



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY
APPLICATION #: OPM-0499-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: [X] New [] Renewal [] Update to Pre-CBC 2013 OPA Number:

Manufacturer Information

Manufacturer: Ultra Clean Systems, Inc.

Manufacturer's Technical Representative: Keith Cale

Mailing Address: 148A Dunbar Ave., Oldsmar, FL. 34677

Telephone: On File Email: On File

Product Information

Product Name: Triton Series Ultrasonic Cleaning Systems

Product Type: Other Mechanical and Electrical Components

Product Model Number: Triton 36 and Triton 72

General Description: Sterilizer for Medical Instruments

Applicant Information

Applicant Company Name: EASE Co.

Contact Person: Jonathan Roberson, S.E.

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

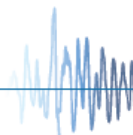
Telephone: (909) 606-7622 Email: J.Roberson@EASECo.com

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: [Signature] Date: 7/5/18

Title: Principal Engineer Company Name: EASE Co.

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





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

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

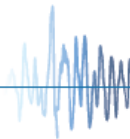
Signature: Sonia Eliseo Date: 5/22/2019

Print Name: Sonia Eliseo

Title: SE

Condition of Approval (if applicable): _____

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



"Equitable Healthcare Accessibility for California"



**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-0499-13

THIS PREAPPROVAL CONFORMS TO THE 2016 CALIFORNIA BUILDING CODE

MANUFACTURER: **ULTRA CLEAN SYSTEMS, INC.** Sheet: 1 of 8
EQUIPMENT NAME: **TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS** Date: 4/30/19

GENERAL NOTES

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2016 CBC. THE DEMANDS (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2016 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 2016 CALIFORNIA BUILDING CODE WHERE S_{ds} IS NOT GREATER THAN 1.10 & 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 $S_{ds} = 2.20$, $a_p = 1.0$, $I_p = 1.5$, $R_p = 1.5$, $z/h = 0$ AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR Ω_o .
WHERE $S_{ds} = 1.10$, $a_p = 1.0$, $I_p = 1.5$, $R_p = 1.5$, $z/h \leq 1$ AT CONCRETE SLAB ON METAL DECK.
SEE FOLLOWING SHEETS FOR Ω_o .
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 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. 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 $6h_{ef}$ FROM THIS UNIT'S ANCHORS.



ULTRA CLEAN SYSTEMS, INC.

DES. **J. ROBERSON**

SHEET

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JOB NO. **11-1816**

OF **8**

SHEETS

TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS

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"	3.25" Over Flutes	25 FT-LB	N/A
3/8"	Normal Weight	3000	Hilti Kwik HUS-EZ	ESR-3027	2.5"	2.375"	12"	4"	25 FT-LB	1026 lb

B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE SLAB EDGES, 18" AWAY MINIMUM (i.e. - CORNER). SEE ADJACENT DETAIL FOR ADDITIONAL MINIMUM ALLOWABLE CONCRETE EDGE DISTANCES.

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.

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

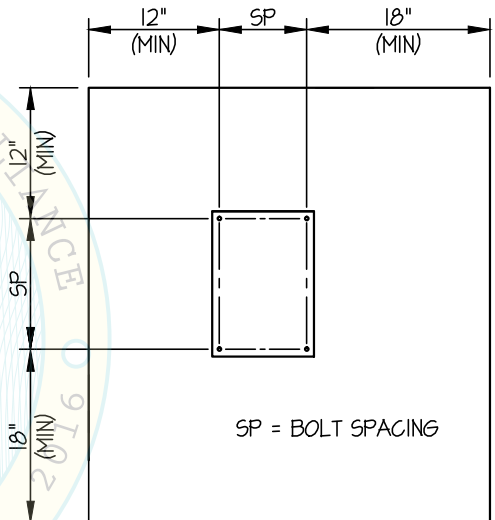
E. PROVIDE FOR FULL THREAD ENGAGEMENT OF NUT & WASHER.

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.



TYPICAL CONCRETE EDGE DETAIL



ULTRA CLEAN SYSTEMS, INC.

DES. J. ROBERSON

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JOB NO. 11-1816

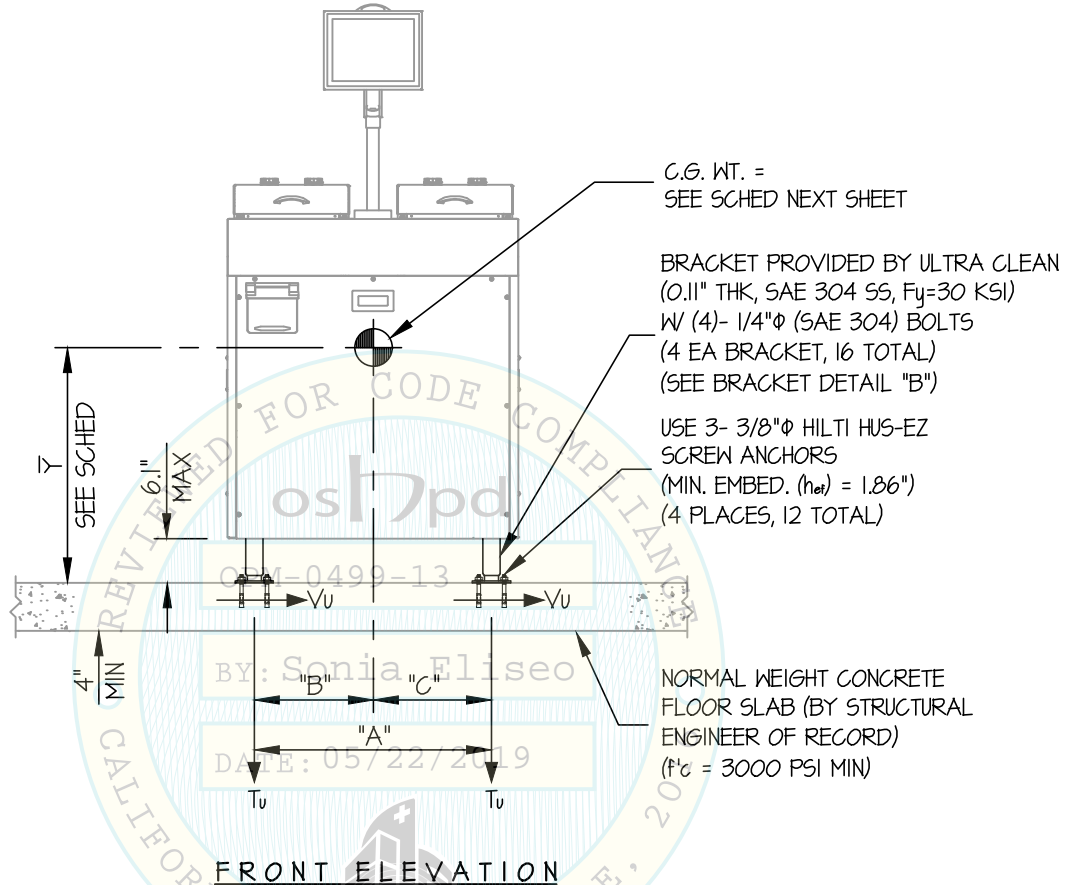
DATE 4/30/19

OF 8 SHEETS

TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB



NOTES:

- FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10
STRENGTH DESIGN IS USED. (S_{Ds} = 2.20, a_p = 1.0, l_p = 1.5, R_p = 1.5, Ω_o = 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

- CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
- 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.
- SEE GENERAL NOTES: SHEETS 1 AND 2.



ULTRA CLEAN SYSTEMS, INC.

DES. J. ROBERSON

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TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS

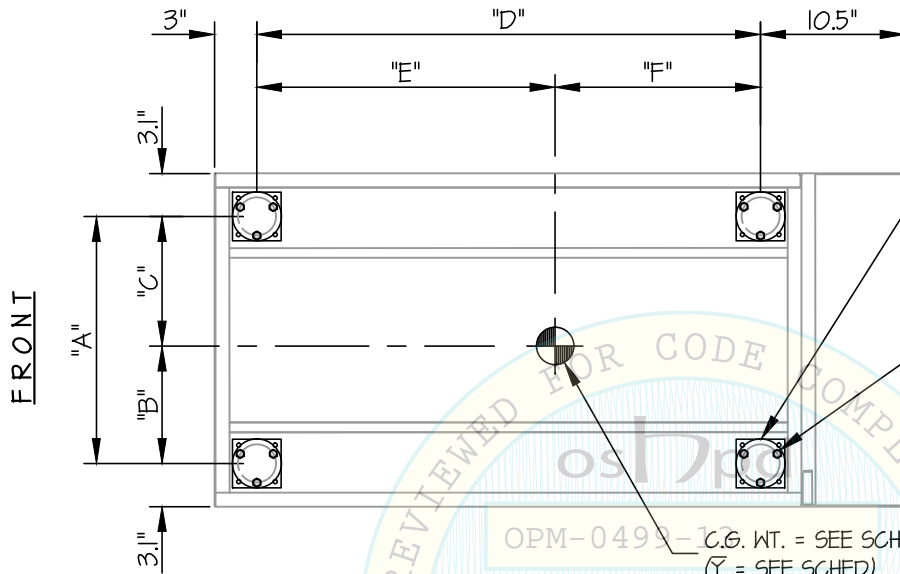
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OF 8 SHEETS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB



BRACKET PROVIDED BY ULTRA CLEAN
(0.11" THK, SAE 304 SS, Fy=30 KSI)
W/ (4)- 1/4"Φ (SAE 304) BOLTS
(4 EA BRACKET, 16 TOTAL)
(SEE BRACKET DETAIL "B")

USE 3- 3/8"Φ HILTI HUS-EZ
SCREW ANCHORS
(MIN. EMBED. (h_{ef}) = 1.86")
(4 PLACES, 12 TOTAL)

C.G. WT. = SEE SCHED
(\bar{Y} = SEE SCHED)

PLAN AT BASE

UNIT	WEIGHT (lb.)	\bar{Y} (in.)	"A" (in.)	"B" (in.)	"C" (in.)	"D" (in.)	"E" (in.)	"F" (in.)	* Tu (lb/bolt)	* Vu (lb/bolt)
TRITON 36	938	25.8	17.8	8.5	9.3	36.2	214	14.8	407	174
TRITON 72	1517	28.1	27.3	13.7	13.6	36.2	217	14.5	483	283

* VALUES DO INCLUDE Ω_c AND REFLECT LB/ANCHOR BOLT



ULTRA CLEAN SYSTEMS, INC.

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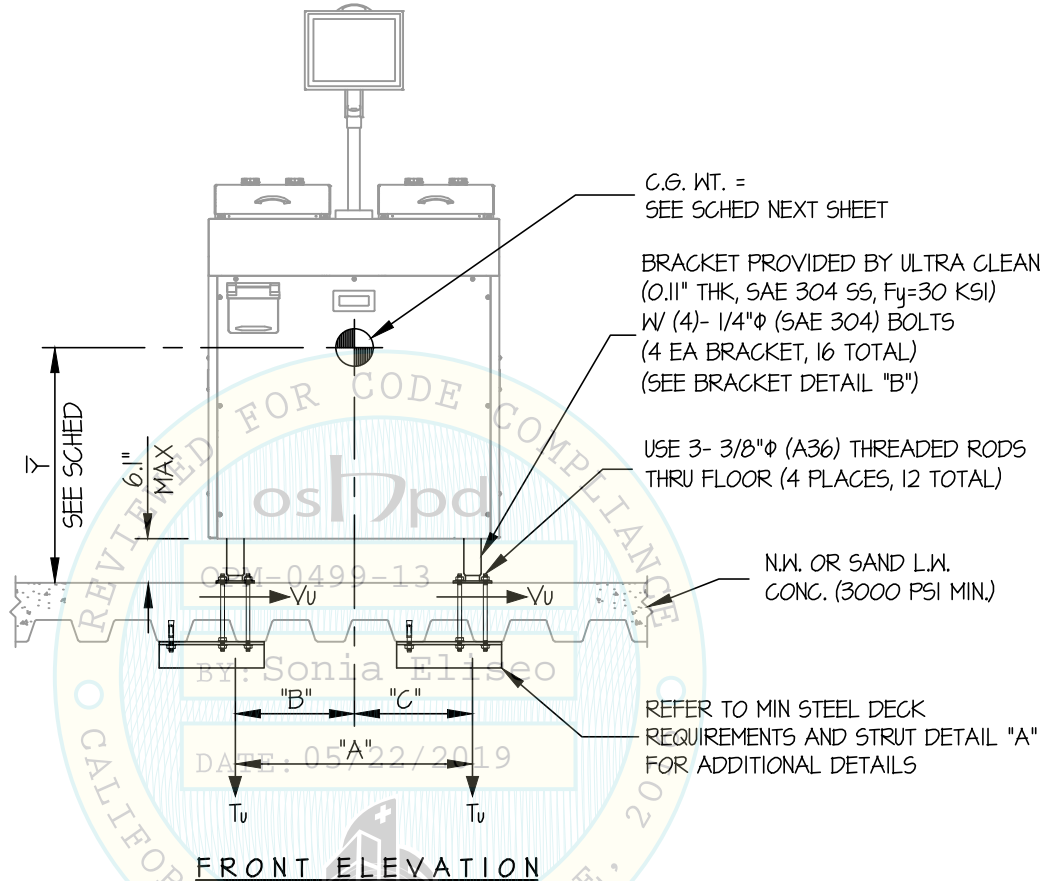
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OF **8** SHEETS

TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



NOTES:

- FORCES ARE DETERMINED PER 2016 CALIFORNIA BUILDING CODE AND ASCE 7-10. STRENGTH DESIGN IS USED. ($S_Ds = 1.10$, $a_p = 1.0$, $l_p = 1.5$, $R_p = 1.5$, $\Omega_o = 1.5$, $z/h \leq 1$)

$$\text{HORIZONTAL FORCE (E}_h\text{)} = 1.32 W_p$$

$$\text{HORIZONTAL FORCE (E}_{mh}\text{)} = 1.98 W_p \text{ (FOR CONCRETE ANCHORAGE)}$$

$$\text{VERTICAL FORCE (E}_v\text{)} = 0.22 W_p$$

- CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
- 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.
- SEE GENERAL NOTES: SHEETS 1 AND 2.



ULTRA CLEAN SYSTEMS, INC.

DES. J. ROBERSON

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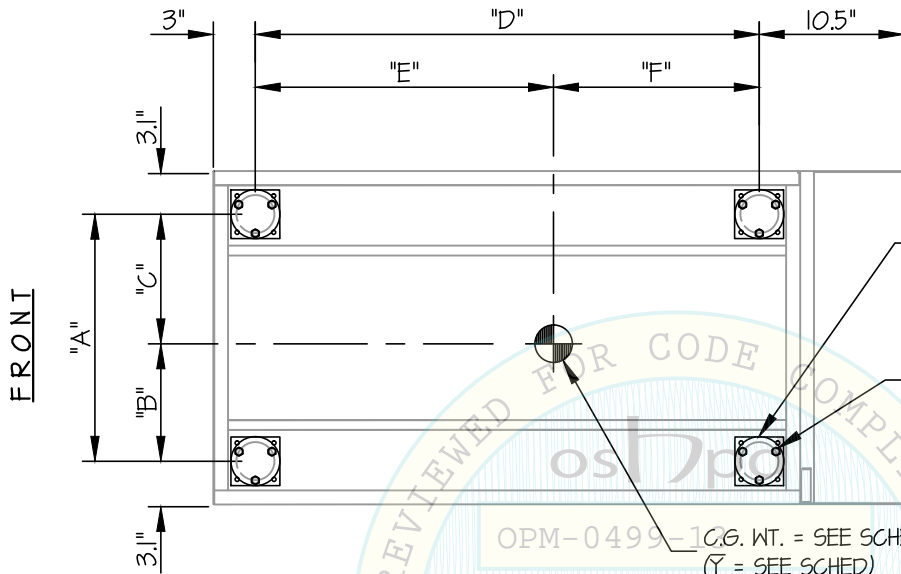
SHEETS

TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS

DATE 4/30/19

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK



BRACKET PROVIDED BY ULTRA CLEAN
(0.11" THK, SAE 304 SS, F_y=30 KSI)
W/ (4)- 1/4"φ (SAE 304) BOLTS
(4 EA BRACKET, 16 TOTAL)
(SEE BRACKET DETAIL "B")

USE 3- 3/8"φ (A36) THREADED RODS
THRU FLOOR (4 PLACES, 12 TOTAL)

OPM-0499-13 C.G. WT. = SEE SCHED
(\bar{Y} = SEE SCHED)

PLAN AT BASE

UNIT	WEIGHT (lb)	\bar{Y} (in)	"A" (in)	"B" (in)	"C" (in)	"D" (in)	"E" (in)	"F" (in)	+ T _u (lb/bolt)	+ V _u (lb/bolt)
TRITON 36	938	25.8	17.8	8.5	9.3	36.2	21.4	14.8	336	155
TRITON 72	1517	28.1	27.3	13.7	13.6	36.2	21.7	14.5	386	250

+ VALUES DO NOT INCLUDE Ω_0 AND REFLECT LB/ANCHOR BOLT



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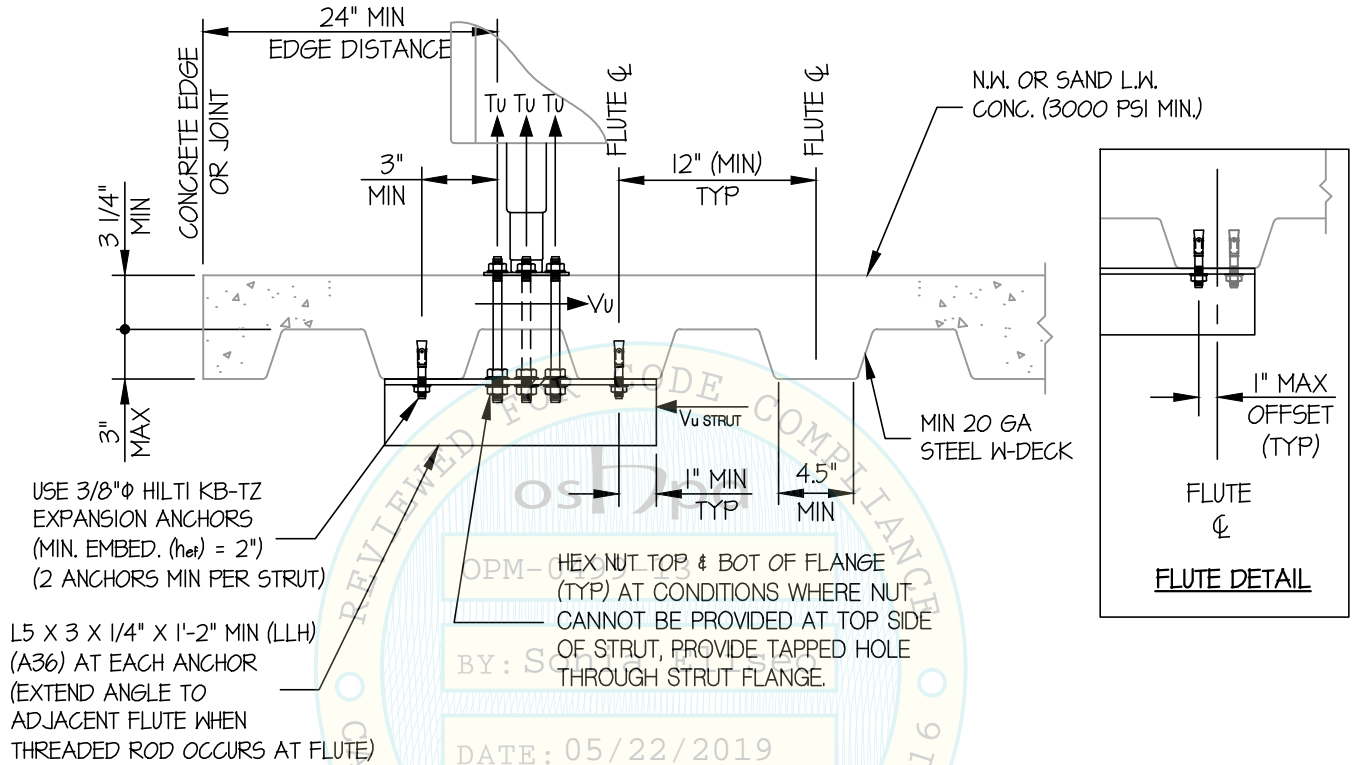
SHEETS

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TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE DETAILS



MIN STEEL DECK REQUIREMENTS AND STRUT DETAIL (A)



ULTRA CLEAN SYSTEMS, INC.

DES. **J. ROBERSON**

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TRITON 36 & TRITON 72 ULTRASONIC CLEANING SYSTEMS

DATE **4/30/19**

SEISMIC SUPPORTS & ATTACHMENTS

BRACKET DETAILS

