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

OFFICE USE ONLY
APPLICATION #: OPM-0486-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

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

Manufacturer Information

Manufacturer: Belimed

Manufacturer's Technical Representative: Jay Upchurch

Mailing Address: 8351 Palmetto Commerce Parkway, Suite 101, Ladson, SC 29456

Telephone: 843-216-7424; ext. 133 Email: Jay.Upchurch@belimed.com

Product Information

Product Name: MST-V 6 Series VS1 and VS2 Sterilizers

Product Type: Sterilizers

Product Model Number: 6-0-6 VS1, 6-0-6 VS1E, 6-0-6 VS2, 6-0-6 VS2E, 6-0-9 VS1, 6-0-9 VS1E, 6-0-9 VS2, 6-0-9 VS2E, 6-0-12 VS1, 6-0-12 VS1E, 6-0-12VS2, 6-0-12 VS2E

General Description: MST-V 6 series VS1 and VS2 Series of steam sterilizers and designed for efficiency and superior workflow. An advanced vacuum pump and cooling system ensures minimal water consumption.

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, 2016.

Signature of Applicant: WV Joerger Date: April 23, 2018

Title: Principal Structural Engineer Company Name: ISAT Seismic Bracing

Registered Design Professional Preparing Engineering Recommendations

Company Name: ISAT Seismic Bracing

Name: William V Joerger California License Number: SE 4545

Mailing Address: 1020 Crews Road, Suite Q, 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 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: 8/9/2019

Print Name: Sonia Eliseo

Title: Senior Structural Engineer

Condition of Approval (if applicable):

TOTAL SUPPORT

Innovation • Engineering • BIM • Fabrication

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Submittal Documents

OSHPD OPM-0486-13

ATTACHMENT OPM DRAWINGS MST-V VS-1 AND VS-2 STERILIZERS

BELIMED

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EXP. 06/30/2020
STRUCTURAL
STATE OF CALIFORNIA

19 Jun 19

FILE NO.: CLT-0117-009 *"Empowered by Experience"* REV 3

TOTAL SUPPORT
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OSHPD OPM-0486-13

DRAWING INDEX

DRAWING INDEX

OSHPD OPM-0486-13

MANUFACTURE: BELIMED

EQUIPMENT TYPE: WASHERS / STERILIZERS

GENERAL NOTES:

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2016. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2016.
2. SEISMIC CRITERIA USED: S_{DS} = 2.50 I_P = 1.5 ap = 1.0 Rp = 1.5 (OTHER EQUIPMENT). FOR z/h = 0 FpH = 1.13 AND FOR z/h ≤ 1.0 FpH = 3.00 AND FpV = 0.50. FOR "ELD" MODELS AT GRADE LOCATIONS WHERE (4) ANCHORS ARE USED S_{DS} = 2.25, FpH = 1.01 AND FpV = 0.45. FOR "ELD" MODELS ON ELEVATED SLABS S_{DS} = 2.50, FpH = 3.00 AND FpV = 0.50.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR Ω_0 = 1.5 IS USED FOR CONCRETE MATERIALS PER ASCE 7-10 SUPPLEMENT 1 TABLE 13.6-1. LOADS SHOWN ARE STRENGTH DESIGN LOADS PER CBC 2016 SECTION 1605A.2.
4. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
5. STEEL MATERIALS: PLATE 304 STAINLESS STEEL BY MANUFACTIRER (Fy = 31.2 KSI), ALL THREAD ROD ASTM F593 CW1 304 STAINLESS STEEL FOR BOLTS AT ELEVATED FLOORS, ANGLE ASTM A36 (Fu = 58 KSI) HOT DIPPED GALVANIZED.
6. CONCRETE SLABS:
   a. FOR ELEVATED SOLID CONCRETE SLABS: 6" THICKNESS OF NORMAL WEIGHT CONCRETE WITH 3000 PSI MINIMUM STRENGTH.
   b. METAL DECK: 3" DEEP COMPOSITE STEEL DECK, 20 GAGE MINIMUM, 4 1/2 INCH MINIMUM BOTTOM FLUTE WIDTH AND MINIMUM FLUTE SPACING OF 12", WITH 3 1/4 INCH SAND LIGHT WEIGHT CONCRETE CONCRETE COVER AT 3000 PSI MINIMUM
   c. FOR SLAB ON GRADE: 6" THICKNESS NORMAL WEIGHT CONCRETE AT 4000 PSI MINIMUM STRENGTH.
7. POST-INSTALLED CONCRETE ANCHORS: HILTI KWIK BOLT TZ (ESR-1917) STAINLESS STEEL 5/8" DIAMETER x 4" EFFECTIVE EMBEDMENT. DRILL 11/16" DIAMETER x 4 3/4" INCH DEEP HOLE; CLEAN HOLE PER MANUFACTURER'S INSTRUCTIONS. FOR ANCHORS INTO THE SOFFITT OF THE METAL DECK USE KWIK BOLT TZ (ESR-1917) 1/2" DIAMETER x 4" MIN. HOLE DEPTH FOR 3 1/4" EFFECTIVE EMBEDMENT WITH 1" MAXIMUM OFFSET FROM THE CENTER OF THE METAL DECK FLUTE. BOTH ARE SUPPLIED BY INSTALLATION CONTRACTOR.
8. EXCERCISE DUE CARE WHEN DRILLING POST-INSTALLED ANCHORS TO AVOID DAMAGING CONCRETE REINFORCEMENT OR

OPM-0486-13 BELIMED MST-V VS1 AND VS2 STERILIZER GENERAL NOTES

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SCALE N.T.S.	**PAGE** GEN NOTES

OSHPD OPM-0486-13

MANUFACTURE: BELIMED

EQUIPMENT TYPE: WASHERS / STERILIZERS

ATTACHMENT NOTES:

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2016. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2016.
2. PERIODIC SPECIAL INSPECTION PER CBC 2016 SECTION 1705A AND TABLE 1705A.3 INCLUDING VERIFICATION OF ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, HOLE DIMENSIONS, ANCHOR EMBEDMENT AND ADHERENCE TO THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS. IN ADDITION, FOLLOW THE PROVISIONS OF THE 2016 CALIFONIA BUILDING CODE SECTION 1910A.5.5. TORQUE CONTROLLED POST-INSTALLED ANCHORS - TEST USING A CALIBRATED TORQUE WRENCH; 60 FOOT-POUNDS TORQUE FOR 5/8" ANCHORS AND 40 FOOT-POUNDS FOR 1/2" ANCHORS SHALL BE ACHIEVED WITHIN ONE-HALF TURN OF THE NUT. TEST 50% OF THE ANCHORS FOR EACH PIECE OF EQUIPMENT. IF ANY ANCHOR FAILS TEST ALL ANCHORS. REPORT OF TEST RESULTS ARE TO BE SUBMITTED TO THE ENFORCEMENT AGENGY. THE SEOR SHALL PROVIDE REMEDIAL ANCHORAGE DETAILS IN THE EVENT THAT AN ANCHOR FAILS TO MEET THE TEST REQUIREMENTS. FOR THROUGH BOLTS MARK THE NUT LOCATION AT SNUG TIGHT CONDITION. INSPECTOR IS TO VERIFY 3/4 TURN.
3. STRENGTH DESIGN WAS USED FOR ANCHOR FORCE CALCULATIONS INCLUDING Ω_0 PER ACI 318-14 WHERE REQUIRED FOR ATTACHMENT TO CONCRETE.
4. PROVIDE FOR FULL THREAD ENGAGEMENT OF THE NUT AND WASHER.

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 INSPECTION OF SUPPORTS AND ATTACHMENTS 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 EXISITNG STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL AND TENSION FORCES SHOWN IN ADDTION TO ALL OTHER LOADS.
5. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH CBC 2016 AND WITH THE OPM-0486-13 DETAILS INCLUDING MATERIALS AND DIMENSIONS OF THE SUPPORT WHERE THE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN.
6. VERIFY THAT THE PROJECT SPECIFIC S_{DS} AND z/h VALUES RESULT IN SEISMIC FORCES (Eh AND Ev) DO NOT EXCEED THE VALUES SHOWN IN THESE DETAILS.

OPM-0486-13 BELIMED MST-V VS-1 AND VS-2 V446 STERILIZER ATTACHMENT NOTES

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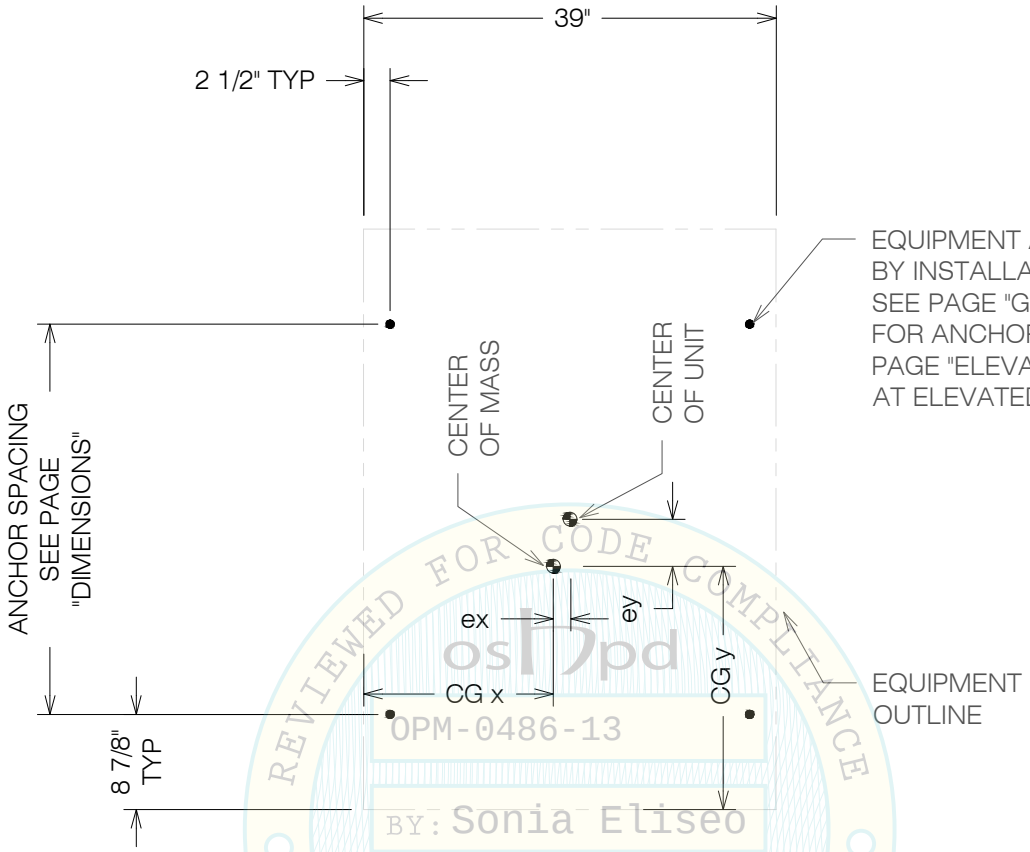
SCALE N.T.S.	**PAGE** ATTACHMENT



OPM-0486-13 BELIMED MST-V 6-0-X VS1 AND MST-V 6-0-X VS2 ANCHOR LAYOUT AT GRADE AND ELEVATED SLABS WHERE S_{DS} = 2.50 AND MST-V 6-0-X ELD MODELS AT GRADE WHERE S_{DS} <= 2.25

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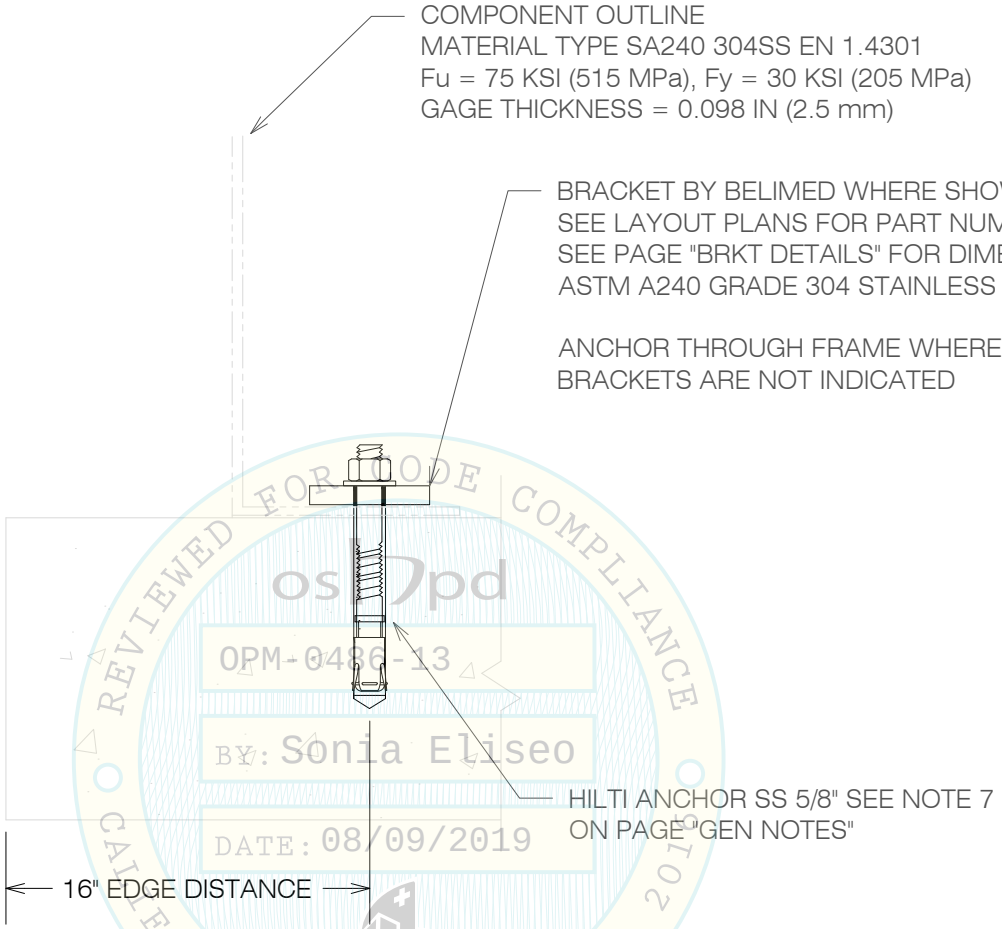

OPM-0486-13 BELIMED MST-V 6-0-X STERILIZER
EQUIPMENT ANCHORAGE AT SLAB-ON-GRADE

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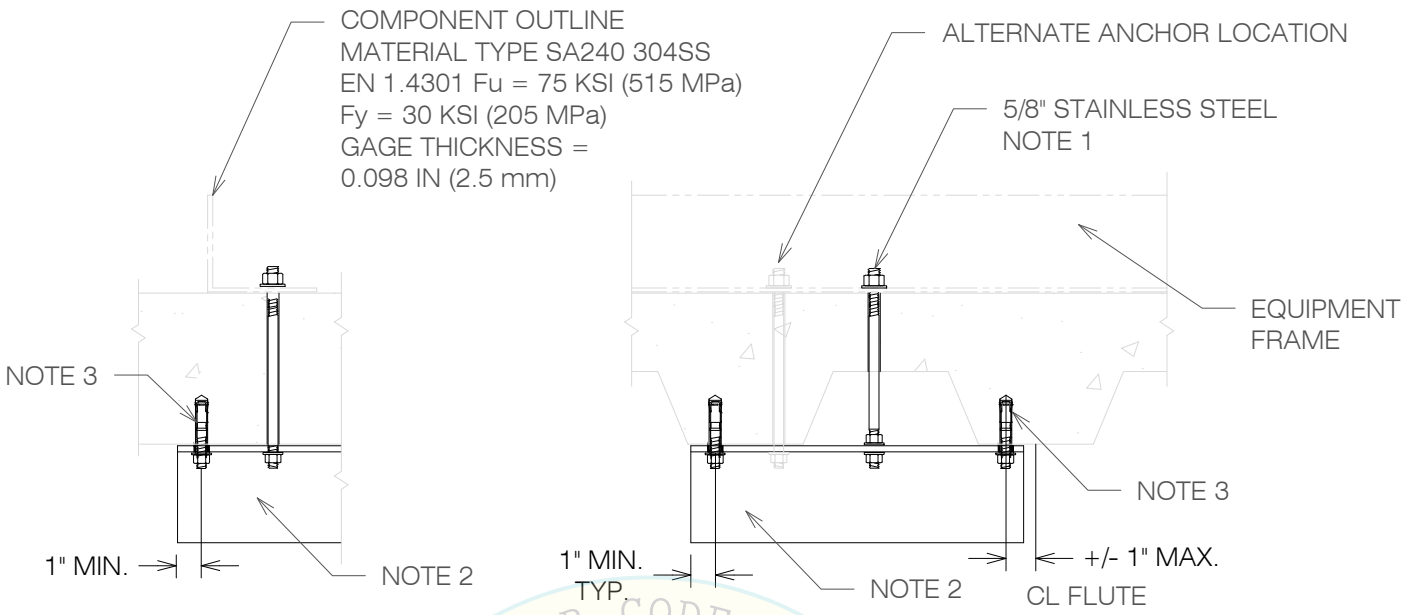

SOLID SLAB

METAL DECK WITH ANCHOR AT LOW FLUTE

METAL DECK WITH ANCHOR AT HIGH FLUTE

NOTES:

1. DRILL 11/16" HOLE IN THE CONCRETE SLAB TO RECEIVE THE 5/8" ASTM F593 CW1 304 STAINLESS STEEL RODS WITH MATCHING WASHERS AND NUTS.
2. SUPPLEMENTAL ANGLE SHALL BE L3x3x3/8 ASTM A36. DRILL 11/16" HOLES IN ANGLE FOR EQUIPMENT BOLTS. FOR LOCATIONS WHERE A TOP NUT CANNOT BE INSTALLED, DRILL AND TAP THE ANGLE TO RECEIVE THE 5/8" EQUIPMENT ANCHORAGE BOLT.
3. ANCHOR INTO BOTTOM OF SLAB SHALL BE HILTI KWIK BOLT TZ 1/2", SEE NOTE 7 ON PAGE "GEN NOTES".

OPM-0486-13 BELIMED MST-V 6-0-X STERILIZER ATTACHMENT DETAILS AT ELEVATED SLABS

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EQUIPMENT WEIGHTS, DIMENSIONS AND ANCHORAGE FORCES											
Model and Weight		Anchor	CG x	CG y	Eccentricities			Forces At Grade		Forces at Elevated	
Tag No.	Weight lbf	Spacing - in	in	in	ex - in	ey - in	ez - in	Vu Lbs.	Tu Lbs.	Vu Lbs.	Tu Lbs.
6-0-6 VS1	1733	26.39	19.7	17.3	-0.2	-4.8	35	845	2334	2253	4249
6-0-6 VS1 ELD	2258	26.39	17.8	18.0	-1.7	-4.1	42.0	1016	3311	3009	6707
6-0-6 VS2	2163	26.39	19.6	21.4	0.1	-0.7	35.3	933	2884	2487	5290
6-0-6 VS2 ELD	2687	26.39	18.1	18.2	-1.4	-0.9	41.1	1097	3779	3251	7739
6-0-9 VS1	2041	38.19	19.6	23.0	0.1	-5	35.7	995	2279	2653	4165
6-0-9 VS1 ELD	2566	38.19	18.0	22.4	-1.5	-5.6	41.7	1173	3042	3476	6188
6-0-9 VS2	2471	38.19	19.6	26.6	0.1	-1.4	35.8	1087	2721	2899	5014
6-0-9 VS2 ELD	2996	38.19	18.2	25.5	-1.3	-2.5	41.0	1258	3419	3728	7038
6-0-12 VS1	2372	52.16	19.6	28.4	0.1	-6.6	36.2	1186	2407	3161	4392
6-0-12 VS1 ELD	2994	52.16	17.9	28.1	-1.6	-6.8	42.4	1378	3219	4082	6545
6-0-12 VS2	2868	52.16	19.5	32.0	0	-2.9	36.3	1308	2856	3488	5267
6-0-12 VS2 ELD	3490	56.16	18.1	31.2	-1.4	-3.8	41.6	1489	3599	4411	7414

1. FORCES ARE FACTORED LOADS PER BOLT USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: DL = 0.9, S_{DS} = 2.50, FpH AT GRADE = 1.13, FpH ELEVATED = 3.0 AND FpV = 0.5 EXCEPT "ELD" MODELS AT GRADE WHERE S_{DS} = 2.25, FpH = 1.01 AND FpV = 0.45 AND (4) ANCHORS ARE USED.
2. FORCES FOR CONCRETE ANCHORAGE ARE AT STRENGTH DESIGN LEVEL AN INCLUDE A CONCRETE OVERSTRENGTH FACTOR Ω_0 = 1.5 FOR SHEAR AND TENSION AT GRADE AND SHEAR FOR ELEVATED SLABS. FORCES FOR STEEEL ELEMENTS ON ELEVATED FLOORS INCLUDE AN OVERSTRENGTH FACTOR Ω_0 = 1.0.

OPM-0486-13 BELIMED MST-V 6-0-X STERILIZER
DIMENSIONS AND ANCHORAGE FORCES

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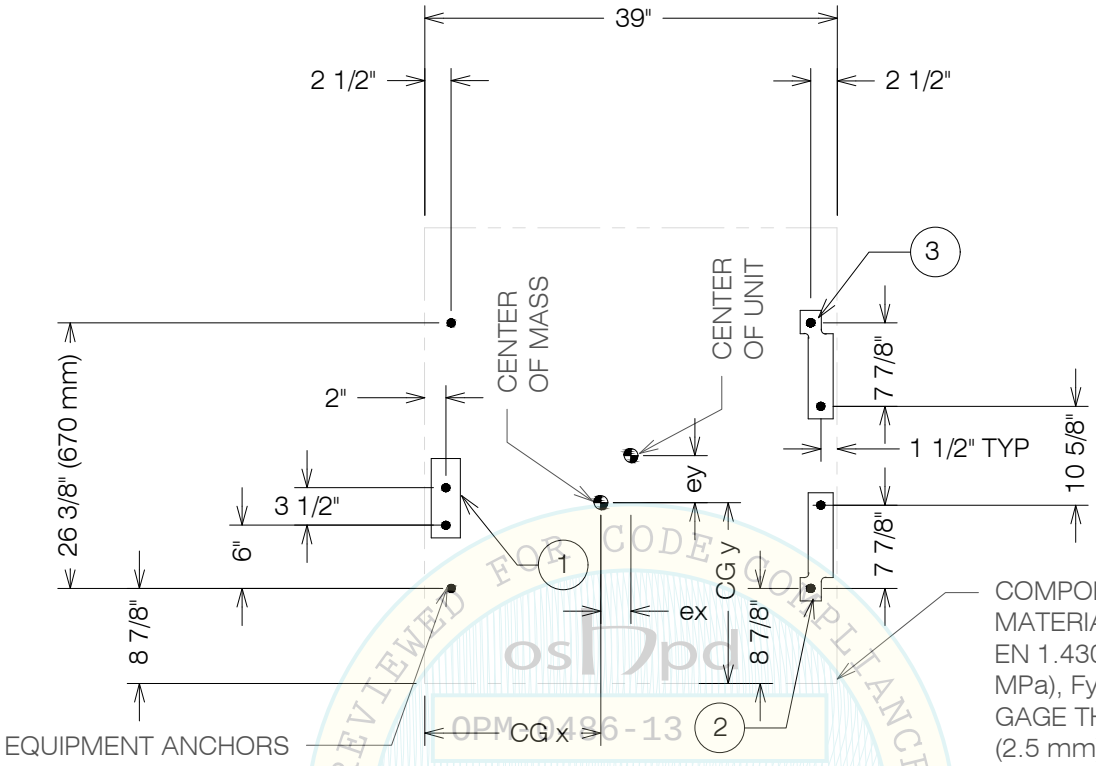

PLAN VIEW

1. BELIMED DWG NO. 000-323-935 SEISMIC BRACKET BY BELIMED (304 SS)
2. BELIMED DWG NO. 0000-323-924 SEISMIC BRACKET BY BELIMED (304 SS)
3. BELIMED DWG NO. 0000-323-926 SEISMIC BRACKET BY BELIMED (304 SS)

OPM-0486-13 BELIMED MST-V 6-0-6 VS1 ELD AND MST-V 6-0-6 VS2 ELD ANCHOR LAYOUT AT GRADE S_{DS} = 2.50

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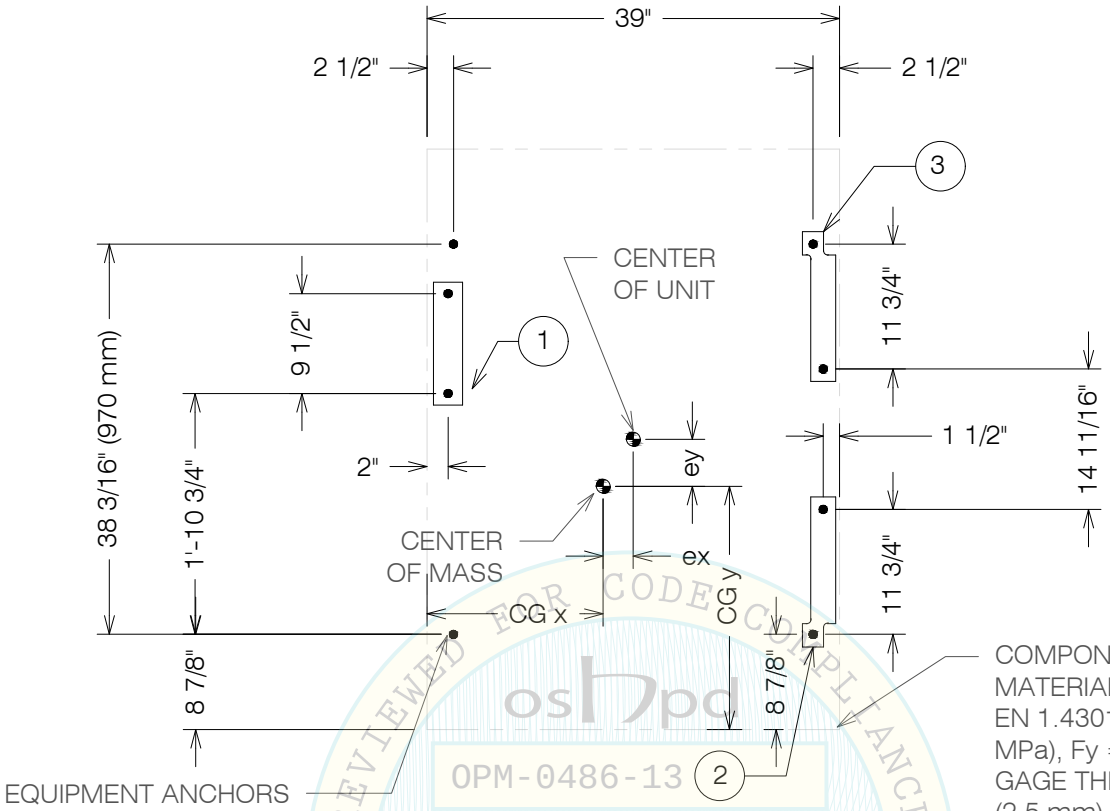

1. BELIMED DWG NO. 000-323-947 SEISMIC BRACKET BY BELIMED (304 SS)
2. BELIMED DWG NO. 0000-323-942 SEISMIC BRACKET BY BELIMED (304 SS)
3. BELIMED DWG NO. 0000-323-943 SEISMIC BRACKET BY BELIMED (304 SS)

OPM-0486-13 BELIMED MST-V 6-0-9 VS1 ELD AND
MST-V 6-0-9 VS2 ELD ANCHOR LAYOUT AT GRADE S_{DS} = 2.50

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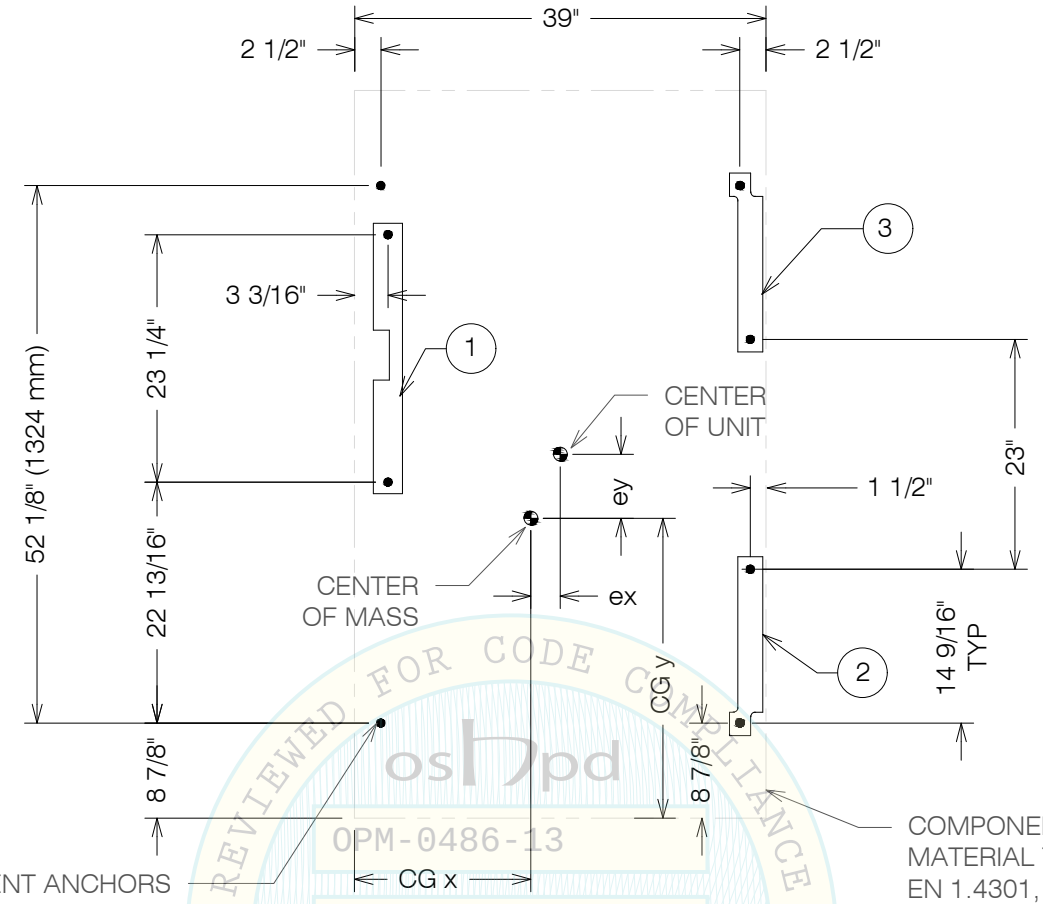

EQUIPMENT ANCHORS
PAGE "GEN NOTES" NOTE 7
BY INSTALLATION
CONTRACTOR 8 PLACES

COMPONENT OUTLINE
MATERIAL TYPE SA240 304SS
EN 1.4301, Fu = 75 KSI (515
MPa), Fy = 30 KSI (205 MPa)
GAGE THICKNESS = 0.098 IN
(2.5 mm)

PLAN VIEW

1. BELIMED DWG NO. 000-323-947 SEISMIC BRACKET BY BELIMED (304 SS)
2. BELIMED DWG NO. 0000-323-952 SEISMIC BRACKET BY BELIMED (304 SS)
3. BELIMED DWG NO. 0000-323-953 SEISMIC BRACKET BY BELIMED (304 SS)

OPM-0486-13 BELIMED MST-V 6-0-12 VS1 ELD AND
MST-V 6-0-12 VS2 ELD ANCHOR LAYOUT AT GRADE S_{DS} = 2.50

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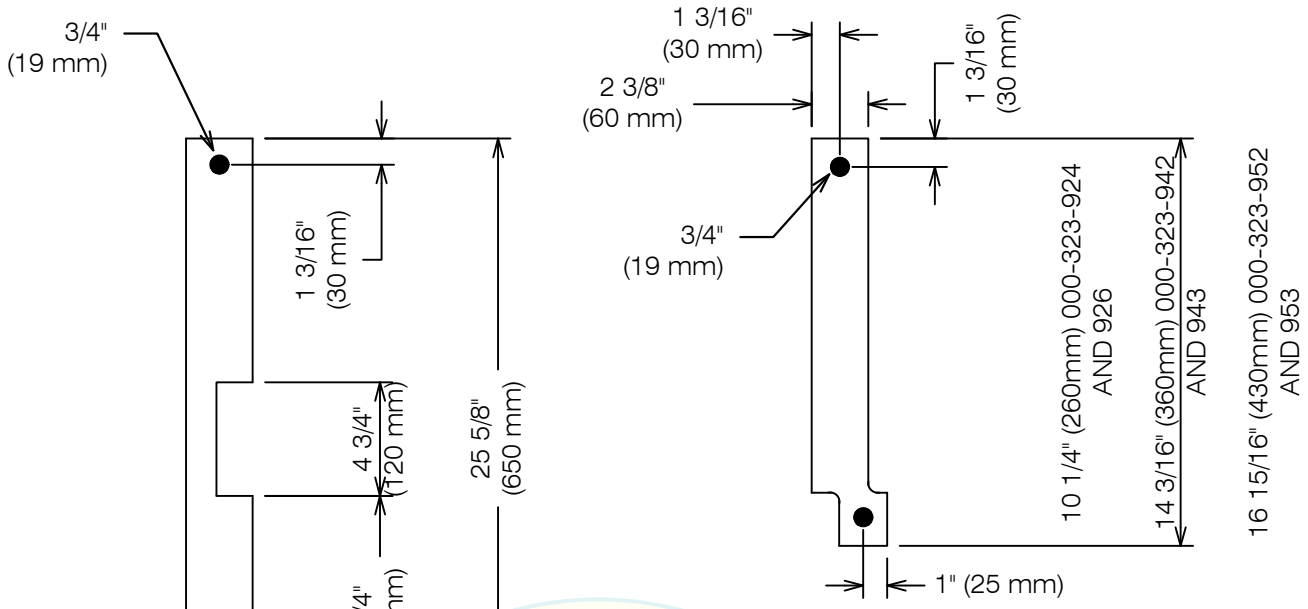
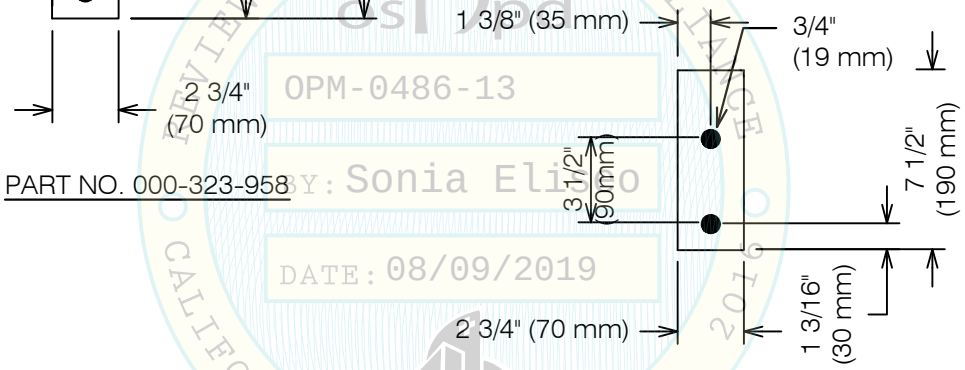


PART NOS. 000-323-924, 000-323-926 (OPP. HAND),
000-323-942, 000-323-943 (OPP. HAND)
000-323-952, 000-323-953 (OPP. HAND)



PART NO. 000-323-958

PART NO. 000-323-935

OPM-0486-13 BELIMED MST-V 6-0-X STERILIZER BRACKETS
FOR ELD MODELS AT GRADE WITH S_{DS} = 2.50

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EQUIPMENT WEIGHTS, DIMENSIONS AND ANCHORAGE FORCES								
ELD MODELS AT GRADE WITH S_{DS} = 2.50								
Model and Weight		CG x	CG y	Eccentricities			Forces At Grade	
Tag No.	Weight lbf	in	in	ex - in	ey - in	ez - in	Vu Lbs.	Tu Lbs.
6-0-6 VS1 ELD	2258	17.8	18	-1.7	-4.1	42.0	548	1575
6-0-6 VS2 ELD	2687	18	22.4	-1.4	-0.9	41.1	602	1771
6-0-9 VS1 ELD	2566	17.9	28.1	-1.5	-5.6	41.7	637	1506
6-0-9 VS2 ELD	2996	18.1	21.1	-1.3	-2.5	41.0	690	1667
6-0-12 VS1 ELD	2994	18.2	25.5	-1.6	-6.8	42.4	752	1597
6-0-12 VS2 ELD	3490	18.1	31.2	-1.4	-3.8	41.6	818	1756

1. FORCES ARE FACTORED LOADS PER BOLT USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: DL = 0.9, S_{DS} = 2.50, FpH AT GRADE = 1.13, FpH ELEVATED = 3.0 AND FpV = 0.5 AND (8) ANCHORS ARE USED.
2. FORCES FOR CONCRETE ANCHORAGE ARE AT STRENGTH DESIGN LEVEL AN INCLUDE A CONCRETE OVERSTRENGTH FACTOR Ω_0 = 1.5 FOR SHEAR AND TENSION.

OPM-0486-13 BELIMED MST-V 6-0-X ELD MODEL STERILIZER
AT GRADE DIMENSIONS AND ANCHORAGE FORCES WITH S_{DS} = 2.50 (8 ANCHORS)

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REGISTERED PROFESSIONAL ENGINEER
WILLIAM V. JOERGER
S 4545
EXP. 06/30/2020
Dec 19

DRAWN BY: WVJ	
DATE: 04/23/18	
REVISED BY: WVJ	
DATE: 07/19/19	
REV NO: 3	
SCALE N.T.S.	**PAGE** ELD GRADE

OSHPD OPM-0486-13 DWG - 11