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

OFFICE USE ONLY

APPLICATION #: OPM-0667

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal/Update

Manufacturer Information

Manufacturer: QleanAir Scandinavia Inc.

Manufacturer's Technical Representative: Anthony Ticknor

Mailing Address: 8445 Rausch Drive, Plain City, OH 43064

Telephone: (123) 456-7890 Email: Anthony.Ticknor@Qleanair.com

Product Information

Product Name: QleanAir Clean Room System Rectangular Shape

Product Type: Clean Room

Product Model Number: None

General Description: Clean Room

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

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

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, 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: 1/10/2026

Name: William Staehlin Title: Senior Structural Engineer

Condition of Approval (if applicable):

CLEAN ROOM SYSTEM
SEISMIC SUPPORTS & ATTACHMENTS
FOR CALIFORNIA HOSPITALS

TABLE OF CONTENTS
OPM–0667

NOTES:

1. THESE DRAWINGS ARE PREPARED FOR QLEANAIR SCANDINAVIA, INC., PLAIN CITY, OHIO.
2. 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.
3. THIS PRE–APPROVAL COVERS THE SUPPORTS AND ATTACHMENTS OF THE CLEAN ROOM SYSTEM COMPONENTS TO THE SUPPORTING STRUCTURE. THE SYSTEM COMPONENTS ARE SUPPLIED BY QLEANAIR. THE ATTACHMENT HARDWARE IS SUPPLIED AND INSTALLED BY QLEANAIR. THRU–BOLTS, UNDER FLOOR HARDWARE AND ATTACHMENTS UNDER METAL DECK AND EXPANSION BOLTS SHOWN ON PAGES 16–18 SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.
4. THE SCOPE OF THIS PREAPPROVAL IS LIMITED TO STRUCTURAL ITEMS ONLY. IT DOES NOT ADDRESS OTHER DISCIPLINES SUCH AS, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, PLUMBING & FIRE PREVENTION. THESE DISCIPLINES MUST BE APPROVED ON A PROJECT SPECIFIC BASIS BY AUTHORITY HAVING JURISDICTION (OSHPD). ALSO, IT DOES NOT ADDRESS PHARMACEUTICAL REQUIREMENTS ESPECIALLY IF THE CLEAN ROOM IS A COMPOUNDING PHARMACY. THESE PHARMACEUTICAL REQUIREMENTS WILL REQUIRE REVIEW AND APPROVAL BY THE CALIFORNIA STATE BOARD OF PHARMACY.
5. THE MAXIMUM CLEAN ROOM SIZE SHOWN IN THIS OPM ENVELOPES ALL SMALLER SIZED RECTANGULAR OR SQUARE CLEAN ROOMS.
6. CABINETRY MUST NOT BE ATTACHED TO THE WALLS OF THE CLEAN ROOM. TYPICAL WALL PANEL IS DESIGNED FOR A SINGLE 15 LBS SINK & MINIMUM CODE REQUIRED 5 PSF ONLY.
7. FOR ANY INSTALLATION THAT QUALIFIES UNDER THIS OPM, QLEANAIR SHALL SUBMIT TO THE ARCHITECT & INSPECTOR THE FOLLOWING INFORMATION IN ADDITION TO THIS OPM:
   - QLEANAIR SCANDINAVIA, INC. FASTENING COMPONENTS & PREASSEMBLIES, DOCUMENT #: 001, DATE: 11/04/25
     ALTERNATE MANUFACTURER FASTENAL IN LIEU OF McMASTER–CARR IS ACCEPTABLE.
   - QLEANAIR SCANDINAVIA, INC. ON–SITE ASSEMBLY DRAWINGS, DOCUMENT #: 002, DATE: 11/04/25
8. QLEANAIR TECHNICIANS SHALL INSTALL THE CLEAN ROOM.
9. DESIGN LOADS:
   - CEILING DEAD LOAD = 4.4 PSF (INCLUDES TRUSS SELF WT)
   - CEILING LIVE LOAD = 0.0 PSF
   - WALL DEAD LOAD = 22.2 PSF (INCLUDES FASCIA
10. DIMENSIONAL VARIATIONS OF ROOMS ARE ALLOWED (SEE NOTE 2 ON PAGE 4).
11. SIZE OF SHEAR WALLS ARE FIXED AND MUST NOT BE ALTERED.
12. SHEAR WALLS MAY BE REPOSITIONED ANYWHERE ALONG A WALL LINE SINCE SHEAR WALLS, DRAG ELEMENTS AND HOLD–DOWNS ARE DESIGNED FOR MAXIMUM ALLOWABLE LOADS.

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

SHEET TITLE: TABLE OF CONTENTS

Rev	Description	Date

Job No: 22040
Date: 01/07/2026
By: CYS
Page: 1 of 18

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

CYS STRUCTURAL ENGINEERS, INC.
2710 GATEWAY OAKS DRIVE, SUITE 190 N TEL (916) 920-2020
SACRAMENTO, CA 95833 www.cyseng.com

GENERAL NOTES:

1. THIS HCAI PRE–APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2022 CALIFORNIA BUILDING CODE. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2022.

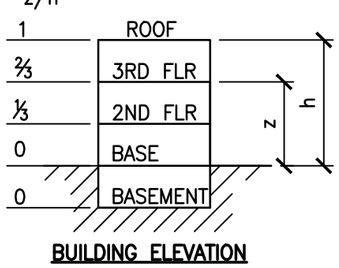
2. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD (SEOR) FOR A SITE SPECIFIC PROJECT TO VERIFY:
   A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
   B. THAT 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 ⅜" & ½" 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 2022 & 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:



BUILDING ELEVATION

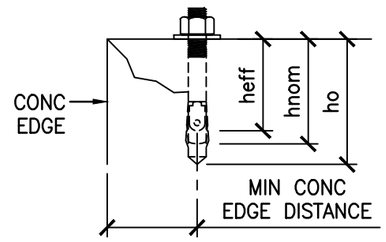
CASE 1: ANCHORAGE DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG (z/h<=0.8), IT IS ASSUMED THAT THE FLRS ARE BUILT OF A MIN 3¼" SLWC TOPPING OVER MTL DECK (f'c = 3000 PSI, MIN).

CASE 2: ANCHORAGE DETAILS LOCATED AT OR BLW THE BASE OF THE BLDG (z/h=0). THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 4" NWC SLAB (f'c = 3000 PSI, MINIMUM).

CASE 3: ANCHORAGE DETAILS LOCATED AT OR BLW THE BASE OF THE BLDG (z/h=0). THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 6" NWC SLAB (f'c = 3000 PSI, MINIMUM).

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

8. A. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC CONC SHALL BE STAINLESS STL HILTI KB–TZ2 EXPANSION ANCHORS COMPLYING W/ ICC ESR–4266 LATEST ISSUE.
   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 BLW AND ATTACHMENT DETAILS ON PGS 13, 14 & 16.
   C. JOB TESTING: TESTING AND SPECIAL INSPECTION OF EXPANSION ANCHORS SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY EMPLOYED BY THE FACILITY OWNER PER CBC 1704A & 1910A.5 AND CAC 7–149. ALL REPORTS SHALL BE SENT TO THE INSPECTOR OF RECORD, OWNER AND THE ARCHITECT OR ENGINEER IN RESPONSIBLE CHARGE. 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 (½) 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) hnom	EFFECTIVE EMBED (INCH) hef	HOLE DEPTH (INCH) ho	MIN CONC THK (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN AB SPCG (INCH)	TORQUE TEST (FT–LBS)
CASE 1 STRUT PL	⅜	2½	2	2¾	3¼	12	3.86	30
CASE 1 & 2	½	2½	2	2¾	4	12	3.86	40
CASE 3	½	3¾	3¼	4¼	6	12	3.86	40

9. BOLTS THROUGH CONC ON MTL DECK:
   A. BOLTS SHALL BE TORQUED BY ¾ 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 REQ TESTING) IN ACCORDANCE W/ REQUIREMENTS FOR POST–INSTALLED ANCHORS.

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SHEET TITLE: GENERAL NOTES

Rev	Description	Date

Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	2 of 18

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

CYS STRUCTURAL ENGINEERS, INC.
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www.cyseng.com

DESIGN CRITERIA:

SUPPORT & ATTACHMENT DESIGN IS PER 2022 CBC AT LRFD LEVEL FORCES.

INTERIOR NON-STRUCTURAL WALLS & PARTITIONS – ALL OTHER WALLS & PARTITIONS PER ASCE 7-16 TABLE 13.5-1 & CBC 1617A.1.23

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

a_p = 1.0 R_p = 2.5 I_p = 1.5 Ω_0 = 1.5 (FOR CONC ANCHORS ONLY)

W_P AS NOTED ON DRAWINGS

UPPER FLRS ABV THE BASE OF BLDG, $z/h \leq 0.80$

CASE 1: S_{DS} = 2.1 $F_p = 1.31\ W_p$

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

CASE 2: S_{DS} = 1.5 $F_p = 0.68\ W_p$

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

CASE 3: S_{DS} = 2.1 $F_p = 0.945\ W_p$

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
ABV	ABOVE
AB	ANCHOR BOLT
ADJ	ADJACENT
ALUM	ALUMINUM
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
BLDG	BUILDING
BLW	BELOW
BOTT	BOTTOM
CBC	CALIFORNIA BUILDING CODE
CG	CENTER OF GRAVITY
℄	CENTERLINE
CLG	CEILING
CONC	CONCRETE
CONN	CONNECTION
COORD	COORDINATE/COORDINATION
DBL	DOUBLE
DIA (ø)	DIAMETER
DIM	DIMENSION
DTL	DETAIL
DWG	DRAWING
(E)	EXISTING CONDITION
EA	EACH
EE	EACH END
ELEV	ELEVATION
EMBED	EMBEDMENT
EQ	EQUAL
EQUIP	EQUIPMENT
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE
FLR	FLOOR
Fp	HORIZONTAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS
FT	FOOT/FEET
Fv	VERTICAL SEISMIC FORCE PER ASCE 7-16 SEISMIC FORCE REQUIREMENTS
Fy	SPECIFIED YIELD STRENGTH OF REINFORCING, PSI OR SPECIFIED MINIMUM YIELD STRESS OF STEEL, KSI
GA	GAGE
GR	GRADE
HCAI	DEPARTMENT OF HEALTHCARE ACCESS AND INFORMATION
ICC	INTERNATIONAL CODE COUNCIL
IN (")	INCH
INC	INCORPORATED
INFO	INFORMATION
IOR	INSPECTOR OF RECORD
kg	KILOGRAM
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
LRFD	LOAD & RESISTANCE FACTOR DESIGN
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
mm	MILLIMETER
MTL	METAL
NO. (#)	NUMBER
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OH	OPPOSITE HAND
OPG	OPENING
PERP	PERPENDICULAR
PG	PAGE
ℙ	PLATE
PSI	POUNDS PER SQUARE INCH
REQ	REQUIRE/REQUIRED
SEOR	STRUCTURAL ENGINEER OF RECORD
SLWC	SAND LIGHT WEIGHT CONCRETE
SPCG	SPACING
SS	STAINLESS STEEL
STL	STEEL
THK	THICK/THICKNESS
THRD	THREAD/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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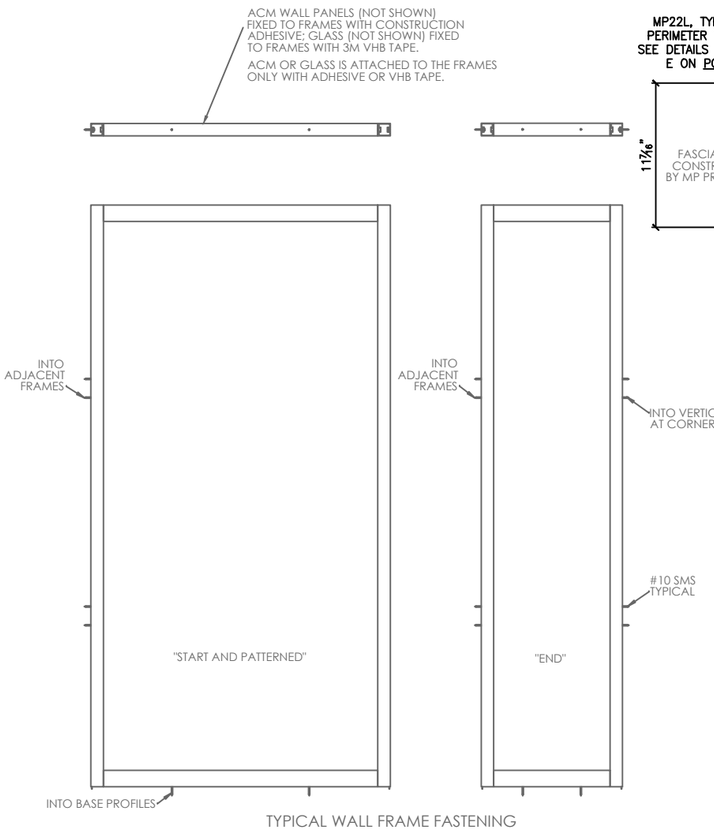
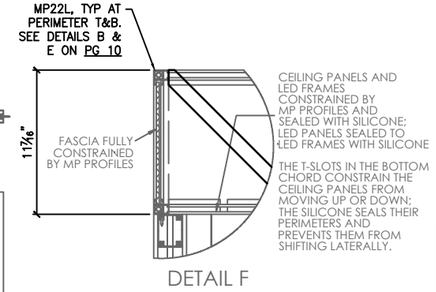
Rev	Description	Date

Job No: 22040
Date: 01/07/2026
By: CYS
Page: 3 of 18

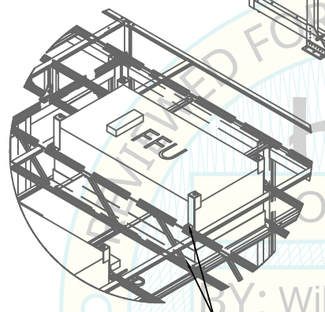


TYPICAL WALL FRAME FASTENING

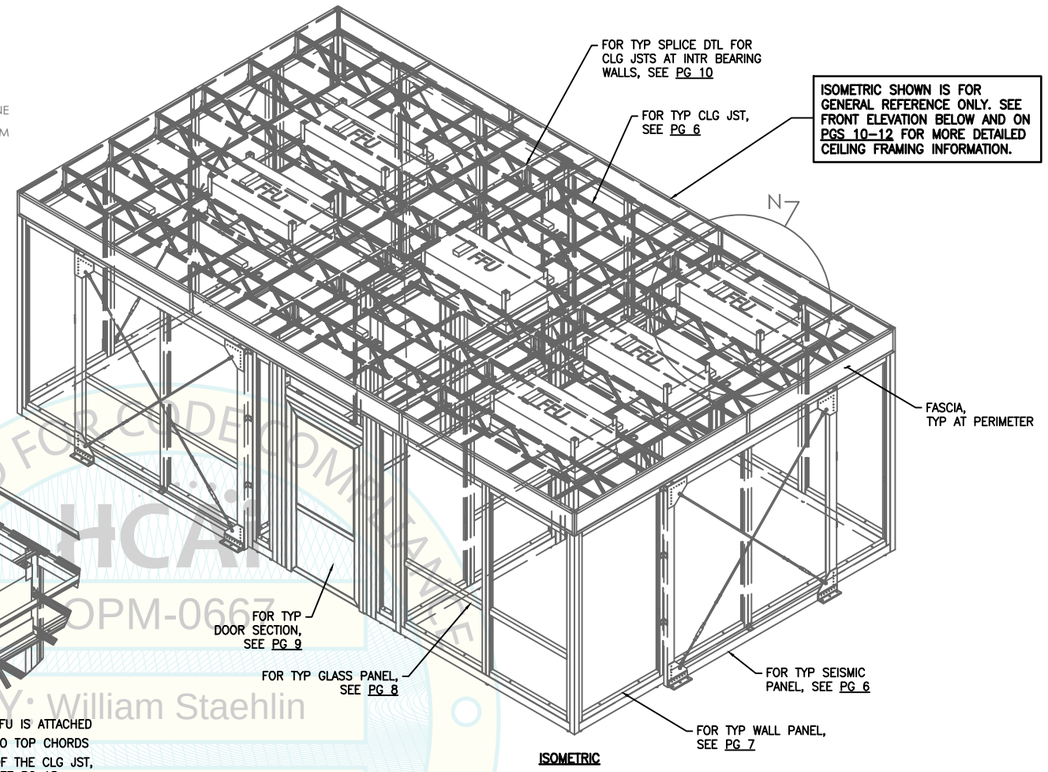


DETAIL F

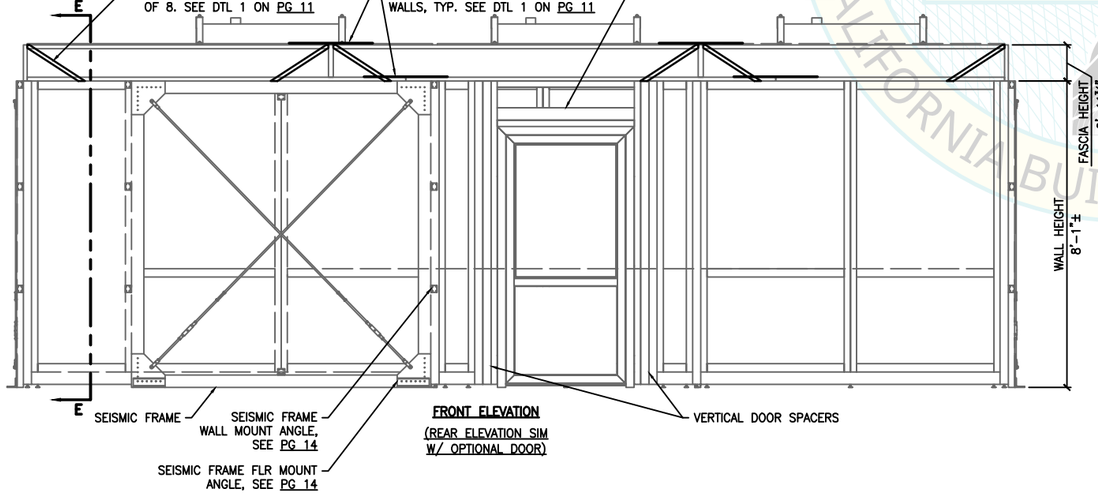
NOTE:
ISOMETRIC IS GRAPHICALLY SHOWN, FOR ACTUAL ORIENTATION, PANEL LAYOUTS & ROOF JOISTS, SEE PG 5.



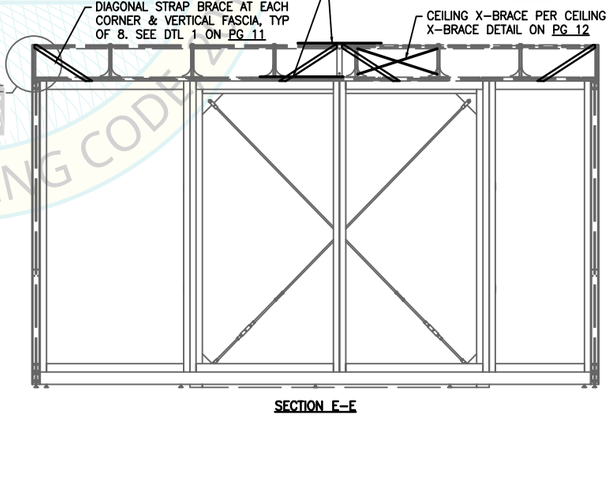
DETAIL N



ISOMETRIC



FRONT ELEVATION
(REAR ELEVATION SIM W/ OPTIONAL DOOR)



SECTION E–E

SHEET NOTES:
1. FOR DIMS NOT SHOWN, SEE FOLLOWING PAGES.
2. MAX CLEAN ROOM DIMS OF 15'–0"x26'–0"x 8'–1" ENVELOPES ALL SMALLER SIZED RECTANGULAR OR SQUARE CLEAN ROOMS.
3. FAN UNIT "EVIRCO MAC 10 2x4 LEDG RSRE" SPECIAL SEISMIC CERTIFICATION PER OSP–0634, UUT–003. FAN UNIT IS ATTACHED TO THE TOP CHORD OF THE CLG JST, SEE PG 15.
4. FFU MAX OPERATING WEIGHT OF SINGLE UNIT IS 84.5 lbs. THE MAXIMUM NUMBER OF FFU UNITS IS (6) TOTAL WITH A MAXIMUM OF (3) UNITS PER ROOM.

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SHEET TITLE: ISOMETRIC OVERVIEW WITH SEISMIC PANELS

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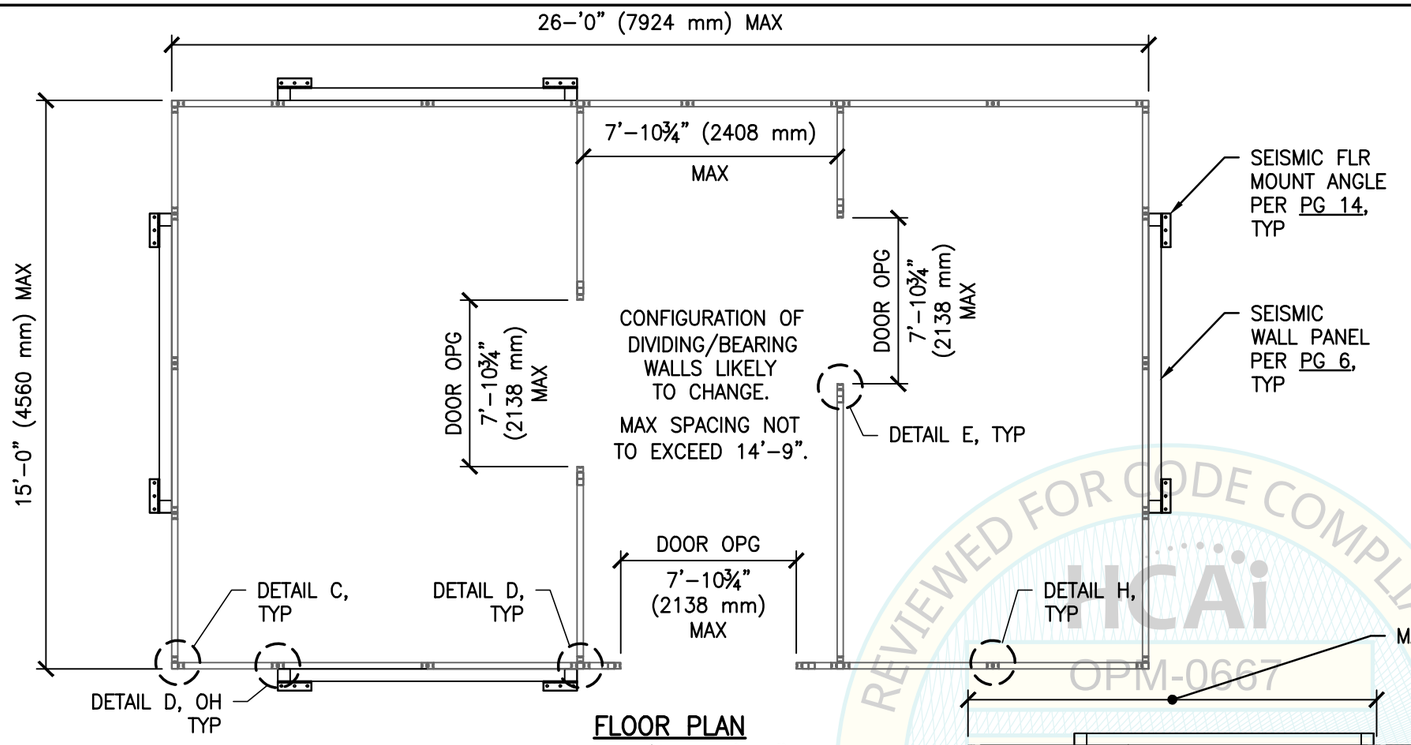
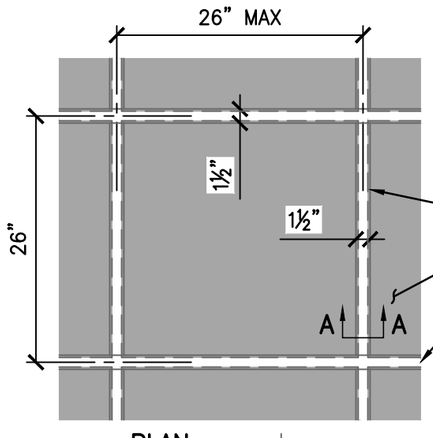
Rev	Description	Date

Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	4 of 18



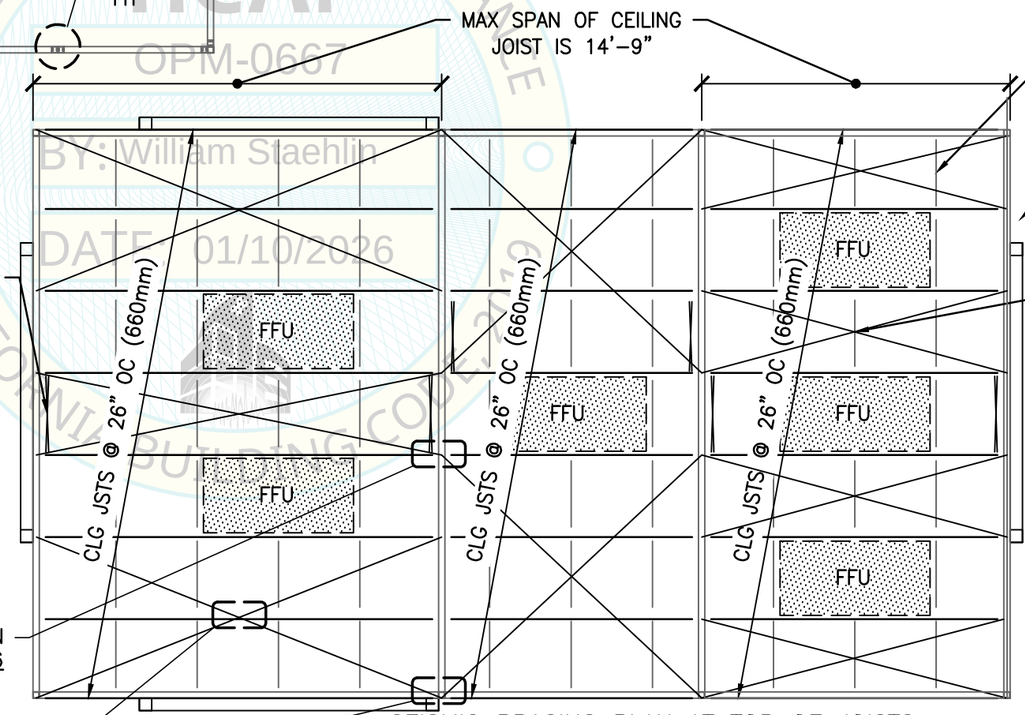
FLOOR PLAN
SCALE: ¼ = 1'-0"



PLAN

SECTION A–A

TYPICAL CEILING TILE ASSEMBLY DETAIL
SCALE: NONE



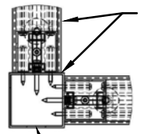
SEISMIC BRACING PLAN AT TOP OF JOISTS
SCALE: ¼ = 1'-0"

CLG JST CROSS MEMBER: MULTIFORM PROFILE "MP 23", TYP. ATTACH AT EA END W/ MULTIFORM CONNECTOR "MT22"

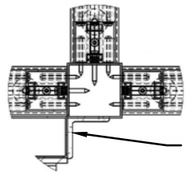
WALL COLLECTOR SPLICE STRAPS, AND BRACING AT THE CEILING LEVEL ARE NOT SHOWN FOR CLARITY, SEE PGS 10–12 FOR MORE INFORMATION.

1.5"x16 GA Fy= 33 KSI FLAT STRAP BRCG WHERE SHOWN W/ 4– #10 SMS SCREWS EA END. ATTACH TO TOP OF EA INTERSECTING TRUSS, CROSS MEMBER & FASCIA W/ 2– #10 SMS

SHEET NOTE:
FOR DIMS NOT SHOWN SEE FOLLOWING PAGES

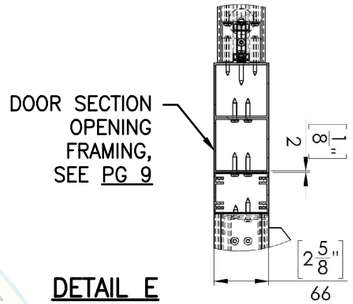


DETAIL C

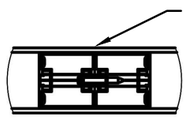


DETAIL D

TYPICAL SEISMIC FRAME WALL MOUNT ANGLE. ATTACH TO SEISMIC FRAME AND WALL FRAME PER PG 6.



DETAIL E



WALL FRAME TO WALL FRAME CONNECTION, SEE PGS 4, 7, & 8

DETAIL H

NOTE:
REFER TO NOTE 7 ON PG 1 FOR PREASSEMBLIES.

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SHEET TITLE: PLAN AT WALL FRAME BASE & SEISMIC BRACING PLAN AT TOP OF JOISTS

Rev	Description	Date

Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	5 of 18

QleanAir

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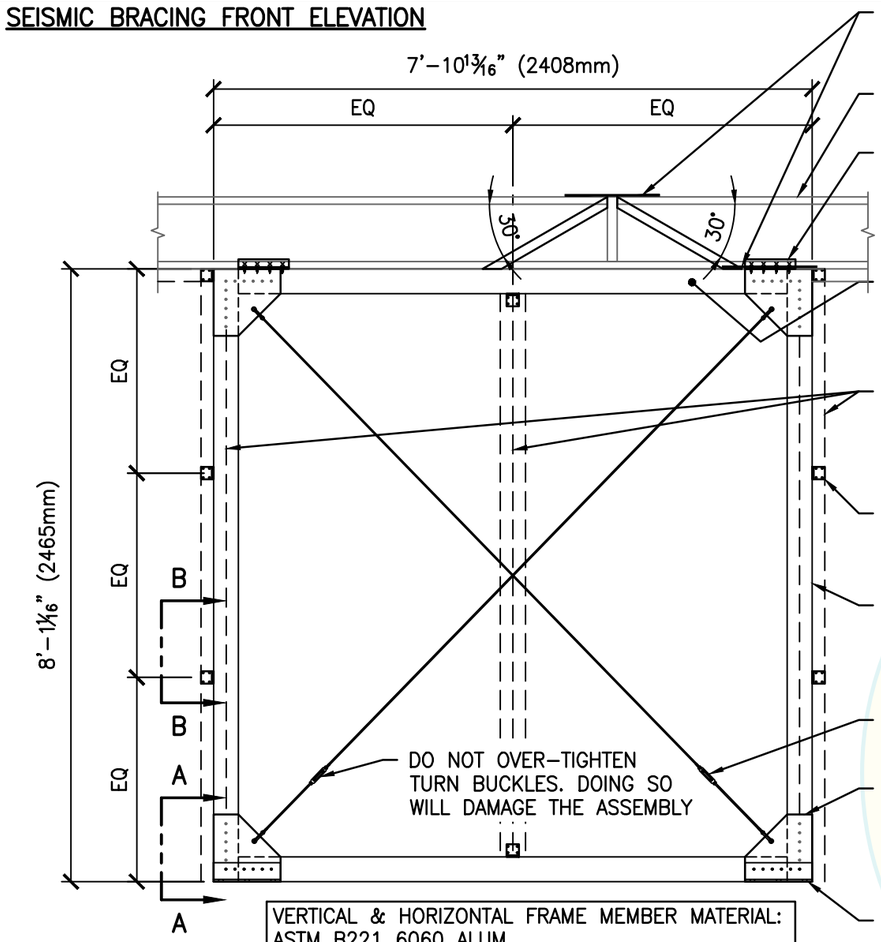
SEISMIC BRACING FRONT ELEVATION



STRAPS AT SPLICES. INSTALL OVER 16 GA ANGLES WHERE OVERLAP OCCURS

FOR FRAMING AT FASCIA, SEE DTL 1 ON PG 11

1.5"x1.5"x16 GA x 8" LONG Fy= 33KSI COLD FORMED STL ANGLE W/ 4– #10 SMS AT EA LEG SPACED @ 2" OC

SEISMIC FRAME HORIZONTAL: 3.94"x1.97"x0.079" TUBE (100mm x 50mm x 2mm), TYP OF 2

WALL VERTICALS (PROFILE "QP5050" OR PROFILE "QP 6666") USED FOR SEISMIC FRAME ATTACHMENT (SHOWN DASHED FOR CLARITY)

SEISMIC FRAME WALL MOUNT ANGLE TO WALL FRAME VERTICAL, TYP OF 8, SEE PG 14

SEISMIC FRAME VERTICAL: 3.94"x1.97"x0.079" TUBE (100mm x 50mm x 2mm), TYP OF 2

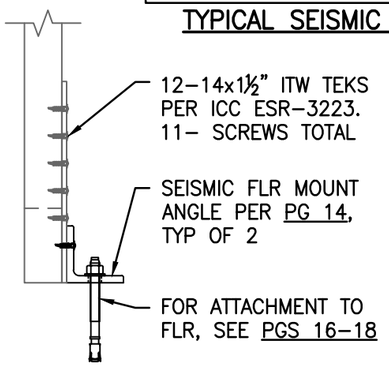
SEISMIC FRAME ROD BRACE COMPONENTS, TYP OF 2, SEE PG 13

GUSSET PL, TYP OF 4. SEE DTL THIS PG

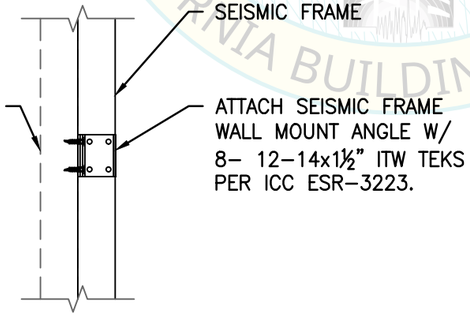
SEISMIC FRAME FLOOR MOUNT ANGLE, TYP OF 2, SEE PG 14

VERTICAL & HORIZONTAL FRAME MEMBER MATERIAL:
ASTM B221 6060 ALUM
Fy= 25 KSI

TYPICAL SEISMIC FRAME ELEVATION

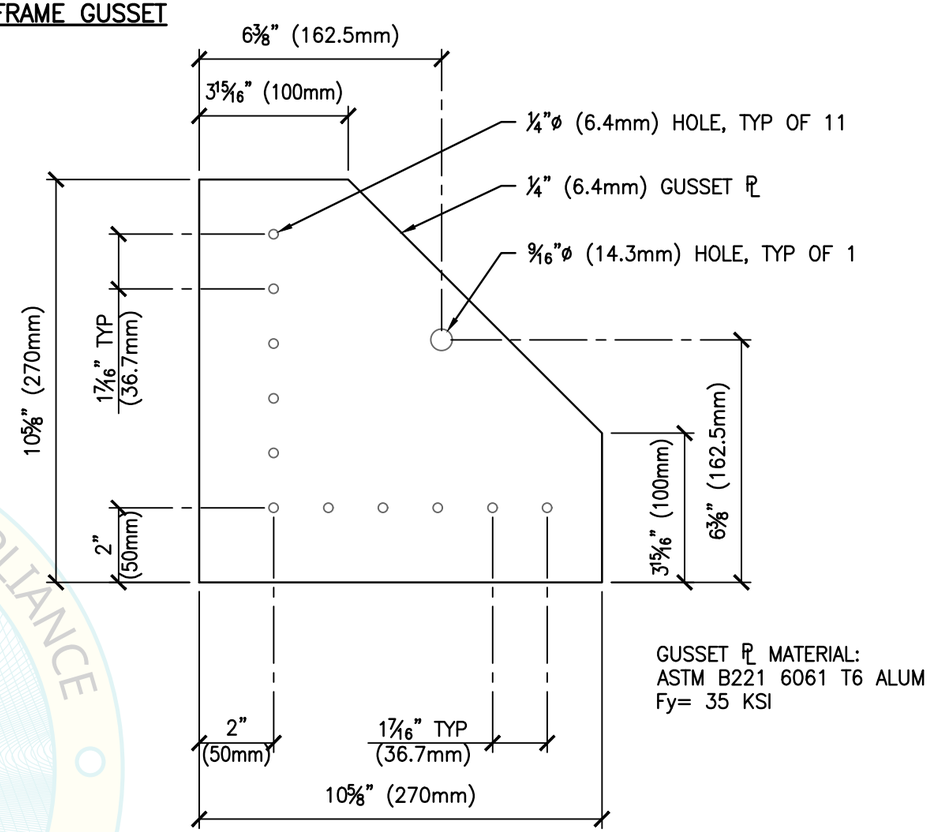


SECTION A–A



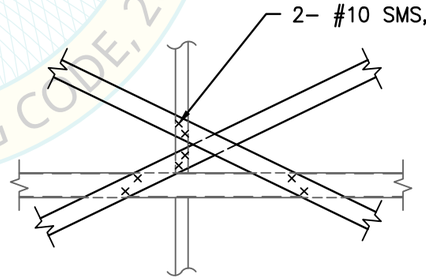
SECTION B–B

SEISMIC FRAME GUSSET

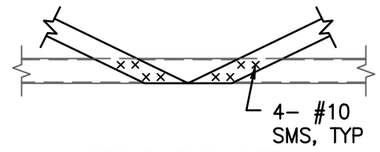


GUSSET PL MATERIAL:
ASTM B221 6061 T6 ALUM
Fy= 35 KSI

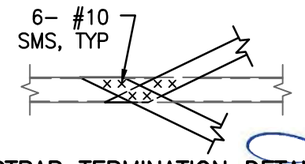
STRAP DETAILS



STRAP INTERSECTION DETAIL



STRAP END DETAIL



STRAP TERMINATION DETAIL

STRAP MATERIAL:
1.5"x16 GA Fy= 33 KSI

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

SHEET TITLE: TYPICAL SEISMIC FRAME

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

CYS STRUCTURAL ENGINEERS, INC.
2710 GATEWAY OAKS DRIVE, SUITE 190 N
SACRAMENTO, CA 95833
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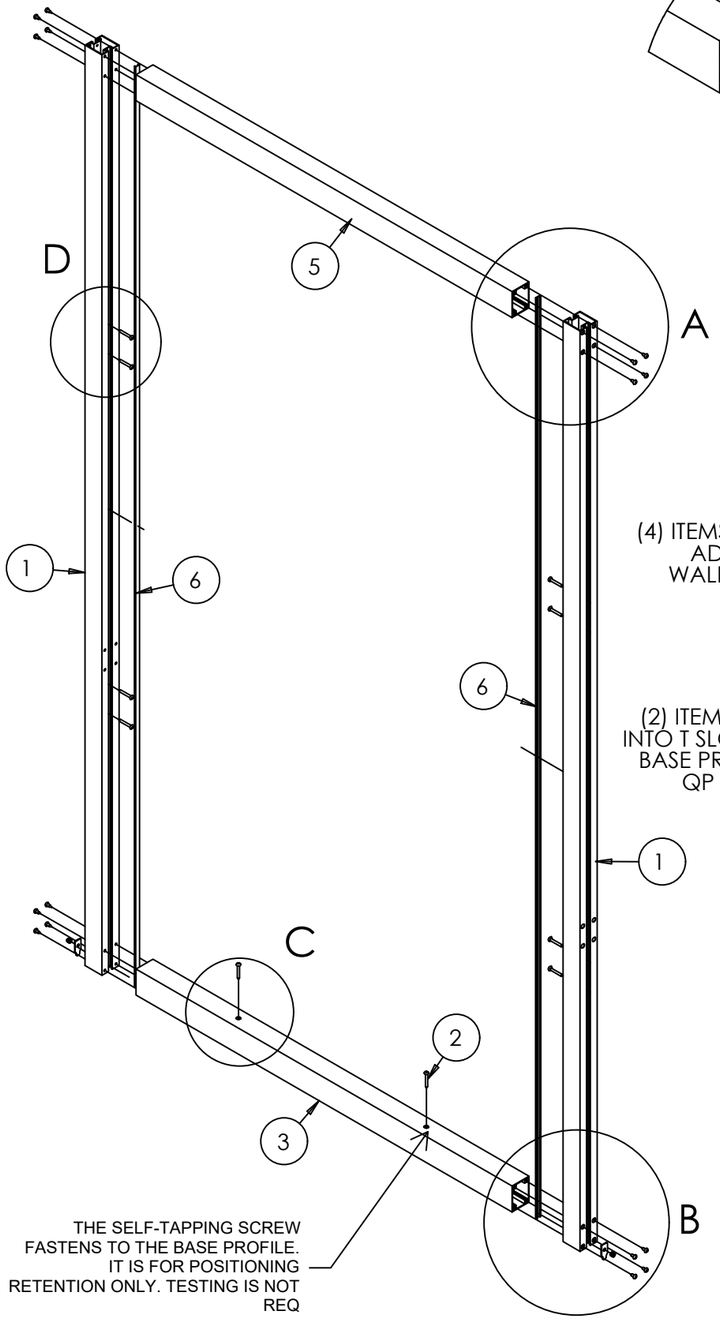
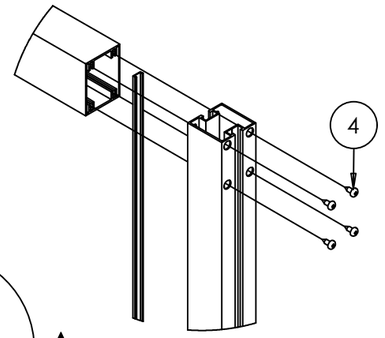
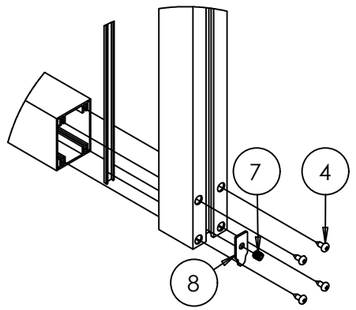
Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	6 of 18

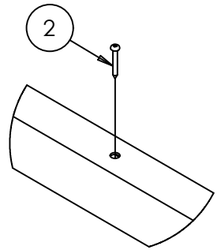




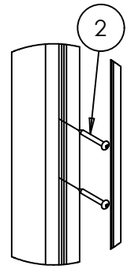
DETAIL A



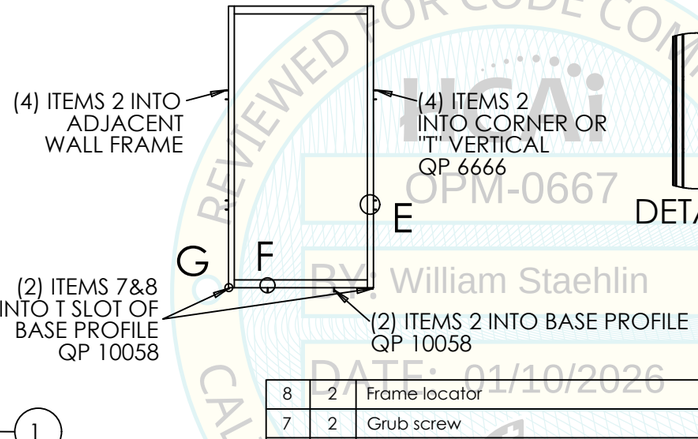
DETAIL B

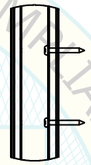


DETAIL C

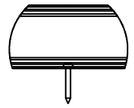


DETAIL D

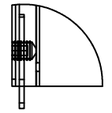




DETAIL E



DETAIL F



DETAIL G

Pos.	Qty.	Description	Description 1	Description 2
8	2	Frame locator		Aluscand accessory
7	2	Grub screw	M8x10	Grade 8.8 FZB
6	2	Cover profile MP T-A	MP T	2340
5	1	QP 6650 configurable	QP6650	1104
4	16	Screw pan head square drive	#10 x 1/2" [M4.8 x 12]	McMaster-Carr #90395A242
3	1	QP 6650 configurable	QP6650	1104
2	10	Screw pan head square drive (self-tapping)	#10 x 1-1/2" [M4.8 x 45] 18-8 SS	McMaster-Carr #94155A141
1	2	Section vertical	QP5050	2340

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

SHEET TITLE: WALL FRAME
TYPICAL COMPOSITE PANEL

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

CYS STRUCTURAL ENGINEERS, INC.
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Date:	01/07/2026
By:	CYS
Page:	7 of 18

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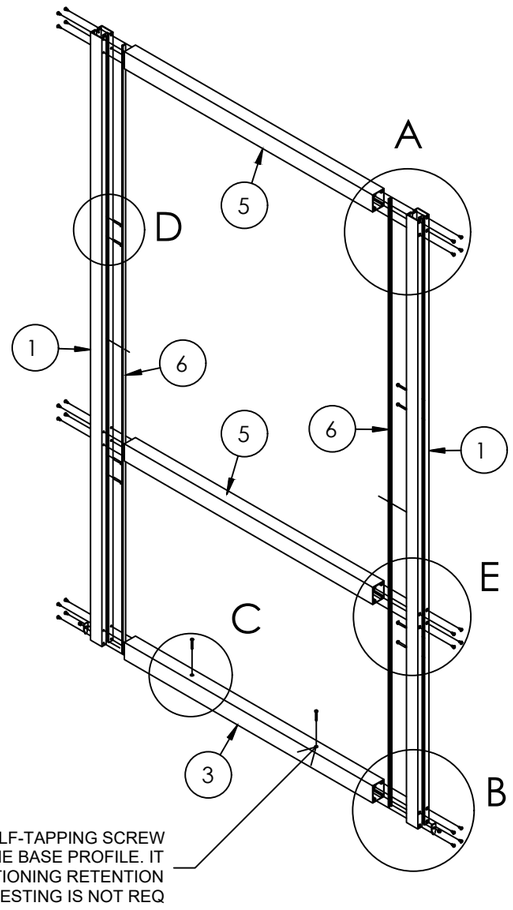
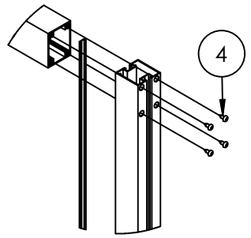
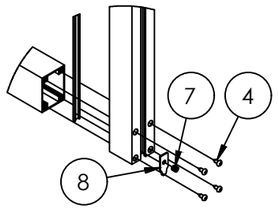


THE SELF-TAPPING SCREW FASTENS TO THE BASE PROFILE. IT IS FOR POSITIONING RETENTION ONLY. TESTING IS NOT REQ



DETAIL A



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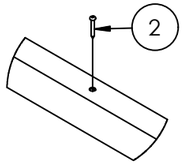
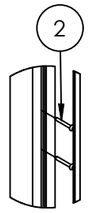
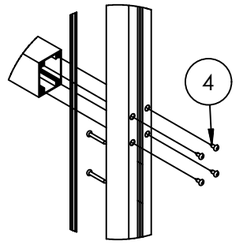


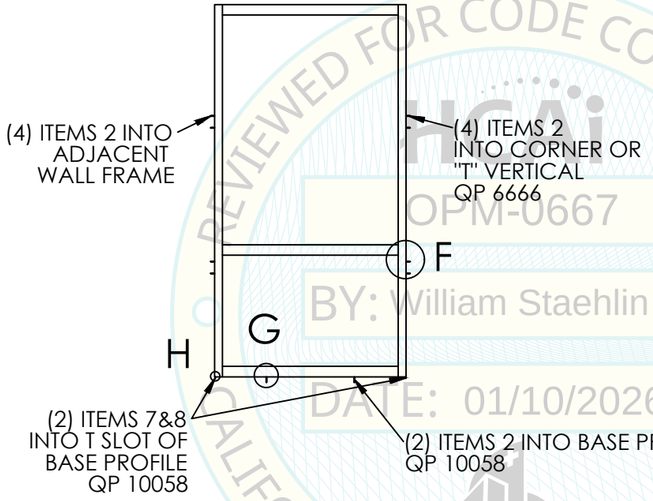
DETAIL C

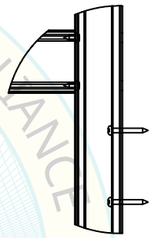


DETAIL D

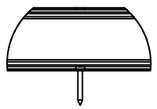


DETAIL E

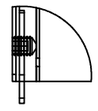




DETAIL F

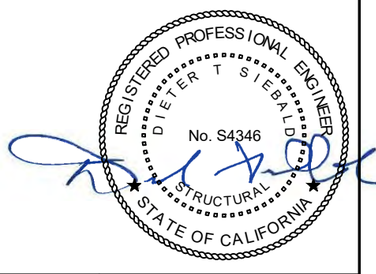


DETAIL G



DETAIL H

Pos.	Qty.	Description	Description 1	Description 2
8	2	Frame locator		Aluscand accessory
7	2	Grub screw	M8x10	Grade 8.8 FZB
6	2	Cover profile MP T-A	MP T	2340
5	2	QP 6650 configurable	QP6650	1104
4	24	Screw pan head square drive	#10 x 1/2" [M4.8 x 12]	McMaster-Carr #90395A242
3	1	QP 6650 configurable	QP6650	1104
2	10	Screw pan head square drive (self-tapping)	#10 x 1-1/2" [M4.8 x 45] 18-8 SS	McMaster-Carr #94155A141
1	2	Section vertical	QP5050	2340



SHEET TITLE: WALL FRAME
TYPICAL GLASS SECTION

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

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Date: 01/07/2026
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Page: 8 of 18

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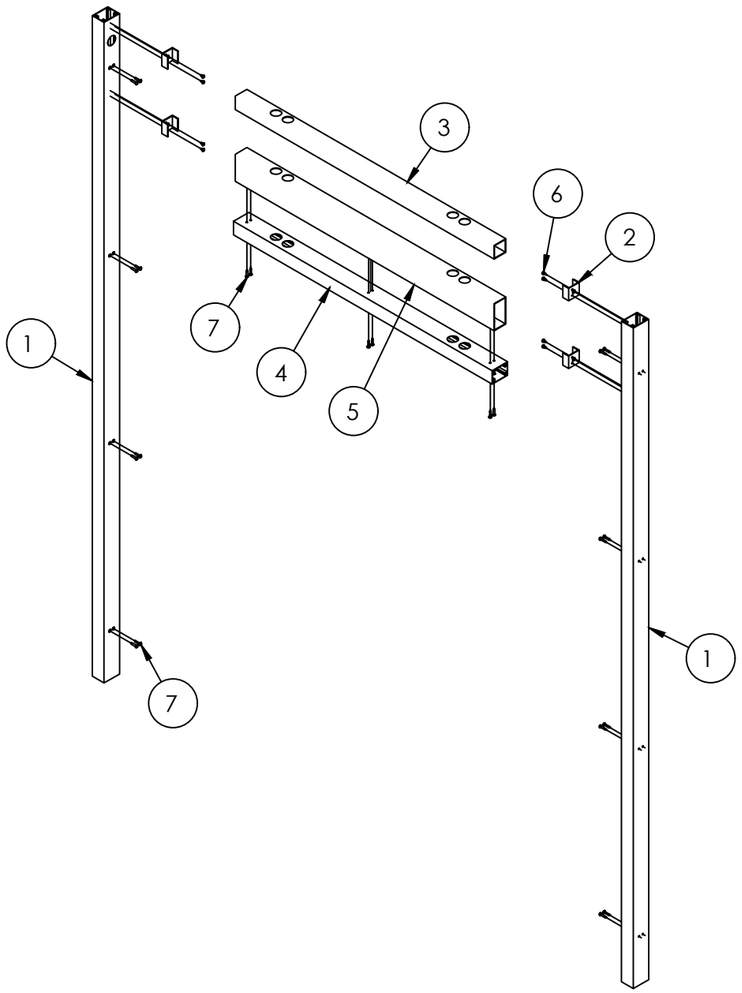

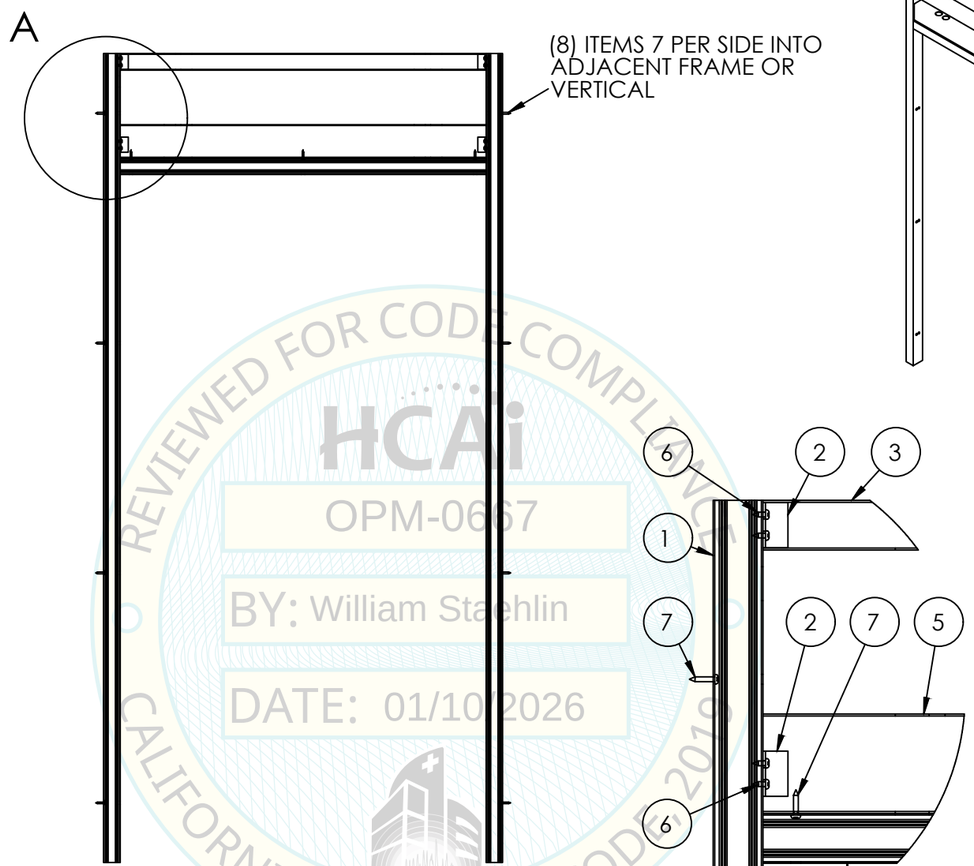

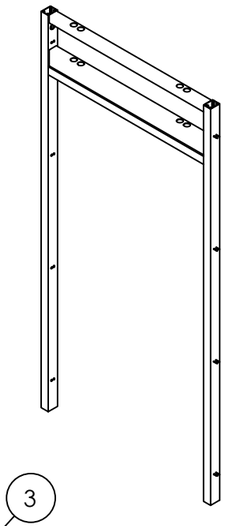

DETAIL A

Pos.	Qty.	Description	Description 1	Description 2
7	22	Screw pan head square drive (self-tapping)	#10 x 1" [M4.8 x 25] 18-8 SS	McMaster-Carr #94155A137
6	8	Screw pan head square drive	#10 x 1/2" [M4.8 x 12]	McMaster-Carr #90395A242
5	1	Mullion 100x50 auto door	SPN R10050	1104
4	1	Mullion auto door	QP6650	1104
3	1	Top 50x50 auto door	SPN R5050	1104
2	4	ST F50-Low		
1	2	Vertical auto door	QP6650	2440

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

SHEET TITLE: WALL FRAME
TYPICAL DOOR SECTION

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

CYS STRUCTURAL ENGINEERS, INC.
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Job No:	22040
Date:	01/07/2026
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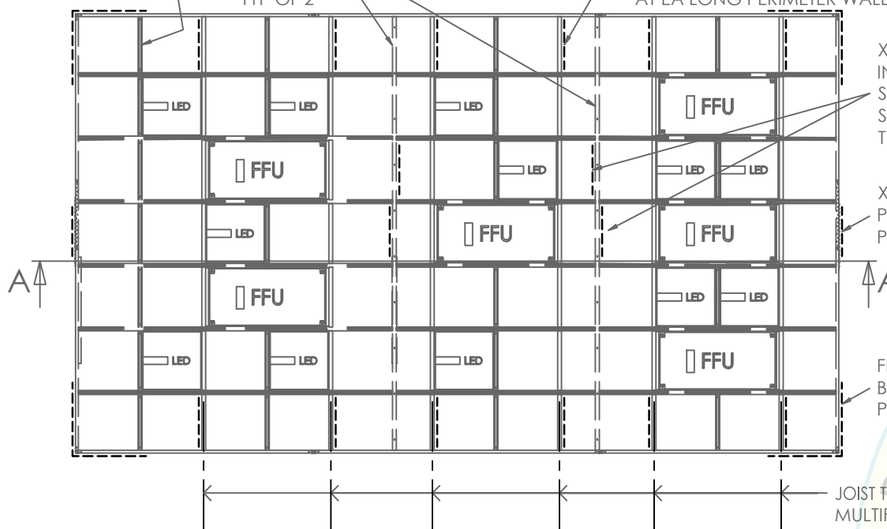
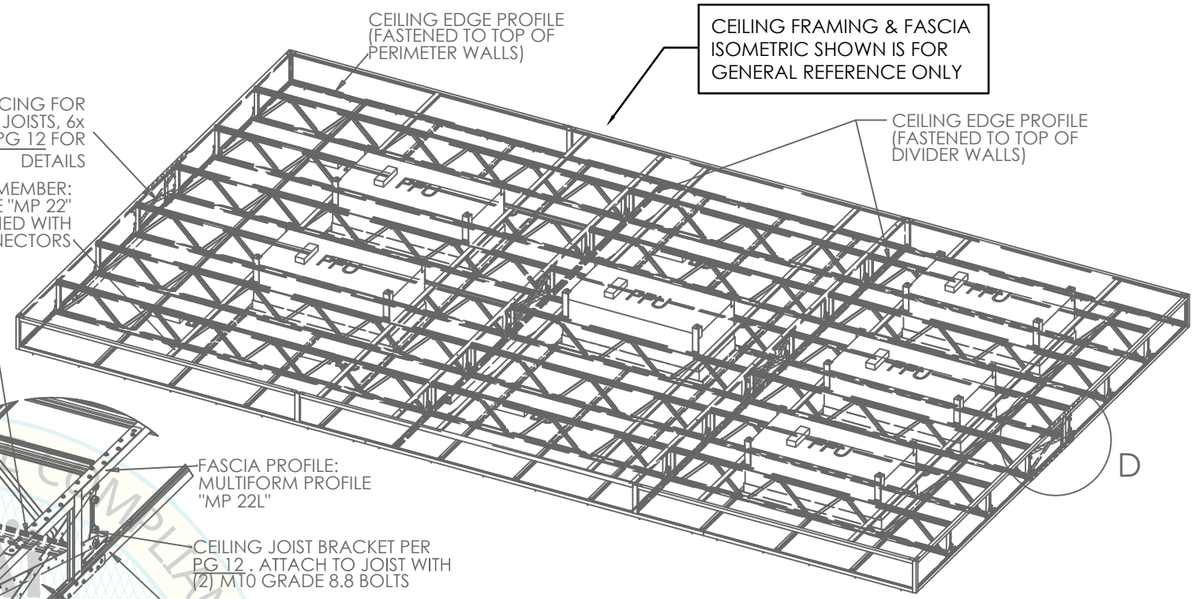
Page:	9 of 18

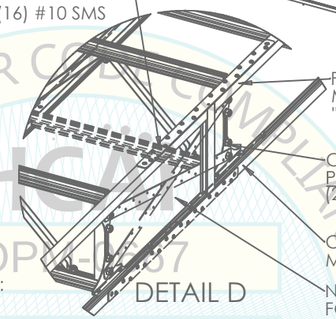
CEILING JOIST DETAILS

SECTION A-A



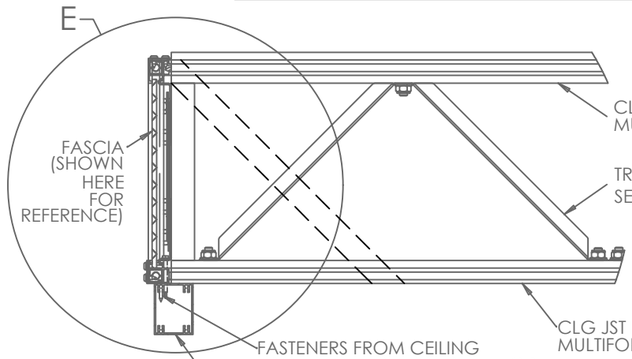
PLAN AT BOTTOM OF JOISTS



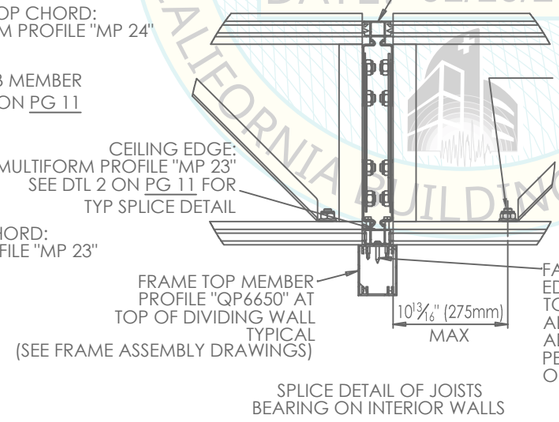


DETAIL D

JOIST TOP CHORD CROSS MEMBERS: MULTIFORM PROFILE "MP 23" AT EACH SIDE OF FFU UNITS AND OVER THE TOP OF DIVIDER WALLS. ATTACH TO TOP CHORDS W/ STANDARD MULTIFORM CONNECTOR AT EA END.

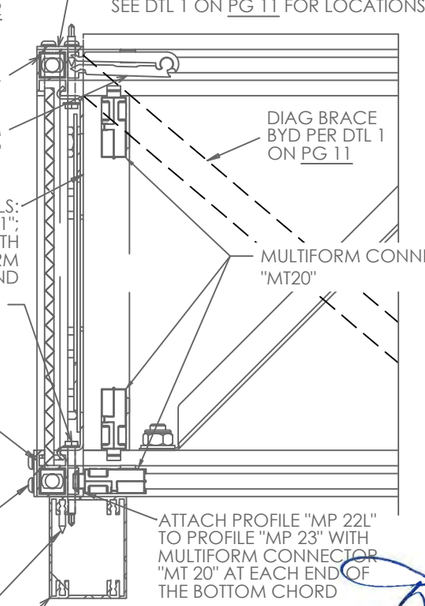


DETAIL B
PERIMETER WALL



SPLICE DETAIL OF JOISTS BEARING ON INTERIOR WALLS

DETAIL C
DIVIDER WALL



DETAIL E

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

SHEET TITLE: COMPONENTS, SUPPORTS & ATTACHMENT DETAILS
CEILING JOISTS

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

CYS STRUCTURAL ENGINEERS, INC.
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SACRAMENTO, CA 95833
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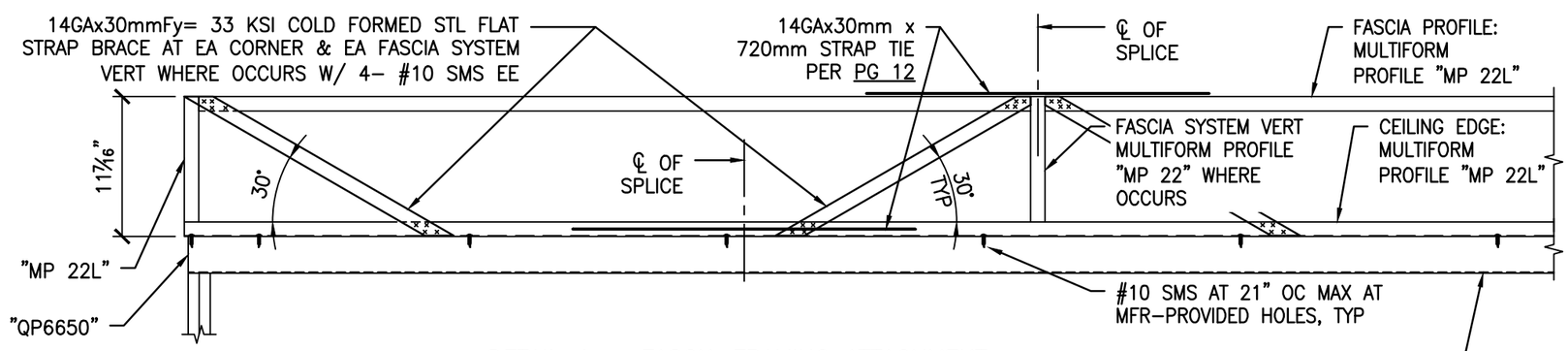
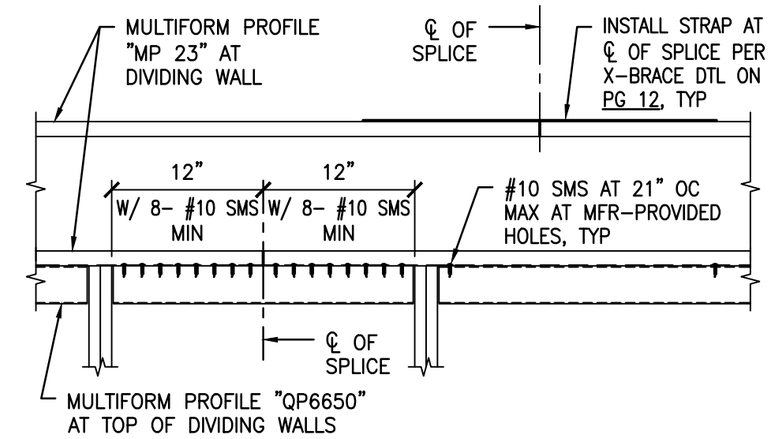
Page:	10 of 18

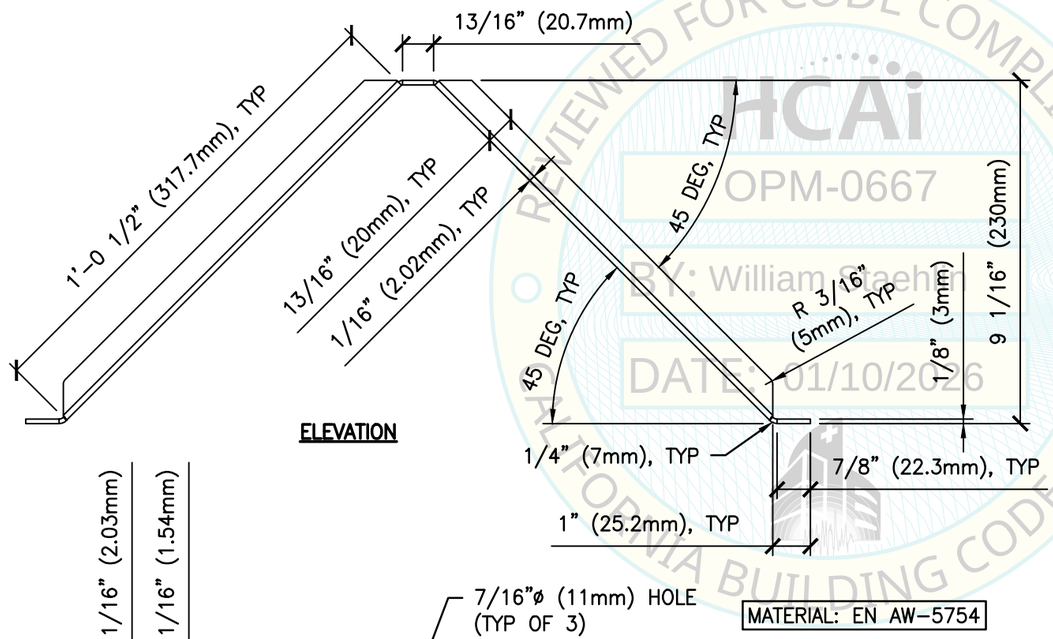
CEILING JOIST SUPPORT DOUBLE & TOP OF WALL CEILING EDGE SPLICE DETAIL



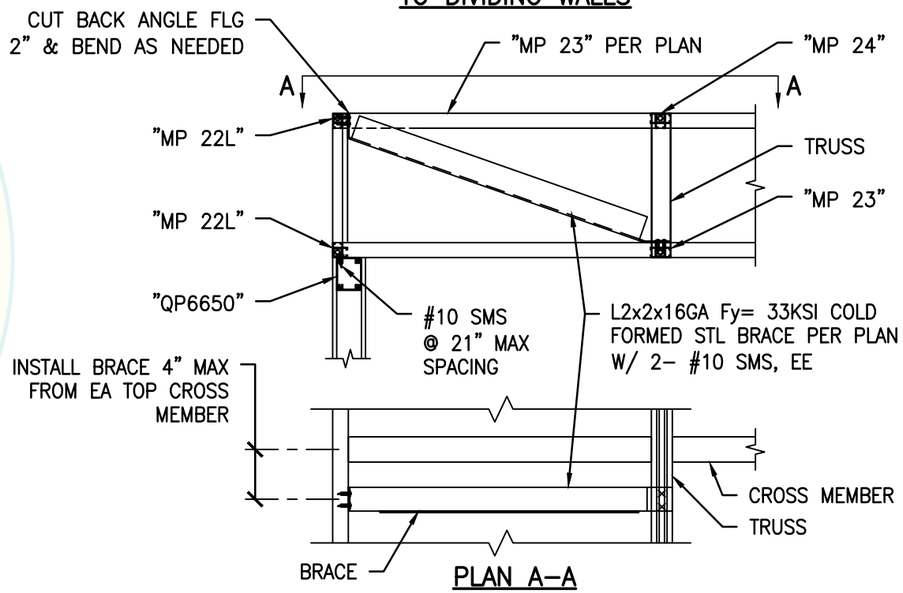
DETAIL 1 – FASCIA FRAMING ATTACHMENT TO NON–BEARING PERIMETER WALLS



DETAIL 2 – CEILING FRAMING ATTACHMENT TO DIVIDING WALLS



DETAIL 4 – CEILING JOIST WEB MEMBER



PLAN A–A

DETAIL 3 – BRACE FOR FASCIA PARALLEL TO TRUSSES

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

SHEET TITLE: COMPONENTS, SUPPORTS & ATTACHMENT DETAILS
CEILING JOIST WEB MEMBER AND CEILING FRAMING DETAILS

QleanAir
CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

CYS STRUCTURAL ENGINEERS, INC.
2710 GATEWAY OAKS DRIVE, SUITE 190 N
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Rev	Description	Date

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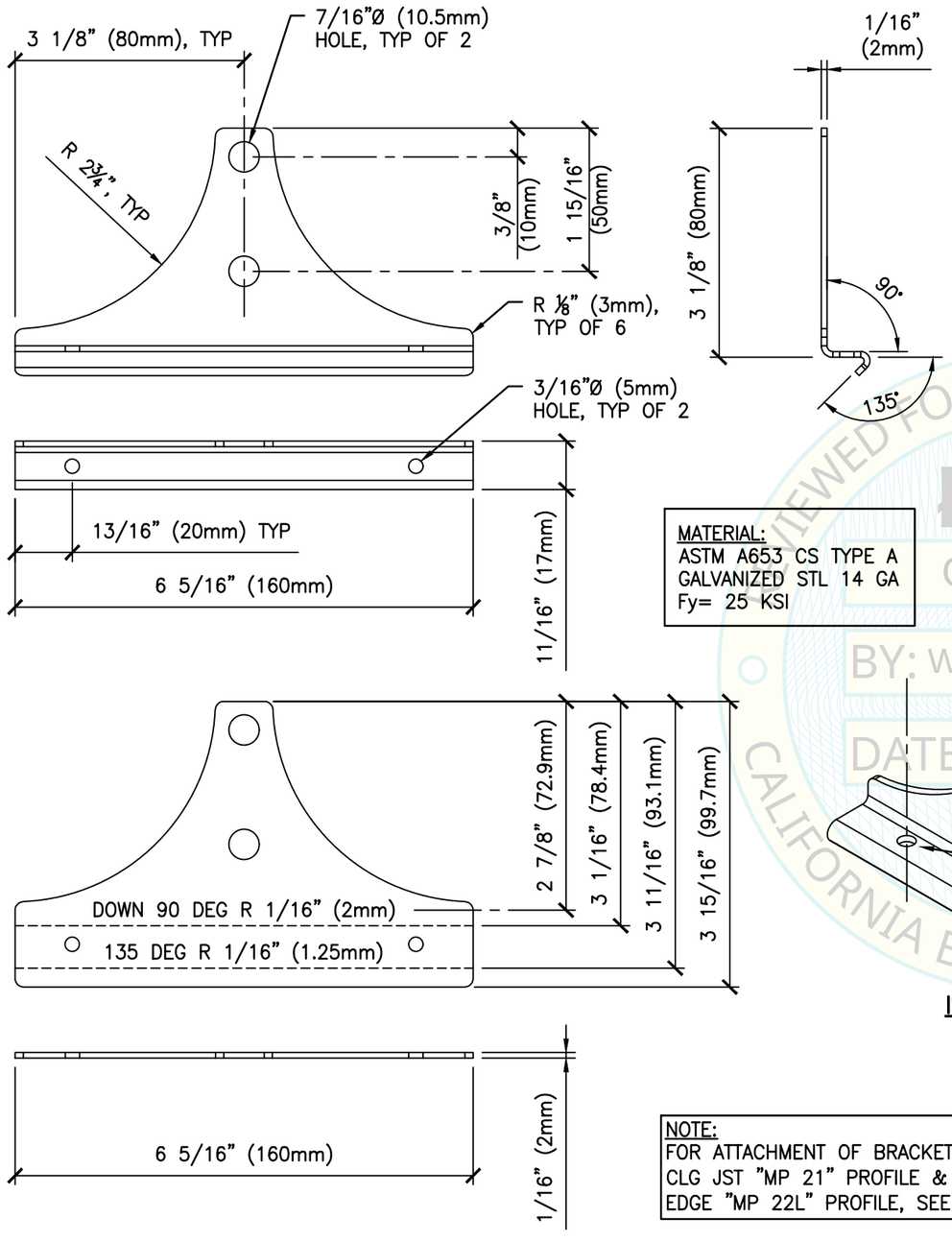
Page:	11 of 18

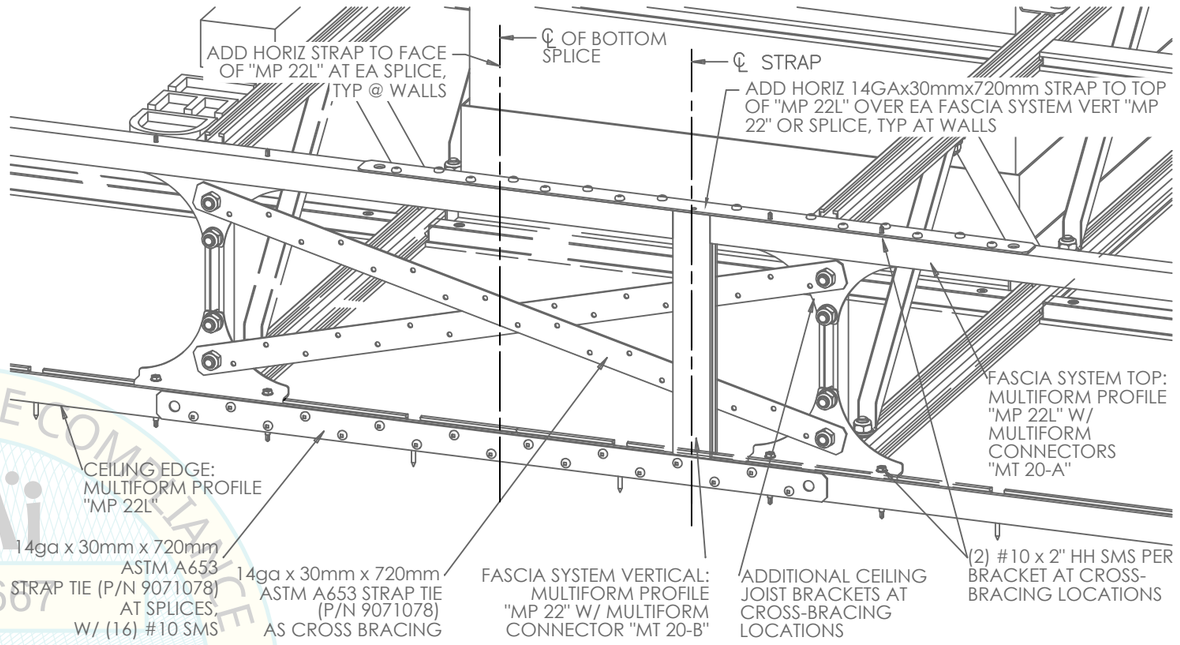
CEILING JOIST BRACKET



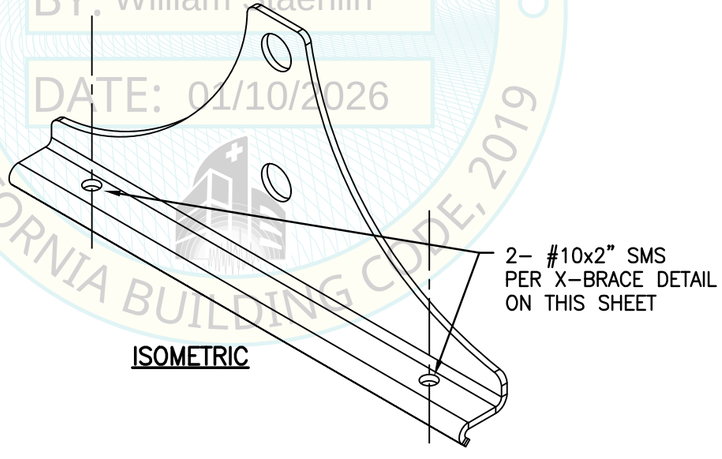
MATERIAL:
ASTM A653 CS TYPE A
GALVANIZED STL 14 GA
Fy= 25 KSI

NOTE:
FOR ATTACHMENT OF BRACKET TO CLG JST "MP 21" PROFILE & TO CLG EDGE "MP 22L" PROFILE, SEE PG 10

X–BRACE DETAIL



NOTE: FOR CLARITY, FASCIA PANELS NOT SHOWN



ISOMETRIC

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

SHEET TITLE: COMPONENTS, SUPPORTS & ATTACHMENT DETAILS
CEILING JOIST BRACKET AND X-BRACE DETAIL

QleanAir
CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

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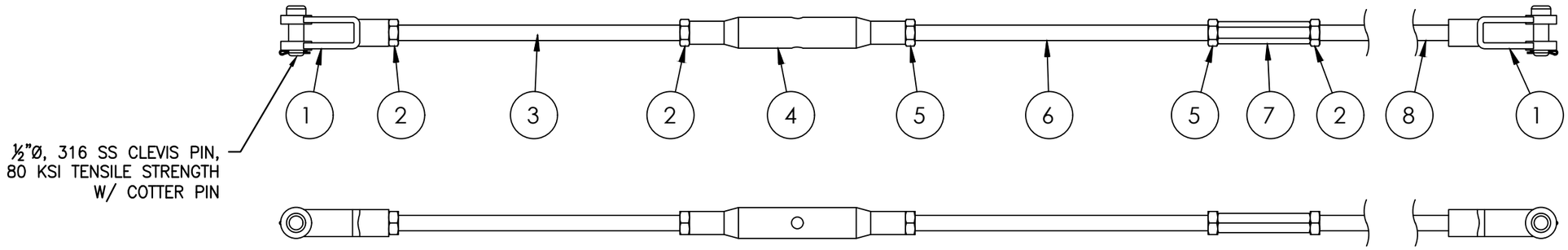
Rev	Description	Date

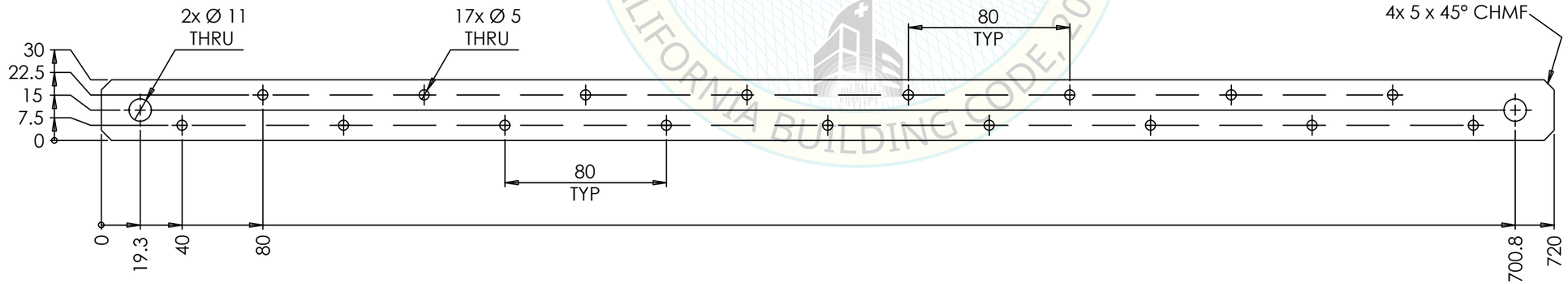
Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	12 of 18

TYPICAL SEISMIC FRAME ROD BRACE COMPONENTS



Pos.	Qty.	Number	Description	Description 1	Description 2	Annotation
8	1	9068502	Right hand threaded rod, 70 ksi Tensile Strength	316 SS	McMaster-Carr # 93250A243	1/2-20 x 96"
7	1	9068501	LH to RH female thread adapter, 80 ksi Tensile Strength	18-8 SS	McMaster-Carr # 8416N72	1/2-20
6	1	9068500	Left hand threaded rod, 100 ksi Tensile Strength	Grade B7, ASTM A193	McMaster-Carr # 95625A307	1/2-20 x 12"
5	2	9068499	Jam nut LH thread, 70 ksi Tensile Strength	316 SS	McMaster-Carr # 93031A172	1/2-20
4	1	9068498	Turnbuckle body, 4,200 lb capacity	18-8 SS	McMaster-Carr # 3082T63	1/2-20
3	1	9068497	Right hand threaded rod, 70 ksi Tensile Strength	316 SS	McMaster-Carr # 93250A027	1/2-20 x 12"
2	3	9068496	Jam nut RH thread, 70 ksi Tensile Strength	316 SS	McMaster-Carr # 94805A224	1/2-20
1	2	9068493	Forged clevis rod end, 80 ksi Tensile Strength	316 SS	McMaster-Carr # 6071K51	1/2-20

STRAP TIE FOR FASCIA PROFILE AND CEILING EDGE PROFILES "MP 22L" AND "MP 23"



SHEET TITLE: COMPONENTS, SUPPORTS & ATTACHMENT DETAILS
TYPICAL SEISMIC FRAME ROD BRACE COMPONENTS

QleanAir

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RECTANGULAR SHAPE

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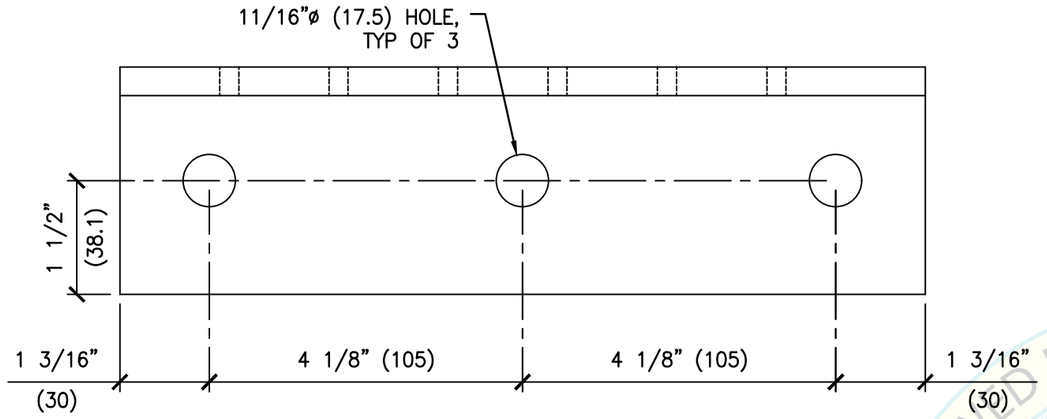
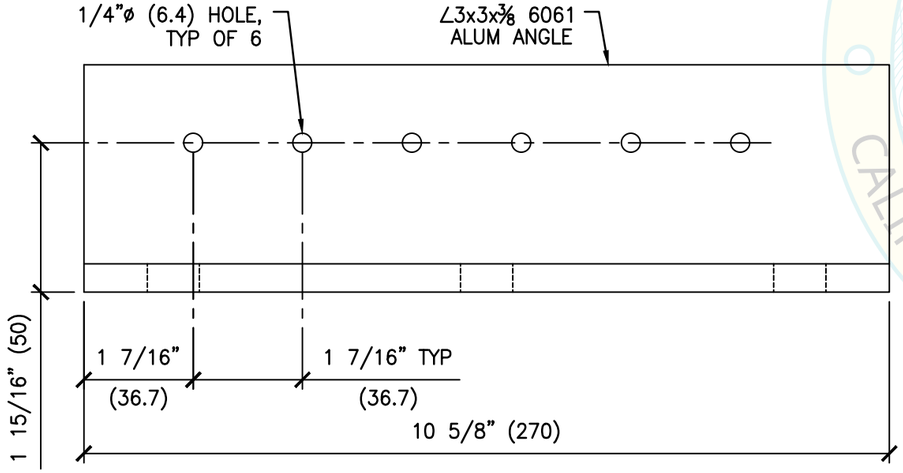
Rev	Description	Date

Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	13 of 18

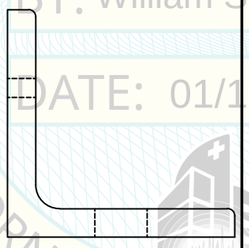
TYPICAL SEISMIC FRAME FLOOR MOUNT ANGLE



PLAN VIEW

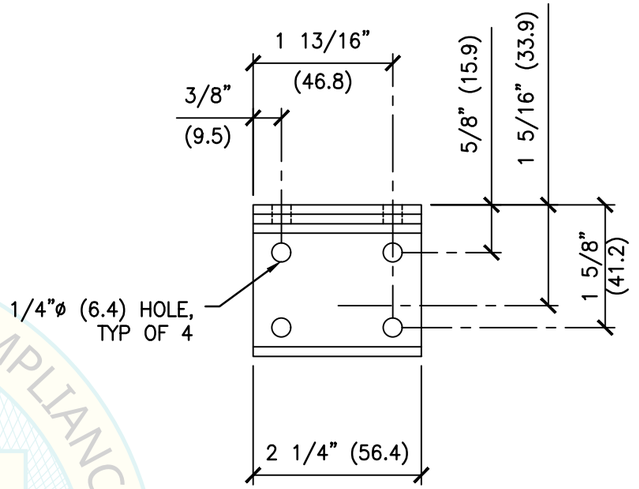


FRONT ELEV

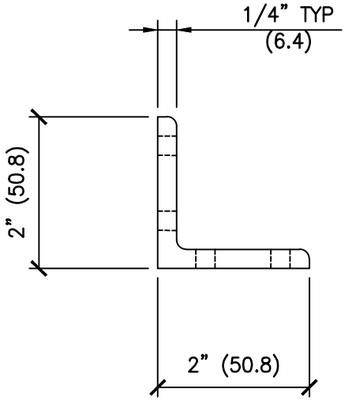


SIDE ELEV

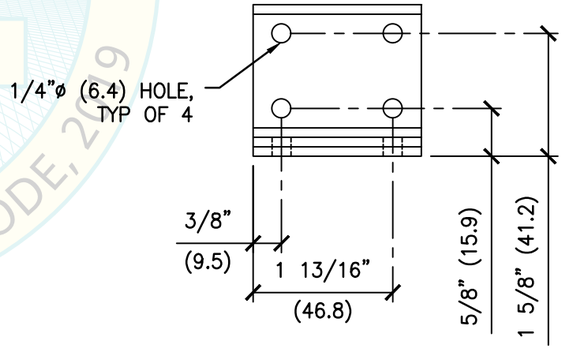
TYPICAL SEISMIC FRAME WALL MOUNT ANGLE



PLAN VIEW



SIDE ELEV



FRONT ELEV

MATERIAL:
ASTM B221 6060 ALUM
Fy= 25 KSI

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

SHEET TITLE: COMPONENTS, SUPPORTS & ATTACHMENT DETAILS
TYPICAL SEISMIC FLOOR MOUNT ANGLE

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

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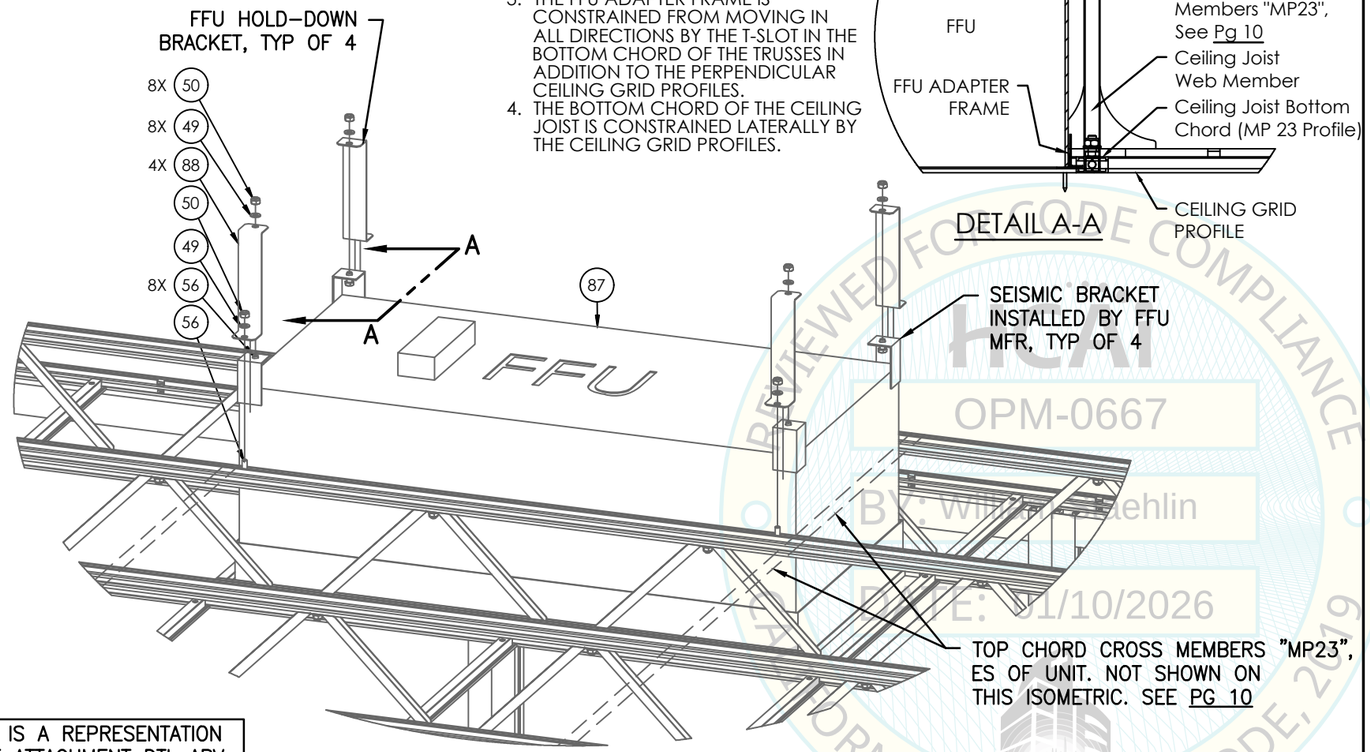
Rev	Description	Date

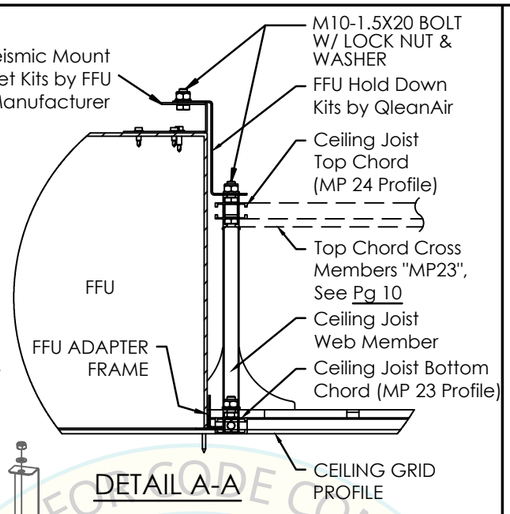
Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	14 of 18

C:\Users\camachom\appdata\local\temp\AcPublish_10476\S1.dwg Time:Jan07,2026-03:15pm Login:camachom Dimscale:1 LTScale:6

FFU FASTENING DETAILS



NOTES:
1. THE FFU IS CONSTRAINED FROM MOVING DOWNWARD & LATERALLY BY THE FFU ADAPTER FRAME.
2. THE FFU IS CONSTRAINED FROM MOVING UPWARD BY THE FFU HOLD-DOWN BRACKETS.
3. THE FFU ADAPTER FRAME IS CONSTRAINED FROM MOVING IN ALL DIRECTIONS BY THE T-SLOT IN THE BOTTOM CHORD OF THE TRUSSES IN ADDITION TO THE PERPENDICULAR CEILING GRID PROFILES.
4. THE BOTTOM CHORD OF THE CEILING JOIST IS CONSTRAINED LATERALLY BY THE CEILING GRID PROFILES.

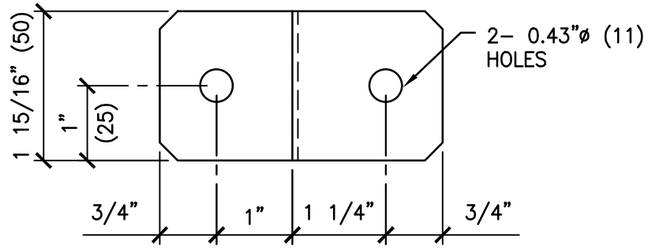


DETAIL A-A

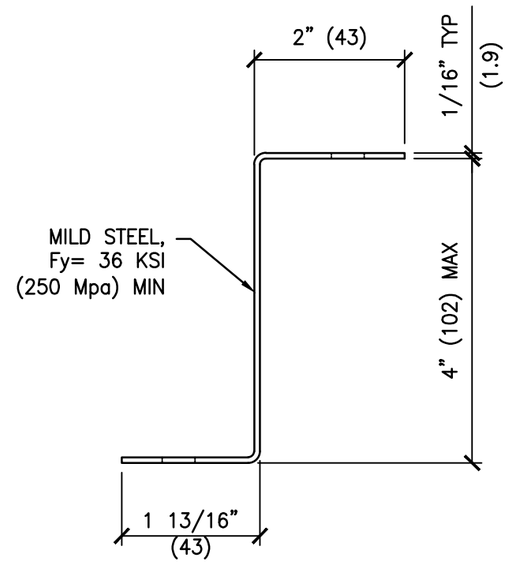
ISOMETRIC IS A REPRESENTATION ONLY, SEE ATTACHMENT DTL ABV

POSITION	QUANTITY	EQUIPMENT DESCRIPTION	DESCRIPTION 1	DESCRIPTION 2
88	4	FFU HOLD-DOWN		
87	1	ENVIRCO MAC10 LEDC RSRE	2x4	84.5 LBS MAX
56	8	CLASS 8.8 HEX HEAD BOLT	M10-1.5x20	McMASTER-CARR #91280A62662
50	8	LOCK NUT DIN 985	M10-1.5	McMASTER-CARR #90576A118
49	8	WASHER ISO 7089	M10-1.5x20	McMASTER-CARR #91455A140

FFU HOLD DOWN DETAIL



PLAN VIEW



ELEV VIEW

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

SHEET TITLE: COMPONENTS, SUPPORTS & ATTACHMENT DETAILS
FFU FASTENING DETAILS

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

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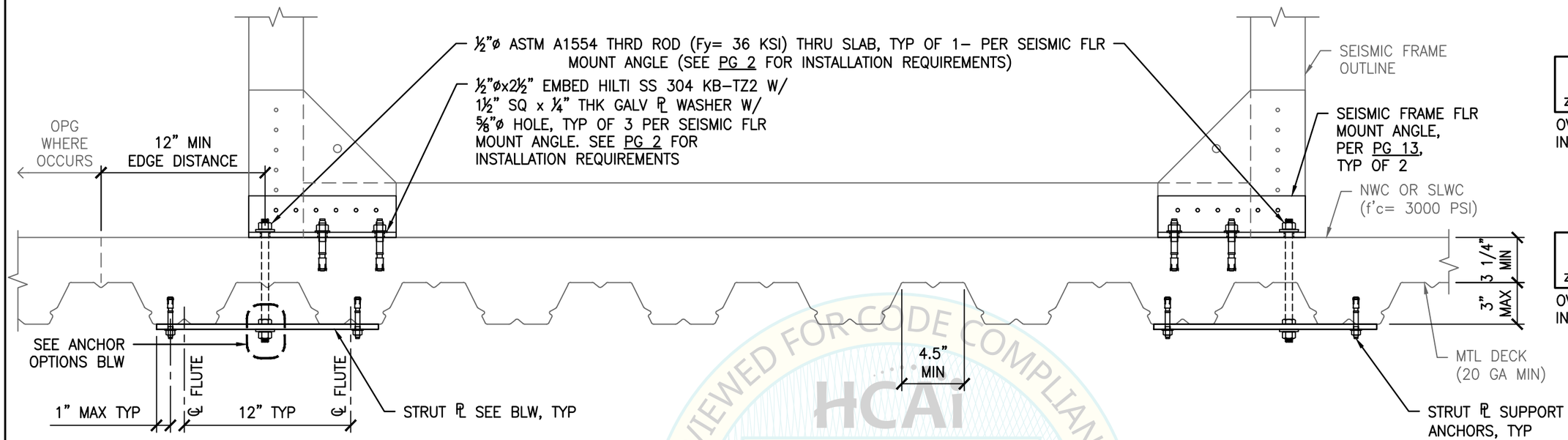
Rev	Description	Date

Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	15 of 18



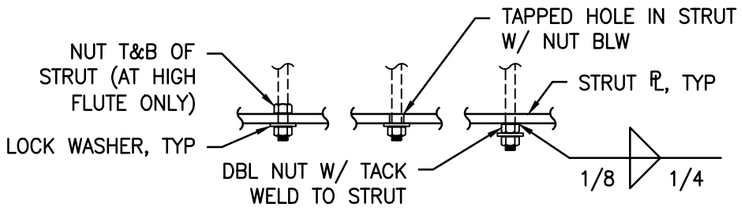
SUSPENDED FLR W/ THRU–BOLTS

	MAX LRFD FORCES AT EA EXPANSION ANCHOR	
	T_u	$\Omega_o V_u$
CASE 1 $S_{DS} \leq 2.1$ $z/h \leq 0.8$	0#	685#

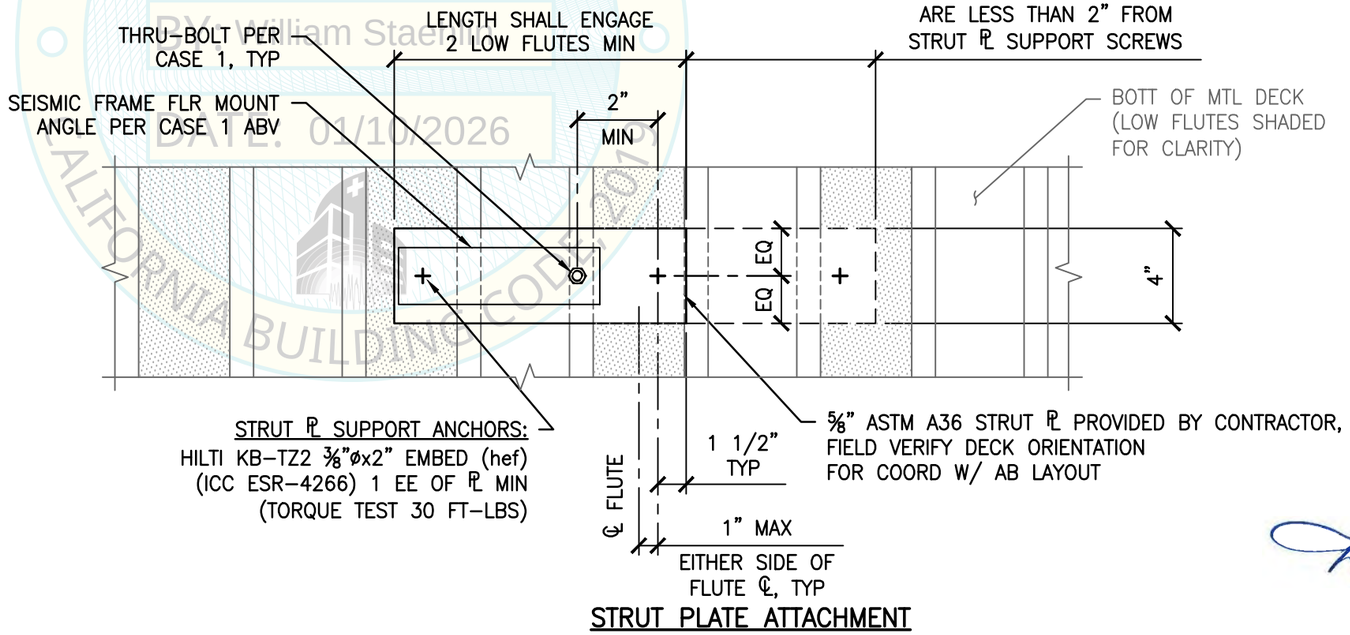
OVERSTRENGTH FACTOR (Ω_o) INCLUDED ONLY IN SHEAR VALUE

	MAX LRFD FORCES AT EA THRU–BOLT	
	T_u	$\Omega_o V_u$
CASE 1 $S_{DS} \leq 2.1$ $z/h \leq 0.8$	2540#	1370#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED ONLY IN SHEAR VALUE



ANCHOR OPTIONS



STRUT PLATE ATTACHMENT

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

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

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

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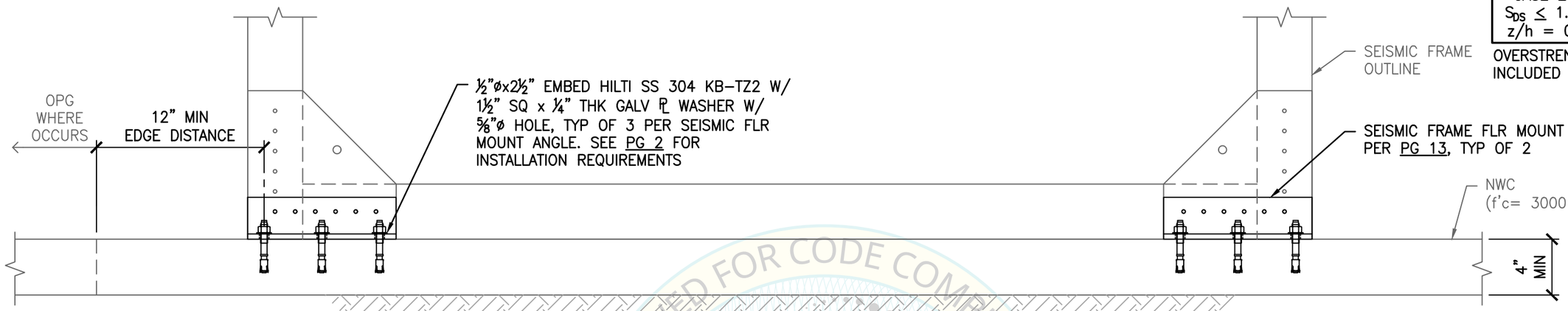
Rev	Description	Date

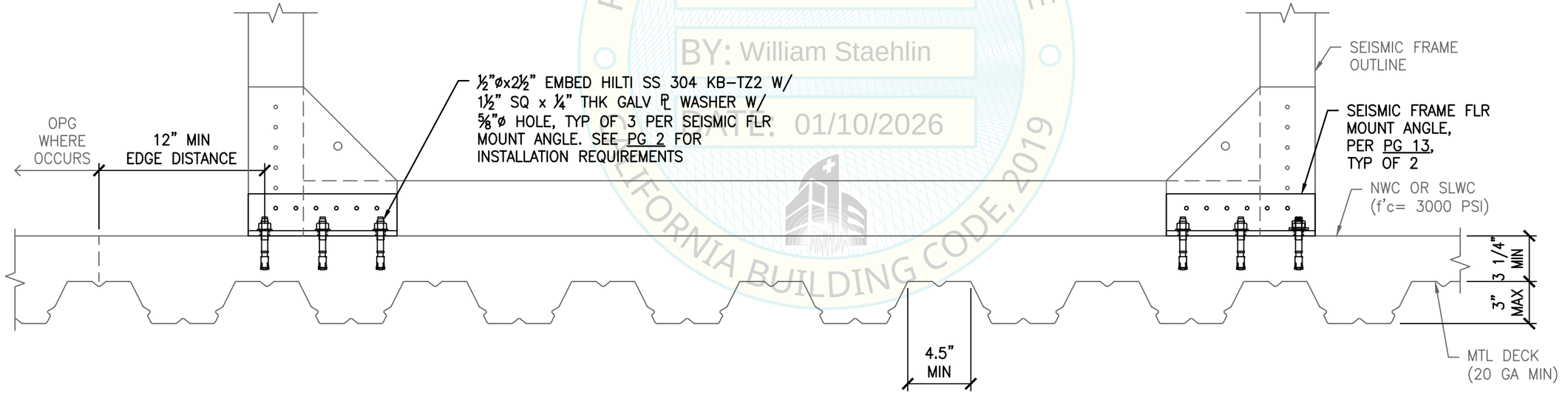
Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	16 of 18

	MAX LRFD FORCES AT EA ANCHOR	
	$\Omega_o T_u$	$\Omega_o V_u$
CASE 2 $S_{DS} \leq 1.5$ $z/h = 0$	870#	473#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED WHERE NOTED



4" SLAB ON GRADE



SUSPENDED FLR AT OR BELOW GRADE LEVEL

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DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: FLOOR ATTACHMENT DETAILS
CASE 2: 4" CONCRETE SLAB ON GRADE OR SUSPENDED FLOOR AT OR BELOW GRADE LEVEL

QleanAir

CLEAN ROOM SYSTEM
RECTANGULAR SHAPE

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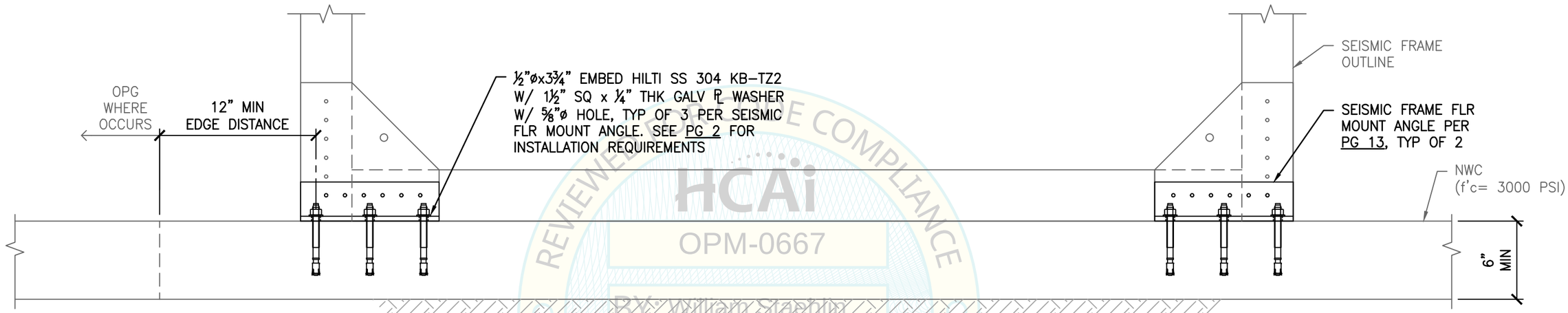
Rev	Description	Date

Job No:	22040
Date:	01/07/2026
By:	CYS
Page:	17 of 18

	MAX LRFD FORCES AT EA ANCHOR	
	$\Omega_o T_u$	$\Omega_o V_u$
CASE 3 $S_{DS} \leq 2.1$ $z/h = 0$	870#	473#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED WHERE NOTED



6" SLAB ON GRADE

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STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: FLOOR ATTACHMENT DETAILS
CASE 3: 6" CONCRETE SLAB ON GRADE

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RECTANGULAR SHAPE

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Rev	Description	Date

Job No:	22040
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By:	CYS
Page:	18 of 18