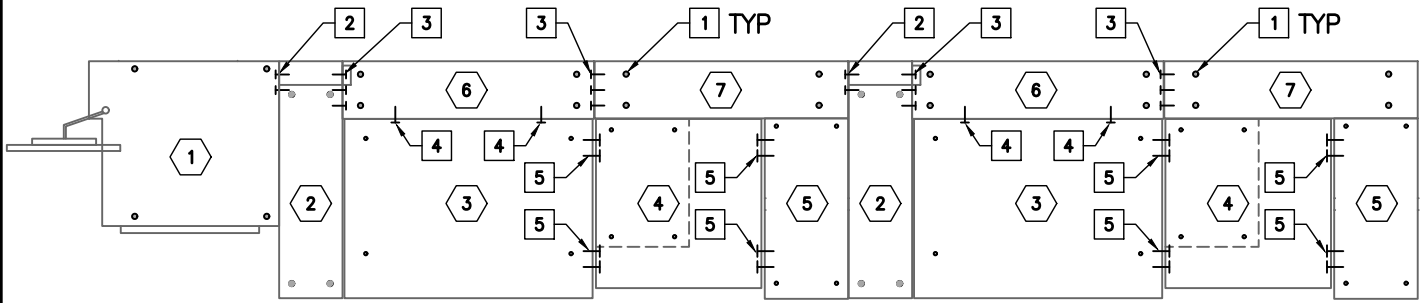


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FRONT
PLAN
UNIT INTERCONNECTIONS

HEX HEAD CAP SCREW PROPERTIES			
Specification:	M10	M8	UNITS
Material:	SUS304	SUS304	
Tensile Stress:	520	520	N/mm ²
Effective Section Area:	58	36.6	mm ²
Tensile Load:	30160	19,032	N
Shear Stress:	147	47	N/mm ²
Shear Load:	8526	5380	N

NOTES:

- SEE BLW FOR APPLICABLE KEY NOTES & COMPONENTS.
- DRAWINGS ARE NOT TO SCALE. SEE COMPONENT DRAWINGS FOR DIMENSIONS.
- CASTERS NOT SHOWN FOR CLARITY.

COMPONENT:

KEY NOTES

- SAMPLE SUPPLY UNIT (SSU)
PER PG 13
- SAMPLE BUFFER (SB)
PER PG 14
- i 601 SAMPLE PREPARATION (SP)
PER PG 15
- i 601 LIQUID CHROMATOGRAPHY (LC)
PER PG 16
- i 601 MASS SPEC (MS)
PER PG 17
- iSBL1 + DRIVE LINE (DL) RACK DRIVE
PER PG 18
- iSBL2 + BLANK LINE (BL)
PER PG 19

- LEVELING LEG PER PG 20, TYP
- TWO M8 x 16 HEX BOLTS
- THREE M8 x 16 HEX BOLTS
- ONE M8 x 20 HEX BOLT
- TWO M10 x 20 HEX BOLTS



SHEET TITLE: SYSTEM CONNECTIONS
DOUBLE - UNIT INTERCONNECTIONS



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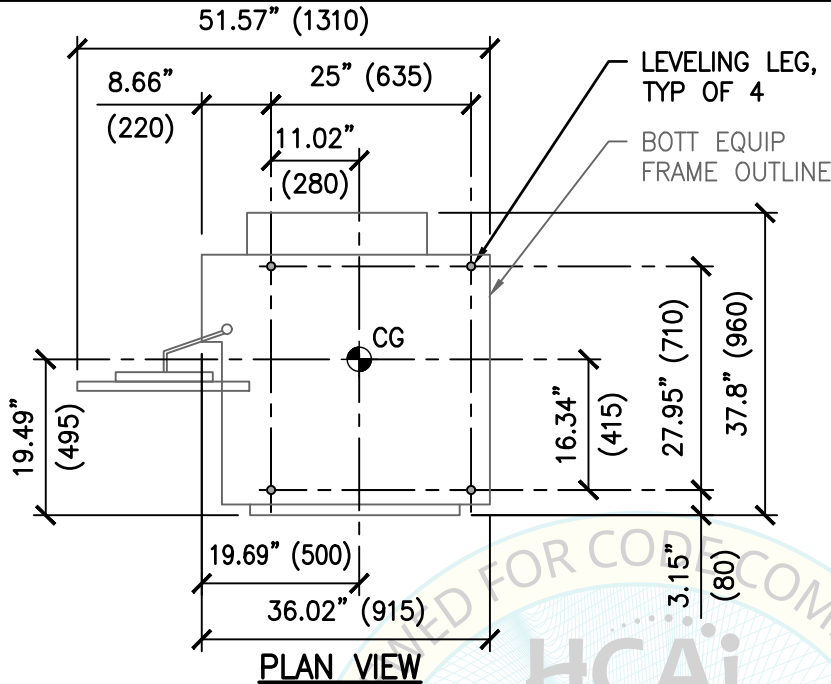
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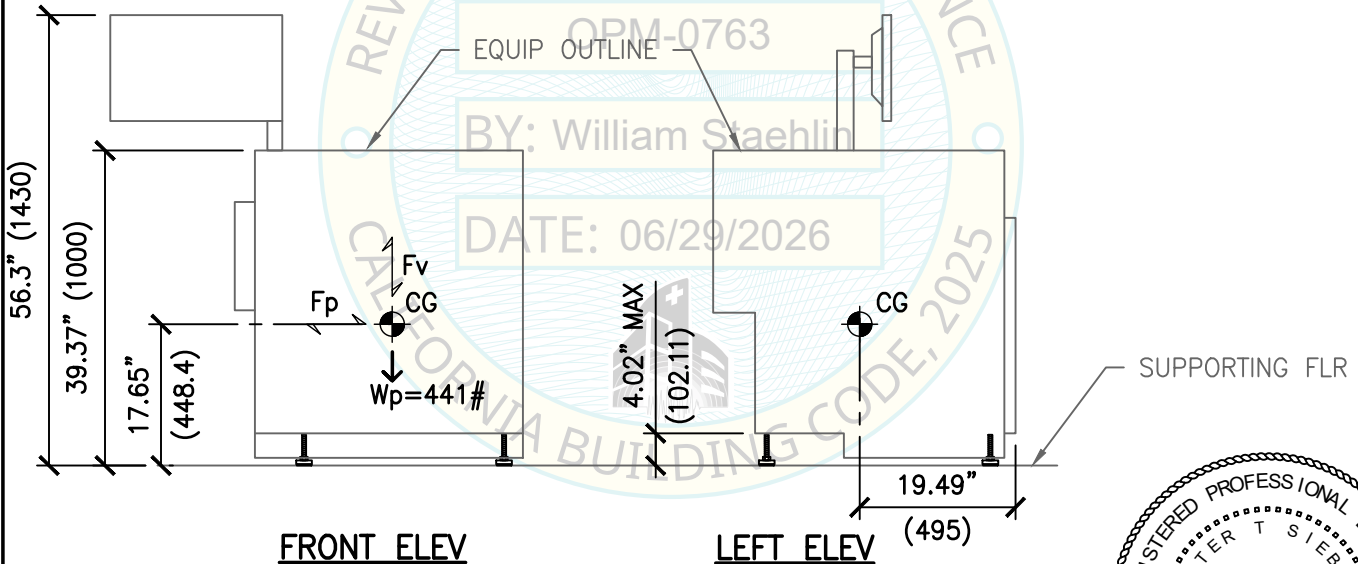
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Roche



PLAN VIEW

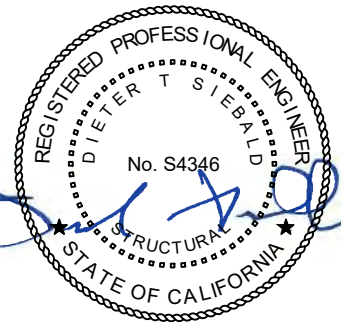


FRONT ELEV

LEFT ELEV

NOTES:

1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM CONFIGURATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. REFER TO PG 8 FOR FRAME MATERIAL PROPERTIES.



SHEET TITLE: COMPONENT PLANS & ELEVATIONS
UNIT 1 SAMPLE SUPPLY UNIT (SSU)

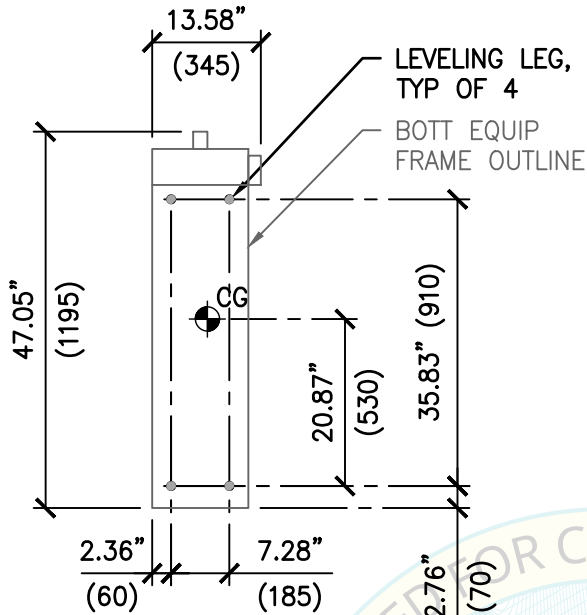


CYS STRUCTURAL ENGINEERS, INC.

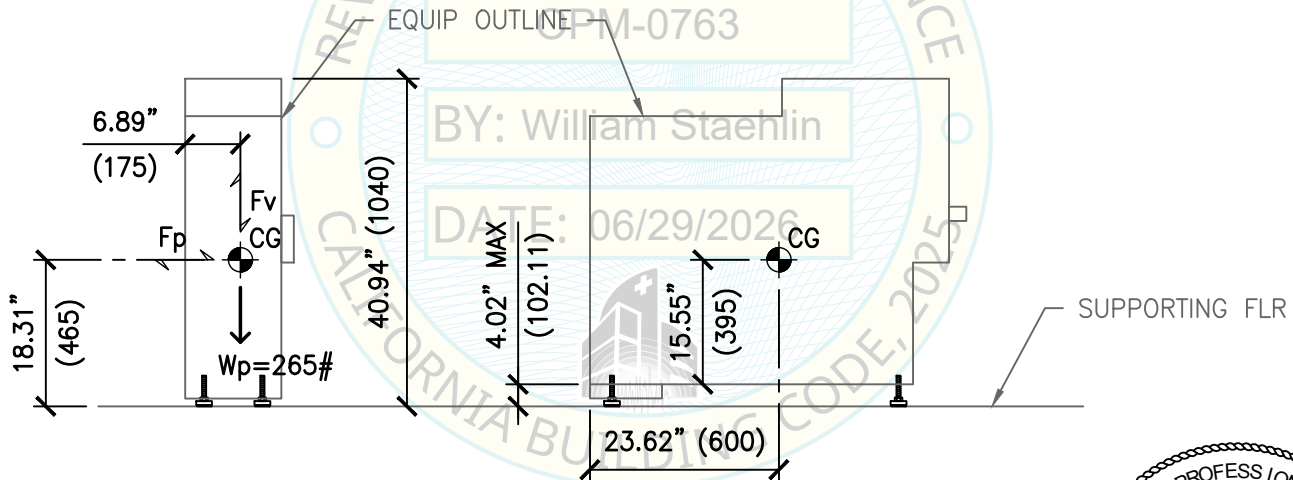
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PLAN VIEW

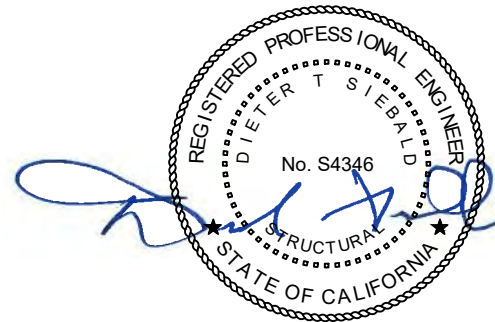


FRONT ELEV

RIGHT ELEV

NOTES:

1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM CONFIGURATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. REFER TO PG 8 FOR FRAME MATERIAL PROPERTIES.



SHEET TITLE: COMPONENT PLANS & ELEVATIONS
UNIT 2 SAMPLE BUFFER (SB)

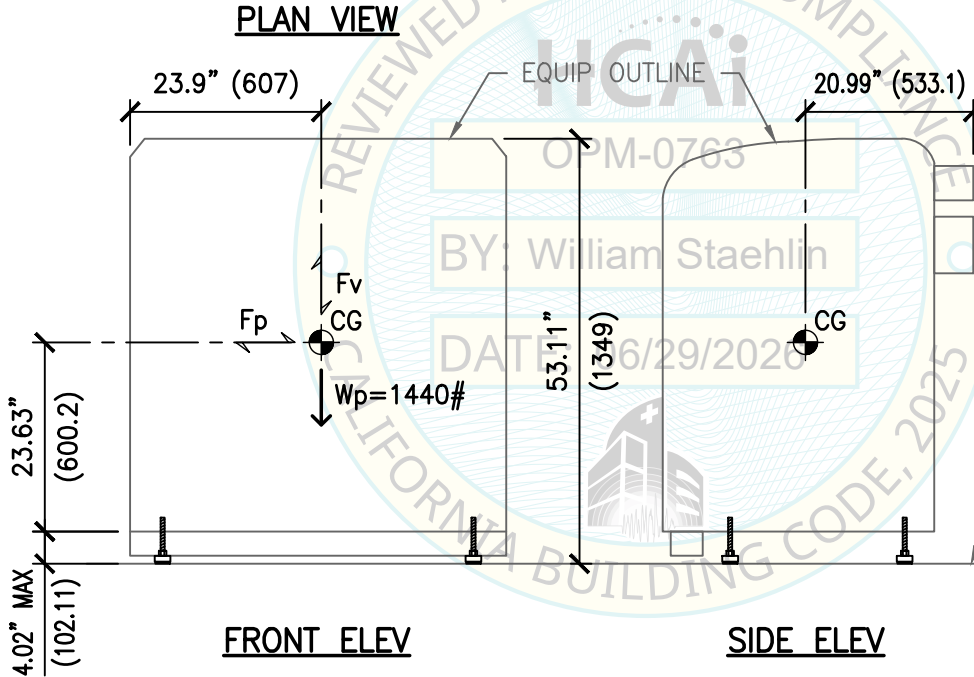
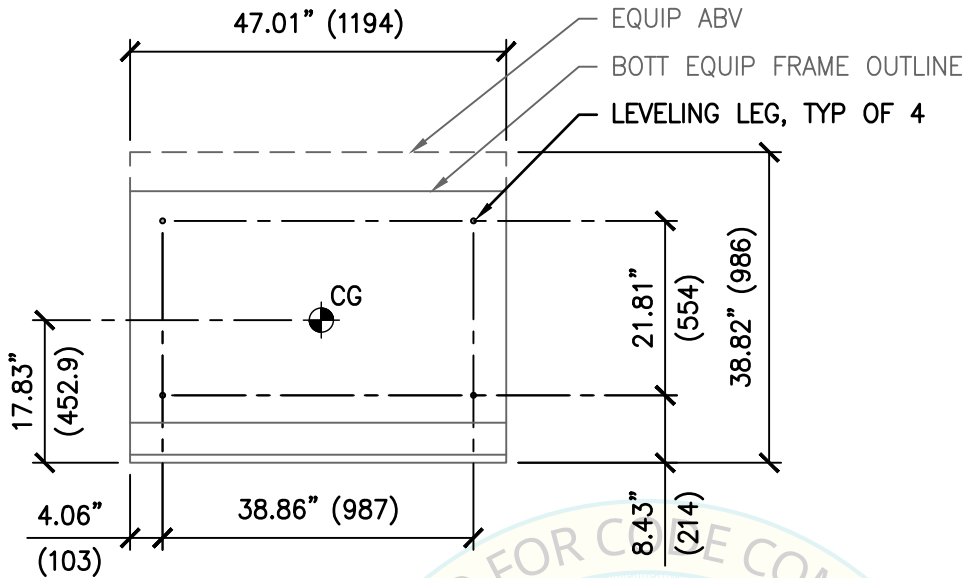


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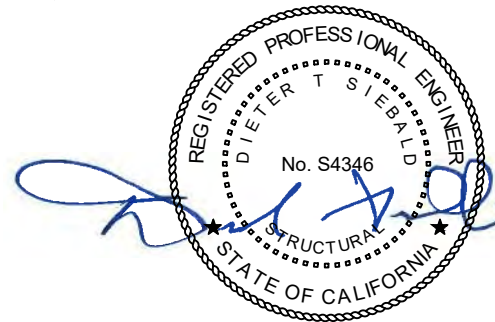
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NOTES:

1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM CONFIGURATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. REFER TO PG 8 FOR FRAME MATERIAL PROPERTIES.



SHEET TITLE: COMPONENT PLANS & ELEVATIONS

UNIT 3 ANALYTICAL UNIT SAMPLE PREPARATION (SP)

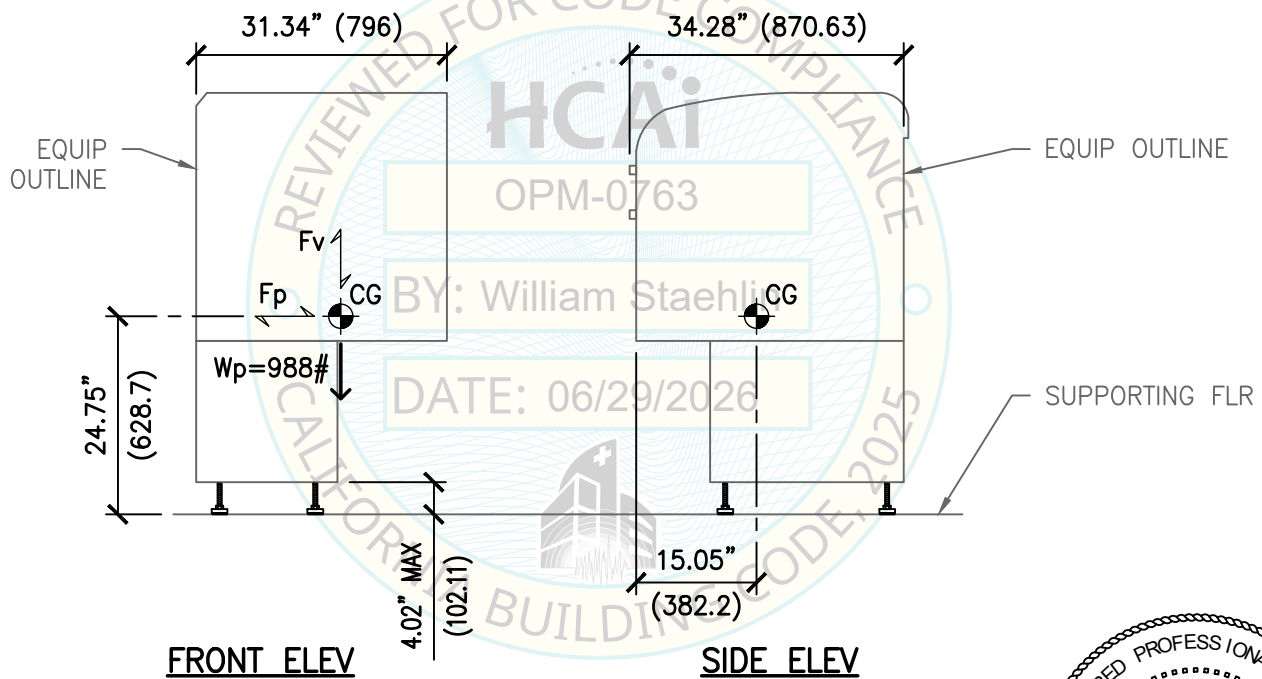
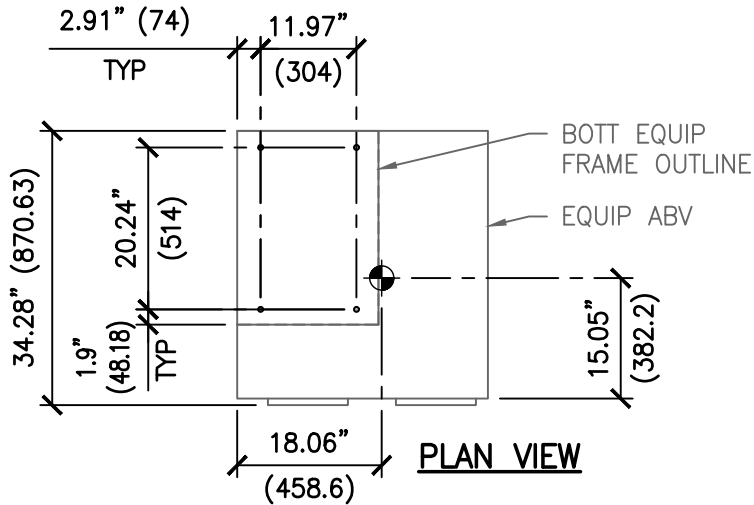


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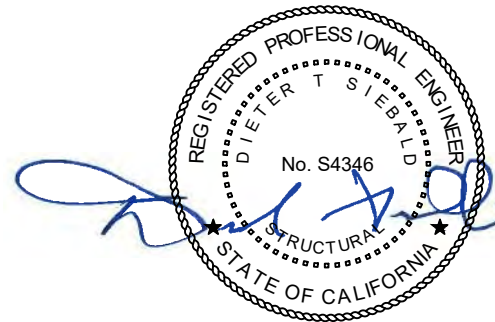
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NOTES:

1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM CONFIGURATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. REFER TO PG 8 FOR FRAME MATERIAL PROPERTIES.



SHEET TITLE: COMPONENT PLANS & ELEVATIONS
UNIT 4 ANALYTICAL UNIT LIQUID CHROMATOGRAPHY (LC)



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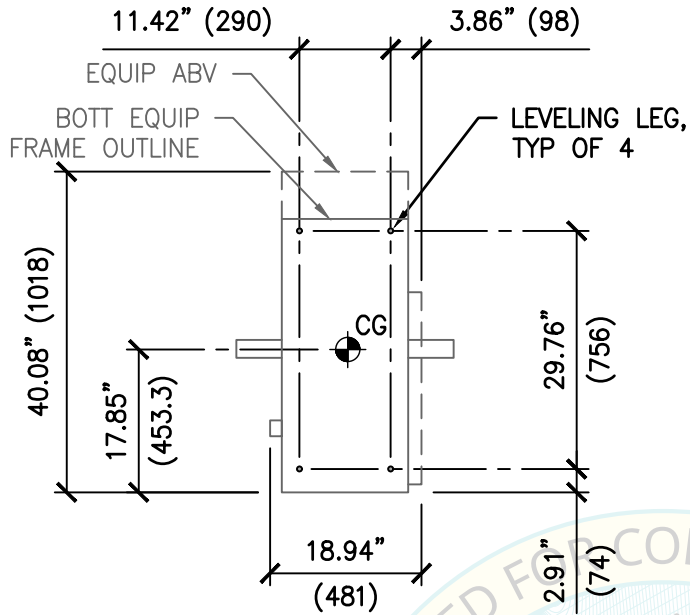
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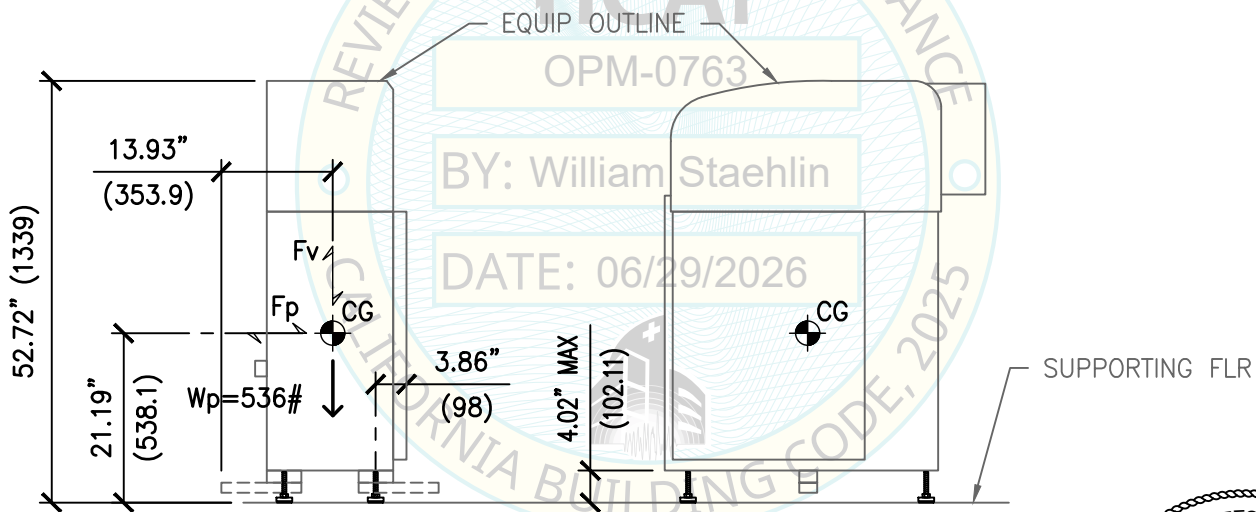
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PLAN VIEW

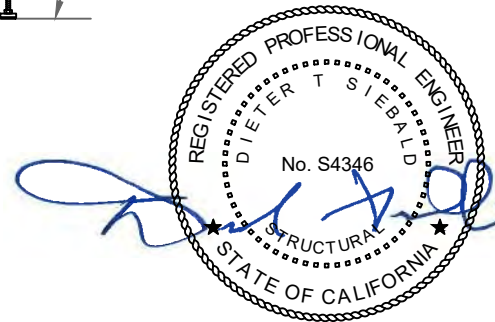


FRONT ELEV

SIDE ELEV

NOTES:

1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM CONFIGURATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. REFER TO PG 8 FOR FRAME MATERIAL PROPERTIES.



SHEET TITLE: COMPONENT PLANS & ELEVATIONS
UNIT 5 ANALYTICAL UNIT MASS SPEC (MS)

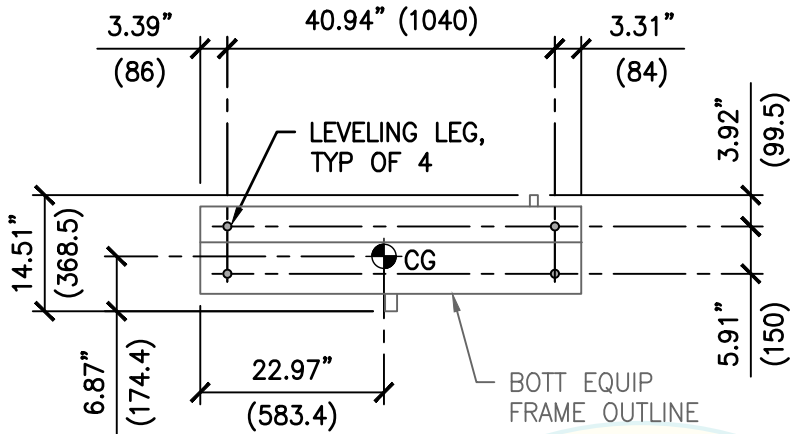


CYS STRUCTURAL ENGINEERS, INC.

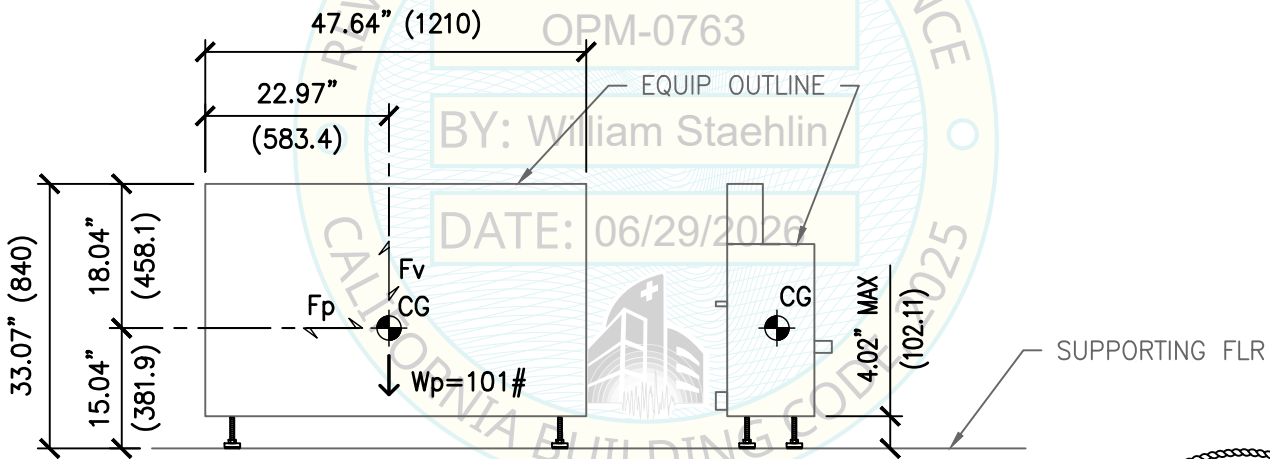
2710 GATEWAY OAKS DRIVE, SUITE 190N
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PLAN VIEW

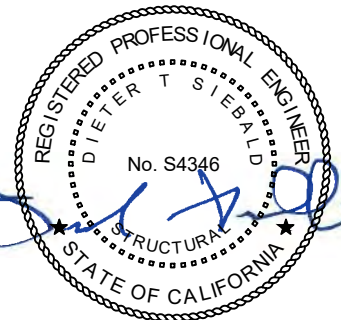


FRONT ELEV

LEFT ELEV

NOTES:

1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM CONFIGURATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. REFER TO PG 8 FOR FRAME MATERIAL PROPERTIES.



SHEET TITLE: COMPONENT PLANS & ELEVATIONS
UNIT 6 DRIVE LINE (DL) RACK DRIVE (ISBL1)

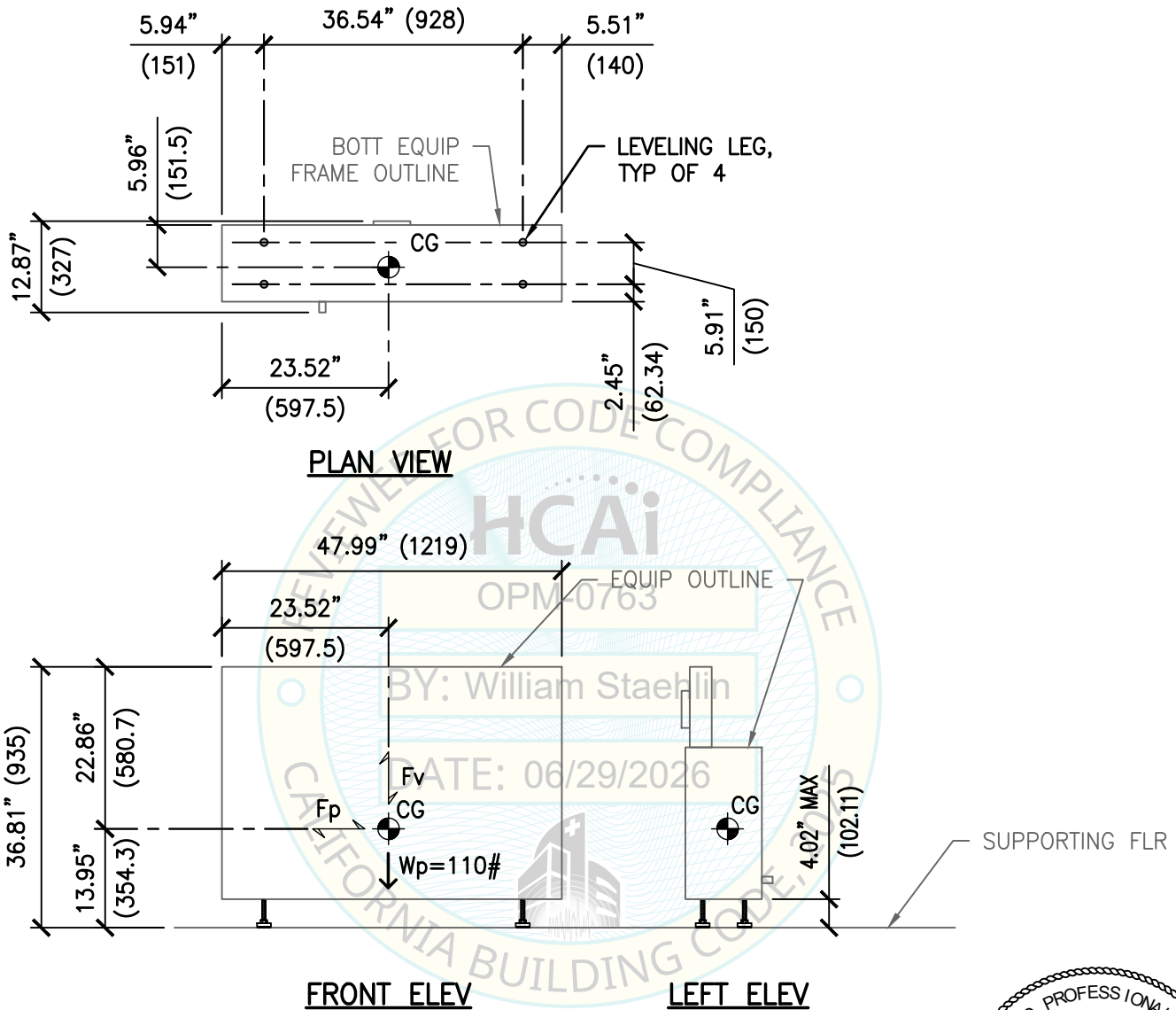


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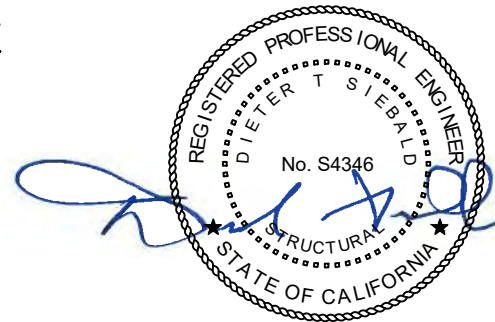
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NOTES:

1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM CONFIGURATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. REFER TO PG 8 FOR FRAME MATERIAL PROPERTIES.



SHEET TITLE: COMPONENT PLANS & ELEVATIONS
UNIT 7 BLANK LINE (BL) (iSBL2)

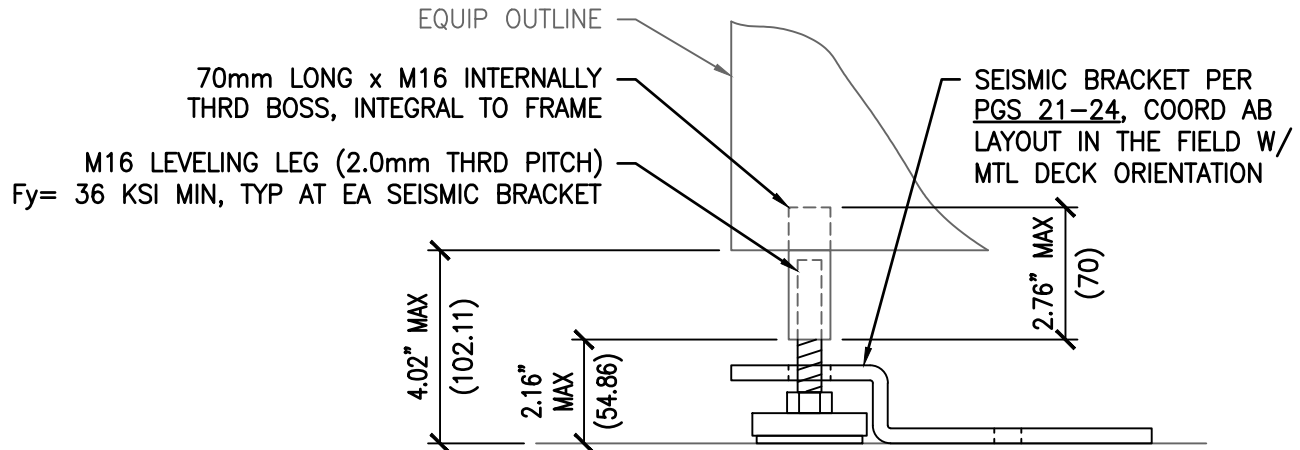


CYS STRUCTURAL ENGINEERS, INC.

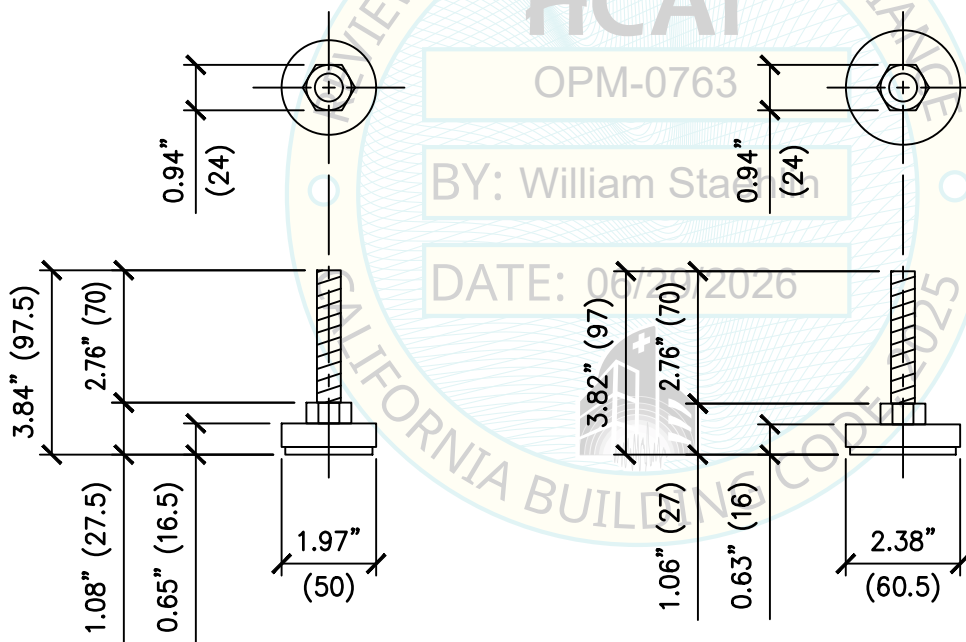
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LEVELING LEG TO EQUIPMENT TYPICAL ATTACHMENT



MATERIAL: SWCH 10R
STRENGTH: Fy = 27.0 KSI
Fu = 90.4 KSI

MATERIAL: SWCH 10R
STRENGTH: Fy = 27.0 KSI
Fu = 90.4 KSI



**SHEET TITLE: LEVELING LEG &
HEX BOLT DETAILS**

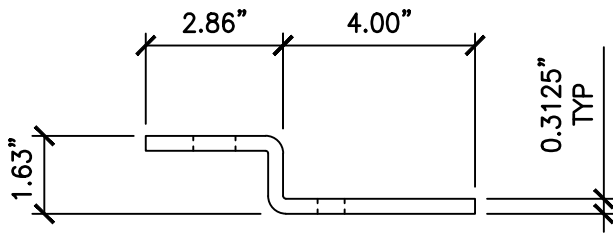


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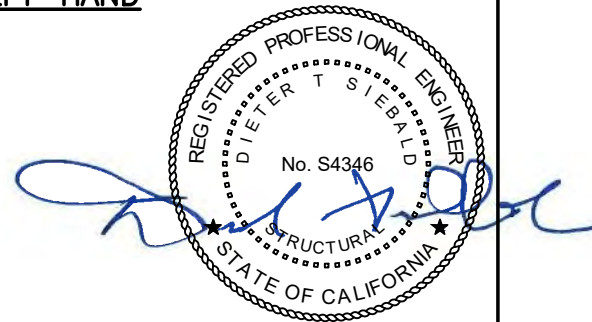
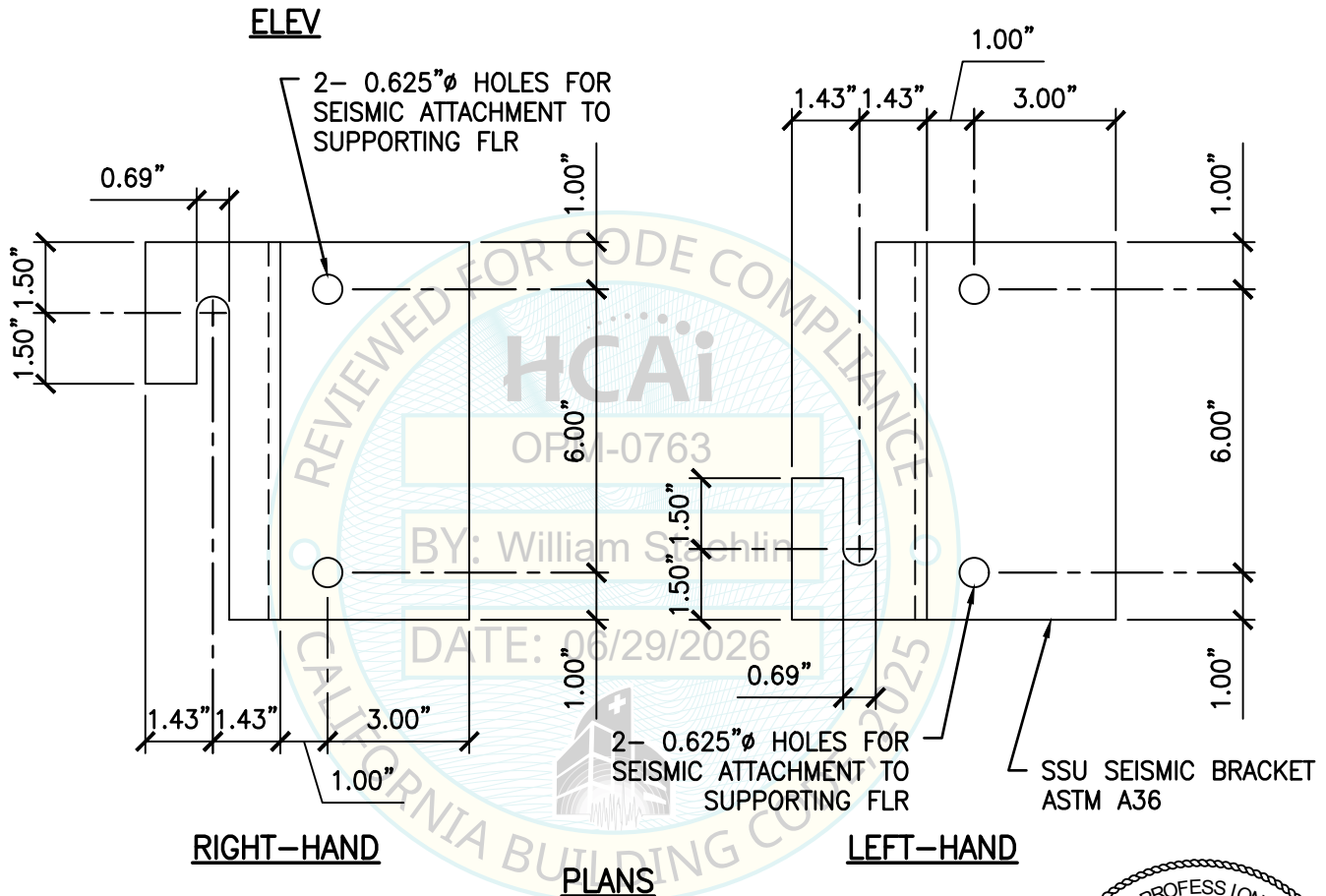
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NOTES:

1. FOR CASE 1, CASE 2, & CASE 3
ATTACHMENT TO FLR, SEE PGS 25-28.
2. BRACKET & SLOT DIRECTIONS SHALL
BE FOLLOWED AS SHOWN ON SYSTEM
CONFIGURATION PLAN ON PG 9 OR 11.



SHEET TITLE: SEISMIC BRACKET DETAIL AT SSU UNIT

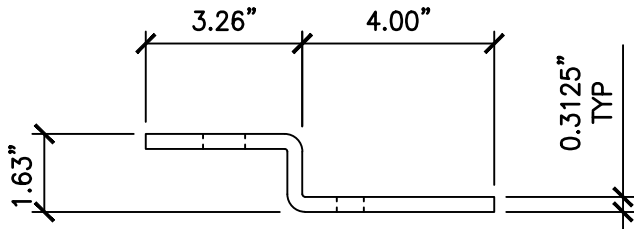


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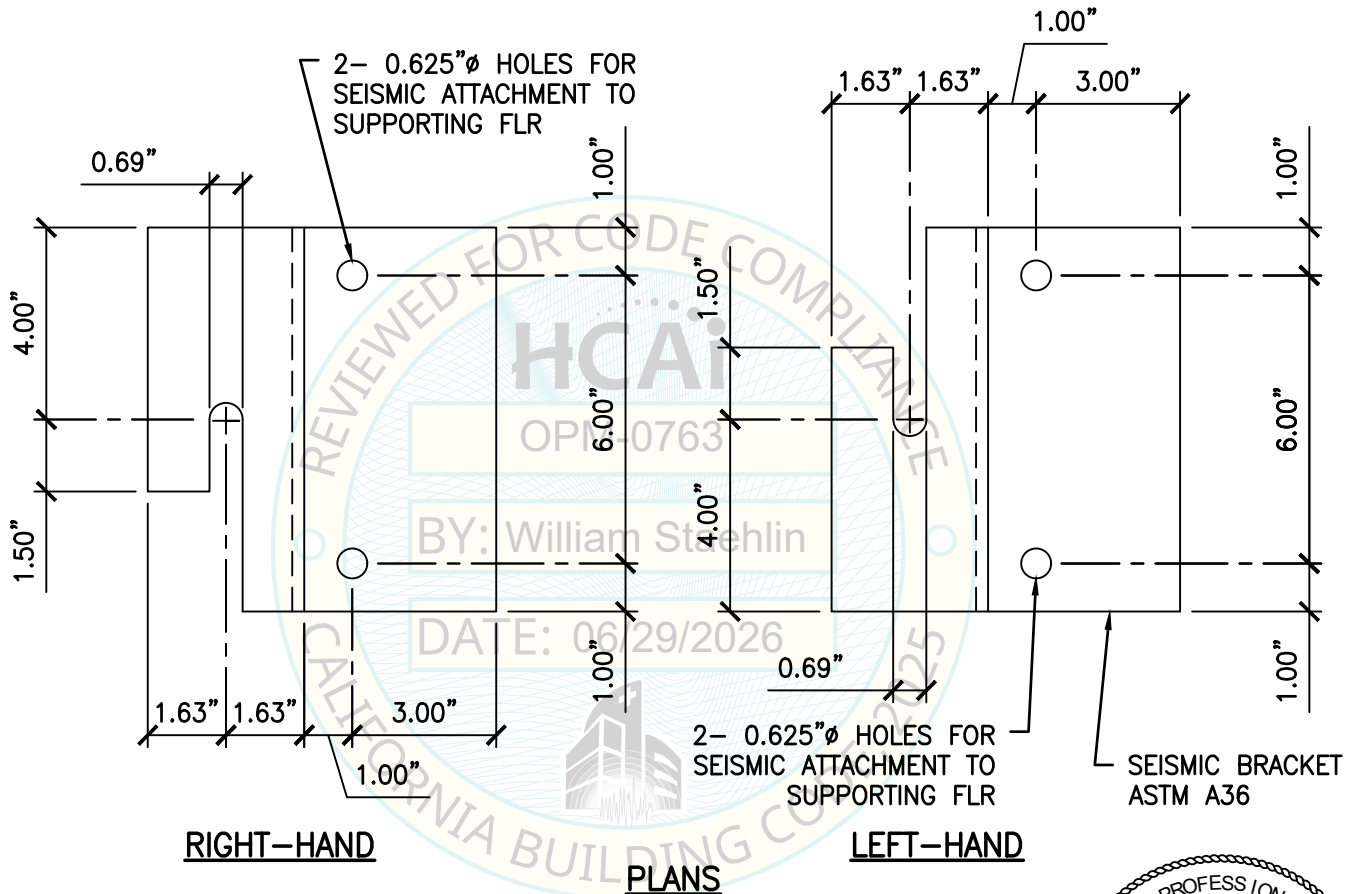
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ELEV

NOTES:

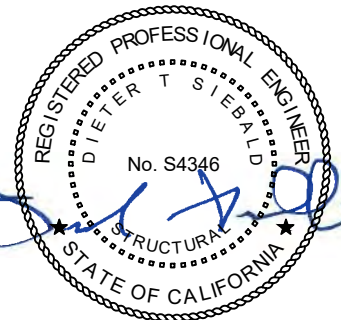
1. FOR CASE 1, CASE 2, & CASE 3
ATTACHMENT TO FLR, SEE PGS 25-28.
2. BRACKET & SLOT DIRECTIONS SHALL
BE FOLLOWED AS SHOWN ON SYSTEM
CONFIGURATION PLAN ON PG 9 OR 11.



RIGHT-HAND

PLANS

LEFT-HAND



SHEET TITLE: SEISMIC BRACKET DETAIL AT LC, DL, AND BL UNITS

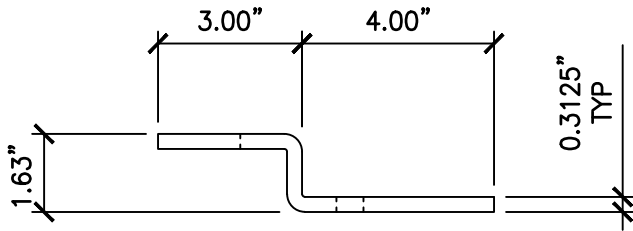


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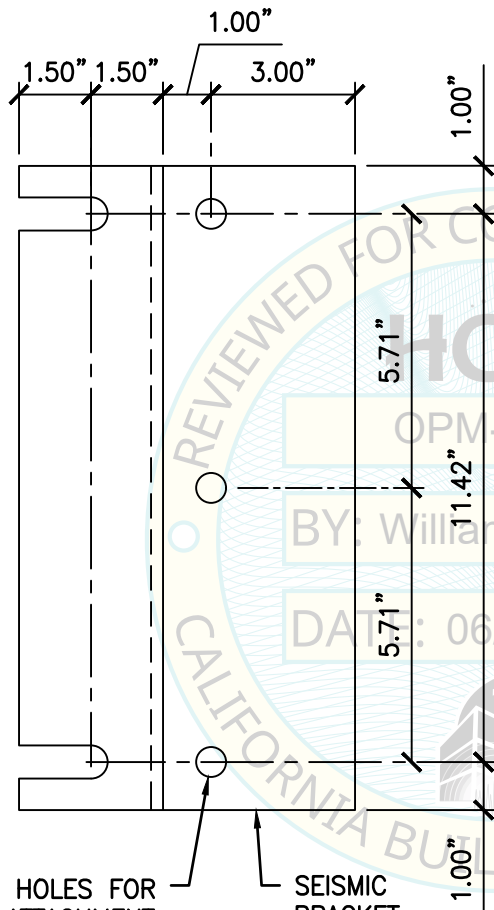
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ELEV

NOTES:

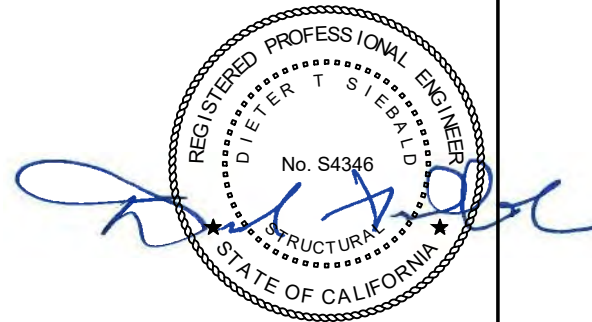
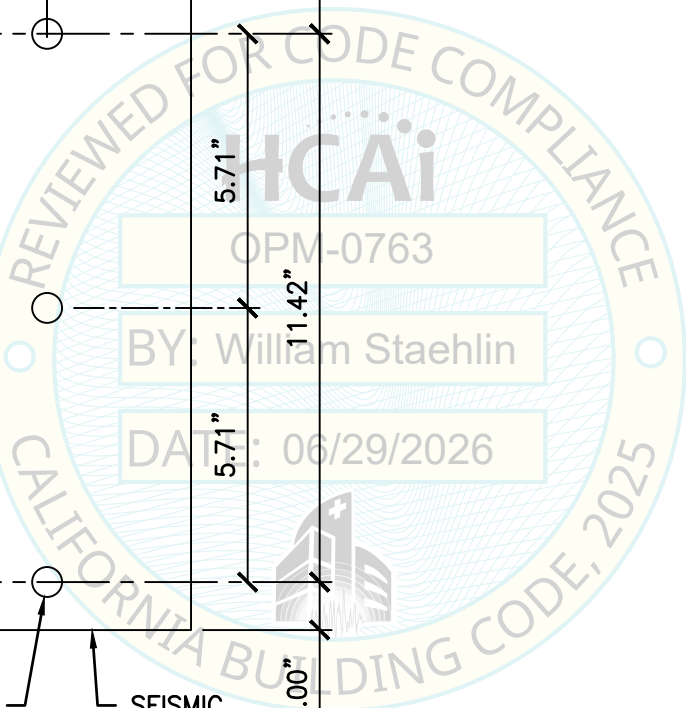
1. FOR CASE 1, CASE 2, & CASE 3
ATTACHMENT TO FLR, SEE PGS 25-28.
2. BRACKET & SLOT DIRECTIONS SHALL
BE FOLLOWED AS SHOWN ON SYSTEM
CONFIGURATION PLAN ON PG 9 OR 11.



3- 0.625"Ø HOLES FOR
SEISMIC ATTACHMENT
TO SUPPORTING FLR

SEISMIC
BRACKET
ASTM A36

PLAN
AT MASS SPEC (MS)



SHEET TITLE: SEISMIC BRACKET DETAIL AT MS UNIT

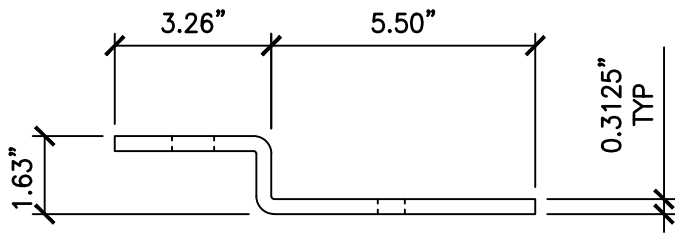


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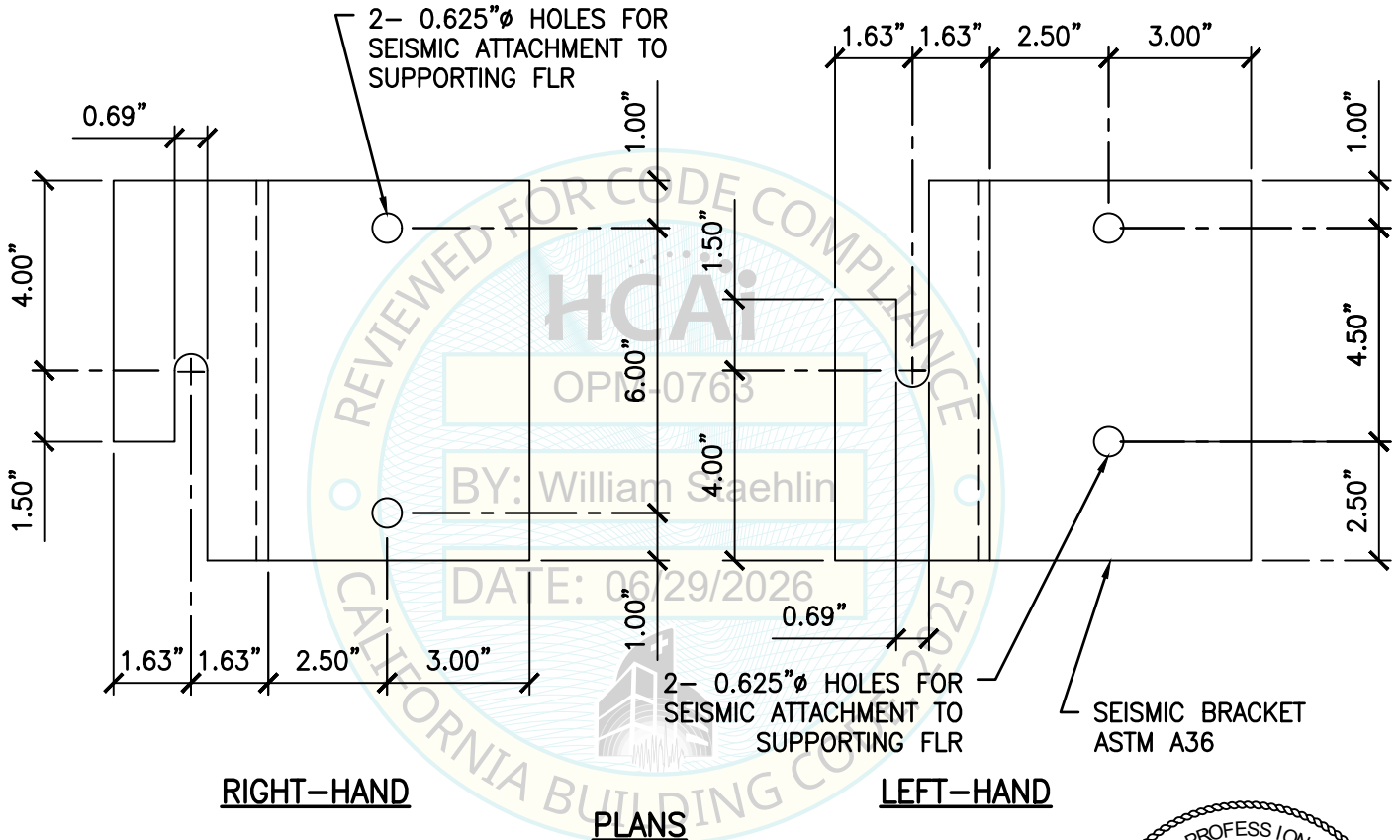
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ELEV

NOTES:

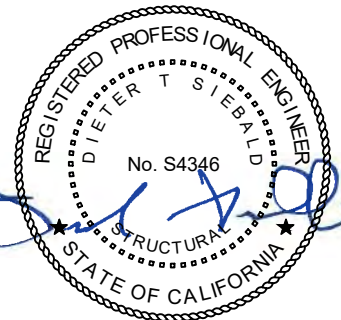
1. FOR CASE 1, CASE 2, & CASE 3 ATTACHMENT TO FLR, SEE PGS 25-28.
2. BRACKET & SLOT DIRECTIONS SHALL BE FOLLOWED AS SHOWN ON SYSTEM CONFIGURATION PLANS ON PG 9 OR 11.



RIGHT-HAND

PLANS

LEFT-HAND



SHEET TITLE: SEISMIC BRACKET DETAIL AT SP UNIT



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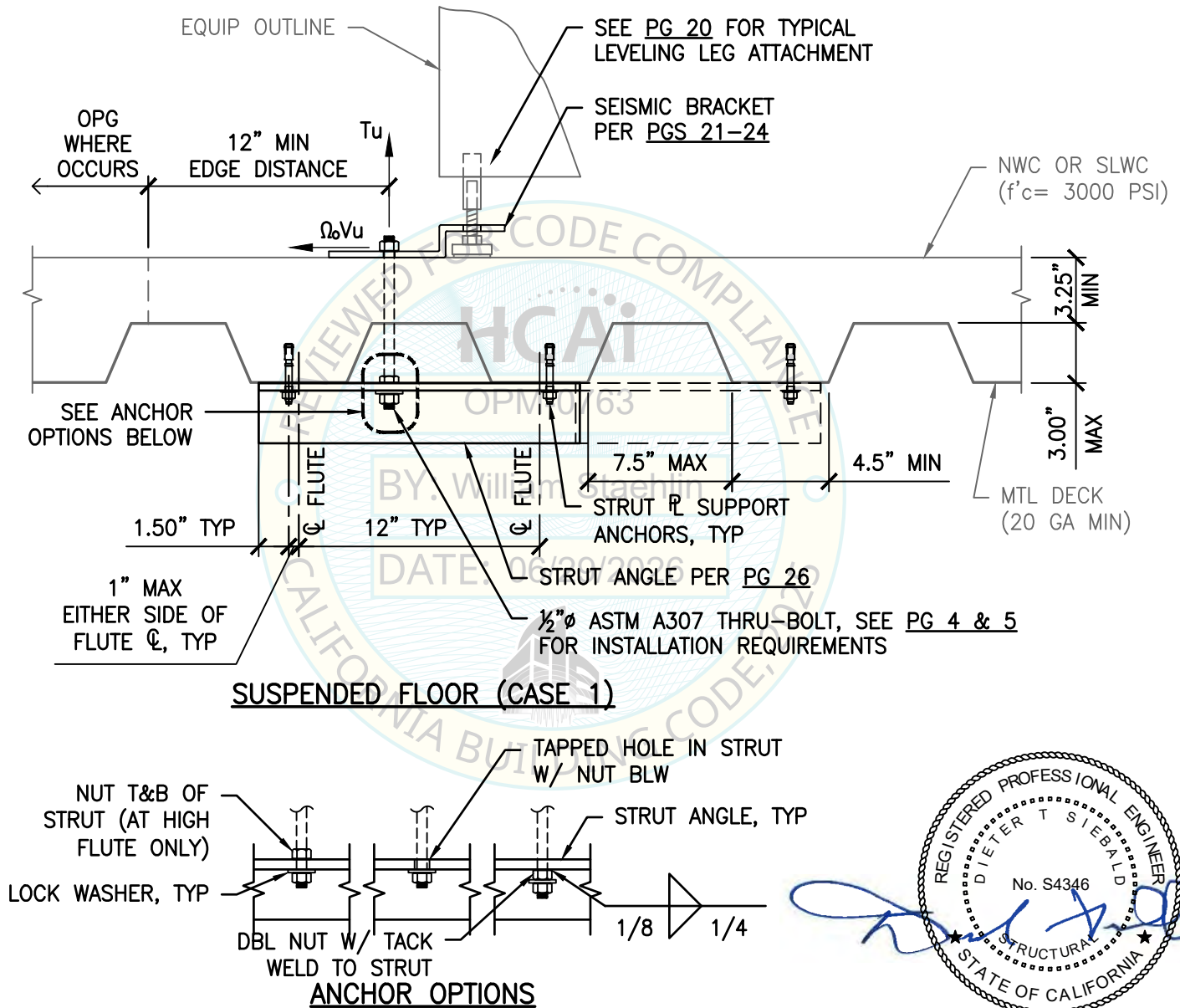
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MAX LRFD FORCES
AT EA ANCHOR

	T_u	$\Omega_o V_u$
CASE 1	1852#	2160#

OVERSTRENGTH FACTOR (Ω_o)
INCLUDED ONLY IN SHEAR VALUE



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

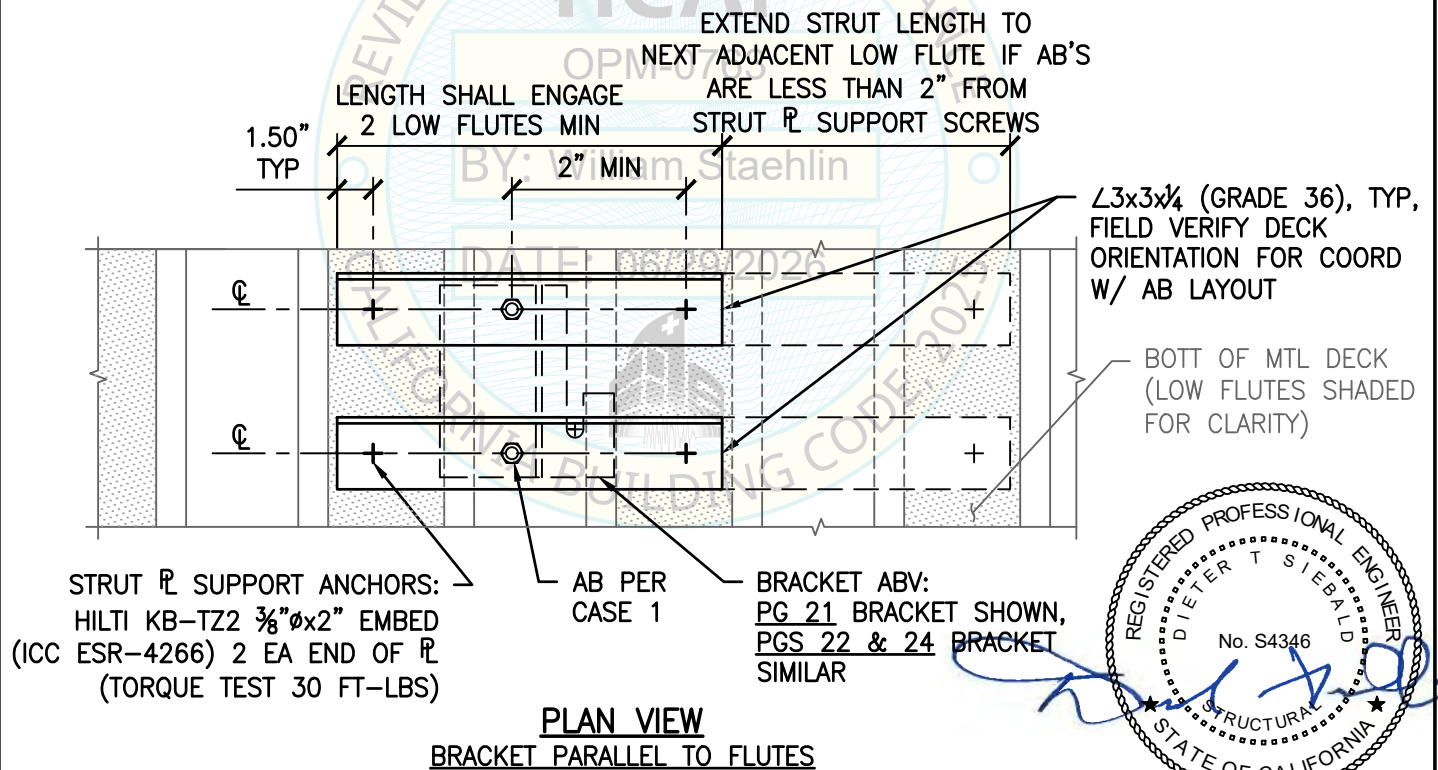
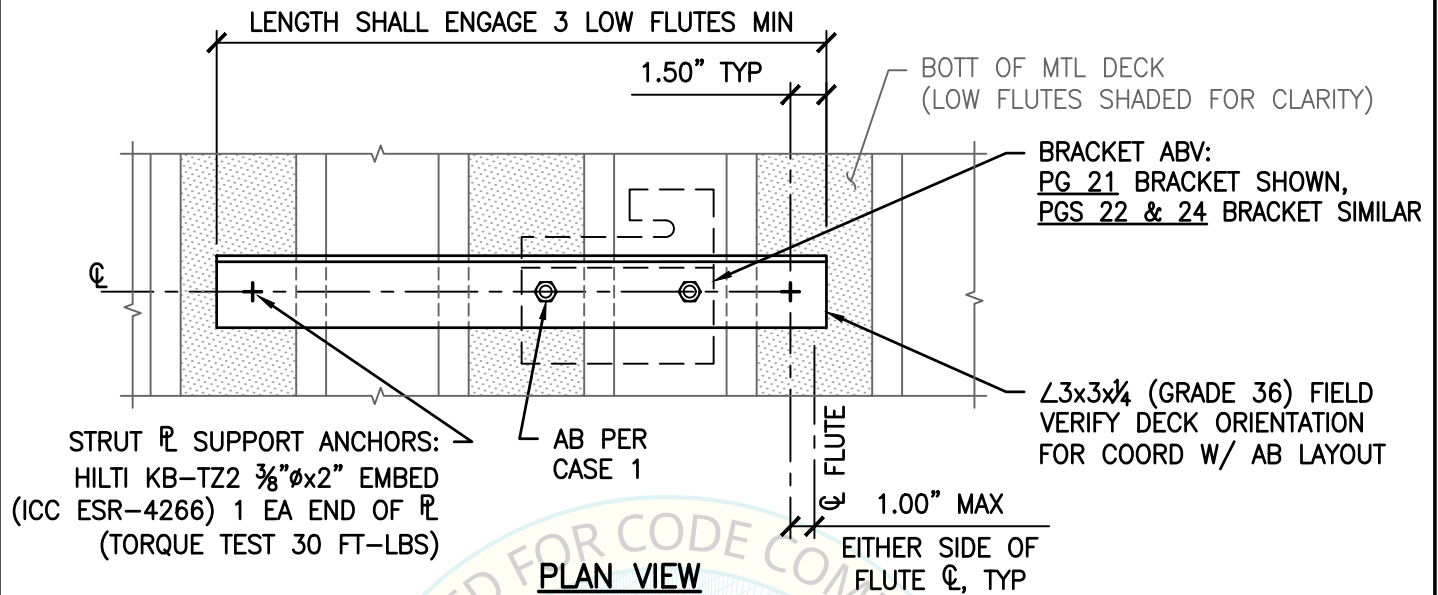


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SHEET TITLE: TYPICAL STRUT DETAIL



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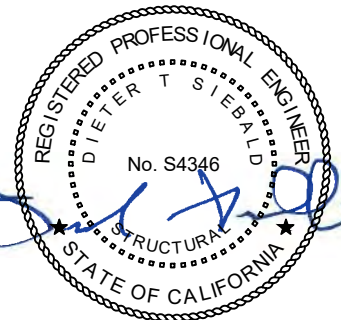
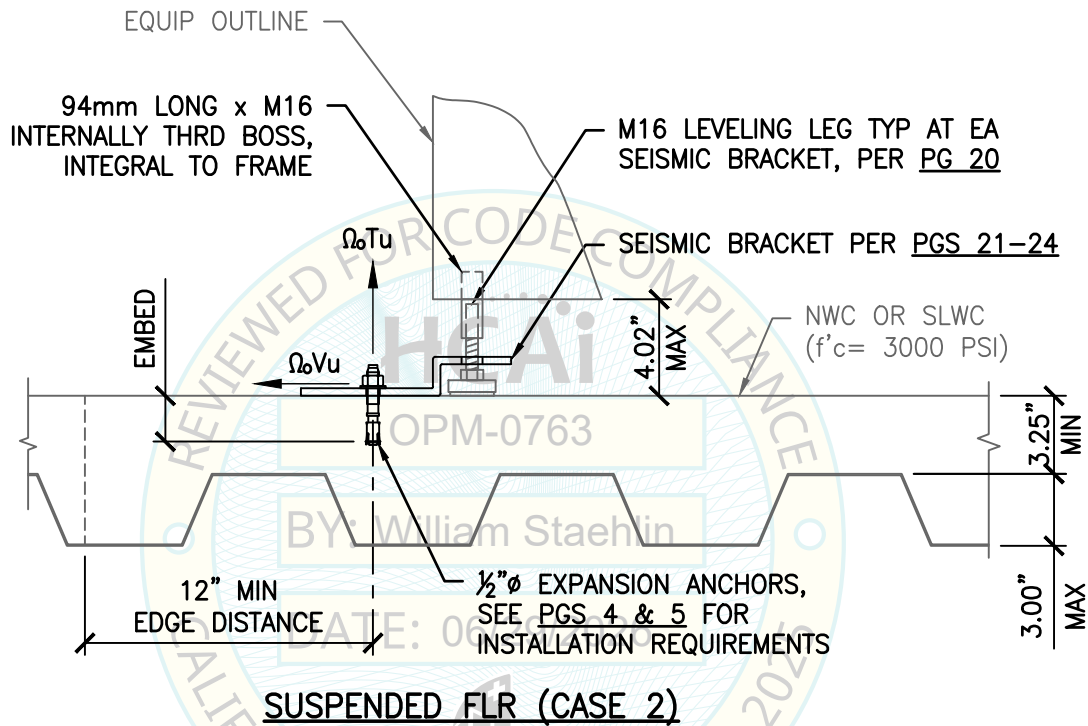
Job No:	25013
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MAX LRFD FORCES
AT EA ANCHOR

	$\Omega_o T_u$	$\Omega_o V_u$
CASE 2	716#	475#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED.



SHEET TITLE: ATTACHMENT DETAIL
INTO CONCRETE FILL OVER METAL DECK (CASE 2)



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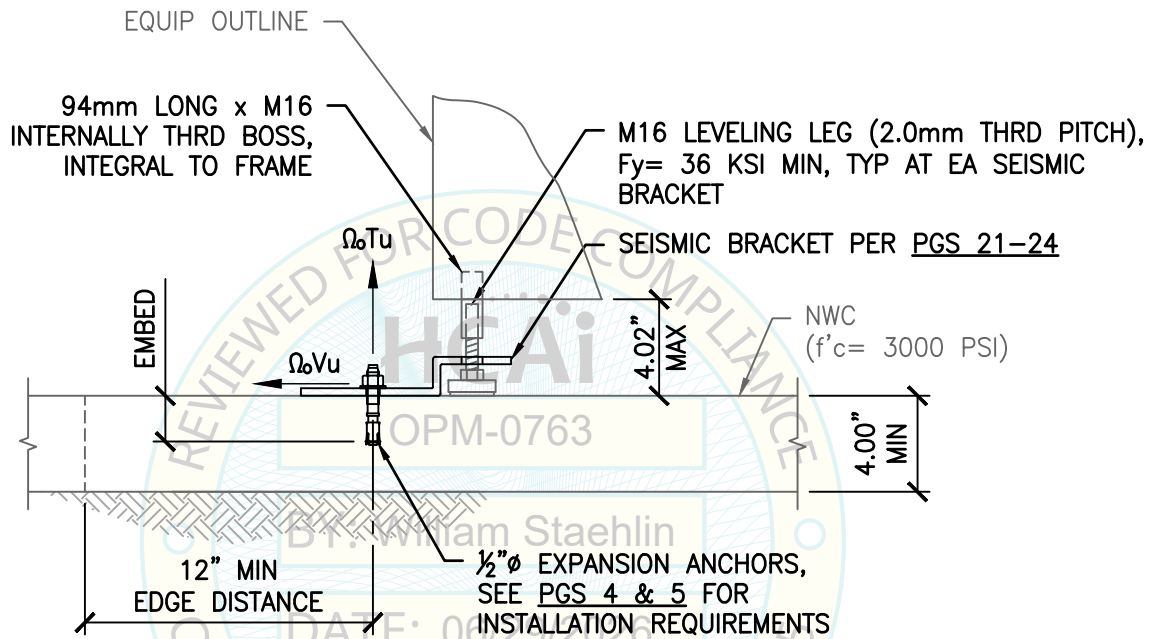
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MAX LRFD FORCES
AT EA ANCHOR

	$\Omega_o T_u$	$\Omega_o V_u$
CASE 3	1228#	582#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED.



SLAB ON GRADE (CASE 3)

NOTE:
THIS ATTACHMENT DTL CAN ALSO BE USED FOR SUSPENDED CONC SLAB AT OR BLW THE BASE OF A BLDG



SHEET TITLE: ATTACHMENT DETAIL
INTO SLAB ON GRADE (CASE 3)



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