## Application for OSHPD Preapproval of Manufacturer's Certification (OPM)

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

**Type:**
- [X] Renewal/Update
- [ ] New

### Manufacturer Information

- **Manufacturer:** Shimadzu Medical Systems
- **Manufacturer's Technical Representative:** Jim Mekker
- **Mailing Address:** 20101 S. Vermont Ave., Torrance, CA 60502
- **Telephone:** (216) 288-0709
- **Email:** mekker@shimadzu-usa.com

### Product Information

- **Product Name:** ZS-200 TABLE
- **Product Type:** Other Mechanical & Electrical Equipment
- **Product Model Number:** ZS-200
- **General Description:** Subcomponent of Sonialvision G4 System

### Applicant Information

- **Applicant Company Name:** EASE LLC.
- **Contact Person:** Tiffany Tonn
- **Mailing Address:** 1515 FAIRVIEW AVE, STE 205, MISSOULA, MT 59801
- **Telephone:** (406) 541-3273
- **Email:** tiffany@easeco.com

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*State of California – Health and Human Services Agency*

7/2/2020

OPM-0324: Reviewed for Code Compliance by David Calia

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**Registered Design Professional Preparing Engineering Recommendations**

<table>
<thead>
<tr>
<th>Company Name: EASE LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: Kevin Paul Burke</td>
</tr>
<tr>
<td>Mailing Address: 5877 Pine Ave., Suite 210, Chino Hills, CA 91709</td>
</tr>
<tr>
<td>Telephone: (909) 606-7622</td>
</tr>
</tbody>
</table>

**OSHPD 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, 2019 (CBSC 2019) 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 2019 may be used when approved by OSHPD prior to testing.*

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

**OSHPD Approval**

Date: 7/2/2020  
Name: David Calia  
Title: Senior Structural Engineer  
Condition of Approval (if applicable): ________________________________________

*Access to Safe, Quality Healthcare Environments that Meet California’s Diverse and Dynamic Needs*  
STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
GENERAL NOTES

1. THIS OSHPD PREAPPROVAL OF MANUFACTURER’S CERTIFICATION (OPM) IS BASED ON THE 2019 CBC. THE DEMANDS (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE 2019 CBC.

2. 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.

3. THIS PREAPPROVAL CONFORMS TO THE 2019 CALIFORNIA BUILDING CODE WHERE SoS IS NOT GREATER THAN 185 & 145 SEE DETAIL FOR APPLICABILITY

4. FORCES PER ASCE 7-16 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3.2 & 13.3.3,
   WHERE SoS = 1.85, Ao = 1.0, Io = 1.5, Rp = 1.0, z/h = 0 AT CONCRETE SLAB. SEE FOLLOWING SHEETS FOR \( \Omega \)
   WHERE SoS = 1.45, Ao = 1.0, Io = 1.5, Rp = 1.0, z/h = 0 AT CONCRETE SLAB & \( z/h \leq 1 \) 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 DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION AT OR 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 2019 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 SoS & 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. AND THIS OPM.

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 6\( \text{in} \) FROM THIS UNIT'S ANCHORS.
### Expansion Anchors:

**A.** Attachment is to be made with the anchors listed below and installed as described in the corresponding ICC report.

<table>
<thead>
<tr>
<th>Anchor Diameter</th>
<th>Concrete Type</th>
<th>Min. f_c (psi)</th>
<th>Anchor Type</th>
<th>ICC Report No.</th>
<th>Min. Embed.</th>
<th>Min. Spacing</th>
<th>Min. Edge Dist.</th>
<th>Min. Conc. Thickness</th>
<th>Torque Test</th>
<th>Direct Tension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2”</td>
<td>Sand Light Weight</td>
<td>3000</td>
<td>Hilti Kwik Bolt TZ</td>
<td>ESR-1917</td>
<td>2”</td>
<td>6.5</td>
<td>9</td>
<td>See Detail &quot;A&quot;</td>
<td>40 FT-LB</td>
<td>869 lb</td>
</tr>
<tr>
<td>3/4”</td>
<td>Normal Weight</td>
<td>3000</td>
<td>Hilti Kwik Bolt TZ</td>
<td>ESR-1917</td>
<td>3.75”</td>
<td>15”</td>
<td>27</td>
<td>6”</td>
<td>110 FT-LB</td>
<td>4120 lb</td>
</tr>
<tr>
<td>3/4”</td>
<td>Normal Weight</td>
<td>3000</td>
<td>Hilti Kwik Bolt TZ</td>
<td>ESR-1917</td>
<td>4.75”</td>
<td>18”</td>
<td>21”</td>
<td>8”</td>
<td>110 FT-LB</td>
<td>5874 lb</td>
</tr>
</tbody>
</table>

**B.** This preapproval allows for up to a maximum of 2 adjacent concrete slab edges, 21” & 27” away minimum (i.e., corner). See adjacent detail for additional minimum allowable concrete edge distances.

**C.** Testing and special inspection of expansion anchors shall be performed by an approved independent agency employed by the facility owner per CBC 1704A.1 & 1910A.5 and CAC 7-149. All reports shall be sent to the inspector of record, owner and the architect or engineer in responsible charge.

(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.

**D.** Avoid damaging existing steel reinforcing in concrete slab when installing concrete expansion anchors.

**E.** Provide for full thread engagement of nut & washer.

### 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.
SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB

USE 4- 3/4" HILTI KB-TZ EXPANSION ANCHORS
W. EXTERNALLY THREADED BUSHINGS (M24 O.D. X 0.8" I.D.)
& STD WASHERS
(MIN. EMBED. (h_e) = SEE SCHED)

BASE PLATE
(0.01" THK CR STEEL F_y=35.5 KSI)

NORMAL WEIGHT CONCRETE
(f_c = 3000 PSI MIN)
AT OR BELOW GRADE LEVEL

FRONT ELEVATION

ANCHORS

<table>
<thead>
<tr>
<th>MAX Sds</th>
<th>TYPE</th>
<th>DIAM</th>
<th>EFF. EMBED</th>
<th>QTY</th>
<th>TSLAB</th>
<th>*Tu</th>
<th>*Vu</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>HILTI KB-TZ</td>
<td>3/4&quot;</td>
<td>3-3/4&quot;</td>
<td>4</td>
<td>6&quot;</td>
<td>3067</td>
<td>1670</td>
</tr>
<tr>
<td>185</td>
<td>HILTI KB-TZ</td>
<td>3/4&quot;</td>
<td>4-3/4&quot;</td>
<td>4</td>
<td>8&quot;</td>
<td>4270</td>
<td>2129</td>
</tr>
</tbody>
</table>

NOTES:
1. FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16.
   STRENGTH DESIGN IS USED. \( (\phi_p = 10, \phi_f = 15, R_p = 1.5, \Omega_s = 1.5, z/h = 0) \)
2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES
   ALL WEIGHTS UP TO THE MAXIMUM WEIGHT SHOWN.
3. 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.
4. SEE GENERAL NOTES: SHEET 1 AND 2
SEISMIC SUPPORTS & ATTACHMENTS

MAX Sds ≤ 1.45

CONCRETE SLAB

BASE PLATE
(0.87" THK CR STEEL F_y=35.5 KSI)

USE 4- 3/4" HILTI KB-TZ
EXPANSION ANCHORS
W/ EXTERNALLY THREADED
BUSHINGS (M24 O.D. X 0.8" I.D.)
& STD WASHERS (MIN. EMBED. (h_e) = 3.75")

G.G. WT. = 3485 LB
(γ = 33.43)

DATE: 07/02/2020

PLAN AT BASE

BY: David M. Calia

Sheet 4 of 8
ZS-200 TABLE

SEISMIC SUPPORTS & ATTACHMENTS

1.45 < MAX SDS ≤ 1.85

CONCRETE SLAB

BASE PLATE
(0.87" THK CR STEEL Fy=35.5 KSI)

USE 4 - 3/4" HILTI KB-TZ
EXPANSION ANCHORS
W/ EXTERNALLY THREADED
BUSHINGS (M24 O.D. X 0.81" I.D.)
& STD WASHERS (MIN. EMBED. (pd) = 4.75")

G.G. WT. = 3485 LB
(Y = 33.43')

PLAN AT BASE

BY: David M. Calia
DATE: 07/02/2020

OPM-0324

OPM-0324: Reviewed for Code Compliance by David Calia
NOTES:
1. FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16.
   STRENGTH DESIGN IS USED. \(S_d = 1.45, a_p = 1.0, l_p = 1.5, P_p = 1.5, \Omega_s = 1.5, z/h \leq 1\)
   \[
   \begin{align*}
   \text{HORIZONTAL FORCE (}E_h\text{)} &= 1.74 \ W_p \\
   \text{VERTICAL FORCE (}E_v\text{)} &= 2.61 \ W_p \text{ (FOR CONCRETE ANCHORAGE)} \\
   \text{VERTICAL FORCE (}E_v\text{)} &= 0.29 \ W_p
   \end{align*}
   \]
2. CENTER OF GRAVITY (C.G.) AND WEIGHT ARE THE GOVERNING PARAMETERS FOR DESIGN. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHS UP TO THE MAXIMUM WEIGHT SHOWN.
3. 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.
4. SEE GENERAL NOTES: SHEET 1 AND 2
SEISMIC SUPPORTS & ATTACHMENTS

CONCRETE SLAB ON METAL DECK

BASE PLATE
(0.81" THK CR STEEL Fy=35.5 KSI)

USE 4 - 3/4" Ø (A36) THREADED RODS W/ EXTERNALLY THREADED BUSHINGS (M24 O.D. X 0.8" I.D.) & STD WASHERS THRU FLOOR

C.G. WT. = 3485 LB
(Y = 33.43")

PLAN AT BASE
DATE: 07/02/2020

OPM-0324
David M. Calia
07/02/2020

OPM-0324
J. ROBERSON
11-1932
4/28/20

7/2/2020
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USE 1/2" HILTI KB-T2 EXPANSION ANCHORS (MIN. EMBED. (h_e) = 2") (2 ANCHORS MIN PER STRUT)

L3 x 3 x 1/4" x 1'-2" MIN (A36) AT EACH ANCHOR

MIN STEEL DECK REQUIREMENTS AND STRUT DETAIL

HEX NUT TOP & BOT OF FLANGE (TYP) AT CONDITIONS WHERE NUT CANNOT BE PROVIDED AT TOP SIDE OF STRUT; PROVIDE TAPPED HOLE THROUGH STRUT FLANGE.