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

**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT**

**FACILITIES DEVELOPMENT DIVISION**

**STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY**

OSH-FD-700 (REV 12/16/15)

---

**APPLICATION #:** OPM-0463-13

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

**Type:**
- [x] New
- [ ] Renewal
- [ ] Update to Pre-CBC 2013 OPA Number:

### Manufacturer Information

- **Manufacturer:** bioMérieux, Inc.
- **Manufacturer’s Technical Representative:** Mark Fanning
- **Mailing Address:** 595 Anglum Road, Hazelwood, MO 63042
- **Telephone:** (314) 506-8039
- **Email:** Mark.FANNING@biomerieux.com

### Product Information

- **Product Name:** Virtuo®
- **Product Type:** Clinical instrument classified as other mechanical or electrical components per ASCE 7-10 Table 13.6-1.
- **Product Model Number:**
- **General Description:** Automated clinical instrument for blood culture detection used in a hospital microbiology laboratory.

### Applicant Information

- **Applicant Company Name:** bioMérieux, Inc.
- **Contact Person:** Mark Fanning
- **Mailing Address:** 595 Anglum Road, Hazelwood, MO 63042
- **Telephone:** (314) 506-8039
- **Email:** Mark.FANNING@biomerieux.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:** 12/19/2017

**Title:** Principal Lead Engineer, Mech

**Company Name:** bioMérieux, Inc.

---

"Access to Safe, Quality Healthcare Environments that Meet"
Registered Design Professional Preparing Engineering Recommendations

Company Name: CYS STRUCTURAL ENGINEERS, INC.

Name: David M. Calia California License Number: S5614

Mailing Address: 2495 Natomas Park Drive, Suite 650

Telephone: (916) 920-2020 Email: davidc@cyseng.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): Calculations in accordance with the 2016 CBC.

*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: _________________________ Date: 09-04-2018
Print Name: Jeffrey Kikumoto
Title: SSE
Condition of Approval (if applicable): _________________________

*Access to Safe, Quality Healthcare Environments that Meet
NOTES: THESE DRAWINGS ARE PREPARED FOR bioMérieux, INC., A COMPANY DULY ORGANIZED UNDER THE LAWS OF MISSOURI, HAVING ITS PRINCIPAL PLACE OF BUSINESS AT 100 MODULPH STREET, DURHAM, NC 27712.

1. THE CONTRACTOR & THE INSPECTOR SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE OSHPD WEBSITE.
2. THIS PRE-APPROVAL COVERS THE SUPPORTS & ATTACHMENTS OF THE EQUIPMENT TO THE STRUCTURE.
GENERAL NOTES:

1. THIS OSHPD PRE-APPROVAL 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. IT IS THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD FOR A SITE SPECIFIC PROJECT TO VERIFY:
   A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WEIGHT SPECIFIED
      FOR EA COMPONENT IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS
      AS REQ.
   B. THAT THE ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS.
   C. THAT THE ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS,
      THE SPACING SHOWN IN THE TEST VALUES TABLE ON THIS PAGE IS THE MINIMUM SPACING OF ANCHORS
      OF OTHER DIAMETERS & EMBLEMENTS WILL VARY.
   D. THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2016 CBC & WITH THE DETAILS SHOWN IN
      THIS PRE-APPROVAL.
   E. THAT THE ACTUAL EQUIPMENT’S WEIGHT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS,
      ANCHOR DETAILS & THE MATERIAL & GAUGE OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE
      WITH THE INFORMATION SHOWN ON THE PRE-APPROVAL DOCUMENTS.
3A. EXPANSION ANCHORS INSTALLED IN NORMAL WEIGHT OR SANE-LIGHTWEIGHT CONCRETE SHALL BE STAINLESS
    ADHESIVE ANCHORS INSTALLED IN NORMAL WEIGHT CONCRETE SHALL BE ASTM F593 CWI (318) INSTALLED
B. INSTALLATION: INSTALL THE POST-INSTALLED DRILLED-IN CONC ANCHORS IN ACCORDANCE WITH THE
   REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS
   GIVEN IN THE TABLES ON THIS PAGE.
C. TESTING:
   • JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOB SITE
     TESTING IN ACCORDANCE WITH THE TEST LOAD TABLE PROVIDED IN THIS DOCUMENT. TEST
     50% OF THE INSTALLED ANCHORS. FOR TENSION TESTING, THE TEST LOAD MAY BE APPLIED BY ANY
     METHOD THAT WILL EFFECTIVELY MEASURE THE TENSION IN THE ANCHOR SUCH AS DIRECT PULL
     WITH A HYDRAULIC JACK OR CALIBRATED SPRING LOADING DEVICES. FOR TORQUE TESTING, THE TEST
     LOAD SHALL BE APPLIED WITH A CALIBRATED TORQUE WRENCH. ALL TESTS SHALL BE CONDUCTED IN
     THE PRESENCE OF THE INSPECTOR OF RECORD. IF ANY ANCHOR FAILS THE TEST, ALL
     ANCHORS SHALL BE CONDUCTED 24 HOURS OR MORE AFTER INSTALLATION TESTING MAY
     BE DONE PRIOR TO EQUIP INSTALLATION. REFER TO CBC 1910A.5.5 "TESTS FOR
     POST-INSTALLED ANCHORS IN CONCRETE",
   • FAILURE/ACCEPTANCE CRITERIA: THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF
     INSTALLED ANCHORS:
     ** Hydraulic Ram Method: Apply & Hold Test Load for a Min of 15 Seconds. The
     Anchor Should Have No Observable Movement at the Applicable Test Load Where
     Washers are Used. A Practical Way to Determine Observable Movement is That
     the Washer Under the Nut Becomes Loose or by a Continuous Loss of Jacking Pressure
     ** Torque Wrench Method (Expansion Anchors Only): The Applicable Test Torque Must
     Be Reached Within the Following Limits: Wedge Type: One-Half (½) Turn of the Nut.

---

**POST-INSTALLED ADHESIVE ANCHOR SCHEDULE**

<table>
<thead>
<tr>
<th>ANCHOR TYPE &amp; DIA (INCH)</th>
<th>HOLE DIAM (INCH)</th>
<th>EFFECTIVE EMBED (INCH)</th>
<th>MIN CONC THICKNESS (INCH)</th>
<th>MIN CONC EDGE DISTANCE (INCH)</th>
<th>MIN AB SPACING UNO (INCH)</th>
<th>TENSION LOAD (LBS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>½&quot; HILTI HAS-R (ASTM F593 CWI 318 SS) ALL THIRD ROD</td>
<td>0.5625</td>
<td>2.75</td>
<td>4</td>
<td>12</td>
<td>6.75</td>
<td>2550</td>
</tr>
</tbody>
</table>

**POST-INSTALLED MECHANICAL ANCHOR SCHEDULE**

<table>
<thead>
<tr>
<th>ANCHOR TYPE &amp; DIA (INCH)</th>
<th>INSTALLATION EMBED (INCH)</th>
<th>EFFECTIVE EMBED (INCH)</th>
<th>HOLE DIAM (INCH)</th>
<th>MIN CONC THICKNESS (INCH)</th>
<th>MIN CONC EDGE DISTANCE (INCH)</th>
<th>MIN AB SPACING UNO (INCH)</th>
<th>TEST LOAD (LBS)</th>
<th>CONDITION OR ANCHORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB-TZ 304 SS 0.575&quot;</td>
<td>2.3125</td>
<td>2.00</td>
<td>2.625</td>
<td>SEE OTLS</td>
<td>12</td>
<td>6.75</td>
<td>PARALLEL TO MTL DECK FLUTES</td>
<td>1190</td>
</tr>
<tr>
<td>KB-TZ 304 SS 0.5&quot;</td>
<td>2.375</td>
<td>2.00</td>
<td>2.625</td>
<td>SEE OTLS</td>
<td>12</td>
<td>6.75</td>
<td>PARALLEL TO MTL DECK FLUTES</td>
<td>-</td>
</tr>
</tbody>
</table>

---

SHEET TITLE: GENERAL NOTES
GENERAL NOTES CONTINUED:

4. TWO (2) CONDITIONS OF SUPPORTS & ATTACHMENTS ARE SPECIFIED & PRESENTED IN THIS
PRE-APPROVAL:

|    |  
|----|----|
| 1/4 |  
| 1/2 |  
| 3/4 |  
| ROOF |  
| BASEMENT |  
| 0 |  

CASE 1: SUPPORTS & ATTACHMENTS DTLS LOCATED AT UPPER FLPS
ABY THE BASE OF A BLDG (z/h <= 1.0), IT IS ASSUMED THAT THE
FURS ARE BUILT OF A MIN 3/4" NWC OR SLWC TOPPING OVER MTL
DECK (f_c = 3000 PSI, MIN).

CASE 2: SUPPORTS & ATTACHMENTS DTLS LOCATED AT OR BLW THE
BASE OF A BLDG (z/h = 0). THE FURS ARE ASSUMED
TO BE BUILT OF A MIN 4" NWC SLAB (f_c = 3000 PSI, MIN).

5. THIS PRE-APPROVAL MAY BE USED AT ANY GEOGRAPHICAL LOCATION IN THE STATE OF
CALIFORNIA WHERE S_o IS LESS THAN OR EQ TO 2.50.

6. COORDINATE THE ANCHOR BOLT LAYOUT WITH THE COMPONENT IN THE FIELD PRIOR TO SETTING
ANCHOR BOLTS.

7. ANCHOR BRACKETS SHALL BE PAINTED WITH A RUST INHIBITIVE PRIMER FOLLOWED BY A COLOR
COAT SELECTED BY THE HOSPITAL FACILITY OR MATCH THE COLOR OF THE BASE OF THE EQUIP.
IF A COLOR IS NOT SPECIFIED BY THE HOSPITAL.

8. FASTENERS AND ASSOCIATED HARDWARE SHALL BE FIELD PAINTED TO MATCH BRACKETS AFTER
INSTALLATION IS COMPLETE.

9. STRUCTURAL STEEL SHAPES & CONNECTORS SHALL CONFORM TO THE FOLLOWING, UND:
A. PLATES, ANGLES, BARS & MISCELLANEOUS SHAPES ............... ASTM A36
B. PLATES AS NOTED ............................................. ASTM A572 GR 50
C. MACHINE BOLTS .................................................. ASTM A307

10. CONTRACTOR SHALL FURNISH & INSTALL THE SEISMIC SUPPORTS & ATTACHMENTS (INCLUDING
SEISMIC BRACKETS, EXPANSION ANCHORS, THRU-BOLTS, STRUT PLATES BLW SLABS, HIGH
STRENGTH BOLTS, ETC.) IN CONJUNCTION WITH COMPONENT SETTING INSTRUCTIONS FROM
bioMéreux FIELD INSTALLATION PERSONNEL.

11. DRAWING SCALES ARE NOT PROVIDED. DO NOT SCALE OFF OF THESE DRAWINGS.
THE INTENT OF THESE DRAWINGS IS TO SHOW HOW TO FABRICATE THE SEISMIC BRACKET TO
ANCHOR THE EQUIP SPECIFIED. THE REPRESENTATIONS OF THE EQUIP ARE ONLY INTENDED TO
SHOW THE COORDINATION WITH THE SEISMIC BRACKETS.

12. BOLTS THRU CONC ON MTL DECK:
A. BOLTS SHALL BE TORQUED BY 3/4 TURN OF THE NUTS AFTER SNUG TIGHT (THE SNUG
TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQ TO BRING THE CONNECTED PLIES
INTO FIRM CONTACT) CONDITION IS ACHIEVED, UND.
B. THRU BOLT HOLES SHALL BE 1.12" LARGER THAN BOLT SIZE
(HOLE SIZE = BOLT SIZE + 1/16)
C. THRU BOLTS IN CONC SHALL RECEIVE SPECIAL INSPECTION & TESTING (THRU BOLTS WITH
STEEL TO STEEL CONN IN TENSION DO NOT REQUIRE TESTING) IN ACCORDANCE WITH
REQUIREMENTS FOR POST-INSTALLED ANCHORS.

13. TAKE CARE TO AVOID DAMAGING REBAR OR POST-TENSIONING TENDONS WHEN INSTALLING
ANCHORS TO CONC.

WELDING NOTES:

1. WELDING OF SEISMIC BRACKETS SHALL BE PERFORMED BY CERTIFIED WELDERS USING E70XX
ELECTRODES (UND). THE USE OF E70-T4 WELDING WIRE IS NOT ALLOWED FOR ANY APPLICATION.
WELDS SHALL BE IN CONFORMITY WITH THE PROJECT SPECIFICATIONS AND STRUCTURAL WELDING
CODE—STEEL OF THE AMERICAN WELDING SOCIETY (AWS D1.1–10). SEE SPECIAL INSPECTIONS
SECTION FOR WELDING INSPECTION REQUIREMENT. SUBMIT WELDING PROCEDURES AND
SPECIFICATIONS TO OWNER'S TESTING LABORATORY FOR REVIEW & APPROVAL PRIOR TO BEGINNING
SEISMIC BRACKET FABRICATION.

2. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET
WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE MINIMUM SIZE WELDS AS SPECIFIED IN
ASCE 360–10, SECTION J2.2b.

DESIGN CRITERIA

DESIGN OF SUPPORTS & ATTACHMENTS FOR ALL EQUIP COMPONENTS IS PER 2016 CBC

ASCE 7–10 TABLE 13.6–1
OTHER MECHANICAL OR ELECTRICAL COMPONENTS

<table>
<thead>
<tr>
<th>S_o</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
</tr>
<tr>
<td>1.5</td>
</tr>
<tr>
<td>1.0</td>
</tr>
<tr>
<td>1.5</td>
</tr>
</tbody>
</table>

W AS NOTED ON COMPONENT BASE PLAN & ELEV. SEE PG. 7.

SEISMIC LOADS FOR CASE 1 – UPPER FLPS ABY THE BASE, z/h <= 1.0 (LRFD)

F_p = 3.00 W_p
F_v = 0.50 W_p

SEISMIC LOADS FOR CASE 2 – SLAB AT OR BLW BASE, z/h = 0 (LRFD)

F_p = 1.12 W_p
F_v = 0.50 W_p

DATE: 09/04/2018

BY: Jeffrey Y. Kikumoto

O&M-0463-13: Reviewed for Code Compliance by Jeffrey Kikumoto

CYS STRUCTURAL ENGINEERS, INC.
2455 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833
TEL: (916) 920-2020
www.cysena.com

Sheet Title: General Notes & Design Criteria

Rev Description Date Job No.

-17136

Date: 09/04/2018

CYS Structural Engineers, Inc.
"OM-0463-13: Reviewed for Code Compliance by Jeffrey Kikumoto"
Page 5 of 10
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø</td>
<td>AT</td>
</tr>
<tr>
<td>AB</td>
<td>ANCHOR BOLT</td>
</tr>
<tr>
<td>ADV</td>
<td>ABOVE</td>
</tr>
<tr>
<td>ADJ</td>
<td>ADJACENT</td>
</tr>
<tr>
<td>ASC</td>
<td>AMERICAN INSTITUTE FOR STEEL CONSTRUCTION</td>
</tr>
<tr>
<td>ASCCE</td>
<td>AMERICAN SOCIETY OF CIVIL ENGINEERS</td>
</tr>
<tr>
<td>ASD</td>
<td>ALLOWABLE STRENGTH DESIGN</td>
</tr>
<tr>
<td>ASTM</td>
<td>AMERICAN SOCIETY FOR TESTING &amp; MATERIALS</td>
</tr>
<tr>
<td>AWS</td>
<td>AMERICAN WELDING SOCIETY</td>
</tr>
<tr>
<td>BLDG</td>
<td>BUILDING</td>
</tr>
<tr>
<td>BLK</td>
<td>BLOCK</td>
</tr>
<tr>
<td>BLW</td>
<td>BELOW</td>
</tr>
<tr>
<td>BOTT</td>
<td>BOTTOM</td>
</tr>
<tr>
<td>BTW</td>
<td>BETWEEN</td>
</tr>
<tr>
<td>CBC</td>
<td>CALIFORNIA BUILDING CODE</td>
</tr>
<tr>
<td>CG</td>
<td>CENTER OF GRAVITY</td>
</tr>
<tr>
<td>CJP</td>
<td>COMPLETE JOINT PENETRATION</td>
</tr>
<tr>
<td>CLR</td>
<td>CLEAR OR CLEARANCE</td>
</tr>
<tr>
<td>CRLSE</td>
<td>CALIFORNIA LICENSED STRUCTURAL ENGINEER</td>
</tr>
<tr>
<td>CTR</td>
<td>CENTER</td>
</tr>
<tr>
<td>CDBL</td>
<td>DOUBLE</td>
</tr>
<tr>
<td>DIA (Ø)</td>
<td>DIAMETER</td>
</tr>
<tr>
<td>DIM</td>
<td>DIMENSION</td>
</tr>
<tr>
<td>DTL</td>
<td>DETAIL</td>
</tr>
<tr>
<td>DWG (E)</td>
<td>DRAWING</td>
</tr>
<tr>
<td>EXC</td>
<td>EXISTING CONDITION</td>
</tr>
<tr>
<td>EA</td>
<td>EACH</td>
</tr>
<tr>
<td>EE</td>
<td>EACH END</td>
</tr>
<tr>
<td>ELV</td>
<td>ELEVATION</td>
</tr>
<tr>
<td>EG</td>
<td>EQUAL</td>
</tr>
<tr>
<td>EQUIP</td>
<td>EQUIPMENT</td>
</tr>
<tr>
<td>FC</td>
<td>MINIMUM ULTIMATE COMPRESSIVE STRENGTH</td>
</tr>
<tr>
<td>FF</td>
<td>FINISHED FLOOR</td>
</tr>
<tr>
<td>FLG</td>
<td>FLANGE</td>
</tr>
<tr>
<td>FLR</td>
<td>FLOOR</td>
</tr>
<tr>
<td>FRNG</td>
<td>FRAMING</td>
</tr>
<tr>
<td>FT (')</td>
<td>FOOT/FEET</td>
</tr>
<tr>
<td>FY</td>
<td>SPECIFIED YIELD STRENGTH OF REINFORCING, PSI OR SPECIFIED MINIMUM YIELD STRESS OF STEEL, KSI</td>
</tr>
<tr>
<td>GA</td>
<td>GAUGE</td>
</tr>
<tr>
<td>HIGHT</td>
<td>HT</td>
</tr>
<tr>
<td>ICC</td>
<td>INTERNATIONAL CODE COUNCIL</td>
</tr>
<tr>
<td>IN (”)</td>
<td>INCH</td>
</tr>
<tr>
<td>KSI</td>
<td>KIPS PER SQUARE INCH</td>
</tr>
<tr>
<td>L</td>
<td>LENGTH</td>
</tr>
<tr>
<td>LBS</td>
<td>POUNDS</td>
</tr>
<tr>
<td>LRFD</td>
<td>LOAD &amp; RESISTANCE FACTOR DESIGN</td>
</tr>
<tr>
<td>LFRS</td>
<td>LATERAL FORCE RESISTING SYSTEM</td>
</tr>
<tr>
<td>MAX</td>
<td>MAXIMUM</td>
</tr>
<tr>
<td>MB</td>
<td>MACHINE BOLT</td>
</tr>
<tr>
<td>MFR</td>
<td>MANUFACTURER</td>
</tr>
<tr>
<td>NO. (#)</td>
<td>NUMBER OR POUNDS</td>
</tr>
<tr>
<td>NTS</td>
<td>NOT TO SCALE</td>
</tr>
<tr>
<td>NS&amp;FS</td>
<td>NEAR SIDE &amp; FAR SIDE</td>
</tr>
<tr>
<td>NWC</td>
<td>NORMAL WEIGHT CONCRETE</td>
</tr>
<tr>
<td>OPG</td>
<td>OPENING</td>
</tr>
<tr>
<td>OSPHPD</td>
<td>OFFICE OF STATEWIDE HEALTH PLANNING &amp; DEVELOPMENT</td>
</tr>
<tr>
<td>PG</td>
<td>PAGE</td>
</tr>
<tr>
<td>PS</td>
<td>PLATE</td>
</tr>
<tr>
<td>PSI</td>
<td>POUNDS PER SQUARE INCH</td>
</tr>
<tr>
<td>R</td>
<td>RADIUS</td>
</tr>
<tr>
<td>REG</td>
<td>REQUIRED</td>
</tr>
<tr>
<td>SEDR</td>
<td>STRUCTURAL ENGINEER OF RECORD</td>
</tr>
<tr>
<td>SIM</td>
<td>SIMILAR</td>
</tr>
<tr>
<td>SLWC</td>
<td>SAND-LIGHTWEIGHT CONCRETE</td>
</tr>
<tr>
<td>SOD</td>
<td>SLAB ON GRADE</td>
</tr>
<tr>
<td>SQ</td>
<td>SQUARE</td>
</tr>
<tr>
<td>SS</td>
<td>STAINLESS STEEL</td>
</tr>
<tr>
<td>STL</td>
<td>STEEL</td>
</tr>
<tr>
<td>T&amp;B</td>
<td>TOP &amp; BOTTOM</td>
</tr>
<tr>
<td>TEMP</td>
<td>TEMPORARY</td>
</tr>
<tr>
<td>TDRD</td>
<td>THREAD OR THREADED</td>
</tr>
<tr>
<td>TOC</td>
<td>TOP OF CONCRETE</td>
</tr>
<tr>
<td>Tu</td>
<td>ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE</td>
</tr>
<tr>
<td>TYP</td>
<td>TYPICAL</td>
</tr>
<tr>
<td>UNQ</td>
<td>UNLESS NOTED OTHERWISE</td>
</tr>
<tr>
<td>V</td>
<td>ANCHORAGE SHEAR REAC</td>
</tr>
<tr>
<td>VERT</td>
<td>VERTICAL</td>
</tr>
<tr>
<td>Wv</td>
<td>ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE</td>
</tr>
<tr>
<td>W/</td>
<td>WITH</td>
</tr>
<tr>
<td>Wc</td>
<td>COMPONENT SELF-WEIGHT</td>
</tr>
</tbody>
</table>
SEISMIC BRACKET PER CASE 1.
COORD ANCHOR LAYOUT IN THE
FIELD W/ MTL DECK ORIENTATION

SEAT OF (E) MTL DECK
(LOW FLUTES SHOWN FOR
CLARITY)

13" MIN
1.75" TYP
3.5" TYP

E FLUTE

1" MAX

E FLUTE

1.5" TYP

ANCHOR PER
CASE 1

9/16" STRUT R, TYP.
FIELD VERIFY DECK
ORIENTATION FOR
COORD W/ ANCHOR
LAYOUT

ANCHOR PER
CASE 1

2" MIN

LOCK WASHER TYP

1/8

1/4

NUT TAG OF STRUT
(ATT HIGH FLUTE ONLY)

2 FLUTE TYP

DBL NUT W/ TACK
WELL TO STRUT

ANCHOR OPTIONS

SECTION B-B

LENGTH SHOULD ENGAGE 3 LOW FLUTES MIN

EXTEND STRUT LENGTH
TO NEXT ADJ LOW FLUTE
IF MORE THAN 2" FROM STRUT
SUPPORT ANCHORS

3/4" #8 HILTI KB-TZ SS
2 EE OF R'S 6" WIDE OR
WIDER, 1 EE OF R'S LESS
THAN 6" WIDE

TAPPED HOLE IN
STRUT W/ NUT BLW

3/4" STRUT R, SUPPORT ANCHORS

NOTE:
GENERAL CONTRACTOR TO PROVIDE
& INSTALL THE FOLLOWING:
• STRUT PLATE
• ANCHORS

CALIFORNIA BUILDING CODE: 2016

Jeffrey Y. Kikumoto

OPM-0463-13

09/04/2018

EQUIPMENT SUPPORTS & ATTACHMENTS

bioMérieux
VIRTUO

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833
TEL: (916) 320-2020
www.cysena.com

Rev Description Date
17136

Job No:

Date: 8/31/2018

By: MTC

Page: 6 of 10
1. ECCENTRICITY & PULLING ACTION MUST BE CONSIDERED BASED ON THE SEISMIC BRACKET CONFIGURATION.

2. SEE PGS 8 & 9 FOR THE FABRICATION & INSTALLATION REQUIREMENTS OF THE SEISMIC BRACKET.
SEISMIC BRACKET DETAIL:

FINGER SHIMS PER FRONT ELEV BLW (SHADERS FOR CLARITY), TYP

NOTE:
GENERAL CONTRACTOR TO PROVIDE & INSTALL THE FOLLOWING:
- SEISMIC BRACKETS
- SHIMS
- ANCHORS

GENERAL CONTRACTOR SHALL PROVIDE & INSTALL SSA304 SLOTTED FINGER SHIMS (SHADERS FOR CLARITY) AS REQ TO LEVEL EQUIP IF A GAP OCCURS BTW EQUIP & THE BRACKET FLS. SHIMS SHALL BE 14 GA MIN TO 10 GA MAX, TYP

SEISMIC BRACKET DETAIL

PLAN VIEW

SIDE ELEV

FRONT ELEV

CABLE TRAY PER MFR

REV: 09/04/2018

Jeffrey Y. Kikumoto
OPM-0463-13
09/04/2018
REAR COMPRESSION BLOCK

FRONT COMPRESSION BLOCK

NOTE:
GENERAL CONTRACTOR TO PROVIDE & INSTALL THE FOLLOWING:
- COMPRESSION BKLS
- SHIMS
- ANCHORS

PLAN VIEW

PLAN VIEW

TOP SURFACES OF COMPRESSION BLK SHADeD FOR CLARITY

TOP SURFACES OF COMPRESSION BLK SHADeD FOR CLARITY

3/8" HOLE (TYP OF 2)

3/8" HOLE (TYP OF 2)

EELEV VIEW

ELEV VIEW

2- 5/8" HILTI KB-TZ W/ 2" EMBED

2- 5/8" HILTI KB-TZ W/ 2" EMBED

2.5" 1" 1" 2" 1" 1" 2.5"

2" 1" 4.75" 2.5" 1" 1" 2"

ASTM A36 R 11/2"x2x0"-11"

ASTM A36 R 11/2"x3x1"-24"

3/8" MAX FINGER SHIMS

3/8" MAX FINGER SHIMS

FF

FF
1. INCLUDES MATERIAL OVERSTRENGTH FACTOR (Sₙ) IN ACCORDANCE W/ ACI 318-14 SECTION 17.2.3.4.3(c) FOR TENSION OR SECTION 17.2.3.5.3(c) FOR SHEAR.

CASE 1 — SUSPENDED FLR W/ THRU BOLTS

CASE 2 — SLAB ON GRADE

(SLAB AT OR BLW GRADE)

NOTE:
ANCHORAGE INSTALLATION BY CONTRACTOR.