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

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

**Type:**  
- [ ] New  
- [x] Renewal  
- [ ] Update to Pre-CBC 2013 OPA Number: OPM-0139-13

**Manufacturer Information**

Manufacturer: Roche Diagnostics Corporation  
Manufacturer’s Technical Representative: Robert A. Jones  
Mailing Address: P.O. Box 50457, Indianapolis, IN 46250-457  
Telephone: 317-521-3244  
Email: Robert.jones@roche.com

**Product Information**

Product Name: cobas 8000 Modular Analyzer Series  
Product Type: Blood Analyzers  
Product Model Number: cobas C502, cobas C701, cobas C702, cobas E602, Sampler Unit, Ion Selective Electrode Unit, Module Sample Buffer Units, Module Sample Buffer Line Units, cobas E801  
General Description: General Chemistry Tests

**Applicant Information**

Applicant Company Name: Roche Diagnostics Corporation  
Contact Person: Robert A. Jones  
Mailing Address: P.O. Box 50457, Indianapolis, IN 46250-457  
Telephone: 317-521-3244  
Email: Robert.jones@roche.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: [Signature]  
Date: 06/08/2017  
Title: Manager-Field Engineering Support  
Company Name: Roche Diagnostics Corporation

“Access to Safe, Quality Healthcare Environments that Meet California’s Diverse and Dynamic Needs”

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY  
OSHF-D-700 (REV 3/13/14)  
08/16/2017  
OPM-0139-13: Reviewed for Code Compliance by William Staehlin
## Registered Design Professional Preparing Engineering Recommendations

**Company Name:** CYS Structural Engineers, Inc.

**Name:** Dieter T. Siebach  
**California License Number:** S 4346

**Mailing Address:** 2495 Natomas Park Drive, Suite 650, Sacramento, CA 95833

**Telephone:** 916-920-2020  
**Email:** dieters@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 1950-10
- [ ] Other* (Please Specify):  
  - [ ] Name:                 Dieter T. Siebald  
  - [ ] California License Number: S 4346

*Use of 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):  
  - [ ] Name:                 Dieter T. Siebald  
  - [ ] California License Number: S 4346

### List of Attachments Supporting the Manufacturer’s Certification

- [ ] Test Report  
- [x] Drawings  
- [x] Calculations  
- [ ] Manufacturer’s Catalog
- [x] Other(s) (Please Specify):  
  - [ ] Name:                 Dieter T. Siebald  
  - [ ] California License Number: S 4346

- [ ] Manufacturer’s Equipment Drawings and Documents (attached to Calculations)

### OFFICE USE ONLY – OSHPD APPROVAL VALID FOR CBC 2013 ONLY

**Signature:**  
**Date:** 08-16-2017

**Print Name:** William Staehlin  
**Title:** SSE

**Condition of Approval (if applicable):**
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Clause</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL NOTES</td>
<td>2</td>
</tr>
<tr>
<td>SYSTEM OVERVIEW &amp; DESIGN CRITERIA</td>
<td>4</td>
</tr>
<tr>
<td>ABBREVIATIONS &amp; SYSTEM MODULE COMBINATIONS</td>
<td>5</td>
</tr>
<tr>
<td>SYSTEM COMBINATION PLANS</td>
<td></td>
</tr>
<tr>
<td>SINGLE MODULE SYSTEM</td>
<td>6</td>
</tr>
<tr>
<td>TWO MODULE SYSTEM</td>
<td>7</td>
</tr>
<tr>
<td>THREE MODULE SYSTEM</td>
<td>8</td>
</tr>
<tr>
<td>FOUR MODULE SYSTEM</td>
<td>9</td>
</tr>
<tr>
<td>COMPONENT PLANS &amp; ELEVATIONS</td>
<td></td>
</tr>
<tr>
<td>SAMPLER UNIT (SU)</td>
<td>10</td>
</tr>
<tr>
<td>ION SELECTIVE ELECTRODE UNIT (ISE1 &amp; ISE 2)</td>
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</tr>
<tr>
<td>ANALYTICAL UNIT (AU)</td>
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<td>cobas e602</td>
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<td>cobas e801</td>
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<tr>
<td>MODULE SAMPLE BUFFER (MSB)</td>
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<td>FOR c502 &amp; c701</td>
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<td>17</td>
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<td>FOR e602</td>
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<td>FOR e801</td>
<td>29</td>
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<tr>
<td>MODULE SAMPLER BUFFER LINE (MSBL) W/ TRANSFER LINE (TL) OR DRIVE LINE (DL)</td>
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</tr>
<tr>
<td>FOR c502</td>
<td>19</td>
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<td>FOR c701, c702, e602</td>
<td>20</td>
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<td>FOR e801</td>
<td>30</td>
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<tr>
<td>AU SEISMIC BRACKET DETAIL</td>
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<td>SU SEISMIC BRACKET DETAIL</td>
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<td>ISE SEISMIC BRACKET DETAIL</td>
<td>23</td>
</tr>
<tr>
<td>MSB SEISMIC BRACKET DETAIL</td>
<td>24</td>
</tr>
<tr>
<td>ATTACHMENT DETAIL TO CONCRETE FILL OVER METAL DECK (CASE 1)</td>
<td>25</td>
</tr>
<tr>
<td>ATTACHMENT DETAIL TO SLAB ON GRADE (CASE 2)</td>
<td>27</td>
</tr>
</tbody>
</table>

### NOTES:

1. THESE DRAWINGS ARE PREPARED FOR ROCHE DIAGNOSTICS CORPORATION, INDIANAPOLIS, INDIANA.
2. THE CONTRACTOR & INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE-APPROVAL FROM THE OFFICE OF STATEWIDE HEALTH PLANNING & DEVELOPMENT (OSHPD) PRE-APPROVAL PROGRAMS WEBSITE.
3. THIS PRE-APPROVAL COVERS THE SUPPORTS & ATTACHMENTS OF THE UNIT TO THE SUPPORTING STRUCTURE. THE EQUIPMENT UNITS ARE SUPPLIED BY ROCHE. THE SEISMIC BRACKETS, THRU-BOLTS & EXPANSION ANCHORS SHOWN ON PCS 21–27 SHALL BE SUPPLIED & INSTALLED BY THE CONTRACTOR.

**Sheet Title: Table of Contents**

**CYS STRUCTURAL ENGINEERS, INC.**  
2495 NATOMAS PARK DRIVE, SUITE 650  
SACRAMENTO, CA 95833  
Job No: 17035  
Date: 08/15/2017  
Page: 1 of 30
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 (SEOR) FOR A SITE SPECIFIC PROJECT TO VERIFY:
   A. THE ADEQUACY OF THE (N) OR (E) STRUCTURE TO RESIST THE FORCES AND WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE AND DESIGN SUPPLEMENTARY MEMBERS AS REQUIRED.
   B. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPGS.
   C. THAT THE FLR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY (N) OR (E) ANCHORS. THE SPACING SHOWN IN THE TEST LOADS TABLE ON PG 3 IS THE REQUIRED MIN SPACING OF THE ½” DIA AB’S. THE REQUIRED SPACING FROM ANCHORS OF OTHER DIAMETERS AND EmbedMENTS MAY VARY AND SHALL BE EVALUATED BY THE SEOR.
   D. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE CBC 2016 AND W/ THE DETAILS SHOWN IN THIS PRE-APPROVAL.
   E. THAT THE ACTUAL EQUIPMENT’S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS, AND THE MATERIAL AND GA OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFORMATION SHOWN ON THE PRE-APPROVAL DOCUMENTS.
   B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOB SITE TESTING IN ACCORDANCE W/ THE TEST LOAD TABLE PROVIDED IN THIS DOCUMENT. TEST 50% OF THE INSTALLED ANCHORS. THE TEST LOAD MAY BE APPLIED BY ANY METHOD THAT WILL EFFECTIVELY MEASURE THE TENSION OR TORQUE IN THE ANCHOR SUCH AS DIRECT PULL W/ A HYDRAULIC JACK OR CALIBRATED SPRING LOADING DEVICES OR CALIBRATED TORQUE WRENCH METHOD. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE INSPECTOR OF RECORD. IF ANY ANCHOR FAILS THE TEST, TEST ALL ANCHORS. THE TEST SHALL BE PERFORMED 24 HOURS OR MORE AFTER INSTALLATION. TESTING MAY BE DONE PRIOR TO EQUIP INSTALLATION. ALSO REFER TO CBC 1910A.5 “FIELD TESTS FOR POST-INSTALLED ANCHORS IN CONCRETE”.
   C. FAILURE/Acceptance Criteria: The following criteria apply for the acceptance of installed anchors:
      • HYDRAULIC RAM METHOD: APPLY AND 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. FOR WEDGE TYPE ANCHORS, SUCH AS HILTI KB-TZ, A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER UNDER THE NUT BECOMES LOOSE.
      • TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS: WEDGE TYPE: ONE–HALF (½) TURN OF THE NUT.

SHEET TITLE: GENERAL NOTES

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 2 of 30
GENERAL NOTES CONTINUED:

3D. TEST VALUES: APPLY TEST LOADS TO ANCHORS W/O REMOVING THE NUT IF POSSIBLE, SEE TABLE BLW.

![Diagram of anchor installation](image)

<table>
<thead>
<tr>
<th>ANCHOR DIA (INCH)</th>
<th>INSTALLATION EMBED (INCH)</th>
<th>EFFECTIVE EMBED (INCH)</th>
<th>HOLE DEPTH (INCH)</th>
<th>MIN CONC THICKNESS (INCH)</th>
<th>MIN CONC EDGE DISTANCE (INCH)</th>
<th>MIN AB SPACING (INCH)</th>
<th>TEST LOAD</th>
<th>CONDITION OF ANCHORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>½</td>
<td>2½</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>12</td>
<td>2.5</td>
<td>1555</td>
<td>40</td>
</tr>
</tbody>
</table>

4. BOLTS THROUGH CONCRETE ON MTL DECK:

A. BOLTS SHALL BE TORQUED BY ¾ TURN OF THE NUTS AFTER SNUG TIGHT (THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT) CONDITION IS ACHIEVED, UNO.

B. THRU-BOLT HOLES SHALL BE ¾" LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + ¾").

C. THRU-BOLTS IN CONC SHALL RECEIVE SPECIAL INSPECTION & TESTING (THRU-BOLTS W/ STEEL TO STEEL CONNECTION IN TENSION DO NOT REQUIRE TESTING) IN ACCORDANCE W/ REQUIREMENTS FOR POST-INSTALLED ANCHORS.

5. TWO (2) CASES OF ATTACHMENT ARE SPECIFIED AND PRESENTED IN THIS PRE-APPROVAL:

   CASE 1: ATTACHMENT DETAILS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG (z/h≤1.0), THE FLRS ARE ASSUMED TO BE BUILT OF A MIN ¾" SLWC TOPPING OVER 20 GA MTL DECK (f'c = 3000 PSI, MIN).

   CASE 2: ATTACHMENT DETAILS LOCATED AT OR BLW THE BASE OF A BLDG (z/h=0). THE FLRS ARE ASSUMED TO BE BUILT OF A MIN 4" NWC SLAB (f'c = 3000 PSI, MIN).

6. THIS PRE-APPROVAL MAY BE USED AT ANY GEOGRAPHICAL LOCATION IN THE STATE OF CALIFORNIA WHERE S₀₅ IS LESS THAN OR EQUAL TO 2.50.
SYSTEM OVERVIEW & DESIGN CRITERIA

1. THE cobas 8000 MODULAR ANALYZER SERIES CONSISTS OF THE FOLLOWING MAJOR COMPONENTS:
   - SAMPLER UNIT (SU) – SAMPLES ARE LOADED AND UNLOADED FROM THE SYSTEM HERE.
   - ION SELECTIVE ELECTRODE UNIT (ISE) – OPTIONAL MODULE FOR DETERMINATION OF ELECTROLYTES.
   - ANALYTICAL UNITS (AU) – UP TO FOUR ANALYTICAL UNITS CAN MAKE UP A SYSTEM, THEY ARE:
     - cobas c701 – CLINICAL CHEMISTRY MODULE (HIGH THROUGHPUT)
     - cobas c702 – CLINICAL CHEMISTRY MODULE (HIGH THROUGHPUT WITH REAGENT MANAGER (AUTOLOADER))
     - cobas c502 – CLINICAL CHEMISTRY MODULE (MEDIUM THROUGHPUT)
     - cobas e602 – IMMUNOASSAY MODULE
     - cobas e801 – IMMUNOASSAY MODULE (HIGH THROUGHPUT) MAY BE USED INSTEAD OF e602
   - ANALYTICAL UNIT CORE COMPONENTS – EA MODULE LISTED ABV HAS THE FOLLOWING CORE COMPONENTS:
     - MODULE SAMPLE BUFFER (MSB) – SAMPLE BUFFER UNITS USED FOR SAMPLE RACK TRANSFER
     - MODULE SAMPLE BUFFER LINE (MSBL) – SAMPLE TRANSFER LINES WHICH INCLUDE:
       - TRANSFER LINE (TL) – RACK TRANSFER LINES LOCATED BEHIND EVERY MODULE THAT IS
         NOT THE LAST MODULE
       - DRIVE LINE (DL) – RACK DRIVE LINE LOCATED BEHIND THE LAST MODULE IN A GIVEN
         CONFIGURATION
   - SCHHEMATIC OVERVIEW DRAWINGS FOLLOW THAT SHOW SINGLE, TWO, THREE, & FOUR MODULE SYSTEMS.
   - ANALYTICAL UNIT MODEL COMBINATIONS & ORDER MAY VARY FROM THAT SHOWN, SEE PG 5 FOR ALL
     SYSTEM MODULE COMBINATIONS APPROVED UNDER THIS OPM.
   - ATTACHMENT DESIGN IS PER 2016 CBC AT LRFD LEVEL FORCES.

   FLR MOUNTED MECHANICAL EQUIP. PER ASCE 7-10 TABLE 13.6-1,
   - $a_p = 1.0$
   - $R_p = 1.5$
   - $I_p = 1.5$
   - $\Omega_0 = 1.5$ (CONC ANCHORS)
   - $W_p$ AS NOTED ON COMPONENT DRAWINGS SHOWN ON PGS 10 TO 20 & 28 TO 30

   FOR CASE 1 – UPPER FLRS ABV THE BASE, $z/h \leq 1.0$
   - $S_{DS} = 2.50$
   - $F_p = 3.00 W_p$
   - $F_v = 0.50 W_p$

   FOR CASE 2 – SLAB AT OR BLW BASE, $z/h = 0$
   - $S_{DS} = 2.50$
   - $F_p = 1.125 W_p$
   - $F_v = 0.50 W_p$

   THE MAX FORCES ON THE ATTACHMENT TO SUPPORTING STRUCTURE ARE DETERMINED BY EVALUATING THREE
   TYP GROUPS OF COMPONENTS. THE CENTER OF GRAVITY LOCATIONS & COMBINED OPERATING WTS USED IN
   THE EVALUATIONS ARE AS FOLLOWS:

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<tr>
<th>GROUP #</th>
<th>PROPERTIES OF GROUPS ANALYZED FOR OPM</th>
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<tbody>
<tr>
<td></td>
<td>WT</td>
</tr>
<tr>
<td>1</td>
<td>419#</td>
</tr>
<tr>
<td>2</td>
<td>805#</td>
</tr>
<tr>
<td>3</td>
<td>1642#</td>
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</tbody>
</table>

* WORST CASE OF ALL MODULES – HEAVIEST UNIT WITH HIGHEST CENTER OF GRAVITY.
  REFER TO SYSTEM COMBINATION PLANS ON PGS 6 TO 9 FOR IDENTIFICATION OF GROUPS.

SHEET TITLE: SYSTEM OVERVIEW & DESIGN CRITERIA

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 4 of 30
### Abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>f’c</td>
<td>Minimum Ultimate Compressive Strength of Concrete</td>
</tr>
<tr>
<td>M</td>
<td>Minimum</td>
</tr>
<tr>
<td>MTL</td>
<td>Metal</td>
</tr>
<tr>
<td>(N)</td>
<td>New</td>
</tr>
<tr>
<td>NO. (#)</td>
<td>Number or Pounds</td>
</tr>
<tr>
<td>NWC</td>
<td>Normal Weight Concrete</td>
</tr>
<tr>
<td>OPG</td>
<td>Opening</td>
</tr>
<tr>
<td>PG</td>
<td>Page</td>
</tr>
<tr>
<td>R</td>
<td>Plate</td>
</tr>
<tr>
<td>PSI</td>
<td>Pounds per Square Inch</td>
</tr>
<tr>
<td>SLWC</td>
<td>Sand–Lightweight Concrete</td>
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<tr>
<td>Tu</td>
<td>Anchorage Tension Reaction Due to Seismic Force</td>
</tr>
<tr>
<td>THK</td>
<td>Thick/Thickness</td>
</tr>
<tr>
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<td>Typical</td>
</tr>
<tr>
<td>T&amp;B</td>
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<tr>
<td>UNO</td>
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<td>Anchorage Shear Reaction Due to Seismic Force</td>
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<td>Weight</td>
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### System Module Combinations:

**OPM-0139-13**

*By: William Staehlin*

**Date: 08/16/2017**

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**Sheet Title:** Abbreviations & System Module Combinations

**CYS Structural Engineers, Inc.**

2495 Natomas Park Drive, Suite 650

Sacramento, CA 95833

**Job No:** 17035

**Date:** 08/15/2017

**Page:** 5 of 30
ROCHE DIAGNOSTICS CORPORATION
cobas® 8000 MODULAR ANALYZER SERIES

COMPONENT KEY NOTES

(SU) PER PG 10 LEVELING LEG, TYP
(ISE 1 OR 2) PER PG 11 AU SEISMIC BRACKET PER PG 21, TYP
(OPTIONAL)

(AU) PER PGS 12 TO 15 & 28 SU SEISMIC BRACKET PER PG 22, TYP

(MSB) PER PGS 16 TO 18 & 29 M8x16mm SUS304 BOLT BY MFR (REFER TO UNIT "PLAN & ELEVATIONS" FOR LOCATIONS

(MSBL W/ TL OR DL) M8x20mm SUS304 BOLT BY MFR
PER PGS 19, 20 & 30

M4x6mm CS SCREW BY MFR

ISE SEISMIC BRACKET PER PG 23

MSB SEISMIC BRACKET PER PG 24

NOTE:
SEE PG 4 FOR GROUP CG LOCATION & WT.

NOTE:
SEE PG 5 FOR ALL POSSIBLE MODULE COMBINATIONS APPROVED UNDER THIS OPM.
COMPONENT | KEY NOTES
--- | ---
1 | (SU) PER PG 10
2 | (ISE 1 OR 2) PER PG 11 (OPTIONAL)
3 | (AU) PER PGS 12 TO 15 & 28
4 | (MSB) PER PGS 16 TO 18 & 29
5 | (MSBL W/ TL OR DL) PER PGS 19, 20 & 30
1 | LEVELING LEG, TYP
2 | AU SEISMIC BRACKET PER PG 21, TYP
3 | SU SEISMIC BRACKET PER PG 22, TYP
4 | M8x16mm SUS304 BOLT BY MFR (REFER TO UNIT "PLAN & ELEVATIONS" FOR LOCATIONS
5 | M8x20mm SUS304 BOLT BY MFR
6 | M4x6mm CS SCREW BY MFR
7 | ISE SEISMIC BRACKET PER PG 23
8 | MSB SEISMIC BRACKET PER PG 24

NOTE: SEE PG 4 FOR GROUP CG LOCATION & WT.

NOTE: SEE PG 5 FOR ALL POSSIBLE MODULE COMBINATIONS APPROVED UNDER THIS OPM.
COMPONENT

1. (SU) PER PG 10
   (ISE 1 OR 2) PER PG 11
   (OPTIONAL)
2. (AU) PER PGS 12 TO 15 & 28
3. (MSB) PER PGS 16 TO 18 & 29
4. (MSBL W/ TL OR DL)
   PER PGS 19, 20 & 30

KEY NOTES

1. LEVELING LEG, TYP
2. AU SEISMIC BRACKET PER PG 21, TYP
3. SU SEISMIC BRACKET PER PG 22, TYP
4. M8x16mm SUS304 BOLT BY MFR
   (REFER TO UNIT "PLAN & ELEVATIONS" FOR LOCATIONS
5. M8x20mm SUS304 BOLT BY MFR
6. M4x6mm CS SCREW BY MFR
7. ISE SEISMIC BRACKET PER PG 23
8. MSB SEISMIC BRACKET PER PG 24

NOTE:
SEE PG 4 FOR GROUP CG LOCATION & WT.

NOTE:
SEE PG 5 FOR ALL POSSIBLE MODULE COMBINATIONS APPROVED UNDER THIS OPM.
COMPONENT

1. (SU) PER PG 10
2. (ISE 1 OR 2) PER PG 11 (OPTIONAL)
3. (AU) PER PG 12 TO 15 & 28
4. (MSB) PER PG 16 TO 18 & 29
5. (MSBL W/ TL OR DL) PER PG 19, 20 & 30

KEY NOTES

1. LEVELING LEG, TYP
2. AU SEISMIC BRACKET PER PG 21, TYP
3. SU SEISMIC BRACKET PER PG 22, TYP
4. M8x16mm SUS304 BOLT BY MFR (REFER TO UNIT "PLAN & ELEVATIONS" FOR LOCATIONS)
5. M8x20mm SUS304 BOLT BY MFR
6. M4x6mm CS SCREW BY MFR
7. ISE SEISMIC BRACKET PER PG 23
8. MSB SEISMIC BRACKET PER PG 24

NOTE:
SEE PG 4 FOR GROUP CG LOCATION & WT.

NOTE:
SEE PG 5 FOR ALL POSSIBLE MODULE COMBINATIONS APPROVED UNDER THIS OPM.

SHEET TITLE: FOUR MODULE SYSTEM COMBINATION PLAN

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 9 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: SAMPLER UNIT (SU)
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 10 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 11 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: ANALYTICAL UNIT (AU) cobas c702
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 13 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
3. FRAME MATERIAL: SUS430.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: ANALYTICAL UNIT (AU) cobas e602
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 15 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: MODULE SAMPLE BUFFER (MSB) FOR c502 & c701
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 16 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: MODULE SAMPLE BUFFER (MSB) FOR c702
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 17 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: MODULE SAMPLE BUFFER (MSB) FOR e602
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 18 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: MODULE SAMPLE BUFFER LINE (MSBL W/ TL OR DL) FOR c701, c702 & e602
PLAN & ELEVATIONS
NOTES:
1. FOR CASE 1 & CASE 2 ATTACHMENT TO FLR, SEE PGS 25 & 27.
2. BRACKET & SLOT DIRECTIONS SHALL BE FOLLOWED AS SHOWN ON SYSTEM COMBINATION PLANS.

ELEV

2- 0.562" Ø HOLES FOR SEISMIC ATTACHMENT TO SUPPORTING FLR

RIGHT-HAND

PLANS

LEFT-HAND

AU SEISMIC BRACKET ASTM A36

SHEET TITLE: AU SEISMIC BRACKET DETAIL

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 21 of 30
NOTES:
1. FOR CASE 1 & CASE 2 ATTACHMENT TO FLR, SEE PGS 25 & 27.
2. BRACKET & SLOT DIRECTIONS SHALL BE FOLLOWED AS SHOWN ON SYSTEM COMBINATION PLANS.

ELEV

2 - 0.562"\(\phi\) HOLES FOR SEISMIC ATTACHMENT TO SUPPORTING FLR

RIGHT-HAND

PLANS

2 - 0.562"\(\phi\) HOLES FOR SEISMIC ATTACHMENT TO SUPPORTING FLR

LEFT-HAND

SU SEISMIC BRACKET ASTM A36

SHEET TITLE: SU SEISMIC BRACKET DETAIL
NOTES:
1. FOR CASE 1 & CASE 2 ATTACHMENT TO FLR, SEE PGS 25 & 27.
2. BRACKET & SLOT DIRECTIONS SHALL BE FOLLOWED AS SHOWN ON SYSTEM COMBINATION PLANS.

2 - 0.562''Ø HOLES FOR SEISMIC ATTACHMENT TO SUPPORTING FLR

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

TEL (916) 920-2020
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Job No: 17035
Date: 08/15/2017
Page: 23 of 30
NOTES:
1. FOR CASE 1 & CASE 2 ATTACHMENT TO FLR, SEE PGS 25 & 27.
2. BRACKET & SLOT DIRECTIONS SHALL BE FOLLOWED AS SHOWN ON SYSTEM COMBINATION PLANS.

FLEV

PLAN

2- 0.562"Ø HOLES FOR SEISMIC ATTACHMENT TO SUPPORTING FLR

MSB SEISMIC BRACKET
ASTM A36
SUSPENDED FLOOR (CASE 1)

NUT T&B OF STRUT (AT HIGH FLUTE ONLY)
LOCK WASHER, TYP
DBL NUT W/ TACK WELD TO STRUT
1/8 1/4

TAPPED HOLE IN STRUT W/ NUT BLW
STRUT P, TYP

NUT W/ ASTM F436M WASHER, TYP

OPG WHERE OCCURS 12" MIN EDGE DISTANCE

1.50" TYP
1" MAX EITHER SIDE OF FLUTE C, TYP

SEE ANCHOR OPTIONS BLW

M16 LEVELING LEG (2.0mm THREAD PITCH)
Fy = 130 KSI MIN, TYP AT EA SEISMIC BRACKET

SEISMIC BRACKET PER PGS 21 TO 24, COORD AB LAYOUT IN THE FIELD W/ MTL DECK ORIENTATION

NWC OR SLWC (f'c = 3000 PSI)

MTL DECK (20 GA MIN)

ANCHOR OPTIONS

TO CONCRETE FILL OVER METAL DECK (CASE 1)
LENGTH SHALL ENGAGE 3 LOW FLUTES MIN
1.50" TYP

BOTT OF MTL DECK
(LOW FLUTES SHADED FOR CLARITY)

BRACKET ABV

3/8" STRUT P (GRADE 50)
FIELD VERIFY DECK ORIENTATION FOR COORD W/ AB LAYOUT

AB PER CASE 1

STRUT P SUPPORT ANCHORS:
HILTI KB-TZ 3/8" x 2" EMBED
(ICC ESR-1917) 1 EA END OF P
(TORQUE TEST 25 FT-LBS)

0.75" STRUT P (GRADE 50)
FIELD VERIFY DECK ORIENTATION FOR COORD W/ AB LAYOUT

PLAN VIEW
BRACKET PERPENDICULAR TO FLUTES

EXTEND STRUT LENGTH TO NEXT ADJACENT LOW FLUTE IF AB'S ARE LESS THAN 2" FROM
LENGTH SHALL ENGAGE 2 LOW FLUTES MIN
STRUT P SUPPORT SCREWS

1.50" TYP
2.00" TYP

AB PER CASE 1
BRACKET ABV

STRUT P SUPPORT ANCHORS:
HILTI KB-TZ 3/8" x 2" EMBED
(ICC ESR-1917) 2 EA END OF P
(TORQUE TEST 25 FT-LBS)

0.75" STRUT P (GRADE 50)
FIELD VERIFY DECK ORIENTATION FOR COORD W/ AB LAYOUT

PLAN VIEW
BRACKET PARALLEL TO FLUTES

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Job No: 17035
Date: 08/15/2017
Page: 26 of 30
EQUIPMENT FRAME MATERIAL:
SUS430, GRADE 430SS, ASTM A240:
2.0mm THK (14 GA)
Fy = 45 KSI MIN; Fu = 70 KSI MIN
OR
JFE-CC-EZ-JN 20/20, CHROMATE FREE COATED STEEL:
2.5mm THK (13 GA)
Fy = 18.1 KSI MIN; Fu = 39.1 KSI MIN

SLAB ON GRADE (CASE 2)
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: MODULE SAMPLE BUFFER (MSB) FOR e801
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 29 of 30
NOTES:
1. FOR SEISMIC BRACKET LOCATIONS & ORIENTATION
   SEE SYSTEM COMBINATION PLANS.
2. WHEELS NOT SHOWN FOR CLARITY.
4. REFER TO PG 27 FOR FRAME MATERIAL PROPERTIES.

SHEET TITLE: MODULE SAMPLE BUFFER LINE (MSBL W/ TL OR DL) FOR e801
PLAN & ELEVATIONS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833

Job No: 17035
Date: 08/15/2017
Page: 30 of 30