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

OFFICE USE ONLY
APPLICATION #: OPM-0154-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: ☐ New ☒ Renewal ☐ Update to Pre-CBC 2013 OPA Number: _____

Manufacturer Information

Manufacturer: **BECKMAN COULTER**

Manufacturer's Technical Representative: Glenn Talbot

Mailing Address: 11800 SW 147th Ave., Miami, FL. 33196

Telephone: On File Email: On File

Product Information

Product Name: **Unicel DxH 800, DxH 900, DxH SMS & DxH SMS II**

Product Type: Other Mechanical and Electrical Components

Product Model Number: DxH 800, DxH 900, DxH SMS & DxH SMS II

General Description: Cellular Analyzer used in a Hematology Lab

Applicant Information

Applicant Company Name: **EASE Co.**

Contact Person: Jonathan Roberson, S.E.

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

Telephone: (909) 606-7622 Email: J.Roberson@EASECo.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: _____ Date: 4/5/18

Title: Principal Engineer Company Name: **EASE Co.**

Registered Design Professional Preparing Engineering Recommendations

Company Name: **EASE Co.**

Name: Jonathan Roberson, S.E. California License Number: S4197

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

Telephone: 909-606-7622 Email: J.Roberson@EASECo.com

OSHPD Special Seismic Certification Preapproval (OSP)

☐ Special Seismic Certification is preapproved under OSP-
(Separate application for OSP is required)

☒ Special Seismic Certification is not preapproved

Certification Method(s)

☐ Testing in accordance with: ☐ ICC-ES AC156 ☐ FM 1950-16

☐ Other* (Please Specify):

*Use of criteria other than those adopted by the California Building Standards Code, 2016 (CBSC 2016) 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 2016 may be used when approved by OSHPD prior to testing.

☒ Analysis

☐ Experience Data

☐ Combination of Testing, Analysis, and/or Experience Data (Please Specify):

List of Attachments Supporting the Manufacturer's Certification

☐ Test Report ☒ Drawings ☒ Calculations ☐ Manufacturer's Catalog

☐ Other(s) (Please Specify):

OFFICE USE ONLY – OSHPD APPROVAL VALID FOR CBC 2016 & ALL PRE-2016 CODE BASED PROJECTS

Signature: Date: 3/20/2019

Print Name: Jeffrey Kikumoto

Title: SE

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-0154-13

THIS PREAPPROVAL CONFORMS TO THE 2016CALIFORNIA BUILDING CODE

MANUFACTURER: **BECKMAN COULTER**

EQUIPMENT NAME: **UNICEL DxH 800, DxH 900, DxH SMS & DxH SMS II**

Date: 3/20/19

GENERAL NOTES

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2016 CBC. THE DEMANDS
2. (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2016 CBC
3. 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.
4. THIS PREAPPROVAL CONFORMS TO THE 2016 CALIFORNIA BUILDING CODE WHERE S_{DS} IS NOT GREATER THAN 1.50, 1.65 2.00 & 2.20. SEE DETAIL FOR APPLICABILITY
4. FORCES PER ASCE 7-10 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2 & 13.3-3,
   WHERE S_{DS} = 1.50, a_p = 1.0, I_p = 1.5, R_p = 1.5, z/h = 0 AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR Ω_0
   WHERE S_{DS} = 1.65, a_p = 1.0, I_p = 1.5, R_p = 1.5, z/h = 0 AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR Ω_0
   WHERE S_{DS} = 2.00, a_p = 1.0, I_p = 1.5, R_p = 1.5, z/h = 0 AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR Ω_0
   WHERE S_{DS} = 2.20, a_p = 1.0, I_p = 1.5, R_p = 1.5, 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 ON GRADE DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION 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 2016 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.

   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.

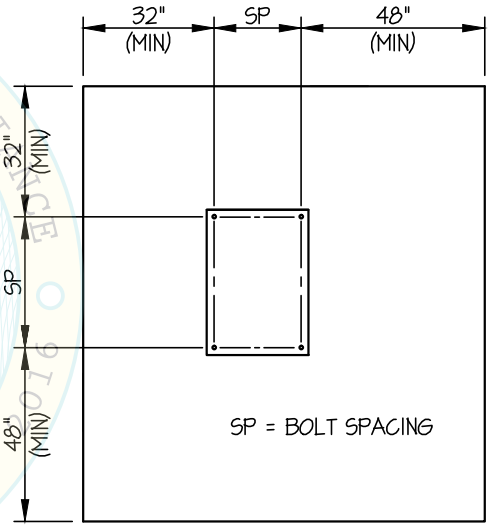
REGISTERED PROFESSIONAL ENGINEER
JONATHAN ROBERSON
No. 4197
EXP. 6-30-2020
3/20/19
STRUCTURAL
STATE OF CALIFORNIA

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
3/8"	Sand Light Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	2"	6.75"	12"	See Detail "A"	25 FT-LB	N/A
5/8"	Normal Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	3-1/8"	3.5"	32"	5"	60 FT-LB	2153 lb
5/8"	Normal Weight	3000	Hilti HIT HY 200	ESR-3187	4"	3.5"	32"	6"	60 FT-LB	2931 lb

B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE SLAB EDGES, 32" AWAY MINIMUM (i.e. - CORNER). SEE ADJACENT DETAIL FOR ADDITIONAL MINIMUM ALLOWABLE CONCRETE EDGE DISTANCES.



TYPICAL CONCRETE EDGE DETAIL

C. TESTING OF EXPANSION ANCHORS PER 2016 CBC, 1910A.5: TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO OSHPD

(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.

(iV) AVOID DAMAGING EXISTING STEEL REINFORCING IN CONCRETE SLAB WHEN INSTALLING CONC EXPANSION ANCHORS

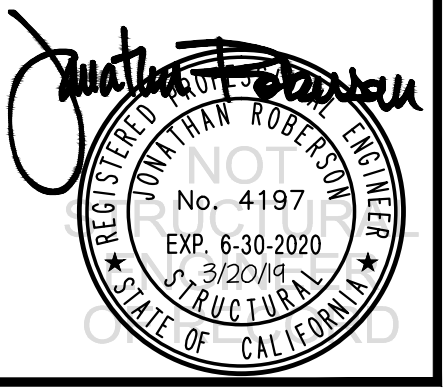
(V) PROVIDE FOR FULL THREAD ENGAGEMENT OF NUT & WASHER

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

C. 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

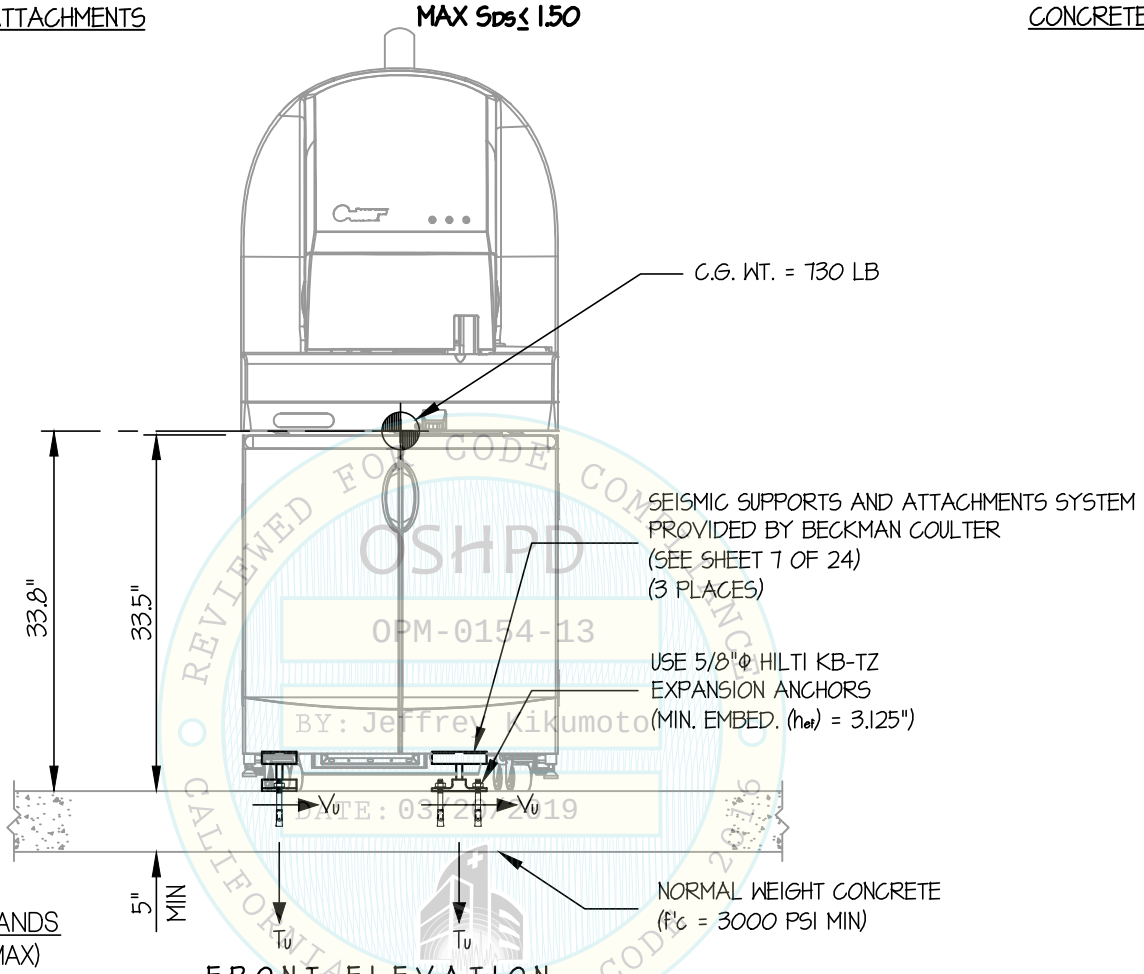
UNICEL DxH 800

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 3 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

MAX $S_{DS} \leq 1.50$

CONCRETE SLAB



FRONT ELEVATION

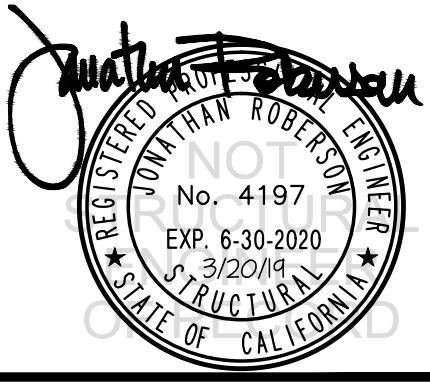
FLOOR ANCHOR DEMANDS
Tu = 1634 LB/BOLT (MAX)
Vu = 222 LB/BOLT (MAX)
(VALUES INCLUDE Ω_0)

NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10 STRENGTH DESIGN IS USED. (S_{DS} = 1.50, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.675 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.01 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.30 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.
4. SEE GENERAL NOTES: SHEET 1 AND 2



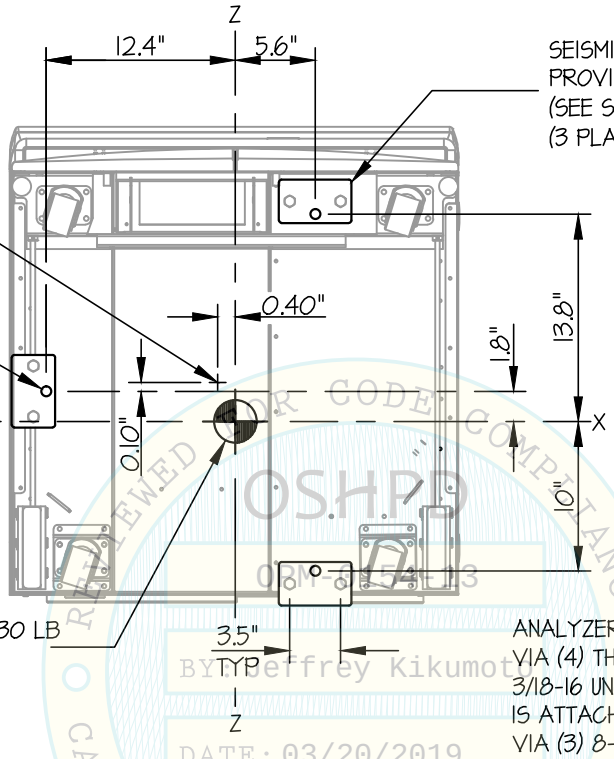
BECKMAN COULTER

UNICEL DxH 800

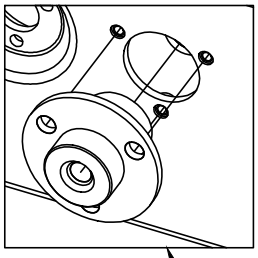
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 4 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — MAX $S_{DS} \leq 1.50$ — CONCRETE SLAB

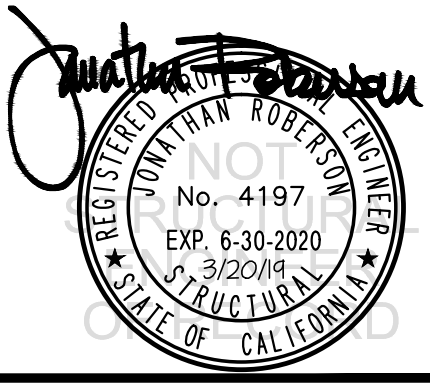
NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



PLAN AT BASE
(UNICEL DxH 800)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS



BECKMAN COULTER

UNICEL DxH 900

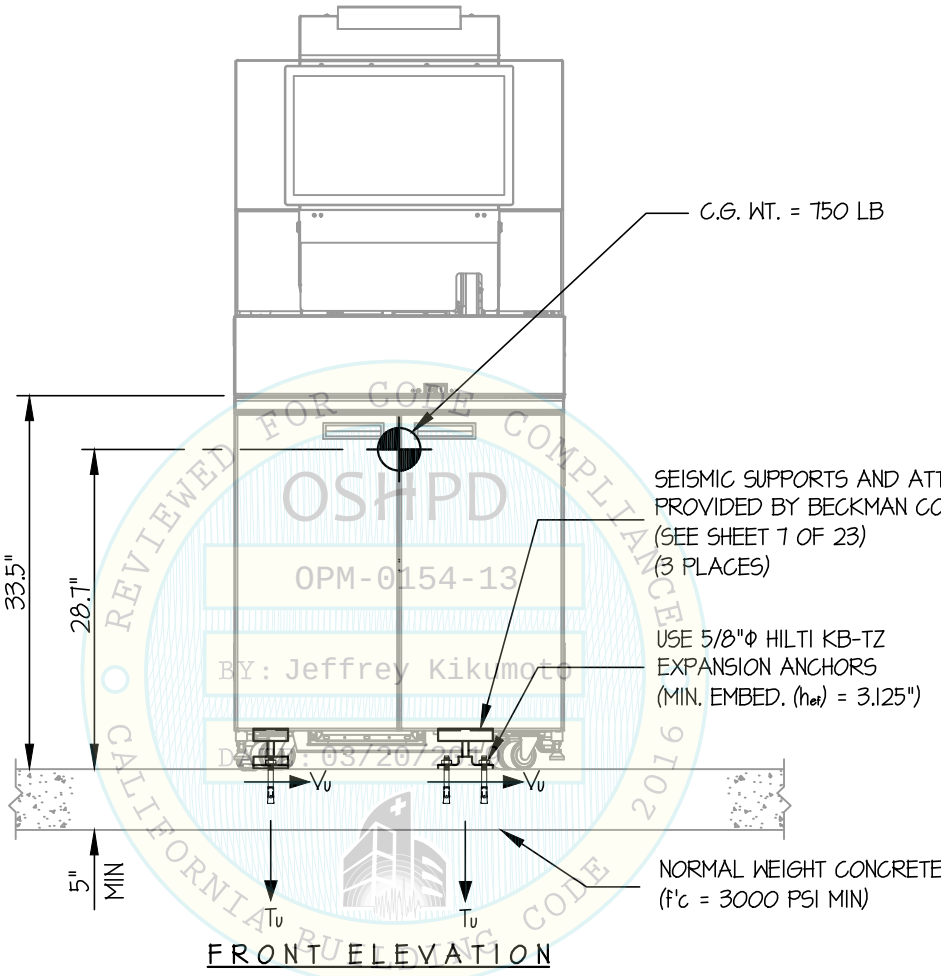
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 5 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

MAX $S_{DS} \leq 1.65$

CONCRETE SLAB



FRONT ELEVATION

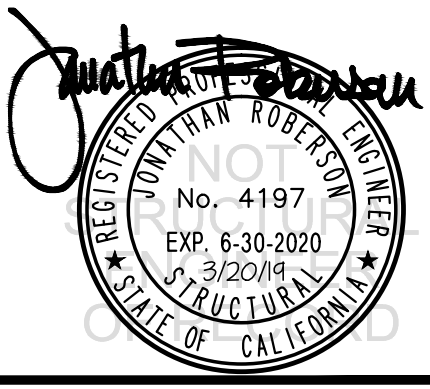
FLOOR ANCHOR DEMANDS
T_u = 1634 LB/BOLT (MAX)
V_u = 222 LB/BOLT (MAX)
(VALUES INCLUDE Ω_o)

NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10 STRENGTH DESIGN IS USED. (S_{DS} = 1.65, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_o = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.74 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.11 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.33 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
4. SEE GENERAL NOTES: SHEET 1 AND 2



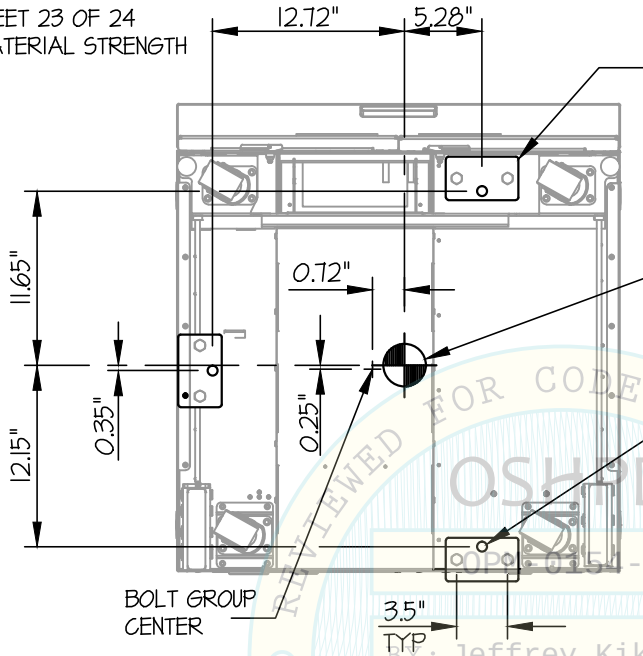
BECKMAN COULTER

UNICEL DxH 900

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 6 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS — MAX $S_{DS} \leq 1.65$ — CONCRETE SLAB

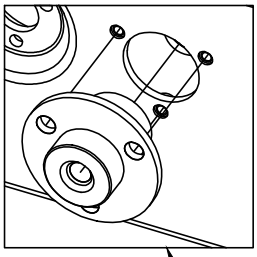
NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



SEISMIC SUPPORTS AND ATTACHMENTS SYSTEM PROVIDED BY BECKMAN COULTER (SEE SHEET 7 OF 24 (3 PLACES)

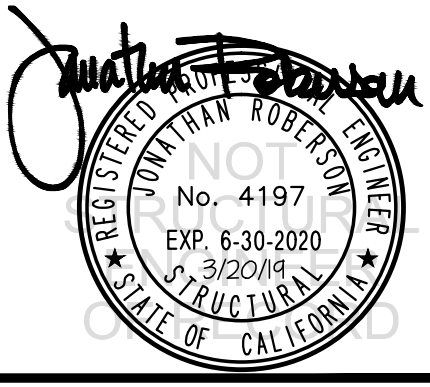
C.G. WT. = 750 LB ($\bar{Y}$ = 28.7")

USE 3/4"Φ (GRADE 5) BOLT CONNECTING UNIT TO FLOOR ANCHOR ASSEMBLY (3 TOTAL)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS

PLAN AT BASE
(UNICEL DxH 900)



BECKMAN COULTER

UNICEL DxH 800 / DxH 900

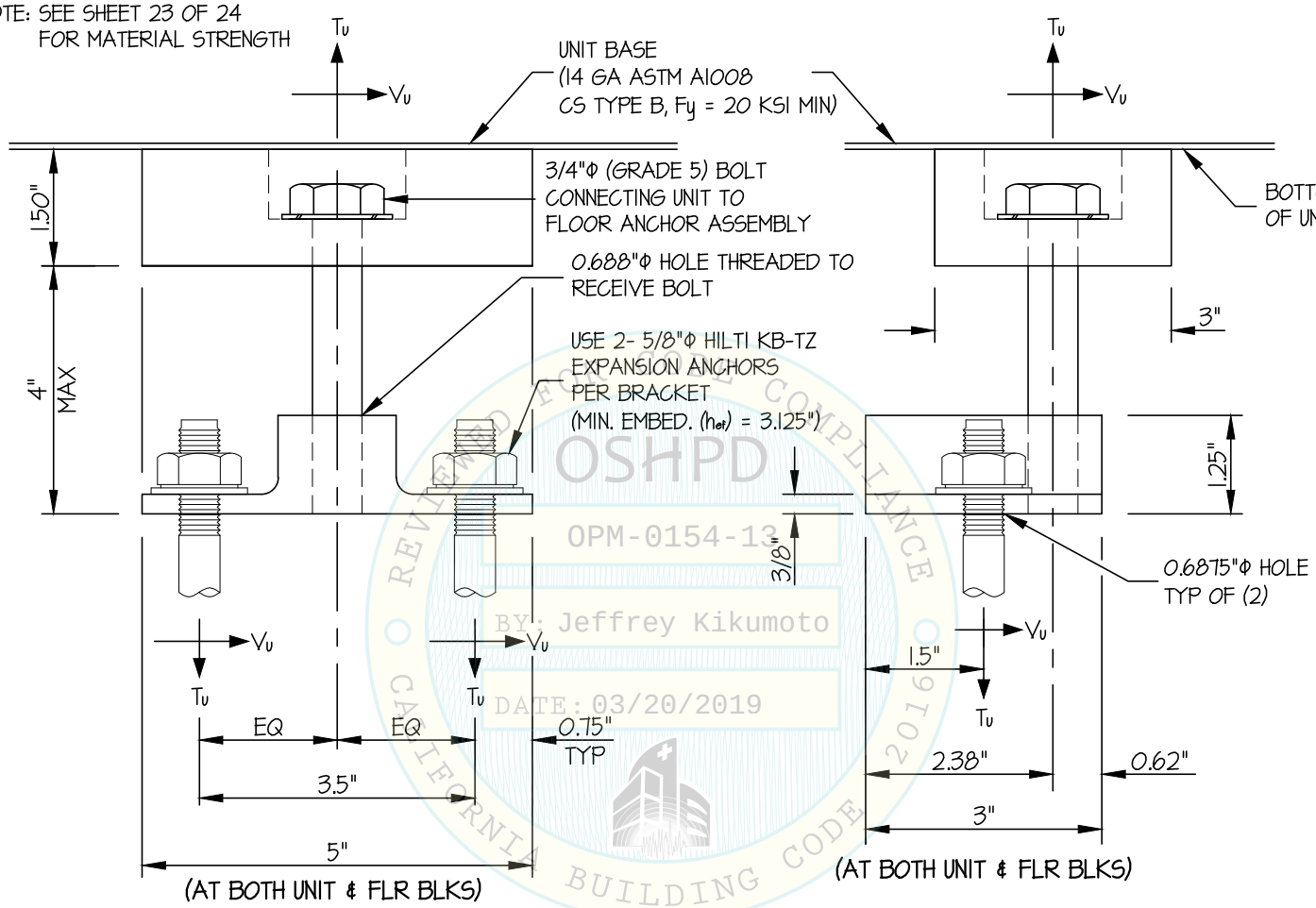
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 7 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

MAX $S_{DS} \leq$ 1.50 FOR UNICEL DxH 800
MAX $S_{DS} \leq$ 1.65 FOR UNICEL DxH 900

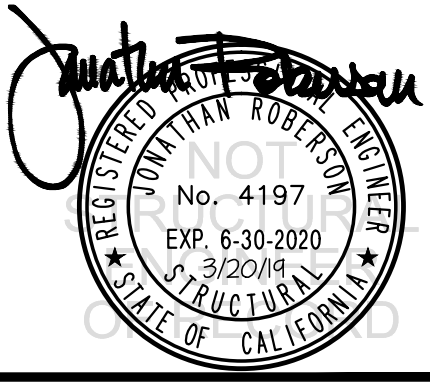
BRACKET DETAIL

NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



FRONT ELEVATION
(UNICEL DxH 800 / DxH 900)

SIDE ELEVATION
(UNICEL DxH 800 / DxH 900)



BECKMAN COULTER

UNICEL DxH 800

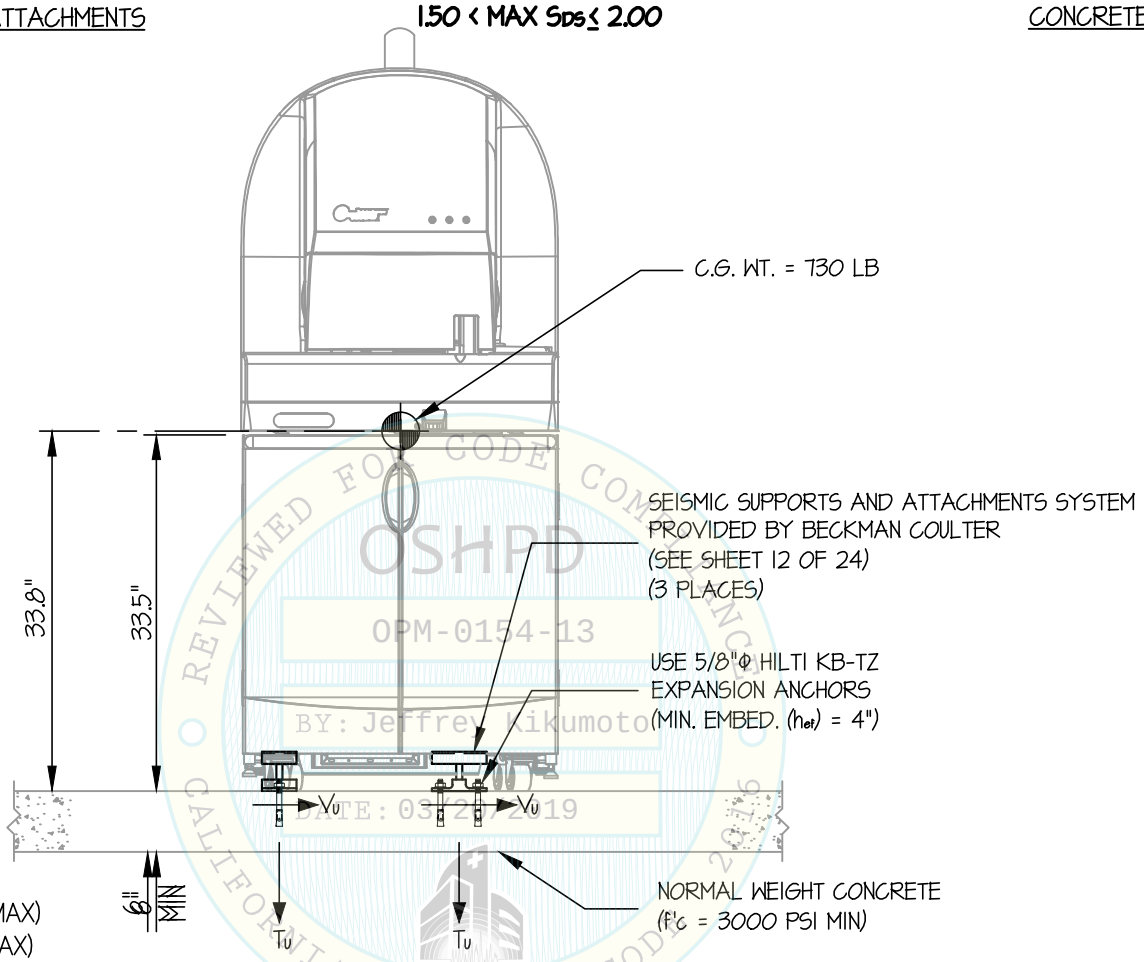
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 8 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

1.50 < MAX S_{DS} ≤ 2.00

CONCRETE SLAB



T_u = 2241 LB/BOLT (MAX)
V_u = 298 LB/BOLT (MAX)
(VALUES INCLUDE Ω_0)

FRONT ELEVATION

NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10 STRENGTH DESIGN IS USED. (S_{DS} = 1.50, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.675 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.01 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.30 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.
4. SEE GENERAL NOTES: SHEET 1 AND 2

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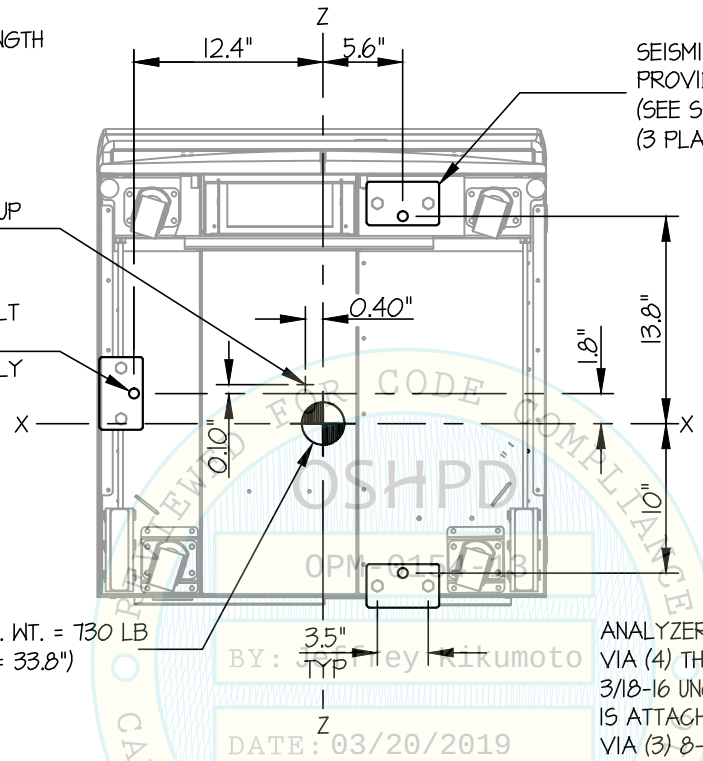
BECKMAN COULTER

UNICEL DxH 800

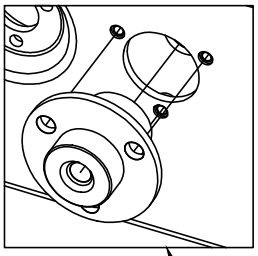
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 9 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS | 1.50 < MAX S_{DS} ≤ 2.00 | CONCRETE SLAB

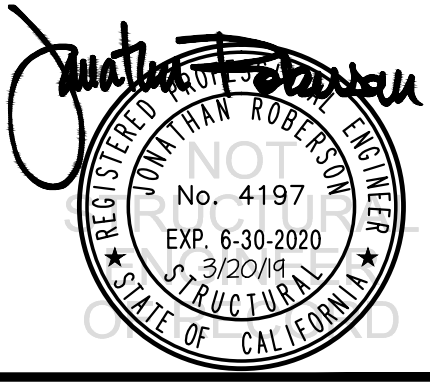
NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



PLAN AT BASE
(UNICEL DxH 800)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS



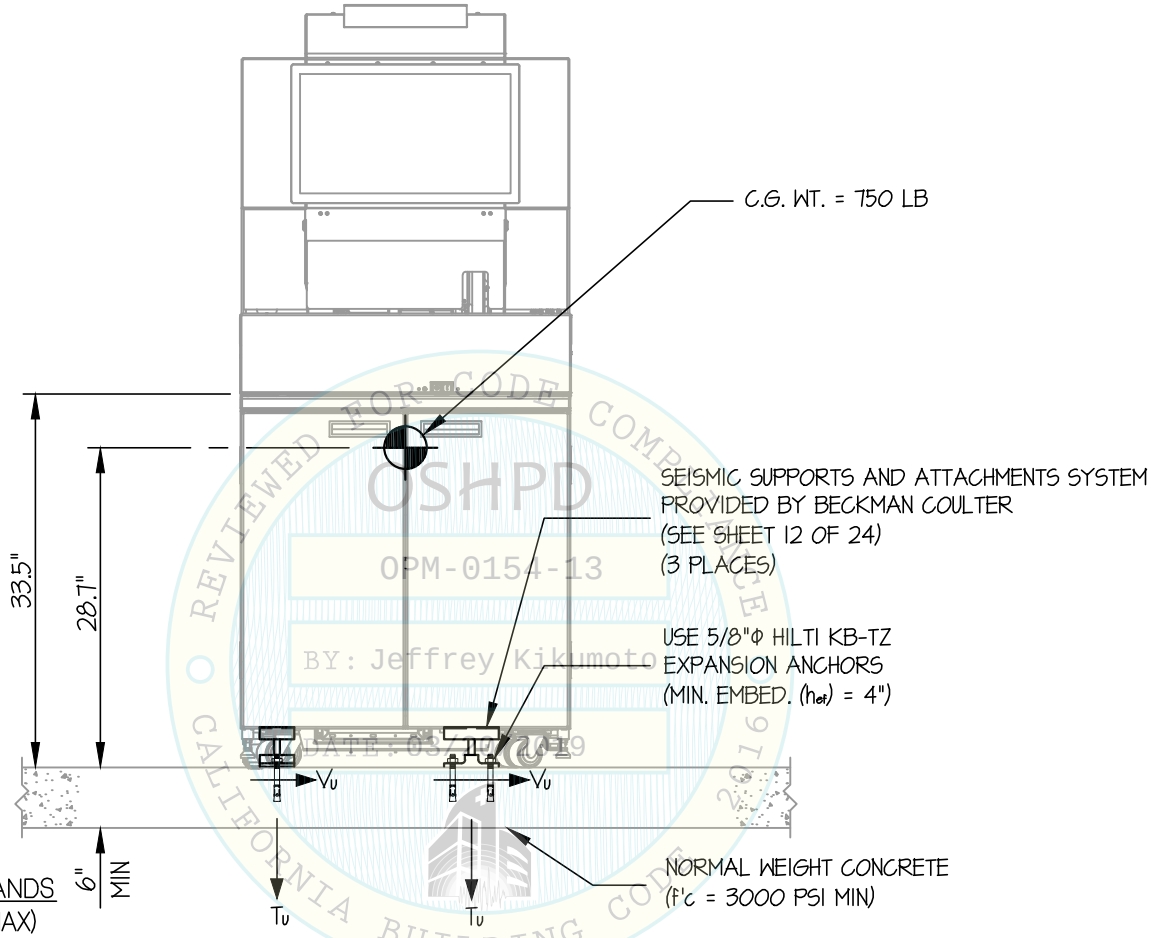
BECKMAN COULTER

UNICEL DxH 900

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 10 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS | 1.65 < MAX S_{DS} ≤ 2.20 | CONCRETE SLAB



FRONT ELEVATION

FLOOR ANCHOR DEMANDS
Tu = 2241 LB/BOLT (MAX)
Vu = 298 LB/BOLT (MAX)
(VALUES INCLUDE Ω_0)

NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10 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.
4. SEE GENERAL NOTES: SHEET 1 AND 2

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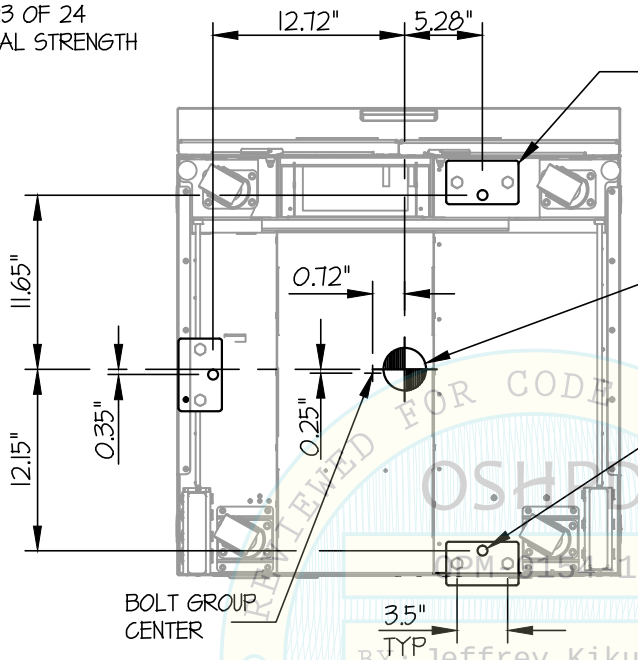
BECKMAN COULTER

UNICEL DxH 900

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 11 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS | 1.65 < MAX S_{DS} ≤ 2.20 | CONCRETE SLAB

NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH

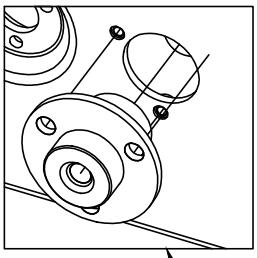


SEISMIC SUPPORTS AND ATTACHMENTS SYSTEM PROVIDED BY BECKMAN COULTER (SEE SHEET 12 OF 24) (3 PLACES)

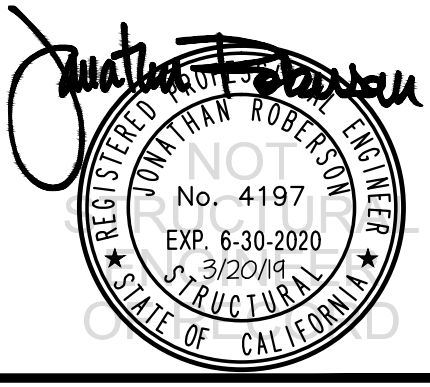
C.G. WT. = 750 LB ($\bar{Y}$ = 28.7")

USE 5/8"Φ HILTI KB-TZ EXPANSION ANCHORS (MIN. EMBED. (h_{ef}) = 4")

PLAN AT BASE
(UNICEL DxH 900)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS



BECKMAN COULTER

UNICEL DxH 800 / DxH 900

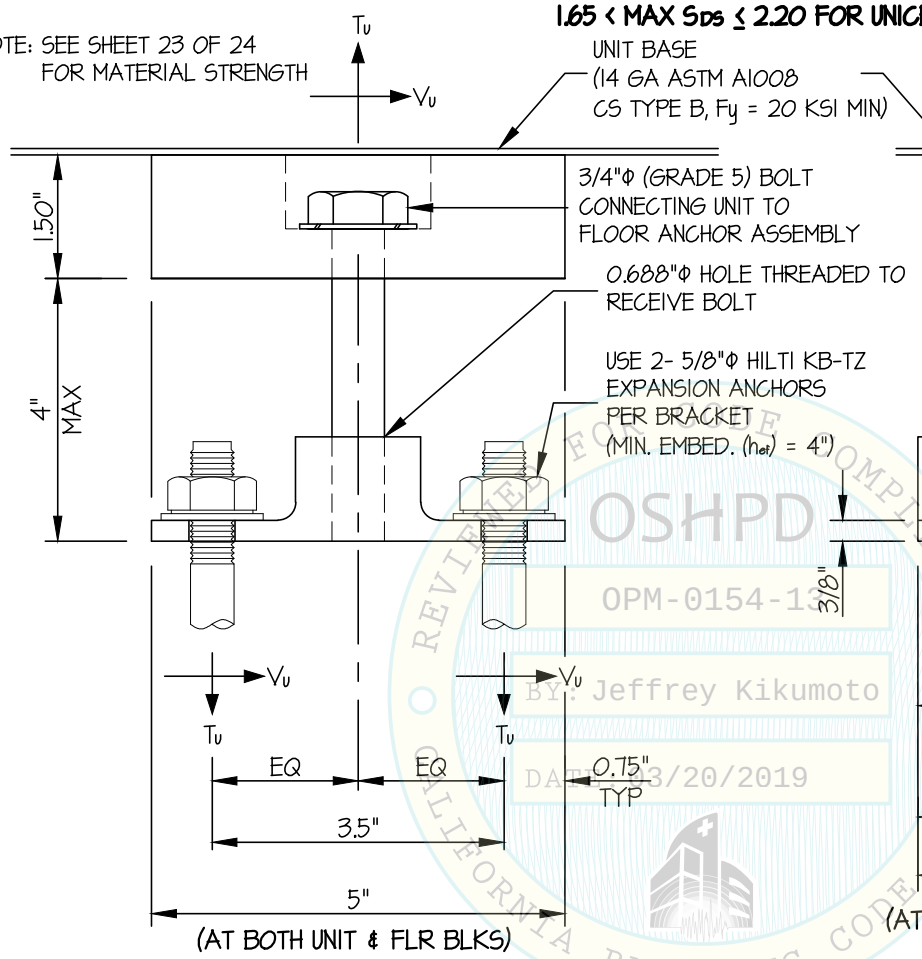
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 12 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

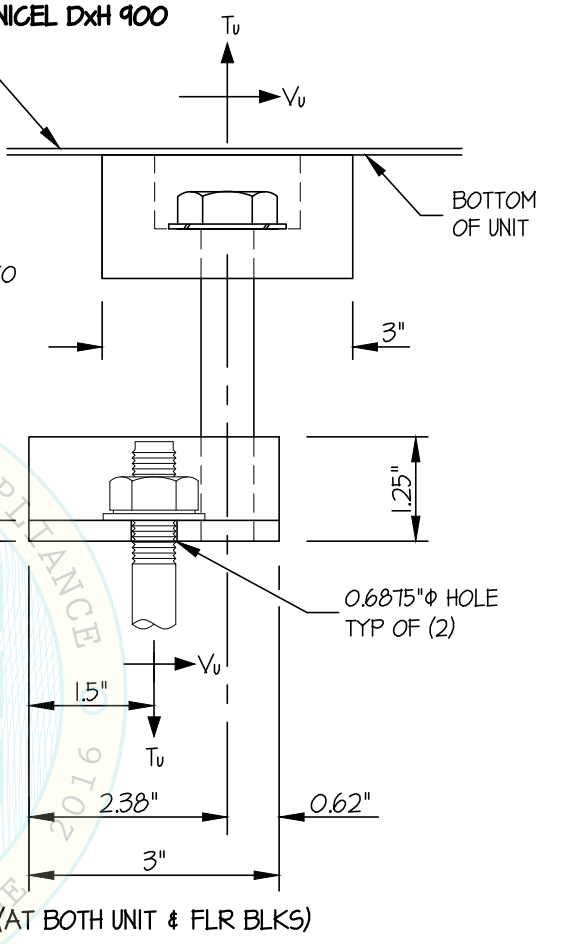
1.50 < MAX S_{DS} ≤ 2.00 FOR UNICEL DxH 800
1.65 < MAX S_{DS} ≤ 2.20 FOR UNICEL DxH 900

BRACKET DETAIL

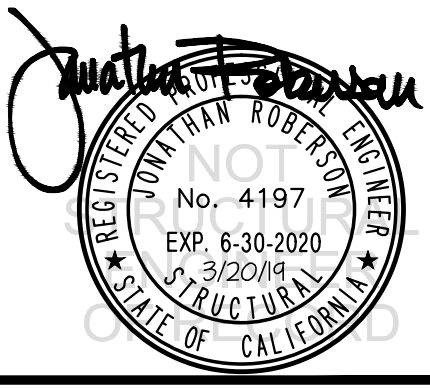
NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



FRONT ELEVATION
(UNICEL DxH 800)



SIDE ELEVATION
(UNICEL DxH 800)



BECKMAN COULTER

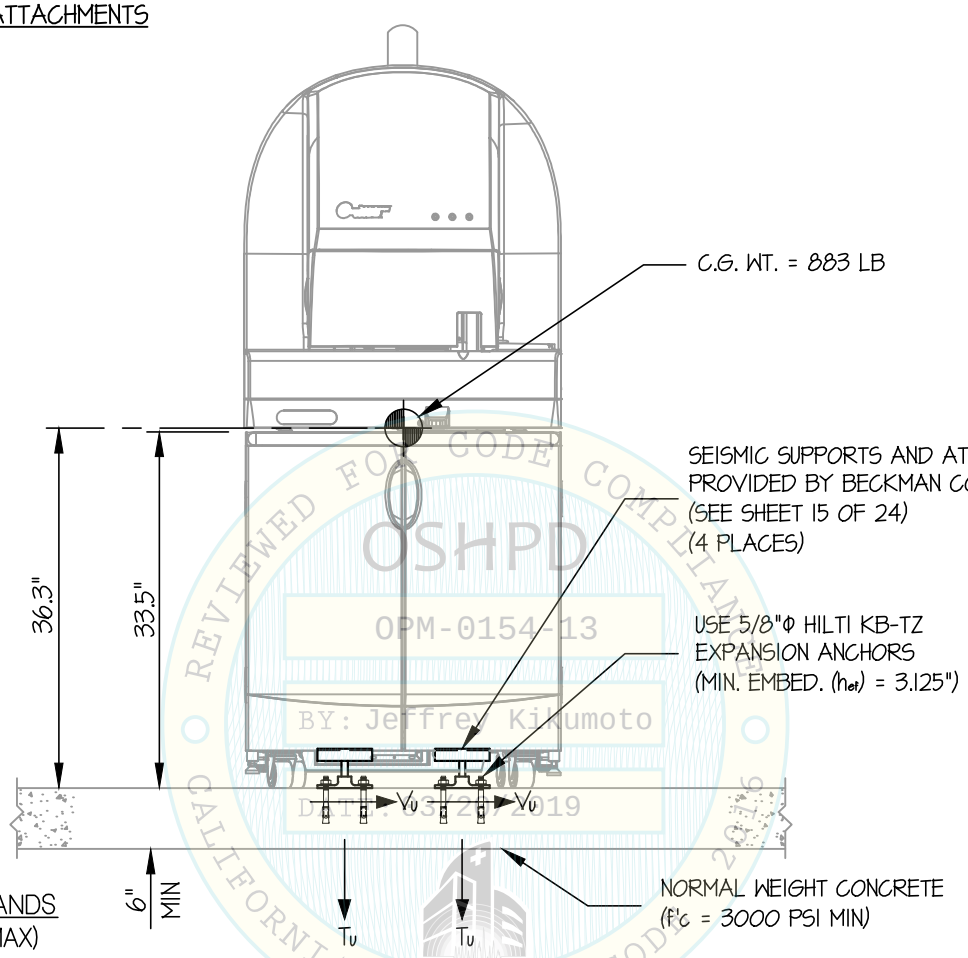
UNICEL DxH SMS / SMS II

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 13 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB



FRONT ELEVATION

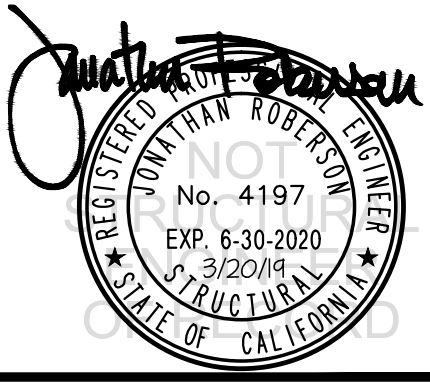
FLOOR ANCHOR DEMANDS
Tu = 1664 LB/BOLT (MAX)
Vu = 228 LB/BOLT (MAX)
(VALUES INCLUDE Ω_0)

NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10 STRENGTH DESIGN IS USED. (S_{DS} = 2.00, a_p = 1.0, I_p = 1.5, R_p = 1.5, Ω_0 = 1.5, z/h = 0)

   HORIZONTAL FORCE (E_h) = 0.90 W_p
   HORIZONTAL FORCE (E_{mh}) = 1.35 W_p (FOR CONCRETE ANCHORAGE)
   VERTICAL FORCE (E_v) = 0.40 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.
4. SEE GENERAL NOTES: SHEET 1 AND 2



BECKMAN COULTER

UNICEL DxH SMS / SMS II

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

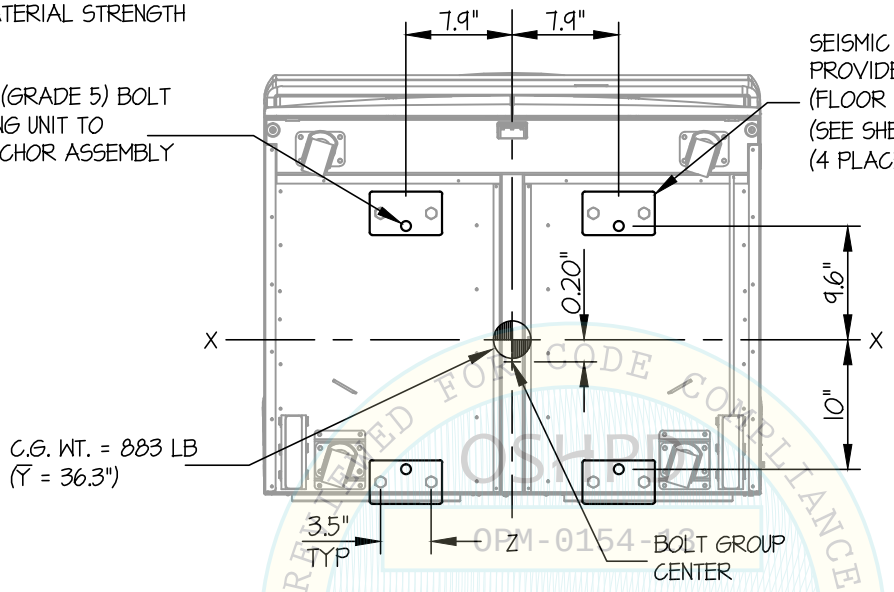
SHEET 14 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

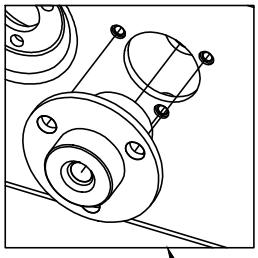
MAX $S_{DS} \leq 2.00$

CONCRETE SLAB

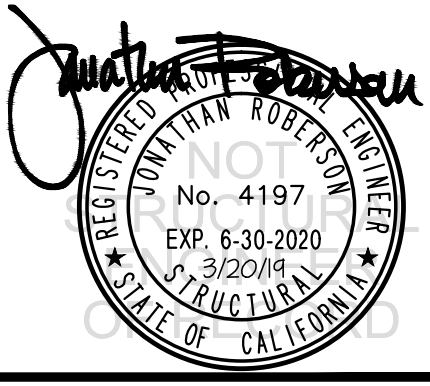
NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



PLAN AT BASE
(UNICEL DxH SMS / SMS II)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS



BECKMAN COULTER

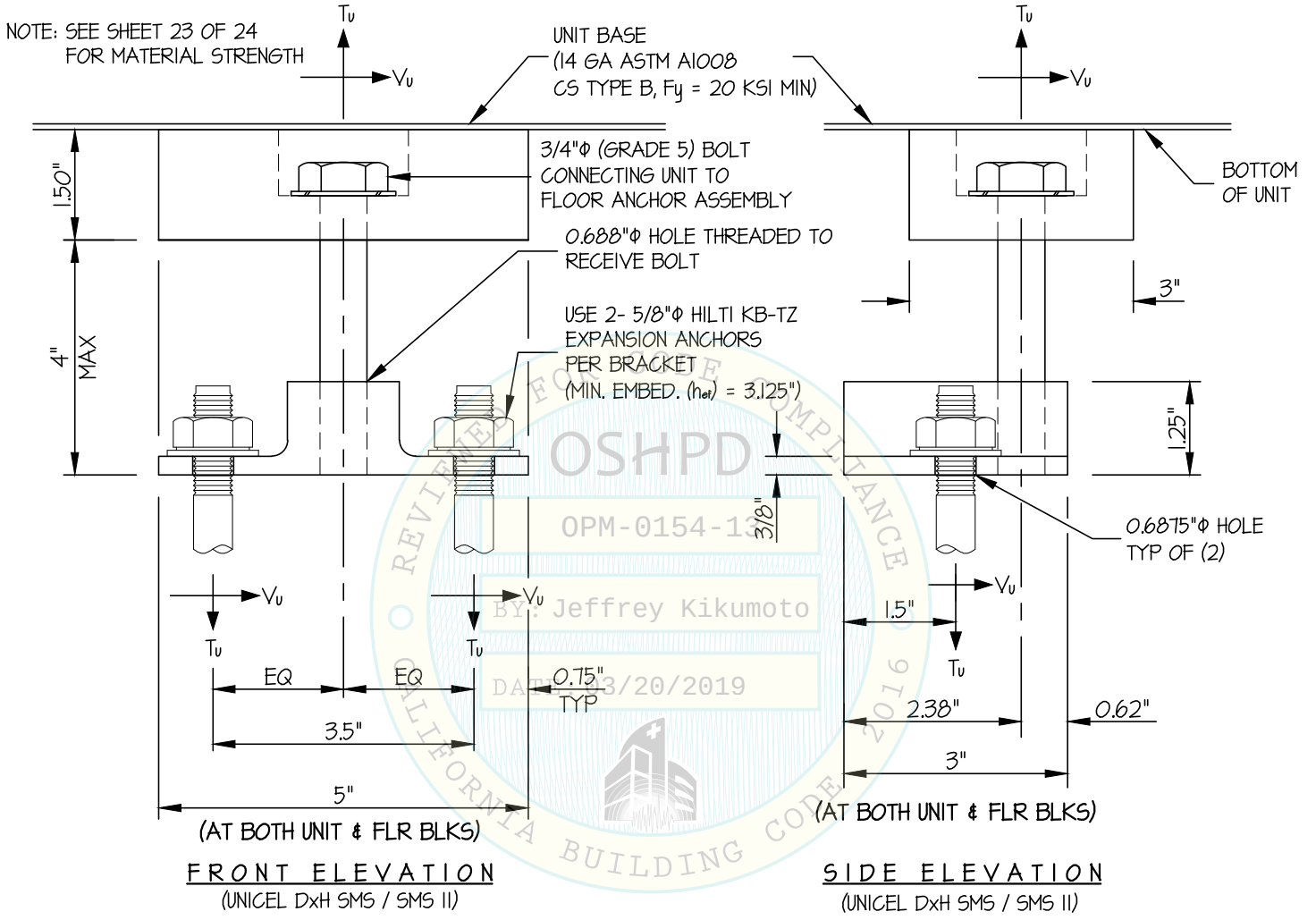
UNICEL DxH SMS / SMS II

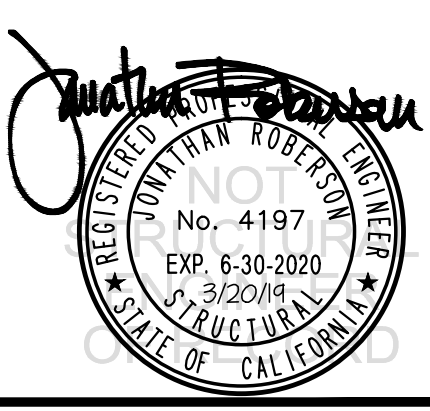
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 15 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

MAX $S_{DS} \leq 2.00$

BRACKET DETAIL





BECKMAN COULTER

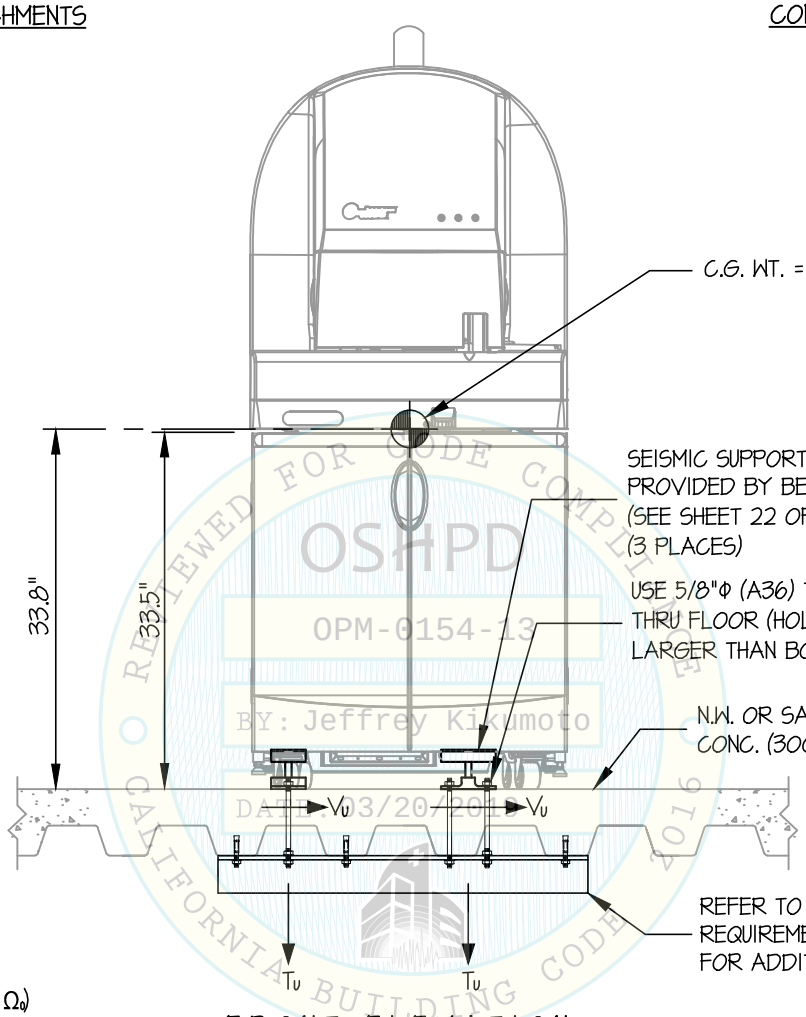
UNICEL DxH 800

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 16 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



Tu = 4229 LB/BOLT (MAX)
Vu = 557 LB/BOLT (MAX)
(VALUES DO NOT INCLUDE Ω_0)

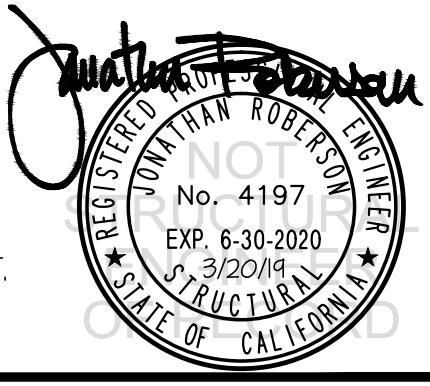
FRONT ELEVATION

NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10. 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.
4. SEE GENERAL NOTES: SHEET 1 AND 2



BECKMAN COULTER

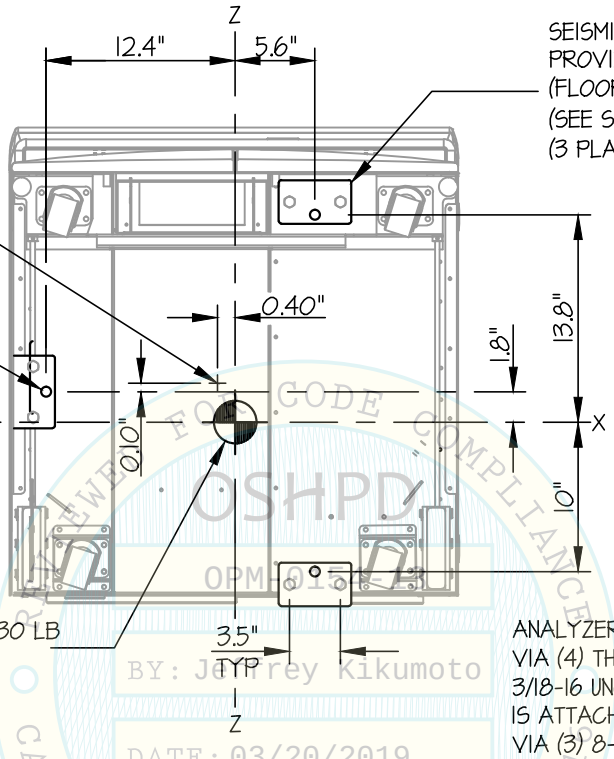
UNICEL DxH 800

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 17 OF 24 SHEETS

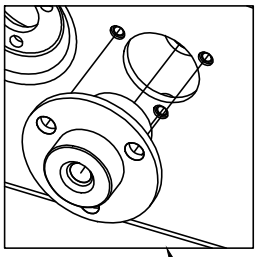
SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK

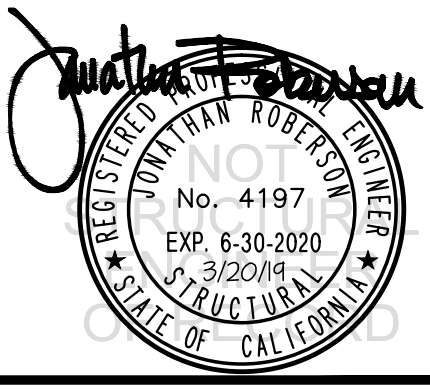
NOTE: SEE SHEET 23 OF 23 FOR MATERIAL STRENGTH



PLAN AT BASE
(UNICEL DxH 800)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS



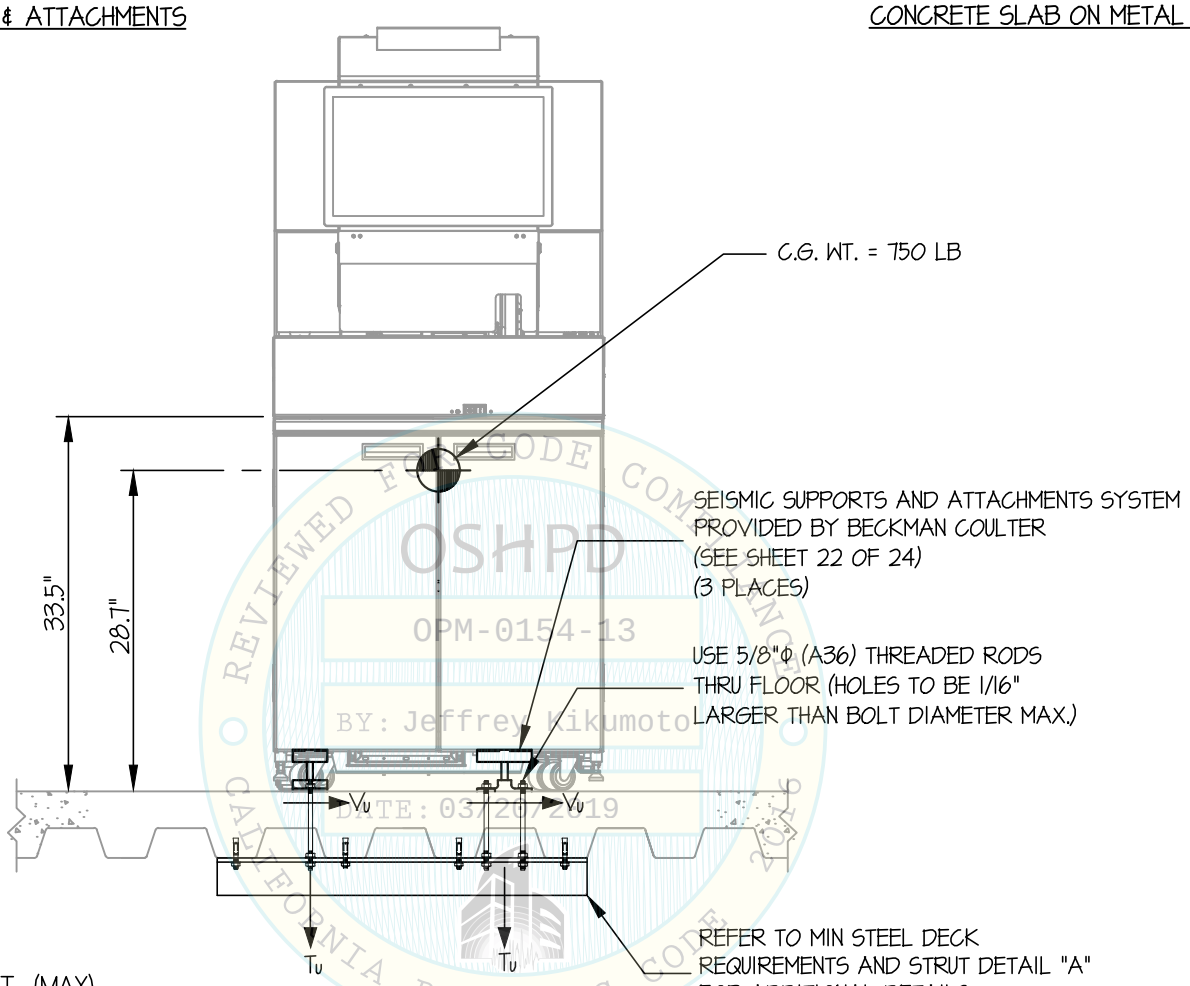
BECKMAN COULTER

UNICEL DxH 900

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 18 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



Tu = 4229 LB/BOLT (MAX)
Vu = 557 LB/BOLT (MAX)
(VALUES DO NOT INCLUDE Ω_0)

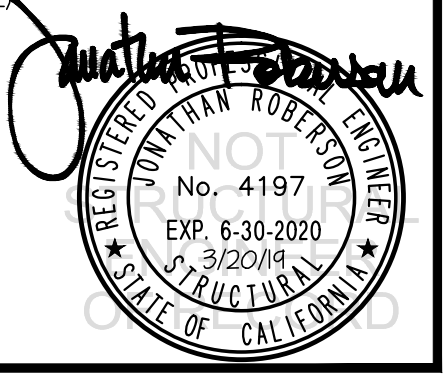
FRONT ELEVATION

NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10
   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.
4. SEE GENERAL NOTES: SHEET 1 AND 2



BECKMAN COULTER

UNICEL DxH 900

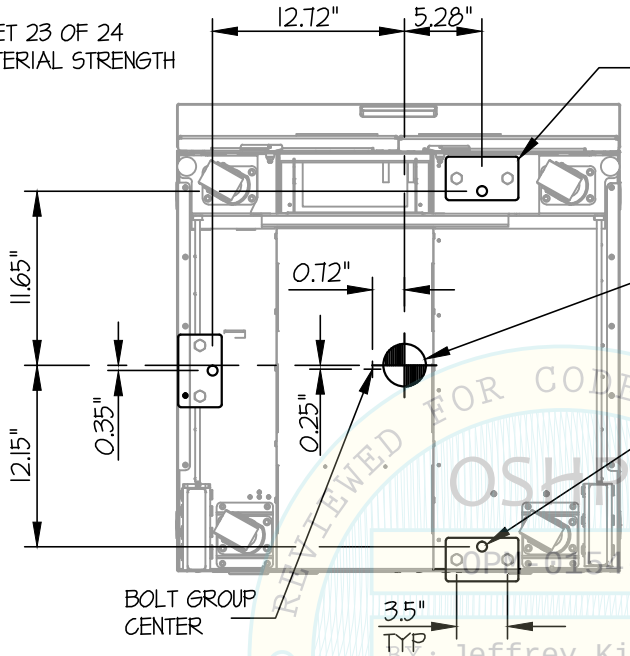
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 19 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK

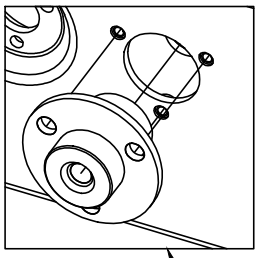
NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



SEISMIC SUPPORTS AND ATTACHMENTS SYSTEM PROVIDED BY BECKMAN COULTER (FLOOR BLOCKS SHOWN) (SEE SHEET 22 OF 24) (3 PLACES)

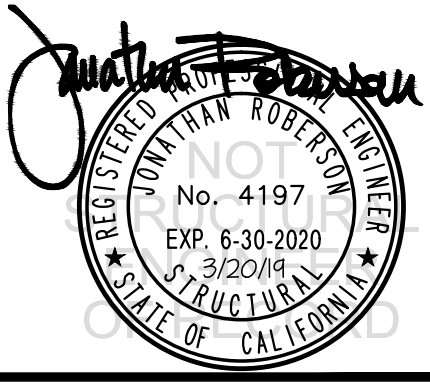
C.G. WT. = 750 LB ($\bar{Y}$ = 28.7")

USE 3/4"Φ (GRADE 5) BOLT CONNECTING UNIT TO FLOOR ANCHOR ASSEMBLY (3 TOTAL)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS

PLAN AT BASE
(UNICEL DxH 900)



BECKMAN COULTER

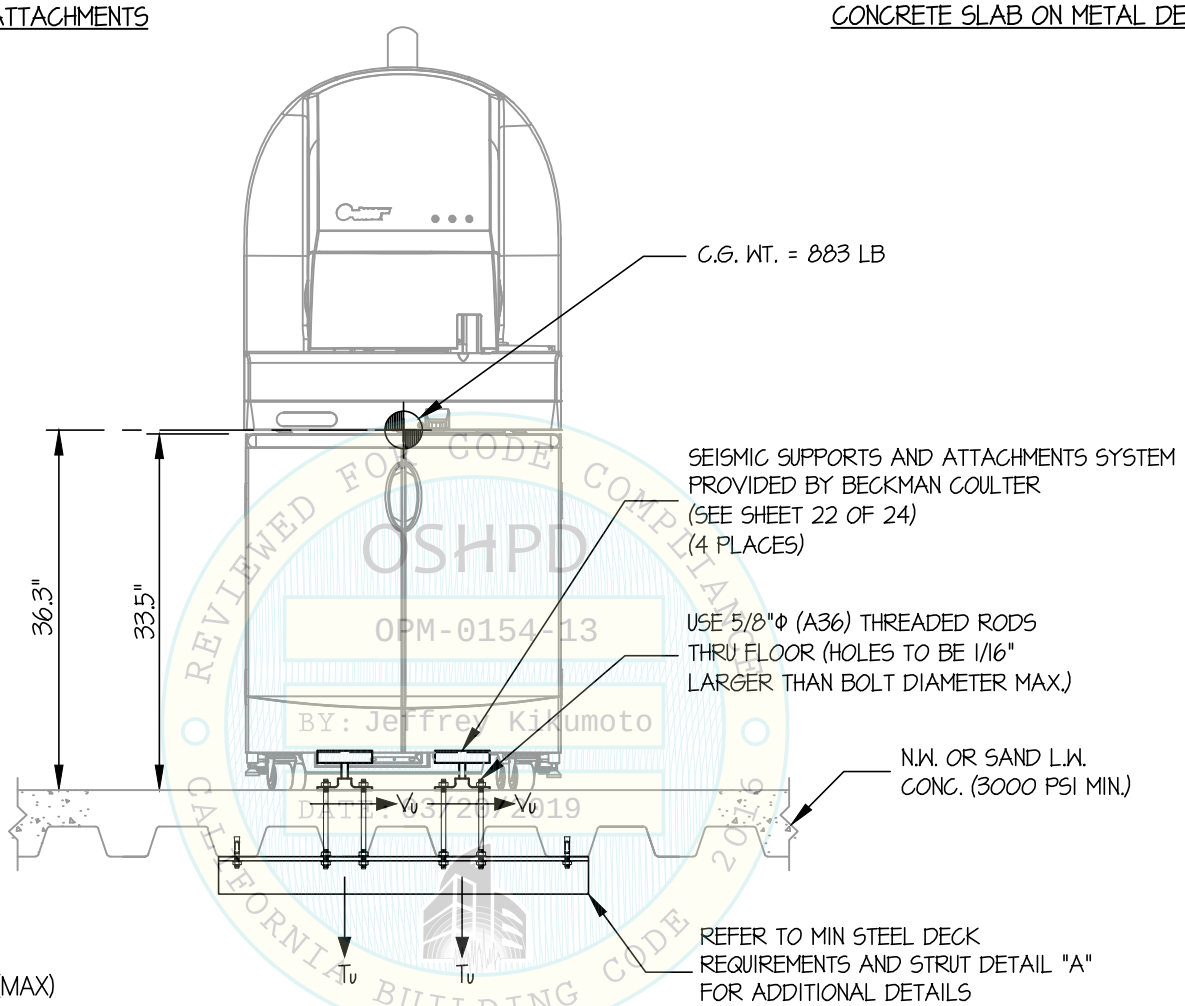
UNICEL DxH SMS / SMS II

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 20 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



FRONT ELEVATION

Tu = 3220 LB/BOLT (MAX)
Vu = 592 LB/BOLT (MAX)
(VALUES DO NOT INCLUDE Ω_0)

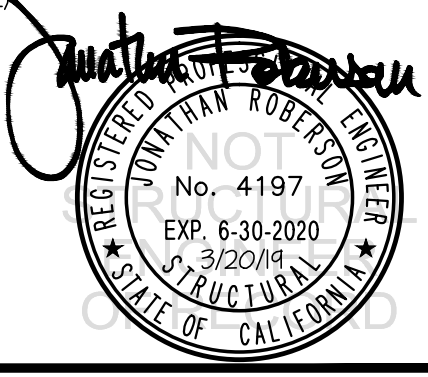
NOTES:

1. FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10 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

UNICEL DxH SMS / SMS II

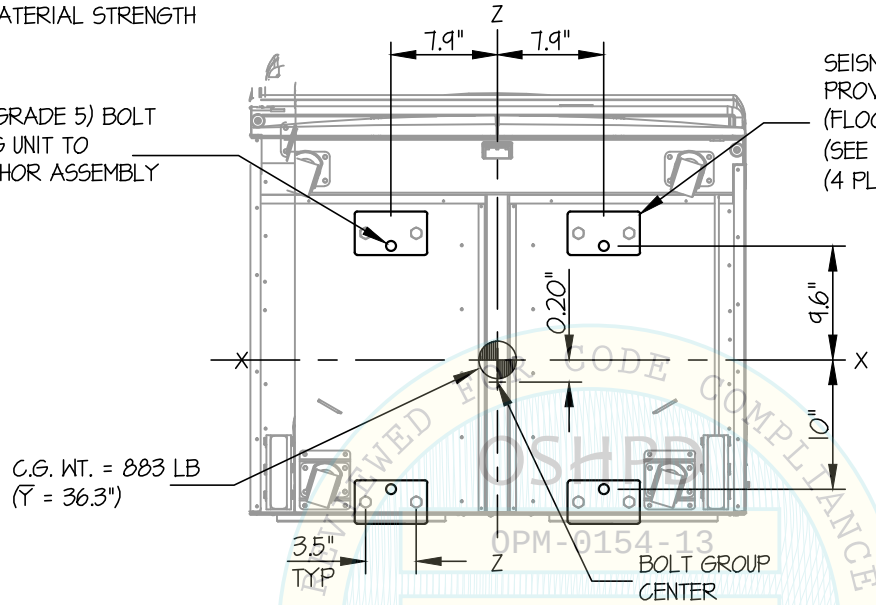
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19

SHEET 21 OF 24 SHEETS

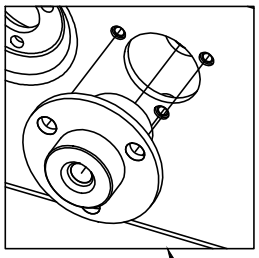
SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK

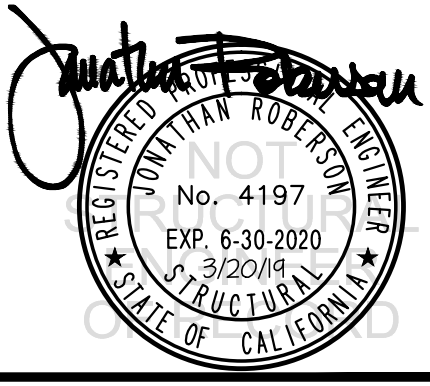
NOTE: SEE SHEET 23 OF 24 FOR MATERIAL STRENGTH



PLAN AT BASE
(UNICEL DxH SMS / SMS II)



ANALYZER IS BOLTED TO THE CABINET VIA (4) THREADED MOUNTING FEET AND 3/18-16 UNC BOLT. EACH MOUNTING FOOT IS ATTACHED TO THE ANALYZER FRAME VIA (3) 8-32 UNC BOLTS



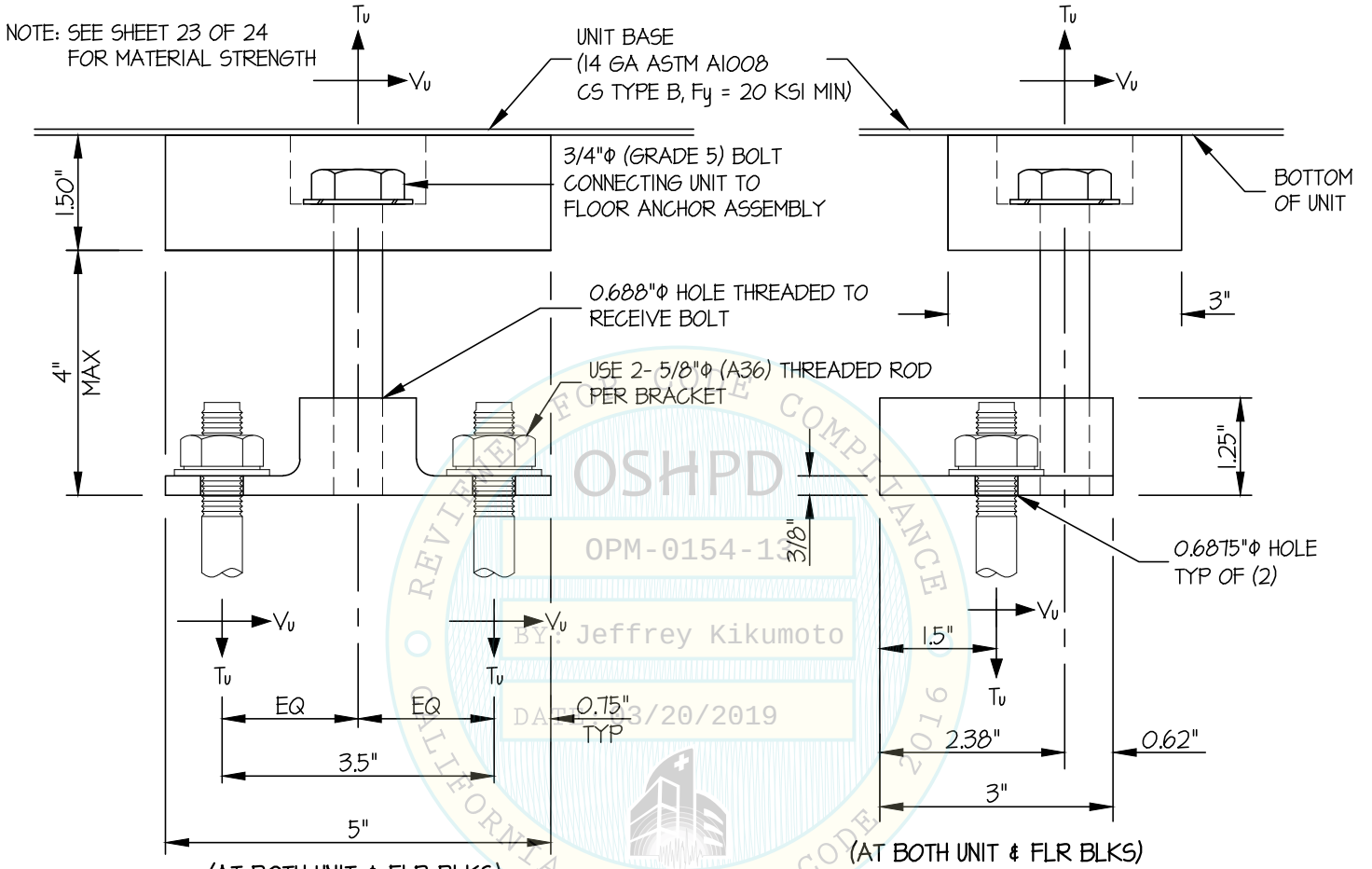
BECKMAN COULTER

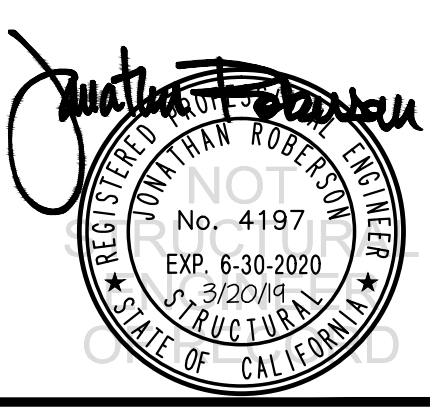
UNICEL DxH 800, DxH 900, SMS & SMS II

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 22 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

BRACKET DETAIL



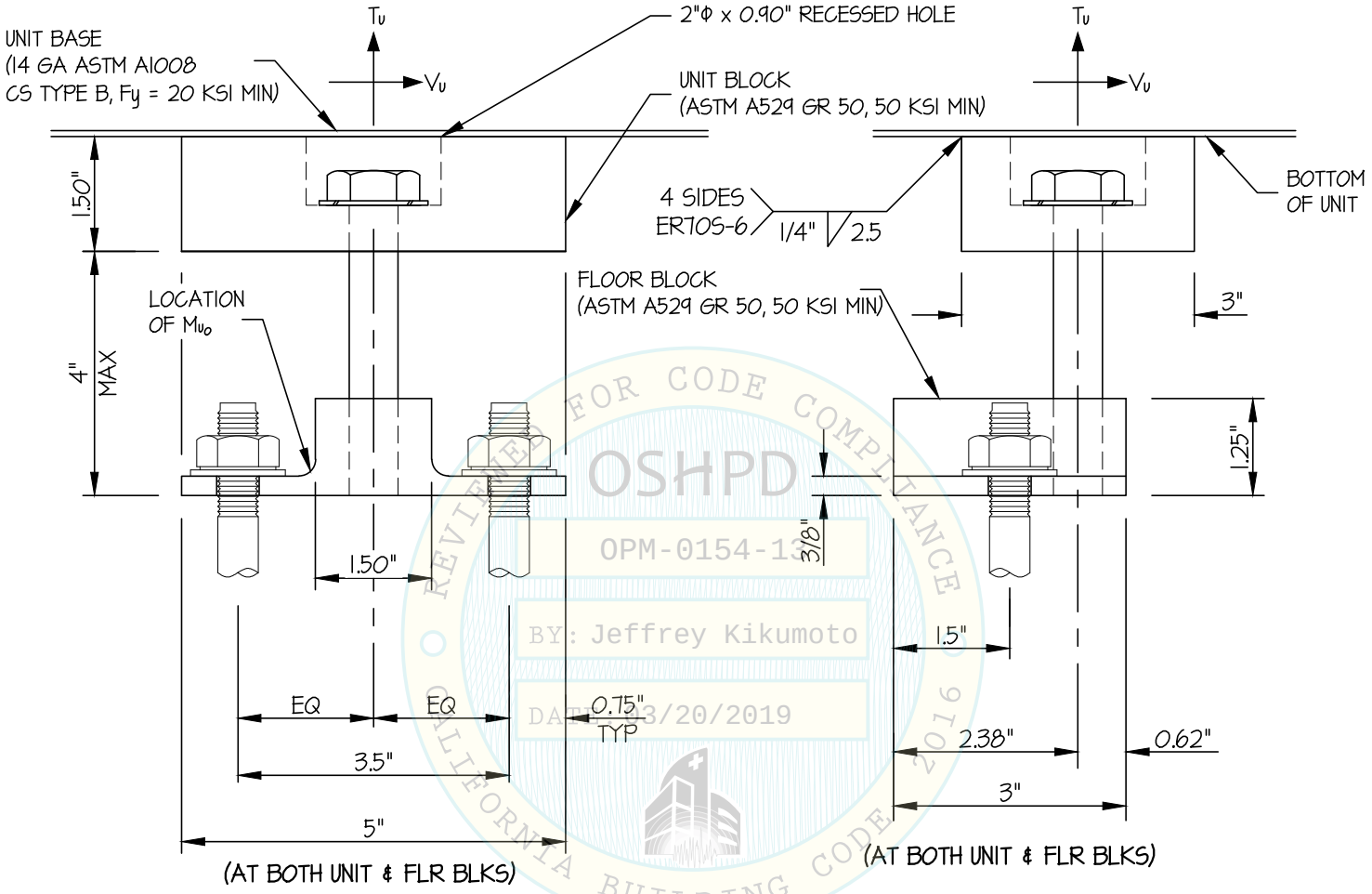


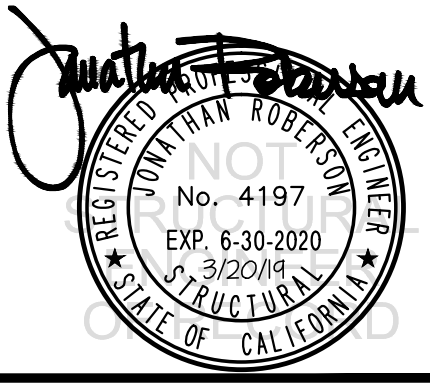
BECKMAN COULTER

UNICEL DxH 800, DxH 900, SMS & SMS II

DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 23 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS





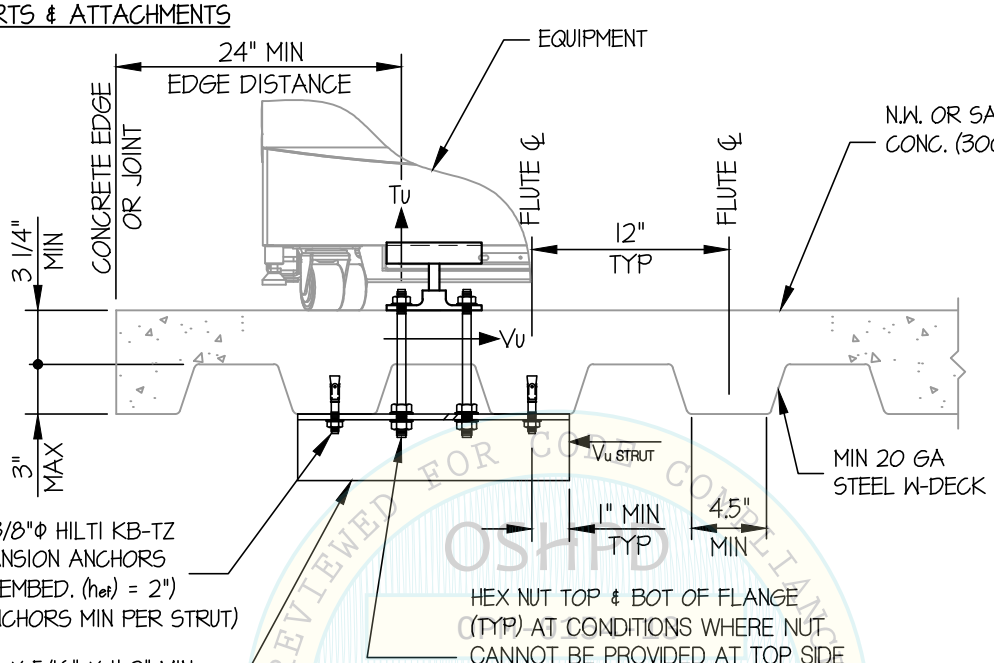
BECKMAN COULTER

UNICEL DxH 800, DxH 900, SMS & SMS II

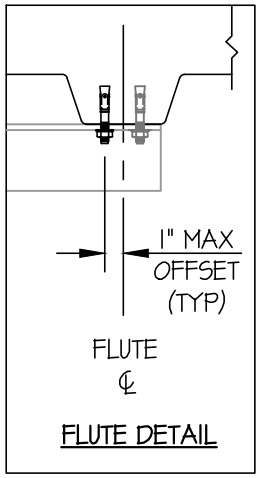
DES. J. ROBERSON
JOB NO. 11-1437
DATE 3/20/19
SHEET 24 OF 24 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE DETAIL



MIN STEEL DECK REQUIREMENTS AND STRUT DETAIL (A)



FLUTE DETAIL