



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OPM-0486

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: [] New [X] Renewal/Update

Manufacturer Information

Manufacturer: Belimed, Inc

Manufacturer's Technical Representative: Jay Upchurch

Mailing Address: 8351 Palmetto Commerce Parkway, Suite 10, Ladson, SC 29456

Telephone: (843) 216-7424 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, 6-0-12 VS2, 6-0-12 VS2E

General Description: MST-V 6 series are medical steam sterilizers with an optional internally mounted steam generator. These sterilizers come in single door and double door configurations.

Applicant Information

Applicant Company Name: Belimed, Inc

Contact Person: Jay Upchurch

Mailing Address: 8351 Palmetto Commerce Parkway, Suite 10, Ladson, SC 29456

Telephone: (843) 216-7424 Email: jay.upchurch@belimed.com

Title: Product Manager

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Registered Design Professional Preparing Engineering Recommendations

Company Name: ISAT SEISMIC BRACING
Name: Deep Shah California License Number: S5867
Mailing Address: 14848 Northam Street, La Mirada, CA 90638
Telephone: (714) 523-1771 Email: dshah@isatsb.com

HCAI 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, 2022 (CBSC 2022) 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 2022 may be used when approved by HCAI prior to testing.

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

HCAI Approval

Date: 12/7/2023
Name: Jeffrey Kikumoto Title: Senior Structural Engineer
Condition of Approval (if applicable):

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TOTAL SUPPORT

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Submittal Documents

OSHPD OPM-0486-13

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

BELIMED

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



WV Joerger
08/19/2019

FILE NO.: CLT-0117-009

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OSHPD OPM-0486-13 DWG - i

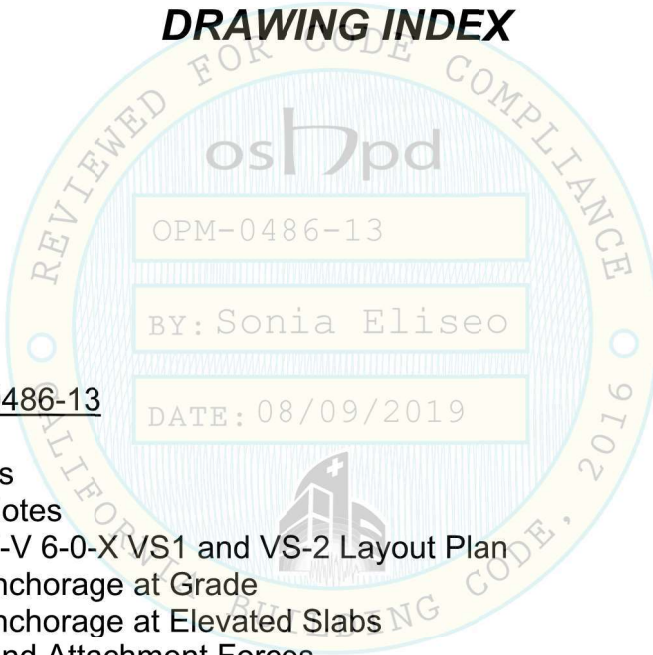


OSHPD OPM-0486-13

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DRAWING INDEX

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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: $S_{DS} = 2.50$ $I_p = 1.5$ $a_p = 1.0$ $R_p = 1.5$ (OTHER EQUIPMENT). FOR $z/h = 0$ $F_{pH} = 1.13$ AND FOR $z/h \leq 1.0$ $F_{pH} = 3.00$ AND $F_{pV} = 0.50$. FOR "ELD" MODELS AT GRADE LOCATIONS WHERE (4) ANCHORS ARE USED $S_{DS} = 2.25$, $F_{pH} = 1.01$ AND $F_{pV} = 0.45$. FOR "ELD" MODELS ON ELEVATED SLABS $S_{DS} = 2.50$, $F_{pH} = 3.00$ AND $F_{pV} = 0.50$.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR $\Omega_0 = 1.5$ 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 MANUFACTURER ($F_y = 31.2$ KSI), ALL THREAD ROD ASTM F593 CW1 304 STAINLESS STEEL FOR BOLTS AT ELEVATED FLOORS, ANGLE ASTM A36 ($F_u = 58$ 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 SOFFIT 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. EXERCISE DUE CARE WHEN DRILLING POST-INSTALLED ANCHORS TO AVOID DAMAGING CONCRETE REINFORCEMENT OR

BY: Sonia Eliseo

DATE: 08/09/2019

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



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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 CALIFORNIA 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 AGENCY. 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 EXISTING STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL AND TENSION FORCES SHOWN IN ADDITION 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 (E_h AND E_v) DO NOT EXCEED THE VALUES SHOWN IN THESE DETAILS.

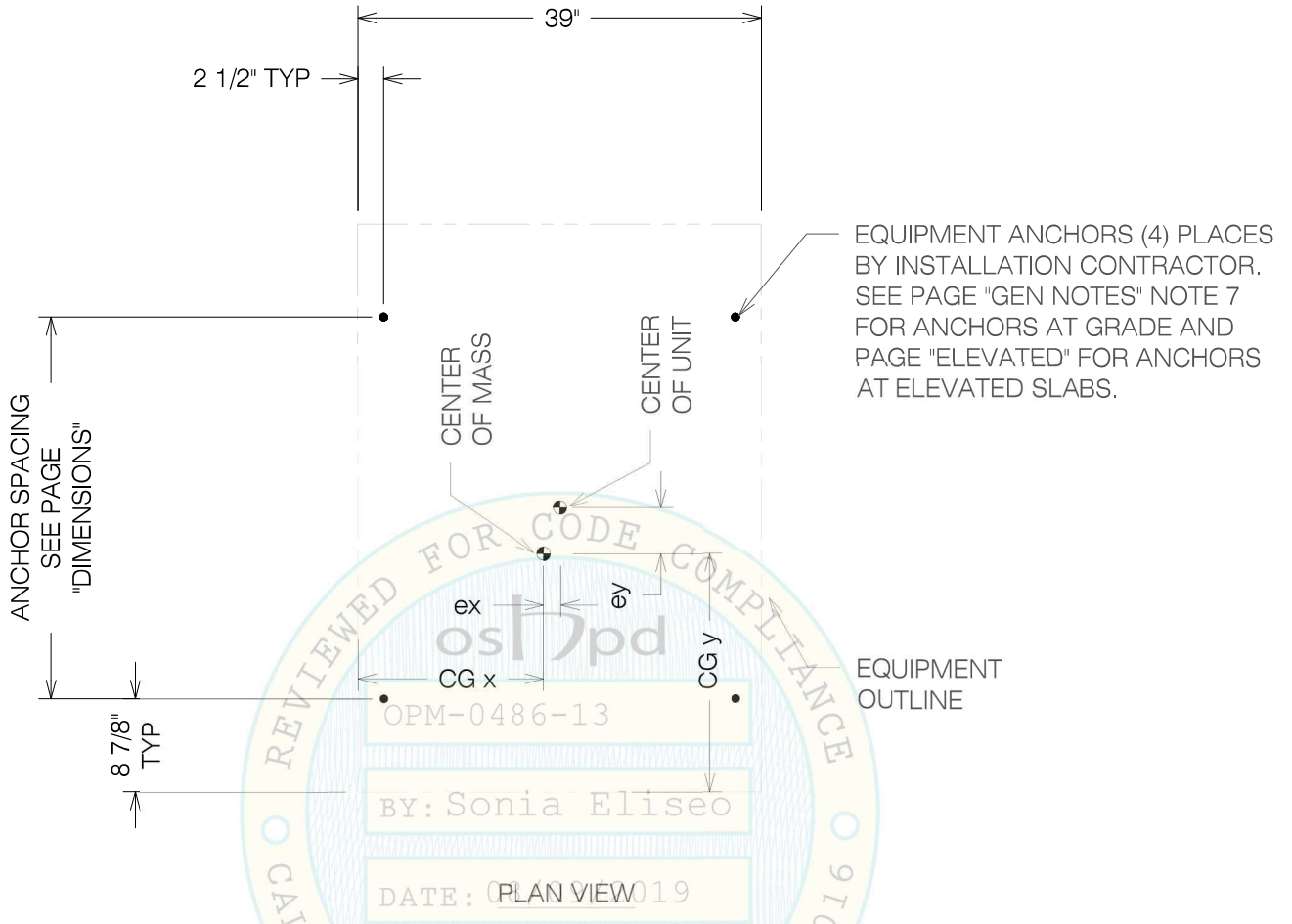
OPM-0486-13 BELIMED MST-V VS-1 AND VS-2 V446 STERILIZER ATTACHMENT NOTES



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OSHPD OPM-0486-13 DWG - 2



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 $S_{DS} \leq 2.25$

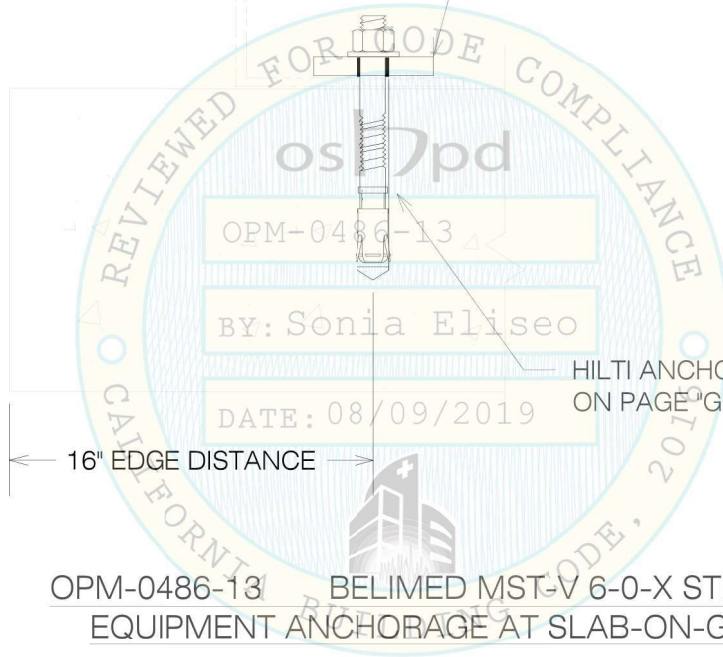
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OSHPD OPM-0486-13 DWG - 3

COMPONENT OUTLINE
 MATERIAL TYPE SA240 304SS EN 1.4301
 $F_u = 75 \text{ KSI (515 MPa)}$, $F_y = 30 \text{ KSI (205 MPa)}$
 GAGE THICKNESS = 0.098 IN (2.5 mm)

BRACKET BY BELIMED WHERE SHOWN
 SEE LAYOUT PLANS FOR PART NUMBER
 SEE PAGE "BRKT DETAILS" FOR DIMENSIONS
 ASTM A240 GRADE 304 STAINLESS STEEL

ANCHOR THROUGH FRAME WHERE
 BRACKETS ARE NOT INDICATED



HILTI ANCHOR SS 5/8" SEE NOTE 7
 ON PAGE "GEN NOTES"

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

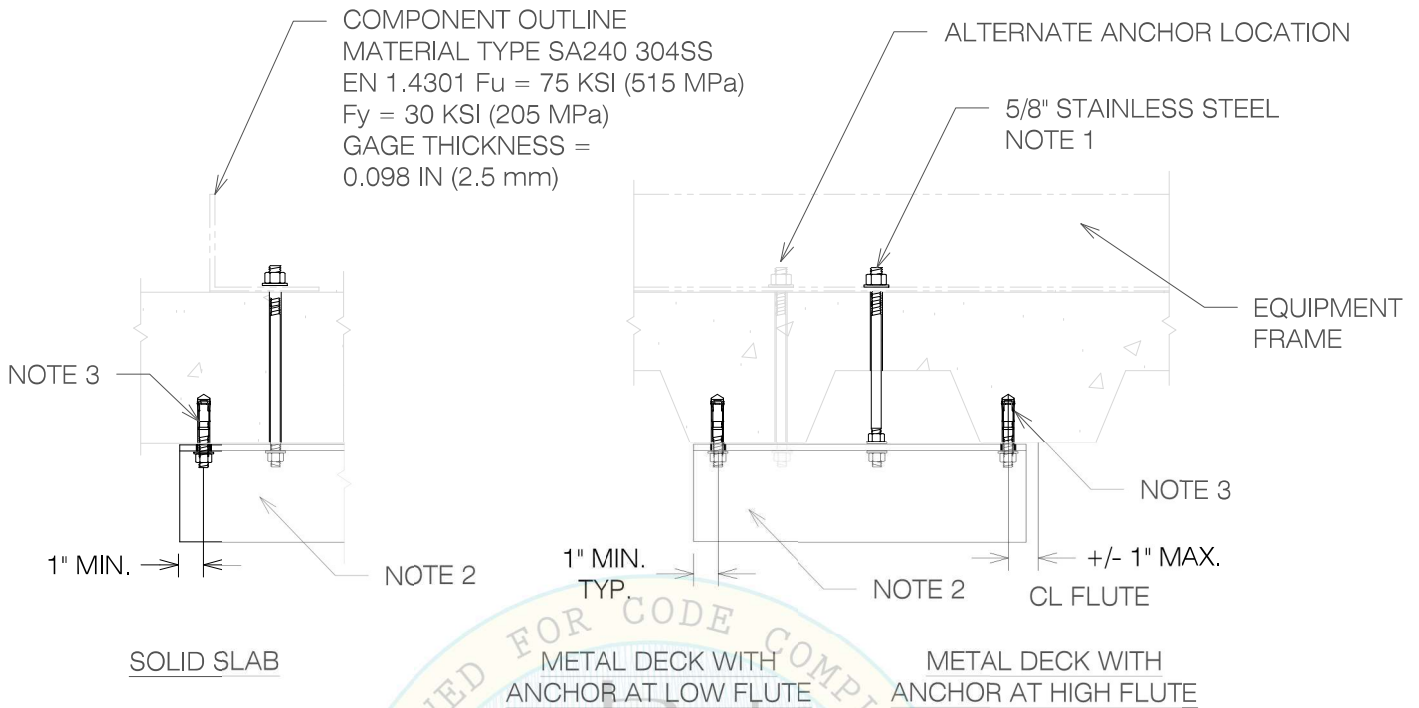


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NOTES:

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

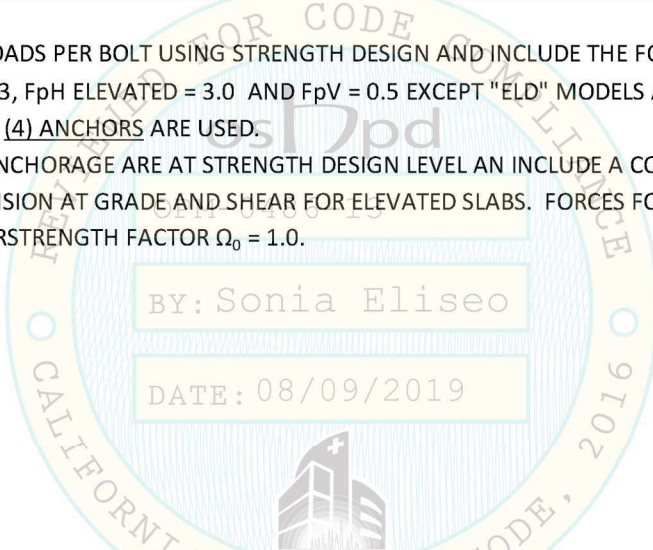


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EQUIPMENT WEIGHTS, DIMENSIONS AND ANCHORAGE FORCES											
Model and Weight		Anchor	CG x	CG y	Eccentricities			Forces At Grade		Forces at Elevated	
Tag No.	Weight lbf	Spacing - in	in	in	ex - in	ey - in	ez - in	Vu Lbs.	Tu Lbs.	Vu Lbs.	Tu Lbs.
6-0-6 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: $DL = 0.9$, $S_{DS} = 2.50$, F_{pH} AT GRADE = 1.13, F_{pH} ELEVATED = 3.0 AND $F_{pV} = 0.5$ EXCEPT "ELD" MODELS AT GRADE WHERE $S_{DS} = 2.25$, $F_{pH} = 1.01$ AND $F_{pV} = 0.45$ AND (4) ANCHORS ARE USED.
2. FORCES FOR CONCRETE ANCHORAGE ARE AT STRENGTH DESIGN LEVEL AN INCLUDE A CONCRETE OVERSTRENGTH FACTOR $\Omega_0 = 1.5$ FOR SHEAR AND TENSION AT GRADE AND SHEAR FOR ELEVATED SLABS. FORCES FOR STEEL ELEMENTS ON ELEVATED FLOORS INCLUDE AN OVERSTRENGTH FACTOR $\Omega_0 = 1.0$.

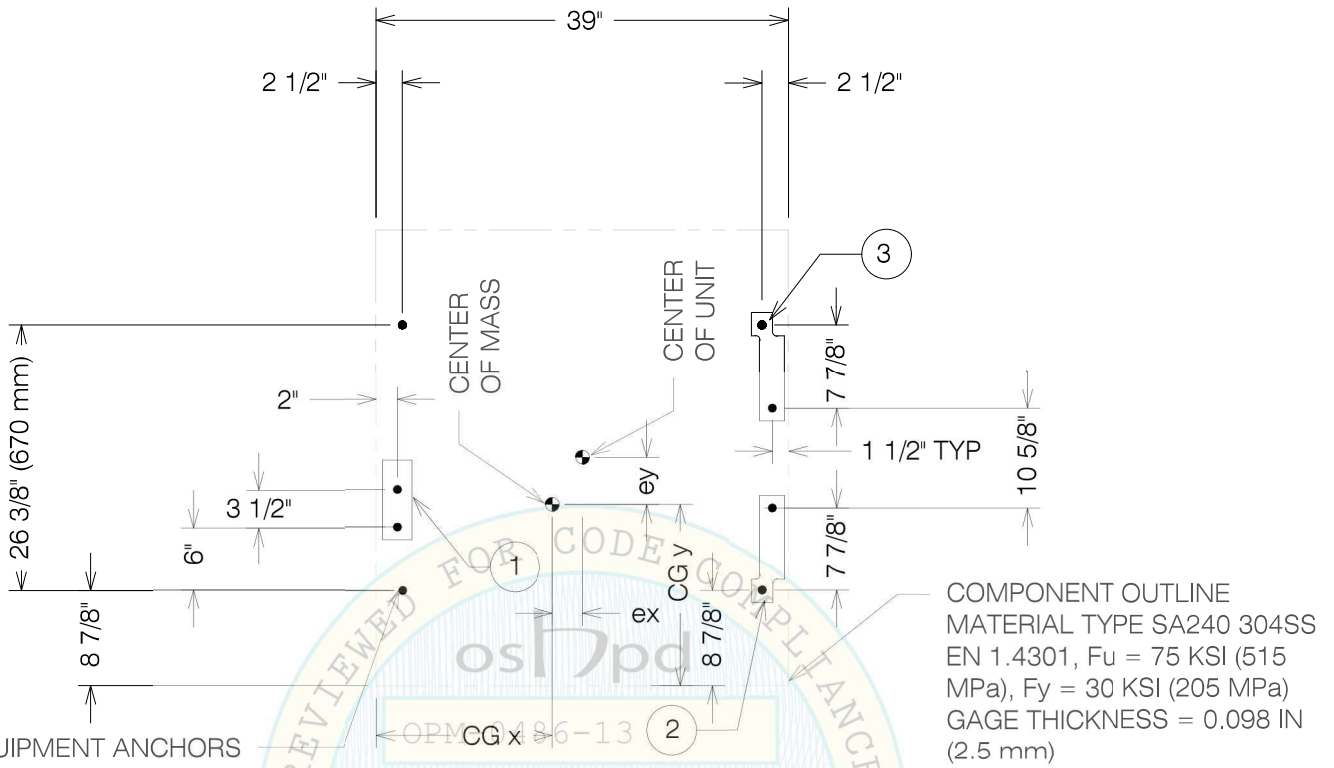


OPM-0486-13 BELIMED MST-V 6-0-X STERILIZER
DIMENSIONS AND ANCHORAGE FORCES



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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)

- 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 $S_{DS} = 2.50$



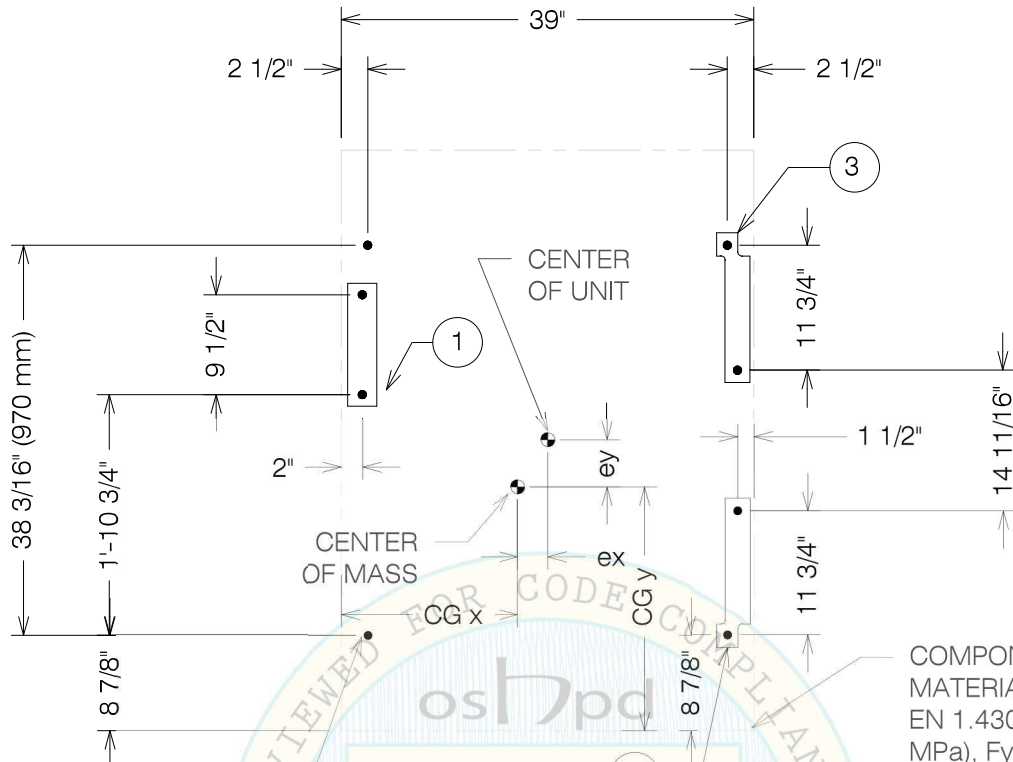
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OSHPD OPM-0486-13 DWG - 7



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)

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

OPM-0486-13
 BY: Sonia Eliseo
 DATE: 08/09/2019

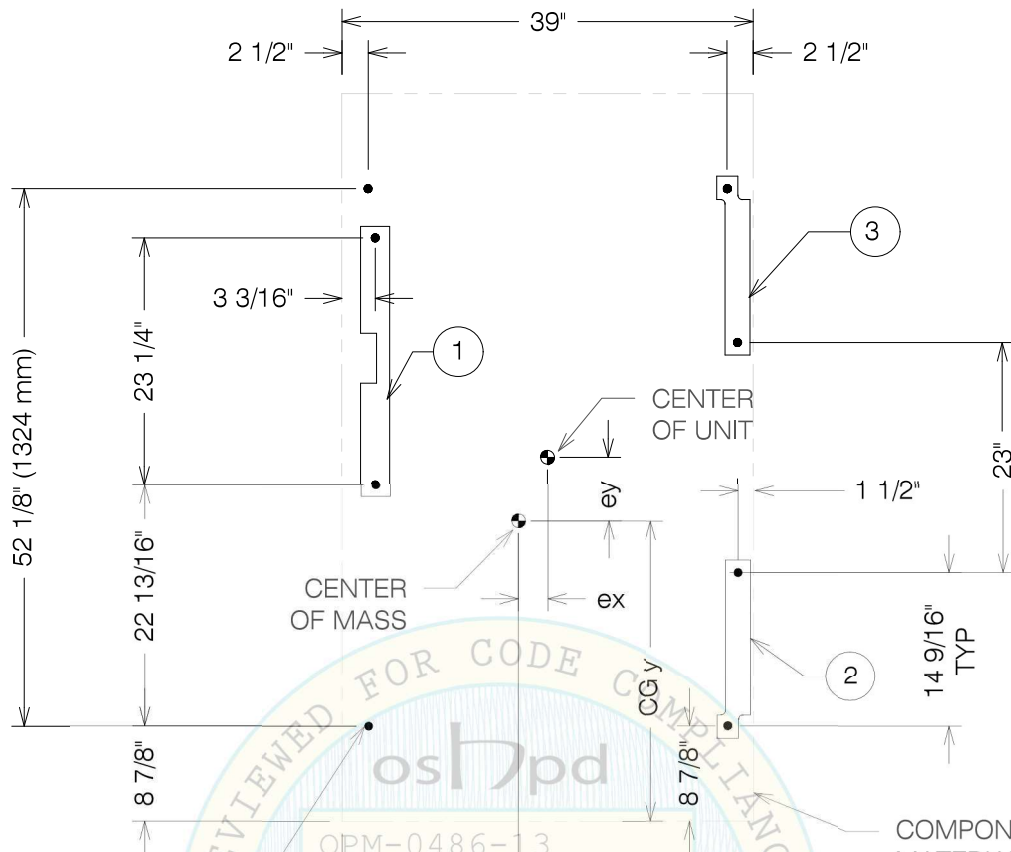
- ① BELIMED DWG NO. 000-323-947 SEISMIC BRACKET BY BELIMED (304 SS)
- ② BELIMED DWG NO. 0000-323-942 SEISMIC BRACKET BY BELIMED (304 SS)
- ③ BELIMED DWG NO. 0000-323-943 SEISMIC BRACKET BY BELIMED (304 SS)

**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, $F_u = 75$ KSI (515 MPa), $F_y = 30$ KSI (205 MPa)
GAGE THICKNESS = 0.098 IN (2.5 mm)

- 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)

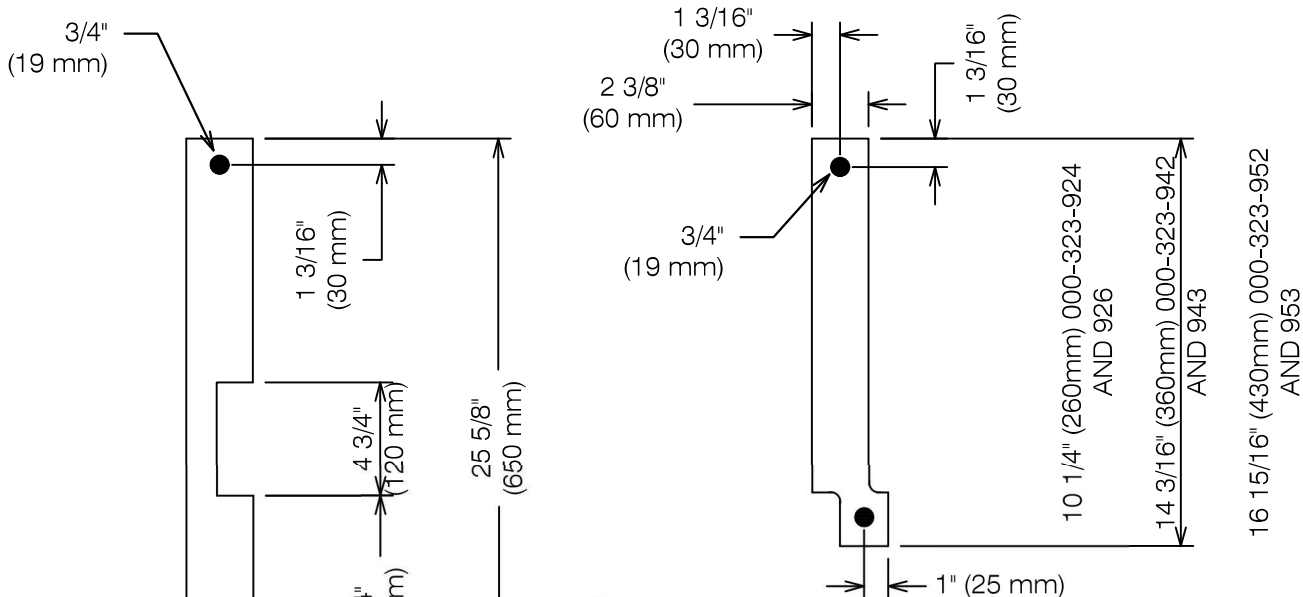
OPM-0486-13 BELIMED MST-V 6-0-12 VS1 ELD AND
MST-V 6-0-12 VS2 ELD ANCHOR LAYOUT AT GRADE $S_{DS} = 2.50$



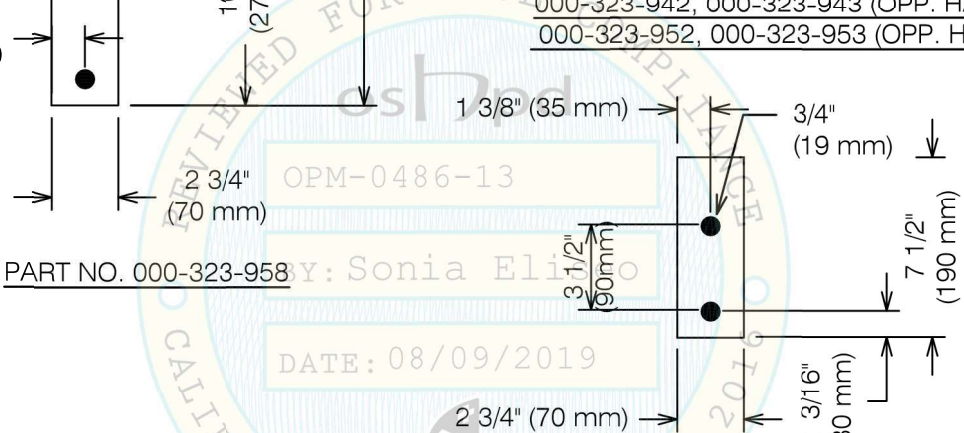
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OSHPD OPM-0486-13 DWG - 9



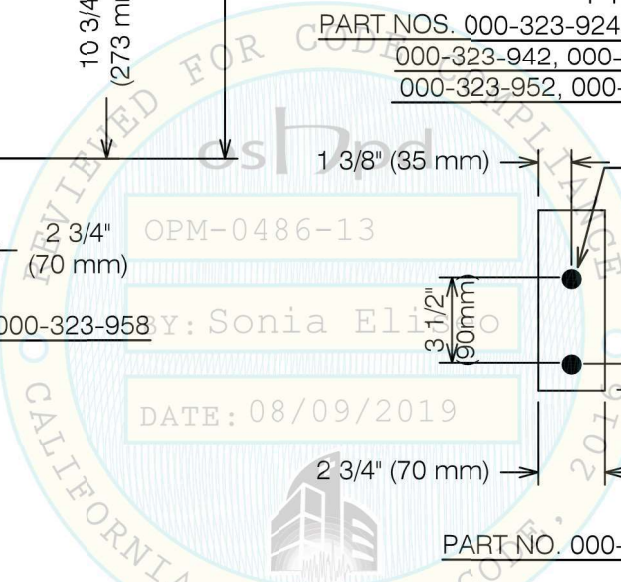
PART NOS. 000-323-924, 000-323-926 (OPP. HAND),
 000-323-942, 000-323-943 (OPP. HAND)
 000-323-952, 000-323-953 (OPP. HAND)



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



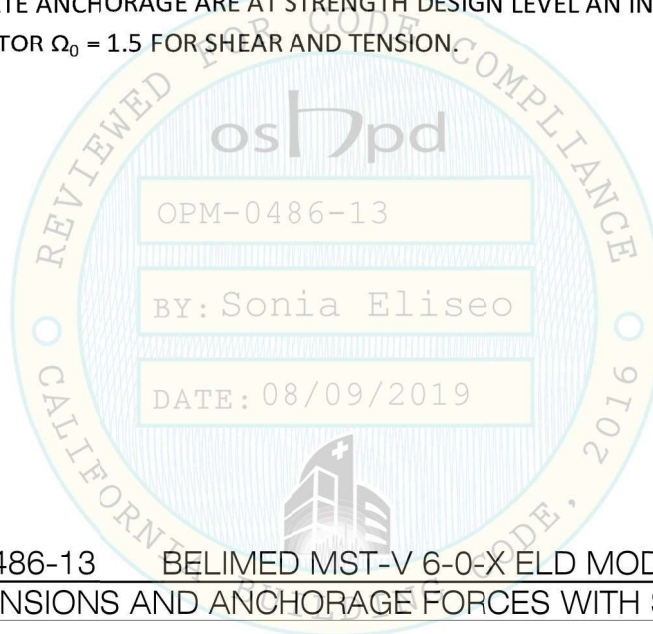


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SCALE N.T.S.	PAGE BRACKETS	

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

- FORCES ARE FACTORED LOADS PER BOLT USING STRENGTH DESIGN AND INCLUDE THE FOLLOWING FACTORS: $DL = 0.9$, $S_{DS} = 2.50$, F_{pH} AT GRADE = 1.13, F_{pH} ELEVATED = 3.0 AND $F_{pV} = 0.5$ AND (8) ANCHORS ARE USED.
- FORCES FOR CONCRETE ANCHORAGE ARE AT STRENGTH DESIGN LEVEL AN INCLUDE A CONCRETE OVERSTRENGTH FACTOR $\Omega_0 = 1.5$ 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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SCALE N.T.S.	PAGE ELD GRADE	

OSHPD OPM-0486-13 DWG - 11



Submittal Documents

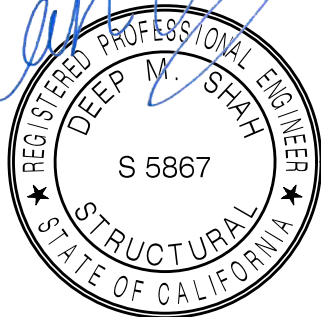
OSHPD OPM-0486

SUPPLEMENTAL LETTER

SUBSTITUTION OF HILTI KB-TZ WITH HILTI KB-TZ2 ANCHORS

November 29, 2023

BELIMED



12/06/2023

ISAT
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SUBMITTALS

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	TABLE OF CONTENTS
3	SUPPORTING LETTER
4	DESIGN BASIS
5-7	OSHPD OPM -0486 RELATED PAGES

November 29, 2023

Attn:

Jeffrey Kikumoto, SE

HCAI/OSHPD OPM Program Manager

Sub: #219900 – OPM -0486 Substitution of Hilti KB-TZ for Hilti KB-TZ2 anchors

This letter is being submitted in response to a letter dated 25 October 2021, requesting verification of Hilti KB-TZ2 anchor checks for OPM 0486. Anchors have been checked for Tension & Shear demands to meet the requirements of ASCE 7-16 / CBC 2019 building code standards.

Per supporting calculation, Hilti KB-TZ2 5/8" Diameter x4" effective embedment (anchors at grade) and 1/2" x 3 1/4" effective embedment stainless steel anchors (Elevated Metal Deck slabs) are acceptable.

See updated note 7 below per OPM 0486-13 page "GEN NOTES" for KB-TZ2 anchor.

"Hilti Kwik Bolt TZ2 (ESR-4266) Stainless Steel 5/8" Diameter x 4" Effective Embedment. Drill 11/16" Diameter x 4 3/4" deep hole; Clean hole per manufacturer's instructions".

For anchors into the soffit of the metal deck use Kwik Bolt TZ2 (ESR-4266) 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. Edge distance of through bolt into metal deck to be 6" min. Both are supplied by installation contractor."

Bracket 000-323-947 on page "V 6-0-9 ELD" to be updated to BELIMED DWG NO. 000-333-200.

Bracket 000-323-947 on page "V 6-0-12 ELD" to be updated to BELIMED DWG NO. 000-333-223.

Sincerely,

Deep Shah, P.E., S.E.

Director of Engineering (Corporate)

(C) 949-436-0955 | 14848 Northam St., La Mirada, Ca, 90638

Checks for Hilti KB-TZ2 Substitution

The purpose of this submittal is to verify the Hilti KB-TZ2 (ESR 4266) anchors have sufficient capacity when replaced for Hilti KB-TZ (ESR 1917) when checking demands per approved OSHPD OPM-0486-13.

Three Cases per OSHPD OPM 0486 are identified and Hilti KB TZ2 anchor checks are carried out. Please note that the force demands/seismic parameters are unchanged and governing loads used from tables from OSHPD OPM 0486-13 for different floor mount conditions.

Case 1: SDS = 2.50, FpH at grade = 1.13, 4 anchors total

Case 2: SDS = 2.25, FpH at grade = 1.01, Fpv = 0.5, 4 anchors total (ELD models)

Case 3: SDS = 2.5, FpH at grade = 1.13, Fpv = 0.45, 8 anchors total (ELD models)

OSHPD OPM-0468-13

MANUFACTURE: BELIMED

EQUIPMENT TYPE: 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: $S_{DS} = 2.5$ $I_p = 1.5$ $a_p = 1.0$ $R_p = 1.5$ (OTHER EQUIPMENT). FOR $z/h = 0$ $F_pH = 1.13$ AND FOR $z/h \leq 1.0$ $F_pH = 3.00$ AND $F_pV = 0.50$. FOR "ELD" MODELS AT GRADE LOCATIONS WHERE (4) ANCHORS ARE USED $S_{DS} = 2.25$, $F_pH = 1.01$ AND $F_pV = 0.45$. FOR "ELD" MODELS ON ELEVATED SLABS $S_{DS} = 2.50$, $F_pH = 3.00$ AND $F_pV = 0.50$.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR $\Omega_0 = 1.5$ 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 MANUFACTURER ($F_y = 31.2$ KSI), ALL THREAD ROD ASTM F593 CW1 304 STAINLESS STEEL FOR BOLTS AT ELEVATED FLOORS, ANGLE ASTM A36 ($F_u = 58$ 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 3000 PSI MINIMUM STRENGTH.
7. POST-INSTALLED CONCRETE ANCHORS: HILTI KWIK BOLT TZ2 (ESR-4266) 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 TZ2 (ESR-4266) 1/2" DIAMETER x 4" MIN. HOLE DEPTH FOR 3/4" EFFECTIVE EMBEDMENT WITH 1" MAXIMUM OFFSET FROM THE CENTER OF THE METAL DECK FLUTE. EDGE DISTANCE OF THRU-BOLT IN TO METAL DECK TO BE 6". BOTH ARE SUPPLIED BY INSTALLATION CONTRACTOR.
8. EXERCISE DUE CARE WHEN DRILLING POST-INSTALLED ANCHORS TO AVOID DAMAGING CONCRETE REINFORCEMENT OR TENDONS.

DATE: 08/09/2019

OPM-0468-13 BELIMED MST-V VS1 AND VS2 STERILIZER GENERAL NOTES

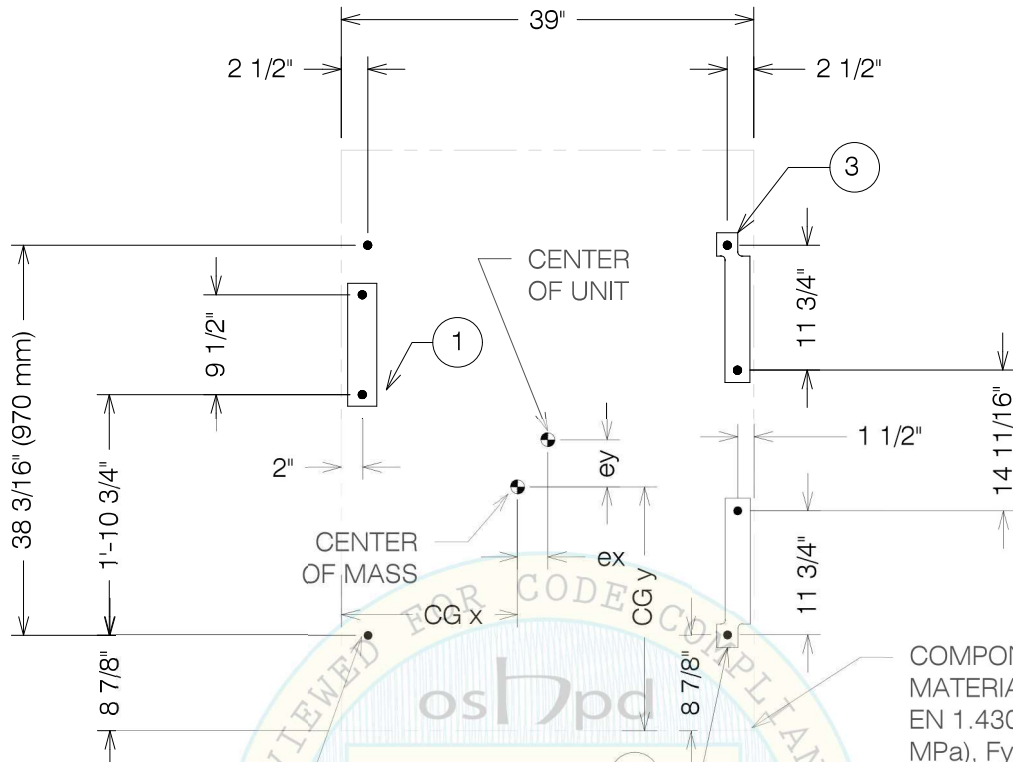


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SCALE **PAGE**
N.T.S. GEN NOTES



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)

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

OPM-0486-13
 PLAN VIEW
 BY: S. Eliseo

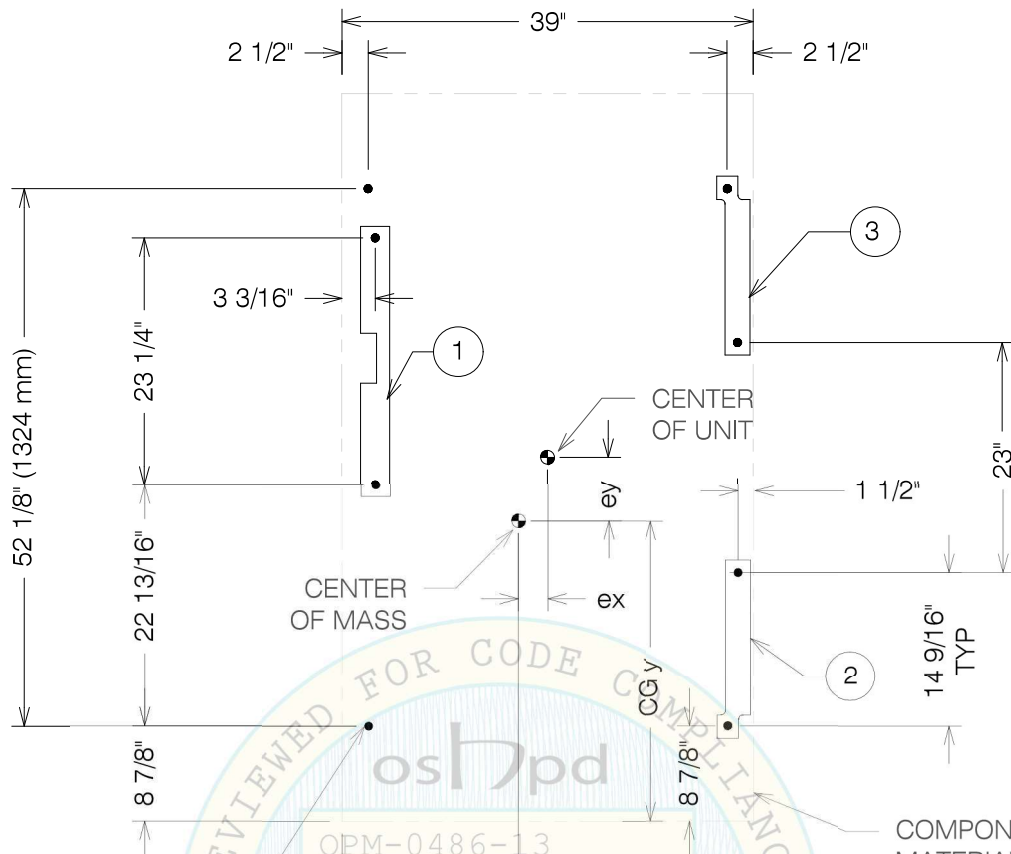
- ① BELIMED DWG NO. 000-333-200 SEISMIC BRACKET BY BELIMED (304 SS)
- ② BELIMED DWG NO. 0000-323-942 SEISMIC BRACKET BY BELIMED (304 SS)
- ③ BELIMED DWG NO. 0000-323-943 SEISMIC BRACKET BY BELIMED (304 SS)

**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

OPM-0486-13
BY: Sonia Eliseo
PLAN VIEW

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

- ① BELIMED DWG NO. 000-333-223 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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