



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

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

OFFICE USE ONLY

APPLICATION #: OPM-0237-13

**OSHPD Preapproval of Manufacturer's Certification (OPM)**

Type:  New  Renewal  Update to Pre-CBC 2013 OPA Number: \_\_\_\_\_

**Manufacturer Information**

Manufacturer: Belimed, Inc.

Manufacturer's Technical Representative: Nelson Garrido

Mailing Address: 2325 Charleston Regional Parkway, Charleston, SC. 29492

Telephone: (843) 216-7424

Email: Nelson.garrido@belimed.us

**Product Information**

Product Name: MST-H Sterilizer

Product Type: Other mechanical and electrical components

Product Model Number: 969 HS1, 969 Hs2, 9612 HS1, 9612 HS2, 9615 HS1, 9615 HS2, 9618 HS1 & 9618 HS2

General Description: Sterilization of 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, 2013.

Signature of Applicant: \_\_\_\_\_

Date: 6/2/15

Title: Principal Engineer

Company Name: EASE Co.

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY  
OSH-FD-700 (REV 1/24/13)



osHPD

Page 1 of 2



**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: 909-606-7667 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 1950-10

Other\* (Please Specify): \_\_\_\_\_

\*Use of test 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.

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 2013 ONLY**

Signature:  Date: 07/16/2015

Print Name: Jeffrey Kikumoto

Title: \_\_\_\_\_

Condition of Approval (if applicable): \_\_\_\_\_

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





**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-0237-13**

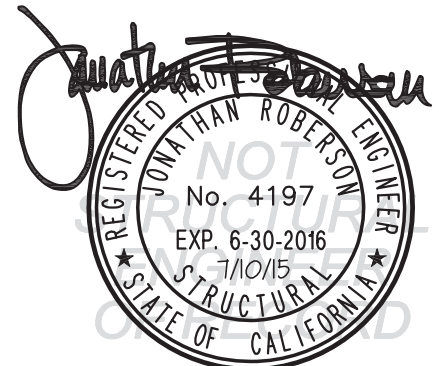
**THIS PREAPPROVAL CONFORMS TO THE 2013 CALIFORNIA BUILDING CODE**

MANUFACTURER: **BELIMED, INC**  
EQUIPMENT NAME: **RACK-LOADING STERILIZERS (MST-H)**

Sheet: 1 of 10  
Date: 7/10/15

**GENERAL NOTES**

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE 2013 CBC. THE DEMANDS
2. (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2013 CBC
3. 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.
4. THIS PREAPPROVAL CONFORMS TO THE 2013 CALIFORNIA BUILDING CODE WHERE  $S_{ds}$  IS NOT GREATER THAN 1.30, 1.60, 2.00. 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  $S_{ds} = 1.60$ ,  $a_p = 1.0$ ,  $I_p = 1.5$ ,  $R_p = 2.5$ ,  $z/h = 0$  AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR  $\Omega$ ,  
WHERE  $S_{ds} = 2.00$ ,  $a_p = 1.0$ ,  $I_p = 1.5$ ,  $R_p = 2.5$ ,  $z/h = 0$  AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR  $\Omega$ ,  
WHERE  $S_{ds} = 1.30$ ,  $a_p = 1.0$ ,  $I_p = 1.5$ ,  $R_p = 2.5$ ,  $z/h < 1$  AT CONCRETE SLAB ON METAL DECK.  
SEE FOLLOWING SHEETS FOR  $\Omega$ .
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 ON GRADE DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION 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 2013 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.
  - 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.



**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**2**

JOB NO. **11-1425**

DATE **7/10/15**

OF **10** SHEETS

## RACK-LOADING STERILIZERS (MST-H)

### 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 <sub>c</sub> (psi)	Anchor Type	ICC Report No.	Min. Embed.	Min. Spacing	Min. Edge Dist.	Min. Conc. Thickness	Torque Test	Direct Tension
1/2"	Sand Light Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	2"	N/A	N/A	See Sheet 9 of 10	40 FT-LB	1186 lb
5/8"	Normal Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	3-1/4"	3.5"	24"	5"	60 FT-LB	2153 lb
5/8"	Normal Weight	3000	Hilti Kwik Bolt TZ	ESR-1917	4"	3.5"	24"	6"	60 FT-LB	2931 lb

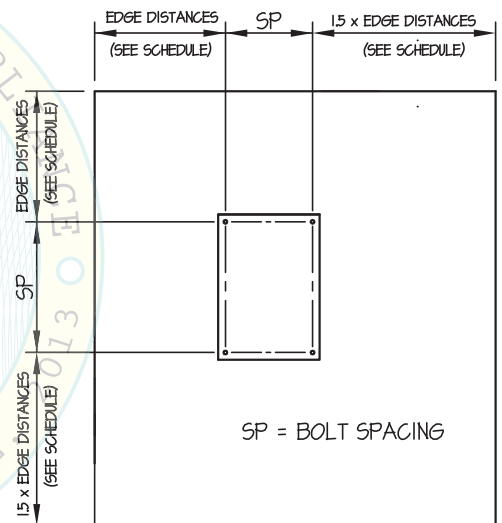
NOTE: ADD WASHERS WHEN NECESSARY TO MAINTAIN FULL THREAD ENGAGEMENT FOR NUT & WASHER

- B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE SLAB EDGES, 24" (SEE SCHEDULE) AWAY MINIMUM (i.e. - CORNER). SEE ADJACENT DETAIL FOR ADDITIONAL MINIMUM ALLOWABLE CONCRETE EDGE DISTANCES.

- C. TESTING OF EXPANSION ANCHORS PER 2013 CBC, 1913A.7: 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

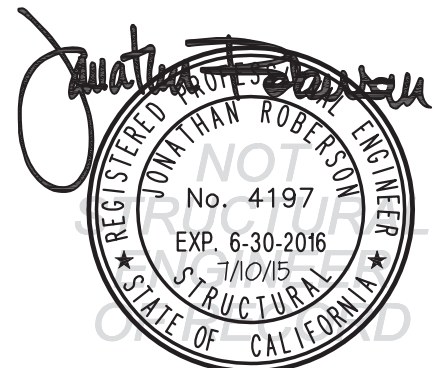
- (iii) IF ANY ANCHOR FAILS, TEST ALL ANCHORS.



TYPICAL CONCRETE EDGE DETAIL

### 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.





**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**3**

JOB NO. **11-1425**

DATE **7/10/15**

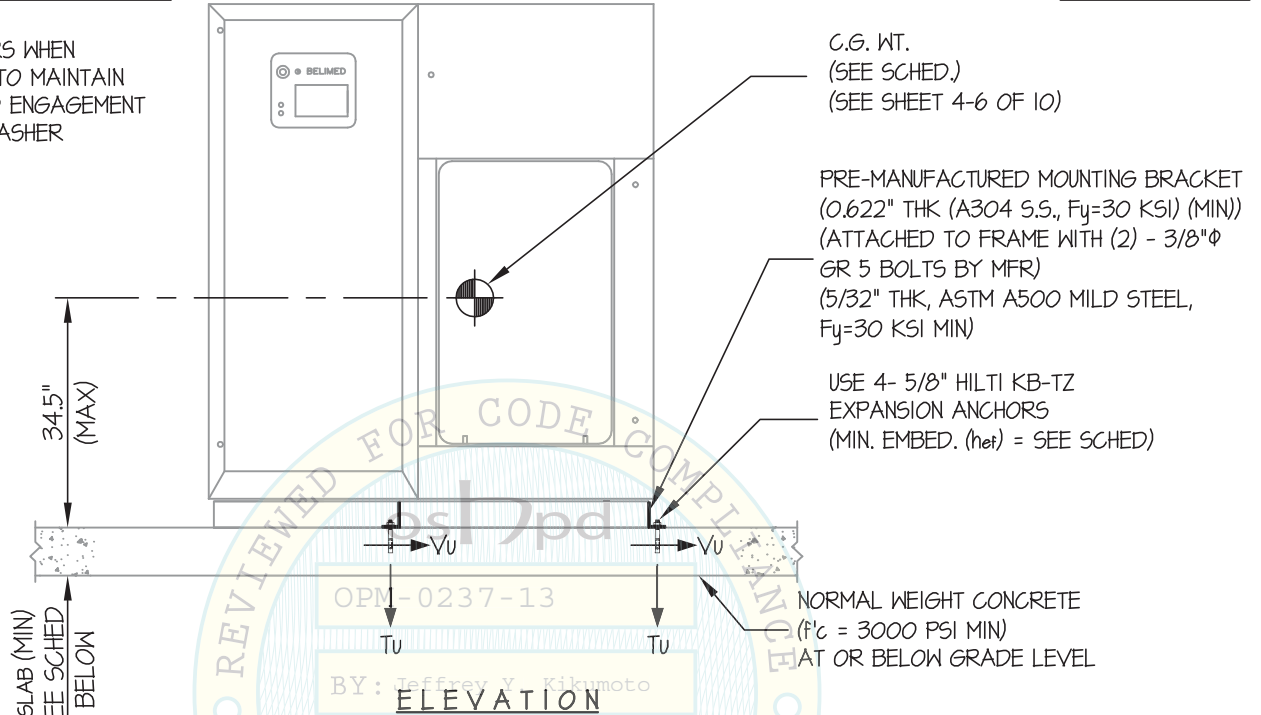
OF **10** SHEETS

## RACK-LOADING STERILIZERS (MST-H)

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB

NOTE: ADD WASHERS WHEN NECESSARY TO MAINTAIN FULL THREAD ENGAGEMENT FOR NUT & WASHER



ANCHORS

Sds	TYPE	DIAM	EFF EMBED	QTY	TSLAB	MODEL NUMBERS
160	HILTI KB-TZ	5/8"	3.125"	8	5"	969HS1, 969HS2, 9612HS2, 9615HS2, 9618HS2
200	HILTI KB-TZ	5/8"	4"	8	6"	969HS1, 969HS2, 9612HS2, 9615HS2, 9618HS2
200	HILTI KB-TZ	5/8"	3.125"	8	5"	9612HS1, 9615HS1, 9618HS1

NOTES:

- FORCES ARE DETERMINED PER 2013 CALIFORNIA BUILDING CODE AND ASCE 7-10 STRENGTH DESIGN IS USED. ( $a_p = 1.0$ ,  $l_p = 1.5$ ,  $R_p = 1.5$ ,  $\Omega = 1.5$ ,  $z/h = 0$ )
- 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: SHEET 1.



**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**4**

JOB NO. **11-1425**

DATE **7/10/15**

OF **10** SHEETS

**RACK-LOADING STERILIZERS (MST-H)**

SEISMIC SUPPORTS & ATTACHMENTS

MAX Sds ≤ 1.60

CONCRETE SLAB

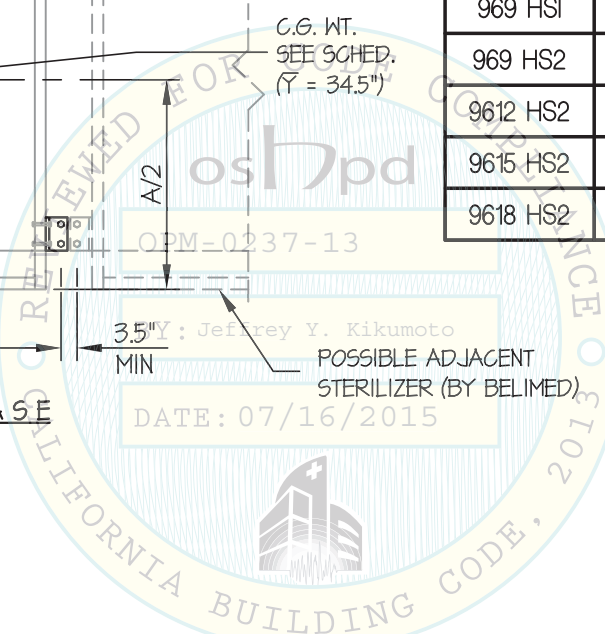
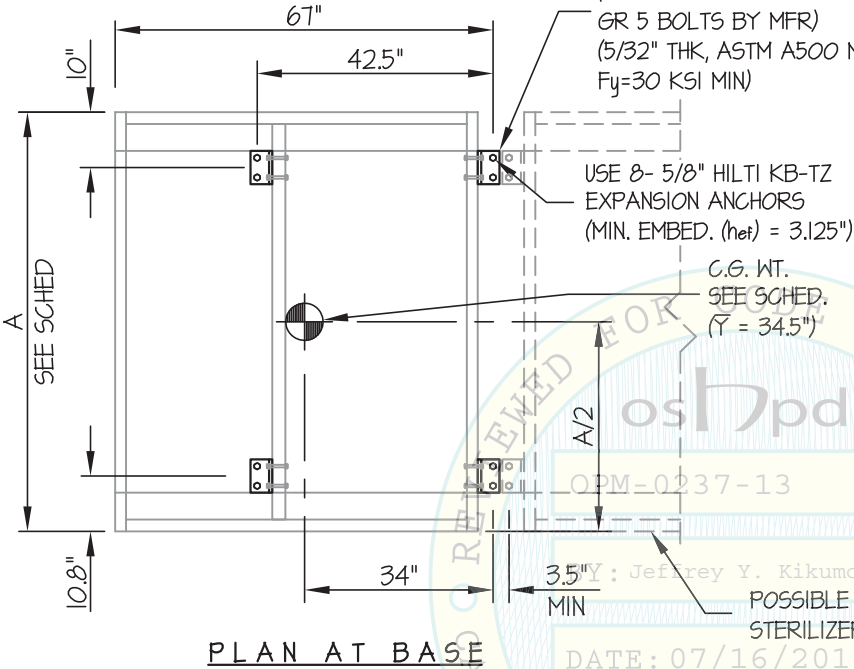
PRE-MANUFACTURED MOUNTING BRACKET  
(0.622" THK (A304 S.S., Fy=30 KSI) (MIN))  
(ATTACHED TO FRAME WITH (2) - 3/8"φ  
GR 5 BOLTS BY MFR)  
(5/32" THK, ASTM A500 MILD STEEL,  
Fy=30 KSI MIN)

NOTE: ADD WASHERS WHEN  
NECESSARY TO MAINTAIN  
FULL THREAD ENGAGEMENT  
FOR NUT & WASHER

USE 8- 5/8" HILTI KB-TZ  
EXPANSION ANCHORS  
(MIN. EMBED. (het) = 3.125")

C.G. WT.  
SEE SCHED.  
( $\bar{Y} = 34.5"$ )

MODEL	Sds	WEIGHT (lb)	A (in)	Tu (lb)	Vu (lb)
969 HSI	1.60	3700	50.4	1257	799
969 HS2	1.60	4650	50.4	1580	1004
9612 HS2	1.60	5150	64.6	1283	1112
9615 HS2	1.60	5650	76.4	1348	1220
9618 HS2	1.60	6100	88.2	1410	1318



*Jonathan Roberson*

REGISTERED PROFESSIONAL ENGINEER  
JONATHAN ROBERSON  
No. 4197  
EXP. 6-30-2016  
7/10/15  
STRUCTURAL  
STATE OF CALIFORNIA

**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**5**

JOB NO. **11-1425**

DATE **7/10/15**

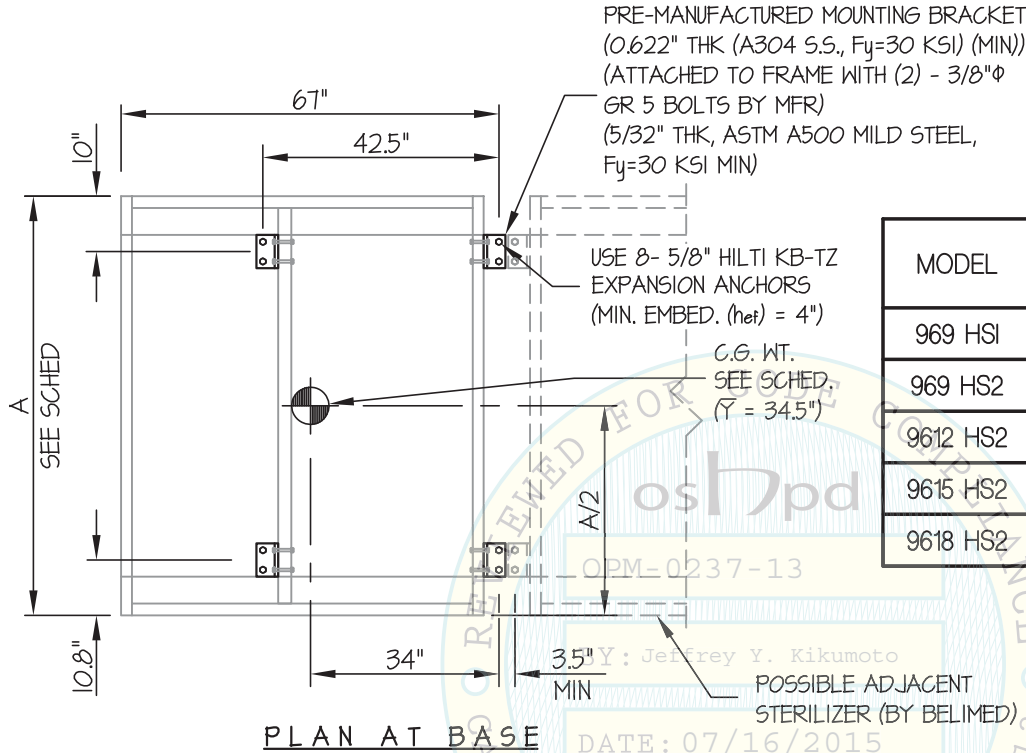
OF **10** SHEETS

## RACK-LOADING STERILIZERS (MST-H)

SEISMIC SUPPORTS & ATTACHMENTS

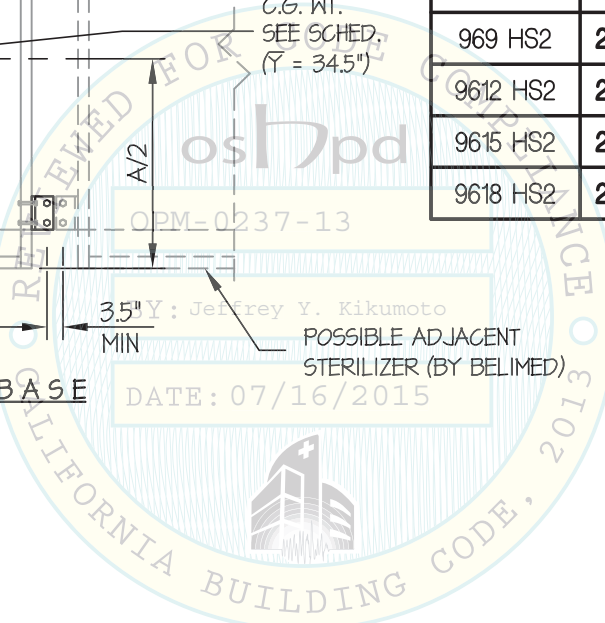
1.60 < MAX Sps ≤ 2.00

CONCRETE SLAB



NOTE: ADD WASHERS WHEN NECESSARY TO MAINTAIN FULL THREAD ENGAGEMENT FOR NUT & WASHER

MODEL	Sps	WEIGHT (lb)	A (in)	T <sub>u</sub> (lb.)	V <sub>u</sub> (lb.)
969 HSI	200	3700	50.4	1693	999
969 HS2	200	4650	50.4	2127	1256
9612 HS2	200	5150	64.6	1710	1391
9615 HS2	200	5650	76.4	1759	1526
9618 HS2	200	6100	88.2	1841	1647



*Jonathan Roberson*  
REGISTERED PROFESSIONAL ENGINEER  
No. 4197  
EXP. 6-30-2016  
7/10/15  
STRUCTURAL  
STATE OF CALIFORNIA

**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**6**

JOB NO. **11-1425**

DATE **7/10/15**

OF **10** SHEETS

**RACK-LOADING STERILIZERS (MST-H)**

SEISMIC SUPPORTS & ATTACHMENTS

MAX Sds ≤ 2.00

CONCRETE SLAB

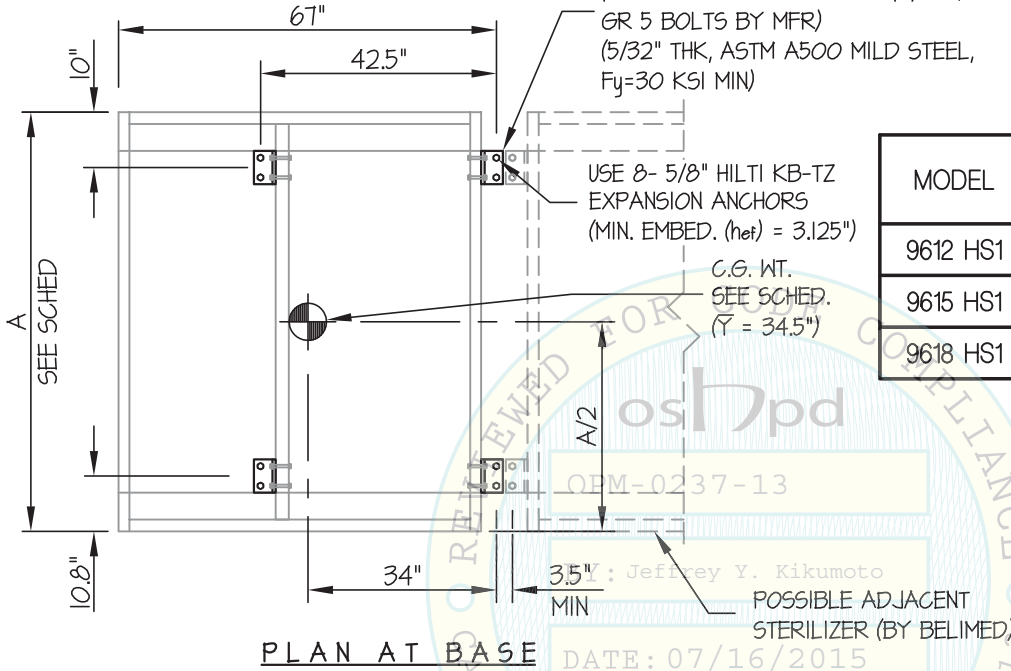
PRE-MANUFACTURED MOUNTING BRACKET  
(0.622" THK (A304 S.S., Fy=30 KSI) (MIN))  
(ATTACHED TO FRAME WITH (2) - 3/8"φ  
GR 5 BOLTS BY MFR)  
(5/32" THK, ASTM A500 MILD STEEL,  
Fy=30 KSI MIN)

NOTE: ADD WASHERS WHEN  
NECESSARY TO MAINTAIN  
FULL THREAD ENGAGEMENT  
FOR NUT & WASHER

USE 8- 5/8" HILTI KB-TZ  
EXPANSION ANCHORS  
(MIN. EMBED. (net) = 3.125")

C.G. WT.  
SEE SCHED.  
( $\bar{Y}$  = 34.5")

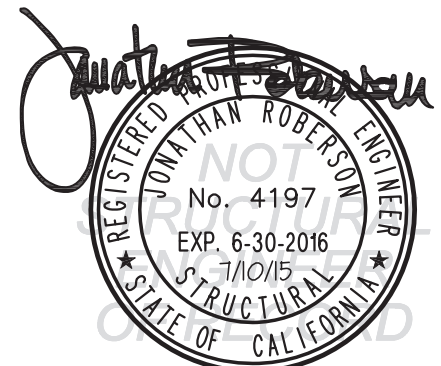
MODEL	Sds	WEIGHT (lb)	A (in)	Tu (lb.)	Vu (lb.)
9612 HS1	200	4200	64.6	1395	1134
9615 HS1	200	4650	76.4	1447	1256
9618 HS1	200	5150	88.2	1554	1391



OPM-0237-13

Reviewed by: Jeffrey Y. Kikumoto  
DATE: 07/16/2015

POSSIBLE ADJACENT  
STERILIZER (BY BELIMED)





**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**7**

JOB NO. **11-1425**

DATE **7/10/15**

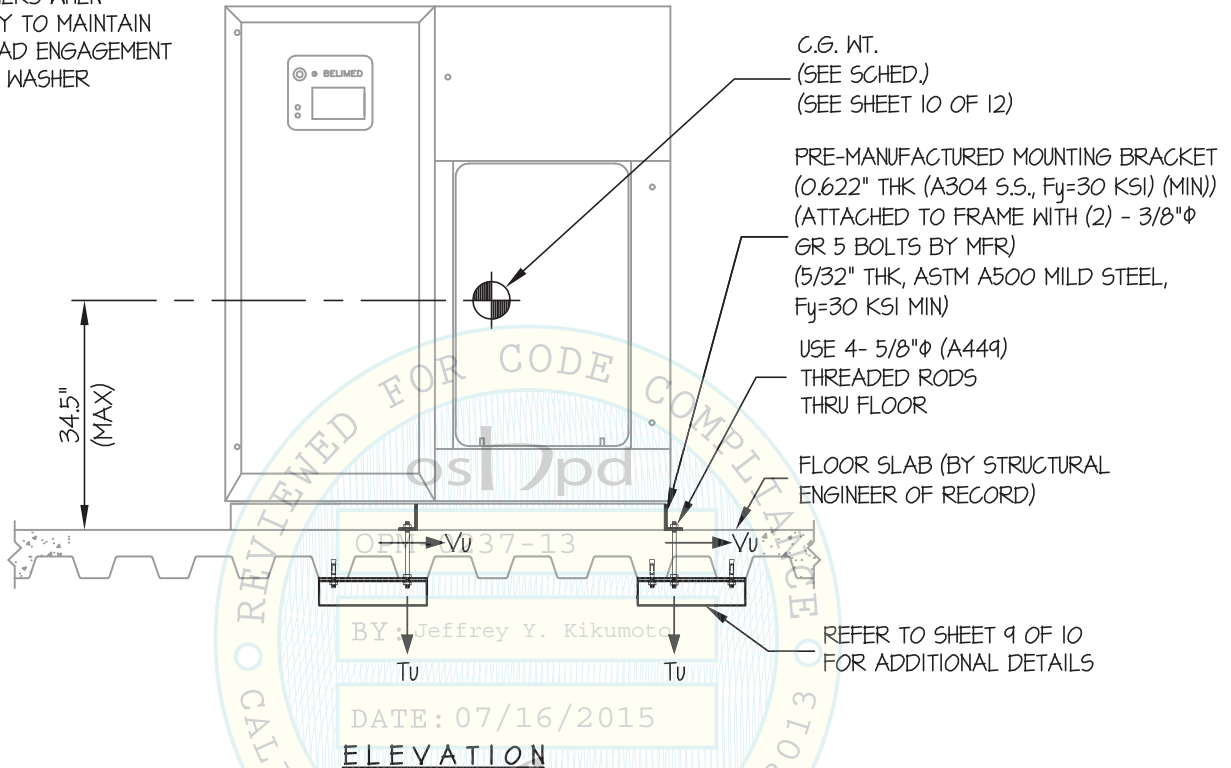
OF **10** SHEETS

## RACK-LOADING STERILIZERS (MST-H)

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK

NOTE: ADD WASHERS WHEN NECESSARY TO MAINTAIN FULL THREAD ENGAGEMENT FOR NUT & WASHER



**NOTES:**

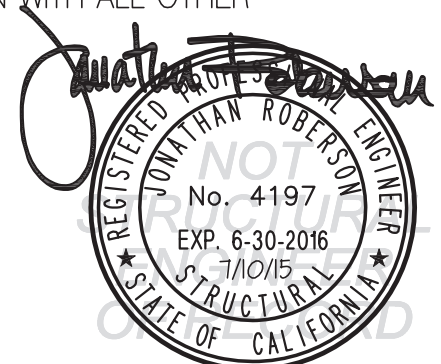
- FORCES ARE DETERMINED PER 2013 CALIFORNIA BUILDING CODE AND ASCE 7-10.**  
STRENGTH DESIGN IS USED. ( $S_Ds = 1.30$ ,  $a_p = 1.0$ ,  $I_p = 1.5$ ,  $R_p = 1.5$ ,  $\Omega = 1.5$ ,  $z/h \leq 1$ )

HORIZONTAL FORCE ( $E_h$ ) = 1.56  $W_p$

HORIZONTAL FORCE ( $E_{mh}$ ) = 2.34  $W_p$  (FOR CONCRETE ANCHORAGE)

VERTICAL FORCE ( $E_v$ ) = 0.26  $W_p$

- 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: SHEET 1.



**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**8**

JOB NO. **11-1425**

DATE **7/10/15**

OF **10** SHEETS

## RACK-LOADING STERILIZERS (MST-H)

SEISMIC SUPPORTS & ATTACHMENTS

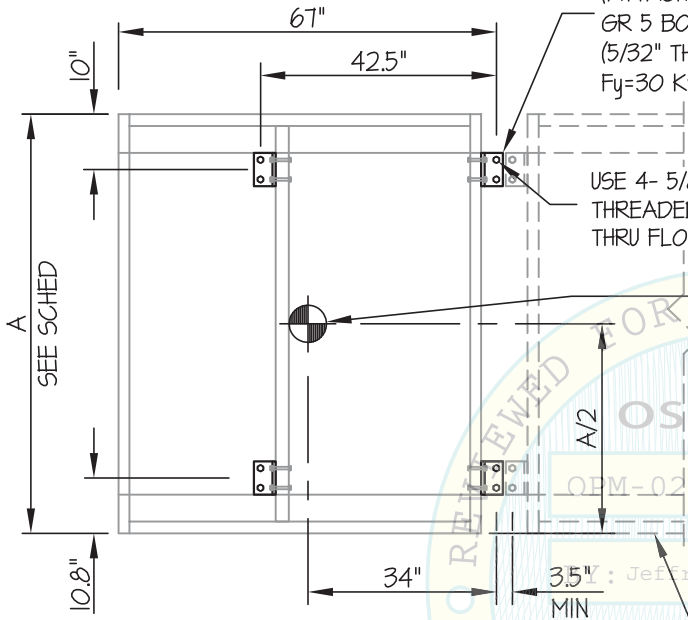
CONCRETE SLAB ON METAL DECK

PRE-MANUFACTURED MOUNTING BRACKET  
(0.622" THK (A304 S.S., Fy=30 KSI) (MIN))  
(ATTACHED TO FRAME WITH (2) - 3/8"φ  
GR 5 BOLTS BY MFR)  
(5/32" THK, ASTM A500 MILD STEEL,  
Fy=30 KSI MIN)

NOTE: ADD WASHERS WHEN  
NECESSARY TO MAINTAIN  
FULL THREAD ENGAGEMENT  
FOR NUT & WASHER

USE 4- 5/8"φ (A449)  
THREADED RODS  
THRU FLOOR

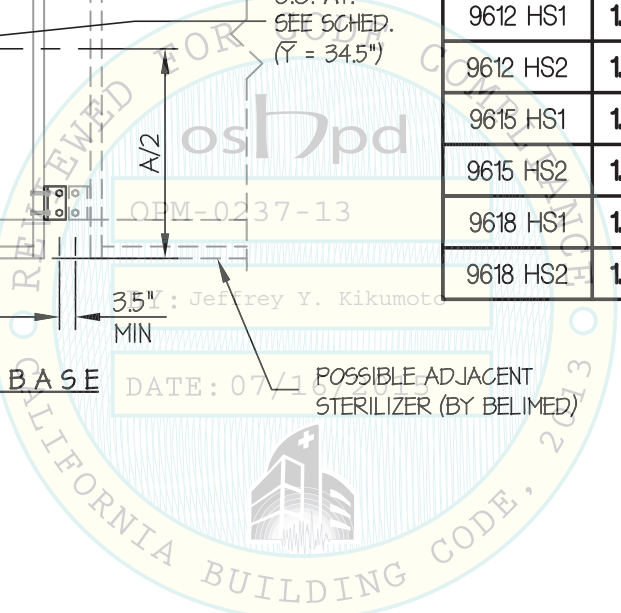
C.G. WT.  
SEE SCHED.  
( $\bar{Y} = 34.5"$ )



PLAN AT BASE

POSSIBLE ADJACENT  
STERILIZER (BY BELIMED)

MODEL	Sds	WEIGHT (lb)	A (in)	Tu (lb)	Vu (lb)
969 HS1	<b>130</b>	3700	50.4	1923	1154
969 HS2	<b>130</b>	4650	50.4	2416	1451
9612 HS1	<b>130</b>	4200	64.6	1570	1310
9612 HS2	<b>130</b>	5150	64.6	1925	1607
9615 HS1	<b>130</b>	4650	76.4	1656	1451
9615 HS2	<b>130</b>	5650	76.4	2012	1763
9618 HS1	<b>130</b>	5150	88.2	1778	1607
9618 HS2	<b>130</b>	6100	88.2	2105	1903



**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**9**

JOB NO. **11-1425**

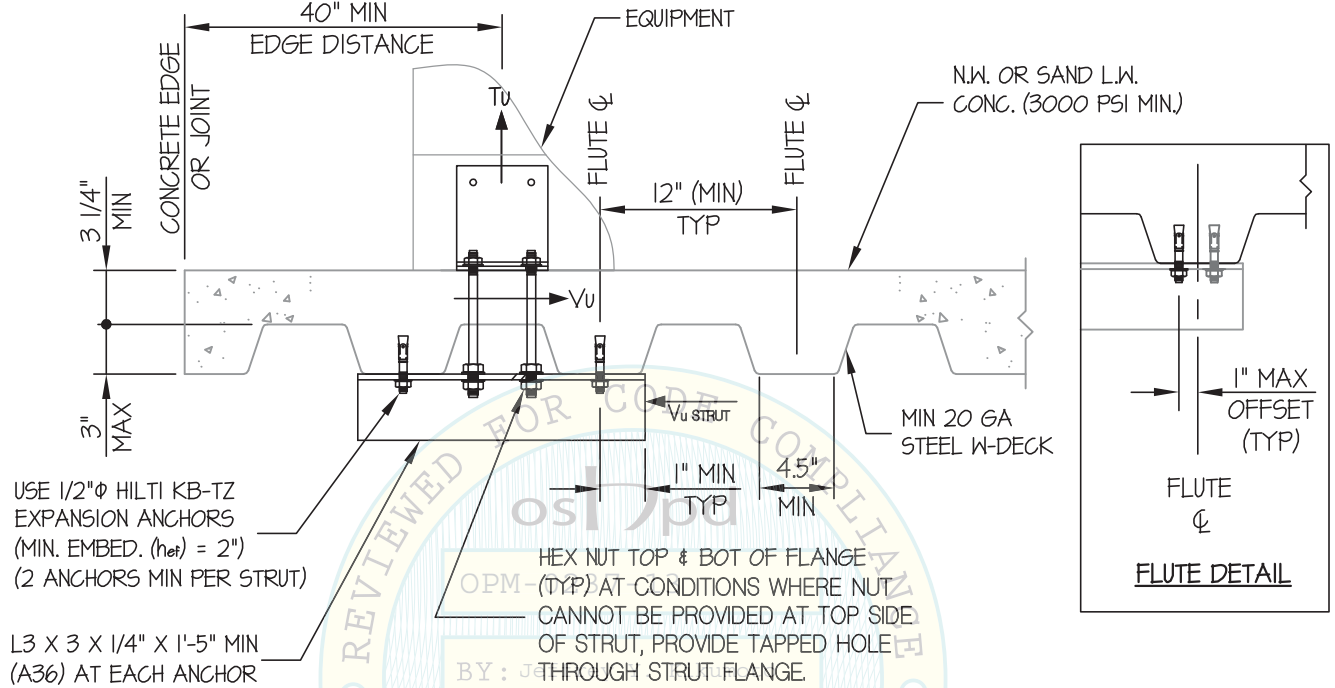
DATE **7/10/15**

OF **10** SHEETS

## RACK-LOADING STERILIZERS (MST-H)

SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE DETAIL



### MIN STEEL DECK REQUIREMENTS AND STRUT DETAIL

DATE: 07/16/2015



**BELIMED, INC**

DES. **J. ROBERSON**

SHEET

**10**

JOB NO. **11-1425**

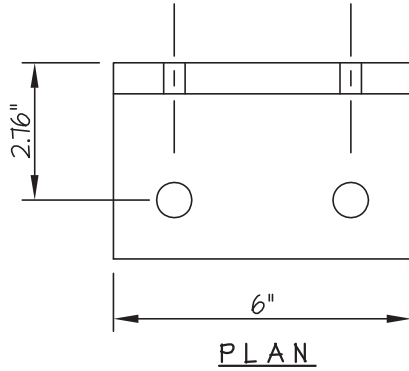
DATE **7/10/15**

OF **10** SHEETS

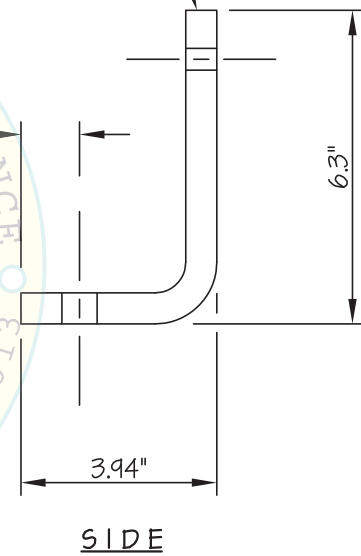
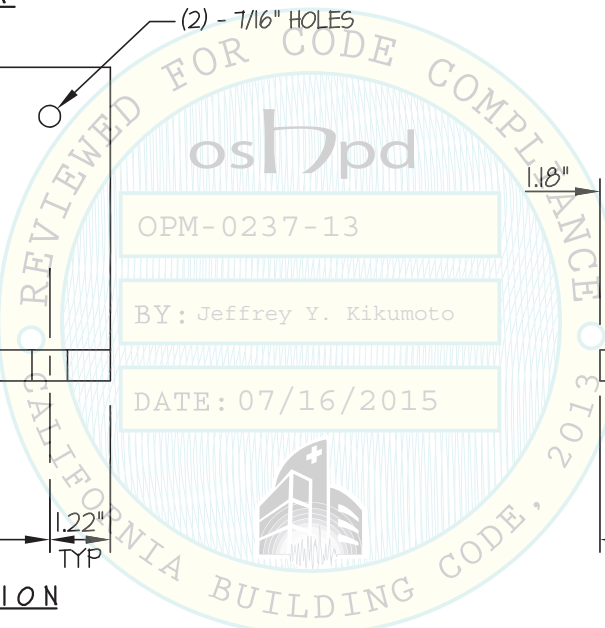
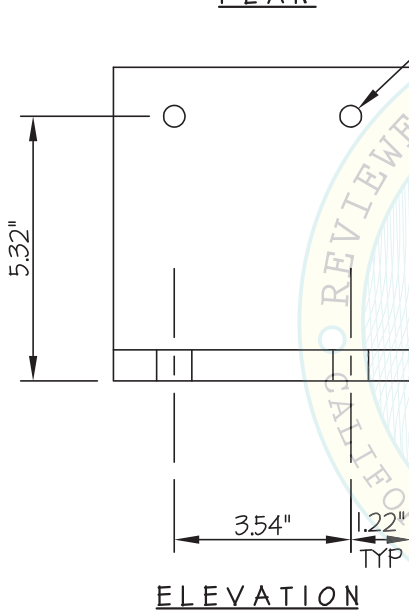
**RACK-LOADING STERILIZERS (MST-H)**

SEISMIC SUPPORTS & ATTACHMENTS

BRACKET DETAILS



PRE-MANUFACTURED  
MOUNTING BRACKET  
(0.622" THK (A304 S.S.)  
Fy = 30 KSI (MIN))  
(PROVIDED BY BELIMED)



*Jonathan Roberson*  
REGISTERED PROFESSIONAL ENGINEER  
No. 4197  
EXP. 6-30-2016  
7/10/15  
STATE OF CALIFORNIA