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

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: [X] New  [ ] Renewal/Update

Manufacturer Information

Manufacturer: TORVAN MEDICAL, INC.
Manufacturer’s Technical Representative: 
Mailing Address: 417 Homer Ave, Etobicoke, ON M8W 4W3
Telephone: (800) 551-0260  Email: halavi@torvanmedical.com

Product Information

Product Name: HEPA, AMBIENT, SCOPE & DRYING CABINETS
Product Type: Other electrical and mechanical components
Product Model Number: HEPA Cabinet (24”-44” Wide, Side and Top Loading), Ambient Cabinet (24”-44” wide), Scope Cabinet (27”-36” wide), Drying Cabinet (24”-44” wide, Side and Top Loading)
General Description: Storage/Processing for Endoscope Equipment

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
Title: 

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY

06/23/2020  OPM-0446: Reviewed for Code Compliance by Haeseong Lim  1 of 17
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.

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

OSHPD Approval

Date: 6/23/2020  
Name: Haeseong Lim  
Title: Senior Structural Engineer  
Condition of Approval (if applicable):  

OSHPD Special Seismic Certification Preapproval (OSP)

□ Special Seismic Certification is preapproved under OSP  
OSP Number:  

Company Name: EASE  
Name: Jonathan Roberson  
California License Number: S4197  
Mailing Address: 5877 Pine Ave., Suite 210, Chino Hills, CA 91709  
Telephone: ()  
Email: jon@EASECo.com  

Registered Design Professional Preparing Engineering Recommendations  

Company Name: EASE  
Name: Jonathan Roberson  
California License Number: S4197  
Mailing Address: 5877 Pine Ave., Suite 210, Chino Hills, CA 91709  
Telephone: ()  
Email: jon@EASECo.com  

OSHPD: Reviewed for Code Compliance by Haeseong Lim
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.

4. FORCES PER ASCE 7-16 SECTION 13.3.1, EQUATIONS 13.3-1, 13.3-2 & 13.3-3, WHERE Sds = 2.20, Ap = 1.0, Ip = 1.5, Rp = 1.5, z/h ≤ 1.

5. THE DETAILS IN THIS PREAPPROVAL MAY BE USED AT ANY LOCATION IN THE STATE OF CALIFORNIA, WHERE SDS IS NOT GREATER THAN 2.20.

6. ALL DESIGN FORCES SHOWN ON THE DRAWINGS ARE FACTORED LOADS THAT SHALL BE USED FOR STRENGTH DESIGN.

7. SHEET METAL SCREWS SHALL BE HILTI S-MB SCREWS BY HILTI (ICC ESR-2196).

8. THIS PREAPPROVAL COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.

9. PROVIDE PLACARD AT EACH CABINET IDENTIFYING MAXIMUM CONTENT WEIGHT ALLOWED. PLACARD MOUNTING LOCATION SHALL BE VISIBLE ON UNIT.

10. RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD OF THE BUILDING

A. PROVIDE SUPPORTING STRUCTURE REQUIRED 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 SHOWN IN THIS PREAPPROVAL. VERIFY THAT THE ACTUAL EQUIPMENT'S WEIGHT, CG LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS AND THE MATERIAL AND GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN ON THE PREAPPROVAL DOCUMENTS.

C. VERIFY THAT THE COMBINATION OF Sds & z/h RESULT IN SEISMIC FORCES (Eh, Ev) THAT ARE NOT GREATER THAN THE VALUES ON THE DETAILS.

D. DESIGN BACKING BARS, STUDS, ETC. WHICH THE UNITS ARE ATTACHED TO AS NOTED ON THE DRAWINGS.
SEISMIC SUPPORTS & ATTACHMENTS

WALL MOUNTED

"W"

"H"

"B"

MIN

"C"

"D"

USE #12 HILTI S-MD SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & Screws)
BACKING PLATE (16 GA, 50 ksi MIN)
DESIGNED AND CONNECTED TO WALL STRUCTURE BY
STRUCTURAL ENGINEER OF RECORD
MOUNTING BRACKETS
(11 GA, SS 304 Fy=30 ksi MIN)
W 1/2" x 13 WELDED STUD (18-8, Fy=65 KSI) 1' LONG
W STANDARD WASHER AND NUT TO CABINET
(PROVIDED BY TORVAN)
(SEE DETAIL "A" & "B")
USE (6)- 1/4" x 13/4" (A307) BOLTS W/ RIVET NUTS
AT SIDE LOAD CABINET ATTACHMENT
C.G. HT.

SEE SCHED

USE #12 HILTI S-MD SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & Screws)

NOTES:
1. FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16.
   STRENGTH DESIGN IS USED. (Sds = 2.20, Ap = 1.0, Ip = 15, Pp = 15, z/h ≤ 1)
   HORIZONTAL FORCE (EH) = 2.64 Wp
   VERTICAL FORCE (Ew) = 0.44 Wp

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.
SEISMIC SUPPORTS & ATTACHMENTS

5/8" THK. WALL BOARD

5/16" (A307) LEVELING LEG FULL THREAD ENGAGEMENT TO UNIT REQ'D (TYP)

BACKING PLATE (16 GA. 50 ksi MIN)
DESIGNED AND CONNECTED TO WALL STRUCTURE BY STRUCTURAL ENGINEER OF RECORD

USE #12 HILTI S-MD SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & SCREWS)

MOUNTING BRACKETS
(11 GA, S6 304 Fy=30 KSI MIN)
W/ 1/2"Ø-13 WELDED STUD (8-8, Fy=65 KSI) 1" LONG
W/ STANDARD WASHER AND NUT TO CABINET (PROVIDED BY TORVAN)
(SEE DETAIL "A" & "B")

CABINET BACK MATERIAL
(20 GA, ASTM A240, TYPE 304, Fy=30 KSI)

G.G. WT.:
SEE SCHED

USE #12 HILTI S-MD SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & SCREWS)

USE (6)- 1/4"Ø (A307) BOLTS W/ RIVET NUTS AT SIDE LOAD CABINET ATTACHMENT

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LOADED WEIGHT (lb)</th>
<th>UNIT SELF WEIGHT (lb)</th>
<th>&quot;W&quot; (in)</th>
<th>&quot;A&quot; (in)</th>
<th>&quot;B&quot; (in)</th>
<th>&quot;C&quot; (in)</th>
<th>&quot;D&quot; (in)</th>
<th>&quot;E&quot; (in)</th>
<th>&quot;F&quot; (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24&quot; HEPA</td>
<td>354</td>
<td>343</td>
<td>36.50</td>
<td>39.2</td>
<td>28</td>
<td>16.6</td>
<td>11.4</td>
<td>18.4</td>
<td>43.8</td>
</tr>
<tr>
<td>30&quot; HEPA</td>
<td>405</td>
<td>394</td>
<td>42.95</td>
<td>37.9</td>
<td>38</td>
<td>21.7</td>
<td>16.3</td>
<td>18.7</td>
<td>45.1</td>
</tr>
<tr>
<td>36&quot; HEPA</td>
<td>432</td>
<td>421</td>
<td>48.95</td>
<td>37.5</td>
<td>38</td>
<td>22.4</td>
<td>15.6</td>
<td>18.9</td>
<td>45.5</td>
</tr>
<tr>
<td>44&quot; HEPA</td>
<td>465</td>
<td>454</td>
<td>56.92</td>
<td>37.4</td>
<td>48</td>
<td>28.0</td>
<td>20.0</td>
<td>18.9</td>
<td>45.6</td>
</tr>
</tbody>
</table>

# OF SCREWS PER BRACKET = 4
# OF BRACKETS PERSCREW = 4
Tu (lb) = 187
Vu (lb) = 63

+ TOP BRACKETS + BOTTOM BRACKETS = # OF BRACKETS
NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16.**

   STRENGTH DESIGN IS USED. \( S_{ds} = 2.20, \sigma_p = 10, \sigma_{pl} = 15, \sigma_{pl} = 15, z/h \leq 1 \)

   - **HORIZONTAL FORCE** \( (E_h) = 2.64 \ W_p \)
   - **VERTICAL FORCE** \( (E_v) = 0.44 \ W_p \)

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.**
SEISMIC SUPPORTS & ATTACHMENTS

5/8" THK. WALL BOARD

WALL MOUNTED BACKING PLATE (16 GA, 50 ksi MIN.)

DESIGNED AND CONNECTED TO WALL STRUCTURE BY STRUCTURAL ENGINEER OF RECORD

USE #12 HILTI S-MD SCREW ANCHORS (SEE SCHD FOR # OF BRACKETS & SCREWS)

MOUNTING BRACKETS
(11 GA, S5 304 Fy=30 ksi MIN.)
W/1/2"Ø-13 WELDED STUD (18-8, Fy=65 ksi) 1' LONG W/STANDARD WASHER AND NUT TO CABINET (PROVIDED BY TORVAN) (SEE DETAIL "A" & "B")

CABINET BACK MATERIAL
(20 GA, ASTM A240, TYPE 304, Fy=30 ksi)

C/G, KT. = SEE SCHD

5/16"Ø (A30T) LEVELING LEG FULL THREAD ENGAGEMENT TO UNIT REQ'D (TYP)

SIDE ELEVATION

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LOADED WEIGHT (lb)</th>
<th>UNIT SELF WEIGHT (lb)</th>
<th>&quot;W&quot; (in)</th>
<th>&quot;A&quot; (in)</th>
<th>&quot;B&quot; (in)</th>
<th>&quot;C&quot; (in)</th>
<th>Y (in)</th>
<th># OF SCREWS PER BRACKET</th>
<th># OF BRACKETS</th>
<th>Tu (lb)</th>
<th>Vu (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30&quot; HEPA</td>
<td>372</td>
<td>360</td>
<td>30.97</td>
<td>34.5</td>
<td>28</td>
<td>19.2</td>
<td>432</td>
<td>4</td>
<td>4</td>
<td>190</td>
<td>63</td>
</tr>
<tr>
<td>36&quot; HEPA</td>
<td>414</td>
<td>403</td>
<td>36.97</td>
<td>34.5</td>
<td>28</td>
<td>19.1</td>
<td>432</td>
<td>4</td>
<td>4</td>
<td>211</td>
<td>70</td>
</tr>
<tr>
<td>44&quot; HEPA</td>
<td>473</td>
<td>462</td>
<td>44.97</td>
<td>34.0</td>
<td>38</td>
<td>19.1</td>
<td>43.7</td>
<td>4</td>
<td>4</td>
<td>182</td>
<td>79</td>
</tr>
</tbody>
</table>

+ TOP BRACKETS + BOTTOM BRACKETS = # OF BRACKETS
**Notes:**

1. **forces are determined per 2019 California building code and asce 7-16**
   
   Strength design is used. (Sds = 2.20, A_p = 10, b_p = 15, R_p = 15, z/h ≤ 1)
   - Horizontal force (E_h) = 2.64 Wp
   - Vertical force (E_v) = 0.44 Wp

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.
## Seismic Supports & Attachments

5/8" THK. WALL BOARD

5/16" (A327) LEVELING LEG
FULL THREAD ENGAGEMENT TO UNIT REQ'D (TYP)

### 24" - 44" Ambience Cabinet

- **Backing Plate**: (16 GA, 50ksi min) WALL MOUNTED DESIGNED AND CONNECTED TO WALL STRUCTURE BY STRUCTURAL ENGINEER OF RECORD
- **Use #12 HILTI S-MD Screw Anchors** (See Schd for # of brackets & screws)

#### Mounting Brackets
- (11 GA, 55ksi 304 Fy=30 ksi Min)
- W/ 1/2"Ø-13 WELDED STUD (18-8, Fy=65 ksi) 1" LONG W/ STANDARD WASHERS AND NUT TO CABINET
  - PROVIDED BY TORVAN
  - (See Detail "A" & "B")

#### Cabinet Back Material
- (20 GA, ASTM A240, TYPE 304, Fy=30 ksi)
- C.G. WT. =
  - See Schd

#### Use #12 HILTI S-MD Screw Anchors
  - (See Schd for # of brackets & screws)

### Side Elevation

### Table: Unit Loadings

<table>
<thead>
<tr>
<th>Unit</th>
<th>Loaded Weight (lb)</th>
<th>Unit Self Weight (lb)</th>
<th>W&quot; (in)</th>
<th>A&quot; (in)</th>
<th>B&quot; (in)</th>
<th>C&quot; (in)</th>
<th>Y&quot; (in)</th>
<th># of Screws</th>
<th>T √ (lb)</th>
<th>T√ w (lb)</th>
<th>T√ u (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24&quot; AMBIENT</td>
<td>201</td>
<td>176</td>
<td>23.56</td>
<td>34.0</td>
<td>18</td>
<td>19.3</td>
<td>49.0</td>
<td>4</td>
<td>2</td>
<td>173</td>
<td>71</td>
</tr>
<tr>
<td>30&quot; AMBIENT</td>
<td>256</td>
<td>231</td>
<td>30.00</td>
<td>32.5</td>
<td>28</td>
<td>19.9</td>
<td>50.5</td>
<td>4</td>
<td>4</td>
<td>147</td>
<td>47</td>
</tr>
<tr>
<td>36&quot; AMBIENT</td>
<td>284</td>
<td>259</td>
<td>36.00</td>
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<td>19.9</td>
<td>50.6</td>
<td>4</td>
<td>4</td>
<td>164</td>
<td>52</td>
</tr>
<tr>
<td>44&quot; AMBIENT</td>
<td>286</td>
<td>261</td>
<td>43.97</td>
<td>32.6</td>
<td>38</td>
<td>19.9</td>
<td>50.4</td>
<td>4</td>
<td>4</td>
<td>126</td>
<td>53</td>
</tr>
</tbody>
</table>

+ TOP BRACKETS + BOTTOM BRACKETS = # OF BRACKETS
NOTES:

1. **FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16**

   STRENGTH DESIGN IS USED. (Sos = 220, Ap = 10, Ip = 15, Rp = 15, z/h ≤ 1)

   - HORIZONTAL FORCE (En) = 2.64 Wp
   - VERTICAL FORCE (Ev) = 0.44 Wp

2. CENTER OF GRAVITY (CG) 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.
### Seismic Supports & Attachments

- **5/8" THK. WALL BOARD**
- **BACKING PLATE (16 GA. 50 ksi MIN)**
- **WALL MOUNTED**
- **DESIGNED AND CONNECTED TO WALL STRUCTURE BY STRUCTURAL ENGINEER OF RECORD**

**USE #12 HILTI S-MD SCREW ANCHORS**

**MOUNTING BRACKETS**
- (11 GA. 55 304 Fy=30 KSI MIN)
- W/ 1/2"Ø-13 WELDED STUD (18-8, Fy=65 KSI) 1" LONG
- W/ STANDARD WASHER AND NUT TO CABINET

**CABINET BACK MATERIAL**
- (20 GA. ASTM A240, TYPE 304, Fy=30 KSI)

**G.G. WT:**

**SEE SCHED**

**USE #12 HILTI S-MD SCREW ANCHORS**

**USE (6)- 1/4"Ø (A307) BOLTS W/ RIVET NUTS AT SIDE LOAD CABINET ATTACHMENT**

### Side Elevation

- **5/16"Ø (A307) LEVELING LEG**
- **FULL THREAD ENGAGEMENT TO UNIT REQ'D (TYP)**

### Dimensions and Calculations

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LOADED WEIGHT (lb)</th>
<th>UNIT SELF WEIGHT (lb)</th>
<th>&quot;W&quot; (in)</th>
<th>&quot;A&quot; (in)</th>
<th>&quot;B&quot; (in)</th>
<th>&quot;C&quot; (in)</th>
<th>&quot;D&quot; (in)</th>
<th>&quot;E&quot; (in)</th>
<th>Y (in)</th>
<th># OF SCREWS PER BRACKET</th>
<th># OF BRACKETS</th>
<th>Tu (lb)</th>
<th>Vu (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24&quot; DRYING</td>
<td>362</td>
<td>343</td>
<td>36.50</td>
<td>38.1</td>
<td>28</td>
<td>16.2</td>
<td>11.8</td>
<td>18.2</td>
<td>44.9</td>
<td>4</td>
<td>4</td>
<td>184</td>
<td>62</td>
</tr>
<tr>
<td>30&quot; DRYING</td>
<td>413</td>
<td>394</td>
<td>42.95</td>
<td>36.8</td>
<td>38</td>
<td>21.4</td>
<td>16.6</td>
<td>18.6</td>
<td>46.2</td>
<td>4</td>
<td>4</td>
<td>158</td>
<td>69</td>
</tr>
<tr>
<td>36&quot; DRYING</td>
<td>448</td>
<td>422</td>
<td>48.95</td>
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<td>38</td>
<td>22.0</td>
<td>16.0</td>
<td>18.7</td>
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<td>4</td>
<td>171</td>
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<td>44&quot; DRYING</td>
<td>481</td>
<td>455</td>
<td>56.92</td>
<td>37.9</td>
<td>48</td>
<td>28.1</td>
<td>19.9</td>
<td>18.0</td>
<td>45.1</td>
<td>4</td>
<td>6</td>
<td>145</td>
<td>56</td>
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</tbody>
</table>

*TOP BRACKETS + BOTTOM BRACKETS = # OF BRACKETS*
NOTES:

1. FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16
   STRENGTH DESIGN IS USED. \( S_{os} = 2.20, a_p = 10, l_p = 15, R_p = 15, z/h \leq 1 \)
   \[ \text{HORIZONTAL FORCE (Eh)} = 2.64 \ \text{Wp} \]
   \[ \text{VERTICAL FORCE (Ev)} = 0.44 \ \text{Wp} \]

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.
5/16" THK. WALL BOARD

BACKING PLATE (16 GA, 50 ksi min)
DESIGNED AND CONNECTED TO WALL STRUCTURE BY STRUCTURAL ENGINEER OF RECORD

USE #12 HILTI S-MD SCREW ANCHORS
(SEE SCHD FOR # OF BRACKETS & SCREWS)

MOUNTING BRACKETS
(11 GA, 56 304 Fy=30 ksi min)
W/ 1/2"M-13 WELDED STUD (18-8, Fy=65 ksi) 1' LONG
W/ STANDARD WASHER AND NUT TO CABINET
(Provided by TORVAN)
(SEE DETAIL "A" & "B")

CABINET BACK MATERIAL
(20 GA, ASTM A240, TYPE 304, Fy=30 ksi)

5/16" (A301) LEVELING LEG
FULL THREAD ENGAGEMENT TO UNIT REG'D (TYP)

SIDE ELEVATION

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LOADED WEIGHT (lb)</th>
<th>UNIT SELF WEIGHT (lb)</th>
<th>&quot;W&quot; (in)</th>
<th>&quot;A&quot; (in)</th>
<th>&quot;B&quot; (in)</th>
<th>&quot;C&quot; (in)</th>
<th>Y (in)</th>
<th># OF SCREWS PER BRACKET</th>
<th># OF BRACKETS</th>
<th>Tu (lb)</th>
<th>Vu (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30&quot; DRYING</td>
<td>386</td>
<td>361</td>
<td>30.97</td>
<td>37.8</td>
<td>28</td>
<td>18.8</td>
<td>45.2</td>
<td>4</td>
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<td>197</td>
<td>66</td>
</tr>
<tr>
<td>36&quot; DRYING</td>
<td>428</td>
<td>403</td>
<td>36.97</td>
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<td>28</td>
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<td>45.2</td>
<td>4</td>
<td>4</td>
<td>218</td>
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<tr>
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<td>18.9</td>
<td>44.6</td>
<td>4</td>
<td>4</td>
<td>195</td>
<td>85</td>
</tr>
</tbody>
</table>

* TOP BRACKETS + BOTTOM BRACKETS = # OF BRACKETS
SEISMIC SUPPORTS & ATTACHMENTS

FRONT ELEVATION
(36" SCOPE CABINET SHOWN)

USE #12 HILTI S-MD
SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & SCREWS)

BACKING PLATE (16 GA, 50 ksi MIN)
DESIGNED AND CONNECTED TO
WALL STRUCTURE BY
STRUCTURAL ENGINEER OF RECORD

MOUNTING BRACKETS
(11 GA, 55 304 Fy=30 ksi MIN)
W/ 1/2"Ø X 13 WELDED STUD (18-8, Fy=65 ksi) 1" LONG
W/ STANDARD WASHER AND NUT TO CABINET
(Provided by TORVAN)
(See detail "A" & "B")

C.G. KIT.
SEE SCHED

USE #12 HILTI S-MD
SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & SCREWS)

NOTES:
- 21" WIDE CABINET USE 20" BRACKET
- 36" WIDE CABINETS USE 20" + 10" BRACKETS

NOTES:
1. FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16
   STRENGTH DESIGN IS USED. (Sp = 2.20, AP = 10, l = 15, Rp = 15, z/h ≤ 1)
   HORIZONTAL FORCE (Eh) = 264 Wp
   VERTICAL FORCE (Ev) = 0.44 Wp

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 WEIGHS
   AND FORCES SHOWN IN COMBINATION WITH ALL OTHER
   LOADS THAT MAY BE PRESENT.
SEISMIC SUPPORTS & ATTACHMENTS

5/8" THK. WALLBOARD

BACKING PLATE (16 GA, 50 ksi MIN.) WALL MOUNTED

DESIGNED AND CONNECTED TO WALL STRUCTURE BY STRUCTURAL ENGINEER OF RECORD

USE #12 HILTI S-MD SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & SCREWS)

MOUNTING BRACKETS
(11 GA, S5304 Fy=30 KSI MIN)
W/ 1/2"-13 WELDED STUD (LB-B, Fy=65 KSI) 1' LONG
W/ STANDARD WASHER AND NUT TO CABINET
(PROVIDED BY TORVAN)
(SEE DETAIL "A" 

CABINET BACK MATERIAL
(20 GA, ASTM A240, TYPE 304, Fy=30 KSI)

C.G. KIT. = SEE SCHED

USE #12 HILTI S-MD SCREW ANCHORS
(SEE SCHED FOR # OF BRACKETS & SCREWS)

5/16" (A307) LEVELING LEG FULL THREAD ENGAGEMENT TO UNIT REQ'D (TYP)

### Table

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LOADED WEIGHT (lb)</th>
<th>UNIT SELF WEIGHT (lb)</th>
<th>W&quot; (in)</th>
<th>A&quot; (in)</th>
<th>B&quot; (in)</th>
<th>C&quot; (in)</th>
<th>Y (in)</th>
<th># OF SCREWS PER BRACKET</th>
<th>+ # OF BRACKETS PER SCREW</th>
<th>Tu (lb)</th>
<th>Vu (lb)</th>
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<tbody>
<tr>
<td>27&quot; SCOPE</td>
<td>419</td>
<td>400</td>
<td>29.97</td>
<td>43.1</td>
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<td>399</td>
<td>8</td>
<td>2</td>
<td>199</td>
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<tr>
<td>36&quot; SCOPE</td>
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<td>8</td>
<td>4</td>
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</table>

+ TOP BRACKETS + BOTTOM BRACKETS = # OF BRACKETS
SEISMIC SUPPORTS & ATTACHMENTS

BRACKET DETAILS

Plan

10" CABINET WALL BRACKET

(2) 20" + 10" BRACKETS

Front

(2) 20" BRACKETS

10"

20" + 10" BRACKETS

Side

20" BRACKET

NOTE: ADDITIONAL SCREWS REQUIRED AT 27" & 36" SCOPE CABINETS
REFER TO WALL BRACKET DETAILS

Screws placement to bear against outside of slotted hole, screws shown for illustrative purposes only, see schedules for required screw quantity.

Additional screws at 27" & 36" scope cabinets

T3/16" x 3/16" 5/8"

1/2" 4-13 x 1" Welded Stud

(16-8 5.5, Fy=65 KSI)

CALIFORNIA BUILDING CODE

OFTWARE FOR DAYTONA BUILDING CODE

DEB. J. ROBERSON

JOB NO. 11-1720

DATE 6/18/20

OF 15 SHEETS

06/23/2020

OPM-0446: Reviewed for Code Compliance by Haeseong Lim

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