## Manufacturer Information

**Manufacturer:** Sencorp White  
**Manufacturer's Technical Representative:** Scott Crossman  
**Mailing Address:** 12700 Stowe Drive, Ste. 220, Poway, CA 92064  
**Telephone:** (508) 681-8868  
**Email:** scott.crossman@sencorpwhite.com

## Product Information

**Product Name:** VERTICAL CAROUSEL 22XXXX-118 SERIES  
**Product Type:** Other Mechanical & Electrical Equipment  
**Product Model Number:** 22XXXX-118 SERIES  
**General Description:** Pharmaceutical Storage and Retrieval 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
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:  6/15/2020

Name:  Jeffrey Kikumoto  
Title:  Senior Structural Engineer

Condition of Approval (if applicable):  

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:  (909) 606-7622  
Email:  jon@EASECo.com

OSHPD Special Seismic Certification Preapproval (OSP)

☐ Special Seismic Certification is preapproved under OSP  
OSP Number:  

OSHPD
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 WRITTEN consent OF THE MANUFACTURER LISTED ABOVE FOR THE SPECIFIC PROJECT AND INSTALLATION LOCATION. THIS DOCUMENT IS INVALID WITHOUT SUCH CONSENT.

3. THIS PREAPPROVAL CONFORMS TO THE 2019 CALIFORNIA BUILDING CODE WHERE $S_{ds}$ IS NOT GREATER THAN 2.20. 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 $S_{ds} = 2.20$, $a_p = 1.0$, $I_s = 1.5$, $R_p = 1.5$, $z/h = 0$ AT CONCRETE SLAB. 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 DETAIL VALID FOR DEMANDS SHOWN AT ANY ELEVATION AT OR BELOW GRADE. (i.e. $z/h = 0$)

8. 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 $S_{ds}$ & $z/h$ 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. 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 6in FROM THIS UNIT'S ANCHORS.
9. 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 Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/8”</td>
<td>Normal Weight</td>
<td>4000</td>
<td>Hilti Kwik Bolt TZ</td>
<td>ESR-1917</td>
<td>4”</td>
<td>7”</td>
<td>60”</td>
<td>6”</td>
<td>60 FT-LB</td>
<td>1434 lb</td>
</tr>
</tbody>
</table>

B. THIS PREAPPROVAL ALLOWS FOR UP TO A MAXIMUM OF 2 ADJACENT CONCRETE SLAB EDGES, 60” 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 & 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.
NOTES:
1. FORCES ARE DETERMINED PER 2019 CALIFORNIA BUILDING CODE AND ASCE 7-16. STRENGTH DESIGN IS USED. (Sa = 220, d_p = 10, I_p = 15, F_o = 15, N_o = 15, z/h = 0)
   HORIZONTAL FORCE (E_h) = 0.99 W_p
   HORIZONTAL FORCE (E_mm) = 149 W_p (FOR CONCRETE ANCHORAGE)
   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 WEIGHT AND FORCES SHOWN, IN COMBINATION WITH ALL OTHER LOADS THAT MAY BE PRESENT.

4. SEE GENERAL NOTES: SHEETS 1 AND 2