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

OFFICE USE ONLY

APPLICATION #: OPM-0638

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal/Update

Manufacturer Information

Manufacturer: Hospital Systems, Inc. (HSI)

Manufacturer's Technical Representative: Kathie Campbell

Mailing Address: 750 Garcia Avenue, Pittsburg, CA 94565

Telephone: (925) 427-7800 Email: kcampbell@HSIheadwalls.com

Product Information

Product Name: Hospital Systems, Inc., Array Headwall

Product Type: SSH Headwall

Product Model Number: Recessed Array SSH

General Description: Multi-panel, recessed mounted headwall system providing lighting, electrical and medical gas services.

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 Project Manager

Registered Design Professonal 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: 2/28/2022

Name: Mohammad Aliaari Title: Senior Structural Engineer

Condition of Approval (if applicable):

TABLE OF CONTENTS
OPM-0638

NOTES:

1. THESE DRAWINGS ARE PREPARED FOR HOSPITAL SYSTEMS, INC., PITTSBURG, CA
2. THE CONTRACTOR AND INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE DEPARTMENT OF HEALTH CARE ACCESS & INFORMATION (HCAI) PRE-APPROVAL PROGRAMS WEBSITE.
3. THIS PRE-APPROVAL COVERS THE SUPPORTS AND ATTACHMENTS OF THE HEADWALL TO THE SUPPORTING STRUCTURE. THE HEADWALL IS SUPPLIED BY THE MANUFACTURER. THE SCREWS, CONCRETE ANCHORS & SUPPORTING FRAMING SHOWN IN THIS OPM SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
4. NO OTHER COMPONENTS, CABINETS, SHELVES, ETC. SHALL BE SUPPORTED BY OR ATTACHED TO THE HEADWALL UNIT.
5. ARCHITECTURAL & FIRE LIFE SAFETY CODE COMPLIANCES TO BE REVIEWED AT PROJECT SUBMITTAL. THIS OPM IS FOR STRUCTURAL REVIEW OF SUPPORT AND ATTACHMENT ONLY.

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

SHEET TITLE: TABLE OF CONTENTS

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www.cyseng.com

Job No:	21096
Date:	02-23-2022
Page:	1 of 7

AXIOM™ ARRAY RECESS MOUNTED HEADWALL

GENERAL NOTES:

1. THIS OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM MUST BE BASED ON THE CBC 2019.
2. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD FOR A SITE SPECIFIC PROJECT TO VERIFY:
   - A. THE ADEQUACY OF THE NEW OR (E) 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 INSTALLATION IS IN CONFORMANCE W/ THE CBC 2019 & W/ THE DETAILS SHOWN IN THIS PRE-APPROVAL.
   - C. THAT THE ACTUAL EQUIP'S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DTLS, ATTACHMENT LOCATIONS, ATTACHMENT DETAILS, & THE MATERIAL & GA OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN ON THE PRE-APPROVAL DOCUMENTS.
   - D. THAT THE PROJECT SPECIFIC VALUES OF S_{DS} & z/h RESULT IN SEISMIC FORCES THAT DO NOT EXCEED THE VALUES PROVIDED IN THE DESIGN CRITERIA.
   - E. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS.
   - F. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPCG SHOWN IN THE EXPANSION ANCHOR TABLE ON PG 3 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.
   - G. THAT THE CONC SLAB TO WHICH THE EQUIP IS ANCHORED SHALL MEET THE REQUIREMENTS OF THE APPLICABLE ICC REPORT & THIS OPM.
3. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STEEL HILTI KB-TZ2 EXPANSION ANCHORS AS NOTED COMPLYING W/ ESR-4266 ISSUED DECEMBER 2020.
   - 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 EXPANSION ANCHOR TABLE ON PG 3.
   - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE TESTING IN ACCORDANCE W/ THE EXPANSION ANCHOR 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 OSHPD. 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 EQUIPMENT INSTALL. ALSO REFER TO 2019 CBC 1910A.5 "TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE". REPORT OF TEST RESULTS SHALL BE SUBMITTED TO OSHPD.
   - 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 (½) 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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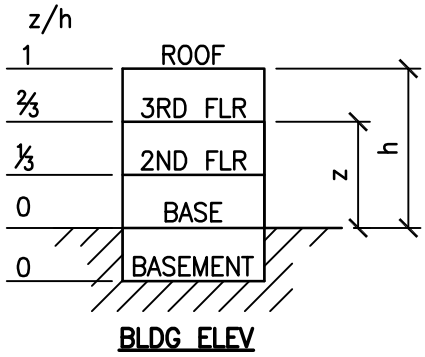
Date:	02-23-2022
Page:	2 of 7

AXIOM™ ARRAY RECESS MOUNTED HEADWALL

GENERAL NOTES CONTINUED:

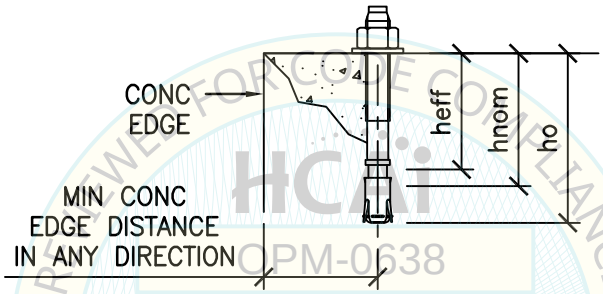
4. ONE (1) CASE OF ATTACHMENT IS SPECIFIED & PRESENTED IN THIS PRE-APPROVAL:



BLDG ELEV

CASE 1: ATTACHMENT DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG (z/h<=1.0), IT IS ASSUMED THAT THE WALLS ARE BUILT OF A MIN 5/8" THK GWB OVER 20 GA MID STUD WALLS. MAY BE USED AT ANY GEOGRAPHICAL LOCATION IN THE STATE OF CALIFORNIA WHERE S_{DS} IS LESS THAN OR EQ TO 2.5.

5. SHEET METAL SCREWS SHALL BE HILTI SELF-DRILLING SCREWS PER ISS-ES ESR-2196 OR EQ.



EXPANSION ANCHOR TABLE

CONDITION OF ANCHORAGE	ANCHOR DIA & TYPE (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	⅜ KB-TZ2	1 7/8	1½	2	3¼	16	8	30

NOTE:
MIN CONC THK SPECIFIED IS THE CONC THK OVER THE MTL DECK. THE MIN DECK DEPTH IS 3".

SHEET TITLE: GENERAL NOTES CONTINUED

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Job No:	21096
Date:	02-23-2022
Page:	3 of 7

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ABBREVIATIONS:

Ω_o	SEISMIC OVERSTRENGTH FACTOR
@	AT
ABV	ABOVE
ALUM	ALUMININUM
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASD	ALLOWABLE STRESS DESIGN
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
BLDG	BUILDING
BLW	BELOW
CBC	CALIFORNIA BUILDING CODE
CG	CENTER OF GRAVITY
CLR	CLEAR
CONC	CONCRETE
CONT	CONTINUOUS
DBL	DOUBLE
DIA (ø)	DIAMETER
DL	DEAD LOAD
DTL	DETAIL
(E)	EXISTING
EA	EACH
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE
FLG	FLANGE
FLR	FLOOR
FT (')	FOOT/FEET
Fp	HORIZONTAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS
Fv	VERTICAL SEISMIC DESIGN FORCE PER ASCE 7-16 SECTION 12.4-4 SEISMIC DESIGN FORCE REQUIREMENTS
Fy	SPECIFIED MINIMUM YIELD STRESS OF STEEL
GA	GAUGE
GALV	GALVANIZED
GR	GRADE
GWB	GYPSUM WALLBOARD
HDR	HEADER
HORIZ	HORIZONTAL
IN (")	INCH
INFO	INFORMATION
JT	JOINT
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
LL	LIVE LOAD
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
MTL	METAL
NO. (#)	NUMBER OR POUNDS
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
OPM	OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION
PCF	POUNDS PER CUBIC FOOT
PERP	PERPENDICULAR
PG	PAGE
PL	PLATE
PSI	POUNDS PER SQUARE INCH
PSF	POUNDS PER SQUARE FOOT
REQ	REQUIRED
SEOR	STRUCTURAL ENGINEER OF RECORD
SLWC	SAND-LIGHTWEIGHT CONCRETE
SMS	SHEET METAL SCREW
SPCG	SPACING
STL	STEEL
T	TENSION
THK	THICK/THICKNESS
Tu	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE
TYP	TYPICAL
V	SHEAR
Vu	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE
W/	WITH
Wp	OPERATING WEIGHT
WT	WEIGHT

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Job No:	21096
Date:	02-23-2022
Page:	4 of 7

AXIOM™ ARRAY RECESS MOUNTED HEADWALL

DESIGN CRITERIA

SUPPORT & ATTACHMENT DESIGN IS PER 2019 CBC AT LRFD LEVEL FORCES. OTHER RIGID COMPONENTS LOW DEFORMABILITY ELEMENTS & ATTACHMENTS.. PER TABLE 13.5-1 OF ASCE 7-16 SUPPLEMENT #1

a_p = 1.0 R_p = 1.5 I_p = 1.5 Ωo = 2.0 (FOR CONC ANCHOR BOLTS ONLY)

MAX W_p AS SHOWN IN TABLE BLW.

FOR CASE 1 – UPPER FLRS ABV THE BASE, z/h <= 1.0

S_{DS} = 2.5

$F_p = \frac{0.4 a_p S_{DS} W_p}{(Rp/Ip)} (1+2\ z/h) = 3.0\ W_p$ ASCE 7-16 (13.3-1)

F_p (MAX) = 1.6 S_{DS} IpW_p = 6.00 W_p ASCE 7-16 (13.3-2)

F_p (MIN) = 0.3 S_{DS} IpW_p = 1.125 W_p ASCE 7-16 (13.3-3)

$E_v+F_v = \pm 0.2\ S_{DS}\ W_p = 0.50\ W_p$ ASCE 7-16 (12.4-4)

LOAD COMBINATIONS

(1.2+0.2 S_{DS}) D+1.0E+L LRFD

(1.0+0.14 S_{DS}) D+0.7E ASD

LOAD COMBINATIONS WERE RUN FOR 100% OF HORIZ FORCE IN ONE DIRECTION & 30% OF HORIZ FORCE IN THE PERP DIRECTION.

HEADWALL UNIT WEIGHT (LBS)

WIDTH, W (IN)	DEPTH, D (IN)	HEIGHT, H (IN)	Hcg (IN)	WEIGHT, Wp (LBS)
18	3.625	52	26	45
126	3.625	52	26	318
18	3.625	102	51	89
126	3.625	102	51	623

THE ABV TABLE PRESENTS THE OPERATING WEIGHTS (Wp) IN POUNDS FOR EA UNIT

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SHEET TITLE: DESIGN CRITERIA, LOAD COMBINATIONS & HEADWALL UNIT WEIGHTS

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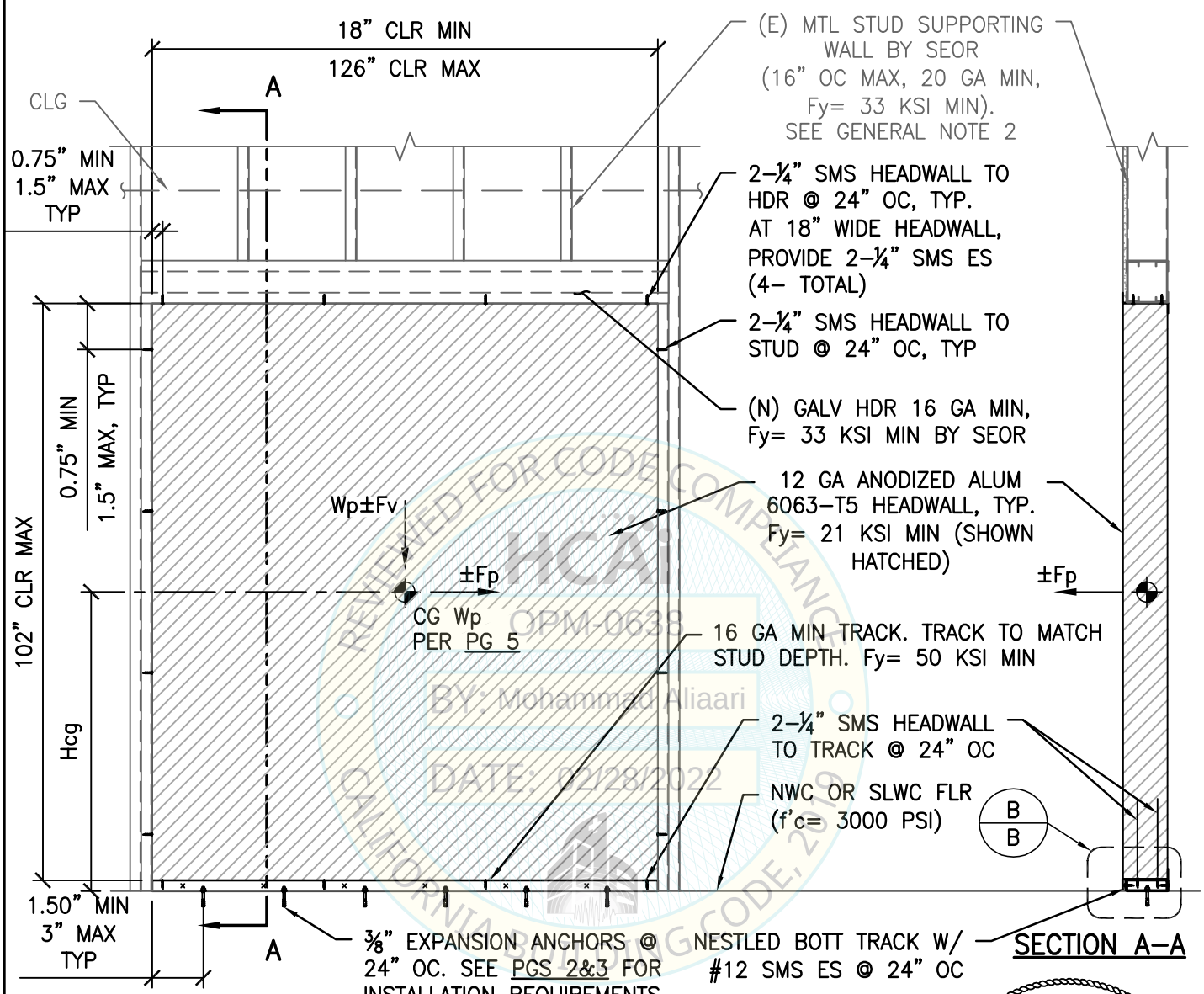
Job No:	21096
Date:	02-23-2022
Page:	5 of 7

AXIOM™ ARRAY RECESS MOUNTED HEADWALL



MAX LRFD FORCES AT EA ANCHOR	
	ΩoVu
CASE 1	406#

MAX LRFD FORCES AT EA SCREW	
	Vu
CASE 1	102#

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SHEET TITLE: MAX HEIGHT & MAX WIDTH ELEVATIONS & DETAIL

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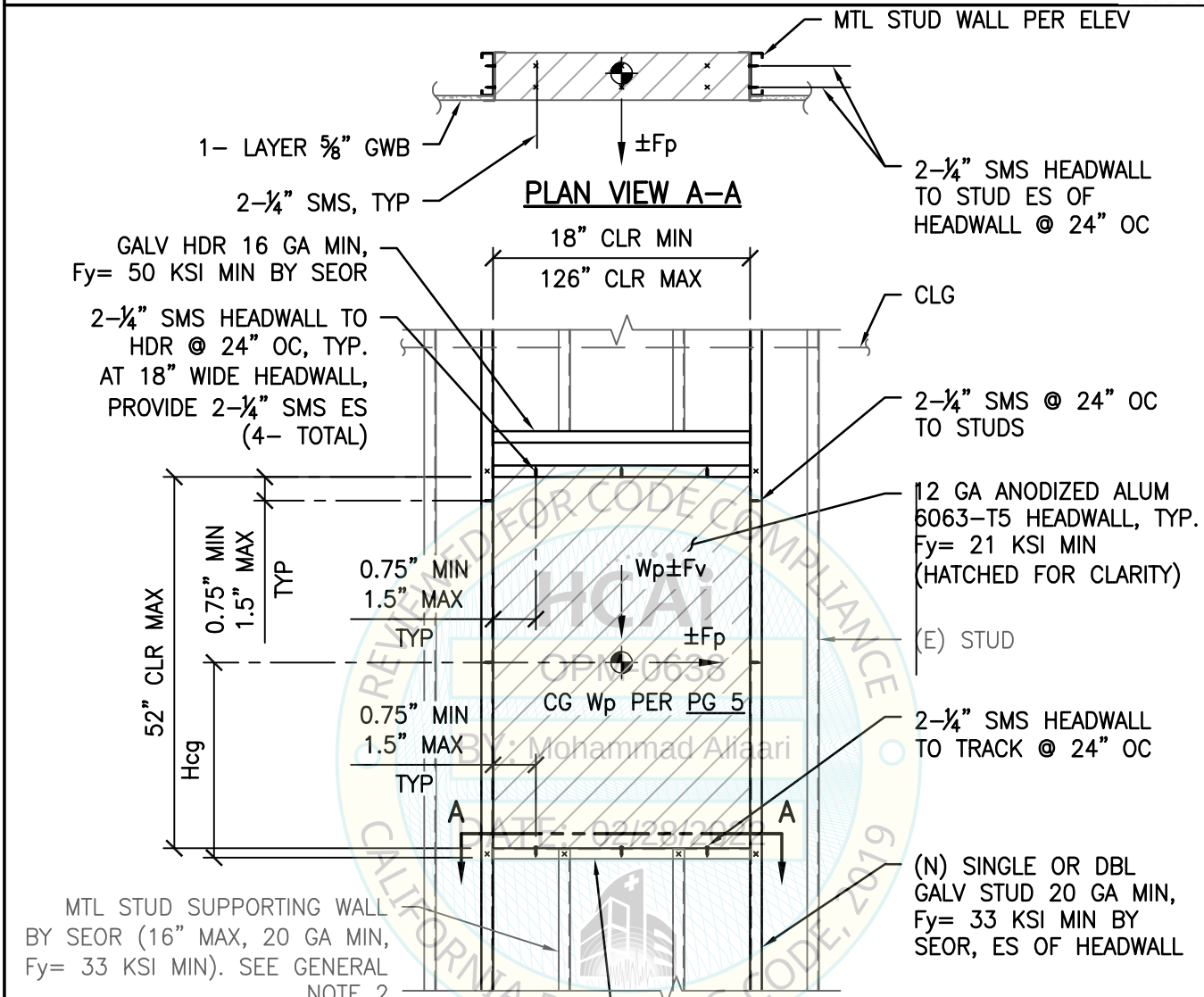
Job No:	21096
Date:	02-23-2022
Page:	6 of 7

AXIOM™ ARRAY RECESS MOUNTED HEADWALL



FRONT ELEV

	MAX LRFD FORCES AT EA SCREW	
		Vu
CASE 1		102#

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SHEET TITLE: MIN HEIGHT & MIN WIDTH ELEVATION & DETAIL

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Job No:	21096
Date:	02-23-2022
Page:	7 of 7