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

| OFFICE USE ONLY |
|---|
| APPLICATION #: OPM-0345-13 |

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

**Type:** ☒ New ☐ Renewal ☒ Update to Pre-CBC 2013 OPA Number: 2498-07

## Manufacturer Information

Manufacturer: BD Life Sciences – Diagnostic Systems

Manufacturer's Technical Representative: David Lentz

Mailing Address: 7 Loveton Circle – mc 622, Sparks, MD 21152

Telephone: 410-316-4779 Email: Dave_lentz@bd.com

## Product Information

Product Name: BD BACTEC™ MGIT™ 320

Product Type: Mycobacteria Culture System Unit mounted on stand

Product Model Number: BD BACTEC™ MGIT™ 320

General Description: Tuberculosis Detection Instrument



## Applicant Information

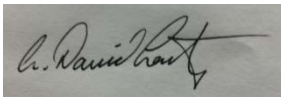
Applicant Company Name: BD Life Sciences – Diagnostic Systems

Contact Person: David Lentz

Mailing Address: 7 Loveton Circle – mc 622, Sparks, MD 21152

Telephone: 410-316-4779 Email: Dave_lentz@bd.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:  Date: 05/02/2016

Title: Director, R&D Hardware Engineering Company Name: BD Life Sciences – Diagnostic Systems

## Registered Design Professional Preparing Engineering Recommendations

Company Name: CYS Structural Engineers, Inc.

Name: Dieter T. Siebald California License Number: S4346

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):

*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):

## 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 2013 ONLY

Signature: Date: 07-14-2016

Print Name: Jeffrey Kikumoto

Title: SSE

Condition of Approval (if applicable):

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# OPM–0345–13



**NOTES:**

1. THESE DRAWINGS ARE PREPARED FOR BD LIFE SCIENCES – DIAGNOSTIC SYSTEMS, SPARKS, MARYLAND.
2. THE CONTRACTOR AND 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 AND ATTACHMENTS OF THE EQUIPMENT TO THE SUPPORTING STRUCTURE. THE EQUIPMENT, STAND & ATTACHMENT HARDWARE ARE SUPPLIED BY THE MANUFACTURER. THE EXPANSION ANCHORS, THRU–BOLTS & STRUT PLATES SHOWN IN THIS OPM SHALL BE SUPPLIED AND INSTALLED BY THE CONTRACTOR.



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DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: TABLE OF CONTENTS

CYS STRUCTURAL ENGINEERS, INC.
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www.cyseng.com

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## GENERAL NOTES:

1. THIS OSHPD PRE–APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2013. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2013.

2. IT IS THE RESPONSIBILITY OF THE SEOR FOR A SITE SPECIFIC PROJECT TO VERIFY:
   A. THE ADEQUACY OF THE NEW OR EXISTING STRUCTURE TO RESIST THE FORCES & WEIGHT SPECIFIED FOR EACH EQUIPMENT IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQUIRED.
   B. THAT THE FLOOR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY SLAB EDGES OR OPENINGS.
   C. THAT THE FLOOR ANCHORS ARE LOCATED AT AN ADEQUATE DISTANCE FROM ANY NEW OR EXISTING ANCHORS. THE SPACING SHOWN IN THE TEST LOADS TABLE ON PAGE 3 IS THE REQUIRED MINIMUM SPACING OF THE GIVEN DIAMETER ANCHORS. THE REQUIRED SPACING FROM ANCHORS OF OTHER DIAMETERS & EMBEDMENTS MAY VARY & SHALL BE EVALUATED BY THE SEOR.
   D. THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CBC 2013 & 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 & GAGE OF THE EQUIPMENT WHERE ATTACHMENTS ARE MADE, AGREE WITH THE INFORMATION SHOWN ON THE PRE–APPROVAL DOCUMENTS.

3. EXPANSION ANCHORS INSTALLED IN NORMAL WEIGHT OR SAND–LIGHTWEIGHT CONCRETE SHALL BE CARBON STEEL HILTI KB–TZ EXPANSION ANCHORS COMPLYING WITH ESR–1917 REISSUED MAY 2015.
   A. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE WITH THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS GIVEN IN THE TABLE ON PAGE 3.
   B. 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. THE TEST LOAD MAY BE APPLIED BY ANY METHOD THAT WILL EFFECTIVELY MEASURE THE TORQUE IN THE ANCHOR SUCH AS CALIBRATED TORQUE WRENCH METHOD. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE INSPECTOR OF RECORD (IOR). 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 EQUIPMENT INSTALLATION. ALSO REFER TO CBC 1913A.7 "TESTS FOR POST–INSTALLED ANCHORS IN CONCRETE".
   C. FAILURE/ACCEPTANCE CRITERIA: THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
      - TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS:
        WEDGE TYPE: ONE–HALF (½) TURN OF THE NUT.



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SHEET TITLE: GENERAL NOTES

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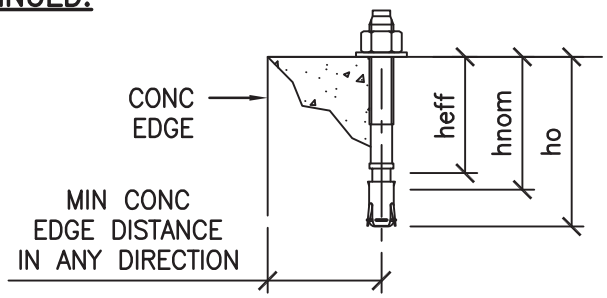
## GENERAL NOTES CONTINUED:




| ANCHOR DIA (INCH) | INSTALLATION EMBED (INCH) hnom | EFFECTIVE EMBED (INCH) heff | HOLE DEPTH (INCH) ho | MIN CONC THICKNESS (INCH) h | MIN CONC EDGE DISTANCE (INCH) | MIN ANCHOR SPACING (INCH) | TEST TORQUE (FT–LBS) | CONDITION OF ANCHORAGE |
|---|---|---|---|---|---|---|---|---|
| 3/8* | 2 5/16 | 2 | 2 5/8 | --- | --- | 2.50 | 25 | CASE 1* |
| 1/2 | 2 3/8 | 2 | 2 5/8 | 4 | 12 | 5.00 | 40 | CASE 2 |

* STRUT ℄ SUPPORT ANCHORS IN THE SOFFIT OF CONCRETE OVER METAL DECK

4. BOLTS THROUGH CONCRETE ON METAL DECK:
   A. BOLTS SHALL BE TORQUED BY ¾ TURN OF THE NUT AFTER SNUG TIGHT CONDITION IS ACHIEVED, UNO. THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.
   B. THRU–BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + 1/16").
   C. THRU–BOLTS IN CONCRETE SHALL RECEIVE SPECIAL INSPECTION & TESTING IN ACCORDANCE WITH REQUIREMENTS FOR POST–INSTALLED ANCHORS. THRU–BOLTS WITH STEEL TO STEEL CONNECTION IN TENSION DO NOT REQUIRE TESTING.



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SHEET TITLE: GENERAL NOTES (CONTINUED)

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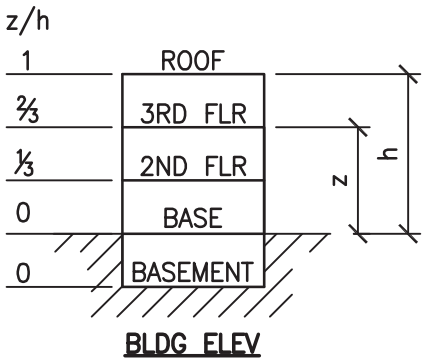
## GENERAL NOTES CONTINUED:

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




**CASE 1:** ATTACHMENT DETAILS LOCATED AT UPPER FLOORS ABOVE THE BASE OF A BLDG ($z/h \leq 1$). THE FLOORS ARE ASSUMED TO BE BUILT OF A MIN 3¼" SLWC TOPPING OVER MIN 20 GA MTL DECK ($f'c$ = 3000 PSI, MIN).

**CASE 2:** ATTACHMENT DETAILS LOCATED AT OR BELOW THE BASE OF A BLDG ($z/h=0$). THE FLOORS 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 $S_{DS}$ IS LESS THAN OR EQUAL TO 2.50.

## SYSTEM OVERVIEW & DESIGN CRITERIA:

1. A SINGLE INSTALLATION CONFIGURATION OF THE MGIT 320 INSTRUMENT IS COVERED BY THIS OPM, THE STAND CONFIGURATION.

2. SUPPORT & ATTACHMENT DESIGN IS PER 2013 CBC AT LRFD LEVEL FORCES.

OTHER MECHANICAL OR ELECTRICAL COMPONENTS PER TABLE 13.6-1 OF ASCE 7-10 SUPPLEMENT #1:

$a_p$ = 1.0 $R_p$ = 1.5 $I_p$ = 1.5 $\Omega_0$ = 1.5 (FOR CONC ANCHORS ONLY)

$W_P$ AS NOTED ON DRAWING ON PG 6

UPPER FLOORS ABOVE THE BASE OF BUILDING, $z/h$ = 1
CASE 1: $S_{DS}$ = 2.50 $F_p$ = 3.00 $W_p$

FLOORS AT OR BELOW THE BASE OF BUILDING, $z/h$ = 0
CASE 2: $S_{DS}$ = 2.50 $F_p$ = 1.13 $W_p$

LOAD COMBINATIONS
$(0.9 - 0.2\ S_{DS})\ D - \Omega_0\ F_p$ (FOR MAXIMUM TENSION)
$(1.2 + 0.2\ S_{DS})\ D + \Omega_0\ F_p$ (FOR MAXIMUM COMPRESSION)



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SHEET TITLE: GENERAL NOTES (CONTINUED)
SYSTEM OVERVIEW & DESIGN CRITERIA

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## ABBREVIATIONS:

| | |
|---|---|
| @ | AT |
| AB | ANCHOR BOLT |
| ABV | ABOVE |
| ADJ | ADJACENT |
| ALUM | ALUMINUM |
| ASTM | AMERICAN SOCIETY FOR TESTING & MATERIALS |
| BLDG | BUILDING |
| BLW | BELOW |
| BOTT | BOTTOM |
| CBC | CALIFORNIA BUILDING CODE |
| CG | CENTER OF GRAVITY |
| ℄ | CENTERLINE |
| CONC | CONCRETE |
| COORD | COORDINATE |
| CRS | COLD ROLLED STEEL |
| DIA (ø) | DIAMETER |
| (E) | EXISTING CONDITION |
| EA | EACH |
| EE | EACH END |
| ELEV | ELEVATION |
| EQ | EQUAL |
| EQUIP | EQUIPMENT |
| ES | EACH SIDE |
| f'c | MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE |
| FLR | FLOOR |
| FT (') | FOOT/FEET |
| $F_p$ | HORIZONTAL SEISMIC FORCE PER ASCE 7-10 SEISMIC FORCE REQUIREMENTS |
| $F_y$ | SPECIFIED MINIMUM YIELD STRESS OF STEEL |
| GA | GAUGE |
| ICC | INTERNATIONAL CODE COUNCIL |
| IN (") | INCH |
| KSI | KIPS PER SQUARE INCH |
| L | ANGLE |
| LBS | POUNDS |
| LRFD | LOAD AND RESISTANCE FACTOR DESIGN |
| MAX | MAXIMUM |
| MFR | MANUFACTURER |
| MIN | MINIMUM |
| MTL | METAL |
| NO. (#) | NUMBER OR POUNDS |
| NWC | NORMAL WEIGHT CONCRETE |
| OPG | OPENING |
| PERP | PERPENDICULAR |
| PG(S) | PAGE(S) |
| PL | PLATE |
| PSI | POUNDS PER SQUARE INCH |
| RECT | RECTANGULAR |
| SEOR | STRUCTURAL ENGINEER OF RECORD |
| SLWC | SAND-LIGHTWEIGHT CONCRETE |
| SS | STAINLESS STEEL |
| STL | STEEL |
| THRD | THREAD OR THREADED |
| Tu | ANCHORAGE TENSION REACTION DUE TO SEISMIC FORCE |
| TYP | TYPICAL |
| T&B | TOP & BOTTOM |
| Vu | ANCHORAGE SHEAR REACTION DUE TO SEISMIC FORCE |
| W/ | WITH |
| Wp | OPERATING WEIGHT |
| WT | WEIGHT |



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SHEET TITLE: ABBREVIATIONS

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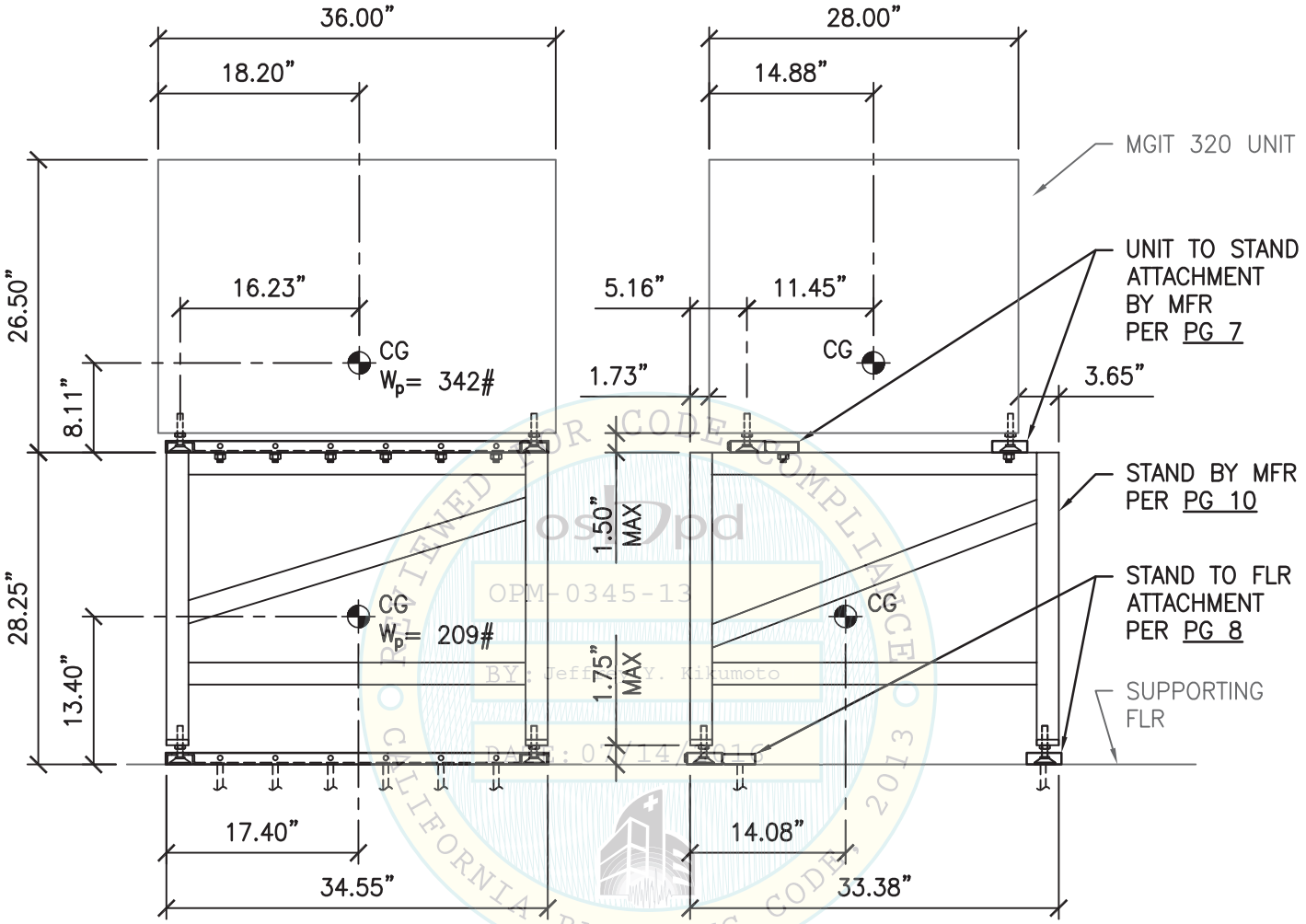


FRONT ELEV

SIDE ELEV



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SHEET TITLE: STAND CONFIGURATION ELEVATIONS

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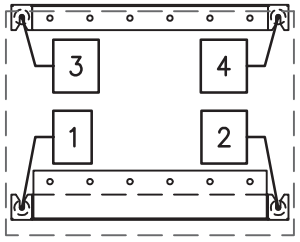
L:\Jobs15\15117 BD - Three OPMs\Task 03 BD BACTEC MGIT 320 OPM-0345-13\STRU\S1_TASK 03.dwg Time:Jun10,2016-03:15pm Login:mayerhoferm Dimscale:1 LTScale:6

BD Life Sciences - Diagnostic Systems
BACTEC™ MGIT™ 320

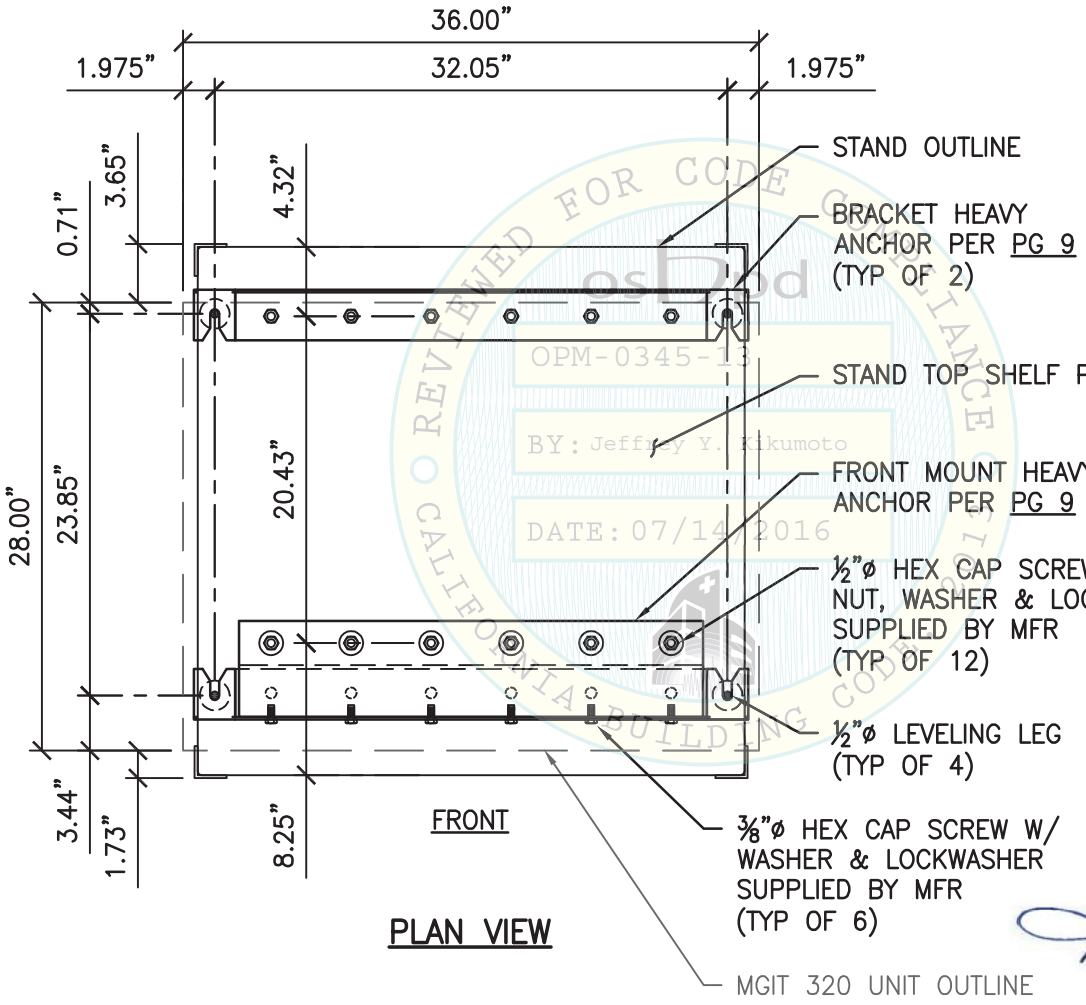
## MAX LRFD FORCES AT LEVELING LEGS[1] (LBS)

| | FRONT BRACKET | | | | REAR BRACKET | | | |
|---|---|---|---|---|---|---|---|---|
| | LEG 1 | | LEG 2 | | LEG 3 | | LEG 4 | |
| | $T_u$ | $V_{ux}$ | $T_u$ | $V_{ux}$ | $T_u$ | $V_{ux}$ | $T_u$ | $V_{ux}$ |
| CASE 1 | 180 | 260 | 180 | 260 | 180 | 260 | 180 | 260 |
| CASE 2 | 50 | 100 | 50 | 100 | 50 | 100 | 50 | 100 |

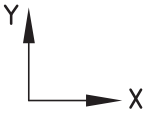
1. ECCENTRICITY & PRYING ACTION MUST BE CONSIDERED BASED ON THE BRACKET CONFIGURATION.




LEG KEY PLAN




PLAN VIEW




NOTE:
SEE PG 6 FOR CG LOCATION & WT.




SHEET TITLE: ATTACHMENT PLAN
UNIT TO STAND

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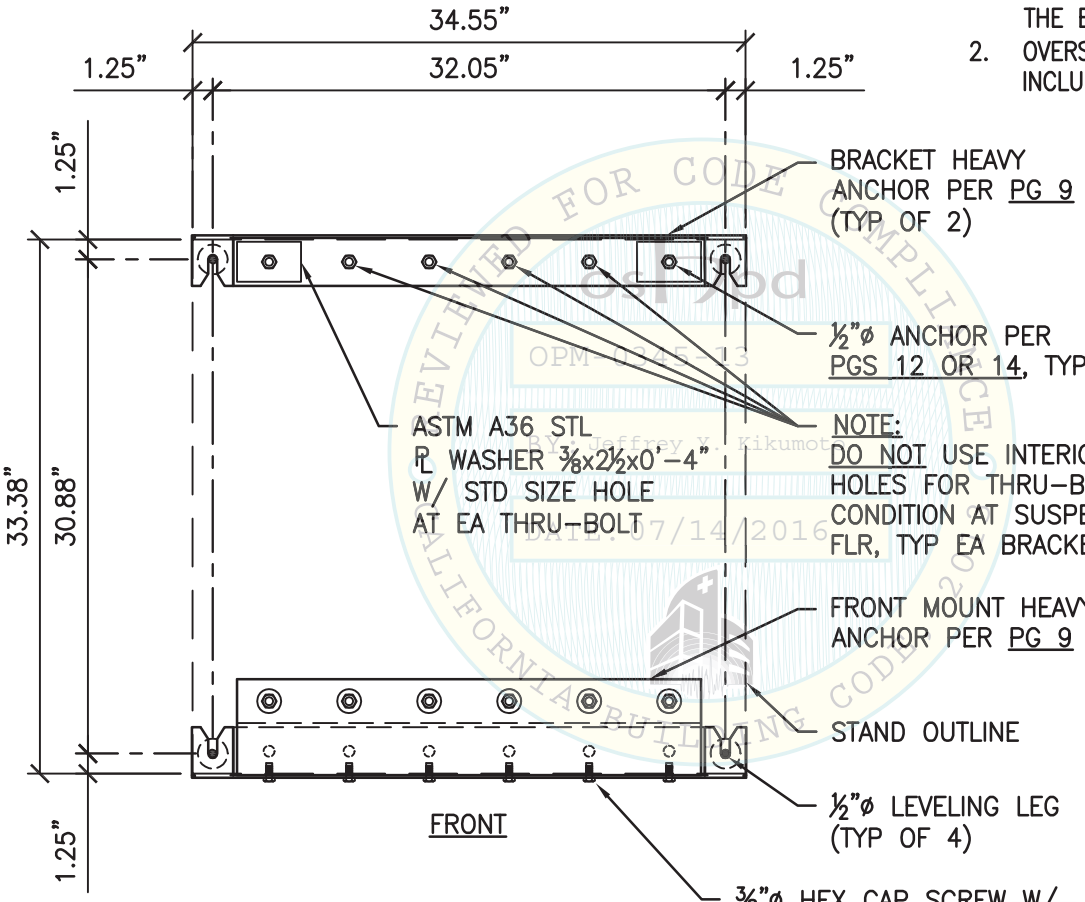
BD Life Sciences - Diagnostic Systems
BACTEC™ MGIT™ 320

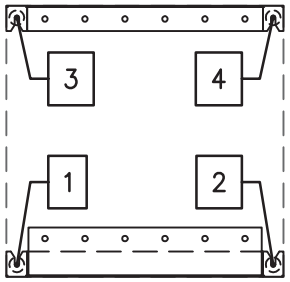
## MAX LRFD FORCES AT LEVELING LEGS[1] (LBS)

| | FRONT BRACKET | | | | REAR BRACKET | | | |
|---|---|---|---|---|---|---|---|---|
| | LEG 1 | | LEG 2 | | LEG 3 | | LEG 4 | |
| | $T_u$ | $\Omega_o V_{ux}$ | $T_u$ | $\Omega_o V_{ux}$ | $T_u$ | $\Omega_o V_{ux}$ | $T_u$ | $\Omega_o V_{ux}$ |
| CASE 1 | 730 | 160 | 670 | 230 | 0 | 490 | 1570 | 750 |
| | $\Omega_o T_u$ | $\Omega_o V_{ux}$ | $\Omega_o T_u$ | $\Omega_o V_{ux}$ | $\Omega_o T_u$ | $\Omega_o V_{ux}$ | $\Omega_o T_u$ | $\Omega_o V_{ux}$ |
| CASE 2 | 380 | 60 | 350 | 90 | 860 | 200 | 0 | 270 |

1. ECCENTRICITY & PRYING ACTION MUST BE CONSIDERED BASED ON THE BRACKET CONFIGURATION.
2. OVERSTRENGTH FACTOR ($\Omega_o$) INCLUDED WHERE NOTED.




PLAN VIEW




LEG KEY PLAN


NOTE:
SEE PG 6 FOR CG LOCATION & WT.


SHEET TITLE: ATTACHMENT PLAN
STAND TO FLOOR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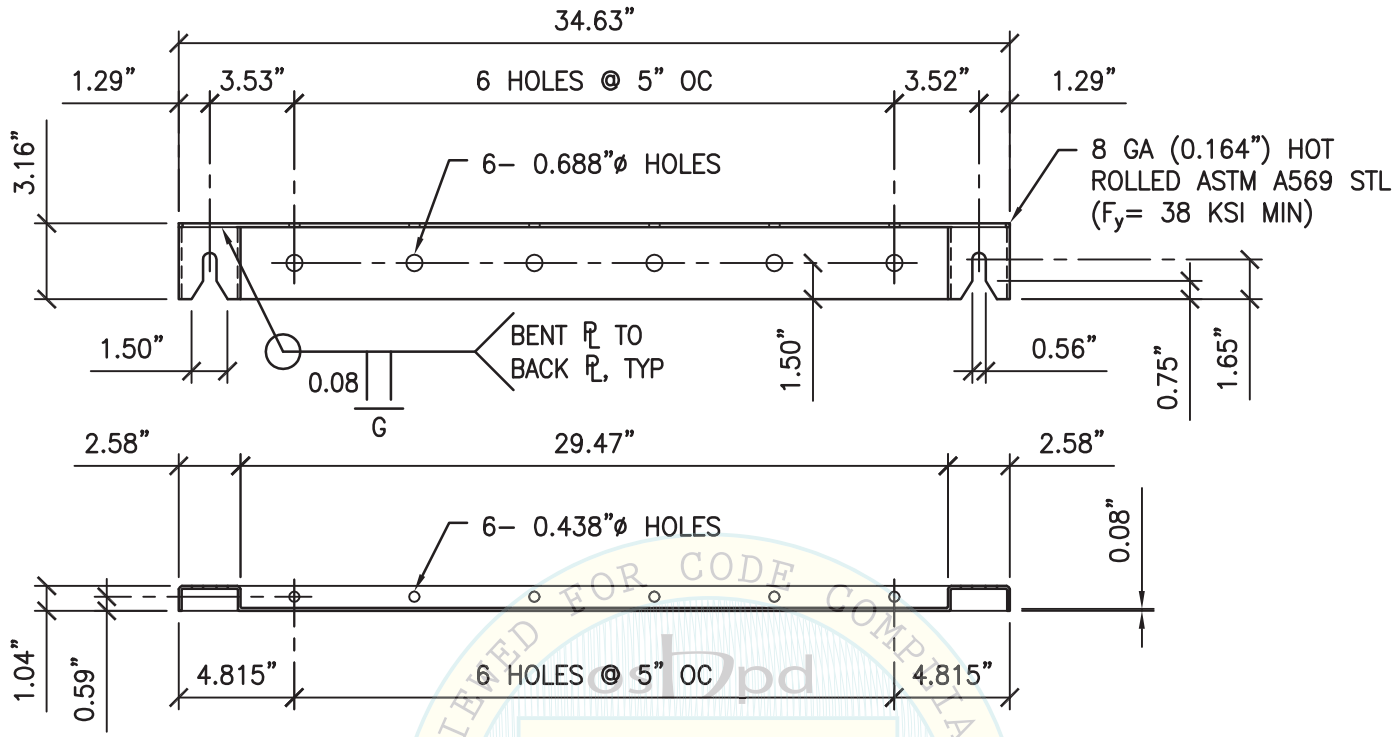
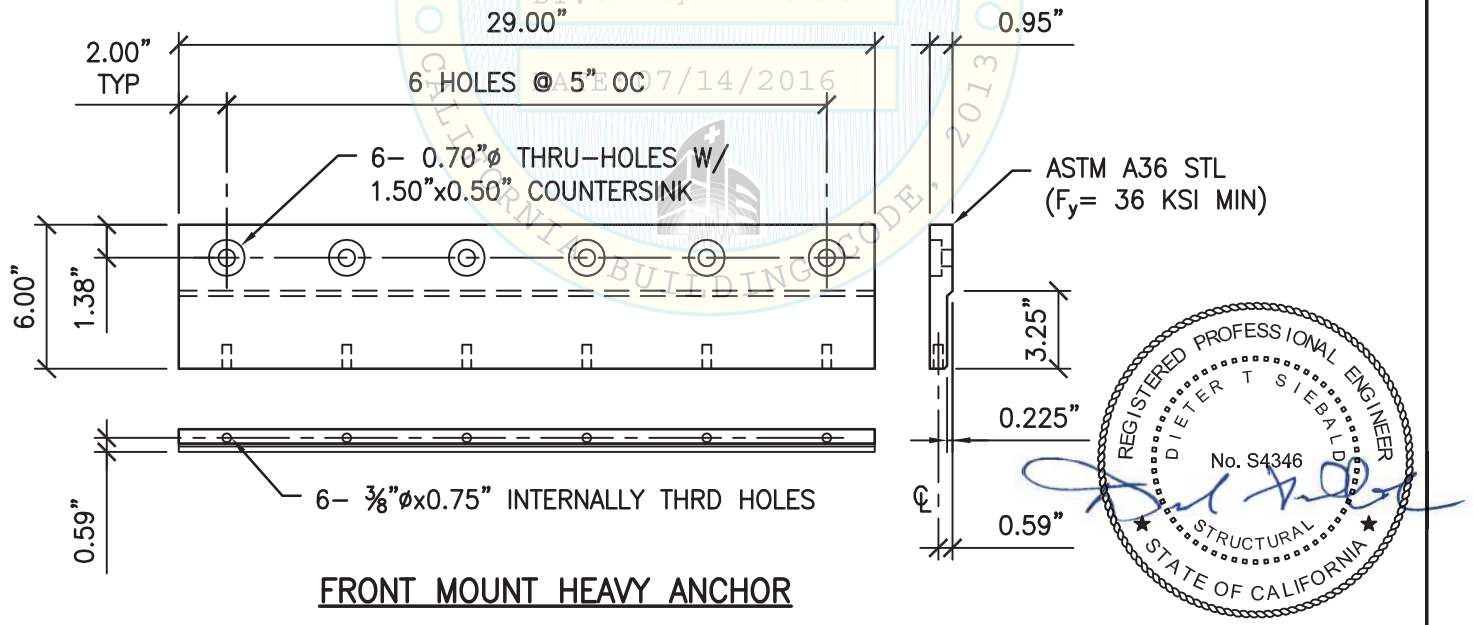



## BRACKET HEAVY ANCHOR




## FRONT MOUNT HEAVY ANCHOR

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SHEET TITLE: BRACKET HEAVY ANCHOR DETAIL
FRONT MOUNT HEAVY ANCHOR DETAIL

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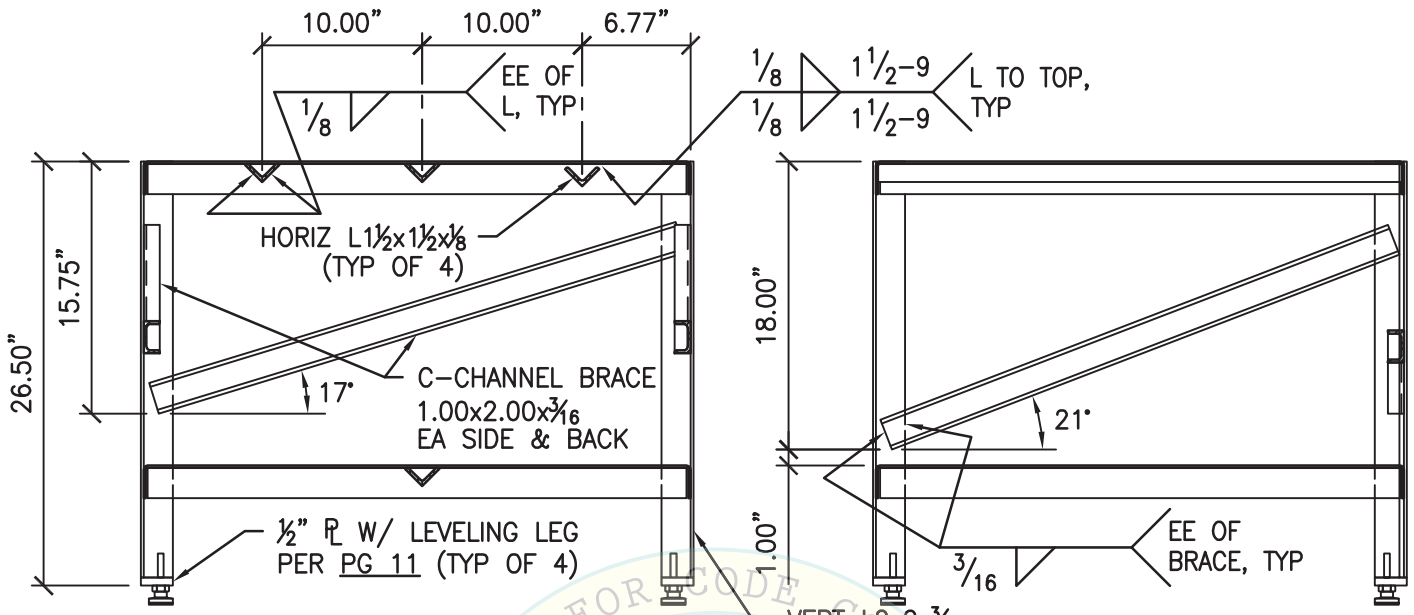
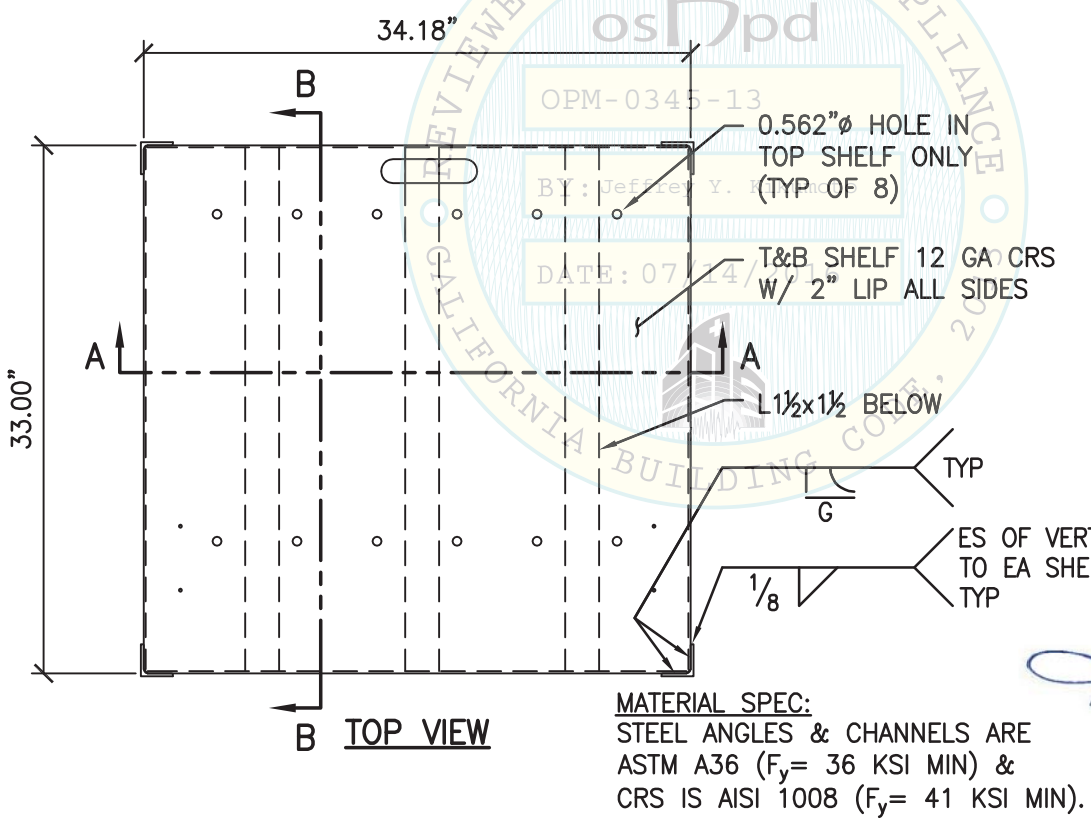
BD Life Sciences - Diagnostic Systems
BACTEC™ MGIT™ 320




SECTION A–A

SECTION B–B




B TOP VIEW

ISOMETRIC VIEW



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MATERIAL SPEC:
STEEL ANGLES & CHANNELS ARE ASTM A36 ($F_y$= 36 KSI MIN) & CRS IS AISI 1008 ($F_y$= 41 KSI MIN).

SHEET TITLE: STAND ASSEMBLY DETAIL

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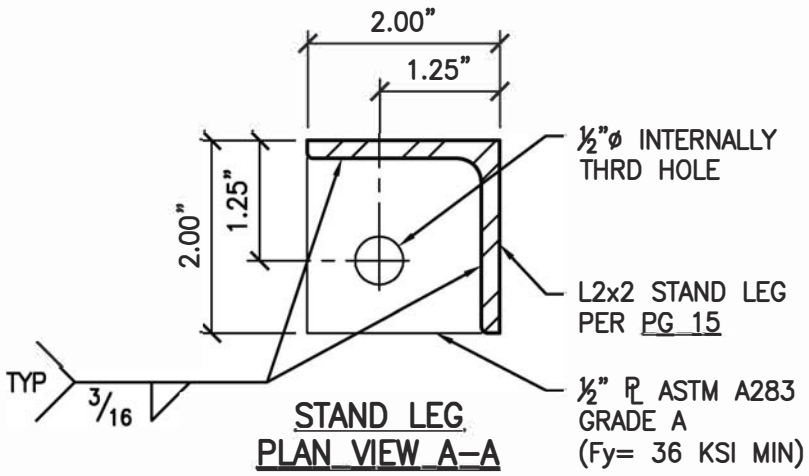
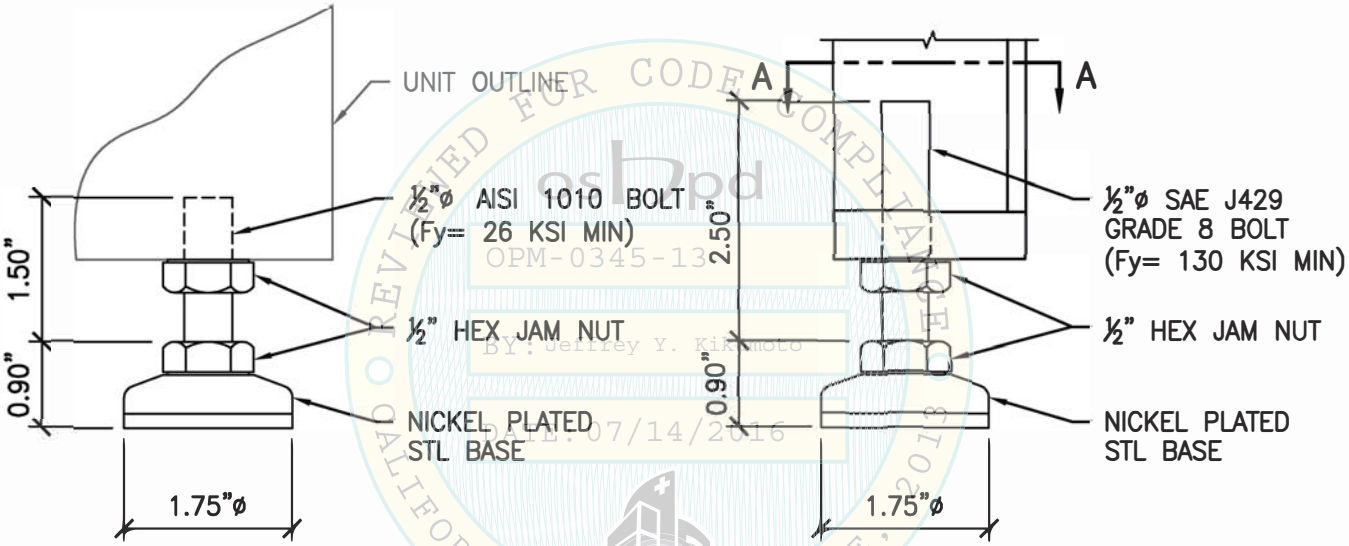



STAND LEG
PLAN VIEW A–A




ELEV VIEW

**MGIT UNIT LEVELING LEG**

FULL THRD ENGAGEMENT
OF BOLT INTO UNIT

ELEV VIEW

**STAND LEVELING LEG**

FULL THRD ENGAGEMENT
OF BOLT INTO UNIT




SHEET TITLE: LEVELING LEG DETAILS

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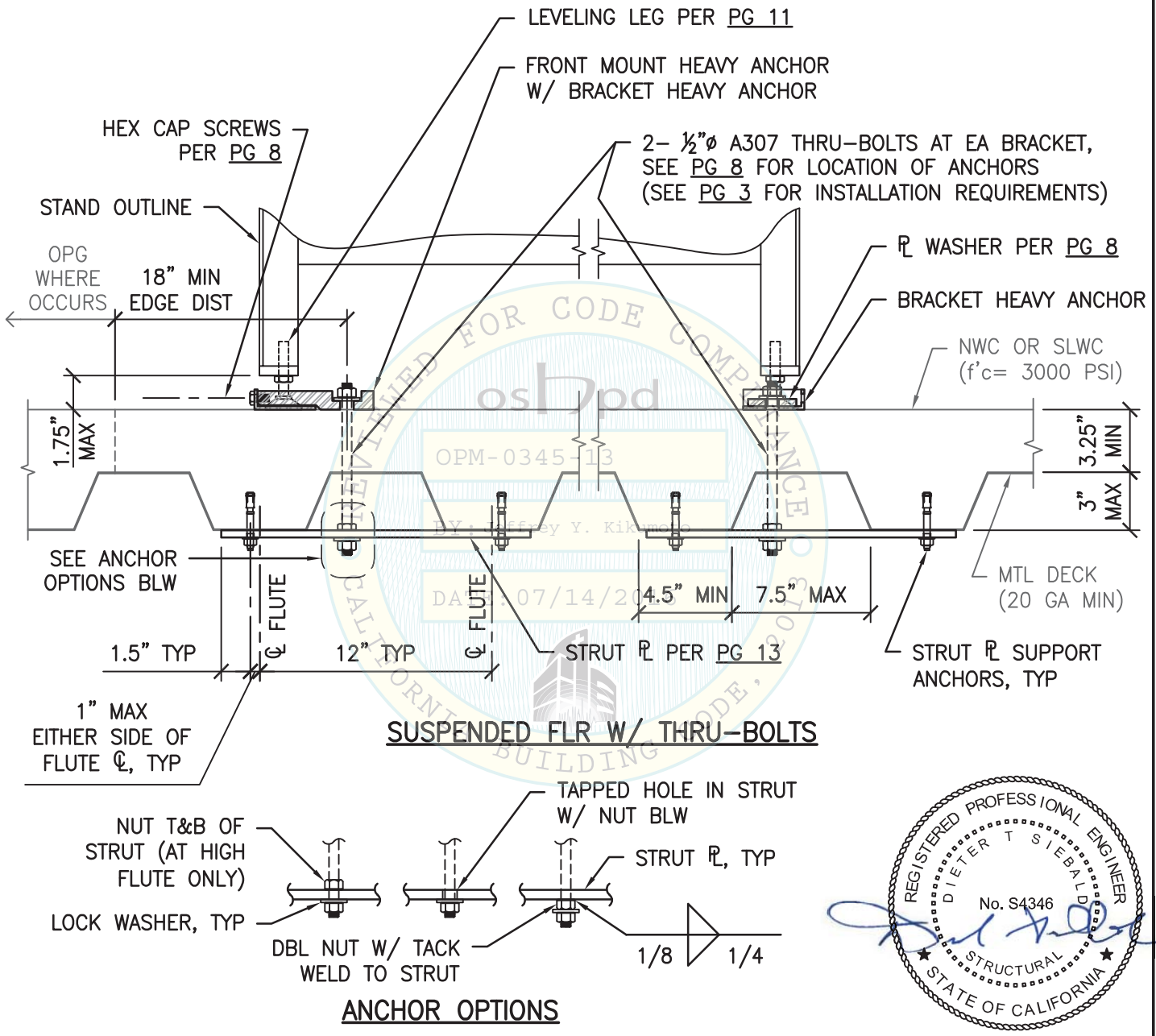




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STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: ATTACHMENT DETAIL
STAND TO CONCRETE FILL OVER METAL DECK (CASE 1)

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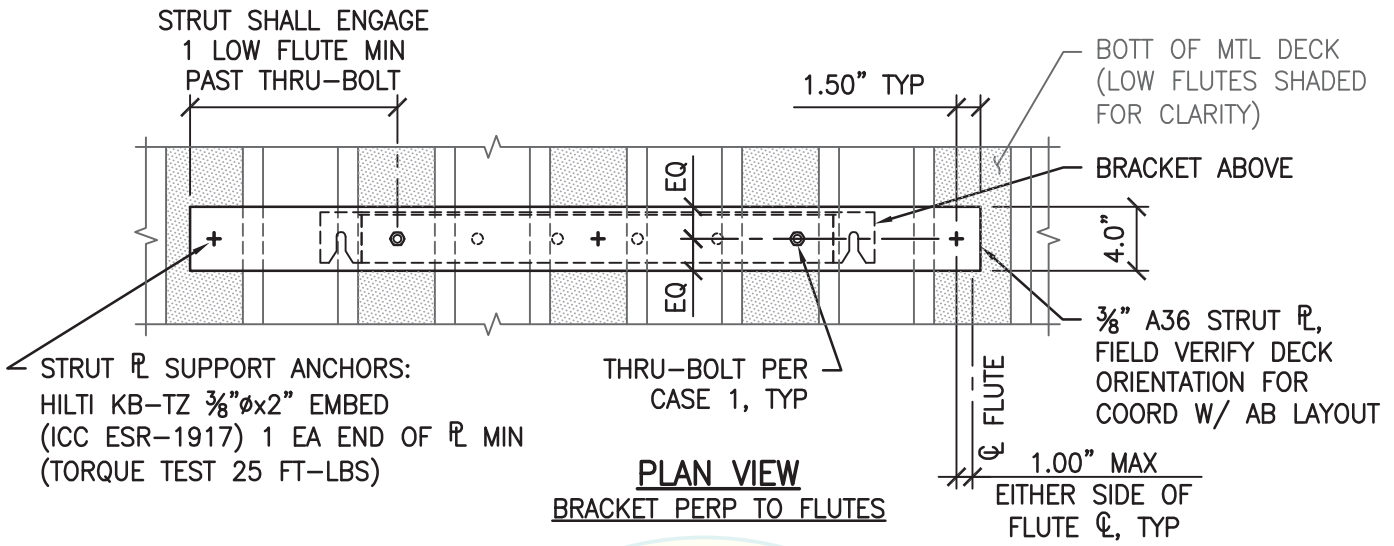
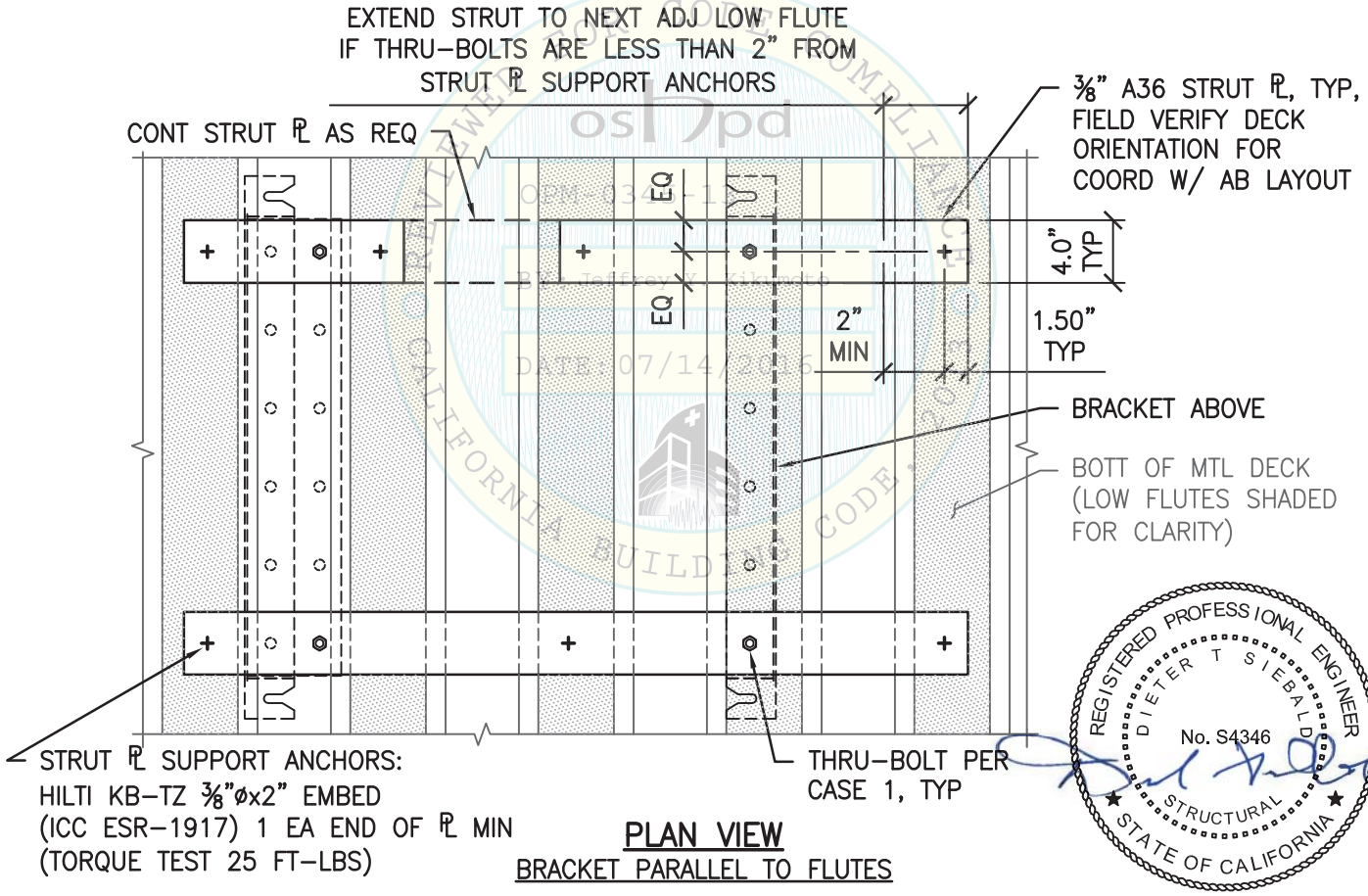
L:\Jobs15\15117 BD – Three OPMs\Task 03 BD BACTEC MGIT 320 OPM-0345-13\STRU\S1_TASK 03.dwg Time:Jun10,2016-03:17pm Login:mayerhoferm Dimscale:1 LTScale:6

BD Life Sciences - Diagnostic Systems
BACTEC™ MGIT™ 320




PLAN VIEW
BRACKET PERP TO FLUTES




PLAN VIEW
BRACKET PARALLEL TO FLUTES

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SHEET TITLE: STRUT PLATE DETAIL


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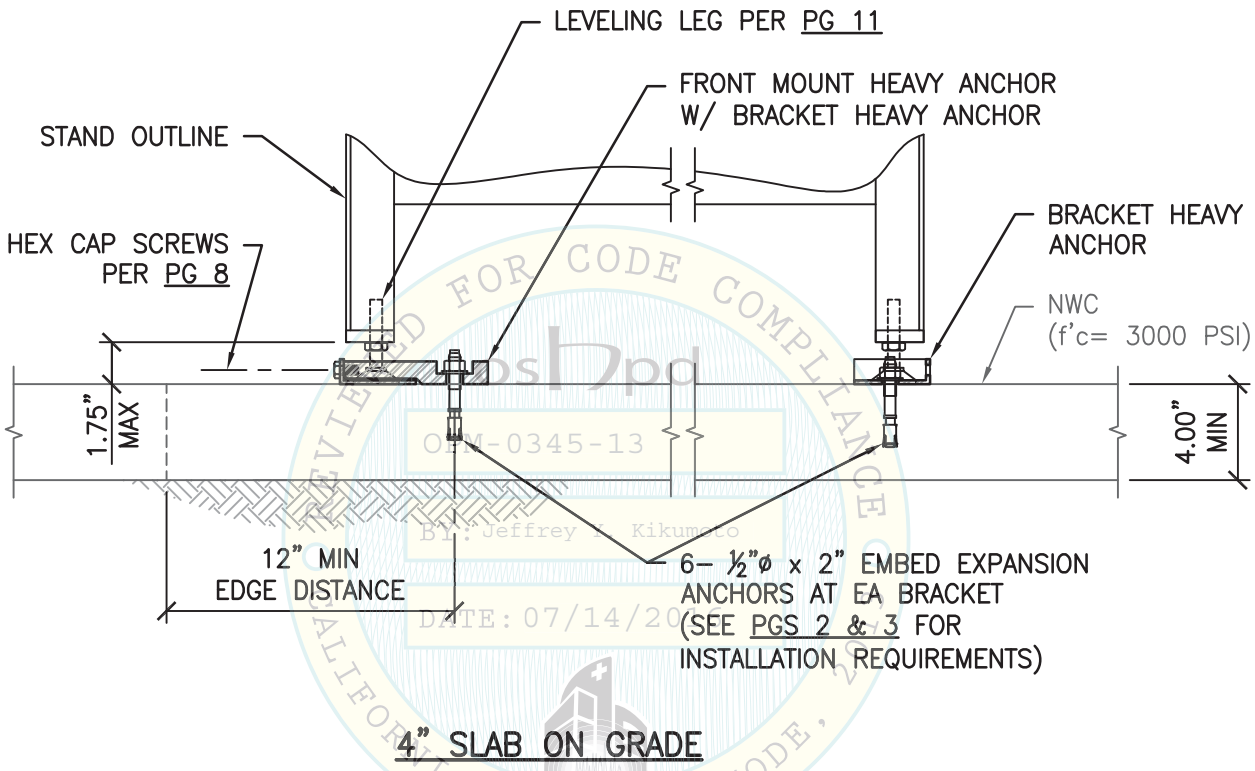


4" SLAB ON GRADE



REGISTERED PROFESSIONAL ENGINEER
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STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: ATTACHMENT DETAIL
STAND TO 4" SLAB ON GRADE (CASE 2)

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