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

OFFICE USE ONLY
APPLICATION #: OPM-0507-13

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: Heike Hütterer

Mailing Address: Zelgstrasse 8 • 8583 Sulgen • Switzerland

Telephone: +41 71 644 86 65 Email: heike.huetterer@belimed.com

Product Information

Product Name: MST-H(10.02) 9-6-X HSX and MST-H(10.02) 9-6-X HSXE Steam Sterilizers

Product Type: Steam Sterilizers

Product Model Number: MST-H(10.02) 9-6-12 HS1&E, MST-H(10.02) 9-6-15 HS1&E, MST-H(10.02) 9-6-18 HS1&E, MST-H(10.02) 9-6-9 HS2&E, MST-H(10.02) 9-6-12 HS2&E, MST-H(10.02) 9-6-15 HS2&E, MST-H(10.02) 9-6-18 HS2&E (E models have ELD)

General Description: Belimed's MST-H(10.02) 9-6-X HSX and 9-6-X HSXE Steam Sterilizers have been engineered to provide the flexibility and versatility needed for immediate use in the OR, day to day operations in a surgery center, or quick turnaround sets in sterile processing.

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: _____ Date: October 29, 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: wjoerger@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: 8/13/2019

Print Name: Sonia Eliseo

Title: Senior Structural Engineer

Condition of Approval (if applicable):

INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY

A Division of Tomarco Contractor Specialties

Submittal Documents

OSHPD OPM-0507-13

SUPPORT AND ATTACHMENT CONSTRUCTION DRAWINGS

MST-H (10.02) 9-6-X HSX AND HSXE STERILIZERS

BELIMED

REGISTERED PROFESSIONAL ENGINEER
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FILE NO.: CLT1018-215 ***"Empowered by Experience"*** REV 2

INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY

A Division of Tomarco Contractor Specialties

OSHPD OPM-0507-13

DRAWING INDEX FOR MST-H (10.02) 9-6-X HSX AND HSXE STERILIZERS

DEX

OSHPD OPM-0507-13

MANUFACTURE: BELIMED

EQUIPMENT TYPE: STERILIZER

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: FOR MODELS HS1, HS2 AND HS1E WHERE S_{DS} = 2.25 I_P = 1.5 ap = 1.0 Rp = 1.5 (OTHER MECHANICAL COMPONENT) FOR z/h = 0.0 FpH = 1.01 AND FOR z/h <= 1.0 FpH = 2.70 AND FpV = 0.45. FOR MODEL HS2E WHERE S_{DS} = 1.8, FOR z/h = 0 FpH = 0.81, FOR z/h = 1.0 FpH = 2.16 AND FpV = 0.36.
3. SUPPORT AND ATTACHMENT FORCES ARE DETERMINED USING ASCE 7-10 CHAPTER 13 "SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS". AN OVERSTRENGTH FACTOR Ω0 = 1.5 IS USED FOR CONCRETE ANCHORAGE FORCES PER ASCE 7-10 SUPPLEMENT 1 TABLE 13.6-1. LOADS SHOWN ARE STRENGTH DESIGN LOADS PER CBC 2016 SECTION 1605A.2
4. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
5. THIS PREAPPROVAL IS FOR CONCRETE SLAB AT GRADE OR ELEVATED SLABS FOR THE DEMAND LOADS SHOWN WHERE S_{DS} <= 2.4.
6. STEEL MATERIALS: THROUGH BOLTS AISI A2 STAINLESS STEEL (ULTIMATE TENSILE STRENGTH OF 73.2 KSI [505 MPa]) WITH MATCHING WASHERS AND NUTS. ATTACHMENT BRACKET BY BELIMED EURONORM 1.4301 STAINLESS STEEL WITH A TENSILE STRENGTH OF 75 KSI [520 Mpa] AND MINIMUM YIELD STRENGTH OF 39 KSI [270 MPa].
7. CONCRETE SLABS:
   a. FOR SLAB ON GRADE OR ELEVATED SOLID CONCRETE SLABS: 6" MINIMUM THICKNESS OF NORMAL WEIGHT CONCRETE WITH 3000 PSI MINIMUM STRENGTH.
   b. METAL DECK: 3" DEEP COMPOSITE STEEL DECK, 20 GAGE MINIMUM WITH FLUTE SPACING OF 12", 4.5 INCH MINIMUM BOTTOM FLUTE WIDTH WITH 3.25" SAND LIGHT WEIGHT OR NORMAL WEIGHT CONCRETE COVER AT 4000 PSI MINIMUM STRENGTH.
8. POST-INSTALLED CONCRETE ANCHORS: HILTI KWIK BOLTS TZ (ESR-1917) STAINLESS STEEL 0.625" DIAMETER x 4.75" MINIMUM HOLE DEPTH (4" EFFECTIVE EMBEDMENT) AND 60 FT-LBS INSTALLATION TORQUE. EDGE DISTANCE IS 18" MINIMUM.

OPM-0507-13 BELIMED MST-H(10.02) 9-6-X HSX AND HSXE STERILIZER GENERAL NOTES

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OSHPD OPM-0507-13

MANUFACTURE: BELIMED

EQUIPMENT TYPE: STERILIZER

ATTACHMENT NOTES:

1. REFER TO OPM-0507-13 DETAILS FOR THE MATERIALS OF CONSTRUCTION AND FASTENER DIMENSIONS.
2. THROUGH BOLT INSTALLATION AND INSPECTION (DETAILS OF THE SUPPLEMENTAL STEEL AND CONNECTIONS TO STRUCTURE ARE SHOWN ON PAGE "MISC 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 TIGHTNESS 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.
3. FOR POST INSTALLED CONCRETE ANCHORS PERIODIC SPECIAL INSPECTION SHALL BE IN ACCORDANCE WITH 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. A 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.
4. EXERCISE CARE WHEN DRILLING POST-INSTALLED ANCHORS TO AVOID DAMAGING CONCRETE REINFORCEMENT OR
5. PROVIDE FOR FULL THREAD ENGAGEMENT OF NUT AND WASHER.

RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD

1. CONFIRM THE MINIMUM REQUIREMENTS SPECIFIED IN THIS OPM FOR THE CONCRETE SLAB ARE MET, INCLUDING MATERIAL PROPERTIES AND THICKNESS OF CONCRETE SLAB.
2. PROVIDE A PLAN FOR INSPECTION OF SUPPORTS AND ATTACHMENTS AND VERIFY ITS IMPLEMENTATION.
3. VERIFY THAT THE EXISITNG STRUCTURE IS ADEQUATE FOR THE IMPOSED DEAD, LATERAL AND TENSION FORCES SHOWN IN ADDITION TO ALL OTHER LOADS.
4. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH CBC 2016 AND WITH THE OPM-0507-13 DETAILS.
5. 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-0507-13 BELIMED MST-H(10.02) 9-6-X HSX AND 9-6-X HSXE STERILIZER ATTACHMENT NOTES

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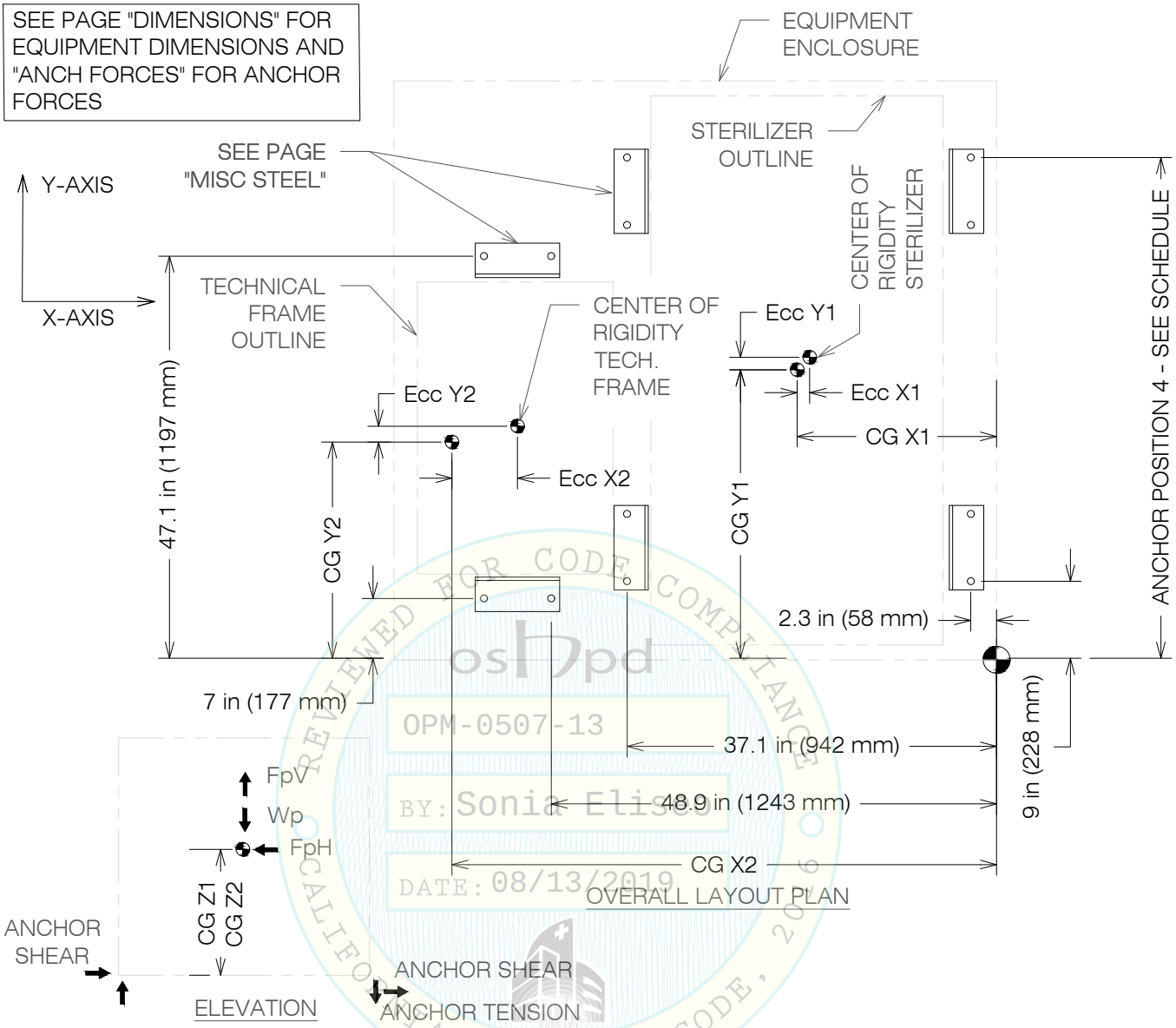
SEE PAGE "DIMENSIONS" FOR EQUIPMENT DIMENSIONS AND "ANCH FORCES" FOR ANCHOR FORCES



OPM-0507-13 BELIMED MST-H(10.02) 9-6-X HSX AND 9-6-X HSXE STERILIZER ANCHOR LAYOUT

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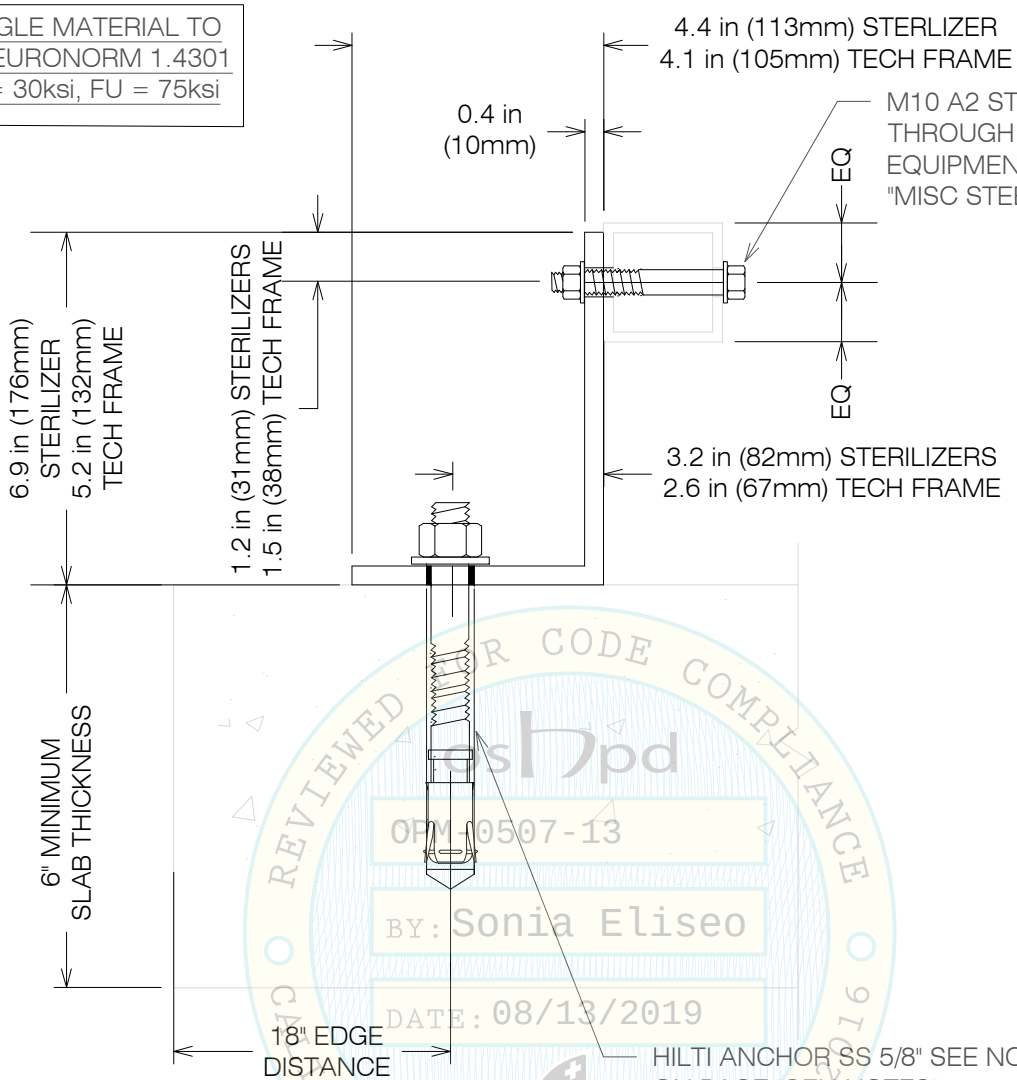
ANGLE MATERIAL TO BE EURONORM 1.4301
FY = 30ksi, FU = 75ksi



OPM-0507-13 BELIMED MST-H (10.02) SEISMIC BRACKET ATTACHMENT TO THE EQUIPMENT FRAME FOR LOCATIONS AT SLAB-ON-GRADE

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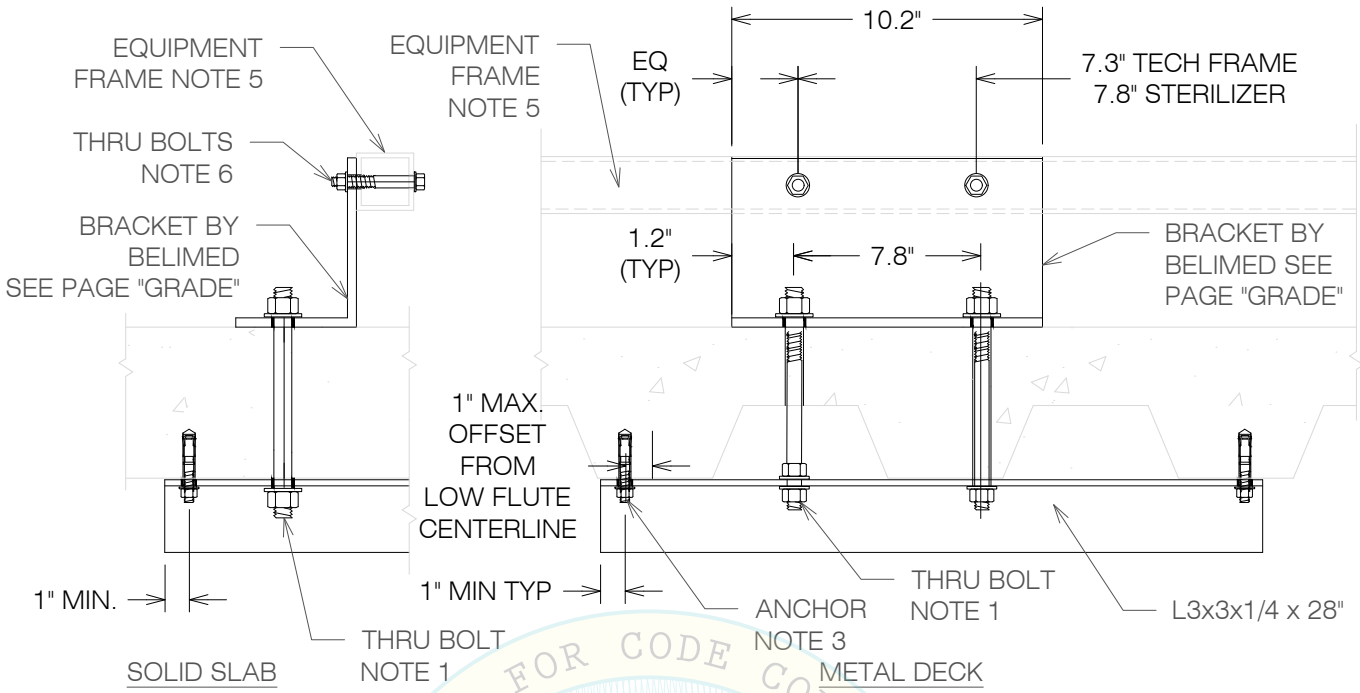

NOTE! USE A L3x3 FOR EACH THRU BOLT WHEN BOLTS ALIGN PARALLEL TO THE DECK.

NOTES:

1. DRILL 11/16" HOLE IN THE CONCRETE SLAB TO RECEIVE THE 5/8" AISI 304 STAINLESS STEEL RODS (Fy=31.2 KSI, Fu=73.2 KSI) WITH MATCHING WASHERS AND NUTS. MAINTAIN 18" EDGE DISTANCE.
2. FOR LOCATIONS WHERE A TOP NUT CANNOT BE INSTALLED IN THE SUPPLEMENTAL STEEL ANGLE, DRILL AND TAP THE STEEL MATERIAL TO RECEIVE THE 5/8" EQUIPMENT ANCHORAGE BOLT.
3. ANCHOR INTO BOTTOM OF SLAB SHALL BE HILTI KWIK BOLT TZ (ESR-1917) 1/2" x 4" HOLE DEPTH (3 1/4" EFFECTIVE EMBEDMENT) AND 40 FT-LBS INSTALLATION TORQUE.
4. SEE PAGE "GEN NOTES" NOTE 7 FOR CONCRETE SLAB AND METAL DECK REQUIREMENTS.
5. EQUIPMENT FRAME IS 2.4in x 2.4in x 0.2in (60 mm x 60 mm x 5 mm) EURONORM 1.0037 ASTM EQUIVALENT A283 C - A570 GR. 33 (316L STAINLESS STEEL, Fy = 30 KSI MIN, Fu = 75 KSI).
6. THROUGH BOLTS AT THE EQUIPMENT FRAME ARE TO BE M10 A2 STAINLESS STEEL (Fu = 100 KSI). FIELD DRILL 0.563" HOLES IN FRAME AFTER VERTICAL ADJUSTMENT OF THE EQUIPMENT.

OPM-0507-13 BELIMED MST-H(10.02) MISCELLANEOUS STEEL AND ATTACHMENT DETAILS AT ELEVATED SLABS

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BELIMED MST-H (10.02) 9-6-X HSX STERILIZERS DIMENSIONS AND WEIGHTS								
Sterilizer		9-6-12 HS1	9-6-15 HS1	9-6-18-HS1	9-6-9 HS2	9-6-12 HS2	9-6-15 HS2	9-6-18-HS2
Operating Wt	lb	3783	4332	4738	4279	4758	5317	5743
CG X1	in	22.2	22.2	22.2	22.2	22.2	22.2	22.2
Ecc X1	in	2.6	2.6	2.6	2.5	2.5	2.5	2.5
CG Y1	in	28.6	34.3	40.1	27.1	33.9	40.0	45.9
Ecc Y1	in	-5.1	-5.5	-5.7	0.0	0.1	0.2	0.1
CG Z1	in	33.6	33.6	33.6	33.7	33.7	33.7	33.7
Anchor Postion 4	in	58.5	70.6	82.8	45.1	58.5	70.6	82.8
Technical Frame		9-6-12 HS1	9-6-15 HS1	9-6-18-HS1	9-6-9 HS2	9-6-12 HS2	9-6-15 HS2	9-6-18-HS2
Operating Wt	lb	463	485	485	463	463	485	485
CG X2	in	60.2	60.0	60.0	60.2	60.2	60.0	60.0
Ecc X2	in	7.5	7.5	7.5	8.9	8.9	8.7	8.7
CG Y2	in	25.3	25.3	25.3	25.3	25.3	25.3	25.3
Ecc Y2	in	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
CG Z2	in	23.0	21.7	21.7	23.0	23.0	21.7	21.7

BELIMED MST-H (10.02) 9-6-X HSXE STERILIZERS WITH STEAM GENERATOR DIMENSIONS AND WEIGHTS								
Sterilizer		9-6-12 HS1E	9-6-15 HS1E	9-6-18-HS1E	9-6-9 HS2E	9-6-12 HS2E	9-6-15 HS2E	9-6-18-HS2E
Operating Wt	lb	4634	5311	5717	5018	5609	6301	6722
CG X1	in	22.8	22.8	22.7	22.6	22.6	22.6	22.6
Ecc X1	in	3.1	3.1	3.1	2.9	3.0	3.0	2.9
CG Y1	in	29.1	33.8	45.9	27.0	33.5	38.7	43.8
Ecc Y1	in	-4.6	-6.0	0.0	0.0	-0.3	-1.1	-2.1
CG Z1	in	41.2	41.3	40.8	39.8	40.0	40.2	39.8
Anchor Postion 4	in	58.5	70.7	82.8	45.1	58.5	70.6	82.8
Technical Frame		9-6-12 HS1E	9-6-15 HS1E	9-6-18-HS1E	9-6-9 HS2E	9-6-12 HS2E	9-6-15 HS2E	9-6-18-HS2E
Operating Wt	lb	463	485	485	463	463	485	485
CG X2	in	60.2	60.0	60.0	60.2	60.2	60.0	60.0
Ecc X2	in	8.9	8.7	8.7	8.9	8.9	8.7	8.7
CG Y2	in	25.3	25.3	25.3	25.3	25.3	25.3	25.3
Ecc Y2	in	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7	-1.7
CG Z2	in	23.0	21.7	21.7	23.0	23.0	21.7	21.7

OPM-0507-13 BELIMED MST-H(10.02) 9-6-X HSX AND HSXE DIMENSIONS AND WEIGHTS

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BELIMED MST-H (10.02) 9-6-X HSX STERILIZERS ANCHORAGE FORCES							
Model		Attachment at Grade			Attachment at Elevated Slab		
MST-H (10.02) STERLIZER	S_{DS}	Anchor Type See Page "GEN NOTES" - Note 8	Forces at Grade [4] Tu - Lbs	Vu - Lbs	Anchor Type[2] Note 2	Forces at Elevated Slab Tu - Lbs	Vu - Lbs
9-6-12 HS1	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	1637	737	0.625" SS ROD	3128	1966
9-6-15 HS1	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	1616	821	0.625" SS ROD	3141	2190
9-6-18 HS1	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	1615	884	0.625" SS ROD	3176	2358
9-6-9 HS2	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2571	1084	0.625" SS ROD	4705	2891
9-6-12 HS2	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2212	1216	0.625" SS ROD	4097	3243
9-6-15 HS2	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2173	1349	0.625" SS ROD	4054	3597
9-6-18 HS2	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2611	1444	0.625" SS ROD	4857	3850
Technical Frame	2.25	HILTI KB TZ SS 0.625" x 3.125" EFF. EMBED.	1024	155	0.625" SS ROD	1837	514

BELIMED MST-H (10.02) 9-6-X HSXE STERILIZERS WITH STEAM GENERATOR ANCHORAGE FORCES							
Model		Attachment at Grade			Attachment at Elevated Slab		
MST-H (10.02) STERLIZER	S_{DS}	Anchor Type See Page "GEN NOTES" - Note 8	Forces at Grade [4] Tu - Lbs	Vu - Lbs	Anchor Type[2]	Forces at Elevated Slab [4] Tu - Lbs	Vu - Lbs
9-6-12 HS1E	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2565	968	0.625" SS ROD	4806	2581
9-6-15 HS1E	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2535	1028	0.625" SS ROD	4835	2742
9-6-18 HS1E	2.25	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2676	1458	0.625" SS ROD	4965	3888
9-6-9 HS2E	1.8	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2847	1044	0.625" SS ROD	5211	2784
9-6-12 HS2E	1.8	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2410	1157	0.625" SS ROD	4518	3085
9-6-15 HS2E	1.8	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2338	1248	0.625" SS ROD	4463	3328
9-6-18 HS2E	1.8	HILTI KB TZ SS 0.625" x 4" EFF. EMBED.	2222	1248	0.625" SS ROD	4325	3328
Technical Frame	2.25	HILTI KB TZ SS 0.625" x 3.125" EFF. EMBED.	1024	155	0.625" SS ROD	1837	514

1. Tu AND Vu VALUES FOR ANCHORAGE AT GRADE INCLUDES AN OVERSTRENGTH FACTOR OF 1.5 IN ACCORDANCE WITH ASCE 7-10 SUPPLEMENT No. 1. Vu VALUES FOR ANCHORAGE AT ELEVATED FLOORS INCLUDES AN OVERSTRENGTH FACTOR OF 1.5 IN ACCORDANCE
2. SEE NOTE 6 ON PAGE "GEN NOTES".
3. SEE TABLE FOR S_{DS} VALUES. S_{DS} = 2.25 FOR HS1, HS2, HS1E AND TECHNICAL FRAME WITH FpH GRADE = 1.01 AND FpH ELEVATED = 2.70 AND FpV = 0.45. S_{DS} = 1.8 FOR HSE2 WITH FpH GRADE = 0.81 AND FpH ELEVATED = 2.16 AND FpV = 0.36.
4. FORCES ARE STRENGTH DESIGN AND ARE PER ANCHOR BOLT.

OPM-0507-13 BELIMED MST-H(10.02) 9-6-X HSX AND 9-6-X HSXE ANCHORAGE FORCES

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PAGE ANCH FORCES

OSHPD OPM-0507-13 DWG - 7