



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OPM-0656

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: New Renewal/Update

Manufacturer Information

Manufacturer: Siemens Healthcare Diagnostics, Inc.

Manufacturer's Technical Representative: Matthew Schaefer

Mailing Address: 500 GBC Drive, Newark, DE 19702

Telephone: (302) 631-9692

Email: matthew.schaefer@siemens-healthineers.com

Product Information

Product Name: CI 1900 Analyzer Systems

Product Type: Integrated Clinical Chemical Analyzers

Product Model Number: CI 1900 + Magline and CI 1900 + RH

General Description: Integrated Immunoassay & Chemistry Analyzers

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)

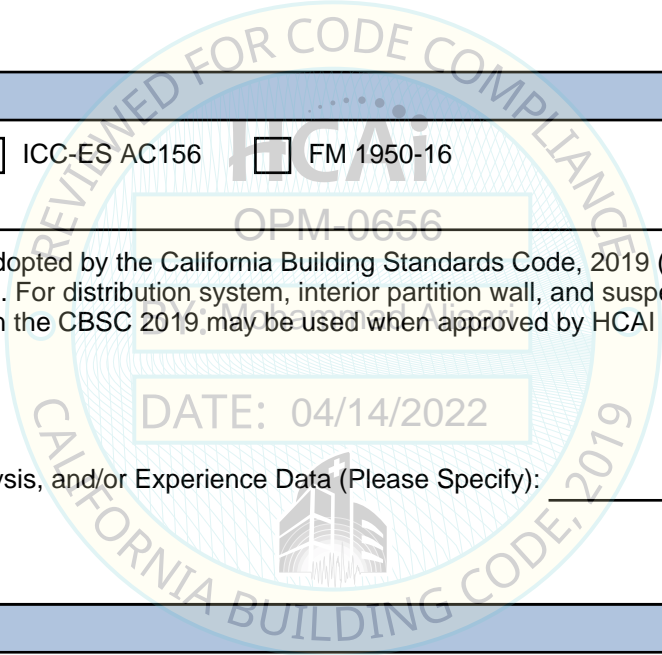
Special Seismic Certification is preapproved under OSP OSP Number: _____

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): _____

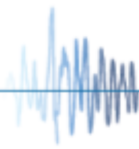


HCAI Approval

Date: 4/14/2022
Name: Mohammad Aliaari Title: Senior Structural Engineer
Condition of Approval (if applicable): _____

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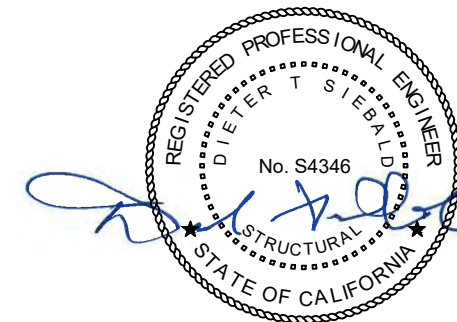
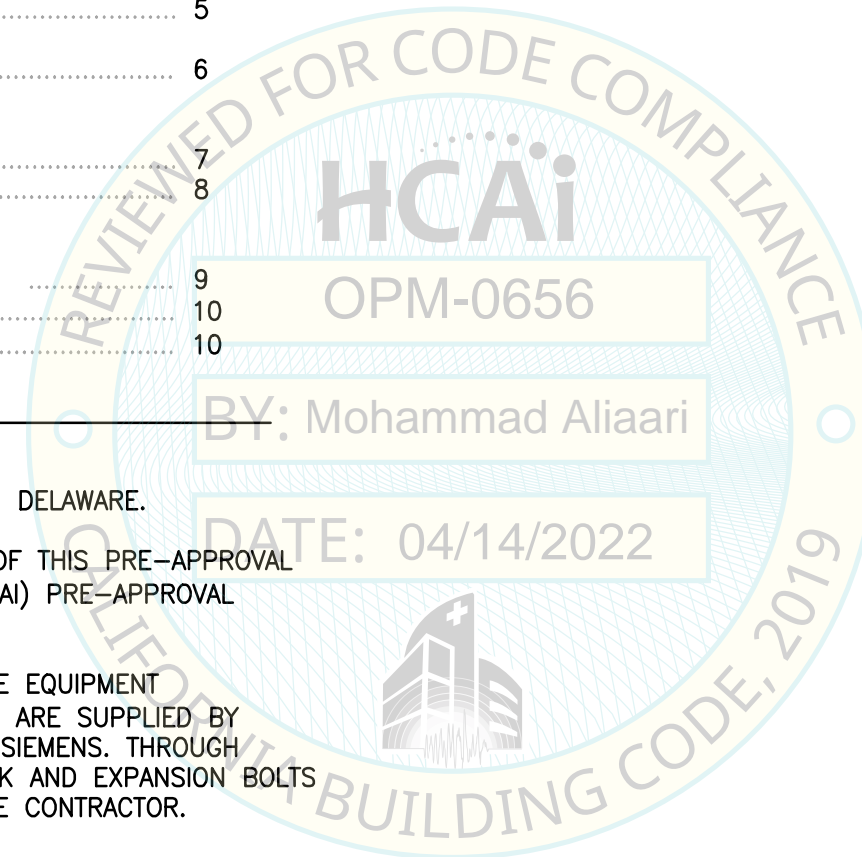
**CI1900+MAGLINE & CI1900+RH ANALYZERS
SEISMIC SUPPORTS & ATTACHMENTS
FOR CALIFORNIA HOSPITALS**

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OPM-0656**

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NOTES:

- THESE DRAWINGS ARE PREPARED FOR SIEMENS HEALTHINEERS, NEWARK, DELAWARE.
- THE CONTRACTOR AND INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE DEPARTMENT OF HEALTHCARE ACCESS AND INFORMATION (HCAI) PRE-APPROVAL PROGRAMS WEBSITE.
- THIS PRE-APPROVAL COVERS THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT (COMPONENTS) TO THE SUPPORTING STRUCTURE. THE EQUIPMENT UNITS ARE SUPPLIED BY SIEMENS. THE ATTACHMENT HARDWARE IS SUPPLIED AND INSTALLED BY SIEMENS. THROUGH BOLTS, UNDER FLOOR HARDWARE AND ATTACHMENTS UNDER METAL DECK AND EXPANSION BOLTS SHOWN ON PAGES 9 & 10 SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.



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SHEET TITLE: TABLE OF CONTENTS



SIEMENS HEALTHINEERS
CI 1900 ANALYZER SYSTEMS



CYS STRUCTURAL ENGINEERS, INC.

2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

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GENERAL NOTES:

1. THIS HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2019 CALIFORNIA BUILDING CODE. 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 (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 LOADS TABLE ON PG 2 IS THE REQ MIN SPCG OF THE 3/8" & 1/2" 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 & GAGE OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN ON THE PRE-APPROVAL DOCUMENTS.

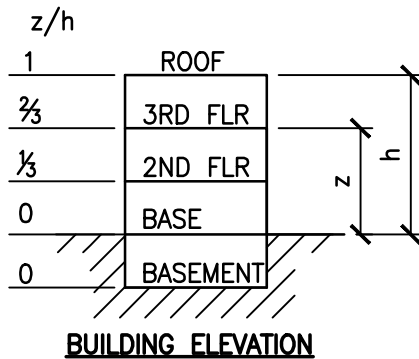
3. DIMS ARE IN INCHES (MILLIMETERS).
4. DRAWING SCALES ARE NOT PROVIDED. DO NOT SCALE OFF OF THESE DRAWINGS. THE INTENT OF THESE DRAWINGS ARE TO SHOW HOW TO ANCHOR THE EQUIP SPECIFIED. THE REPRESENTATIONS OF THE EQUIP ARE ONLY INTENDED TO SHOW THE COORD W/ THE SEISMIC BRACKETS.
5. COORD THE AB LAYOUT W/ THE EQUIP IN THE FIELD PRIOR TO SETTING AB'S. TAKE CARE TO AVOID DAMAGING REBAR OR POST-TENSIONING TENDONS WHEN INSTALLING ANCHORS TO CONC.
6. THREE (3) CASES OF ANCHORAGE ARE SPECIFIED AND PRESENTED IN THIS PRE-APPROVAL:

CASE 1: ANCHORAGE DETAILS LOCATED AT UPPER FLOORS ABOVE THE BASE OF A BUILDING ($z/h <= 0.67$), IT IS ASSUMED THAT THE FLOORS ARE BUILT OF A MINIMUM 3/4" SAND-LIGHTWEIGHT CONCRETE TOPPING OVER METAL DECK ($f'c = 3000$ PSI, MINIMUM).

CASE 2: ANCHORAGE DETAILS LOCATED AT OR BELOW THE BASE OF THE BUILDING ($z/h=0$). THE FLOORS ARE ASSUMED TO BE BUILT OF A MINIMUM 4" NORMAL-WEIGHT CONCRETE SLAB ($f'c = 3000$ PSI, MINIMUM).

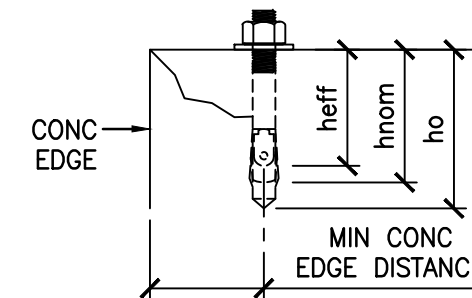
CASE 3A: ANCHORAGE DETAILS LOCATED AT OR BELOW THE BASE OF A BUILDING ($z/h=0$). THE FLOORS ARE ASSUMED TO BE BUILT OF A MINIMUM 6" NORMAL-WEIGHT CONCRETE SLAB ($f'c = 4000$ PSI, MINIMUM).

CASE 3B: ANCHORAGE DETAILS LOCATED AT OR BELOW THE BASE OF THE BUILDING ($z/h=0$). THE FLOORS ARE ASSUMED TO BE BUILT OF A MINIMUM 6" NORMAL-WEIGHT CONCRETE SLAB ($f'c = 3000$ PSI, MINIMUM).



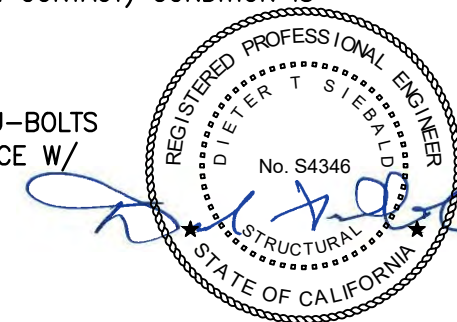
7. THESE DRAWINGS MAY BE USED AT ANY GEOGRAPHICAL LOCATION IN THE STATE OF CALIFORNIA WHERE S_{ps} & z/h VALUES PRODUCE FORCES LESS THAN THE DESIGN FORCES FOR CASE USED (1, 2, 3A OR 3B.)

8. A. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC CONC SHALL BE CARBON STL HILTI KB-TZ2 EXPANSION ANCHORS COMPLYING W/ ICC-ES ESR-4266 ISSUED DECEMBER 2021, REVISED DECEMBER 17, 2021.
 - B. 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 ANCHOR TABLE BELOW AND ATTACHMENT DETAILS ON PGS 9 & 10.
 - C. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE 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 TORQUE WRENCH METHOD. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE INSPECTOR OF RECORD (IOR). IF ANY ANCHOR FAILS THE TEST, TEST ALL ANCHORS. THE TEST SHALL BE PERFORMED 24 HOURS OR MORE AFTER INSTALLATION. TESTING MAY BE DONE PRIOR TO EQUIP INSTALLATION. ALSO REFER TO CBC 1910A.5 "FIELD TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE".
 - D. 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.
 - E. TEST VALUES: SEE TABLE BLW
- POST-INSTALLED ANCHORS SHALL BE INSTALLED W/ FULL THRD ENGAGMENT OF THE NUT & WASHER



CONDITION OF ANCHORAGE	ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) h_{nom}	EFFECTIVE EMBED (INCH) h_{ef}	HOLE DEPTH (INCH) h_o	MIN CONC THK (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN AB SPCG (INCH)	TORQUE TEST (FT-LBS)
CASE 1 STRUT PL	3/8	2 1/2	2	2 3/4	3/4	12	6	30
CASE 2	1/2	2 1/2	2	2 3/4	4	12	6	50
CASE 3A CASE 3B	1/2	3 3/4	3 3/4	4 1/4	6	12	6	50

9. 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. THRU-BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + 1/16")
 - C. THRU-BOLTS IN CONC SHALL RECEIVE SPECIAL INSPECTION & TESTING (THRU-BOLTS W/ STL-TO-STL CONN IN TENSION DO NOT REQUIRE TESTING) IN ACCORDANCE W/ REQUIREMENTS FOR POST-INSTALLED ANCHORS.



SHEET TITLE: GENERAL NOTES



SIEMENS HEALTHINEERS
CI 1900 ANALYZER SYSTEMS



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DESIGN CRITERIA:

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

OTHER MECHANICAL OR ELECTRICAL COMPONENTS PER ASCE 7-16 TABLE 13.6-1 & [CBC 1617A.1.23]

$q_p = 1.0$ $R_p = 1.5$ $I_p = 1.5$ $\Omega_0 = 1.5$ (FOR CONC ANCHORS ONLY)

W_p AS NOTED ON DRAWINGS

UPPER FLRS ABV THE BASE OF BLDG, $z/h \leq 0.67$

CASE 1: $S_{DS} = 1.80$ $F_p = 1.685 W_p$

FLRS AT OR BLW THE BASE OF BLDG, $z/h = 0$

CASE 2: $S_{DS} = 1.00$ $F_p = 0.450 W_p$

CASE 3A: $S_{DS} = 1.60$ $F_p = 0.720 W_p$

CASE 3B: $S_{DS} = 1.40$ $F_p = 0.630 W_p$

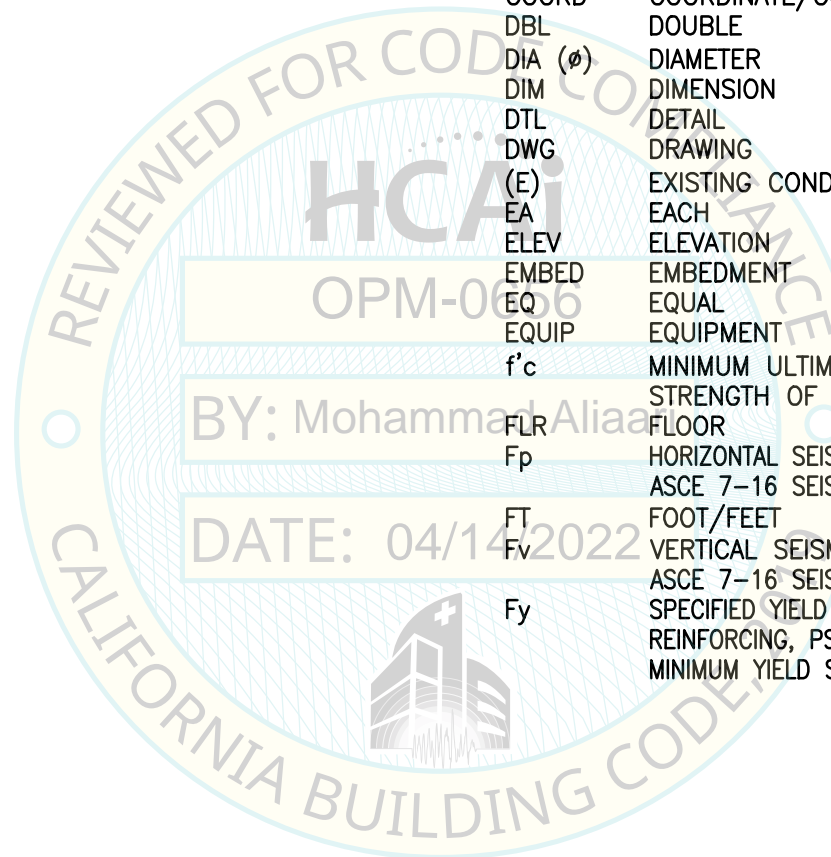
LOAD COMBINATIONS

$(0.9 - 0.2 S_{DS}) D - \Omega_0 F_p$ (FOR MAX TENSION)

$(1.2 + 0.2 S_{DS}) D + \Omega_0 F_p$ (FOR MAX COMPRESSION)

ABBREVIATIONS:

@	AT	GA	GAGE
ABV	ABOVE	GR	GRADE
AB	ANCHOR BOLT	HCAI	DEPARTMENT OF HEALTHCARE ACCESS AND INFORMATION
ADJ	ADJACENT	ICC	INTERNATIONAL CODE COUNCIL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	IN (")	INCH
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	INC	INCORPORATED
BLDG	BUILDING	INFO	INFORMATION
BLW	BELOW	IOR	INSPECTOR OF RECORD
BOTT	BOTTOM	kg	KILOGRAM
CBC	CALIFORNIA BUILDING CODE	KSI	KIPS PER SQUARE INCH
CG	CENTER OF GRAVITY	LBS	POUNDS
CL	CENTERLINE	LRFD	LOAD & RESISTANCE FACTOR DESIGN
CONC	CONCRETE	MAX	MAXIMUM
CONN	CONNECTION	MFR	MANUFACTURER
COORD	COORDINATE/COORDINATION	MIN	MINIMUM
DBL	DOUBLE	MTL	METAL
DIA (φ)	DIAMETER	NO. (#)	NUMBER
DIM	DIMENSION	NTS	NOT TO SCALE
DTL	DETAIL	NWC	NORMAL WEIGHT CONCRETE
DWG	DRAWING	OPG	OPENING
(E)	EXISTING CONDITION	PERP	PERPENDICULAR
EA	EACH	PG	PAGE
ELEV	ELEVATION	PL	PLATE
EMBED	EMBEDMENT	PSI	POUNDS PER SQUARE INCH
EQ	EQUAL	REQ	REQUIRED
EQUIP	EQUIPMENT	SEOR	STRUCTURAL ENGINEER OF RECORD
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE	SLWC	SAND LIGHT WEIGHT CONCRETE
FLR	FLOOR	SPCG	SPACING
Fp	HORIZONTAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS	SS	STAINLESS STEEL
FT	FOOT/FEET	STL	STEEL
Fv	VERTICAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS	THK	THICK/THICKNESS
Fy	SPECIFIED YIELD STRENGTH OF REINFORCING, PSI OR SPECIFIED MINIMUM YIELD STRESS OF STEEL, KSI	THRD	THREAD OR THREADED
		TYP	TYPICAL
		T&B	TOP & BOTTOM
		UNO	UNLESS NOTED OTHERWISE
		W/	WITH
		W/O	WITHOUT
		Wp	COMPONENT SELF-WEIGHT
		WT	WEIGHT



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SHEET TITLE: DESIGN CRITERIA & ABBREVIATIONS



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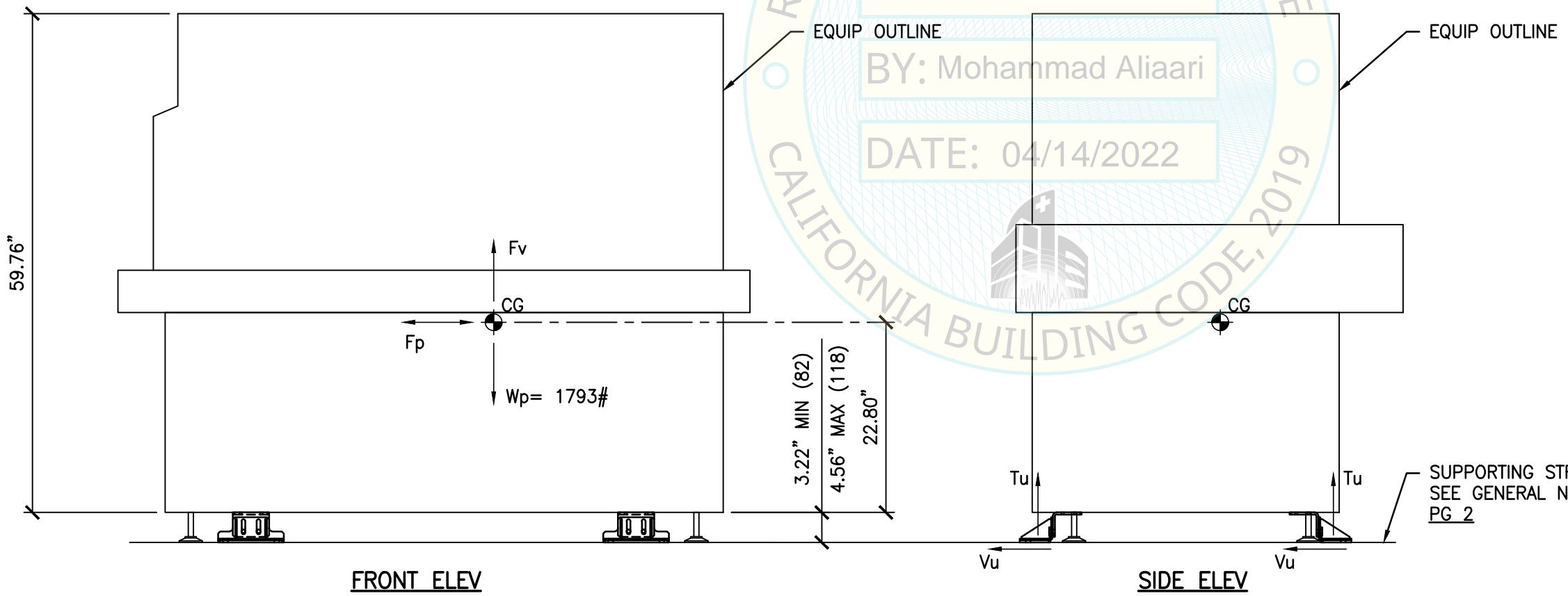
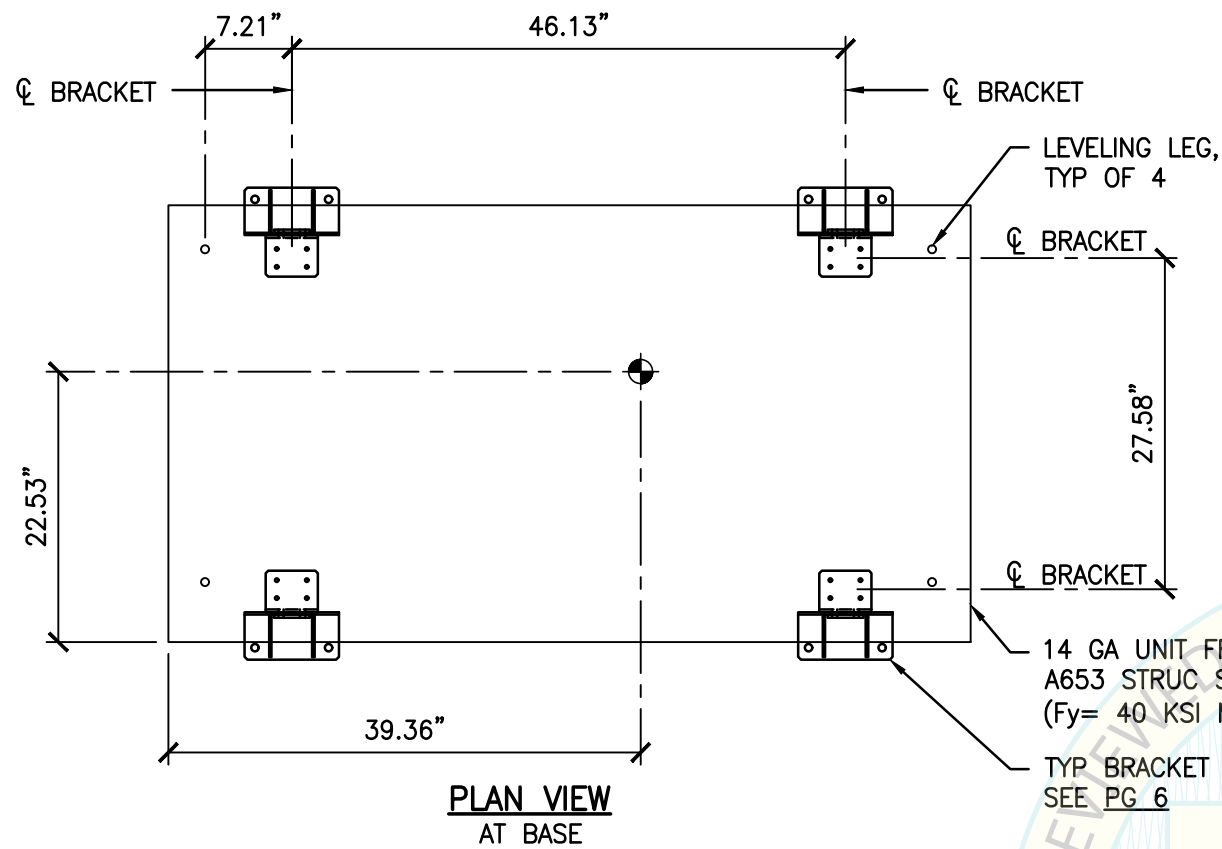


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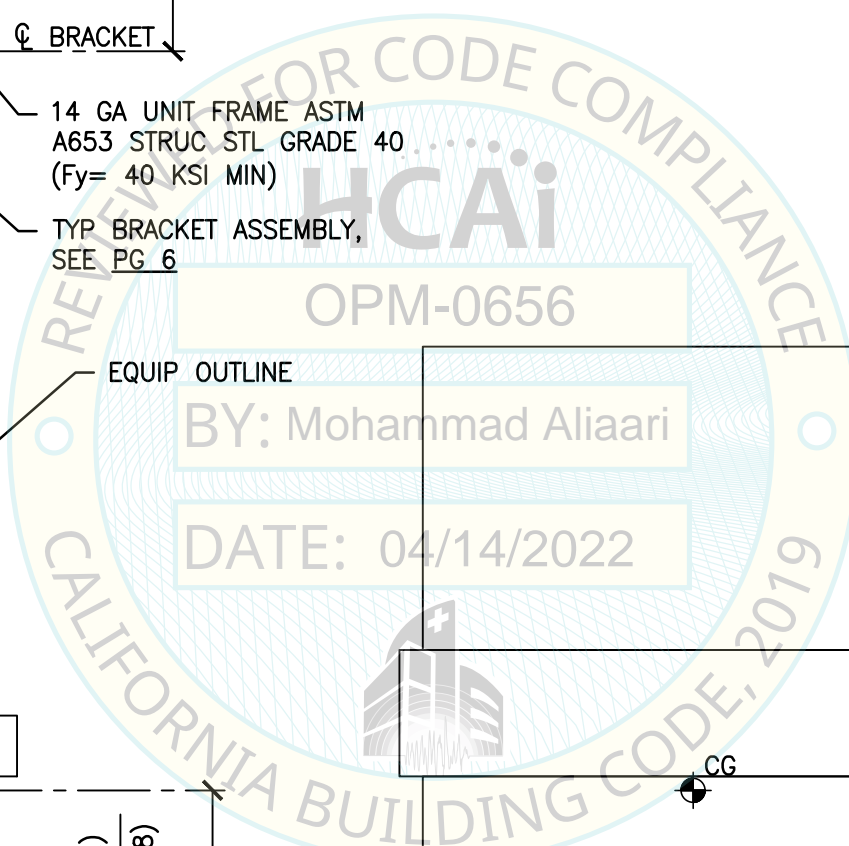
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MAX ANCHOR FORCES AT LRFD AT EA ANCHOR BOLT		
	Tu	Ω_o Vu
CASE 1	4116#	636#
	Ω_o Tu	Ω_o Vu
CASE 2	1419#	170#
CASE 3A	2527#	272#
CASE 3B	2157#	237#

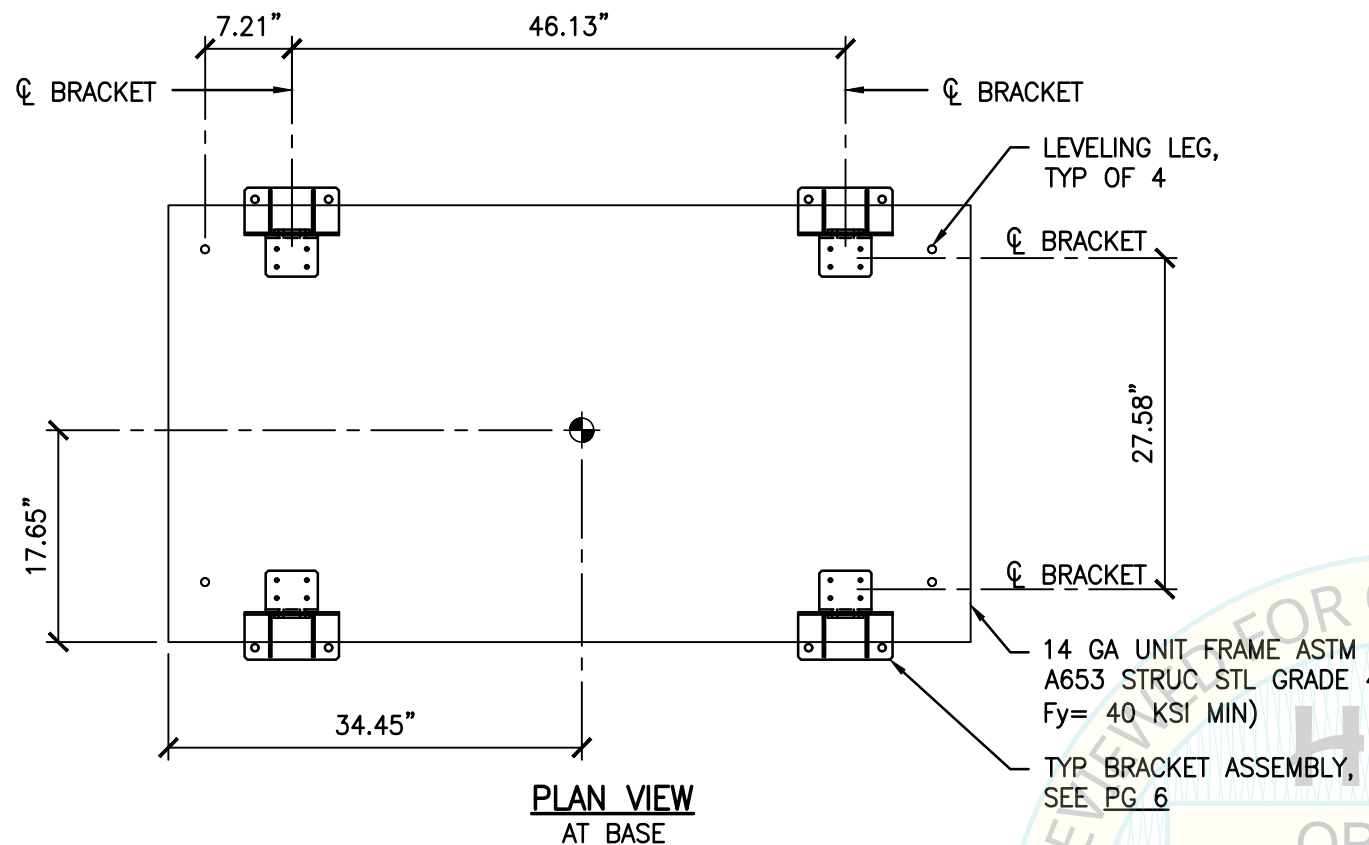
OVERSTRENGTH FACTOR (Ω_o) INCLUDED WHERE NOTED



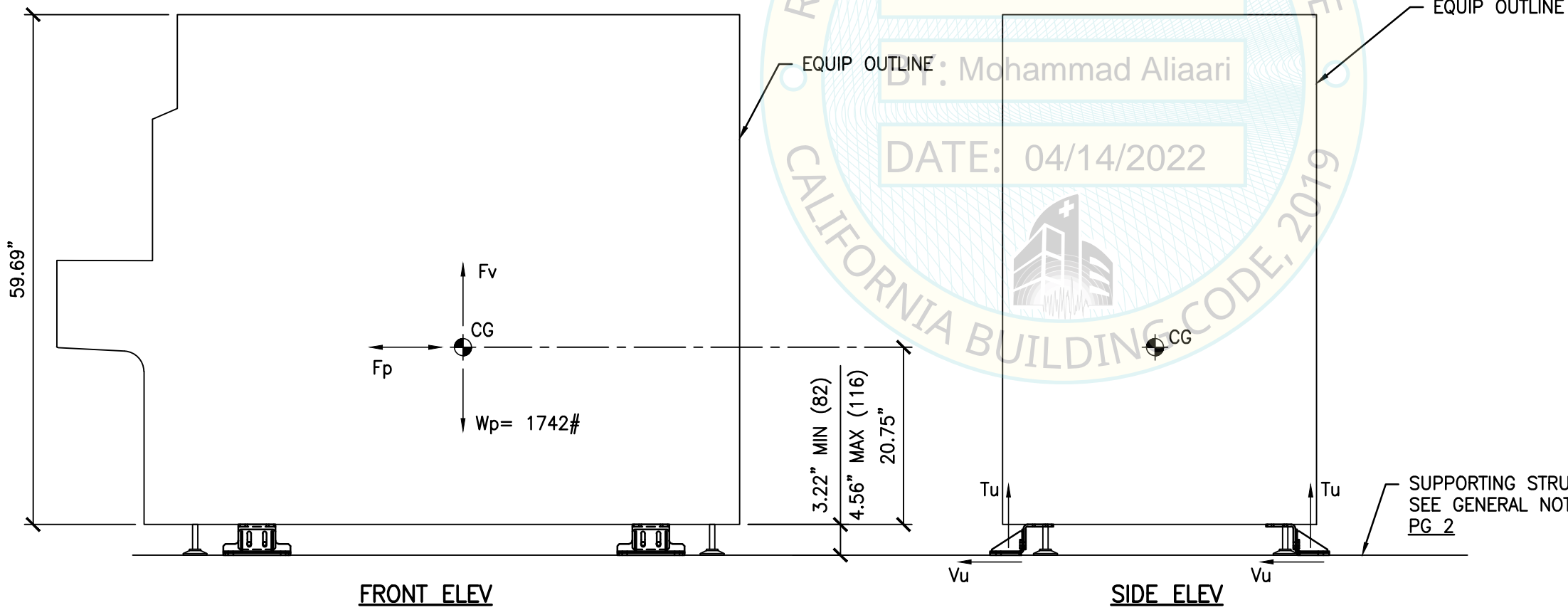
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SHEET TITLE: ANALYZER MODULES PLANS & ELEVATIONS
CI1900+MAGLINE

	SIEMENS HEALTHINEERS CI 1900 ANALYZER SYSTEMS		CYS STRUCTURAL ENGINEERS, INC. 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833	TEL (916) 920-2020 www.cyseng.com																		
	<table border="1"> <thead> <tr> <th>Rev</th> <th>Description</th> <th>Date</th> <th>Job No:</th> <th>21099</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td>Date:</td> <td>03/25/2022</td> </tr> <tr> <td></td> <td></td> <td></td> <td>By:</td> <td>CYS</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Page:</td> <td>4 of -</td> </tr> </tbody> </table>			Rev	Description	Date	Job No:	21099				Date:	03/25/2022				By:	CYS				Page:
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PLAN VIEW
AT BASE

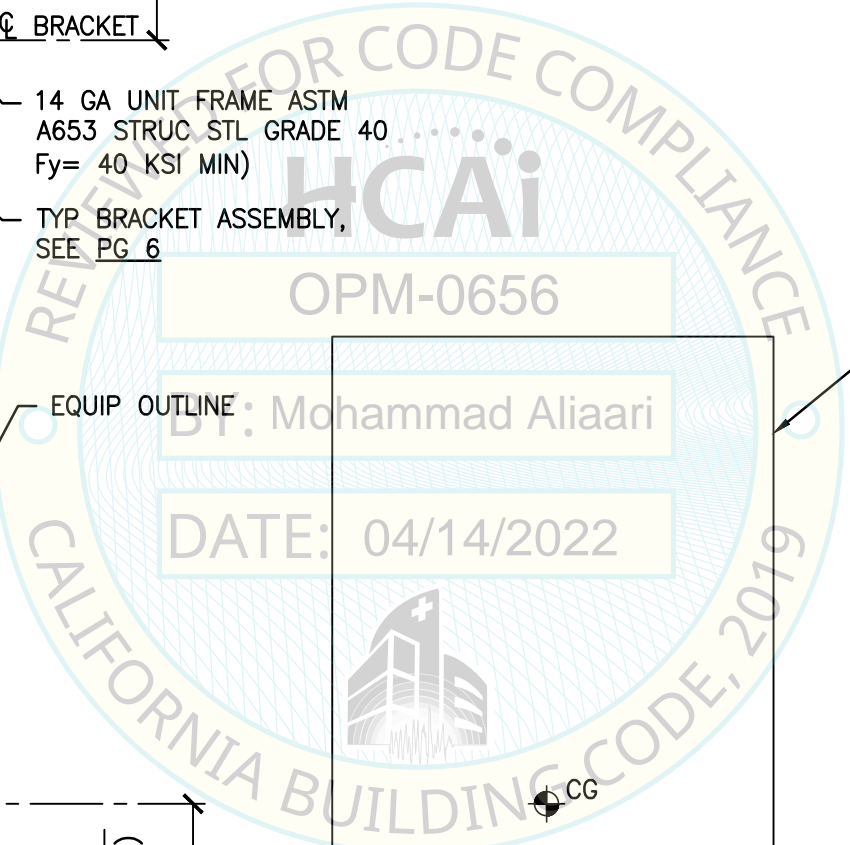


FRONT ELEV

SIDE ELEV

MAX ANCHOR FORCES AT LRFD AT EA ANCHOR BOLT		
	Tu	Ω_o Vu
CASE 1	4116#	636#
	Ω_o Tu	Ω_o Vu
CASE 2	1419#	170#
CASE 3A	2527#	272#
CASE 3B	2157#	237#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED WHERE NOTED



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SHEET TITLE: ANALYZER MODULES PLANS & ELEVATIONS
CI1900+RH



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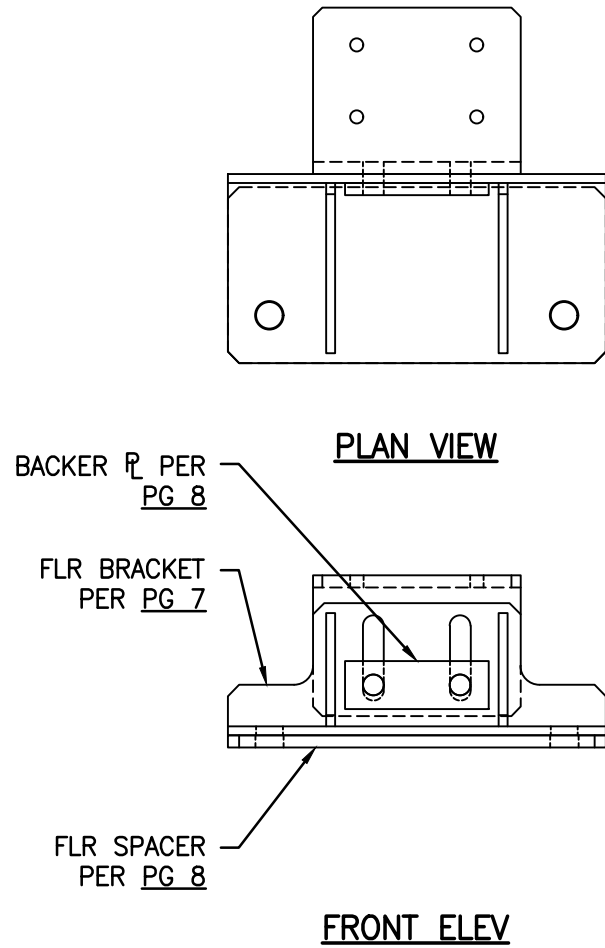


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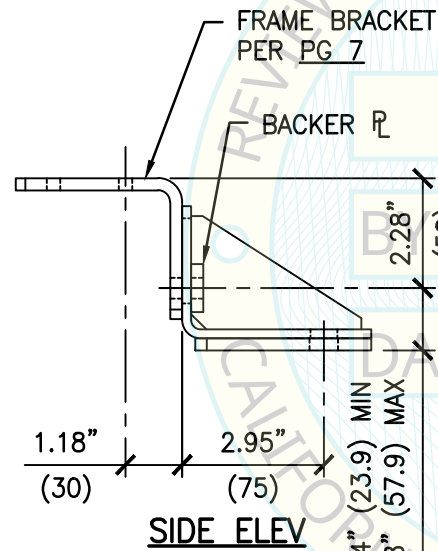


PLAN VIEW

FRONT ELEV

**TYP BRACKET ASSEMBLY
PLAN & ELEVATIONS
DETAIL**

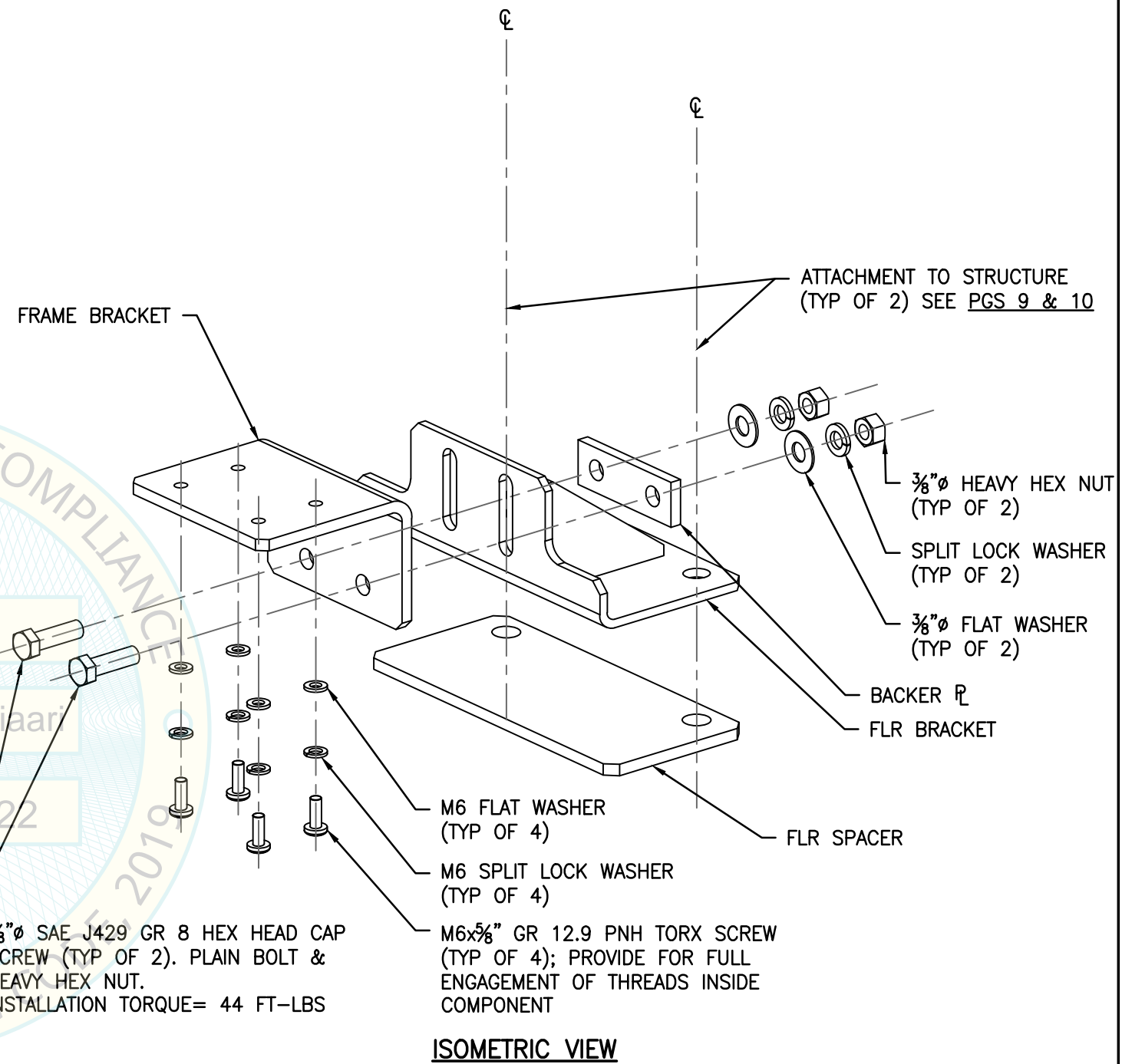
1
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NTS



SIDE ELEV

**TYP BRACKET ASSEMBLY
ISOMETRIC
DETAIL**

2
-
NTS



ISOMETRIC VIEW



SHEET TITLE: ANALYZER MODULES TYPICAL BRACKET ASSEMBLY



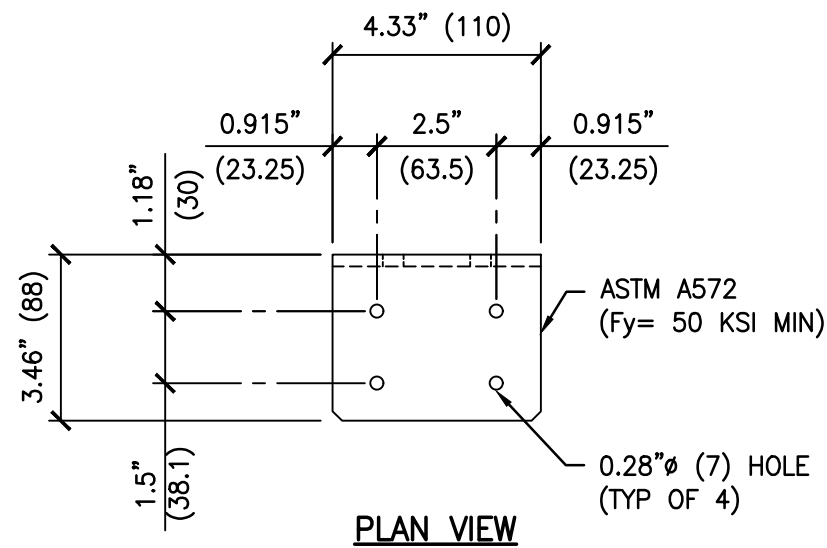
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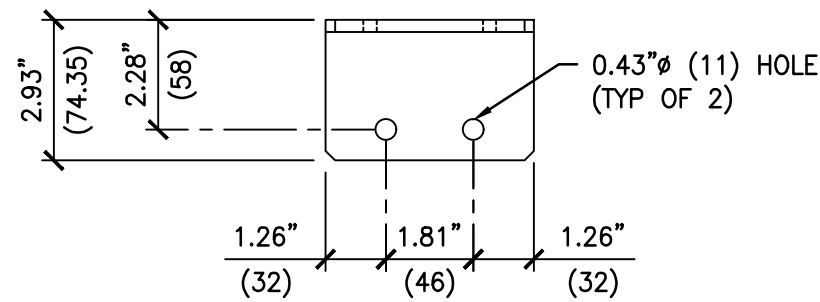
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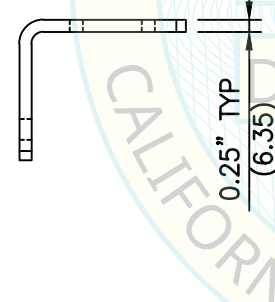
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PLAN VIEW

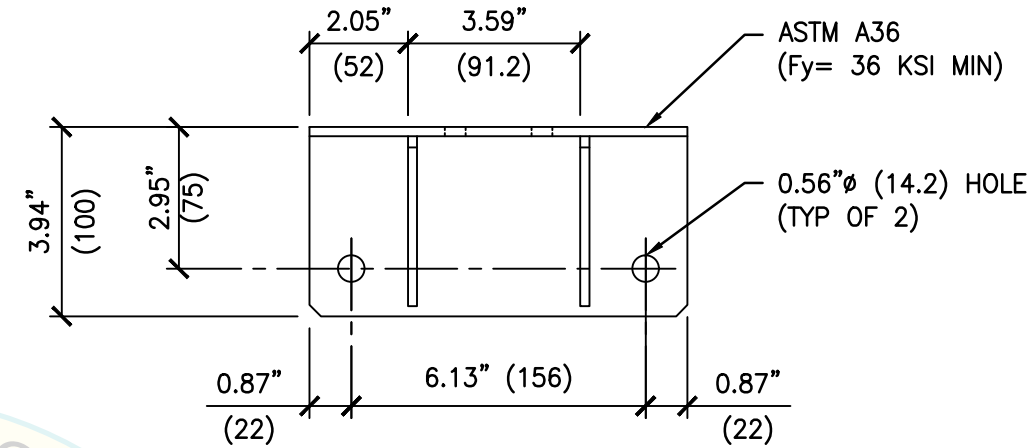


FRONT ELEV

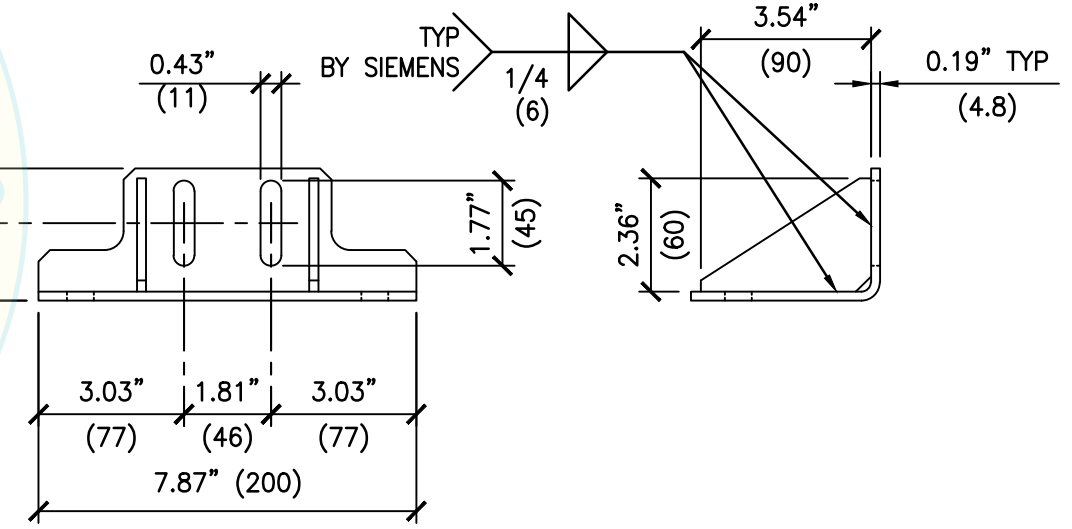


SIDE ELEV

1
— 3" = 1'-0"



PLAN VIEW



FRONT ELEV

SIDE ELEV

2
— 3" = 1'-0"



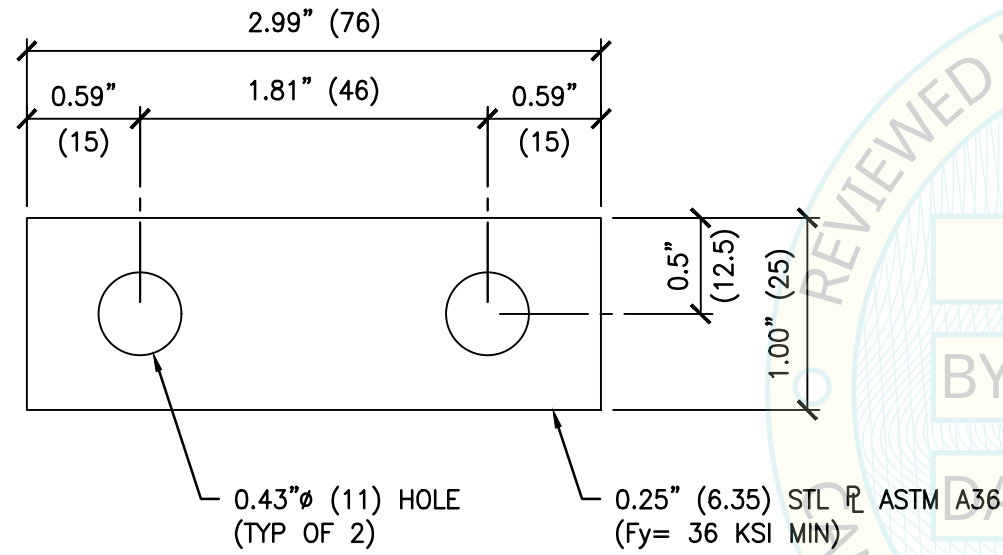
SHEET TITLE: SUPPORT DETAILS
TYPICAL FRAME & FLOOR BRACKETS

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TEL (916) 920-2020
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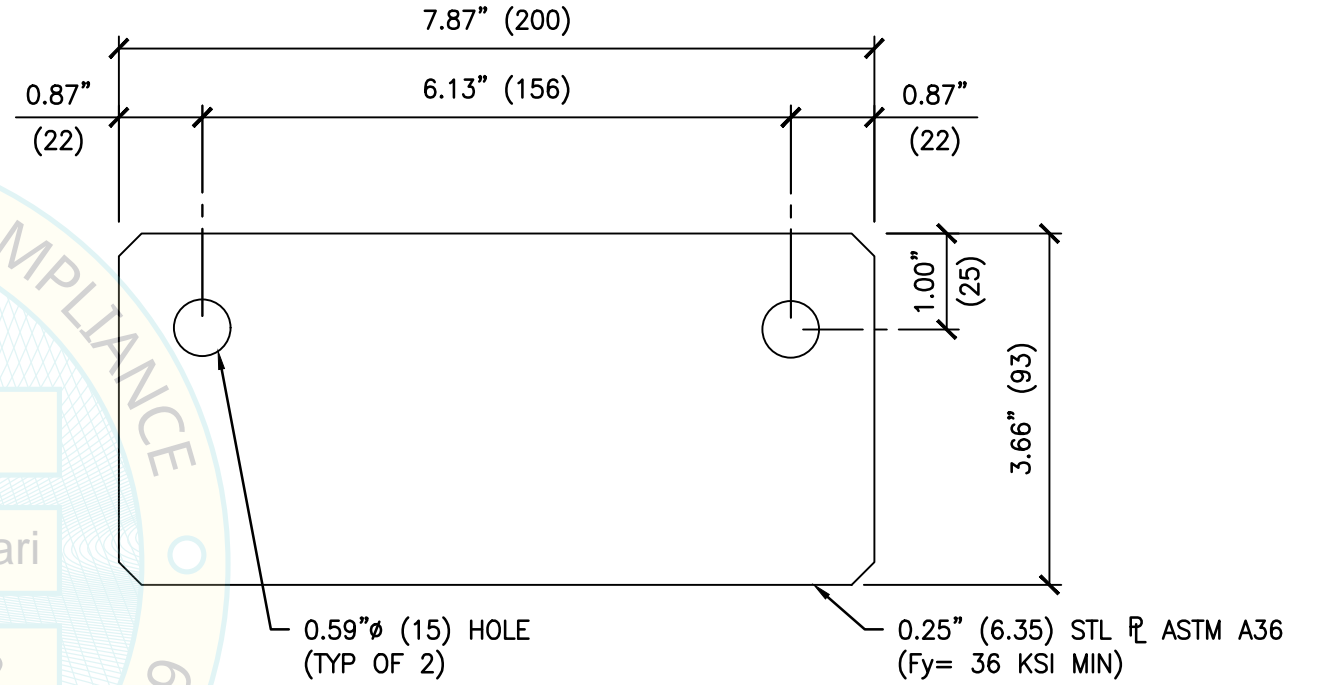
Rev	Description	Date	Job No:	21099
			Date:	03/25/2022
			By:	CYS
			Page:	7 of -

L:\Jobs21\21099 Siemens - Medical Instrument Seismic Anchorage\ACAD\STRU\S1.dwg Time:Mar25,2022-02:45pm Login:FalkR DimScale:16 LTScale:6



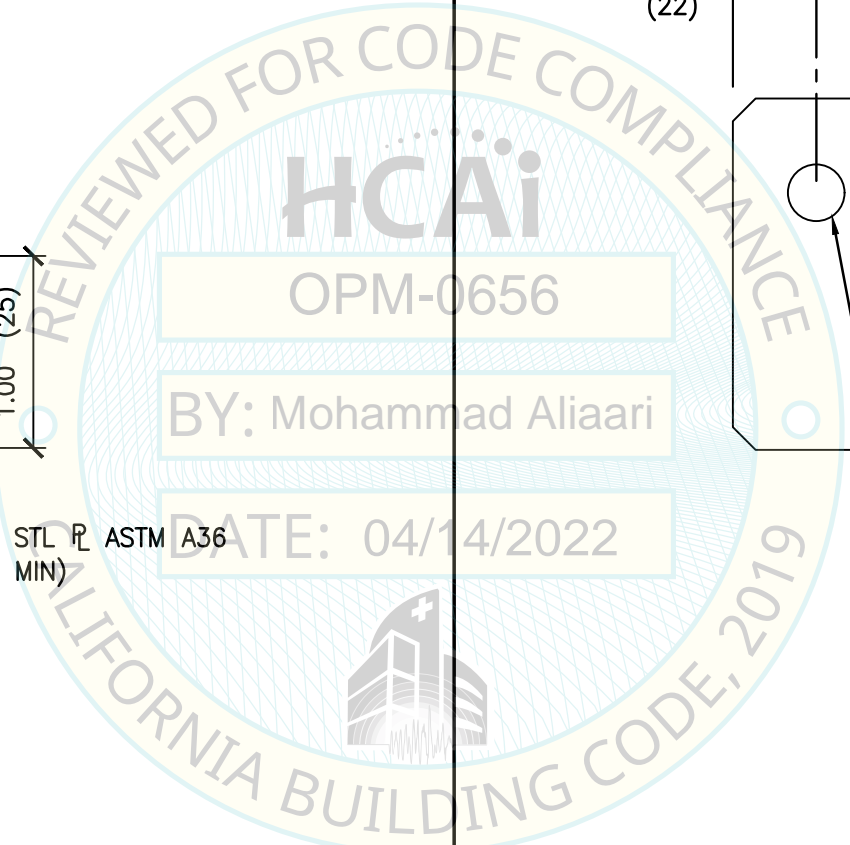
1
- 1'-0" = 1'-0"

TYP BACKER PLATE
DETAIL



2
- 6" = 1'-0"

TYP FLOOR SPACER
DETAIL



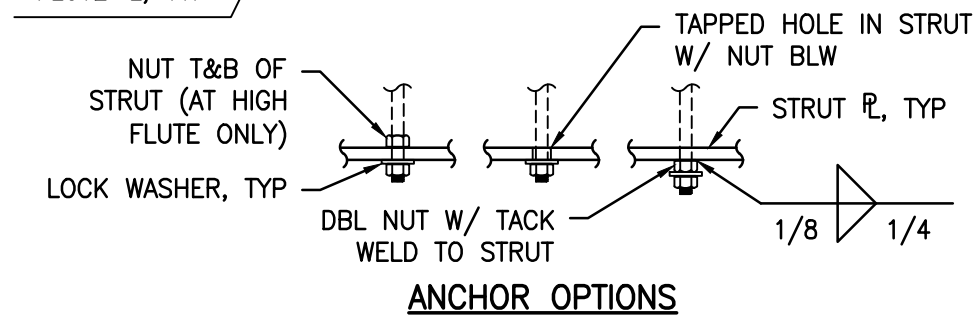
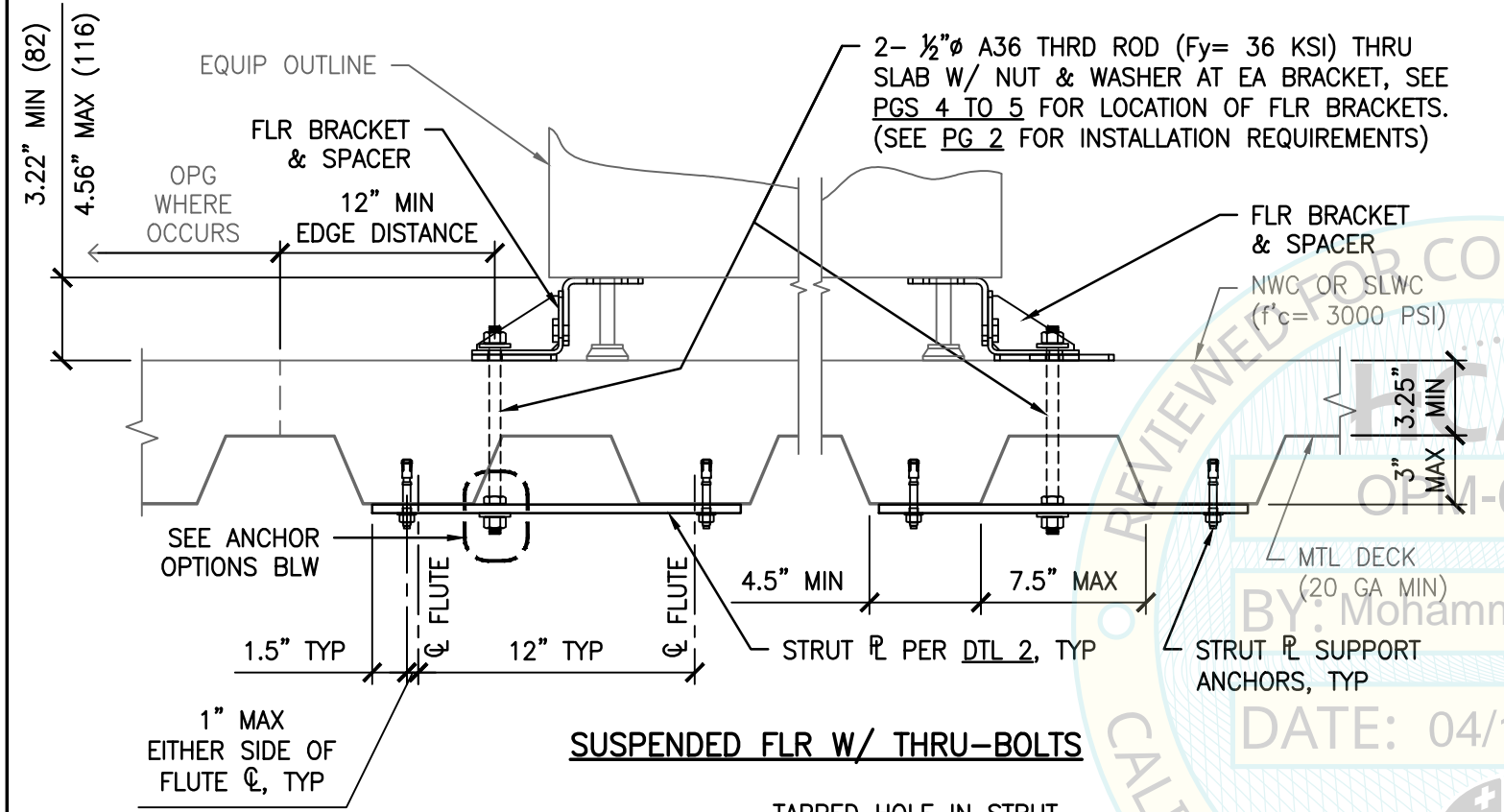
SHEET TITLE: SUPPORT DETAILS
TYPICAL BACKER PLATE & FLOOR SPACER

	SIEMENS HEALTHINEERS CI 1900 ANALYZER SYSTEMS	CYS STRUCTURAL ENGINEERS, INC. 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833 TEL (916) 920-2020 www.cyseng.com	Rev	Description	Date	Job No: 21099
						Date: 03/25/2022
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L:\Jobs21\21099 Siemens - Medical Instrument Seismic Anchorage\ACAD\STRU\S1.dwg Time:Mar25,2022-02:45pm Login:FalkR DimScale:16 LTScale:6

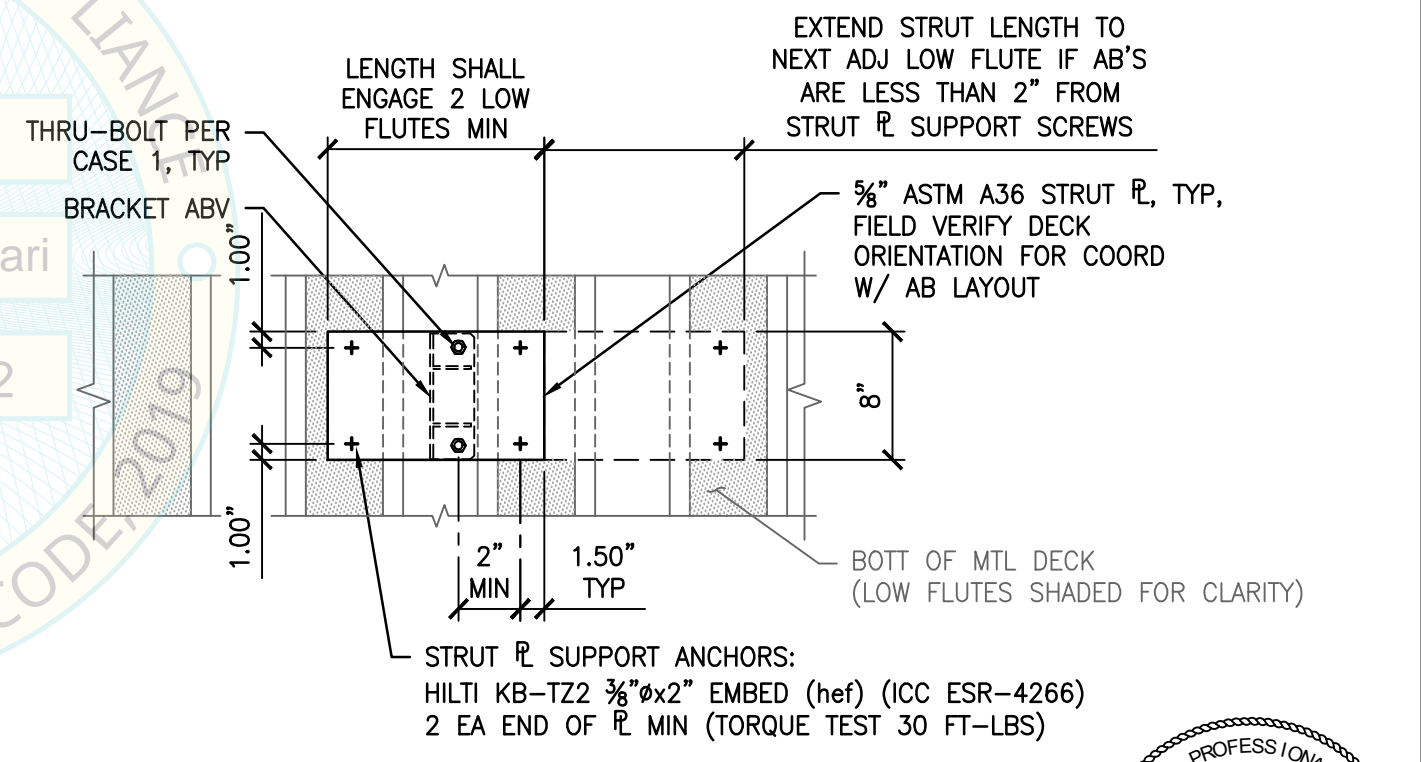
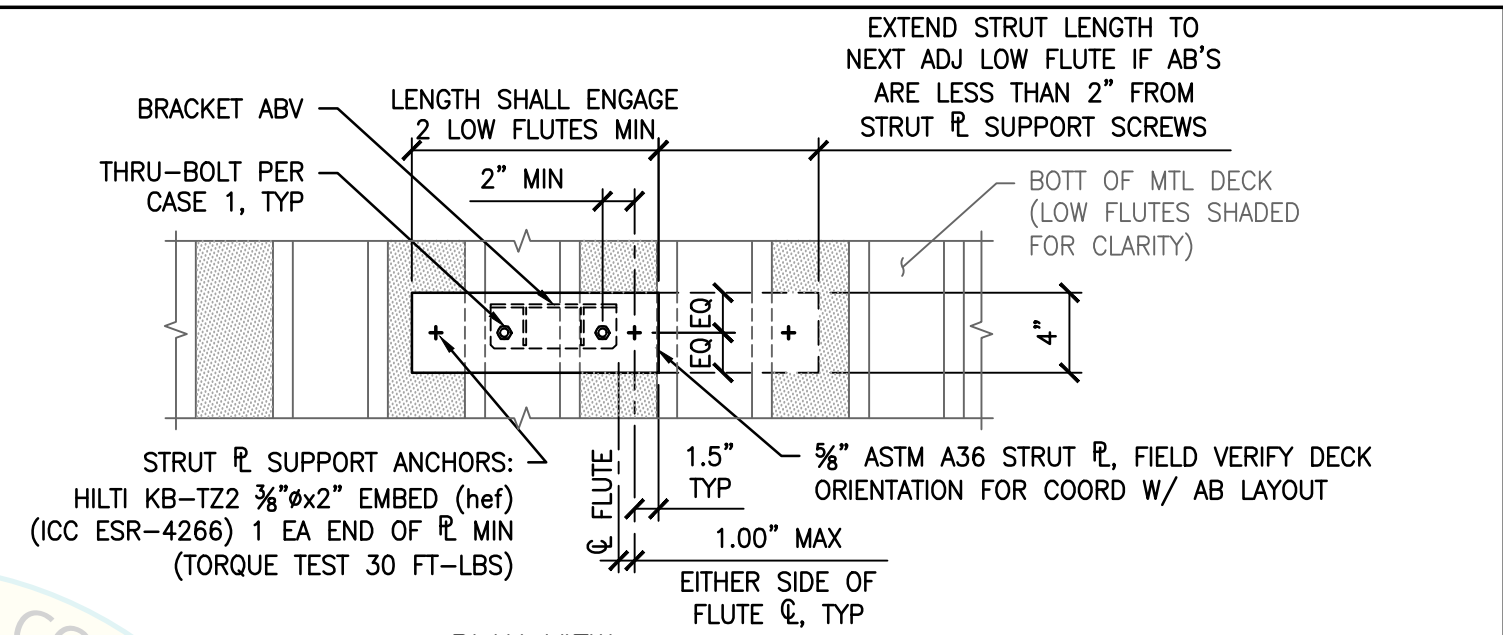
	MAX LRFD FORCES AT EA ANCHOR	
	T_u	$\Omega_o V_u$
CASE 1 $S_{ps} \leq 1.8$ $z/h \leq 0.67$	4116#	636#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED ONLY IN SHEAR VALUE



(CASE 1)
CONC FILL OVER MTL DECK
ATTACHMENT DETAIL

1
- 1 1/2" = 1'-0"



STRUT PLATE ATTACHMENT DETAIL

2
- 1 1/2" = 1'-0"



SHEET TITLE: ATTACHMENT DETAILS
CONCRETE FILL OVER METAL DECK & STRUT PLATE DETAIL

SIEMENS

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CI 1900 ANALYZER SYSTEMS

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Rev	Description	Date	Job No:	21099
			Date:	03/25/2022
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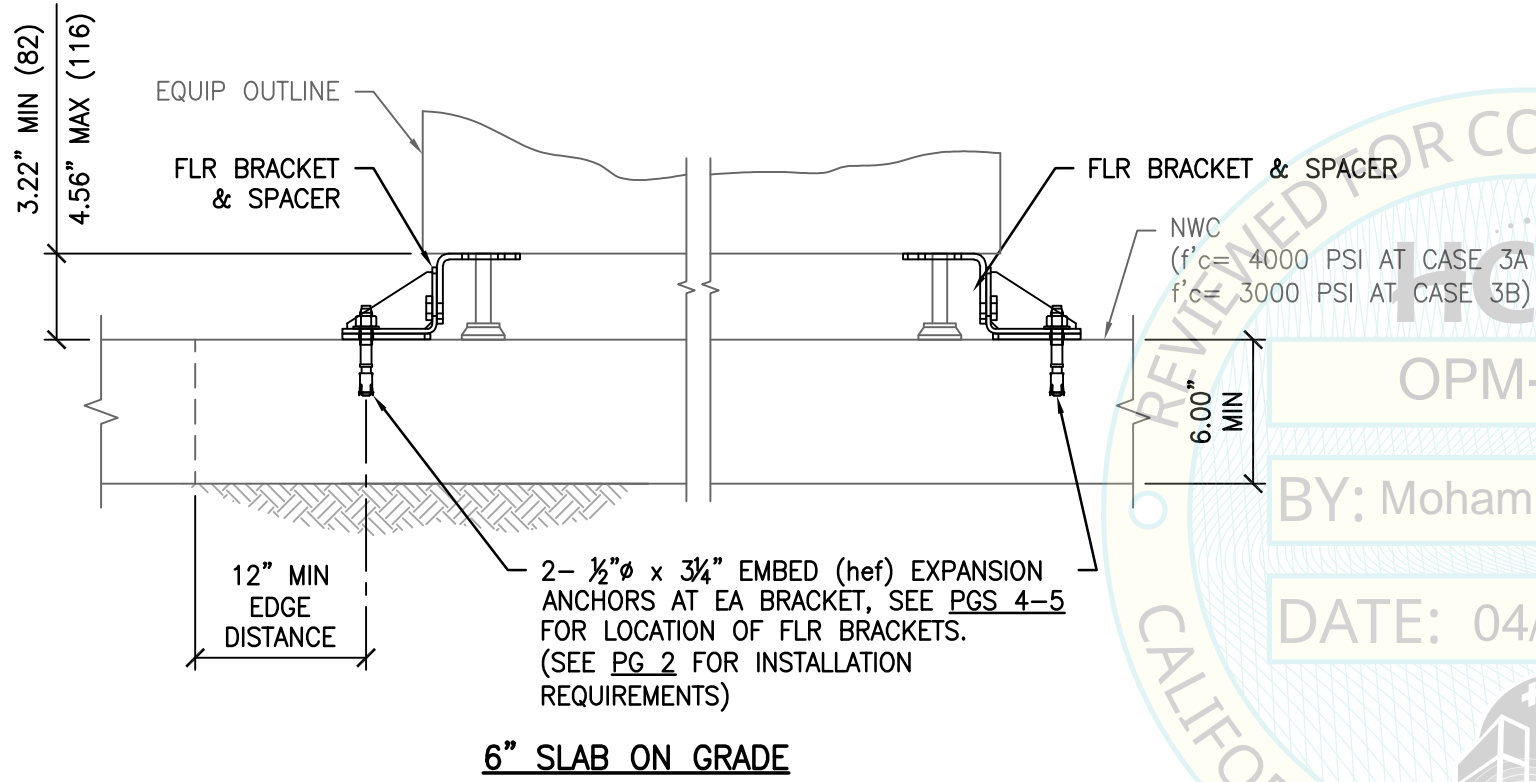
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	MAX LRFD FORCES AT EA ANCHOR	
	$\Omega_o T_u$	$\Omega_o V_u$
CASE 3A $S_{ps} \leq 1.6$ $z/h = 0$	2527#	272#
CASE 3B $S_{ps} \leq 1.4$ $z/h = 0$	2157#	237#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED WHERE NOTED

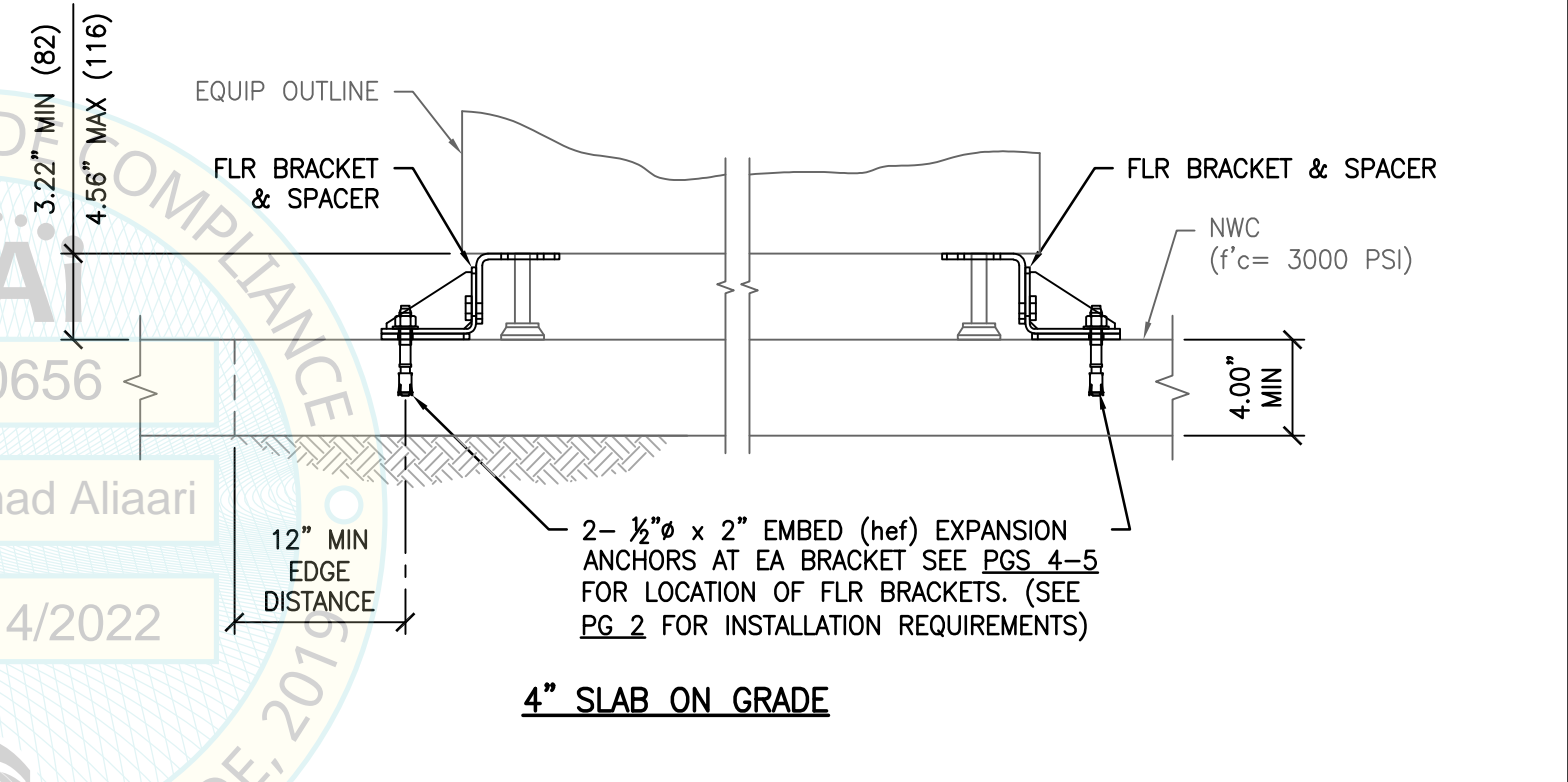
	MAX LRFD FORCES AT EA ANCHOR	
	$\Omega_o T_u$	$\Omega_o V_u$
CASE 2 $S_{ps} \leq 1.0$ $z/h = 0$	1419#	170#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED WHERE NOTED



(CASE 3A & CASE 3B)
6" SLAB ON GRADE
ATTACHMENT DETAIL

1
- 1 1/2" = 1'-0"



(CASE 2)
4" SLAB ON GRADE
ATTACHMENT DETAIL

2
- 1 1/2" = 1'-0"



SHEET TITLE: ATTACHMENT DETAILS CONCRETE SLAB ON GRADE				Rev	Description	Date	Job No: 21099
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