



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

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

OFFICE USE ONLY

APPLICATION #: OPM-0070-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: New Renewal Update to Pre-CBC 2013 OPA Number: OPA-1942-07

Manufacturer Information

Manufacturer: Crest Ultrasonics

Manufacturer's Technical Representative: Zach Miday

Mailing Address: STERIS Corporation, 5900 Heisley Rd, Mentor, Ohio 44060

Telephone: 440-392-7688 Email: Zachary.Miday@Steris.com

Product Information

Product Name: Crest Ultrasonic Cleaner

Product Type: Hospital Series Consoles OPM-0070-13

Product Model Number: 11W, 11WRD, 15W, 15WRD, 17W, 17WRD, 20W, 20WRD

General Description: Ultrasonic cavitation provides an intense "scrubbing action," which leads to cleaning speed and consistency when compared with simple soaking or immersion with agitation. Ultrasonic energy causes alternating patterns of low- and high-pressure phases.

Applicant Information

Applicant Company Name: ISAT Seismic Bracing

Contact Person: William V Joerger

Mailing Address: 1020 Crews Road, Suite Q, Matthews NC 28105

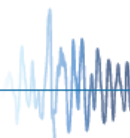
Telephone: 510-714-0216 Email: wvjoerger@isatsb.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant:  Date: January 03, 2014

Title: Principal Structural Engineer Company Name: ISAT Seismic Bracing

"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: ISAT Seismic Bracing

Name: William V Joerger+ California License Number: S4545

Mailing Address: 1020 Crews Rd, Matthews NC 28105

Telephone: 510-714-0216 Email: wvjoerger@isatsb.com

OSHPD Special Seismic Certification Preapproval (OSP)

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

Special Seismic Certification is no preapproved

Certification Method(s)

Testing in accordance with: ICC-ES AC156 FM 1950-10

Other* (Please Specify): Equipment is considered to be rugged. OPM is for anchorage to concrete slabs.

*Use of criteria other than those adopted by the California Building Standards Code, 2013 (CBSC 2013) 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 2013 may be used when approved by OSHPD prior to testing.

BY: Jeffrey Y. Kikumoto

DATE: 2/12/14

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): _____

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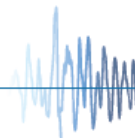
Signature:  Date: February 12, 2014

Print Name: Jeffrey Y. Kikumoto

Title: Senior Structural Engineer

Condition of Approval (if applicable): _____

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**INTERNATIONAL SEISMIC
APPLICATION TECHNOLOGY**

Submittal Documents

OPM-0070-13

OSHPD OPM-0070-13

DATE: 2/12/14

**SUPPORT AND ATTACHMENT
OPM DRAWINGS
FOR CREST ULTRASONICS CLEANERS**

CREST ULTRASONICS

ISAT
1020 Crews Road Suite Q
Matthews, N.C. 28105
704-841-4080



FILE NO.: CLT-1113-152a

"Empowered by Experience"

REV 3



OSHPD OPM-0070-13

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DRAWING INDEX

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MANUFACTURE: CREST ULTRASONICS CLEANER
EQUIPMENT TYPE: HOSPITAL SERIES CONSOLES

GENERAL NOTES FOR ATTACHMENT TO SLAB ON GRADE:

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2013. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2013.
2. SEISMIC CRITERIA USED: $S_{DS} = 2.5$ $I_p = 1.5$ $a_p = 1.0$ $R_p = 2.5$ (WET SIDE COMPONENT) $z/h = 0.0$ $F_{pHorz} = 1.13 W_p$ $F_{pVertical} = 0.50 W_p$.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR $\Omega_o = 2.5$ IS USED FOR CONCRETE ANCHORAGE FORCES PER ASCE 7-10 SUPPLEMENT 1 TABLE 13.6-1. LOADS SHOWN ARE STRENGTH DESIGN LOADS PER CBC 2013 SECTION 1909A.
4. TABULATED ANCHOR TENSION FORCES WERE INCREASED BY A FACTOR OF 1.8 TO ACCOUNT FOR PRYING AT THE ATTACHMENT.
5. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
6. THIS PREAPPROVAL IS FOR CONCRETE SLAB AT GRADE OR BELOW FOR THE DEMAND LOADS SHOWN WHERE $z/h = 0$ AND $S_{DS} \leq 2.5$. REFER TO "ELEVATED SLAB LAYOUT" AND "ELEVATED SLAB NOTES" FOR OTHER CONDITIONS THAT ARE PART OF OPM-0070-13.

RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD

1. CONFIRM THE MATERIAL PROPERTIES AND THICKNESS OF THE CONCRETE SLAB TO WHICH THE EQUIPMENT IS ATTACHED MEETS THE REQUIREMENTS OF ICC-ES ESR-1917.
2. PROVIDE A PLAN FOR ANCHORAGE INSPECTION AND VERIFY ITS IMPLEMENTATION.
3. CONFIRM THE SPECIFIED MINIMUM CONCRETE EDGE DISTANCES ARE MAINTAINED BASED ON THE ACTUAL EQUIPMENT LOCATION. VERIFY THAT EXISTING OR NEW ANCHORS ARE AN ADEQUATE DISTANCE FROM THIS UNIT'S ATTACHMENT. CHECK FOR POST-INSTALLED ANCHOR INTERACTION WHERE OTHER ANCHORS ARE WITHIN $6 h_{ef} = 19.5"$.
4. VERIFY THAT THE EXISTING STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL AND OVERTURNING FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
5. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH CBC 2013 AND WITH THE OPM-0700-13 DETAILS. MATERIALS AND GAGE OF THE UNIT WHERE THE ATTACHMENTS ARE MADE TO AGREE WITH THE INFORMATION SHOWN.
6. VERIFY THAT THE PROJECT SPECIFIC S_{DS} AND h/z VALUES RESULT IN SEISMIC FORCES (E_h AND E_v) DO NOT EXCEED THE VALUES SHOWN IN THESE DETAILS.

SLAB-ON-GRADE ANCHOR									
ANCHOR TYPE	ICC-ES ESR NO.	CONCRETE TYPE	MIN. CONC. STRENGTH	DIA	HOLE DEPTH	MIN. SLAB THICKNESS	MIN. SPACING	MIN. EDGE DISTANCE	INSTALLATION TORQUE
HILTI KWIK BOLT TZ	1917	NORMAL WT	3000 PSI	0.50"	4"	6"	6"	6"	40 FT-LBS

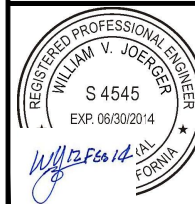
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CREST ULTRASONICS SLAB-ON-GRADE NOTES

SEE EQUIPMENT LAYOUT FOR ATTACHMENT PLAN AND EQUIPMENT ELEVATION



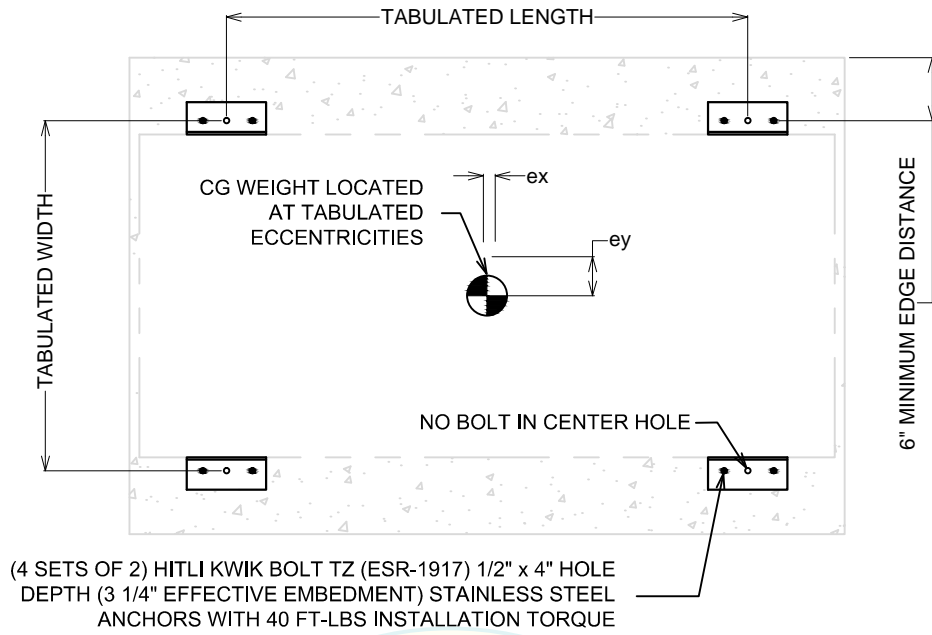
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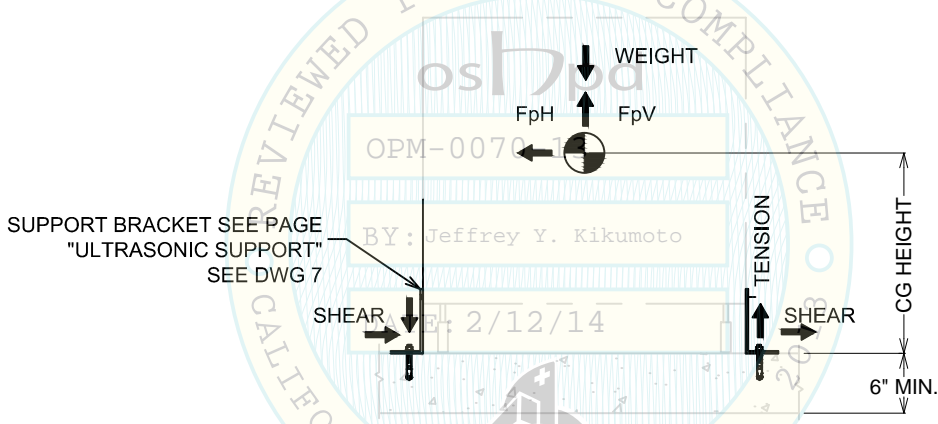
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SCHEMATIC ATTACHMENT PLAN



EQUIPMENT ELEVATION

OPM-0070-13

CREST ULTRASONICS EQUIPMENT ATTACHMENT LAYOUT FOR SLAB-ON-GRADE
SEE "GRADE NOTES" FOR NOTES AND "FORCES" FOR DIMENSIONS AND FORCES



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OSHPD OPM-0070-13

MANUFACTURE: CREST ULTRASONICS CLEANER

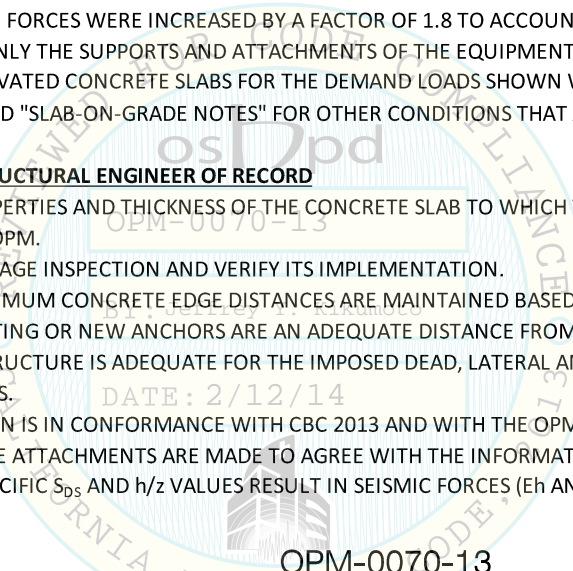
EQUIPMENT TYPE: HOSPITAL SERIES CONSOLES

GENERAL NOTES FOR ATTACHMENT TO ELEVATED SLABS:

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2013. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2013.
2. SEISMIC CRITERIA USED: $S_{Ds} = 2.5$ $I_p = 1.5$ $a_p = 1.0$ $R_p = 2.5$ (WET SIDE COMPONENT) $z/h = 0.0$ $F_{pHorz} = 1.80 W_p$ $F_{pVertical} = 0.50 W_p$.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR $\Omega_0 = 2.5$ IS USED FOR CONCRETE MATERIALS AND $\Omega_0 = 1.0$ FOR STEEL MATERIALS PER ASCE 7-10 SUPPLEMENT 1 TABLE 13.6-1. LOADS SHOWN ARE STRENGTH DESIGN LOADS PER CBC 2013 SECTION 1909A.
4. USE (4) 0.50" HOT DIPPED GALVANIZED THROUGH BOLTS TO A SUPPLEMENTAL STEEL MEMBER BELOW. DETAILS OF THE SUPPLEMENTAL STEEL AND CONNECTIONS TO STRUCTURE ARE SHOWN ON PAGE "SUPPLEMENTAL STEEL".
 - a. THROUGH BOLTS ARE TO BE TORQUED BY 3/4 TURN OF THE NUT AFTER SNUG TIGHT CONDITION IS ACHIEVED. SNUG TIGHT CONDITION IS DEFINED AS THE THIGHTNEE REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
 - b. THROUGH BOLT HOLES SHALL BE 1/16" LARGER THAN THE BOLT SIZE (HOLE SIZE = BOLT SIZE + 1/16") FOR BOTH THE STEEL AND CONCRETE.
 - c. THROUGH BOLTS WITH STEEL-TO-STEEL CONNECTION IN TENSION DO NOT REQUIRE TESTING.
5. TABULATED ANCHOR TENSION FORCES WERE INCREASED BY A FACTOR OF 1.8 TO ACCOUNT FOR PRYING AT THE ATTACHMENT.
6. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
7. THIS PREAPPROVAL IS FOR ELEVATED CONCRETE SLABS FOR THE DEMAND LOADS SHOWN WHERE $z/h = 1$ AND $S_{Ds} \leq 2.5$. REFER TO "SLAB-ON-GRADE LAYOUT" AND "SLAB-ON-GRADE NOTES" FOR OTHER CONDITIONS THAT ARE PART OF OPM-0070-13.

RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD

1. CONFIRM THE MATERIAL PROPERTIES AND THICKNESS OF THE CONCRETE SLAB TO WHICH THE EQUIPMENT IS ATTACHED MEETS THE REQUIREMENTS OF THIS OPM.
2. PROVIDE A PLAN FOR ANCHORAGE INSPECTION AND VERIFY ITS IMPLEMENTATION.
3. CONFIRM THE SPECIFIED MINIMUM CONCRETE EDGE DISTANCES ARE MAINTAINED BASED ON THE ACTUAL EQUIPMENT LOCATION. VERIFY THAT EXISTING OR NEW ANCHORS ARE AN ADEQUATE DISTANCE FROM THIS UNIT'S ATTACHMENT.
4. VERIFY THAT THE EXISTING STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL AND OVERTURNING FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
5. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH CBC 2013 AND WITH THE OPM-0700-13 DETAILS. MATERIALS AND GAGE OF THE UNIT WHERE THE ATTACHMENTS ARE MADE TO AGREE WITH THE INFORMATION SHOWN.
6. VERIFY THAT THE PROJECT SPECIFIC S_{Ds} AND h/z VALUES RESULT IN SEISMIC FORCES (E_h AND E_v) DO NOT EXCEED THE VALUES SHOWN IN THESE DETAILS.

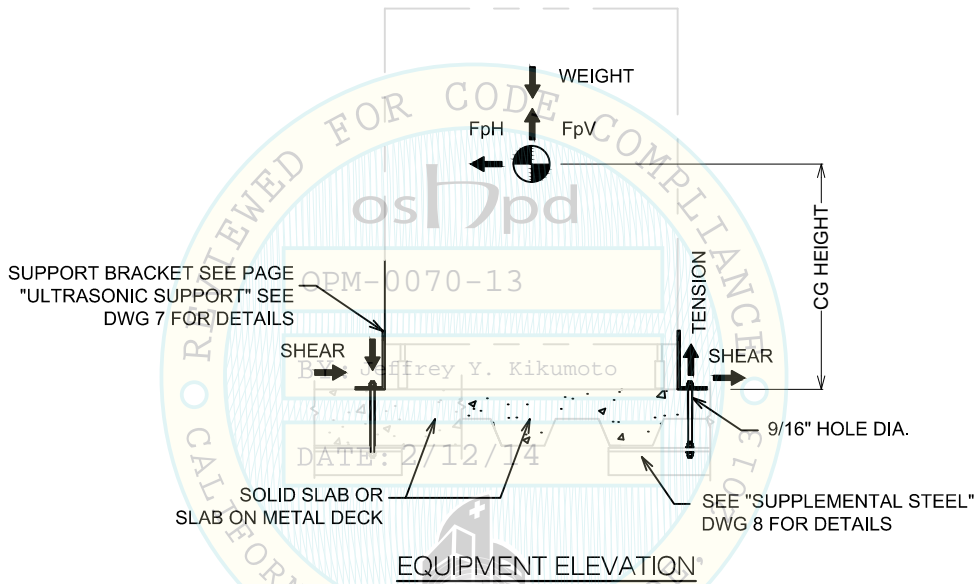
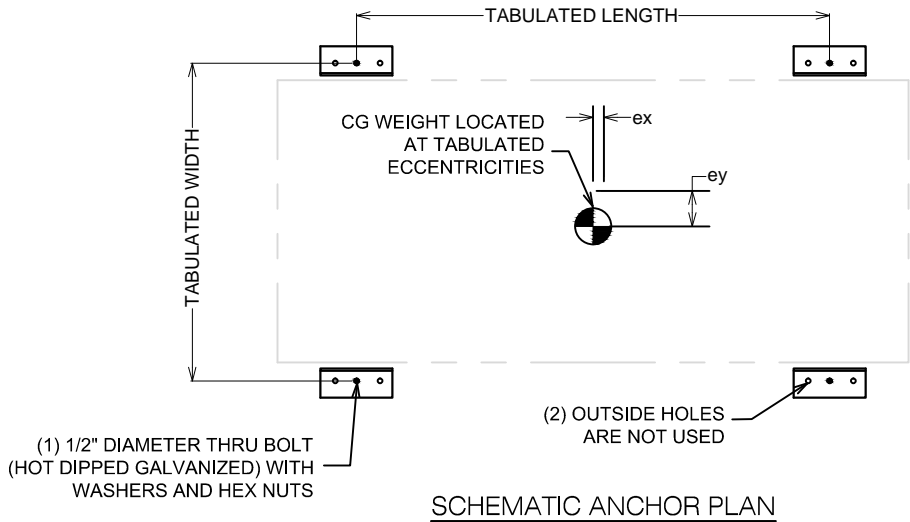


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**CREST ULTRASONICS EQUIPMENT ATTACHMENT NOTES FOR ELEVATED SLABS
SEE "ELEV LAYOUT" FOR DIMENSIONS AND ATTACHMENT FORCES**

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 REGISTERED PROFESSIONAL ENGINEER WILLIAM V. JOERGER S 4545 EXP. 06/30/2014 CALIFORNIA	DRAWN BY: WVJ DATE: 01/13/14	
	REVISED BY: WVJ DATE: 02/12/14 REV NO: 2	
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CREST ULTRASONICS EQUIPMENT ATTACHMENT LAYOUT FOR ELEVATED SLABS
SEE "ELEV NOTES" FOR NOTES AND "FORCES" FOR DIMENSIONS AND FORCES



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OSHPD OPM-0070-13

MANUFACTURE: CREST ULTRASONICS CLEANER

EQUIPMENT TYPE: HOSPITAL SERIES CONSOLES

ATTACHMENT GENERAL NOTES:

- 1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2013. THE DEMAND (DESIGN
- 2. SEE "SLAB-ON-GRADE NOTES" AND "ELEVATED SLAB NOTES" FOR SEISMIC CRITERIA USED.

SLAB-ON-GRADE NOTES:

- 3. USE (8) HILTI KWIK BOLT TZ (ICC-ES ESR-1917 FOR MAY 2013) 0.50" x 4" HOLE DEPTH (3.25" EFFECTIVE EMBEDMENT) STAINLESS STEEL ANCHORS IN A CONCRETE SLAB WITH A MINIMUM THICKNESS OF 6 INCH; 40 FT-LBS INSTALLATION TORQUE. MINIMUM EDGE DISTANCE AND SPACING = 6".
- 4. CONCRETE USED FOR DESIGN IS A NORMAL WEIGHT SLAB WITH A MINIMUM $f'_c = 3000$ PSI AT 28 DAYS AND A MINIMUM THICKNESS OF 6 INCHES.
- 5. PERIODIC SPECIAL INSPECTION PER CBC 2013 SECTION 1705A AND TABLE 1705A INCLUDING VERIFICATION OF ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, TIGHTENING TORQUE, HOLE DIMENSIONS, ANCHOR EMBEDMENT AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. IN ADDITION, FOLLOW THE PROVISIONS OF THE 2013 CALIFORNIA BUILDING CODE SECTION 1916A.7.2 BY CONFIRMING THE INSTALLATION TORQUE SPECIFIED BY THE MANUFACTURER. TESTING IS NOT TO OCCUR UNTIL A MINIMUM OF 24 HOURS HAS ELAPSED AFTER THE INSTALLATION OF THE SUBJECT ANCHORS. TESTING SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR. TEST 50% OF THE ANCHORS FOR EACH PIECE OF EQUIPMENT. USING A CALIBRATED TORQUE WRENCH VERIFY THE INSTALLATION TORQUE IS OBTAINED WITHIN 1/2 TURN OF THE NUT. REPORT OF TEST REPORTS ARE TO BE SUBMITTED TO OSHPD.

ELEVATED SLAB NOTES:

- 6. USE (4) 0.50" HOT DIPPED GALVANIZED STEEL THROUGH BOLTS TO SUPPLEMENTAL STEEL MEMBER BELOW. DESIGN OF THE SUPPLEMENTAL STEEL AND CONNECTIONS TO THE STRUCTURE ARE SHOWN ON PAGE "SUPPLEMENTAL STEEL".
 - a. THROUGH BOLTS SHALL BE TORQUED BY 3/4 TURN OF THE NUT AFTER SNUG TIGHT CONDITION IS ACHIEVED (UNLESS OTHERWISE NOTED). SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
 - b. THROUGH BOLT HOLES SHALL BE 1/16" LARGER THAN THE BOLTS SIZE (HOLE SIZE = BOLT SIZE + 1/16") FOR BOTH STEEL AND CONCRETE.
 - c. THROUGH BOLTS WITH STEEL-TO-STEEL CONNECTION IN TENSION DO NOT REQUIRE TESTING.
 - d. USE ONE NUT AND WASHER ON EACH END. WHERE BOLT OCCURS IN THE OPEN AREA OF THE METAL DECK PROVIDE AN ADDITIONAL NUT AND WASHER ON TOP OF THE SUPPLEMENTAL STEEL MEMBER, SEE DWG 8.

OPM-0070-13

CREST ULTRASONICS ATTACHMENT NOTES

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OSHPD OPM-0070-13

MANUFACTURE: CREST ULTRASONICS CLEANER

EQUIPMENT TYPE: HOSPITAL SERIES CONSOLES

ULTRASONIC CLEANERS AT GRADE OR BELOW (FpH = 1.13 WEIGHT)							ATTACHMENT FORCES -LBS	
Model	Length	Width	CG Height	ex	ey	Weight Lbs	Tension	Shear
11W	21.25"	33.25"	26.5"	0"	0.75"	660	1157	233
11WRD	51.25"	33.25"	26.5"	0"	0.75"	1265	1568	447
15W	21.25"	33.25"	26.5"	0"	0.25"	770	1315	272
15WRD	51.25"	33.25"	26.5"	0"	0.75"	1375	1653	486
17W	21.5"	35.25"	26.5"	0"	0.25"	990	1637	350
17WRD	52.5"	35.25"	26.5"	0"	0"	1485	1730	524
20W	21.5"	35.25"	26.5"	0"	0.25"	935	1546	330
20WRD	52.5"	35.25"	26.5"	0"	0.25"	1430	1666	505
ULTRASONIC CLEANERS AT ELEVATED SLABS (FpH = 1.80 WEIGHT)							ATTACHMENT FORCES -LBS	
Model	Length	Width	CG Height	ex	ey	Weight Lbs	Tension	Shear
11W	21.25"	33.25"	26.5"	0"	0.75"	660	1544	743
11WRD	51.25"	33.25"	26.5"	0"	0.75"	1265	1988	1423
15W	21.25"	33.25"	26.5"	0"	0.25"	770	1757	866
15WRD	51.25"	33.25"	26.5"	0"	0.75"	1375	2095	1547
17W	21.5"	35.25"	26.5"	0"	0.25"	990	2192	1114
17WRD	52.5"	35.25"	26.5"	0"	0"	1485	2193	1671
20W	21.5"	35.25"	26.5"	0"	0.25"	935	2070	1052
20WRD	52.5"	35.25"	26.5"	0"	0.25"	1430	2112	1609

BY: Jeffrey Y. Kikumoto

DATE: 2/12/14

OPM-0070-13

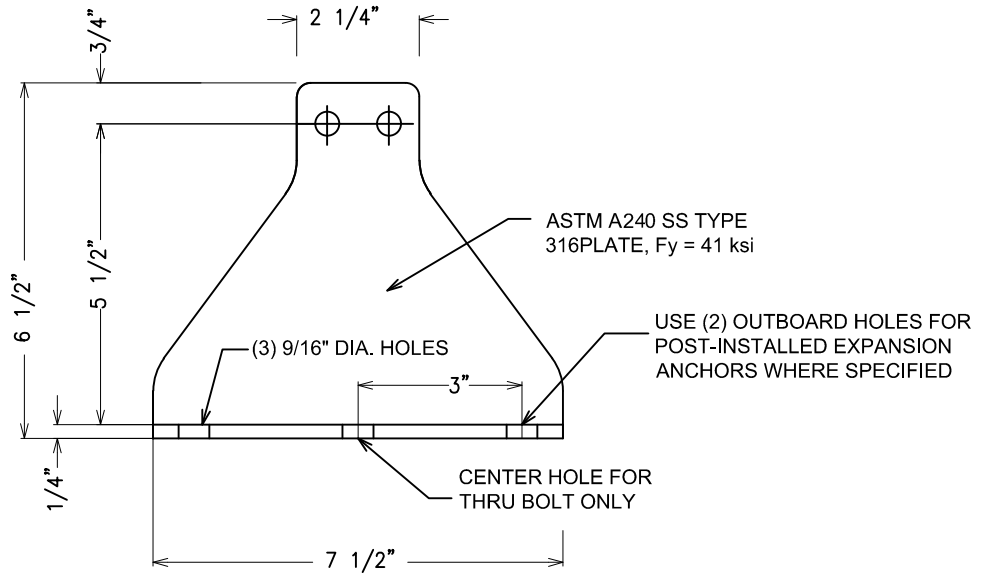
CREST ULTRASONICS ATTACHMENT FORCES



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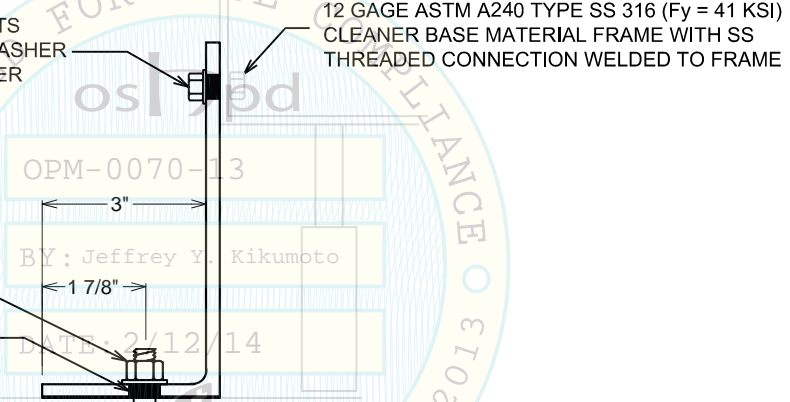


BRACKET ELEVATION

7/16" HOLES FOR 3/8"-18 SS BOLTS
 ASTM A193 GRADE B8M, FLAT WASHER
 ASTM A240 AND SS LOCK WASHER

1/2" GALV. BOLT ASTM A307 OR
 ASTM A36 ALL THREAD ROD
 WITH WASHER AND NUT

9/16" HOLE DIA.



SECTION AT EQUIPMENT

OPM-0070-13

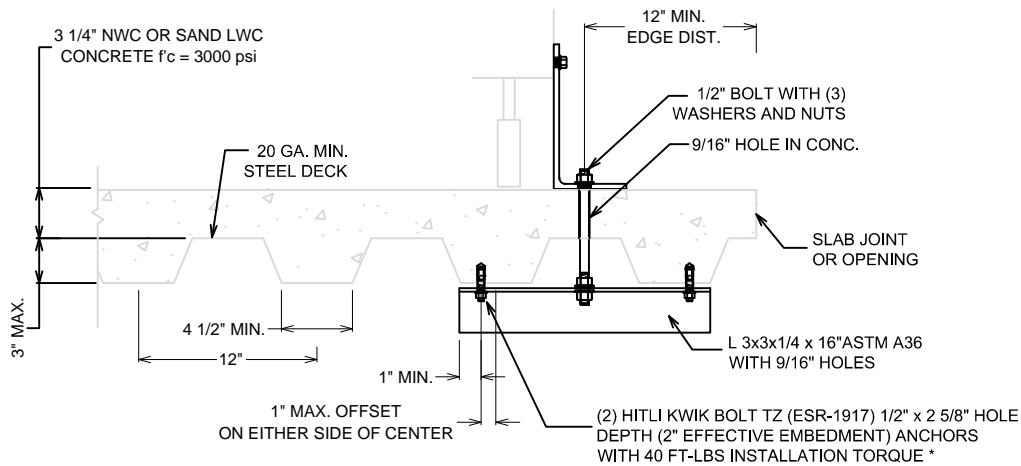
CREST ULTRASONICS EQUIPMENT SUPPORT DETAIL



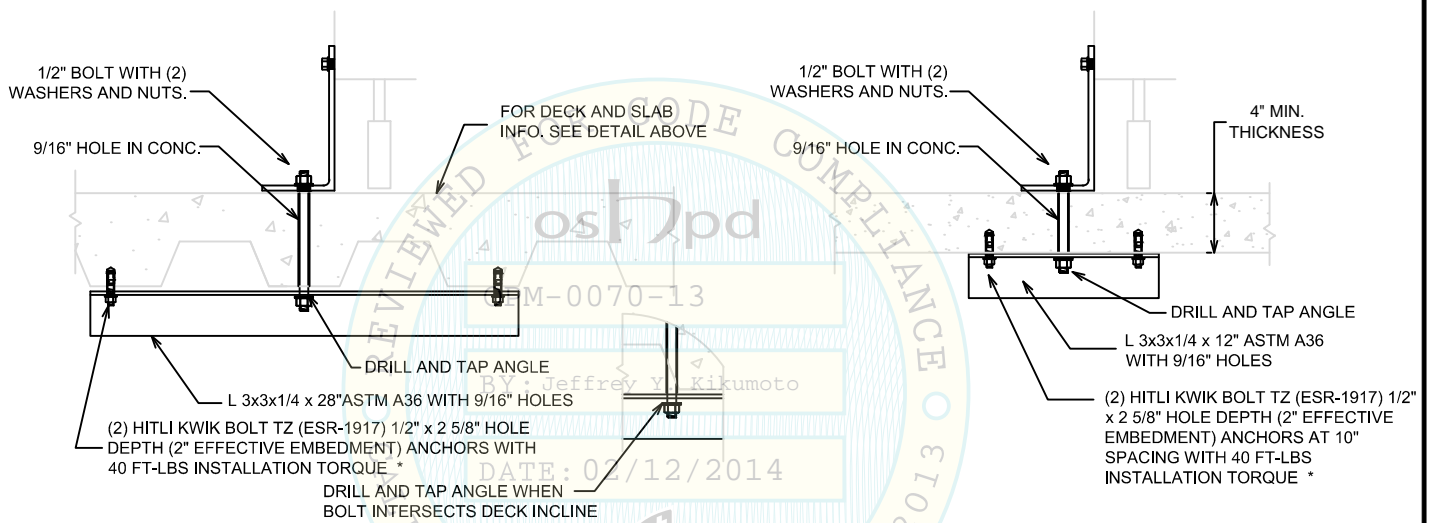
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DETAIL FOR ATTACHMENT BOLT BETWEEN FLUTES



DETAIL FOR ATTACHMENT BOLT AT THE SIDE OF THE FLUTE OR AT THE BOTTOM FLUTE

DETAIL FOR ATTACHMENT BOLT AT SOLID CONCRETE SLABS

OPM-0070-13

CREST ULTRASONICS SUPPLEMENTAL STEEL DETAIL AT ELEVATED SLABS

* TESTING: SEE SLAB ON GRADE NOTES, NOTE NO. 5 ON PAGE "ATTACHMENT NOTES"



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 N.T.S. SUPPL STEEL

OPM-0070-13 DWG - 8