



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OPM-0602

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal/Update

Manufacturer Information

Manufacturer: BD Kiestra BV

Manufacturer's Technical Representative: RICHARD O'CONNOR

Mailing Address: Marconilann 6, 9207 JC, Drachten, Friesland, Netherlands

Telephone: +353 61 538 613

Email: Richard.OConnor@bd.com

Product Information

Product Name: BD Kiestra Track

Product Type: Track System for Analyzers

Product Model Number: Various

General Description: TRANSPORTS SAMPLES ALONG A TRACK SYSTEM

Applicant Information

Applicant Company Name: CYS Structural Engineers, Inc.

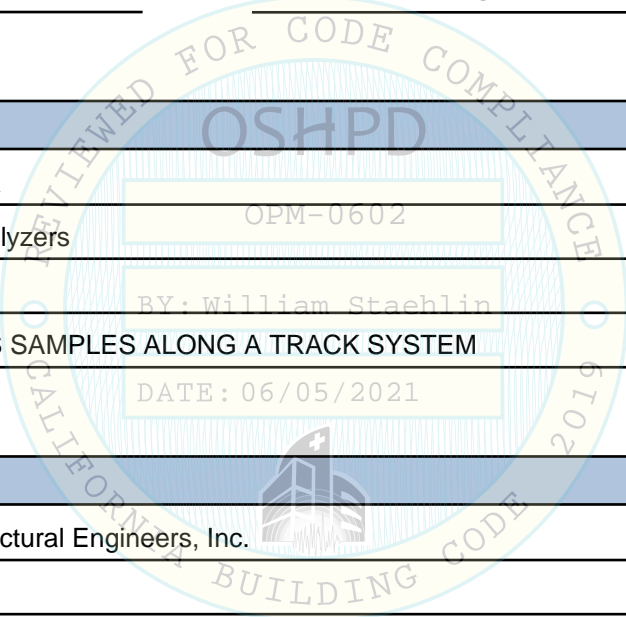
Contact Person: Dieter Siebald

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

Telephone: (916) 920-2020

Email: dieters@cyseng.com

Title: Structural Project Manager





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT  
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

**OSHPD 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 OSHPD prior to testing.

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

**OSHPD Approval**

Date: 6/5/2021  
 Name: William Staehlin Title: Senior Structural Engineer  
 Condition of Approval (if applicable): \_\_\_\_\_

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY



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**NOTES:**

1. THESE DRAWINGS ARE PREPARED FOR BECTON, DICKSON AND COMPANY, DRACHTEN, THE NETHERLANDS.
2. THE CONTRACTOR & 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 & ATTACHMENTS OF THE EQUIPMENT TO THE SUPPORTING STRUCTURE. THE EQUIPMENT & ATTACHMENT HARDWARE ARE SUPPLIED BY THE MANUFACTURER. THE EXPANSION ANCHORS, THRU-BOLTS & STRUT PLATES SHOWN IN THIS OPM SHALL BE SUPPLIED & INSTALLED BY THE CONTRACTOR.



SHEET TITLE: TABLE OF CONTENTS



**CYS STRUCTURAL ENGINEERS, INC.**

2495 NATOMAS PARK DRIVE, SUITE 650  
 SACRAMENTO, CA 95833

TEL (916) 920-2020  
 www.cyseng.com

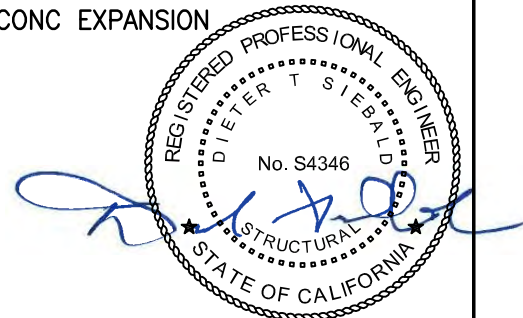
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**GENERAL NOTES:**

1. THIS OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE W/ THIS OPM SHALL BE BASED ON THE CBC 2019.
2. IT IS THE RESPONSIBILITY OF THE SEOR FOR A SITE SPECIFIC PROJECT TO VERIFY:
  - A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
  - B. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS.
  - C. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPCG SHOWN IN THE TEST TORQUE TABLE 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.
  - D. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE CBC 2019 & W/ THE DETAILS SHOWN IN THIS PRE-APPROVAL.
  - E. THAT THE ACTUAL EQUIP'S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS, & THE MATERIAL & GAUGE OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN ON THE PRE-APPROVAL DOCUMENTS.
  - F. THAT THE 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 STL HILTI KB-TZ EXPANSION ANCHORS AS NOTED COMPLYING W/ ESR-1917 REISSUED SEPTEMBER 2019, REVISED JANUARY 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 TABLE ON PG 3.
  - B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE TESTING IN ACCORDANCE W/ THE TEST LOAD TABLE PROVIDED IN THIS DOCUMENT. TORQUE TEST 50% OF THE INSTALLED ANCHORS. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE SPECIAL INSPECTOR & REPORT OF TEST RESULTS SHALL BE SUBMITTED TO 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 EQUIP 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

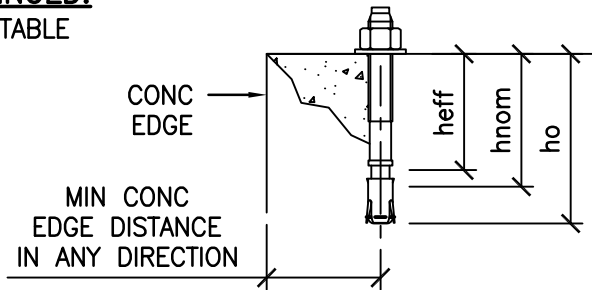
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**GENERAL NOTES CONTINUED:**

3.F. 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 STRUT R'S	3/8 KB-TZ	1 3/16	1 1/2	2	3/4	6	6.75"*	25
CASE 2, 3	1/2 KB-TZ	2 3/8	2	2 5/8	3/4, 4	10	3	40

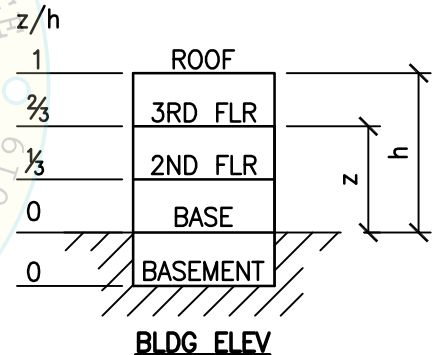
\* PARALLEL W/ MTL DECK FLUTES

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

**CASE 1:** ATTACHMENT DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 3 1/4" SLWC TOPPING OVER 3" DEEP MIN 20 GA MTL DECK (f'c = 3000 PSI, MIN). ANCHORS SHALL BE ASTM A36 STL THRD ROD THRU CONC FILL & MTL DECK.

**CASE 2:** ATTACHMENT DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 3 1/4" SLWC TOPPING OVER 3" DEEP MIN 20 GA MTL DECK (f'c = 3000 PSI, MIN). ANCHORS SHALL BE CARBON STL & INTO CONC FILL.

**CASE 3:** ATTACHMENT DETAILS LOCATED AT OR BLW THE BASE OF A BLDG. THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 4" NWC SLAB (f'c = 3000 PSI, MIN). ANCHORS SHALL BE CARBON STL.



**BLDG FLEV**



SHEET TITLE: GENERAL NOTES (CONTINUED)

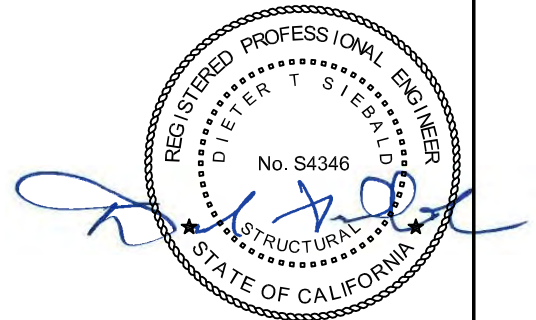
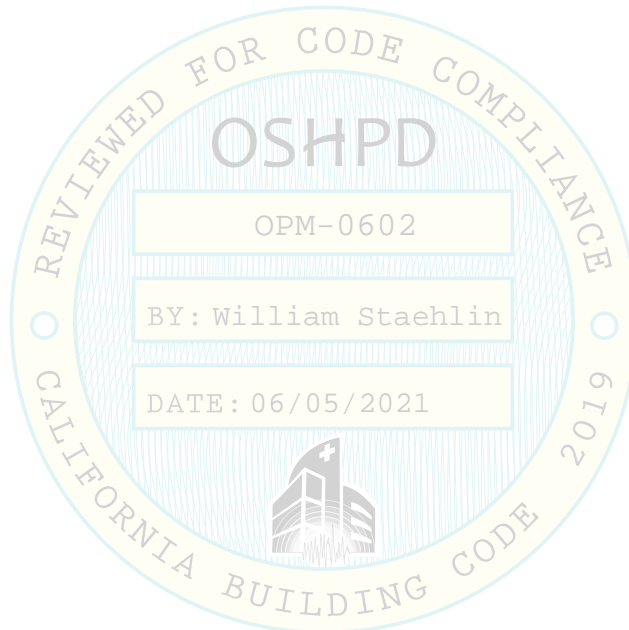
<p><b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833</p>	Job No: 17116
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**GENERAL NOTES CONTINUED:**

5. BOLTS THRU CONC ON MTL DECK:
- A. BOLTS SHALL BE TORQUED BY  $\frac{3}{4}$  TURN OF THE NUT 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.
  - B. THRU-BOLT HOLES SHALL BE  $\frac{1}{6}$ " LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE +  $\frac{1}{6}$ ").
  - C. 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 REQUIRE TESTING.



SHEET TITLE: GENERAL NOTES (CONTINUED)



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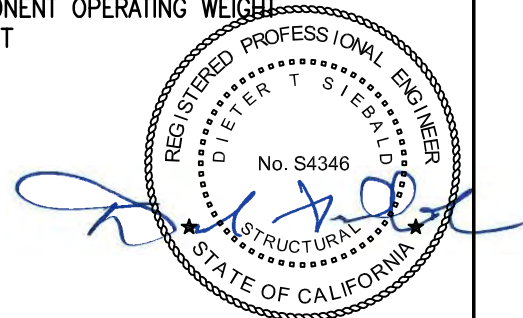
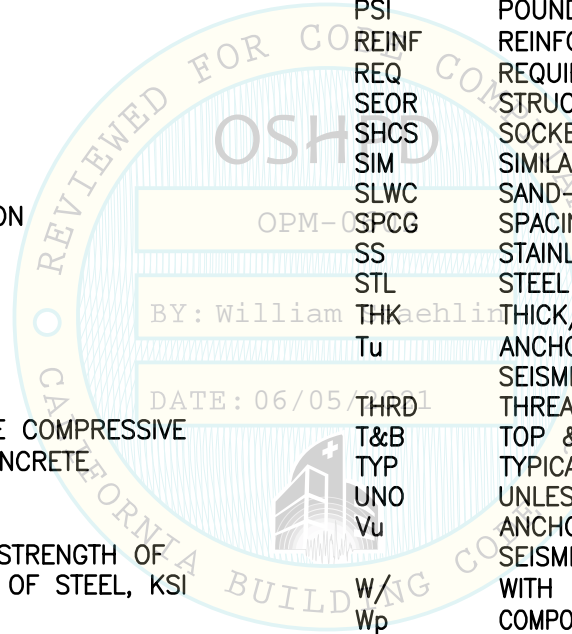
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**ABBREVIATIONS:**

@	AT	MFR	MANUFACTURER
AB	ANCHOR BOLT	MAX	MAXIMUM
ABV	ABOVE	MIN	MINIMUM
ADJ	ADJACENT	mm	MILLIMETER
AISC	AMERICAN INSTITUTE FOR STEEL CONSTRUCTION	MTL	METAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	NO. (#)	NUMBER OR POUNDS
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS	NWC	NORMAL WEIGHT CONCRETE
BLDG	BUILDING	OP	OPERATING
BLW	BELOW	OPG	OPENING
BOTT	BOTTOM	OPM	OSHPD PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION
BYD	BEYOND	OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT
CBC	CALIFORNIA BUILDING CODE	PERP	PERPENDICULAR
CG	CENTER OF GRAVITY	PG	PAGE
Ⓢ	CENTERLINE	Ⓢ	PLATE
CONC	CONCRETE	PSI	POUNDS PER SQUARE INCH
CONN	CONNECTION	REINF	REINFORCING/REINFORCEMENT
COORD	COORDINATE	REQ	REQUIRED
DBL	DOUBLE	SEOR	STRUCTURAL ENGINEER OF RECORD
DIM	DIMENSION	SHCS	SOCKET HEAD CAP SCREW
DTL	DETAIL	SIM	SIMILAR
DIA (∅)	DIAMETER	SLWC	SAND-LIGHTWEIGHT CONCRETE
(E)	EXISTING CONDITION	SPCG	SPACING
EA	EACH	SS	STAINLESS STEEL
EE	EACH END	STL	STEEL
ELEV	ELEVATION	THK	THICK/THICKNESS
EQ	EQUAL	Tu	ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE AT LRFD
EQUIP	EQUIPMENT	THRD	THREAD OR THREADED
EXTR	EXTERIOR	T&B	TOP & BOTTOM
f'c	MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE	TYP	TYPICAL
FLR	FLOOR	UNO	UNLESS NOTED OTHERWISE
FT (')	FOOT/FEET	Vu	ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE AT LRFD
Fy	SPECIFIED YIELD STRENGTH OF REINFORCING, PS OF STEEL, KSI	W/	WITH
GA	GAUGE	Wp	COMPONENT OPERATING WEIGHT
HSS	HOLLOW STRUCTURAL SECTION	WT	WEIGHT
ICC	INTERNATIONAL CODE COUNCIL		
IN (")	INCH		
INFO	INFORMATION		
KG	KILOGRAM		
KSI	KIPS PER SQUARE INCH		
LBS	POUNDS		
LRFD	LOAD AND RESISTANCE FACTOR DESIGN		



SHEET TITLE: ABBREVIATIONS

 <b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833	TEL (916) 920-2020 www.cyseng.com	Job No: 17116 Date: 06-03-2021 Page: 5 of 34
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**DESIGN CRITERIA:**

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

OTHER MECHANICAL OR ELECTRICAL COMPONENTS PER TABLE 13.6-1 OF ASCE 7-16 SUPPLEMENT #1 & ERRATA:

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

$W_p$  AS NOTED ON DRAWINGS

UPPER FLRS ABV THE BASE OF BLDG

CASE 1:       $S_{DS} \leq 2.50$        $F_p = 2.50 W_p$        $z/h \leq 0.75$   
 CASE 2:       $S_{DS} \leq 0.90$        $F_p = 0.90 W_p$        $z/h \leq 0.75$

FLRS AT OR BLW THE BASE OF BLDG

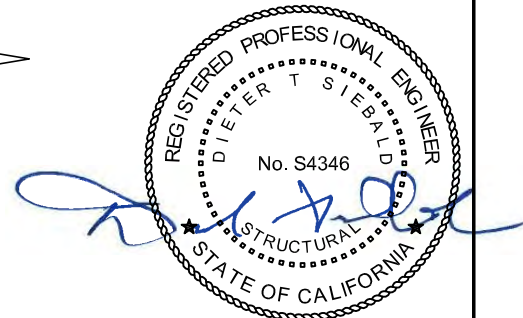
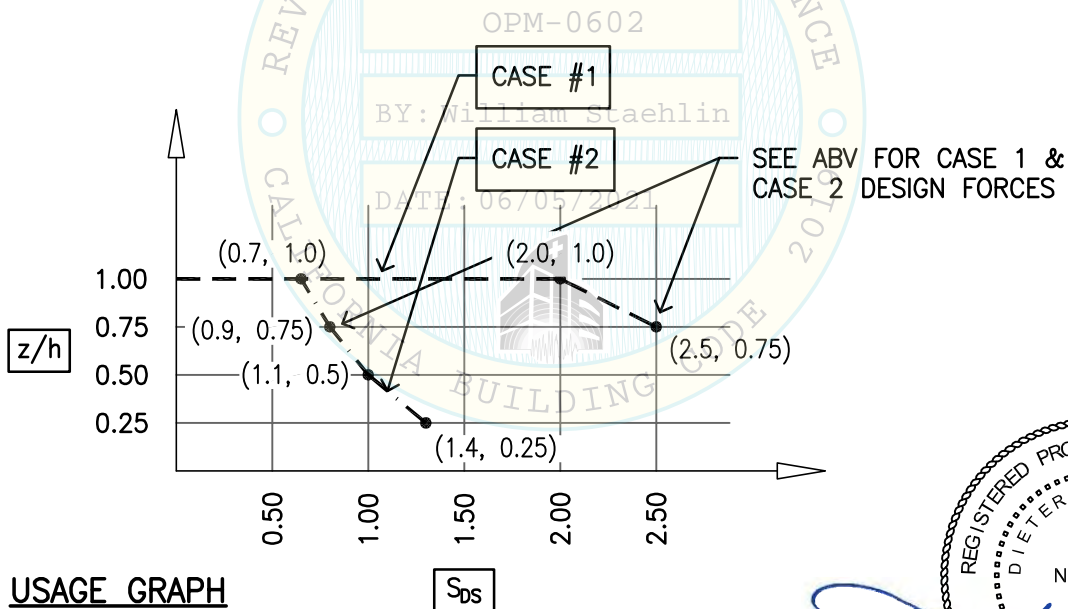
CASE 3:       $S_{DS} \leq 2.50$        $F_p = 1.125 W_p$        $z/h = 0$

LOAD COMBINATIONS

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

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

2. THIS PRE-APPROVAL MAY BE USED ONLY AT GEOGRAPHICAL LOCATIONS IN THE STATE OF CALIFORNIA WHERE  $S_{DS}$  &  $z/h$  IS LESS THAN OR EQ TO THE VALUES NOTED ABV OR IN THE GRAPH BLW.



SHEET TITLE: DESIGN CRITERIA



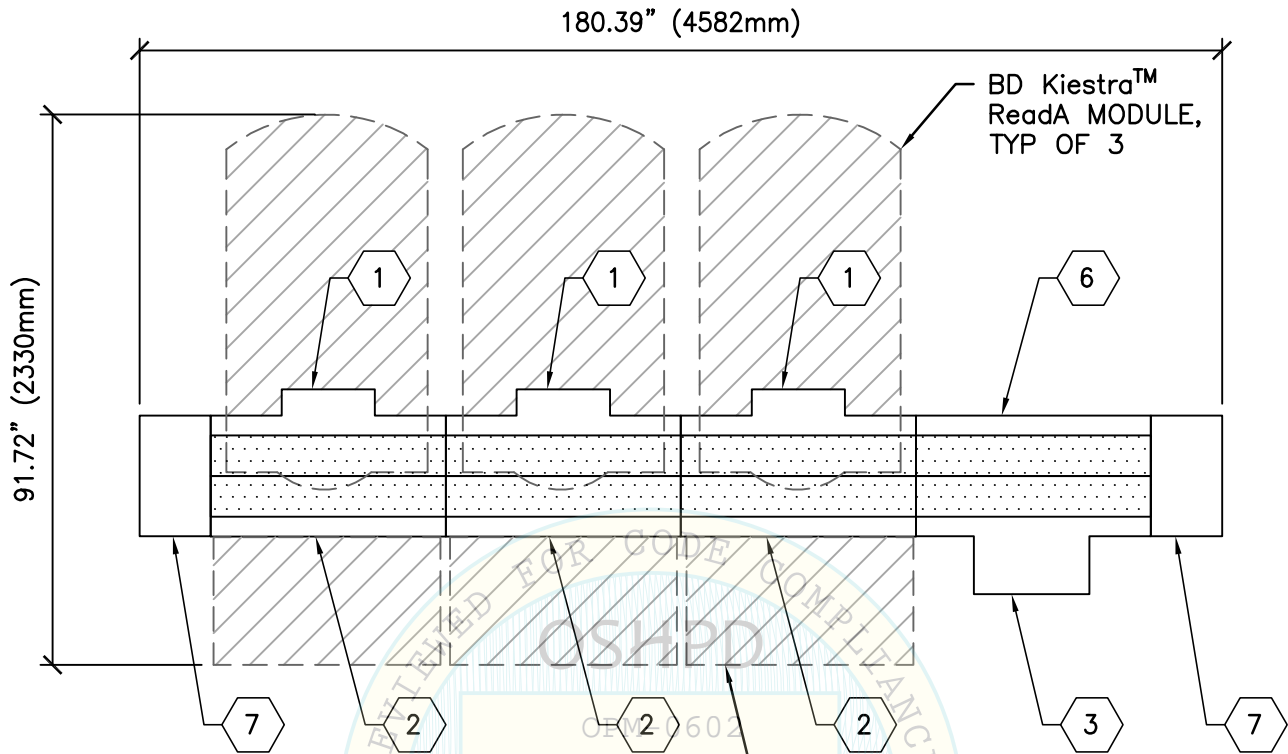
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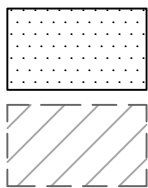
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**LEGEND**



CABINET BASE SUBMODULE  
PER PG 12

MODULE NOT IN SCOPE OF OPM

TROLLEY, TYP OF 3  
(NOT PART OF THIS OPM)

**NOTE:**  
THESE ARE EXAMPLES ONLY. THE TRUE MODULE TRACK  
CAN BE USED IN MANY DIFFERENT CONFIGURATIONS.  
CONFIGURATIONS SHOWN NOT IN THIS OPM SHALL  
CONFORM TO THE REQUIREMENTS OF THIS OPM.

**COMPONENT**

- |                                  |                        |
|----------------------------------|------------------------|
| 1 STANDARD CONNECTOR SUBMODULE   | 6 STRAIGHT SUBMODULE   |
| 2 STACKER SUBMODULE              | 7 U-TURN SUBMODULE     |
| 3 DESTACKER SUBMODULE            | 8 CORNER SUBMODULE     |
| 4 SHIFT CONNECTOR SUBMODULE      | 9 T-JUNCTION SUBMODULE |
| 5 ErgonomicA CONNECTOR SUBMODULE |                        |



SHEET TITLE: CONFIGURATION #1  
ReadA-SA-3



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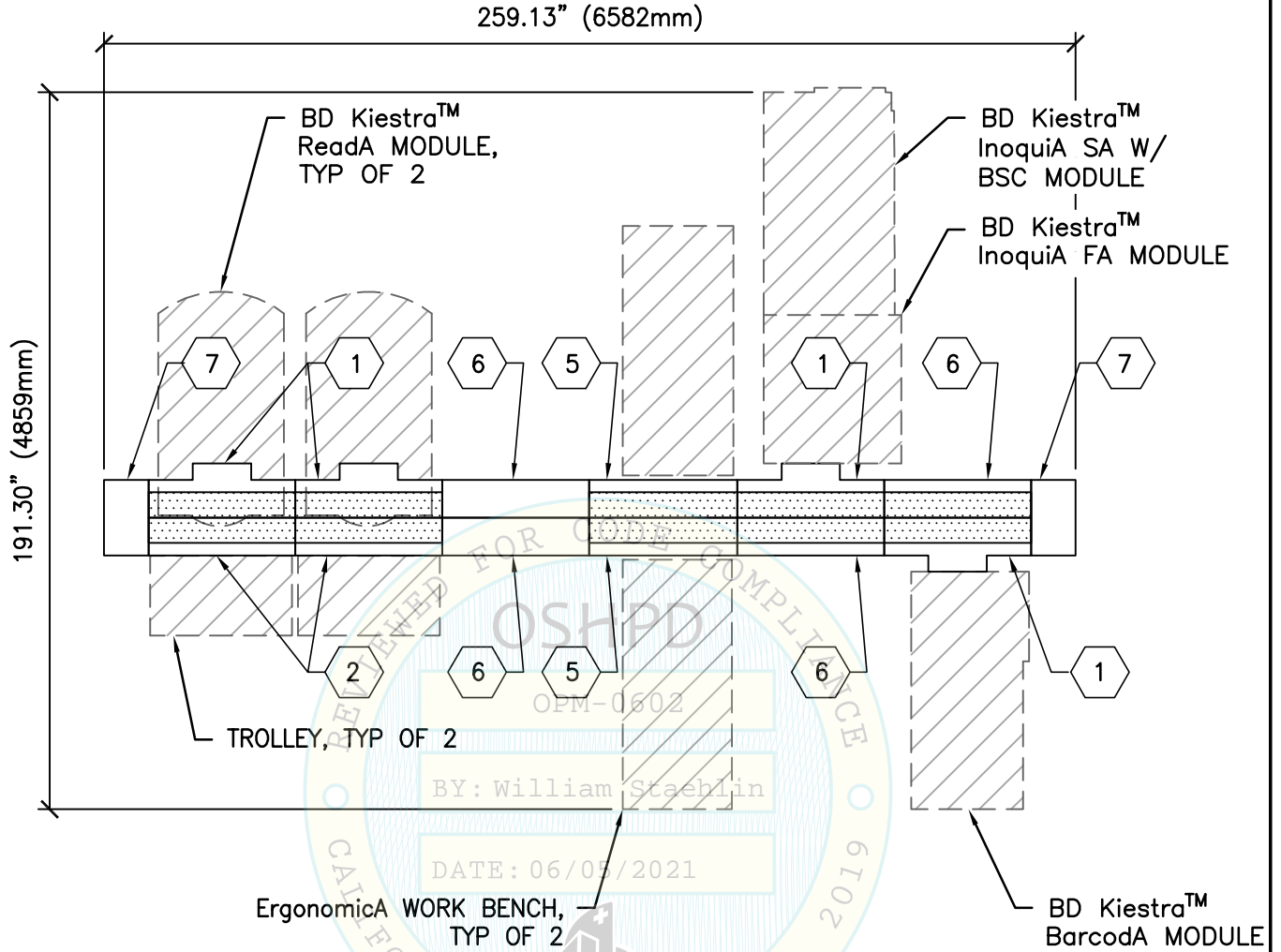
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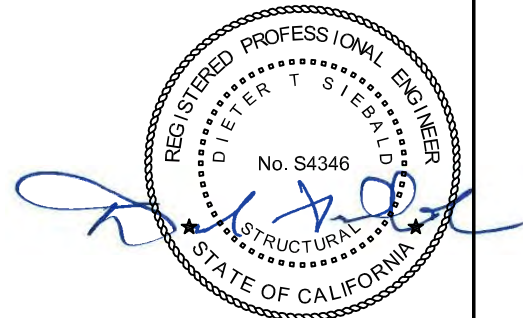
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BD Life Sciences - Integrated Diagnostic Solutions  
 BD Kiestra™ - TRACK



REVIEWED FOR CODE COMPLIANCE  
 OshPD  
 OPM-0602  
 BY: William Staehlin  
 DATE: 06/07/2021  
 CALIFORNIA BUILDING CODE 2019



**NOTES:**

1. SEE PG 7 FOR INFO NOT SHOWN OR NOTED.
2. SEE PG 24 FOR BASE CABINET BRACKET ATTACHMENT LOCATIONS.

SHEET TITLE: CONFIGURATION #2  
 TLA-3



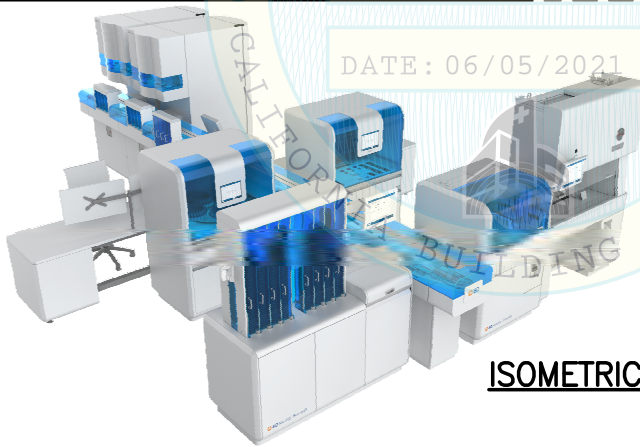
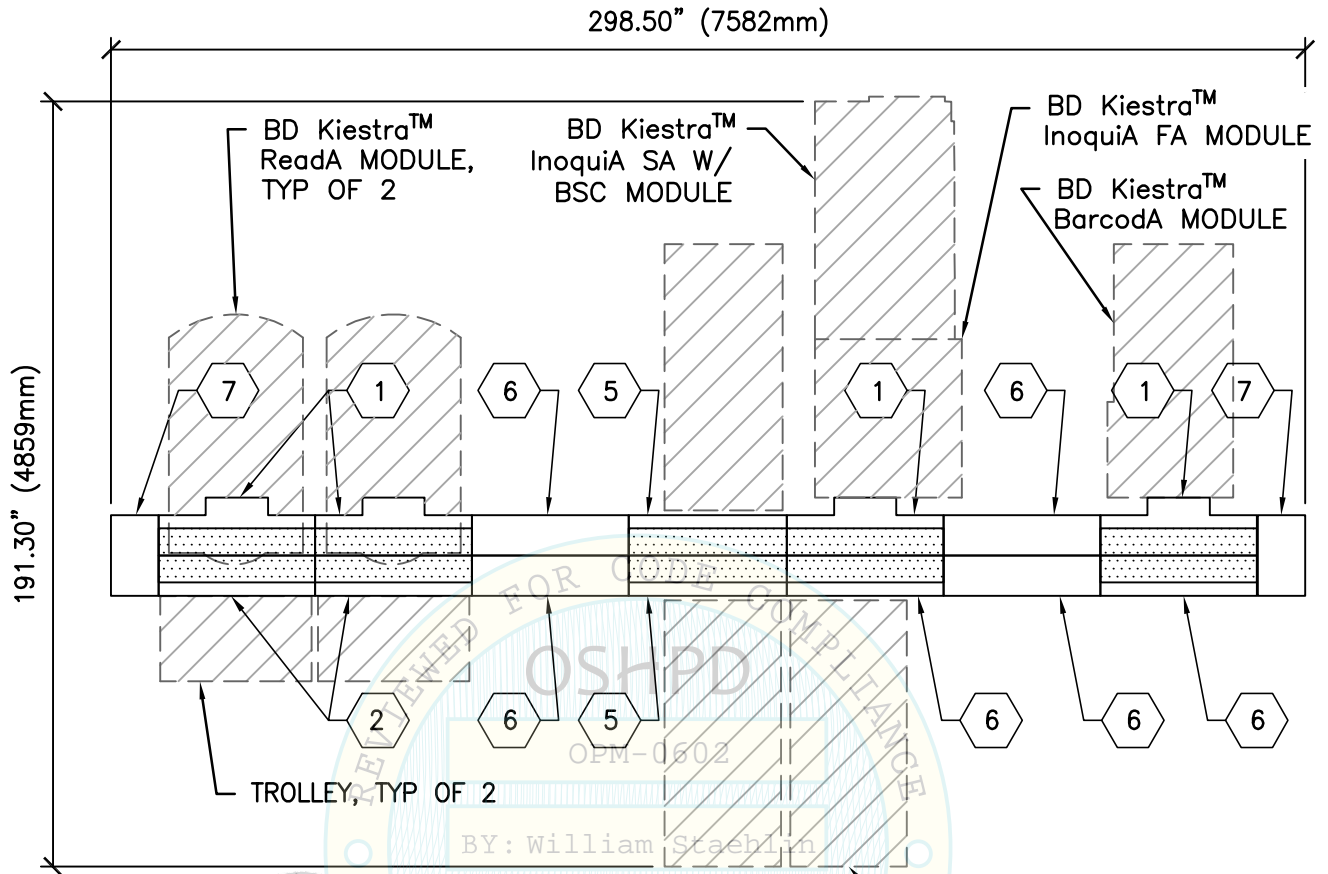
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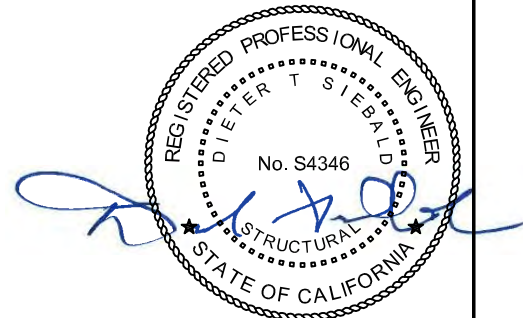
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**ISOMETRIC VIEW**

**NOTES:**

1. SEE PG 7 FOR INFO NOT SHOWN OR NOTED.
2. SEE PG 24 FOR BASE CABINET BRACKET ATTACHMENT LOCATIONS.
3. ISOMETRIC VIEW IS FOR REFERENCE ONLY & VARIES SLIGHTLY FROM THE CONFIGURATION SHOWN.



SHEET TITLE: CONFIGURATION #3  
 TLA-4



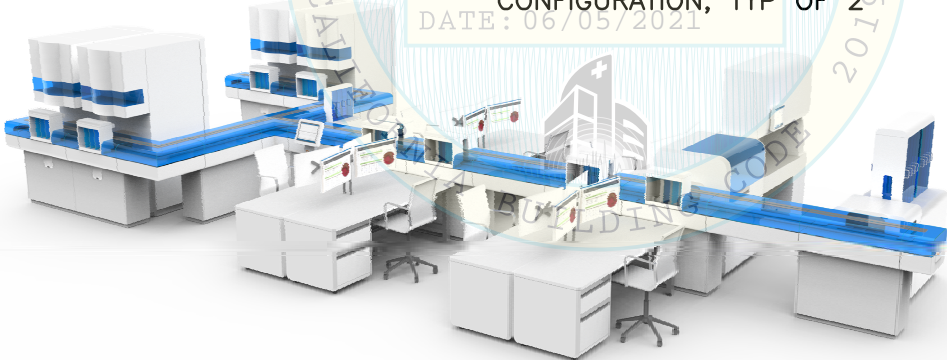
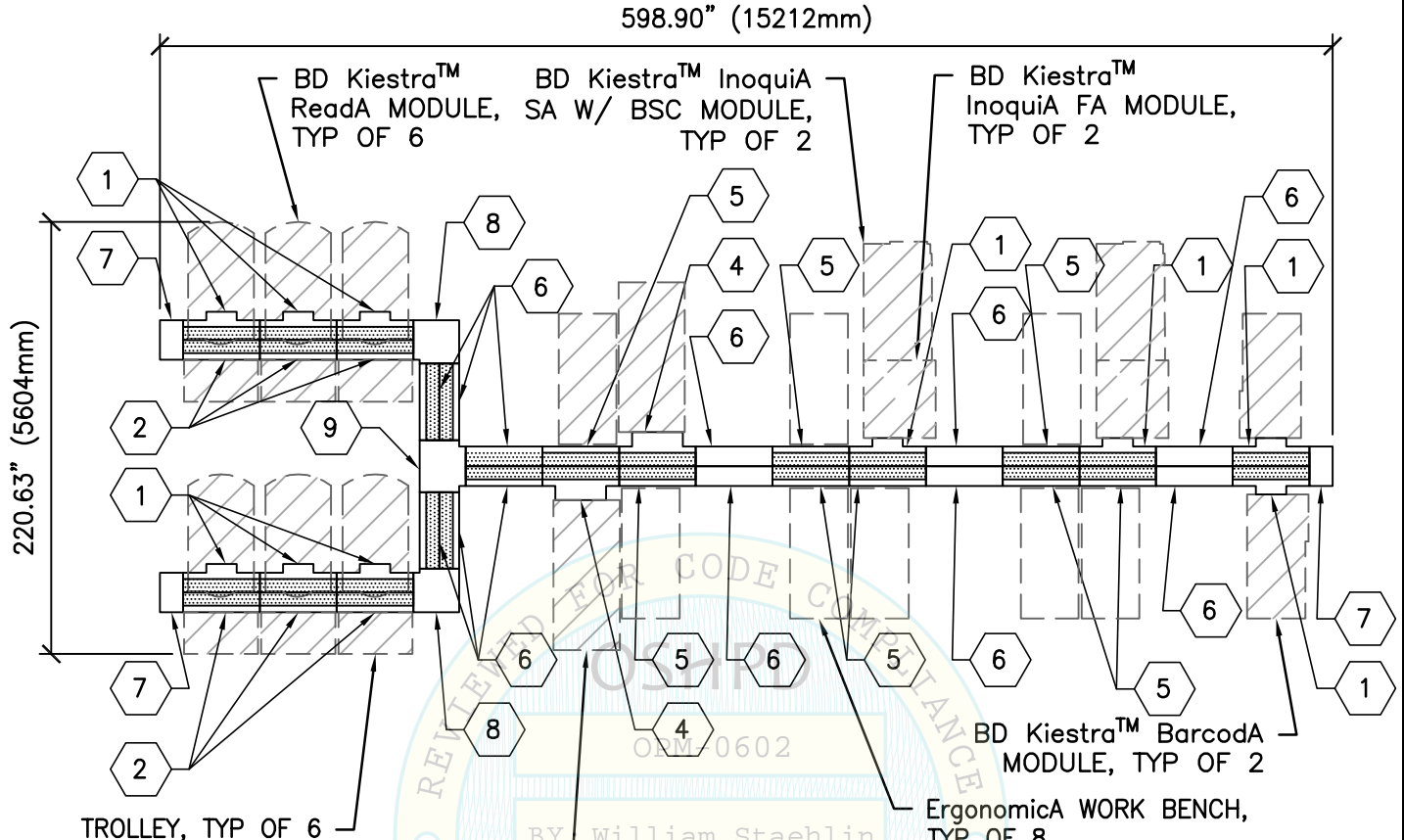
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**ISOMETRIC VIEW**

**NOTES:**

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3. ISOMETRIC VIEW IS FOR REFERENCE ONLY & VARIES SLIGHTLY FROM THE CONFIGURATION SHOWN.



SHEET TITLE: CONFIGURATION #4  
TLA-12



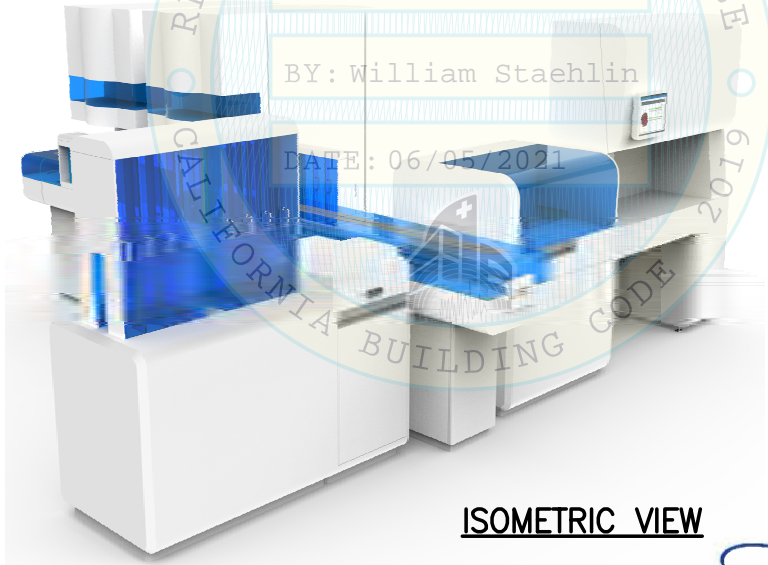
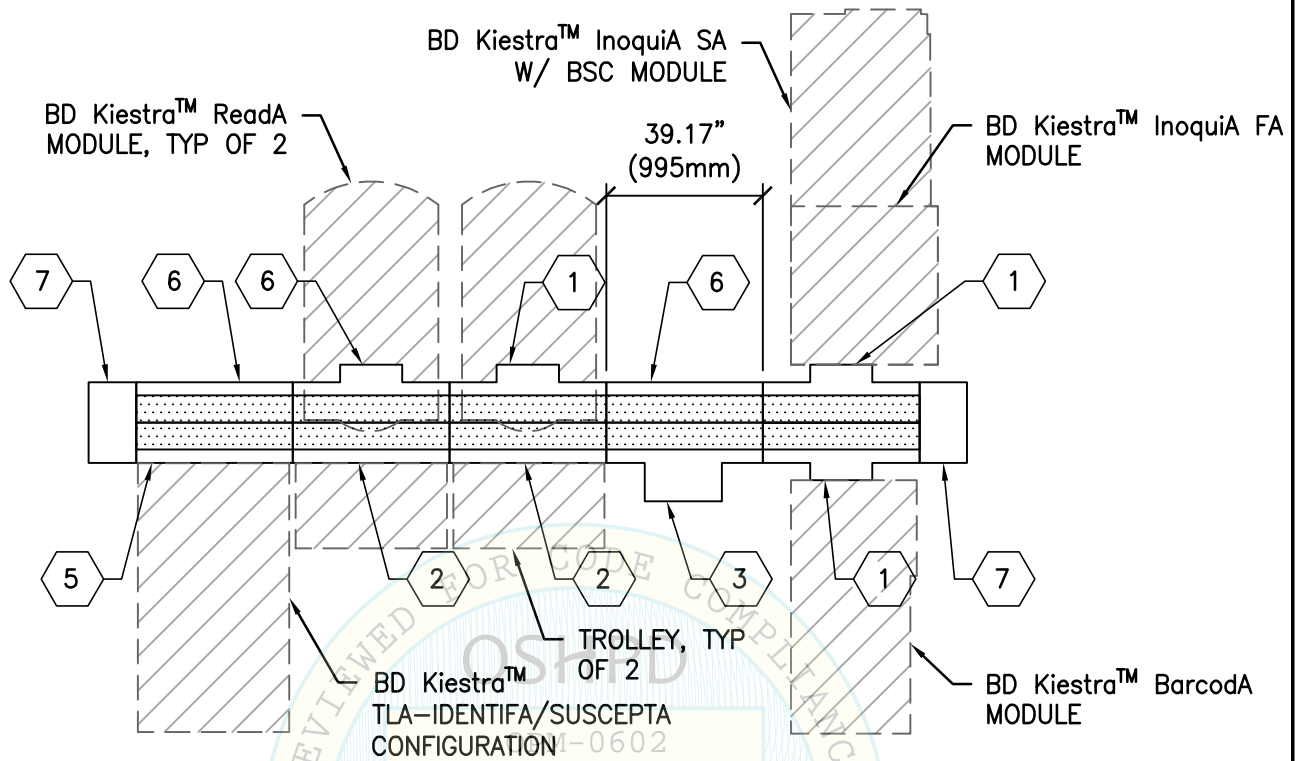
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TEL (916) 920-2020  
www.cyseng.com

Job No:	17116
Date:	06-03-2021
Page:	10 of 34

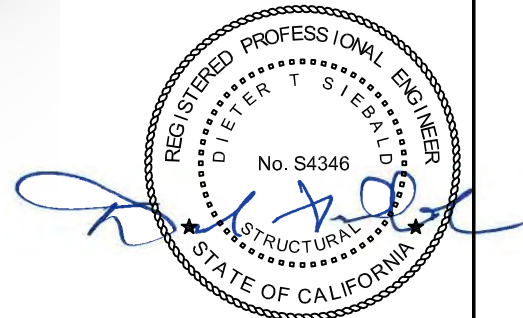
L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021 - 10:43am Login:cmachom Dimstyle:12 LTScale:6



**ISOMETRIC VIEW**

**NOTES:**

1. SEE PG 7 FOR INFO NOT SHOWN OR NOTED.
2. SEE PG 24 FOR BASE CABINET BRACKET ATTACHMENT LOCATIONS.
3. ISOMETRIC VIEW IS FOR REFERENCE ONLY & VARIES SLIGHTLY FROM THE CONFIGURATION SHOWN.



SHEET TITLE: CONFIGURATION #5  
WCA-3



**CYS STRUCTURAL ENGINEERS, INC.**

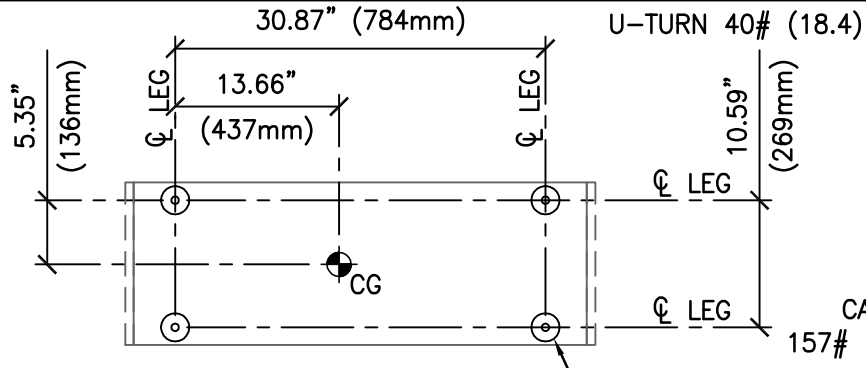
2495 NATOMAS PARK DRIVE, SUITE 650  
SACRAMENTO, CA 95833

TEL (916) 920-2020  
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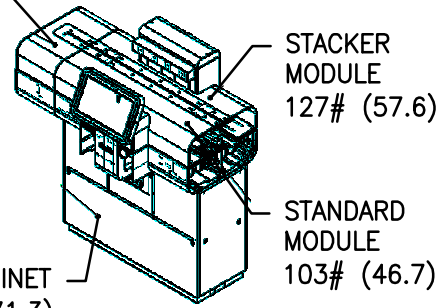
Job No:	17116
Date:	06-03-2021
Page:	11 of 34

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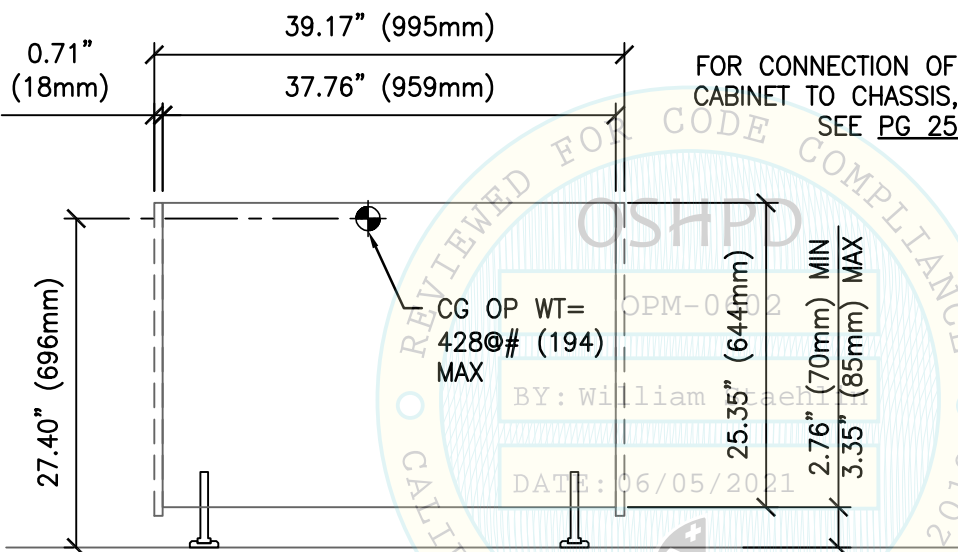




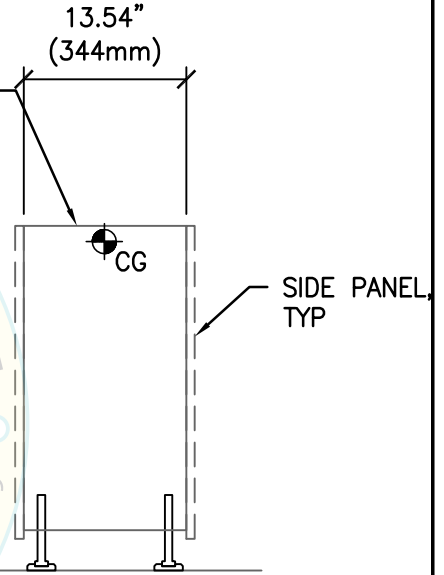
**PLAN VIEW**



**ISOMETRIC VIEW**



**FRONT ELEV**



**SIDE ELEV**

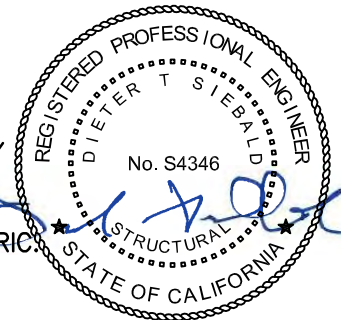
**NOTE:**

OP WT INCLUDES THE FOLLOWING & ENVELOPES  
THE MAX WT SUPPORTED BY THE CABINET

	WT
CABINET MODULE	157 (71.3)
U-TURN SUBMODULE	41 (18.4)
STACKER SUBMODULE	127 (57.6)
STANDARD CONNECTOR SUBMODULE	103 (46.7)
<b>TOTAL:</b>	<b>428 (194)</b>

**NOTES:**

1. THE U-TURN, STACKER & STANDARD CONNECTOR SUBMODULES ARE SHOWN ONLY IN ISOMETRIC.
2. BASE CABINET MAY HAVE A MONITOR AS SHOWN IN ISOMETRIC.
3. SEISMIC BRACKET ATTACHMENTS ARE NOT SHOWN FOR CLARITY.



SHEET TITLE: BD Kiestra™ Track CABINET BASE MODULE  
PLAN VIEW & ELEVATIONS



**CYS STRUCTURAL ENGINEERS, INC.**

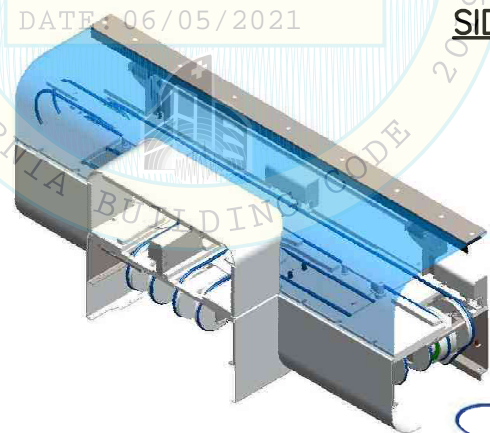
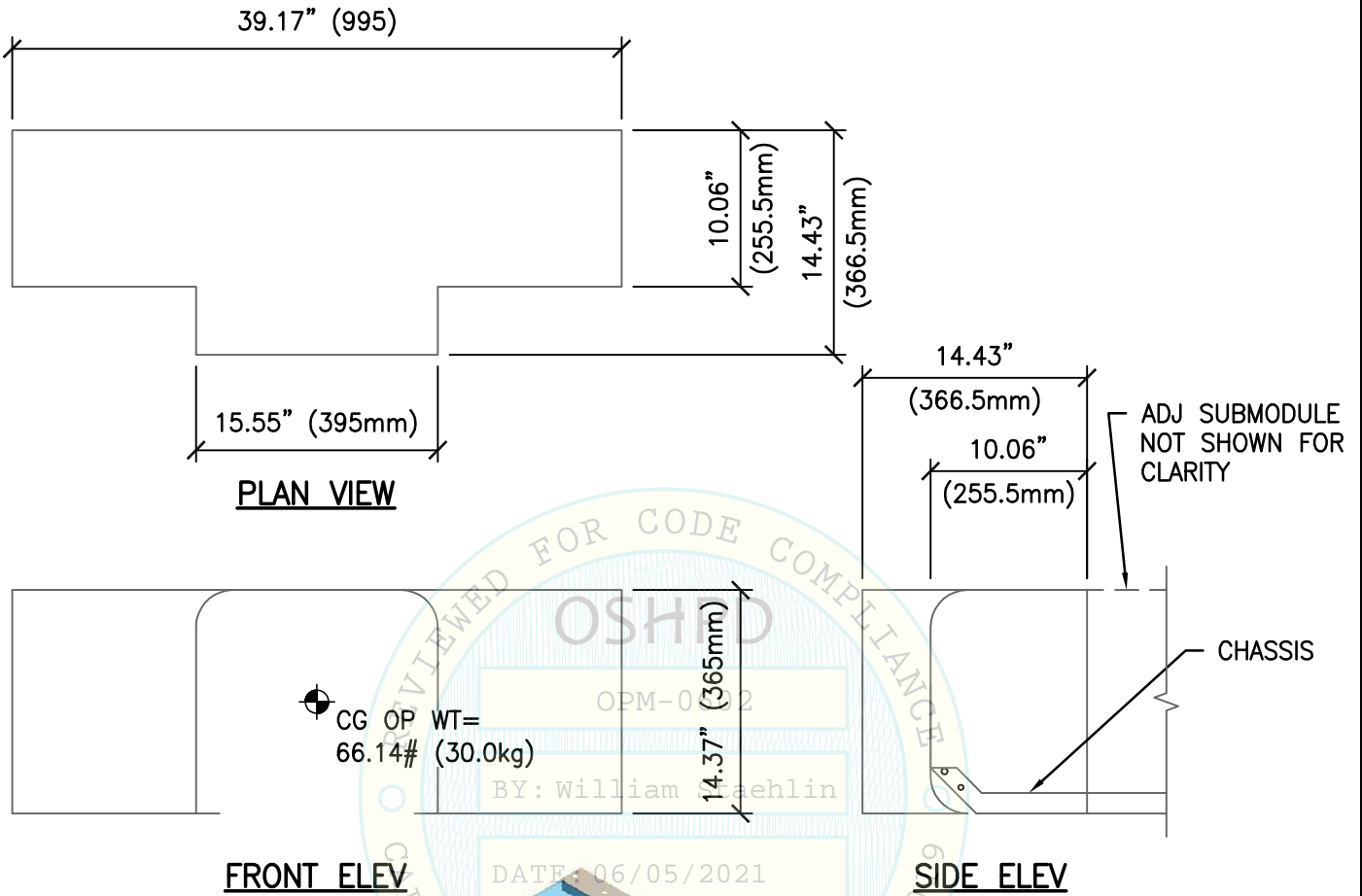
2495 NATOMAS PARK DRIVE, SUITE 650  
SACRAMENTO, CA 95833

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Job No: 17116  
Date: 06-03-2021  
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L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time: Jun 03, 2021 - 10:43am Login: camachom Dim: scale: 12 LT: scale: 6





**ISOMETRIC VIEW**

**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY
2. FOR TYP CONN TO CHASSIS SEE PG 25



**SHEET TITLE: BD Kiestra™ Track STANDARD CONNECTOR SUBMODULE  
 PLAN VIEW & ELEVATIONS**



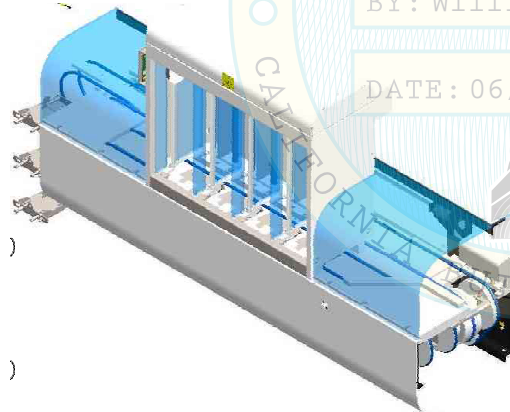
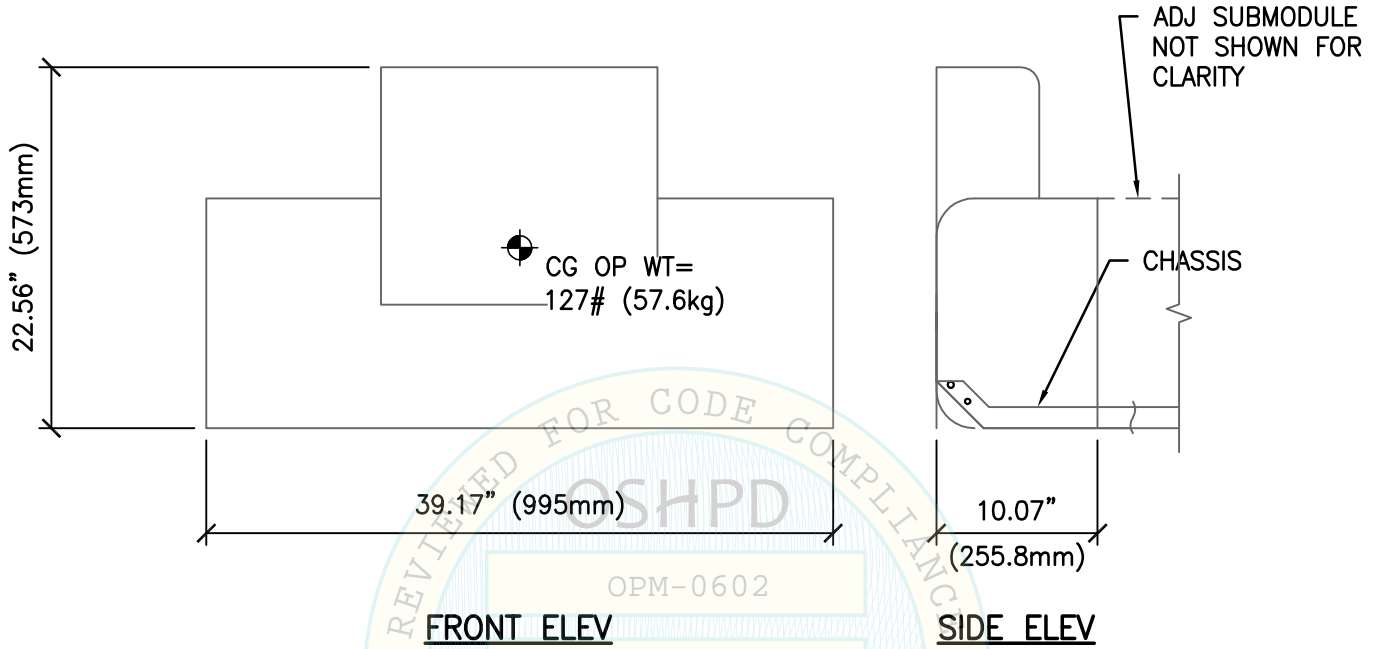
**CYS STRUCTURAL ENGINEERS, INC.**

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 SACRAMENTO, CA 95833

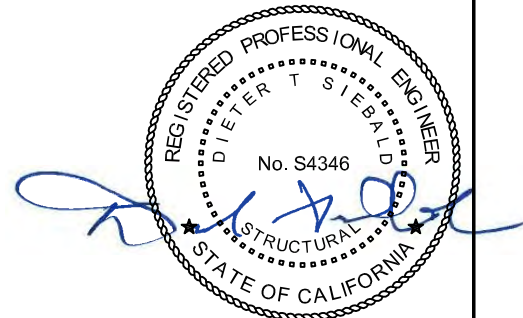
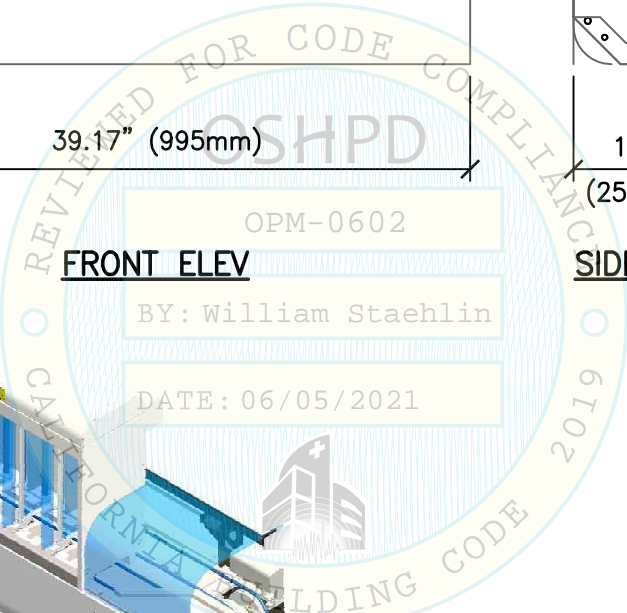
TEL (916) 920-2020  
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Job No:	17116
Date:	06-03-2021
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L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021 10:43am Login:cmachom Dimstyle:12 LTScale:6



**ISOMETRIC VIEW**

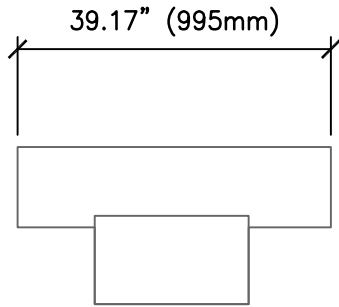


- NOTES:**
1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY
  2. FOR TYP CONN TO CHASSIS SEE PG 25

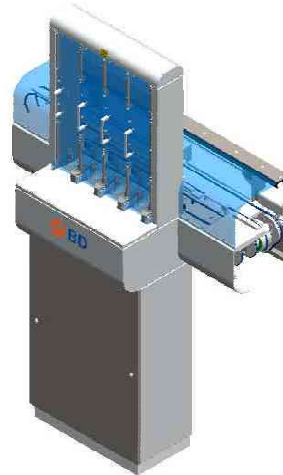
**SHEET TITLE: BD Kiestra™ Track STACKER SUBMODULE  
 PLAN VIEW & ELEVATIONS**

<p><b>CYS STRUCTURAL ENGINEERS, INC.</b>                  2495 NATOMAS PARK DRIVE, SUITE 650                  SACRAMENTO, CA 95833</p>	TEL (916) 920-2020 www.cyseng.com	Job No: 17116 Date: 06-03-2021 Page: 14 of 34
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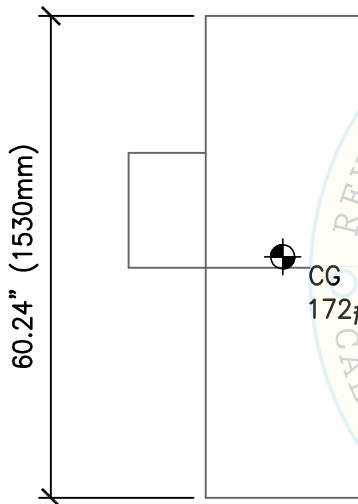
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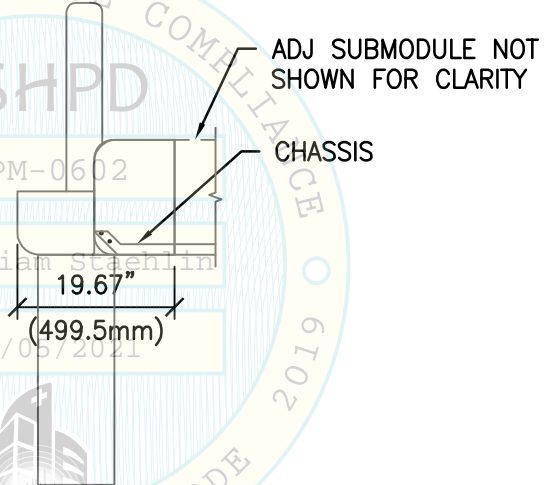
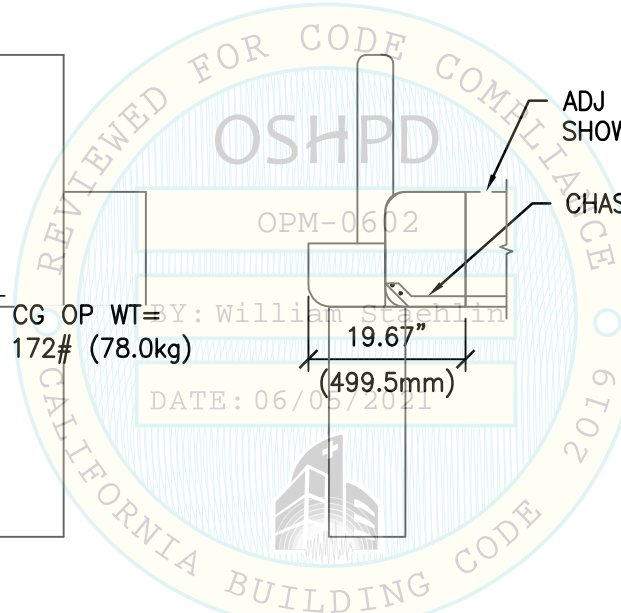
**PLAN VIEW**



**ISOMETRIC VIEW**

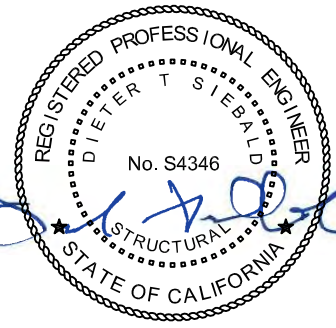


**FRONT ELEV**



**SIDE ELEV**

CG OP WT =  
 172# (78.0kg)



**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY
2. FOR TYP CONN TO CHASSIS SEE PG 25

**SHEET TITLE: BD Kiestra™ Track DESTACKER SUBMODULE  
 PLAN VIEW & ELEVATIONS**



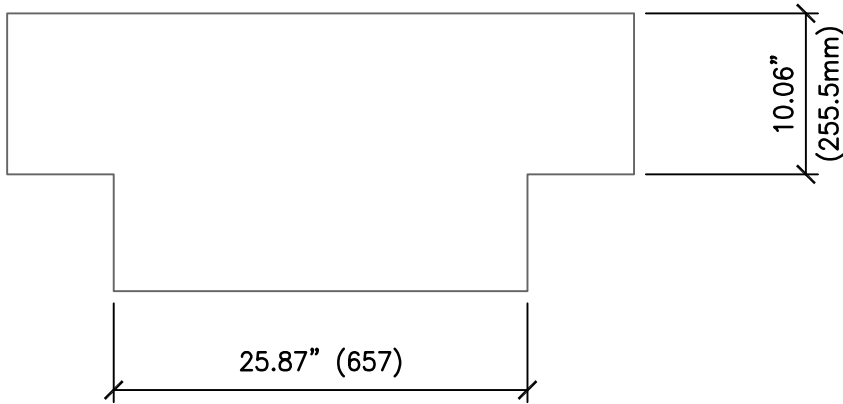
**CYS STRUCTURAL ENGINEERS, INC.**

2495 NATOMAS PARK DRIVE, SUITE 650  
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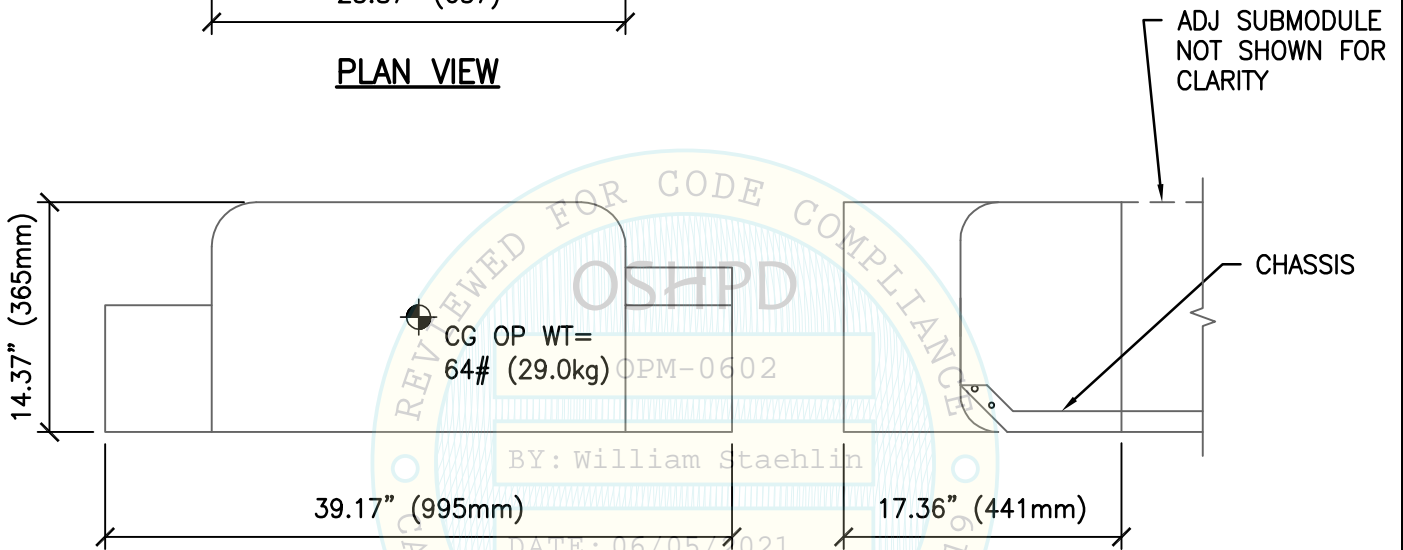
TEL (916) 920-2020  
 www.cyseng.com

Job No:	17116
Date:	06-03-2021
Page:	15 of 34

L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:cmachom Dimstyle:12 LTScale:6

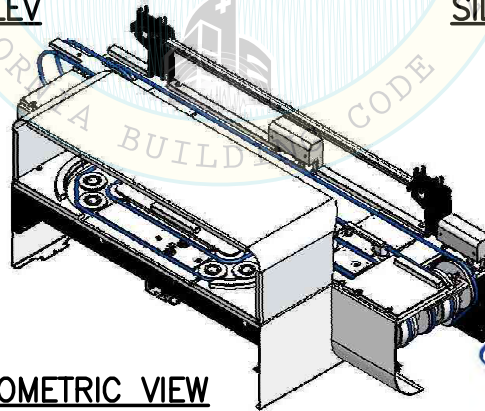


**PLAN VIEW**



**FRONT ELEV**

**SIDE ELEV**



**ISOMETRIC VIEW**

**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY
2. FOR TYP CONN TO CHASSIS SEE PG 25



SHEET TITLE: BD Kiestra™ Track SHIFT CONNECTOR SUBMODULE  
 PLAN VIEW & ELEVATIONS



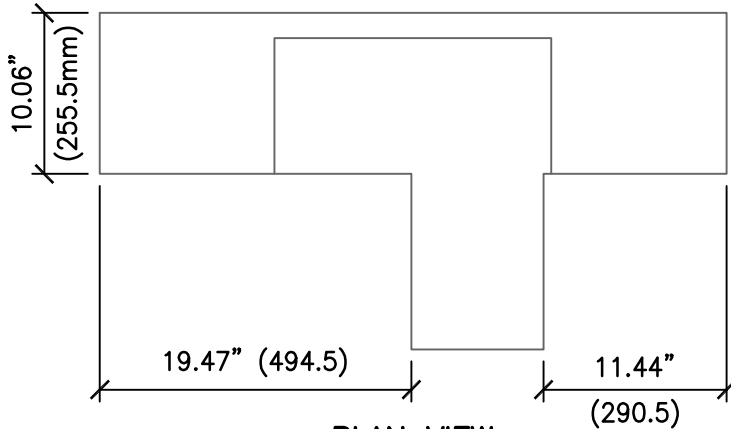
**CYS STRUCTURAL ENGINEERS, INC.**

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 SACRAMENTO, CA 95833

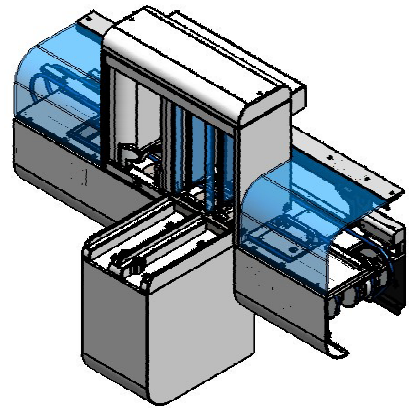
TEL (916) 920-2020  
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Job No:	17116
Date:	06-03-2021
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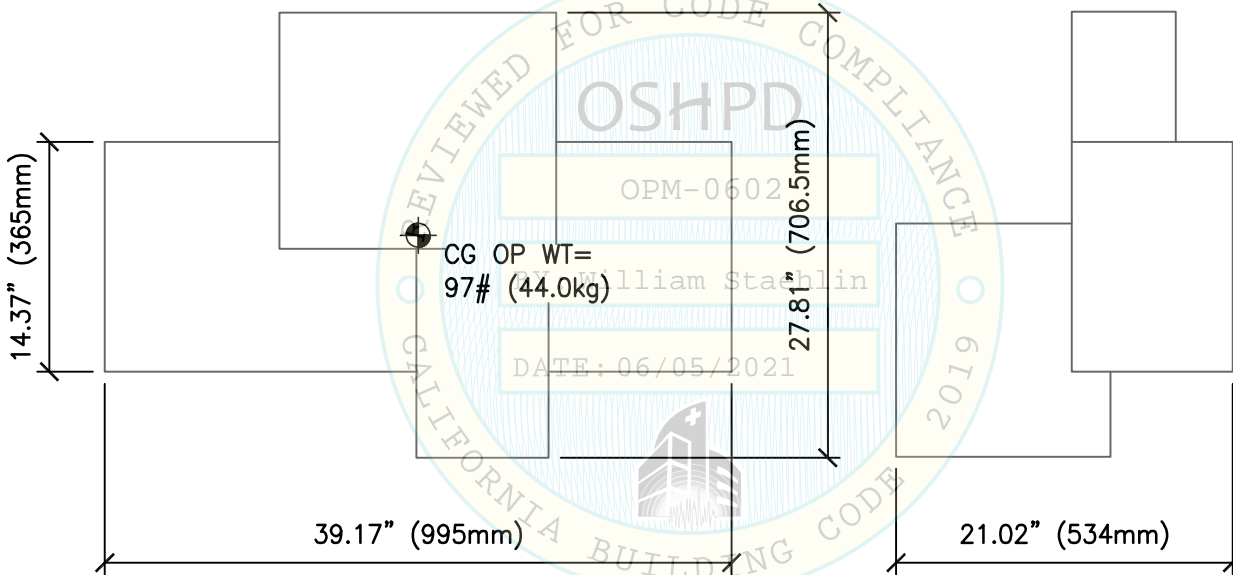
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**PLAN VIEW**

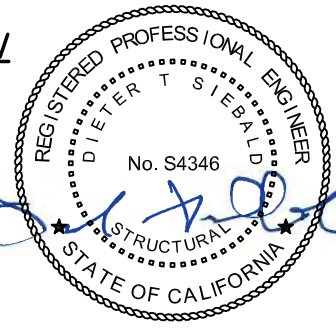
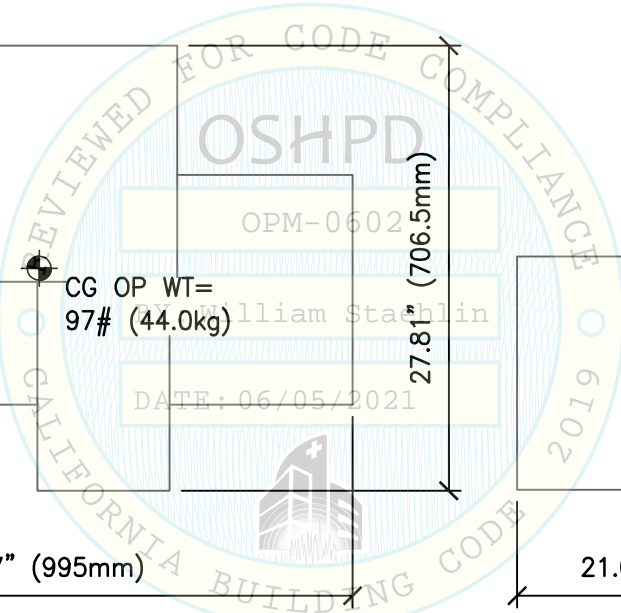


**ISOMETRIC VIEW**



**FRONT ELEV**

**SIDE ELEV**



**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY
2. FOR TYP CONN TO CHASSIS SEE PG 25

**SHEET TITLE: BD Kiestra™ Track ErgonomicA CONNECTOR LEFT SUBMODULE  
 PLAN VIEW & ELEVATIONS**



**CYS STRUCTURAL ENGINEERS, INC.**

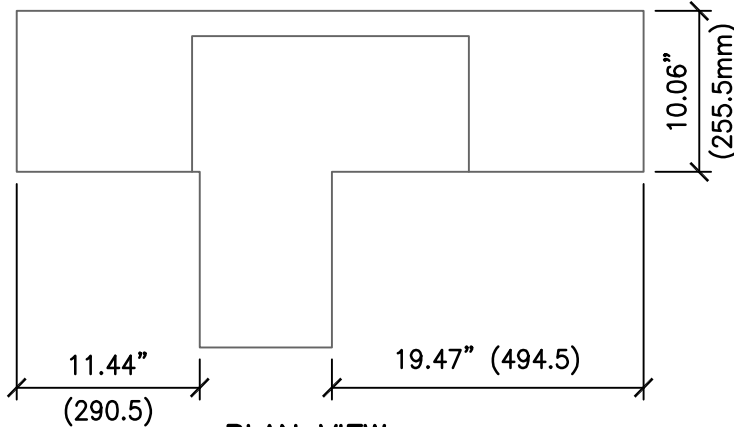
2495 NATOMAS PARK DRIVE, SUITE 650  
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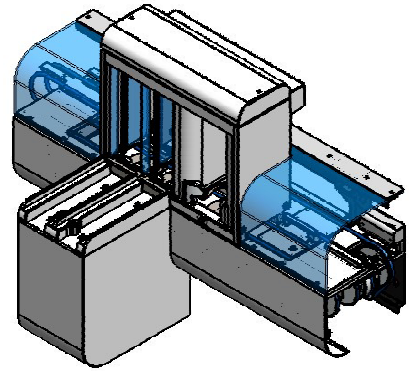
Job No:	17116
Date:	06-03-2021
Page:	17 of 34

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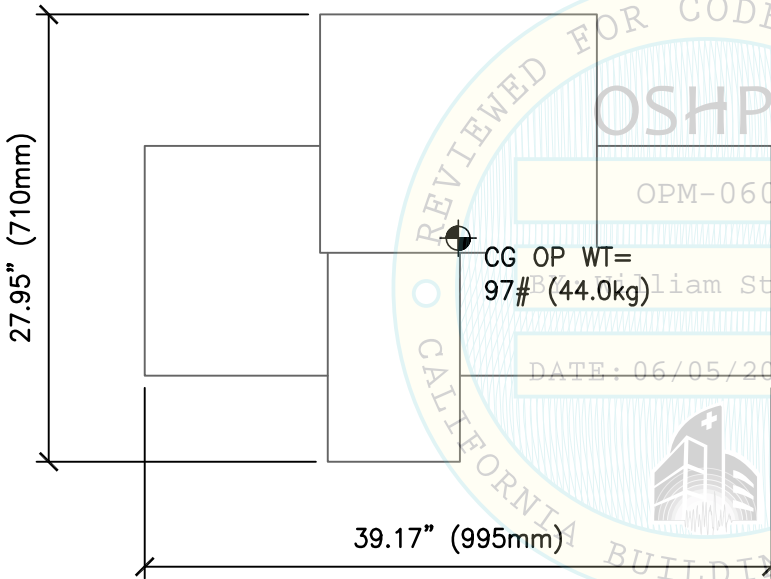




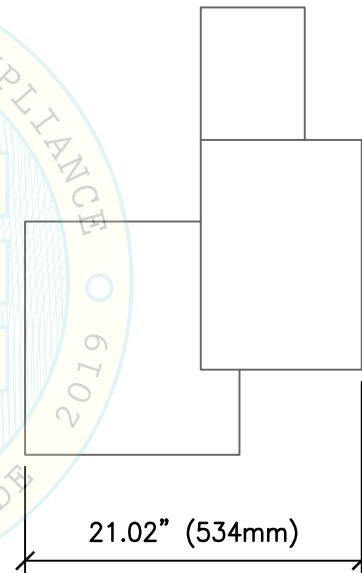
**PLAN VIEW**



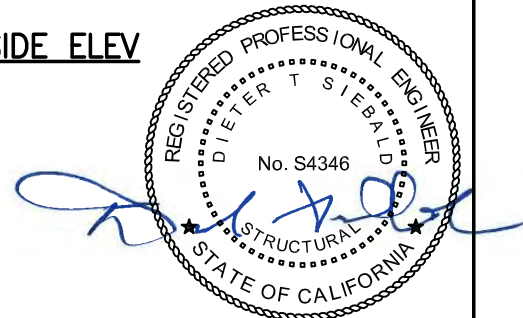
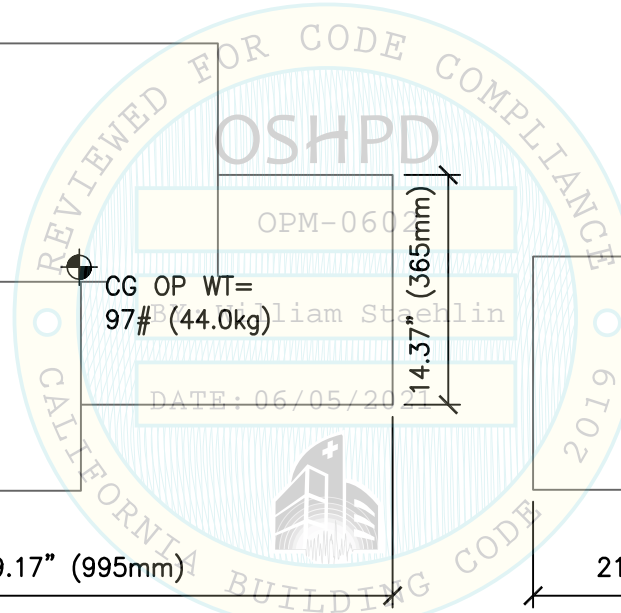
**ISOMETRIC VIEW**



**FRONT ELEV**



**SIDE ELEV**



**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY
2. FOR TYP CONN TO CHASSIS SEE PG 25

**SHEET TITLE: BD Kiestra™ Track ErgonomicA CONNECTOR RIGHT SUBMODULE  
 PLAN VIEW & ELEVATIONS**



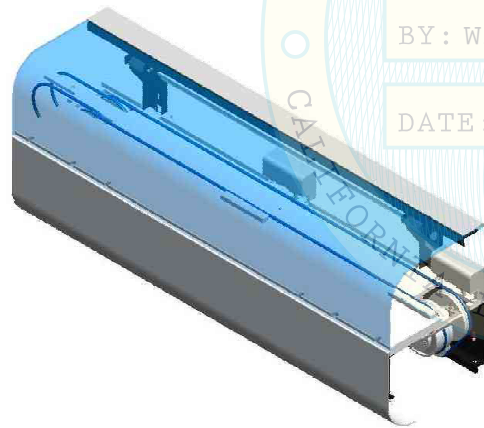
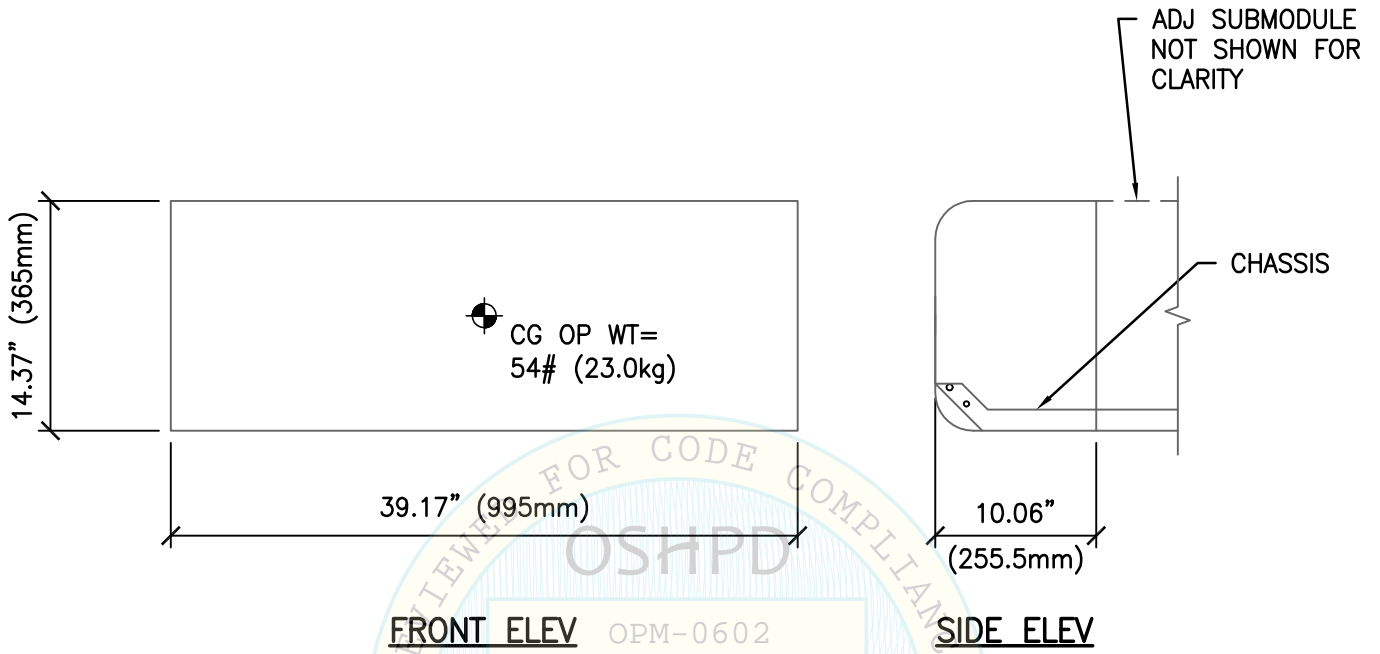
**CYS STRUCTURAL ENGINEERS, INC.**

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 SACRAMENTO, CA 95833

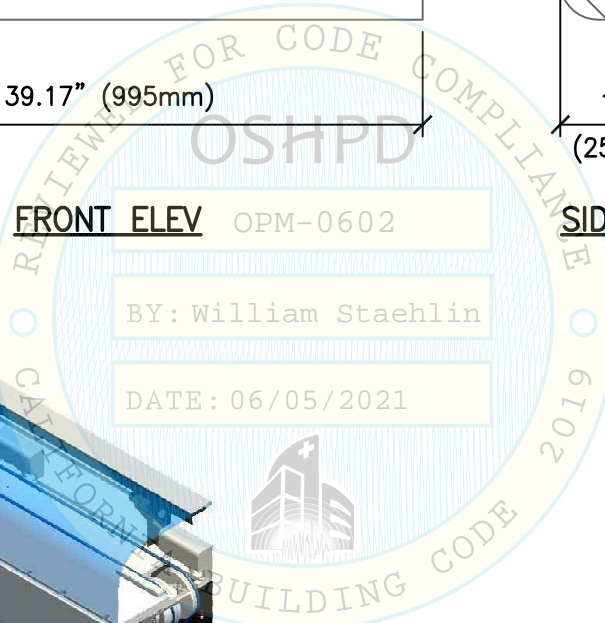
TEL (916) 920-2020  
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Job No:	17116
Date:	06-03-2021
Page:	18 of 34

L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:carnachom Dim:scale:12 LTScale:6



**ISOMETRIC VIEW**



**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY
2. FOR TYP CONN TO CHASSIS SEE PG 25

**SHEET TITLE: BD Kiestra™ Track STRAIGHT SUBMODULE  
 PLAN VIEW & ELEVATIONS**



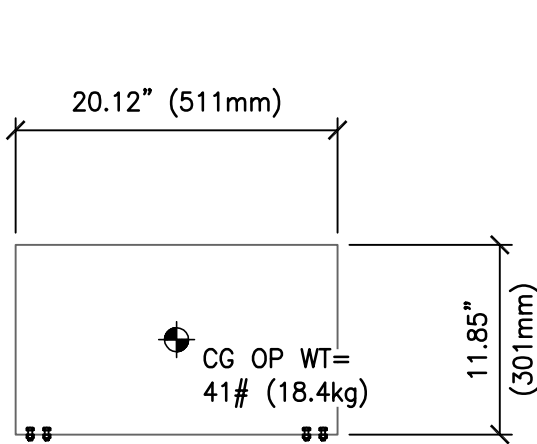
**CYS STRUCTURAL ENGINEERS, INC.**

2495 NATOMAS PARK DRIVE, SUITE 650  
 SACRAMENTO, CA 95833

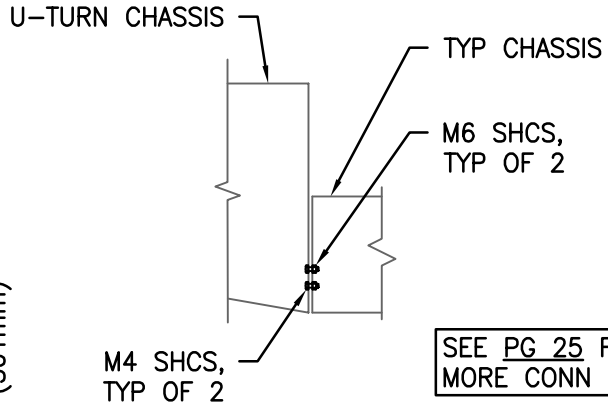
TEL (916) 920-2020  
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Job No:	17116
Date:	06-03-2021
Page:	19 of 34

L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021 10:43am Login:camachom Dimstyle:12 LTScale:6

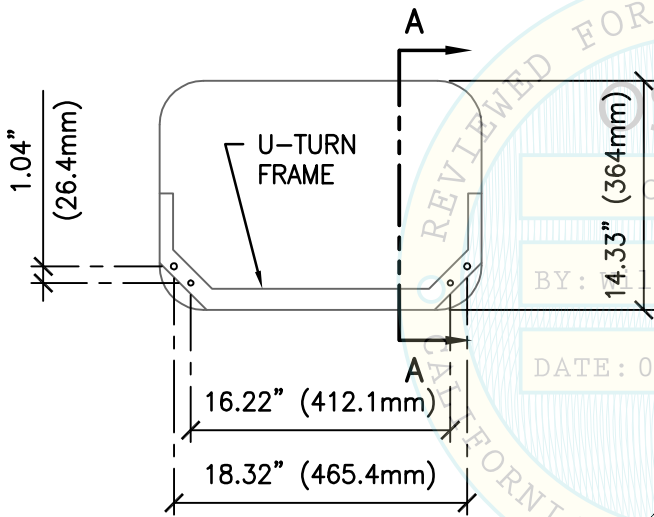


**PLAN VIEW**

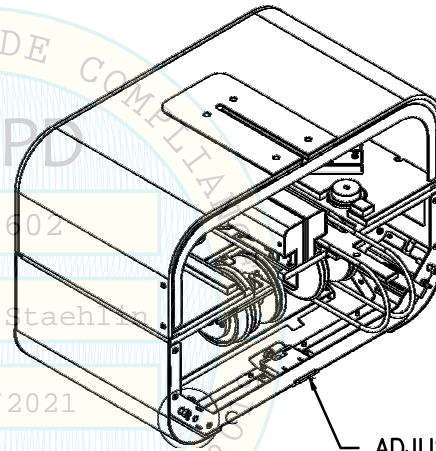


**SECTION A-A**

SEE PG 25 FOR MORE CONN INFO

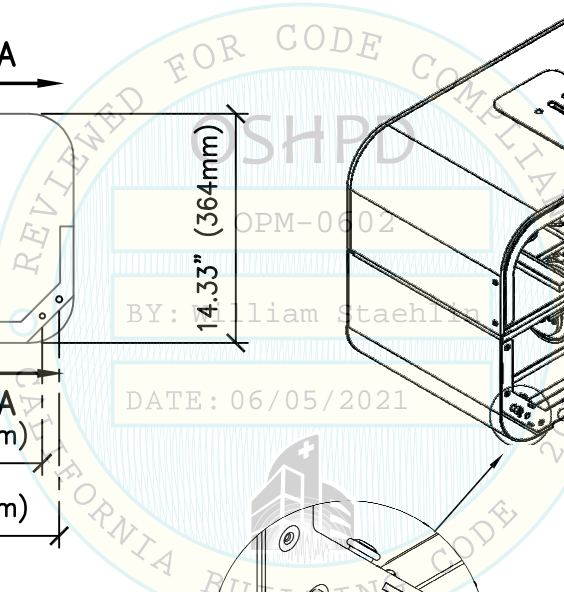


**BACK ELEV**



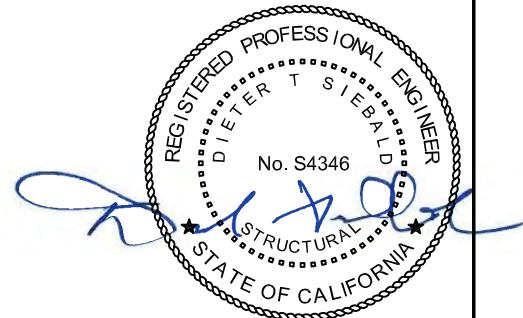
ADJUSTABLE SUPPORT SITS AGAINST THE FACE OF THE MAIN CHASSIS

**ISOMETRIC VIEW**



**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY. SEE PG 13
2. M4 & M6 SOCKET HEAD CAP SCREWS (SHCS) ARE PER DIN 912 W/ TENSILE STRENGTH OF 116 KSI (800mpa).



SHEET TITLE: BD Kiestra™ Track U-TURN SUBMODULE  
 PLAN VIEW & ELEVATIONS



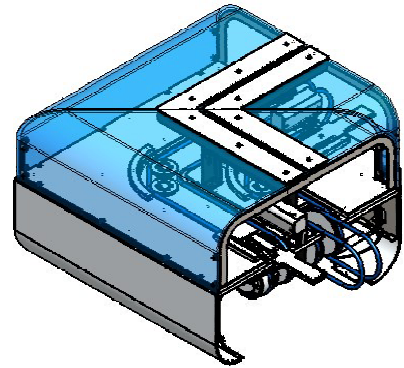
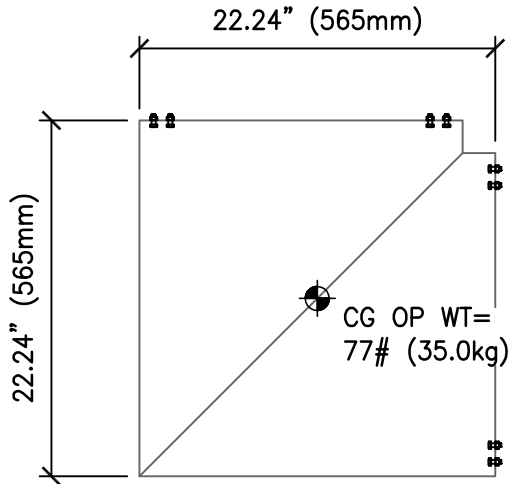
**CYS STRUCTURAL ENGINEERS, INC.**

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TEL (916) 920-2020  
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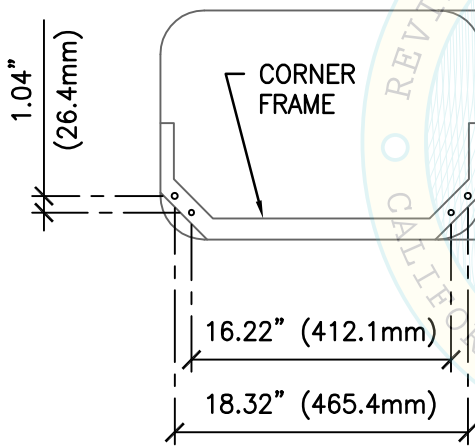
Job No:	17116
Date:	06-03-2021
Page:	20 of 34

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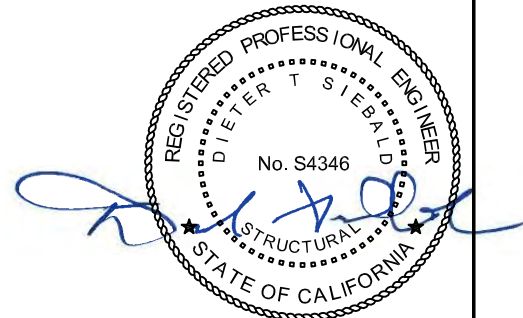
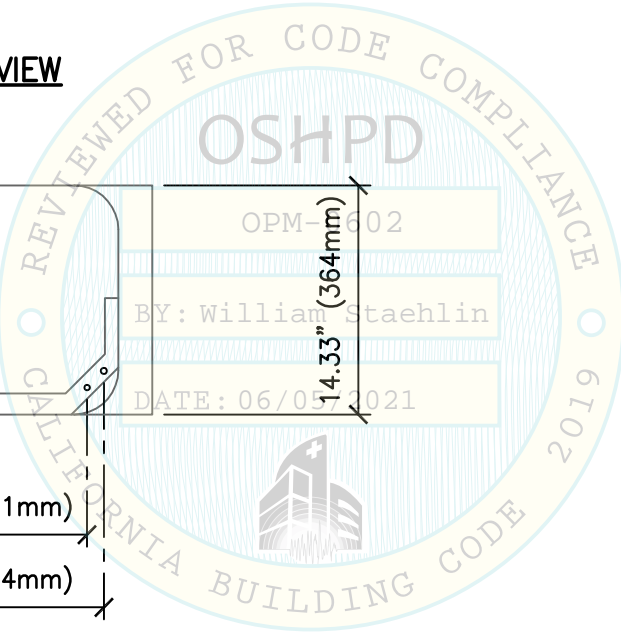


**ISOMETRIC VIEW**

**PLAN VIEW**



**FRONT ELEV**



**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY.
2. SEE PGS 20 & 25 FOR TYP CHASSIS & FRAME CONN INFO.

SHEET TITLE: BD Kiestra™ Track CORNER SUBMODULE  
 PLAN VIEW & ELEVATIONS



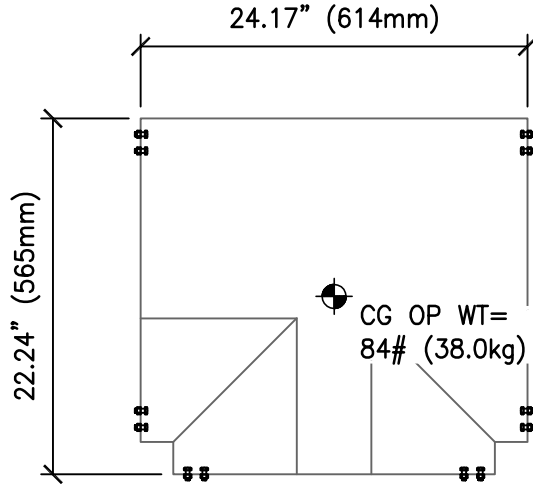
**CYS STRUCTURAL ENGINEERS, INC.**

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 SACRAMENTO, CA 95833

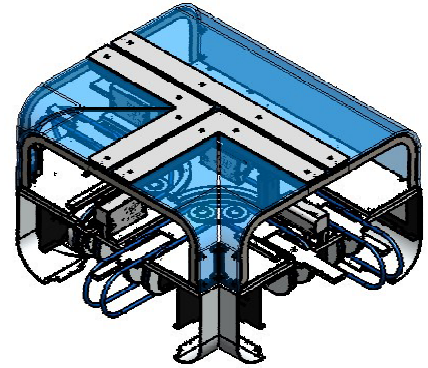
TEL (916) 920-2020  
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Job No:	17116
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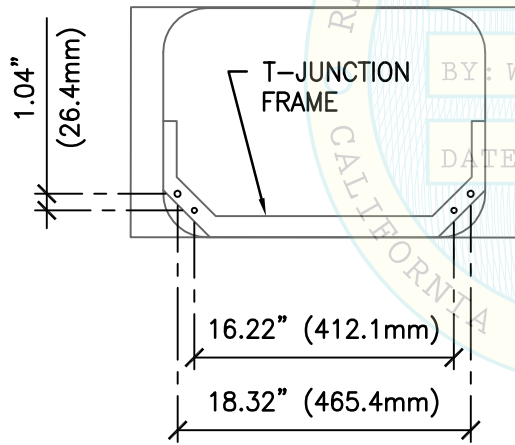
L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:carmachom Dimstyle:12 LTScale:6



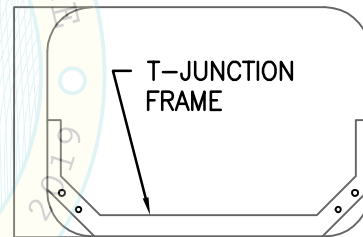
**PLAN VIEW**



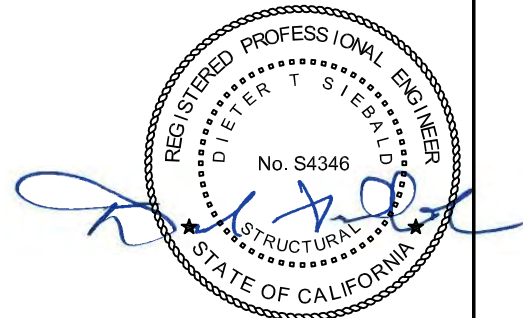
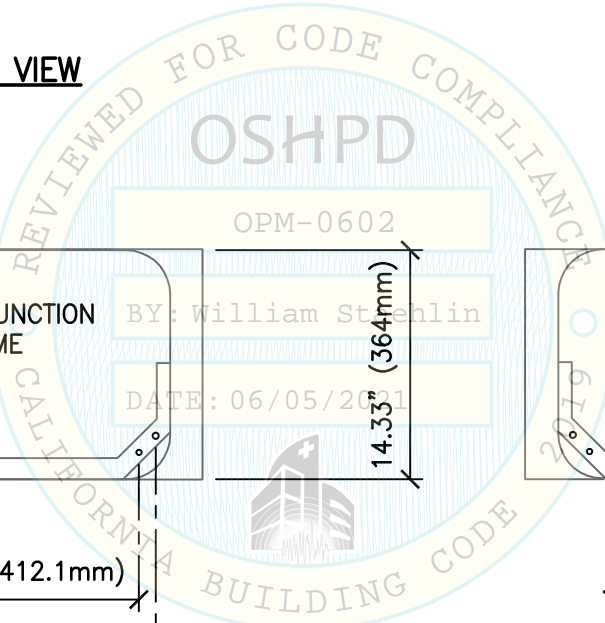
**ISOMETRIC VIEW**



**FRONT ELEV**



**SIDE ELEV**



**NOTES:**

1. CHASSIS NOT SHOWN IN ISOMETRIC VIEW FOR CLARITY.
2. SEE PGS 20 & 25 FOR TYP CHASSIS & FRAME CONN INFO.

SHEET TITLE: BD Kiestra™ Track T-JUNCTION SUBMODULE  
 PLAN VIEW & ELEVATIONS



**CYS STRUCTURAL ENGINEERS, INC.**

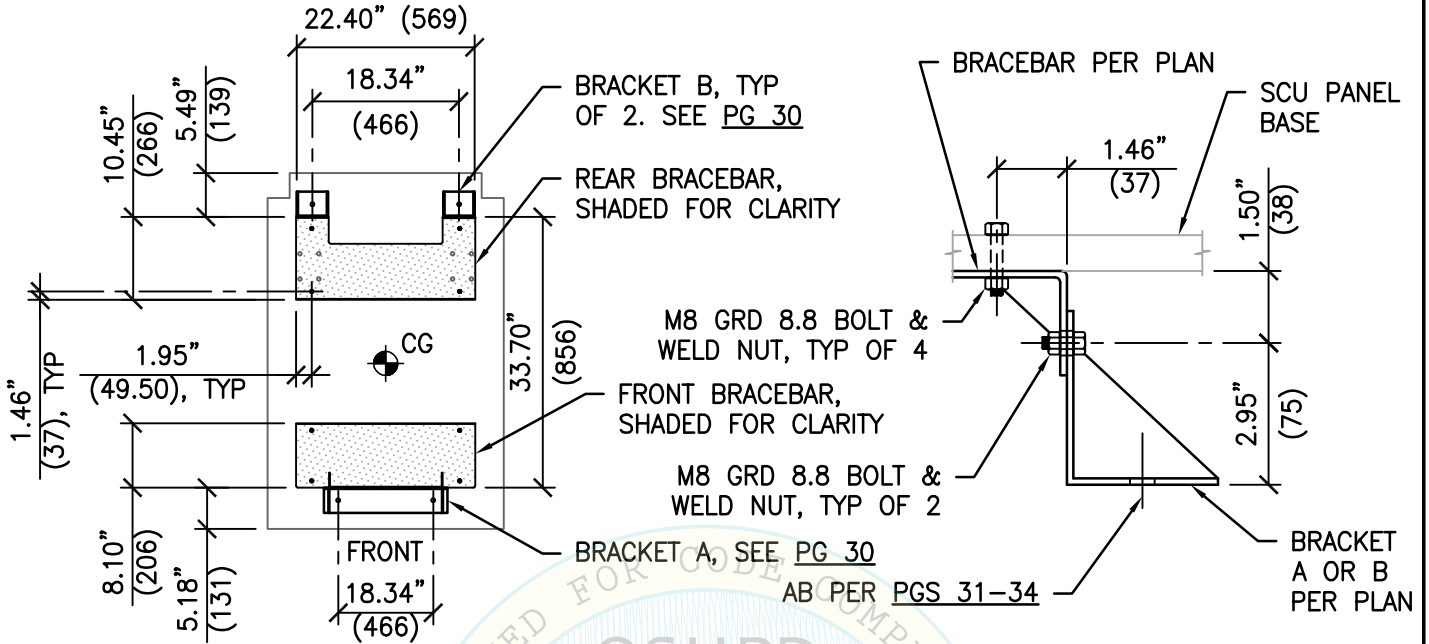
2495 NATOMAS PARK DRIVE, SUITE 650  
 SACRAMENTO, CA 95833

TEL (916) 920-2020  
 www.cyseng.com

Job No:	17116
Date:	03-17-2021
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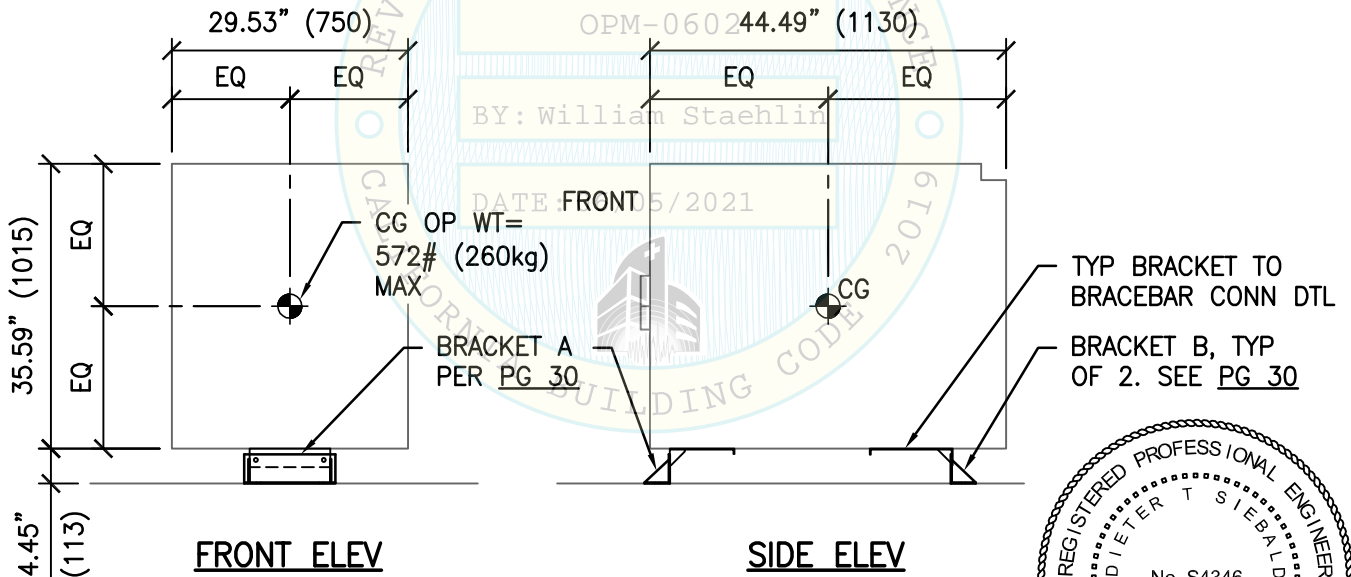
C:\Users\comachom\appdata\local\temp\AcPublish\_S1\_TMT.dwg Time:Mar17,2021-02:45pm Login:comachom Dimscale:12 LTScale:6





**PLAN VIEW**

**BRACKET TO BRACEBAR  
CONN DETAIL**



**FRONT ELEV**

**SIDE ELEV**

**NOTES:**

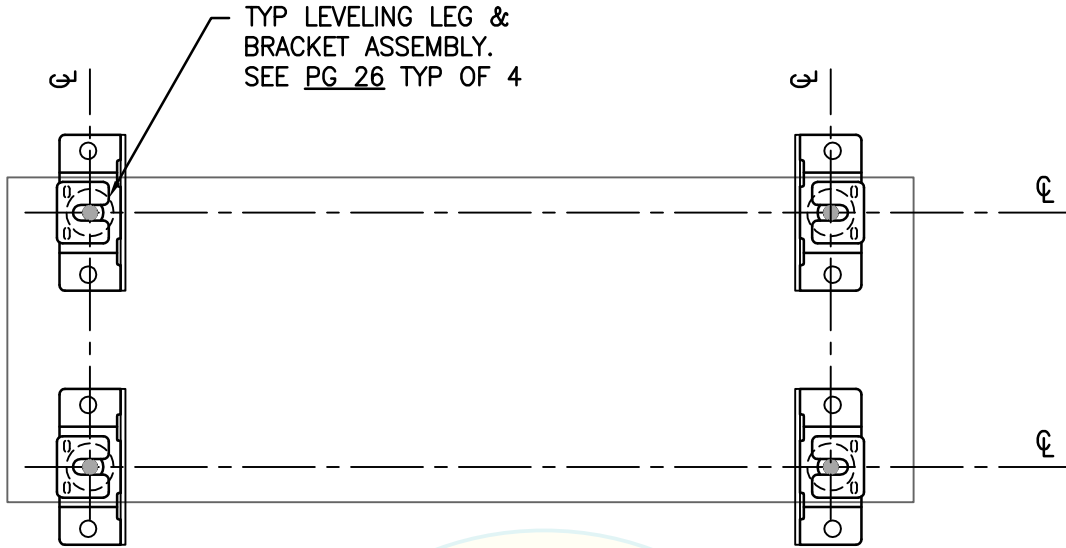
- BRACKETS A, B, & BRACEBARS ARE CONSTRUCTED FROM 3mm THK DIN EN 10130 GRADE DC01 (1.0330) STL. YIELD STRENGTH,  $F_y = 20.3\text{KSI} (140\text{mpa})$
- WELD NUTS ARE TACK WELDED TO BRACKETS ON 4- SIDES, TYP.



SHEET TITLE: BD Kiestra™ SCU CABINET  
PLAN VIEW & ELEVATIONS

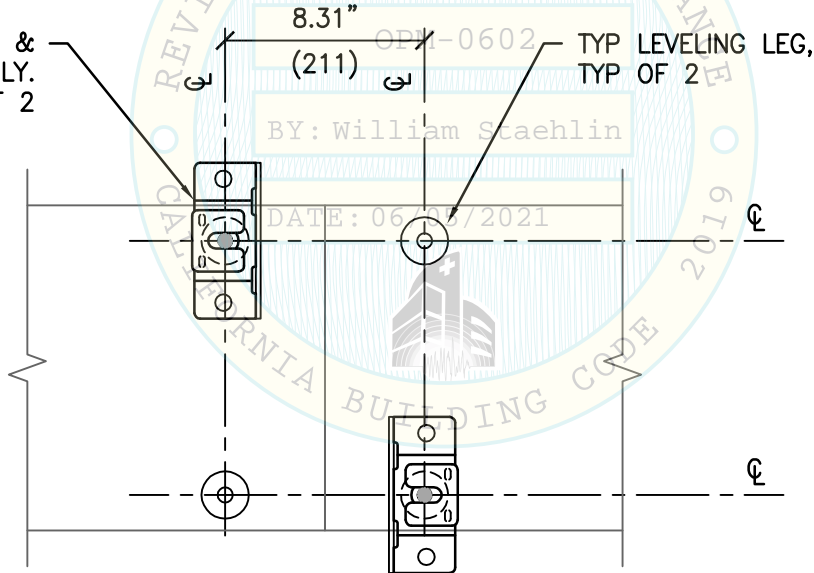
<p><b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833</p>	TEL (916) 920-2020 www.cyseng.com	Job No: 17116 Date: 06-03-2021 Page: 23 of 34
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L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:camachom Dimscaler:12 LTScale:6



**ISOLATED BASE CABINET ANCHORAGE**

TYP LEVELING LEG & BRACKET ASSEMBLY.  
 SEE PG 26, TYP OF 2



**ADJ BASE CABINET ANCHORAGE**



SHEET TITLE: BRACKET ATTACHMENT LOCATIONS



**CYS STRUCTURAL ENGINEERS, INC.**

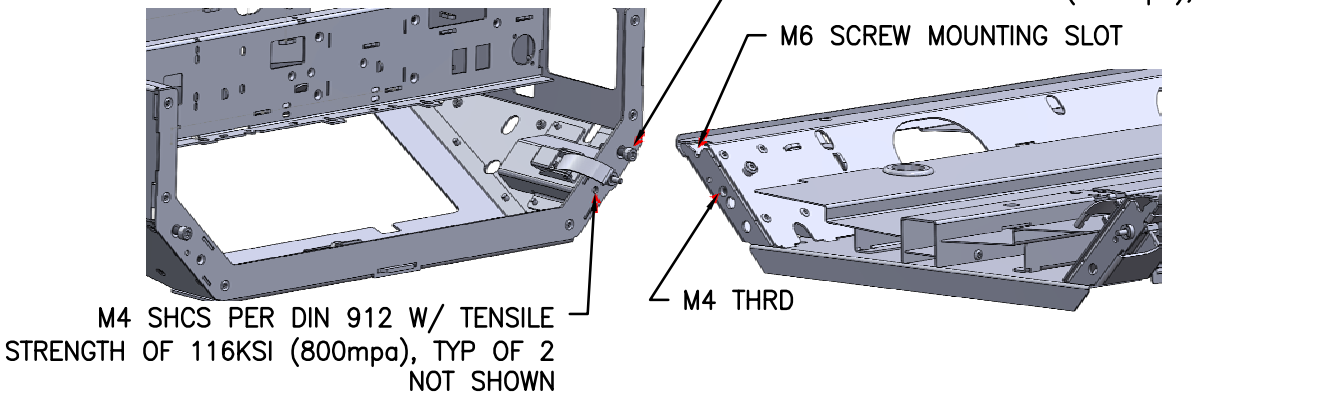
2495 NATOMAS PARK DRIVE, SUITE 650  
 SACRAMENTO, CA 95833

TEL (916) 920-2020  
 www.cyseng.com

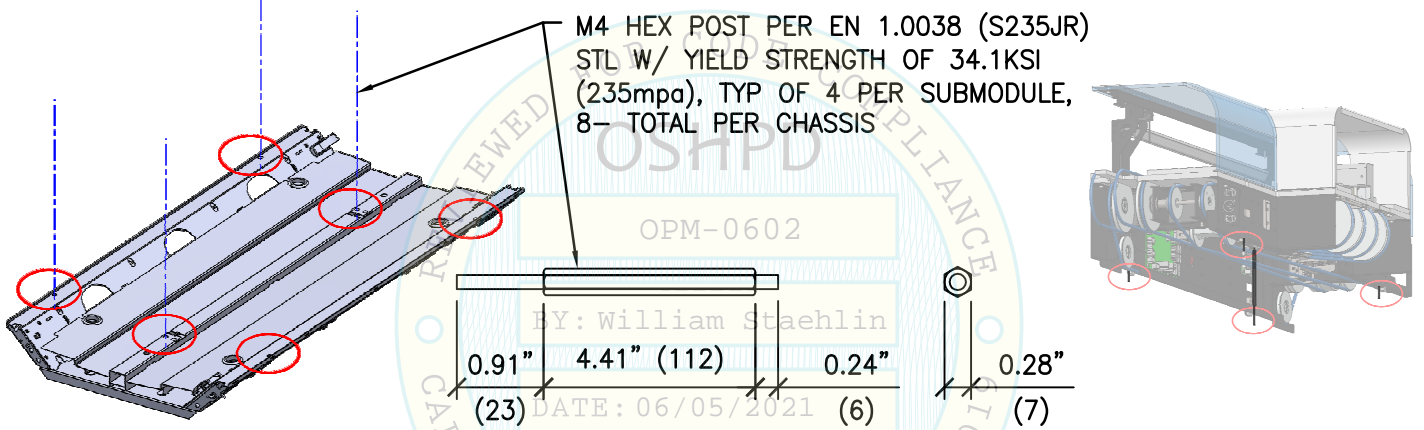
Job No:	17116
Date:	06-03-2021
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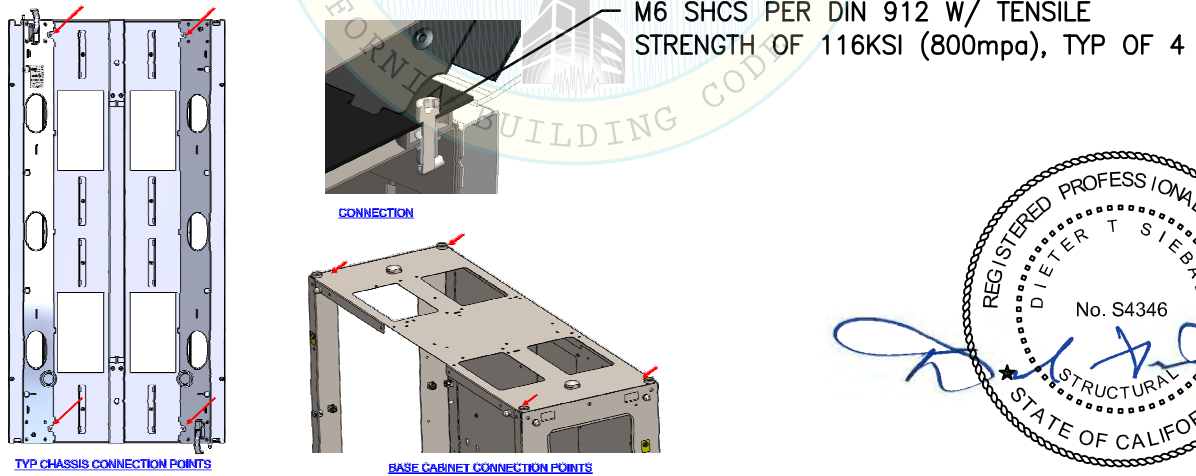
**U-TURN TO TYP CHASSIS CONNECTION**  
 (CORNER & T-JUNCTION CONNECTION SIMILAR)



**SUBMODULE TO TYP CHASSIS CONNECTION**



**TYP CHASSIS TO BASE CABINET CONNECTION**



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

SHEET TITLE: CHASSIS CONNECTIONS



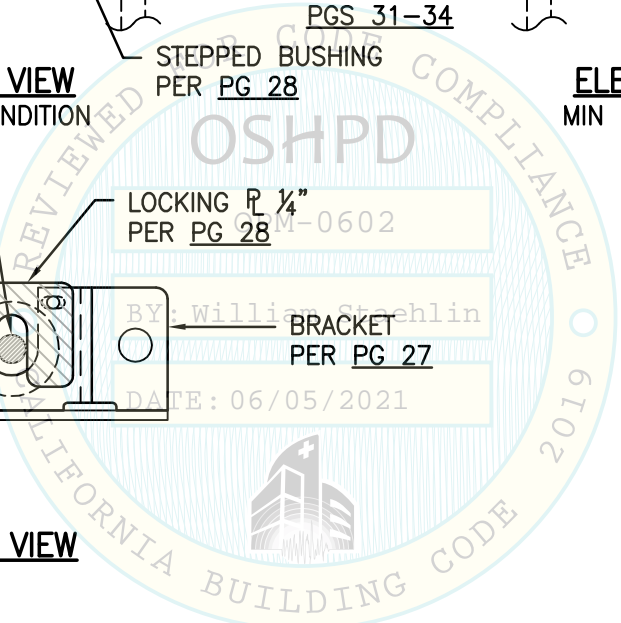
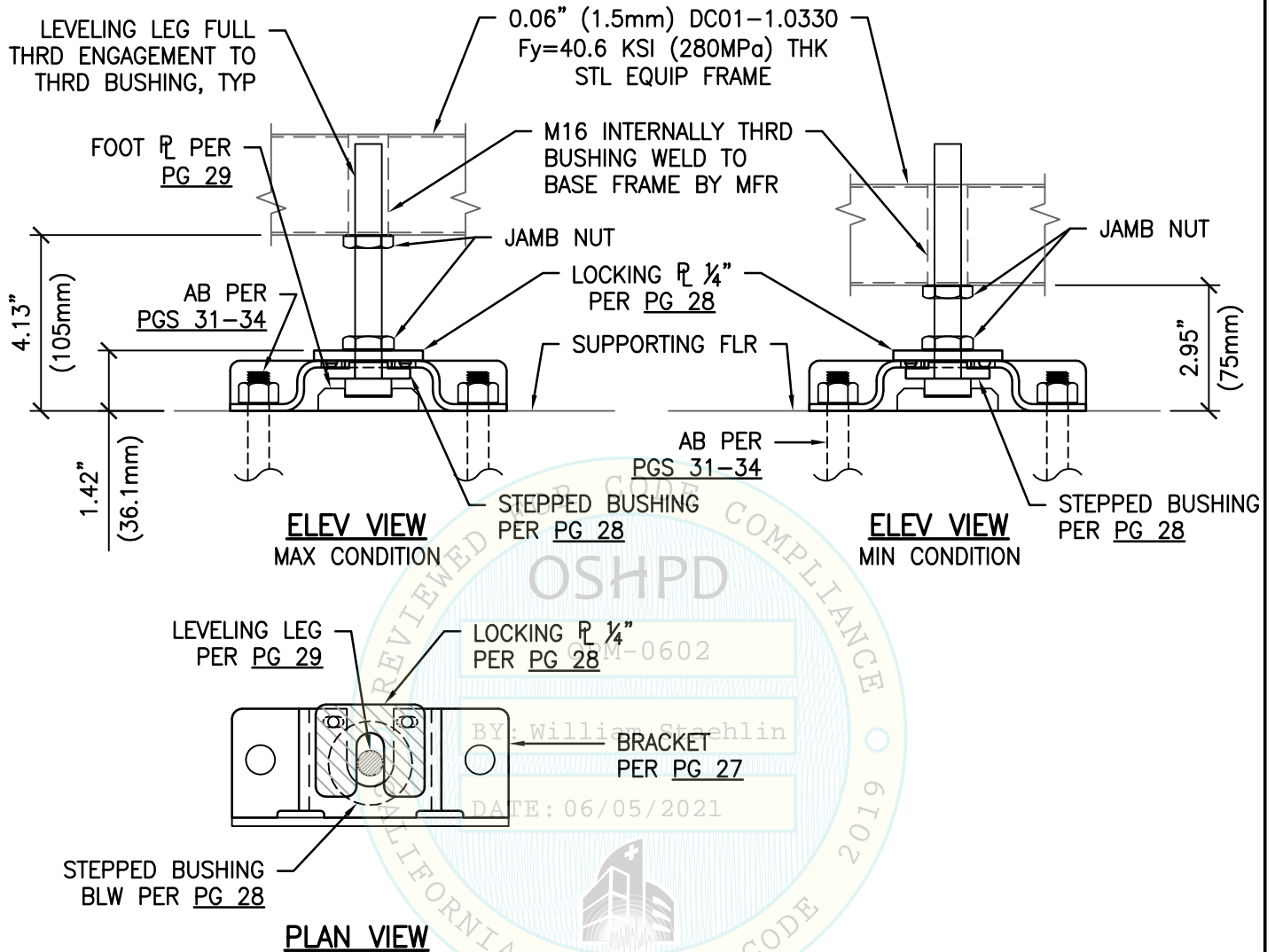
**CYS STRUCTURAL ENGINEERS, INC.**

2495 NATOMAS PARK DRIVE, SUITE 650  
 SACRAMENTO, CA 95833

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Job No: 17116  
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SHEET TITLE: BRACKET ASSEMBLY DETAIL



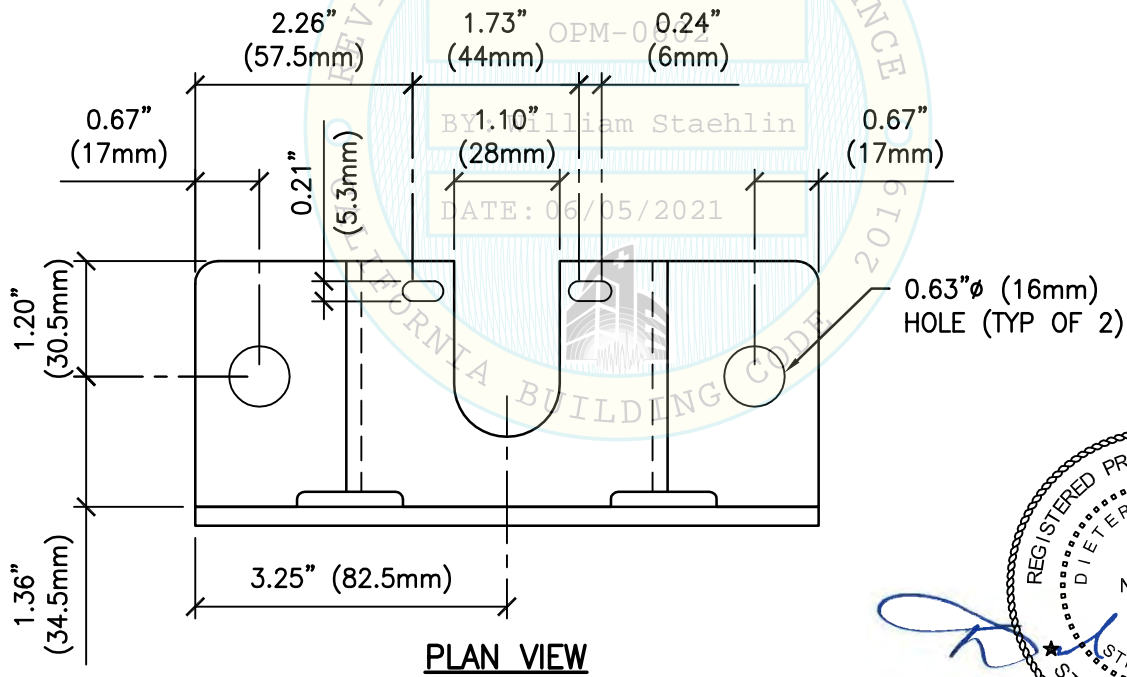
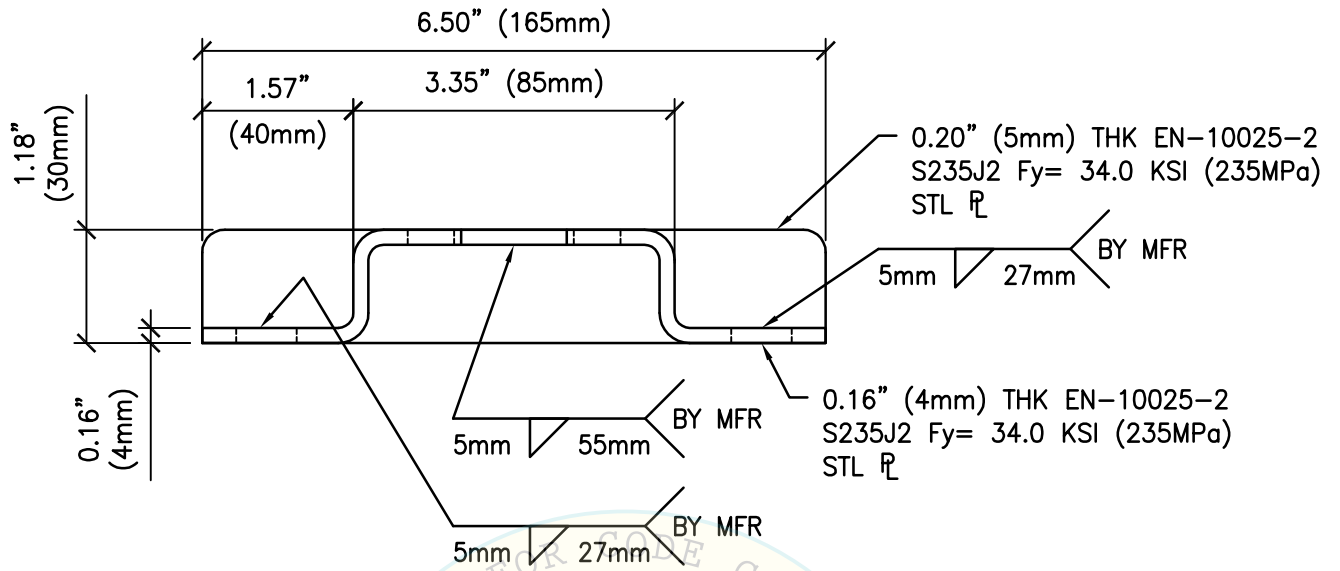
**CYS STRUCTURAL ENGINEERS, INC.**

2495 NATOMAS PARK DRIVE, SUITE 650  
SACRAMENTO, CA 95833

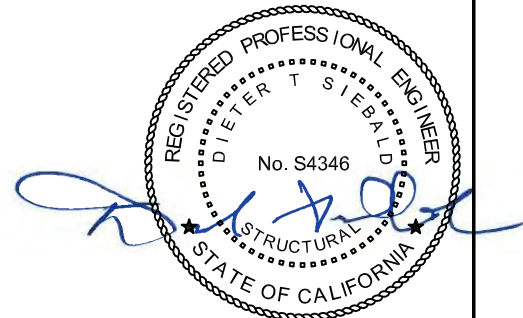
TEL (916) 920-2020  
www.cyseng.com

Job No:	17116
Date:	06-03-2021
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L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:camachom Dimscaler:12 LTScaler:6



REVIEWED FOR CODE COMPLIANCE  
OSHDP  
OPM-0602  
BY William Staehlin  
DATE: 06/05/2021



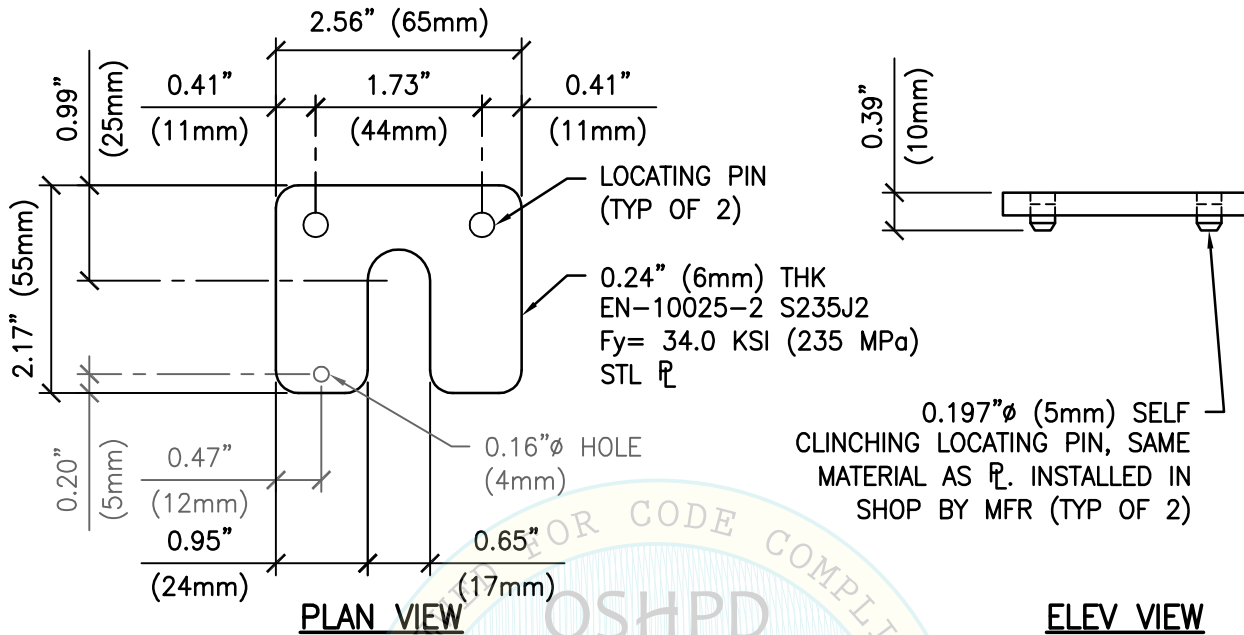
SHEET TITLE: BRACKET DETAIL

<p><b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833</p>	TEL (916) 920-2020 www.cyseng.com	Job No: 17116 Date: 06-03-2021 Page: 27 of 34
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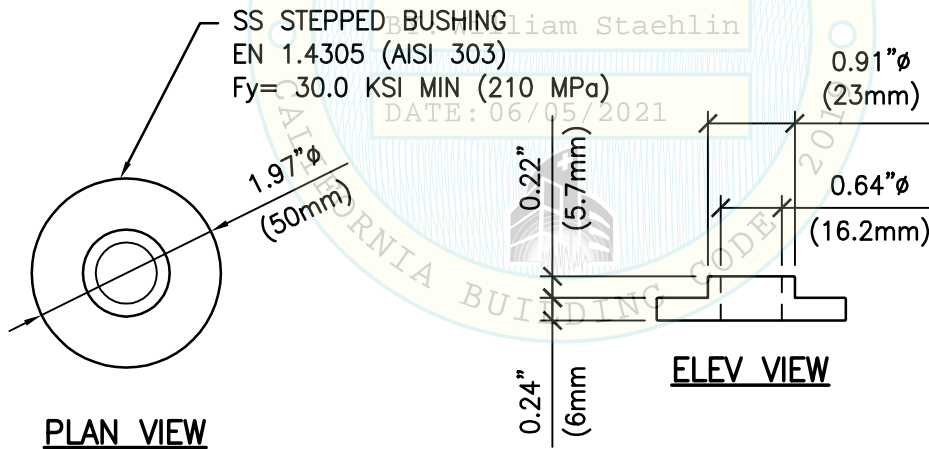
L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:carnachom DimScale:12 LTScale:6



**LOCKING PLATE DETAIL**



**STEPPED BUSHING DETAIL**



SHEET TITLE: LOCKING PLATE DETAIL & STEPPED BUSHING DETAIL



**CYS STRUCTURAL ENGINEERS, INC.**

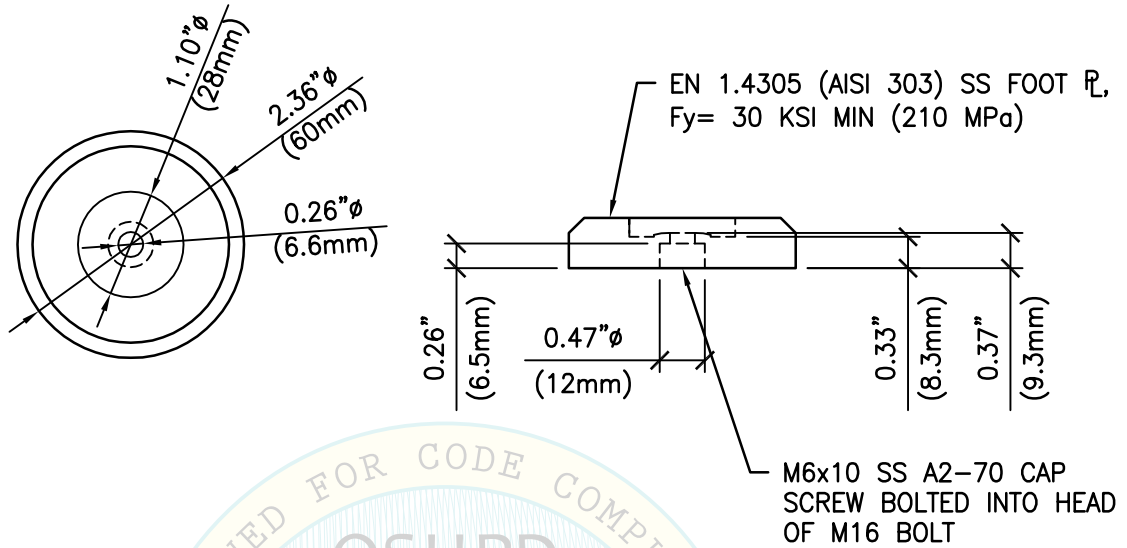
2495 NATOMAS PARK DRIVE, SUITE 650  
SACRAMENTO, CA 95833

TEL (916) 920-2020  
www.cyseng.com

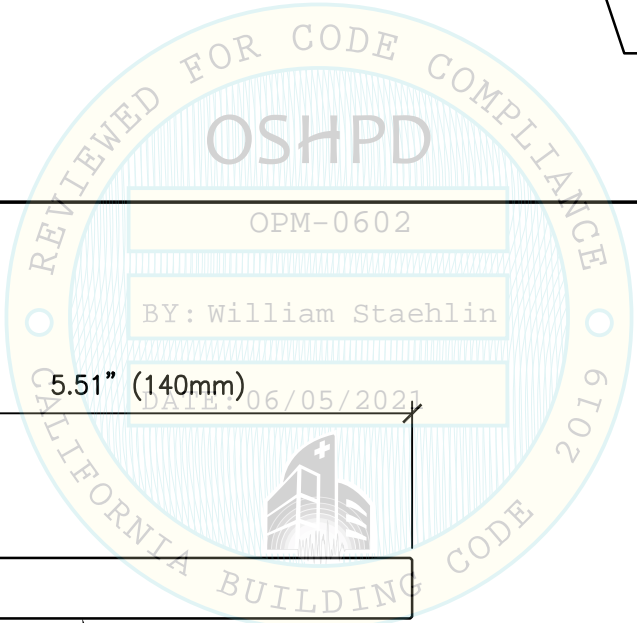
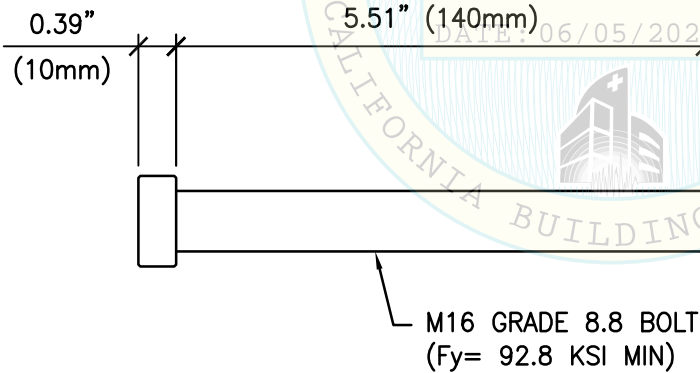
Job No:	17116
Date:	06-03-2021
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L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:camachom Dimstyle:12 LTScale:6

**FOOT PLATE DETAIL**



**THREADED BOLT DETAIL**



SHEET TITLE: LEVELING LEG DETAILS



**CYS STRUCTURAL ENGINEERS, INC.**

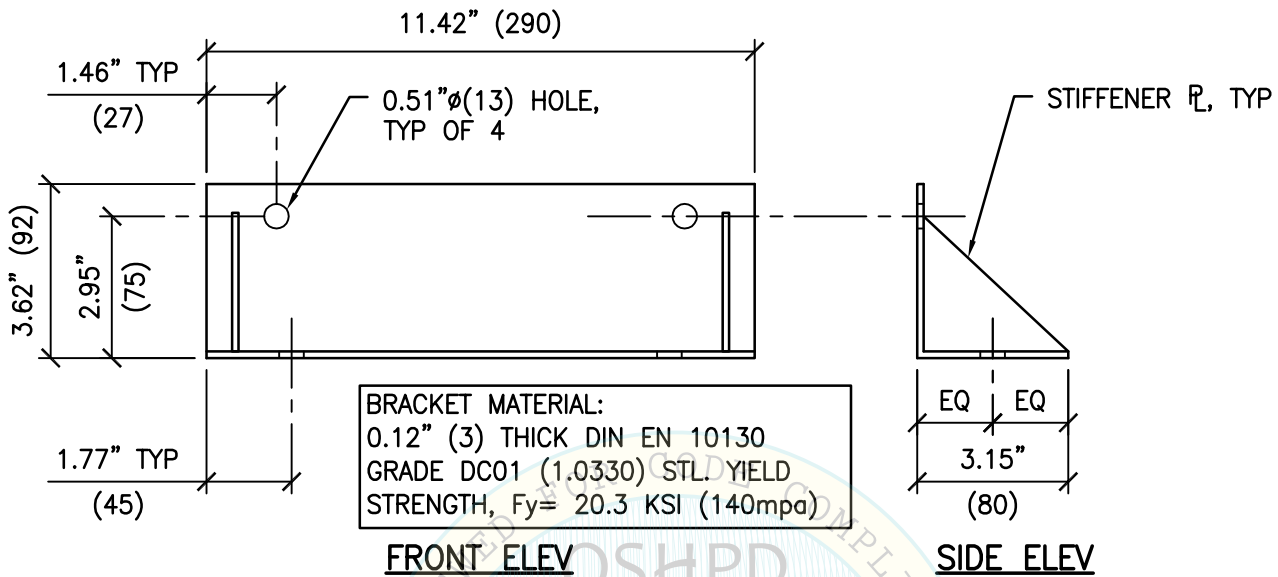
2495 NATOMAS PARK DRIVE, SUITE 650  
 SACRAMENTO, CA 95833

TEL (916) 920-2020  
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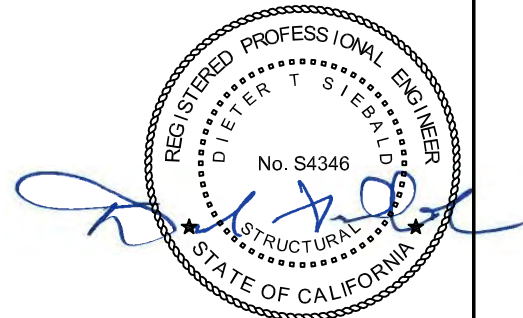
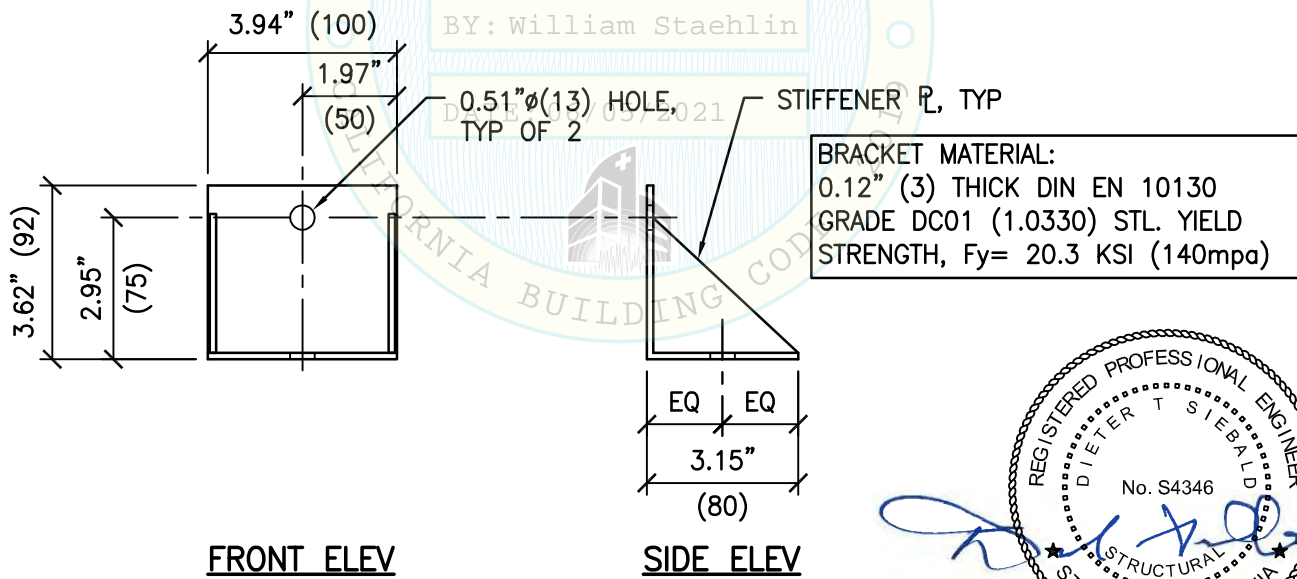
Job No:	17116
Date:	06-03-2021
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**SCU BRACKET A DETAIL**



**SCU BRACKET B DETAIL**



SHEET TITLE: SCU BRACKET DETAILS



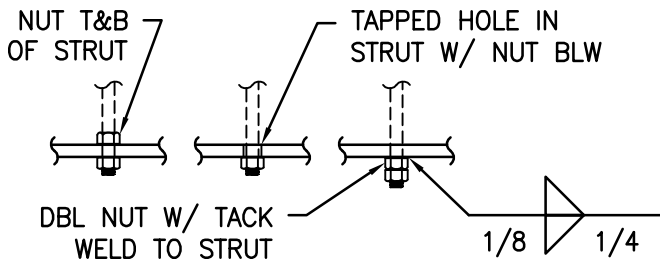
**CYS STRUCTURAL ENGINEERS, INC.**

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TEL (916) 920-2020  
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L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time:Jun03,2021-10:43am Login:camachom DimScale:12 LTScale:6

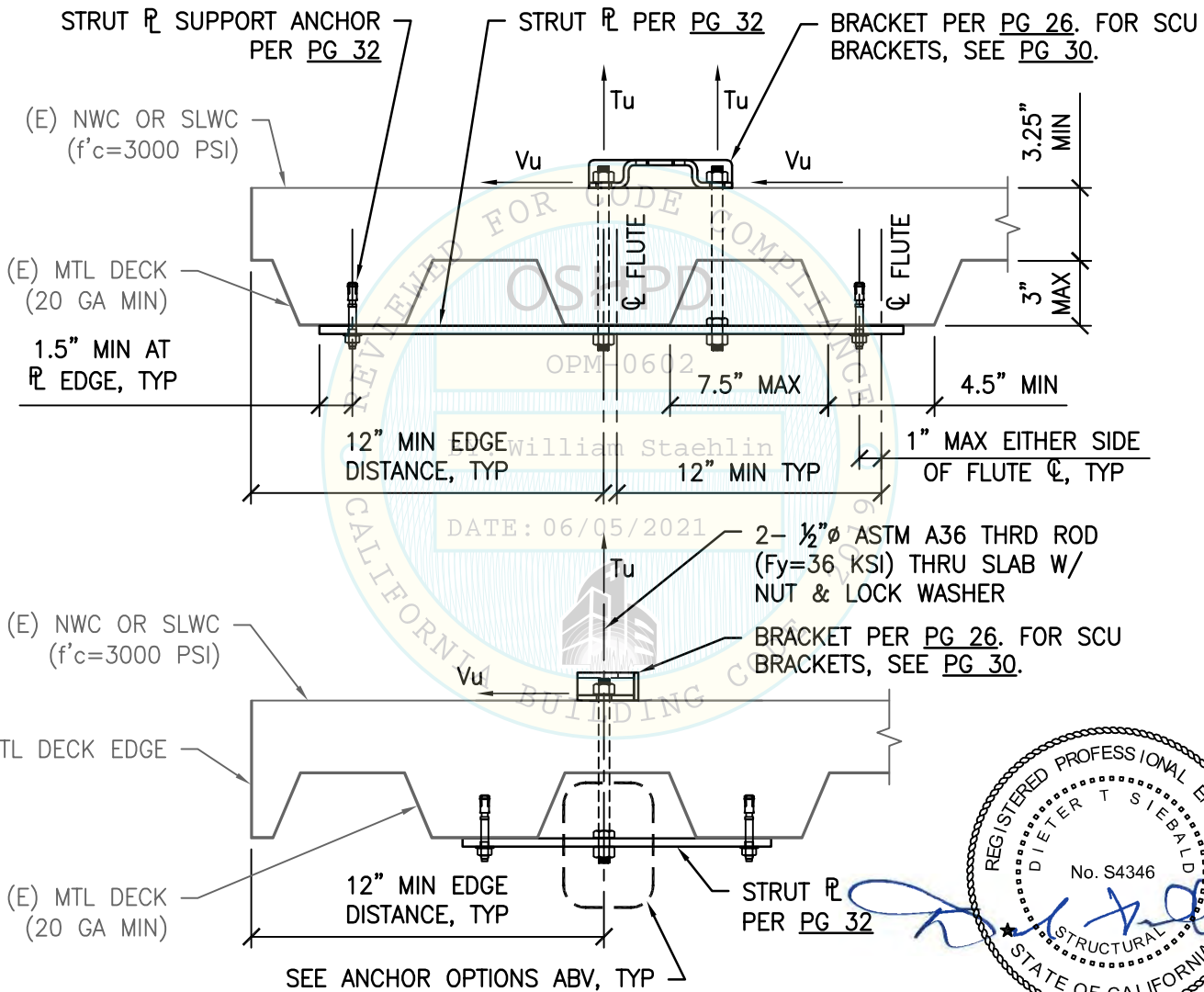


**ANCHOR OPTIONS**

MAX ANCHOR FORCES AT LRFD AT EA AB (LBS)

		Tu	Vu
CASE 1 z/h ≤ 0.75	Track CABINET	1250#	347#
	SCU	3190#	465#

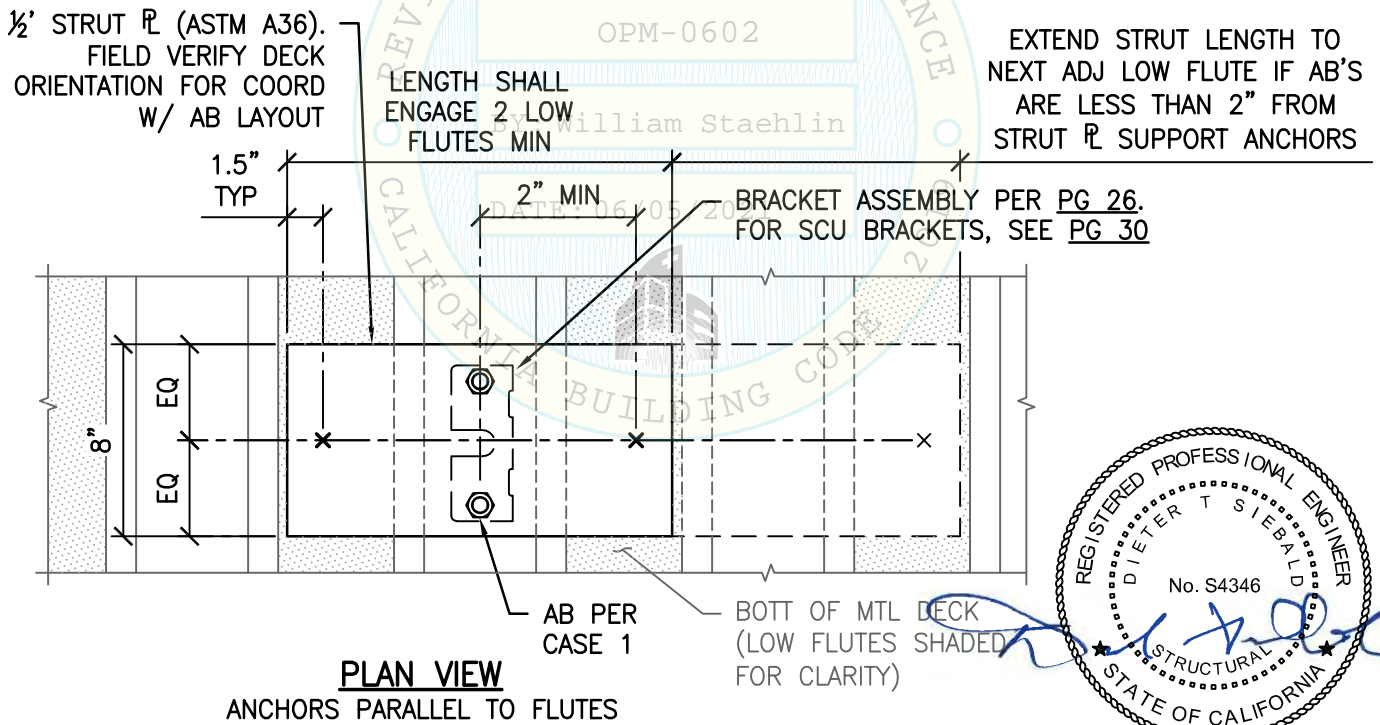
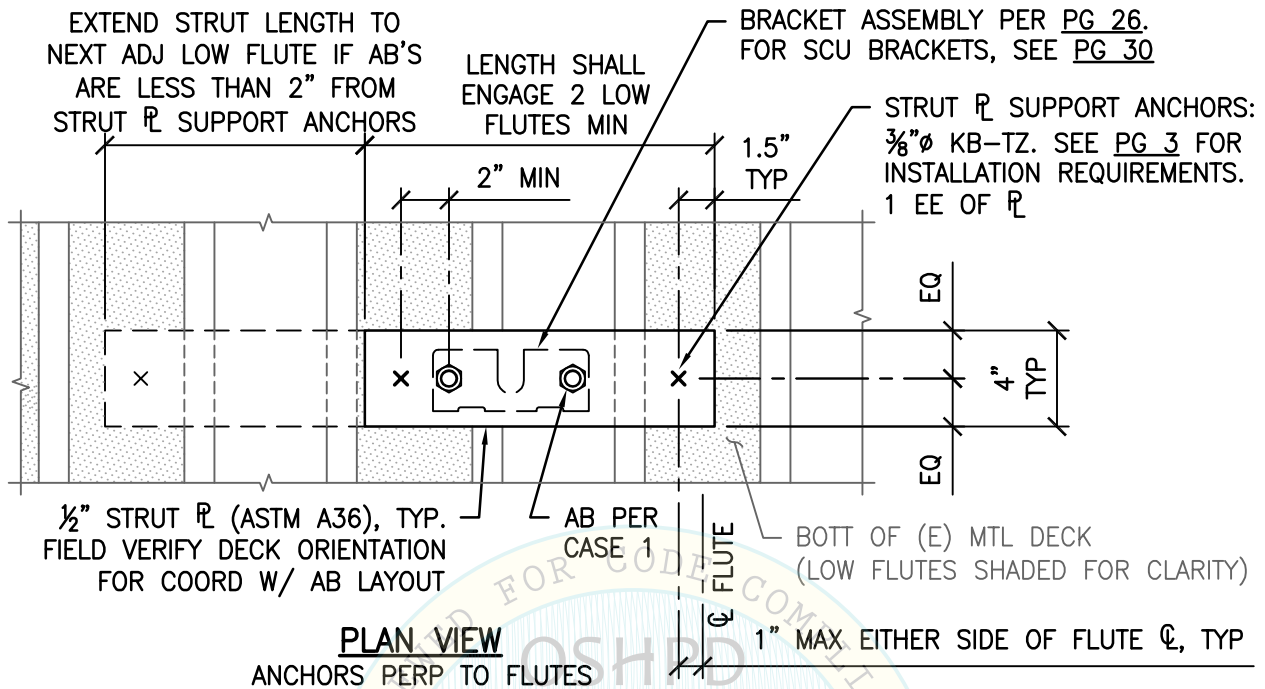
(Ω<sub>o</sub> = 1.5) OVERSTRENGTH FACTOR IS APPLIED TO SHEAR FORCE ONLY



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

<p><b>CYS STRUCTURAL ENGINEERS, INC.</b> 2495 NATOMAS PARK DRIVE, SUITE 650 SACRAMENTO, CA 95833</p>	TEL (916) 920-2020 www.cyseng.com	Job No: 17116 Date: 06-03-2021 Page: 31 of 34
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L:\Jobs\17\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time: Jun 03, 2021 - 10:43am Login: camachom DimScale: 12 LTScale: 6



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



**CYS STRUCTURAL ENGINEERS, INC.**

2495 NATOMAS PARK DRIVE, SUITE 650  
 SACRAMENTO, CA 95833

TEL (916) 920-2020  
 www.cyseng.com

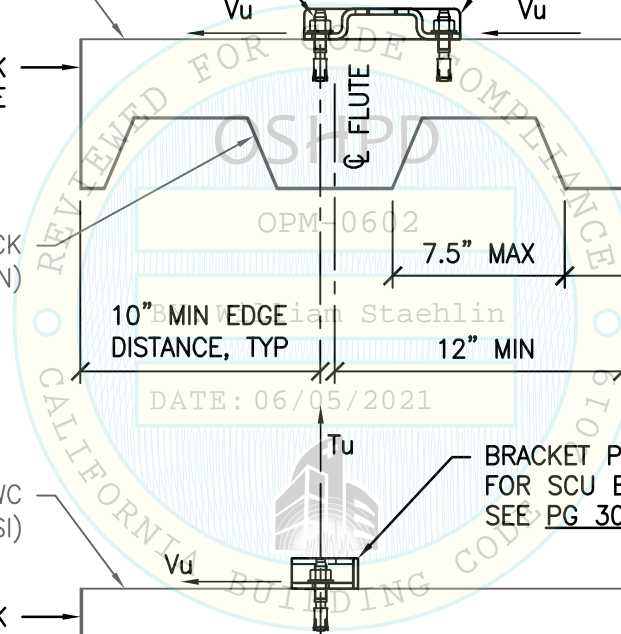
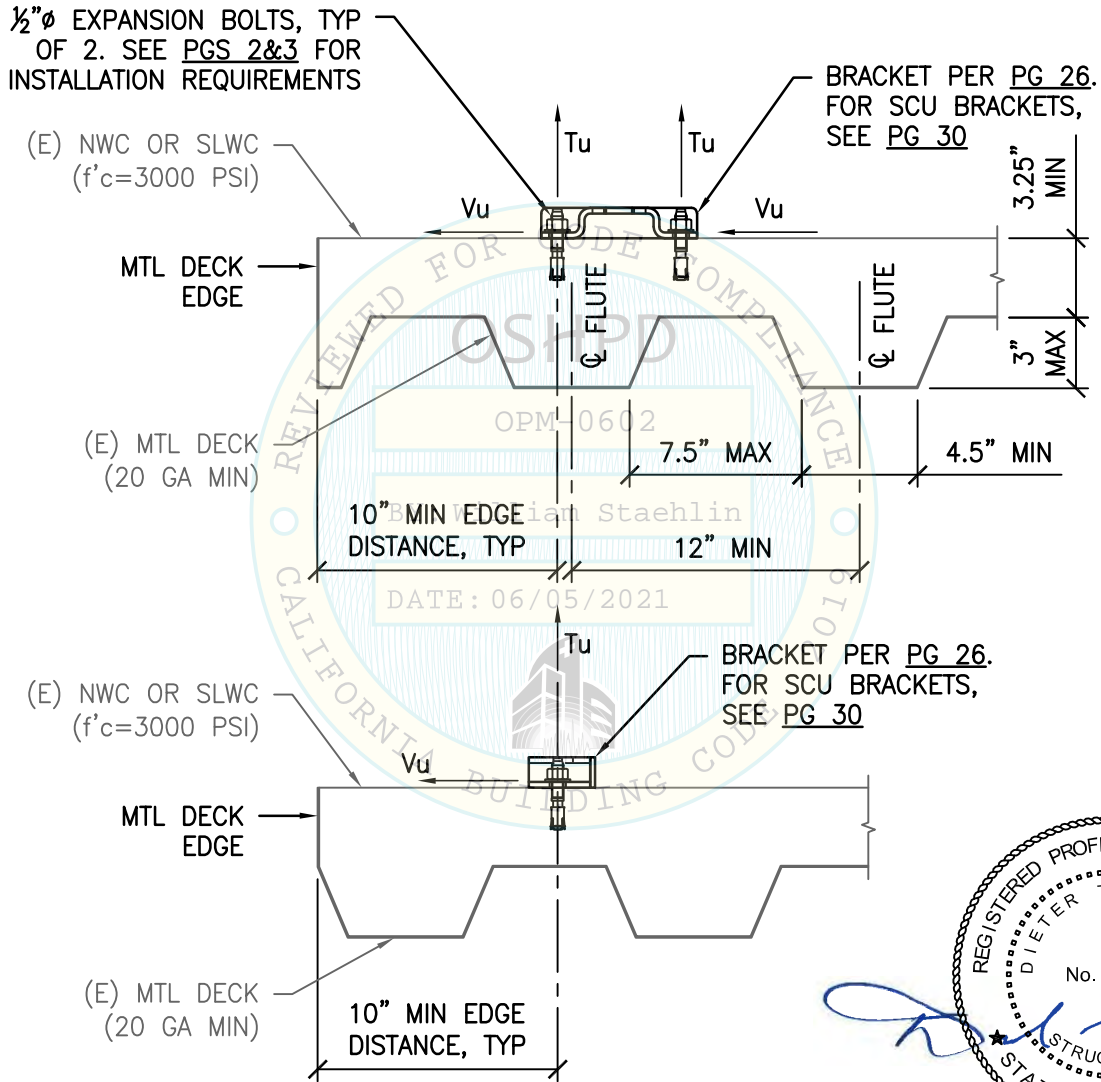
Job No:	17116
Date:	06-03-2021
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		MAX ANCHOR FORCES AT LRFD AT EA AB (LBS)	
		Tu	Vu
CASE 2 z/h ≤ 0.75	Track CABINET	639#	125#
	SCU	1572#	251#

INCLUDES OVERSTRENGTH FACTOR ( $\Omega_0=1.5$ )



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

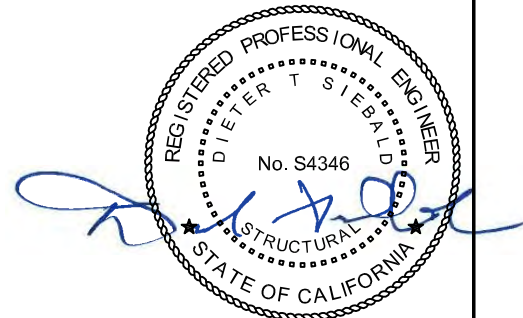
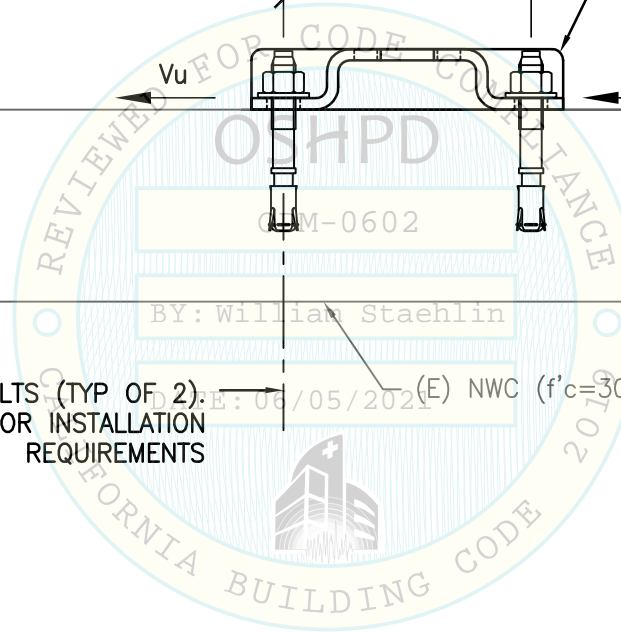
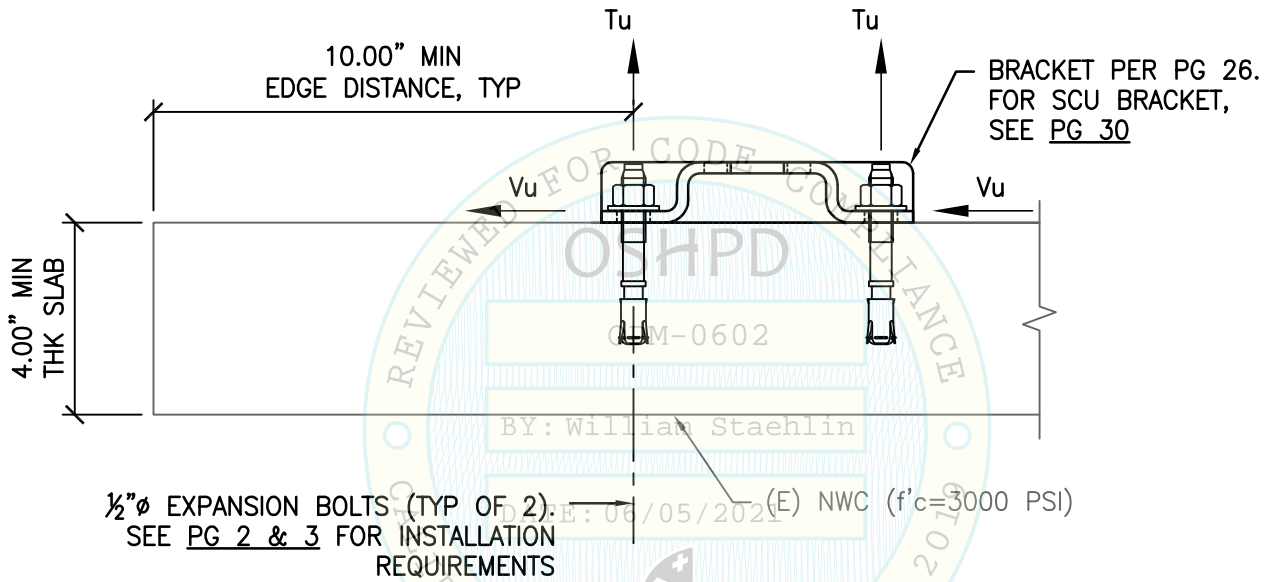
<p> <b>CYS STRUCTURAL ENGINEERS, INC.</b>                  2495 NATOMAS PARK DRIVE, SUITE 650                  SACRAMENTO, CA 95833             </p>	Job No: 17116
	Date: 06-03-2021
	Page: 33 of 34

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		MAX ANCHOR FORCES AT LRFD AT EA AB (LBS)	
		Tu	Vu
CASE 3 z/h ≤ 0	Track CABINET	834#	157#
	SCU	2114#	314#

INCLUDES OVERSTRENGTH FACTOR ( $\Omega_0=1.5$ )



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

<p><b>CYS STRUCTURAL ENGINEERS, INC.</b>                  2495 NATOMAS PARK DRIVE, SUITE 650                  SACRAMENTO, CA 95833</p>	TEL (916) 920-2020 www.cyseng.com	Job No: 17116 Date: 06-03-2021 Page: 34 of 34
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L:\Jobs\17116 BD Kiestra - TMT\STRU\S1\_TMT.dwg Time: Jun 03, 2021 - 10:43am Login: camachom DimScale: 12 LTScale: 6