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

OFFICE USE ONLY

APPLICATION #: OPM-0515

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [ ] Renewal/Update

Manufacturer Information

Manufacturer: Beckman Coulter

Manufacturer's Technical Representative: Nico Wedekind

Mailing Address: Sauerbruchstraße 50, München, Ba 81377

Telephone: +49 89 579589 3551 Email: NWedekind@beckman.com

Product Information

Product Name: DxA Automation System

Product Type: Other Mechanical or Electrical Component

Product Model Number: (5 Instuments: Models B87341, B50845, B50844, B50846, B50848) (27 Transports: B37440, B37443, B37963, B38005, B42934, B42938, B50516 B51679, B57018, B57634, B68911, B71587, B71589, B71597, B71598, B71599 B71600, B71601, B71602, B74207, B74208, B74209, B77037, B79209, B57633 B57631, B57632)

General Description: Automated blood analysis system

Applicant Information

Applicant Company Name: EASE LLC.

Contact Person: Tiffany Tonn

Mailing Address: 1515 FAIRVIEW AVE, STE 205, MISSOULA, MT 59801

Telephone: (406) 541-3273 Email: tiffany@easeco.com

Title:

Registered Design Professonal Preparing Engineering Recommendations

Company Name: EASE

Name: Jonathan Roberson California License Number: S4197

Mailing Address: 5877 Pine Ave., Suite 210, , Chino Hills, CA 91709

Telephone: () - Email: jon@EASECo.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: 3/25/2020

Name: Haeseong Lim Title: Senior Structural Engineer

Condition of Approval (if applicable):

EASE
EQUIPMENT ANCHORAGE & SEISMIC ENGINEERING

5877 Pine Ave, Ste. 210
Chino Hills, CA. 91709
Phn: (909) 606-7622

Office of Statewide Health Planning and Development

PREAPPROVAL OF MANUFACTURER'S CERTIFICATION

OPM-0515-19

THIS PREAPPROVAL CONFORMS TO THE 2019 CALIFORNIA BUILDING CODE

MANUFACTURER: **BECKMAN COULTER**

EQUIPMENT NAME: **DxA SYSTEM**

Date: 3/23/20

GENERAL NOTES

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2019 CBC. THE DEMANDS (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2019 CBC
2. THIS DOCUMENT MAY ONLY BE USED WITH THE EXPRESS WRITTEN CONSENT OF THE MANUFACTURER LISTED ABOVE FOR THE SPECIFIC PROJECT SITE AND INSTALLATION LOCATION. THIS DOCUMENT IS INVALID WITHOUT SUCH CONSENT.
3. THIS PREAPPROVAL CONFORMS TO THE 2019 CALIFORNIA BUILDING CODE WHERE S_{DS} IS NOT GREATER THAN 2.20. SEE DETAIL FOR APPLICABILITY
4. FORCES PER ASCE 7-16 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2 & 13.3-3,
   WHERE S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5,, z/h = 0 AT CONCRETE SLAB, z/h $\leq$ 1 AT CONCRETE SLAB ON METAL DECK.
   SEE FOLLOWING SHEETS FOR Ω_0
5. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
6. ALL DESIGN FORCES SHOWN ON THE DRAWINGS ARE FACTORED LOADS THAT SHALL BE USED FOR STRENGTH DESIGN.
7. CONCRETE SLAB ON METAL DECK DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION IN THE BUILDING. (i.e. z/h $\leq$ 1)
8. CONCRETE SLAB DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION AT OR BELOW GRADE. (i.e. z/h = 0)
9. **RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD OF THE BUILDING**

   A. PROVIDE SUPPORTING STRUCTURE TO SUPPORT WEIGHTS AND FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.

   B. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2019 CBC AND WITH THE DETAILS, MATERIAL AND GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN ON THE PREAPPROVAL DOCUMENTS.

   C. VERIFY THAT PROJECT SPECIFIC VALUES OF S_{DS} & z/h RESULT IN SEISMIC FORCES (E_h, E_v) THAT DO NOT EXCEED THE VALUES ON THE DETAILS.

   D. VERIFY THAT THE CONCRETE SLAB TO WHICH THE EQUIPMENT IS ANCHORED MEETS THE REQUIREMENTS OF THE APPLICABLE ICC ESR REPORT AND THIS OPM.

   E. VERIFY THAT THE ANCHORS ARE AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPENINGS (SEE TYPICAL DETAIL ON SHEET 2).

   F. VERIFY THAT ALL NEW OR EXISTING ANCHORS ARE AN ADEQUATE DISTANCE FROM THE UNIT ATTACHMENTS AND CHECK FOR INTERACTION WHERE OTHER ANCHORS ARE WITHIN 18" OR 6hef FROM THIS UNIT'S ANCHORS.

REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2020
3/23/20
STRUCTURAL
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BECKMAN COULTER

DxA SYSTEM

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 2 OF 24 SHEETS

10. **EXPANSION ANCHORS:**

A. ATTACHMENT IS TO BE MADE WITH THE ANCHORS LISTED BELOW AND INSTALLED AS DESCRIBED IN THE CORRESPONDING ICC REPORT.

Anchor Diameter	Concrete Type	Min. f'c (psi)	Anchor Type	ICC Report No.	Min. Embed.	Min. Spacing	Min. Edge Dist.	Min. Conc. Thickness	Torque Test	Direct Tension Test
3/8"	Sand Light Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	2"	6.75"	12"	See Detail "A"	25 FT-LB	N/A
1/2"	Sand Light Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	3.25"	9.75"	24"	See Detail "A"	40 FT-LB	N/A
5/8"	Normal Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	3.125"	6"	24"	5"	60 FT-LB	2570 lb
5/8"	Normal Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	3.125"	8"	24"	5"	60 FT-LB	2905 lb

B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE SLAB EDGES, 12 OR 24" AWAY MINIMUM (i.e. - CORNER). SEE ADJACENT DETAIL FOR ADDITIONAL MINIMUM ALLOWABLE CONCRETE EDGE DISTANCES.

C. 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.

(i) AFTER AT LEAST 24 HOURS HAVE ELAPSED SINCE INSTALLATION, DIRECT PULL TENSION TEST OR TORQUE TEST AT LEAST 50% OF THE ANCHORS.

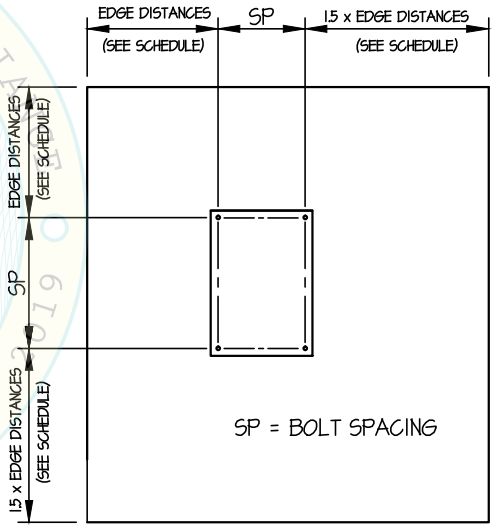
(ii) ACCEPTANCE CRITERIA:

- DIRECT TENSION TEST: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE TEST LOAD. A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER BECOMES LOOSE.
- TORQUE TEST: THE APPLICABLE TORQUE MUST BE ACHIEVED WITHIN THE FOLLOWING LIMITS: WEDGE TYPE : 1/2 TURN OF THE NUT

(iii) IF ANY ANCHOR FAILS, TEST ALL ANCHORS.

D. AVOID DAMAGING EXISTING STEEL REINFORCING IN CONCRETE SLAB WHEN INSTALLING CONCRETE EXPANSION ANCHORS.

E. PROVIDE FOR FULL THREAD ENGAGEMENT OF NUT & WASHER.



TYPICAL CONCRETE EDGE DETAIL

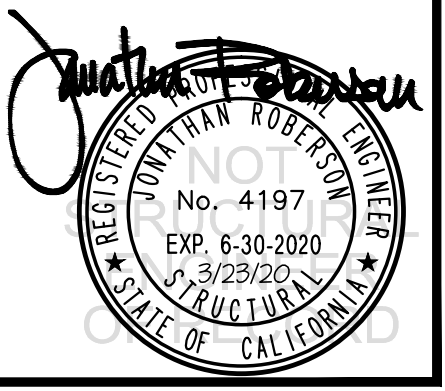
11. BOLTS THROUGH CONCRETE ON METAL DECK

A. BOLTS SHALL BE TORQUED BY 3/4 TURN OF THE NUTS AFTER THE SNUG TIGHT (THE SNUG-TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT) CONDITION IS ACHIEVED, UNLESS OTHERWISE NOTED.

B. THROUGH BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT SIZE

C. (HOLE SIZE = BOLT SIZE + 1/16) FOR CONCRETE.

D. THROUGH-BOLTS IN CONCRETE SHALL RECEIVE SPECIAL INSPECTION AND TESTING (THROUGH BOLTS WITH STEEL TO STEEL CONNECTION IN TENSION DO NOT REQUIRE TENSION TESTING) IN ACCORDANCE WITH REQUIREMENTS FOR POST-INSTALLED ANCHORS.



BECKMAN COULTER

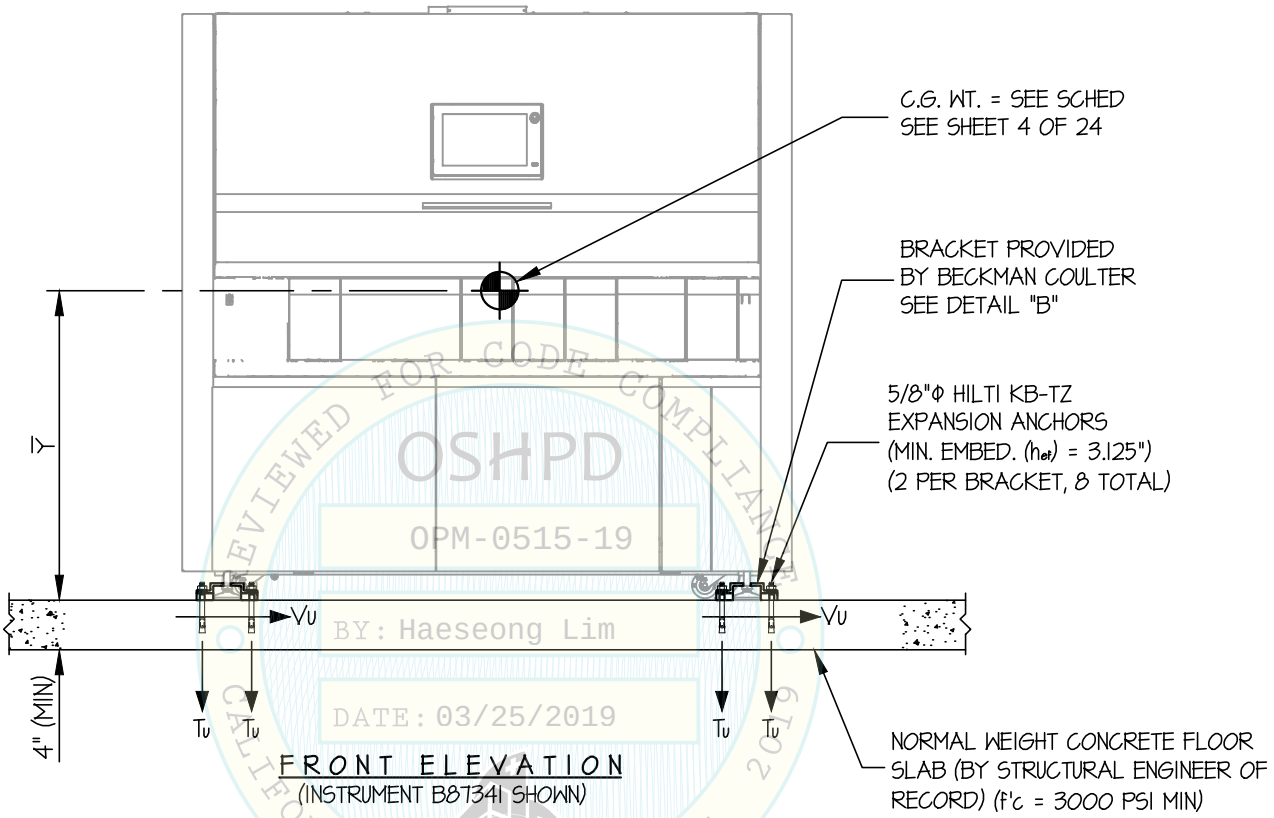
DxA SYSTEM INSTRUMENTS

DES.	J. ROBERSON
JOB NO.	11-1823
DATE	3/23/20

SHEET 3 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB



FRONT ELEVATION
(INSTRUMENT B&T341 SHOWN)

NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.99 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.49 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

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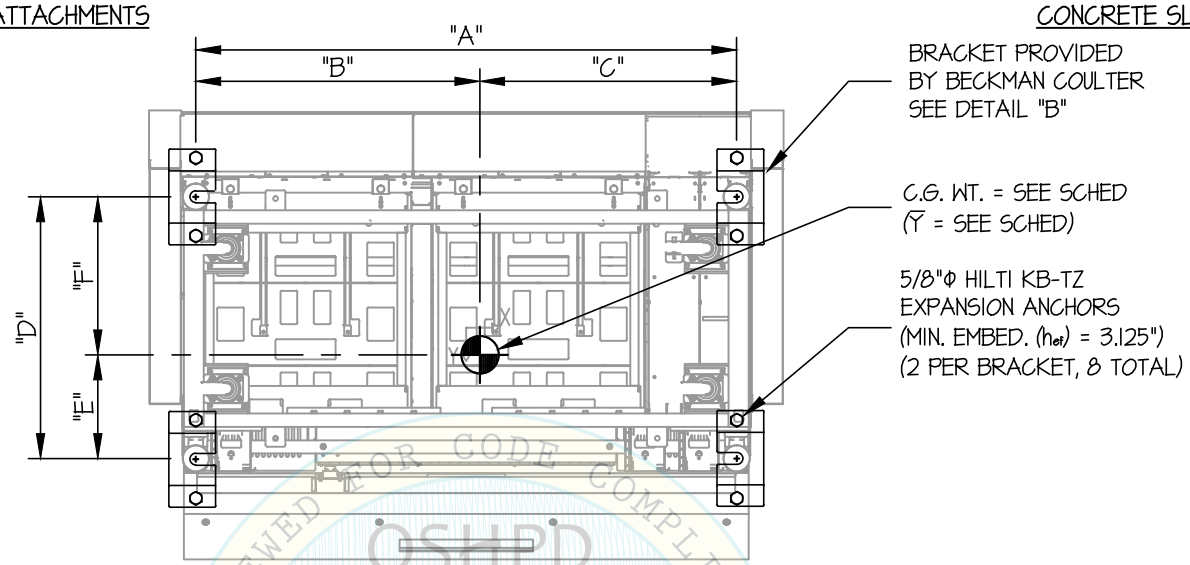
DxA SYSTEM INSTRUMENTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 4 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

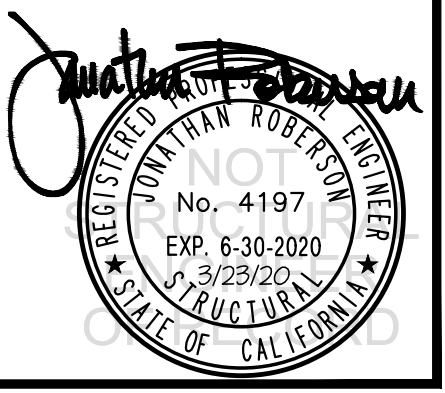
CONCRETE SLAB



FRONT ELEVATION
(INSTRUMENT B87341 SHOWN)

MODEL #	WEIGHT (lb.)	"Ȳ" (in.)	"A" (in.)	"B" (in.)	"C" (in.)	"D" (in.)	"E" (in.)	"F" (in.)	** Tu (lb.)	** Vu (lb.)
B87341	1760	38.2	63.9	33.5	30.4	30.9	12.3	18.6	864	892
B87344	1740	35.0	63.9	32.2	31.7	30.9	12.6	18.3	747	865
B87343	1704	36.2	63.9	31.0	32.9	30.9	12.9	18.0	774	838
B87345	2125	29.0	63.9	31.7	32.2	30.9	12.3	18.6	736	1073
B87351	1023	40.0	38.4	20.3	18.1	30.9	13.5	17.4	586	490
B87346	1538	35.1	38.4	19.1	19.3	30.9	13.7	17.2	730	725
C05987	1152	40.3	38.4	19.1	19.3	30.9	16.3	14.6	635	517

** VALUES INCLUDE Ω_o
Tu & Vu ARE IN LB/BOLT

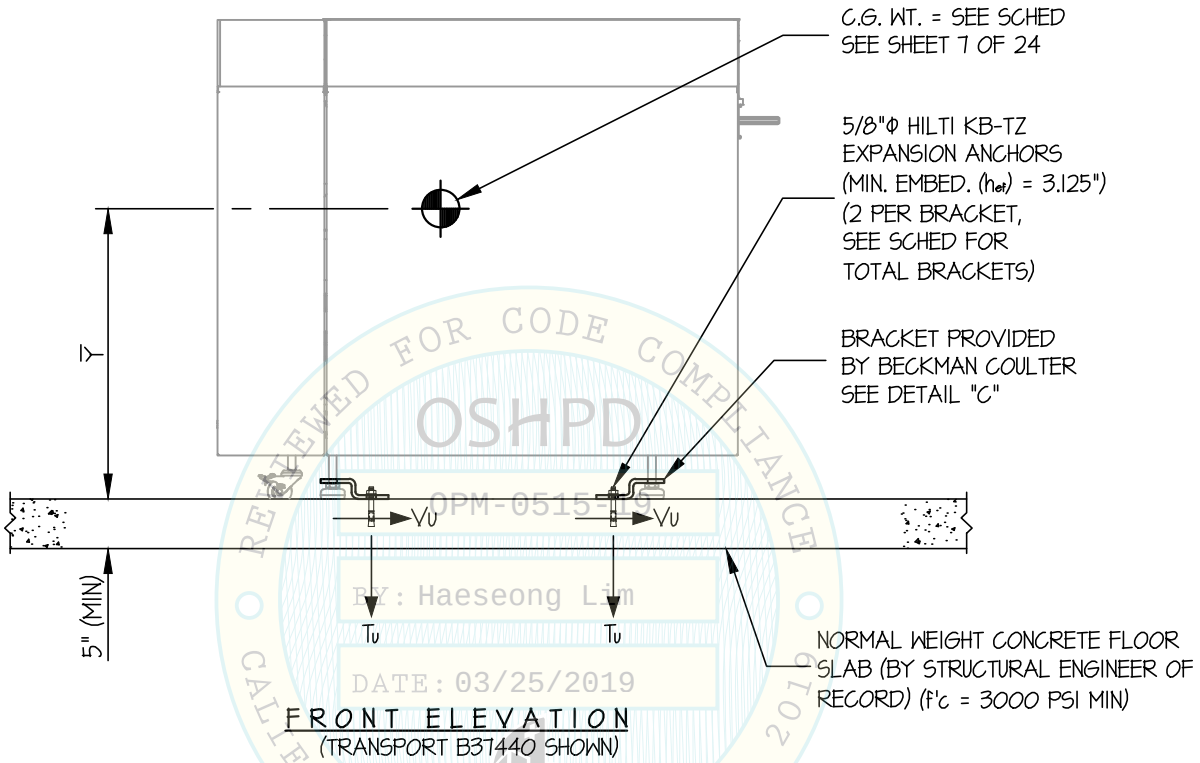


BECKMAN COULTER
DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 5 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — CONCRETE SLAB



FRONT ELEVATION
(TRANSPORT B37440 SHOWN)

NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.99 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.49 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

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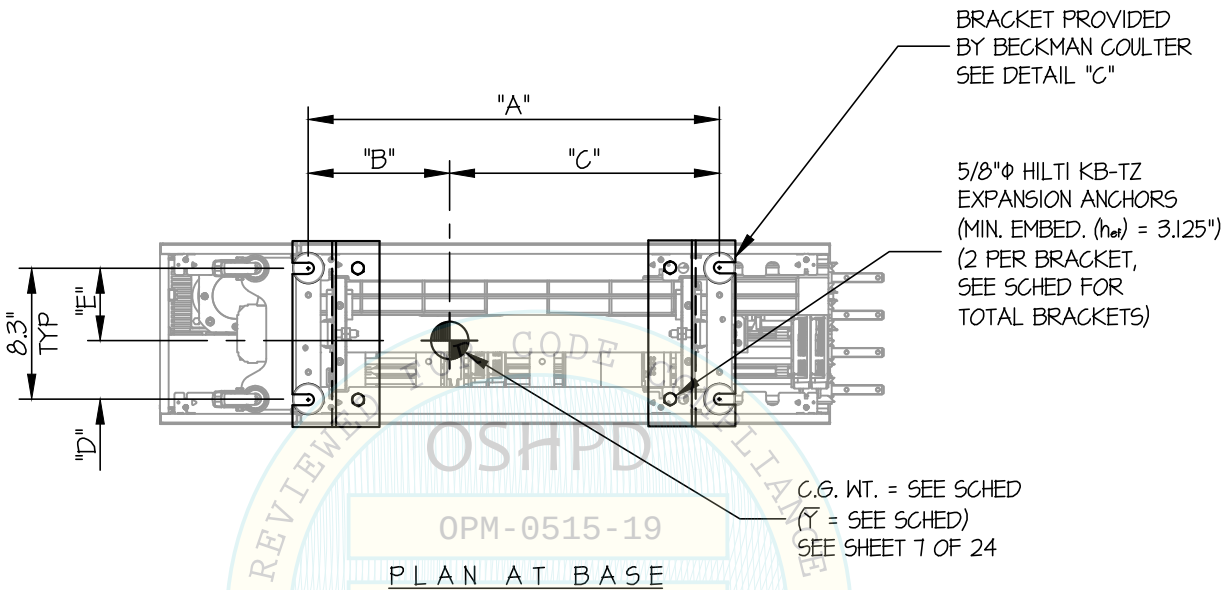
DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

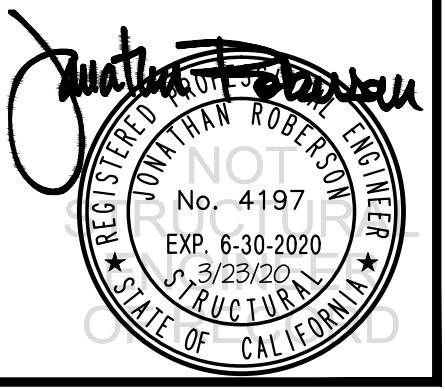
SHEET 6 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB



PLAN AT BASE
(TRANSPORT B37440 SHOWN)



BECKMAN COULTER

DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 7 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — CONCRETE SLAB

MODEL #	# OF BRACKETS	WEIGHT (lb.)	"Y" (in.)	"A" (in.)	"B" (in.)	"C" (in.)	"D" (in.)	"E" (in.)	** Tu (lb.)	** Vu (lb.)
B37440	2	199	23.6	26	8.8	17.2	3.7	4.6	1423	194
B37443	2	188	24.3	45.7	23.1	22.6	3.1	5.2	1038	197
B37963	2	173	22.8	26.8	13.6	13.2	4.15	4.15	930	149
B38005	2	109	22.3	20	10	10	4.15	4.15	582	105
B42934	2	168	23.5	45.7	23.7	22	3.0	5.3	917	179
B42938	2	178	23.2	26.8	13.6	13.2	4.15	4.15	975	153
B50516	2	197	23.4	26	9.6	16.4	3.9	4.4	1334	183
B51679	2	179	24.1	45.7	23	22.7	3.0	5.3	976	190
B57018	2	171	23.9	45.7	23.1	22.6	2.9	5.4	927	185
B57630	2	109	21.7	20	10	10	2.8	5.5	577	120
B57634	2	157	24	26	14.1	11.9	5.5	2.8	768	174
B68911	2	149	23.6	20	10.3	9.7	3.4	4.9	877	148
B71587	2	154	22.3	26.8	13.4	13.4	4.15	4.15	798	149
B71589	2	124	21.9	20	9.8	10.2	4.15	4.15	661	107
B71597	2	92	21.4	20	10.2	9.8	4.15	4.15	479	79
+ B71598	1	49	22.1	N/A	N/A	N/A	4.15	4.15	---	---
B71599	2	143	22.5	20	9.7	10.3	4.15	4.15	791	123
B71600	2	178	22.9	26.8	13.4	13.4	4.15	4.15	948	153
B71601	2	146	22.6	20	9.9	10.1	4.15	4.15	798	125
B71602	2	106	22.2	20	10	10	4.15	4.15	563	91
B74207	2	126	21.7	20	9.9	10.1	4.15	4.15	659	108
B74208	2	205	22.5	26.8	10.6	16.2	4.0	4.3	1277	186
B74209	2	192	22.6	26.8	10.8	16	3.8	4.5	1189	181
B77037	2	179	23.1	26.8	13.7	13.1	4.15	4.15	982	154
B79208	2	220	22.3	26.8	10	16.8	4.15	4.15	1403	195
B79209	2	220	22.3	26.8	10	16.8	4.15	4.15	1403	195

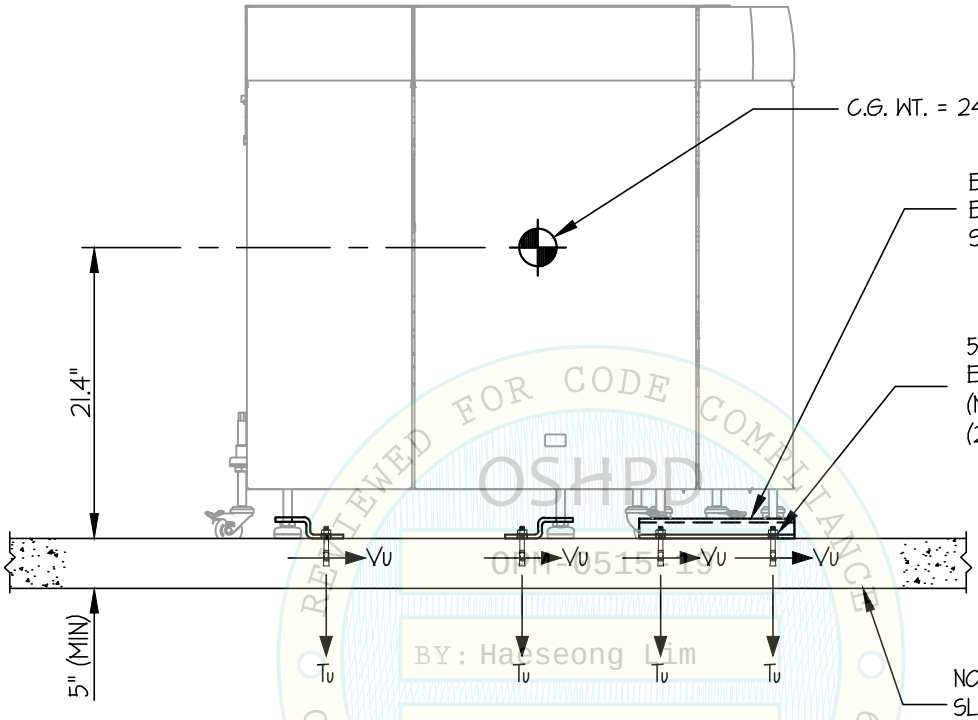
** VALUES INCLUDE Ω_o

+ MUST BE CONNECTED TO AN ADJACENT TRANSPORT OR INSTRUMENT ANCHORAGE NOT REQUIRED ON THIS TRANSPORT

BECKMAN COULTER
DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SEISMIC SUPPORTS & ATTACHMENTS — CONCRETE SLAB



FRONT ELEVATION
(TRANSPORT B57633 SHOWN)

Tu = 185 LB/BOLT (MAX)
Vu = 145 LB/BOLT (MAX)
(VALUES INCLUDE Ω_0)

NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.99 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.49 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

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3/23/20

BECKMAN COULTER
DxA SYSTEM TRANSPORTS

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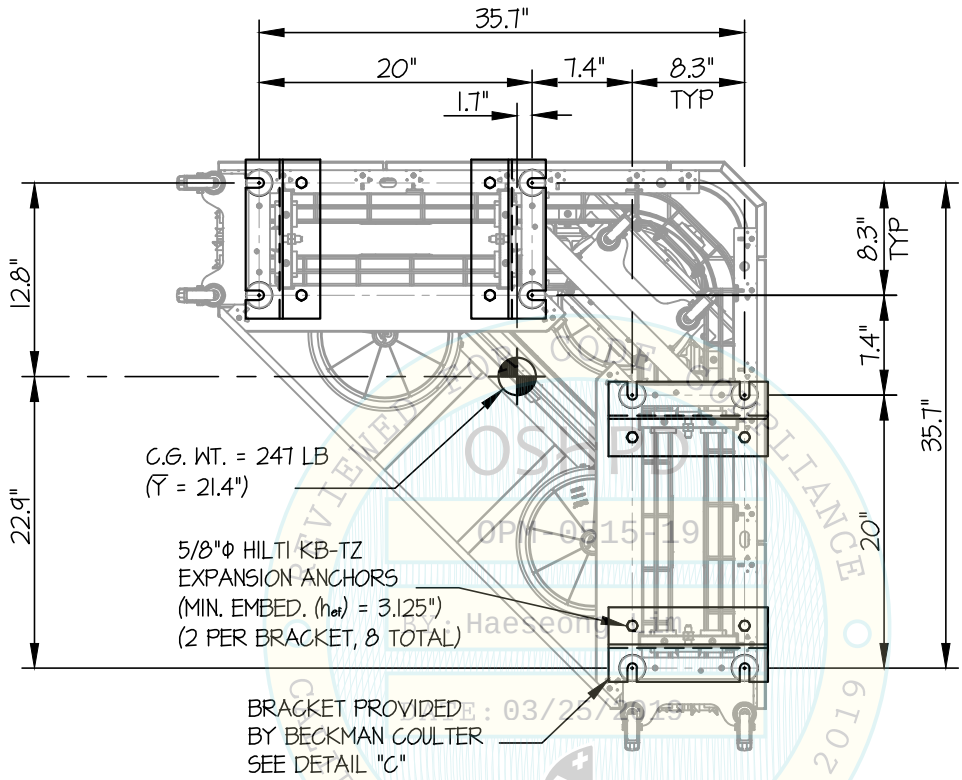
JOB NO. 11-1823
DATE 3/23/20

SHEET 9 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB



PLAN AT BASE
(TRANSPORT B57633 SHOWN)

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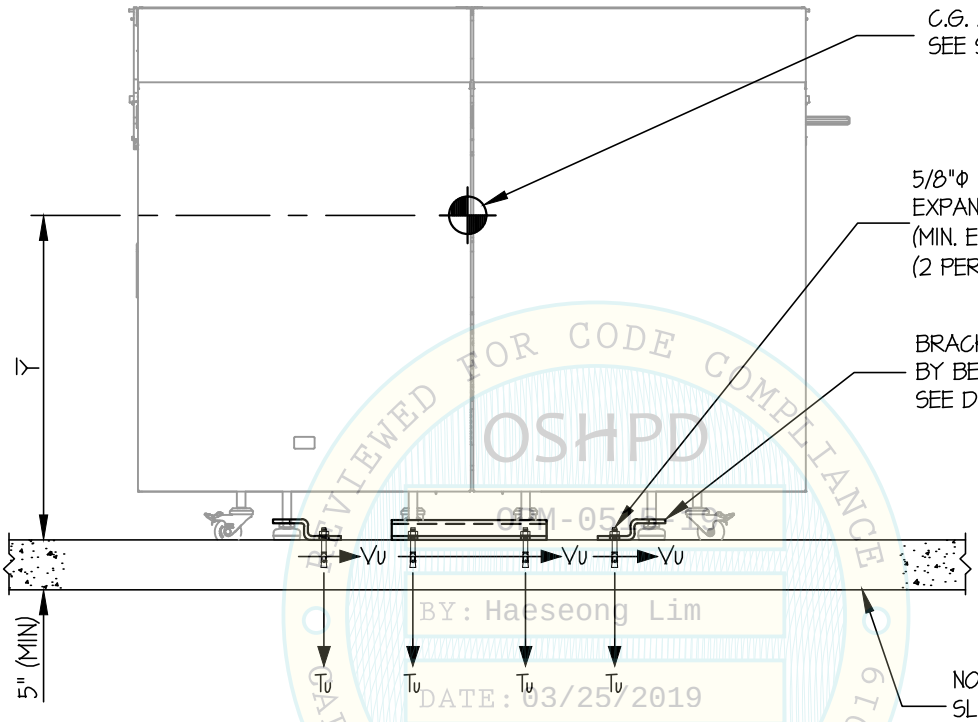
SHEET 10 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — CONCRETE SLAB



FRONT ELEVATION
(TRANSPORT B57631 SHOWN)

NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.99 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.49 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

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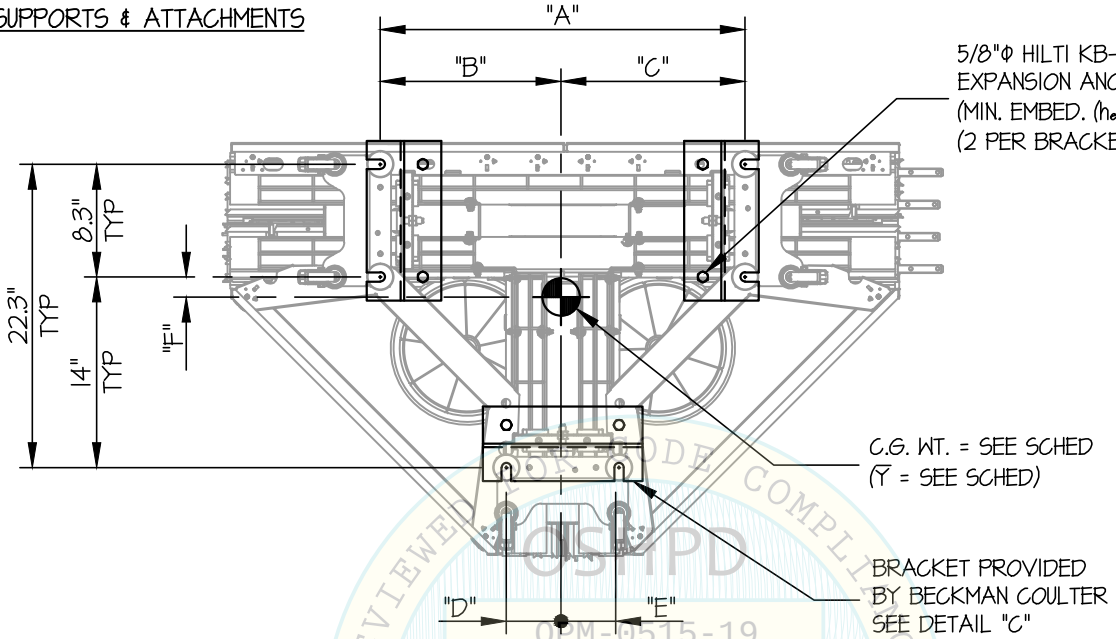
SHEET 11 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

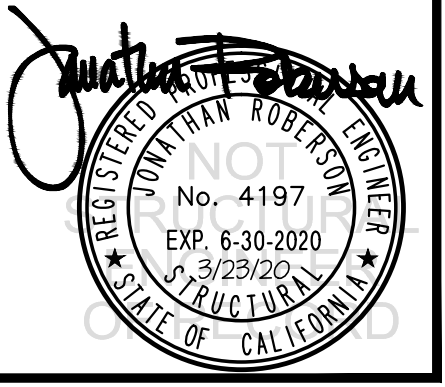
CONCRETE SLAB



PLAN AT BASE
(TRANSPORT B57631 SHOWN)

MODEL #	WEIGHT (lb.)	"Y" (in.)	"A" (in.)	"B" (in.)	"C" (in.)	"D" (in.)	"E" (in.)	"F" (in.)	** Tu (lb.)	** Vu (lb.)
B57631	242	23.8	26.8	13.3	13.5	4.0	4.3	3.3	535	117
B57632	235	22.8	35.8	18.4	17.4	4.7	3.6	3.6	475	115

** VALUES INCLUDE Ω_o



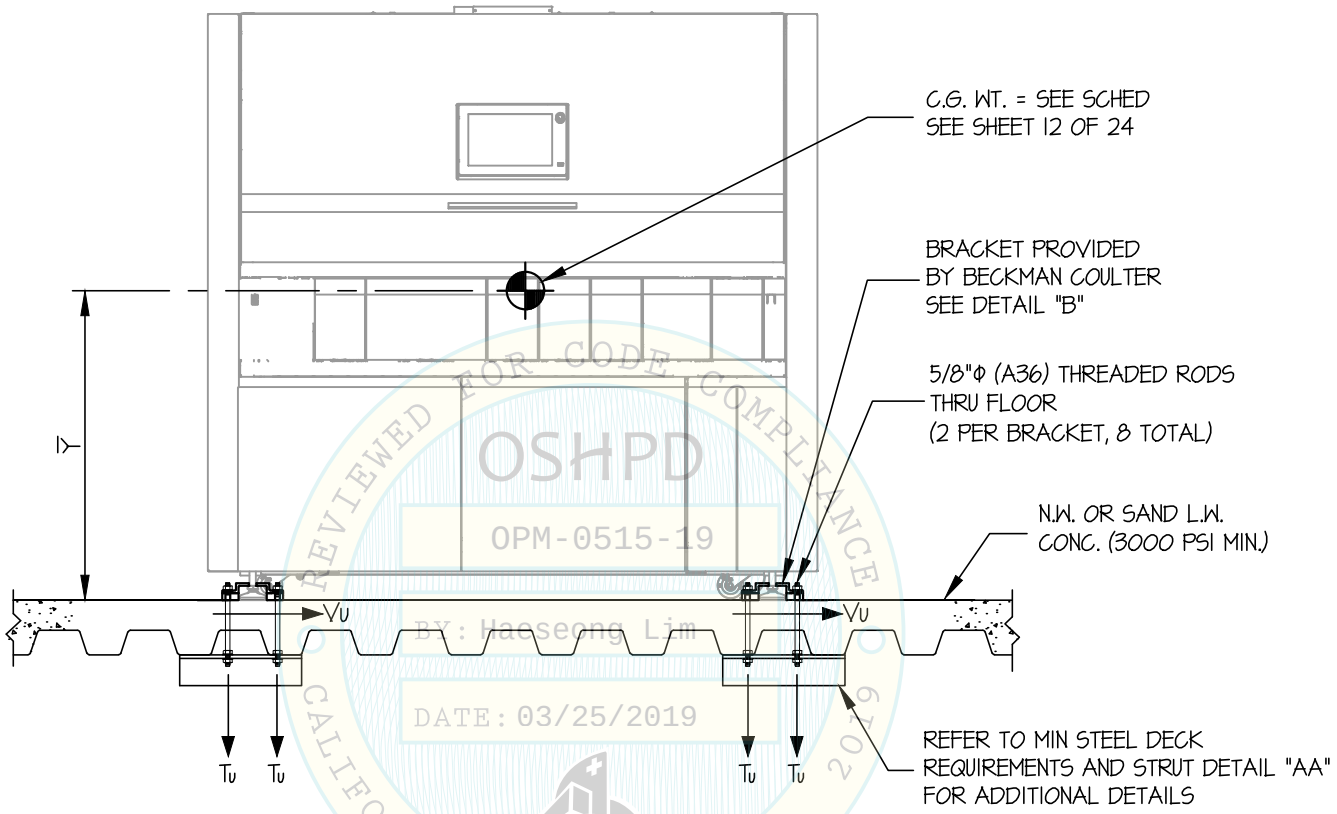
BECKMAN COULTER
DxA SYSTEM INSTRUMENTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 12 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



FRONT ELEVATION
(INSTRUMENT B87341 SHOWN)

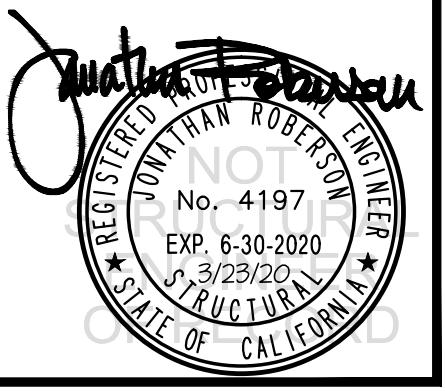
NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, $z/h \leq 1$)

   HORIZONTAL FORCE (E_h) = 2.64 W_p
   HORIZONTAL FORCE (E_{mh}) = 3.96 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.



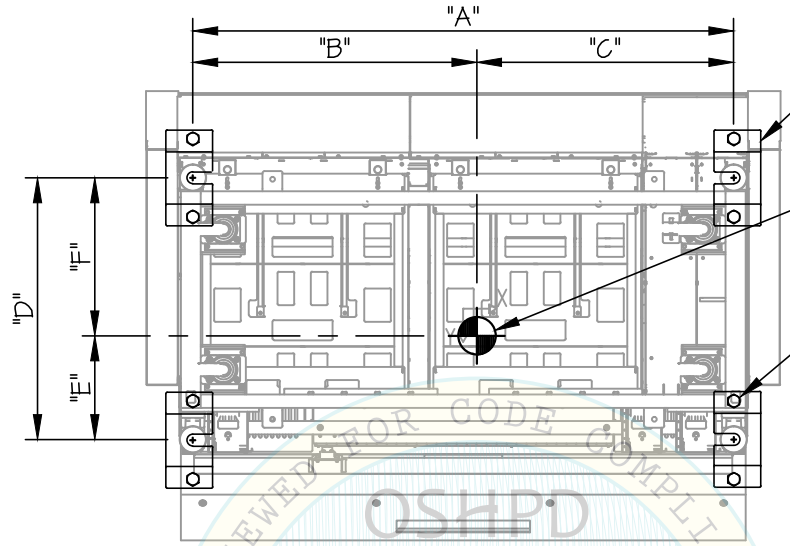
BECKMAN COULTER

DxA SYSTEM INSTRUMENTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20
SHEET 13 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

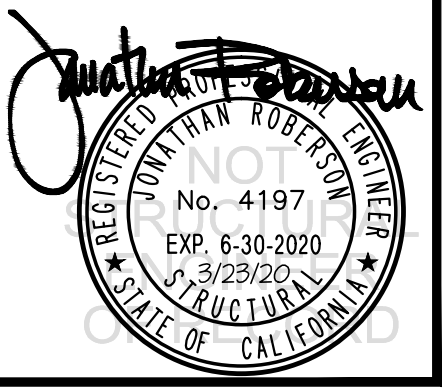
CONCRETE SLAB ON METAL DECK



FRONT ELEVATION
(INSTRUMENT B87341 SHOWN)

MODEL #	WEIGHT (lb.)	"Y" (in.)	"A" (in.)	"B" (in.)	"C" (in.)	"D" (in.)	"E" (in.)	"F" (in.)	** Tu (lb.)	** Vu (lb.)
B87341	1760	38.2	63.9	33.5	30.4	30.9	12.3	18.6	1629	1581
B87344	1740	35.0	63.9	32.2	31.7	30.9	12.6	18.3	1415	1534
B87343	1704	36.2	63.9	31	32.9	30.9	12.9	18.0	1462	1484
B87345	2125	29.0	63.9	31.7	32.2	30.9	12.3	18.6	1408	1900
B87351	1023	40.0	38.4	20.3	18.1	30.9	13.5	17.4	1092	867
B87346	1538	35.1	38.4	19.1	19.3	30.9	13.7	17.2	1370	1283
C05987	1152	40.3	38.4	19.1	19.3	30.9	16.3	14.6	1179	917

** VALUES DO NOT INCLUDE Ω_0
Tu & Vu ARE IN LB/BOLT



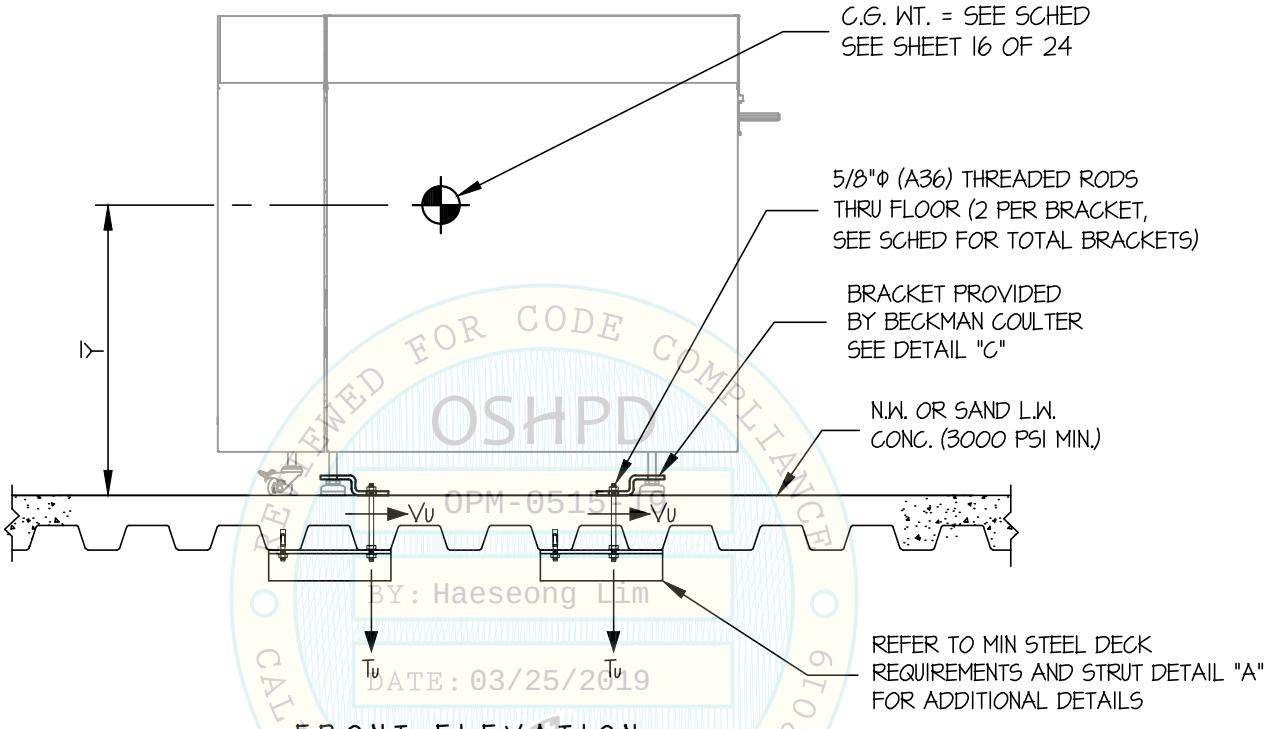
BECKMAN COULTER
DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 14 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



FRONT ELEVATION
(TRANSPORT B37440 SHOWN)

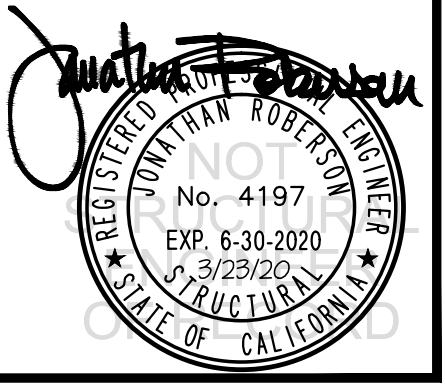
NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h ≤ 1)

   HORIZONTAL FORCE (E_h) = 2.64 W_p
   HORIZONTAL FORCE (E_{mh}) = 3.96 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

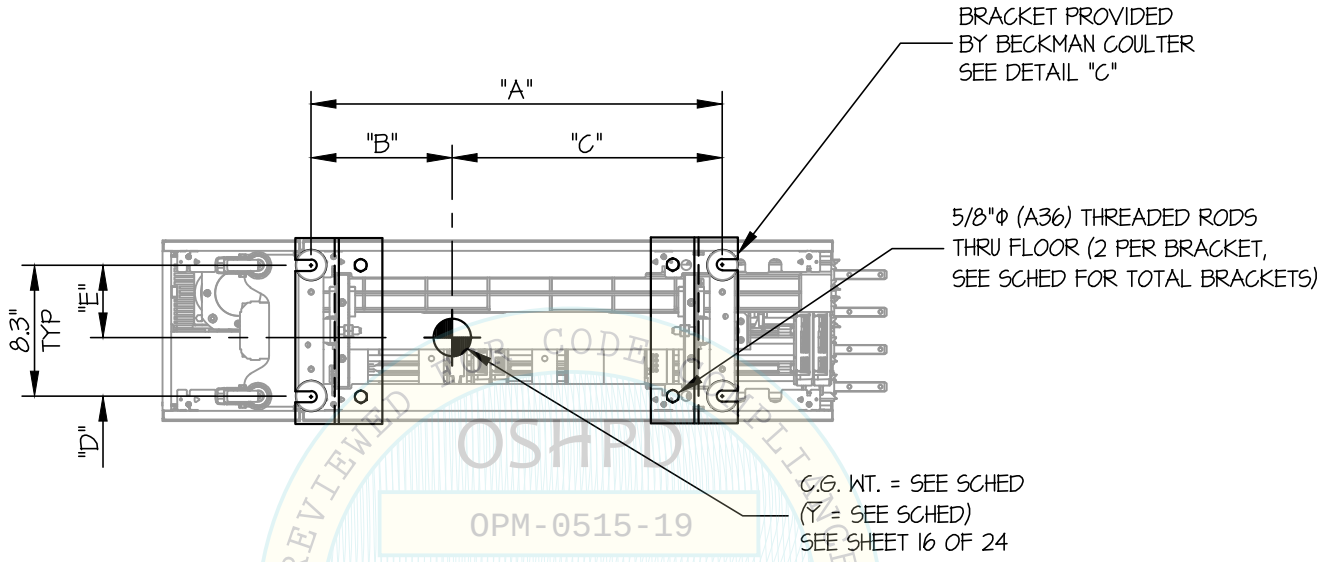


BECKMAN COULTER
DxA SYSTEM TRANSPORTS

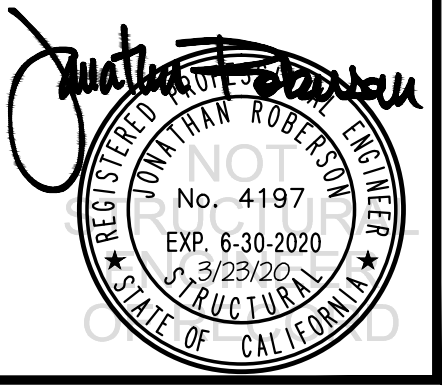
DES.	J. ROBERSON
JOB NO.	11-1823
DATE	3/23/20
SHEET	15
OF	24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



PLAN AT BASE
(TRANSPORT B37440 SHOWN)



BECKMAN COULTER

DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 16 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — CONCRETE SLAB ON METAL DECK

MODEL #	# OF BRACKETS	WEIGHT (lb.)	"Y" (in.)	"A" (in.)	"B" (in.)	"C" (in.)	"D" (in.)	"E" (in.)	** Tu (lb.)	** Vu (lb.)
B37440	2	199	23.6	26	8.8	17.2	3.7	4.6	2559	343
B37443	2	188	24.3	45.7	23.1	22.6	3.1	5.2	1892	349
B37963	2	173	22.8	26.8	13.6	13.2	4.15	4.15	1687	263
B38005	2	109	22.3	20	10	10	4.15	4.15	1055	165
B42934	2	168	23.5	45.7	23.7	22	3.0	5.3	1673	318
B42938	2	178	23.2	26.8	13.6	13.2	4.15	4.15	1767	271
B50516	2	197	23.4	26	9.6	16.4	3.9	4.4	2423	325
B51679	2	179	24.1	45.7	23	22.7	3.0	5.3	1780	337
B57018	2	171	23.9	45.7	23.1	22.6	2.9	5.4	1693	328
B57630	2	109	21.7	20	10	10	2.8	5.5	1054	212
B57634	2	157	24	26	14.1	11.9	5.5	2.8	1400	308
B68911	2	149	23.6	20	10.3	9.7	3.4	4.9	1593	263
B71587	2	154	22.3	26.8	13.4	13.4	4.15	4.15	1448	234
B71589	2	124	21.9	20	9.8	10.2	4.15	4.15	1199	189
B71597	2	92	21.4	20	10.2	9.8	4.15	4.15	869	140
+ B71598	1	49	22.1	N/A	N/A	N/A	4.15	4.15	---	---
B71599	2	143	22.5	20	9.7	10.3	4.15	4.15	1435	218
B71600	2	178	22.9	26.8	13.4	13.4	4.15	4.15	1720	270
B71601	2	146	22.6	20	9.9	10.1	4.15	4.15	1446	222
B71602	2	106	22.2	20	10	10	4.15	4.15	1022	161
B74207	2	126	21.7	20	9.9	10.1	4.15	4.15	1197	192
B74208	2	205	22.5	26.8	10.6	16.2	4.0	4.3	2320	329
B74209	2	192	22.6	26.8	10.8	16	3.8	4.5	2162	320
B77037	2	179	23.1	26.8	13.7	13.1	4.15	4.15	1781	273
B79208	2	220	22.3	26.8	10	16.8	4.15	4.15	2547	345
B79209	2	220	22.3	26.8	10	16.8	4.15	4.15	2547	345

** VALUES DO NOT INCLUDE Ω_o

+ MUST BE CONNECTED TO AN ADJACENT TRANSPORT OR INSTRUMENT ANCHORAGE NOT REQUIRED ON THIS TRANSPORT

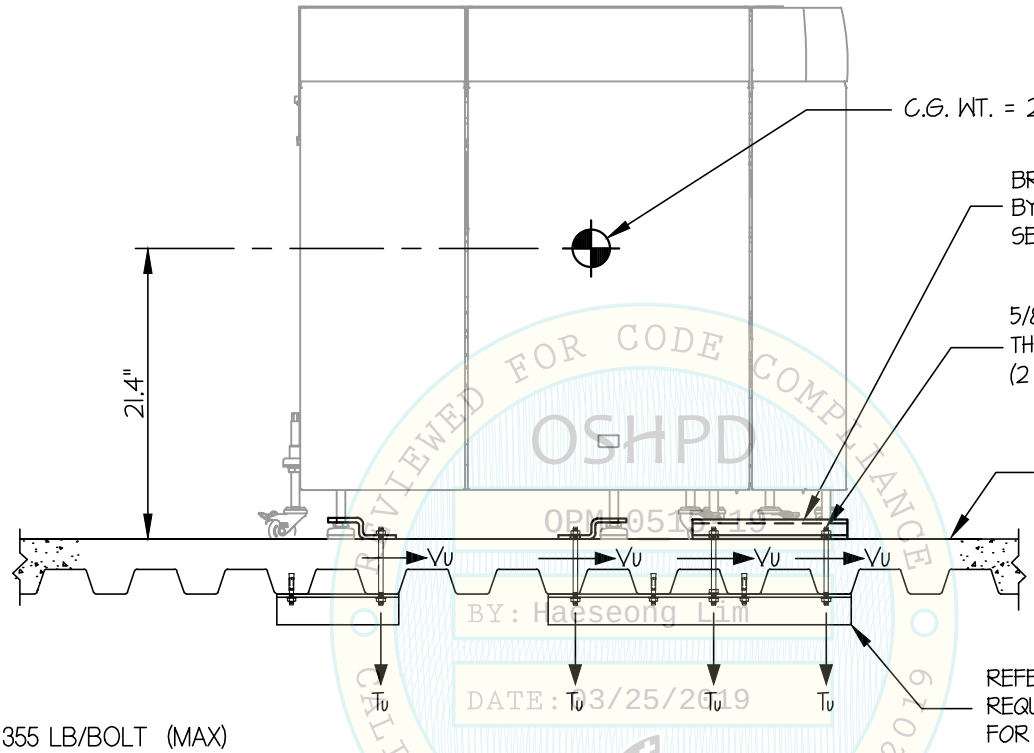
BECKMAN COULTER
DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 17 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



Tu = 355 LB/BOLT (MAX)
Vu = 257 LB/BOLT (MAX)
(VALUES DO NOT INCLUDE Ω_0)

FRONT ELEVATION
(TRANSPORT B57633 SHOWN)

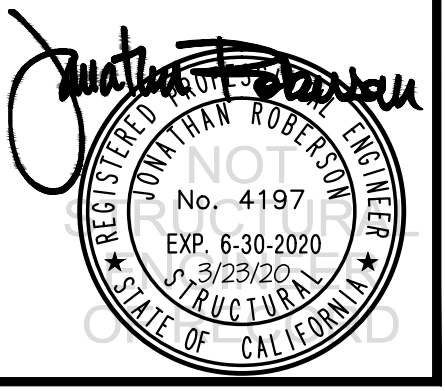
NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h ≤ 1)

   HORIZONTAL FORCE (E_h) = 2.64 W_p
   HORIZONTAL FORCE (E_{mh}) = 3.96 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.



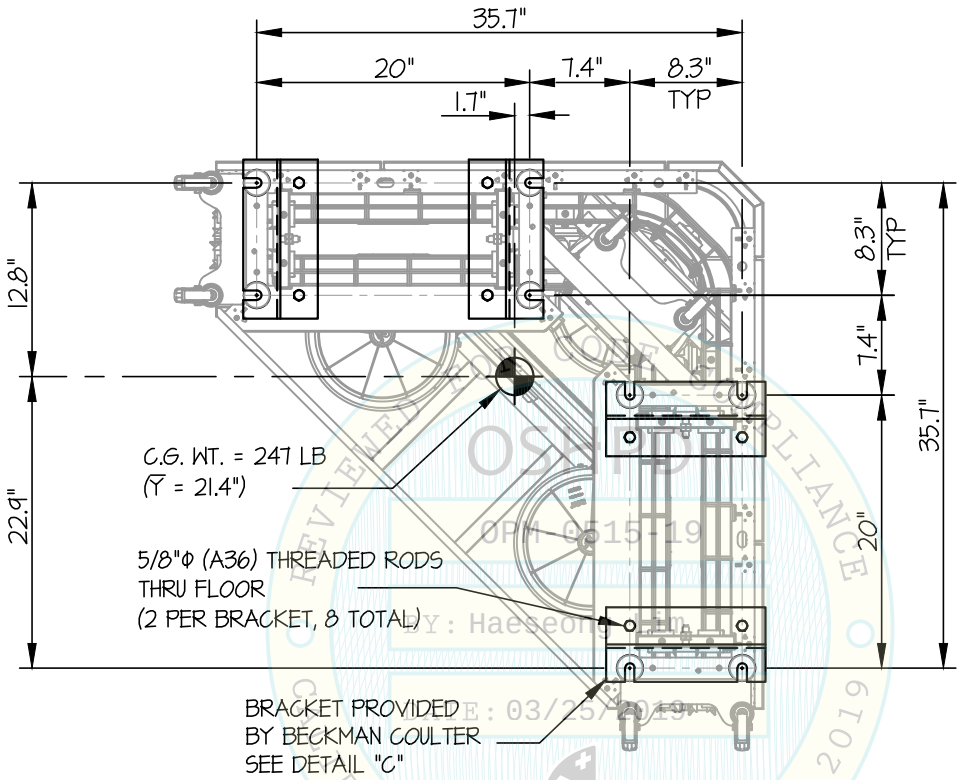
BECKMAN COULTER
DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

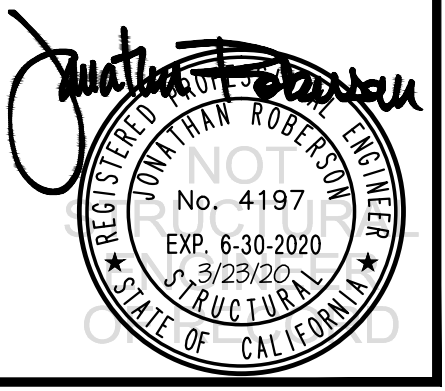
SHEET 18 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



PLAN AT BASE
(TRANSPORT B57633 SHOWN)



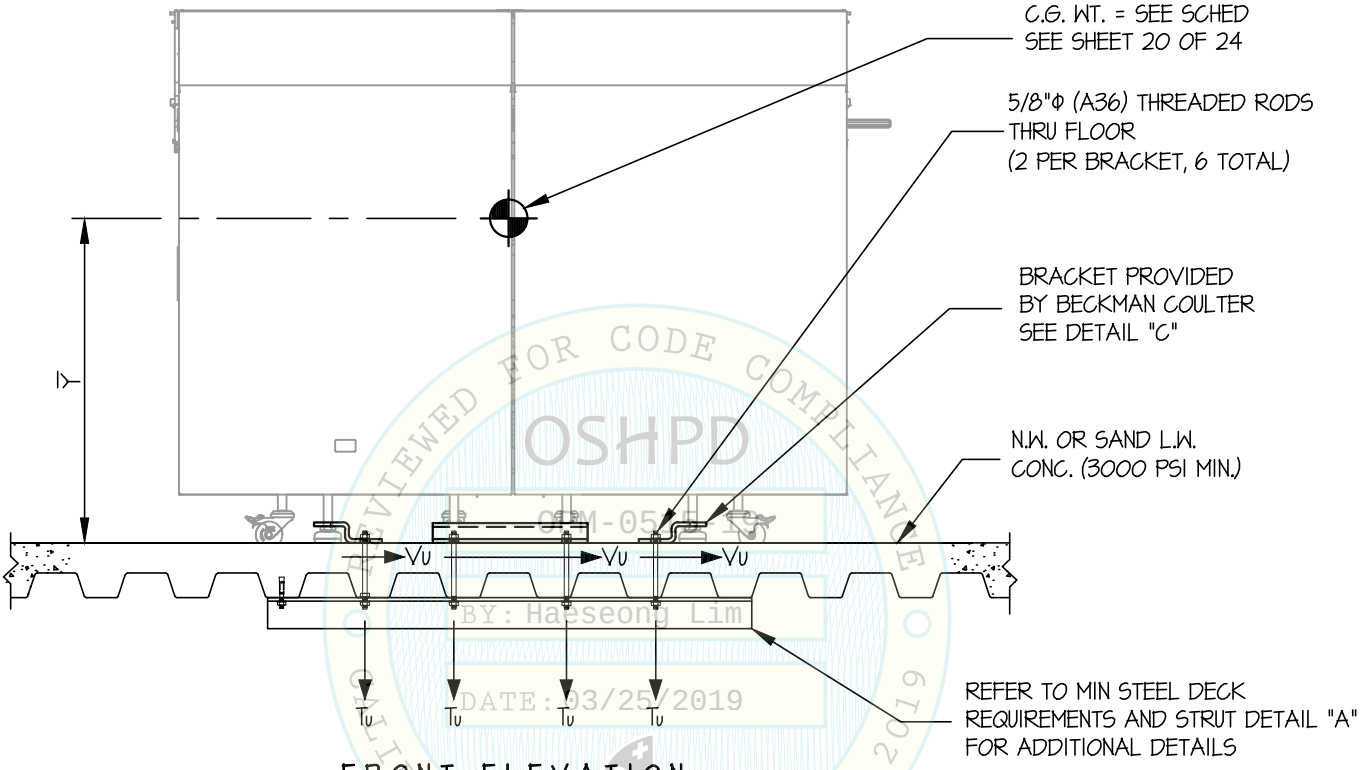
BECKMAN COULTER
DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 19 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



FRONT ELEVATION
(TRANSPORT B57631 SHOWN)

NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**
   STRENGTH DESIGN IS USED. (S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, $z/h \leq 1$)

   HORIZONTAL FORCE (E_h) = 2.64 W_p
   HORIZONTAL FORCE (E_{mh}) = 3.96 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.44 W_p

2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.

3. STRUCTURAL ENGINEER OF RECORD FOR THE BUILDING SHALL PROVIDE SUPPORT STRUCTURE DESIGNED TO SUPPORT WEIGHTS AND FORCES SHOWN IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

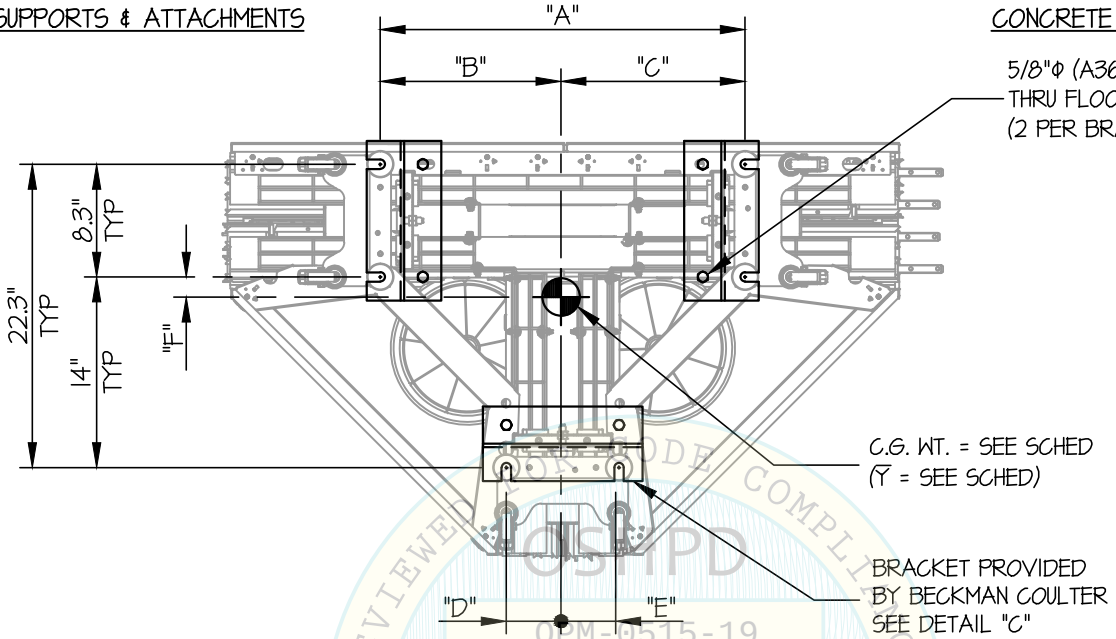
REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2020
STRUCTURAL
STATE OF CALIFORNIA
3/23/20

BECKMAN COULTER
DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 20 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS



5/8"ϕ (A36) THREADED RODS THRU FLOOR (2 PER BRACKET, 6 TOTAL)

C.G. WT. = SEE SCHED (Ȳ = SEE SCHED)

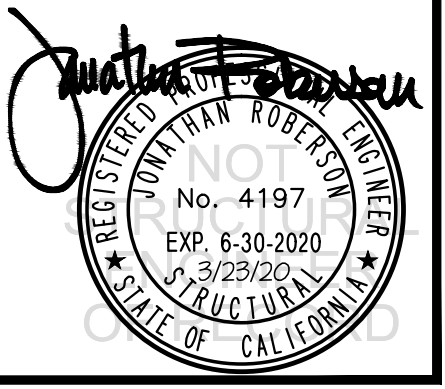
BRACKET PROVIDED BY BECKMAN COULTER SEE DETAIL "C"

PLAN AT BASE
(TRANSPORT B57631 SHOWN)

CONCRETE SLAB ON METAL DECK

MODEL #	WEIGHT (lb.)	"Y" (in.)	"A" (in.)	"B" (in.)	"C" (in.)	"D" (in.)	"E" (in.)	"F" (in.)	** Tu (lb.)	** Vu (lb.)
B57631	242	23.8	26.8	13.3	13.5	4.0	4.3	3.3	998	207
B57632	235	22.8	35.8	18.4	17.4	4.7	3.6	3.6	890	203

** VALUES INCLUDE Ω₀



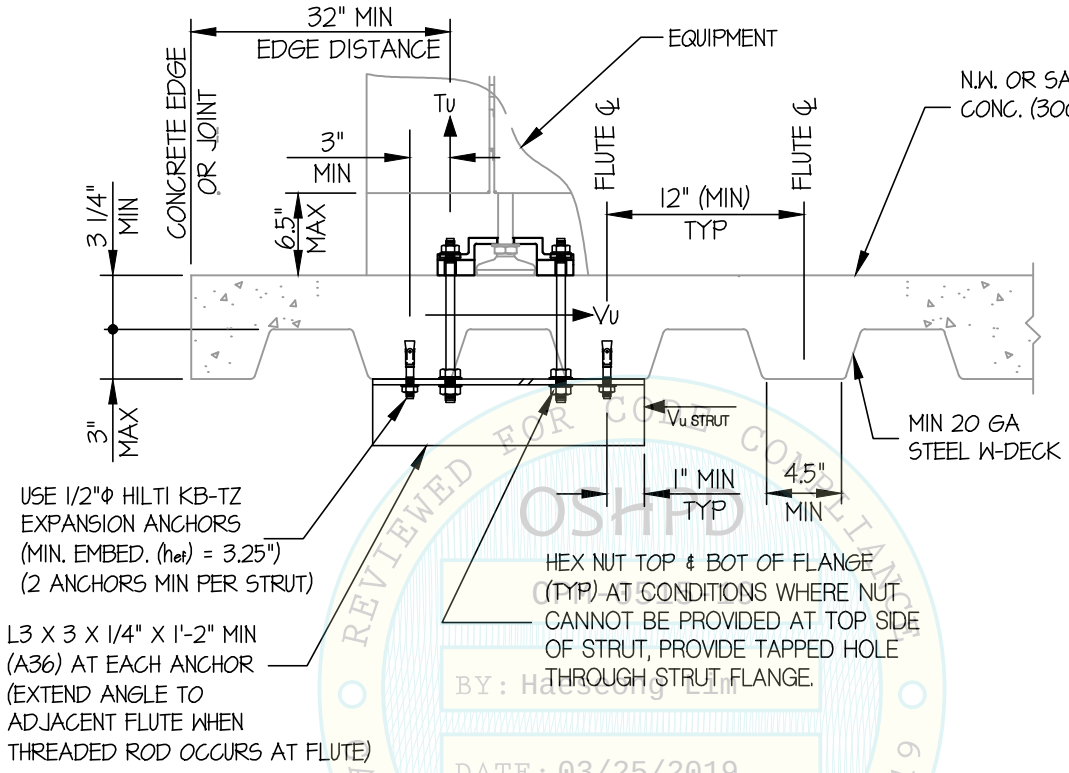
BECKMAN COULTER

DxA SYSTEM INSTRUMENTS

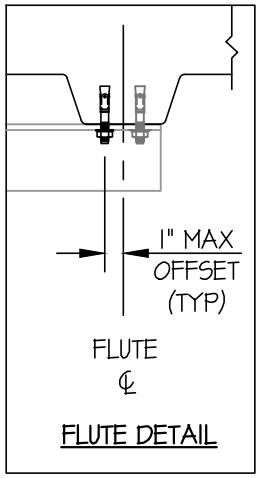
DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 21 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

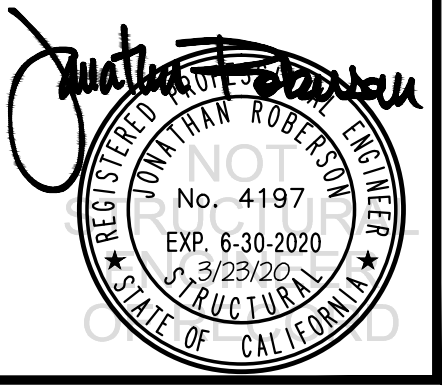


CONCRETE DETAIL



FLUTE DETAIL

MIN STEEL DECK REQUIREMENTS AND STRUT DETAIL (INSTRUMENTS) AA



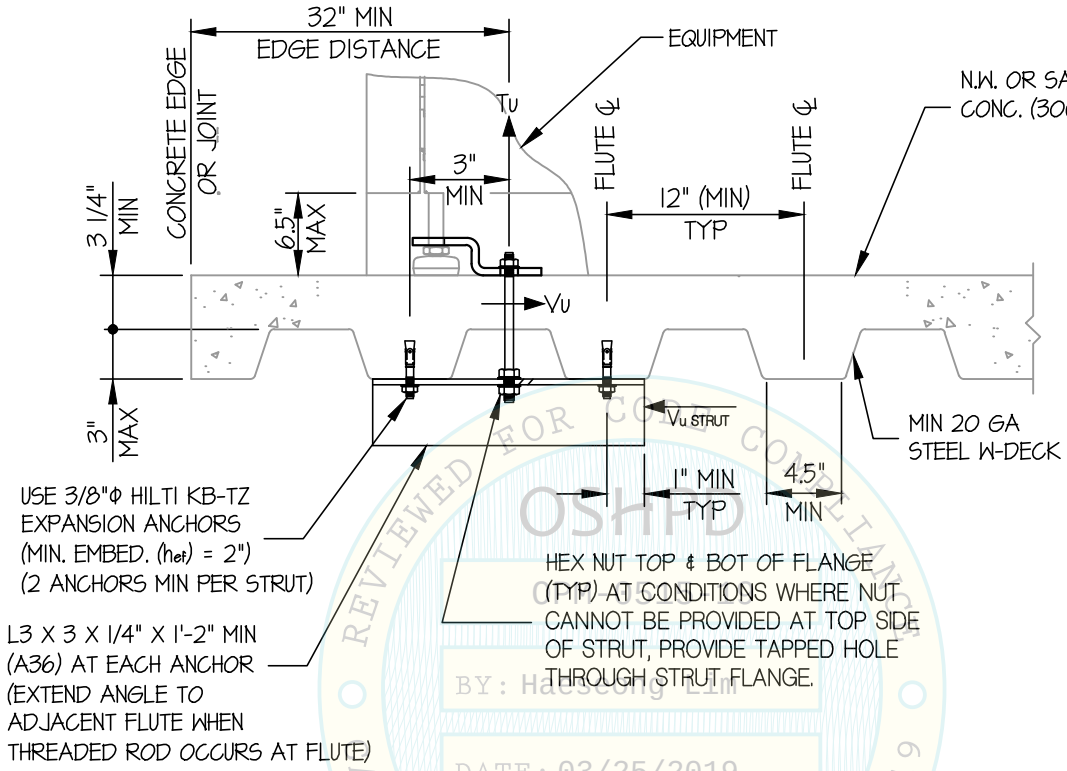
BECKMAN COULTER

DxA SYSTEM TRANSPORTS

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

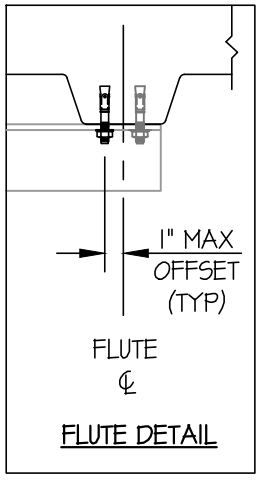
SHEET 22 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

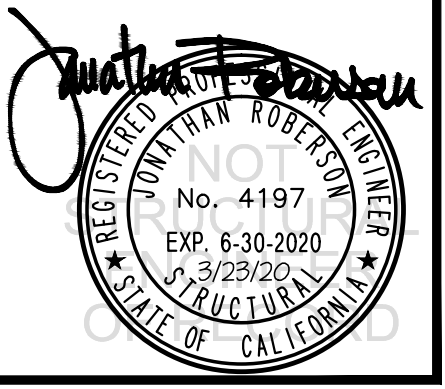


MIN STEEL DECK REQUIREMENTS AND STRUT DETAIL (TRANSPORTS) (A)

CONCRETE DETAIL



FLUTE DETAIL



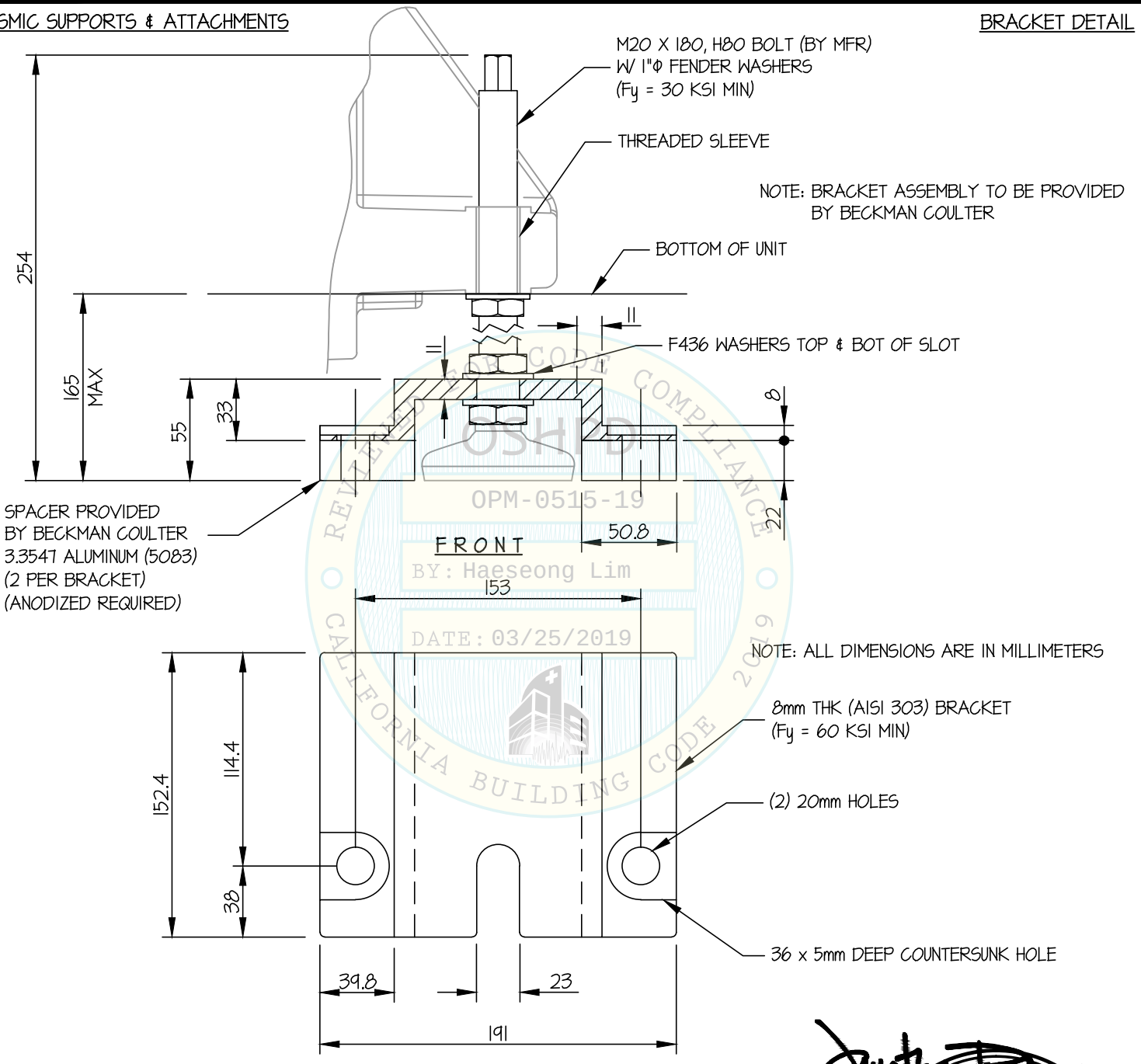
BECKMAN COULTER
DxA SYSTEM INSTRUMENT BRACKET

DES. J. ROBERSON
JOB NO. 11-1823
DATE 3/23/20

SHEET 23 OF 24 SHEETS

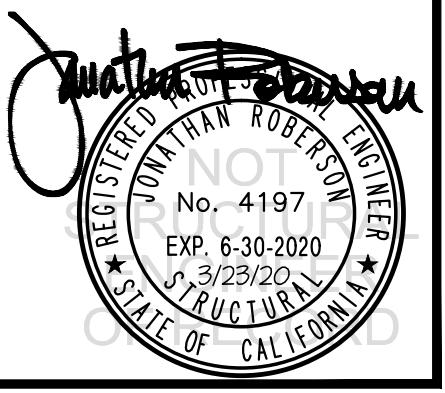
SEISMIC SUPPORTS & ATTACHMENTS

BRACKET DETAIL



PLAN AT BRACKET

BRACKET DETAIL (B)
N.T.S



BECKMAN COULTER
DxA SYSTEM TRANSPORT BRACKET

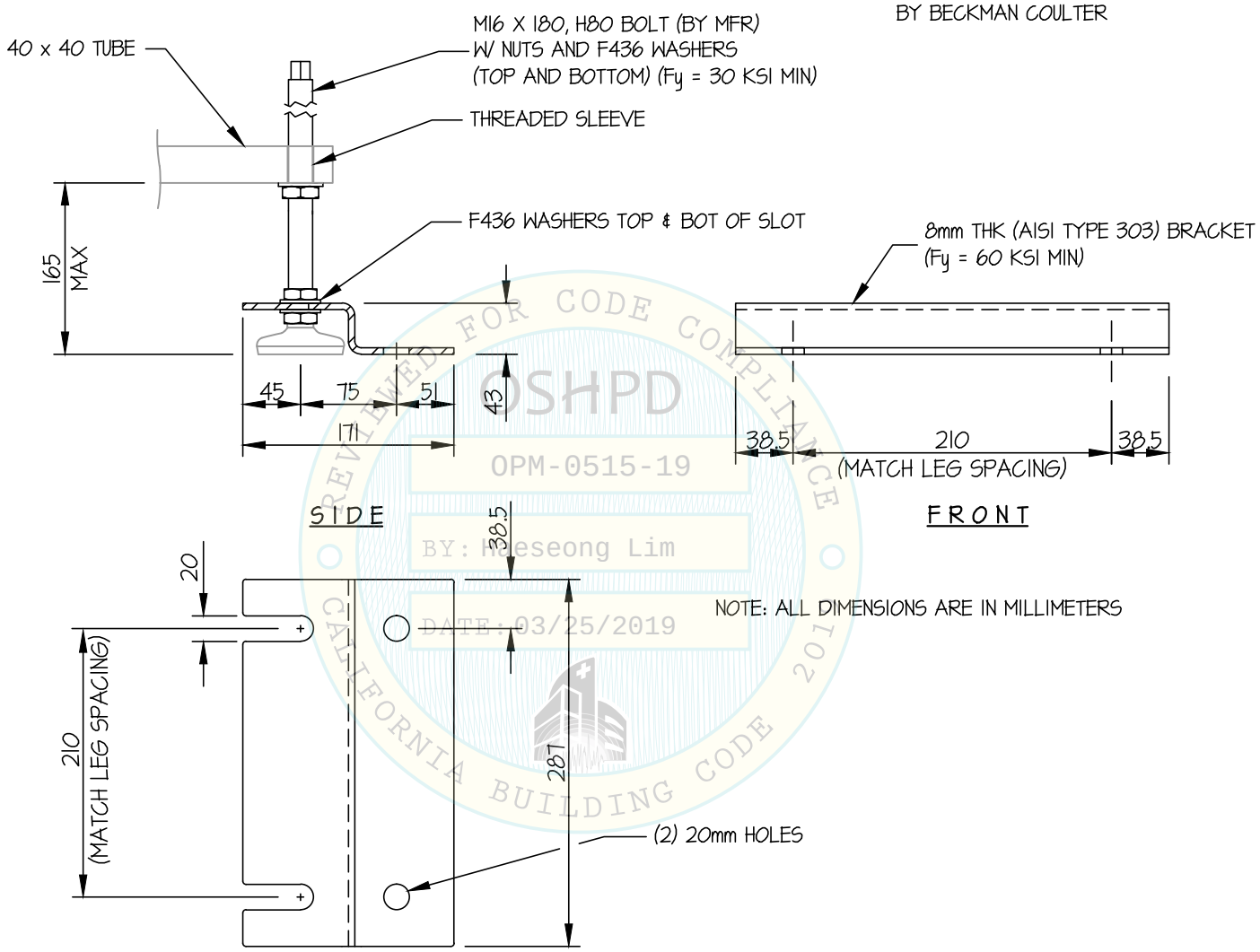
DES.	J. ROBERSON
JOB NO.	11-1823
DATE	3/23/20

SHEET 24 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

BRACKET DETAIL

NOTE: BRACKET TO BE PROVIDED BY BECKMAN COULTER



NOTE: ALL DIMENSIONS ARE IN MILLIMETERS

PLAN AT BRACKET

BRACKET DETAIL (C)
N.T.S