APPLICATION FOR HCAI PREAPPROVAL OF MANUFACTURER'S CERTIFICATION (OPM)

OFFICE USE ONLY

APPLICATION #: OPM-0345

HCAI Preapproval of Manufacturer's Certification (OPM)

Type: ☐ New ☒ Renewal/Update

Manufacturer Information

Manufacturer: BD Integrated Diagnostic Solutions

Manufacturer's Technical Representative: Matthew Mellarkey

Mailing Address: 7 Loveton Circle, Sparks, MD 21152

Telephone: (410) 316-4810 Email: Matthew.Mellarkey@bd.com

Product Information

Product Name: BD BACTECTM MGITTM 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: CYS Structural Engineers, Inc.

Contact Person: Dieter Siebald

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

Telephone: (916) 920-2020 Email: dieters@cyseng.com

Title: Structural Engineer

Registered Design Professonal Preparing Engineering Recommendations

Company Name: CYS STRUCTURAL ENGINEERS, INC.

Name: Dieter Siebald California License Number: S4346

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

Telephone: (916) 920-2020 Email: dieters@cyseng.com

HCAI Special Seismic Certification Preapproval (OSP)

☐ Special Seismic Certification is preapproved under OSP OSP Number:

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 HCAI prior to testing.

☒ Analysis

☐ Experience Data

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

HCAI Approval

Date: 9/2/2022

Name: William Staehlin Title: Senior Structural Engineer

Condition of Approval (if applicable):

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OPM–0345

NOTES:

1. THESE DRAWINGS ARE PREPARED FOR BD INTEGRATED DIAGNOSTIC SOLUTIONS, SPARKS, MARYLAND.
2. THE CONTRACTOR & INSPECTOR OF RECORD SHALL OBTAIN A COPY OF THIS PRE–APPROVAL FROM THE CALIFORNIA DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION (HCAI) 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.

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: TABLE OF CONTENTS

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www.cyseng.com

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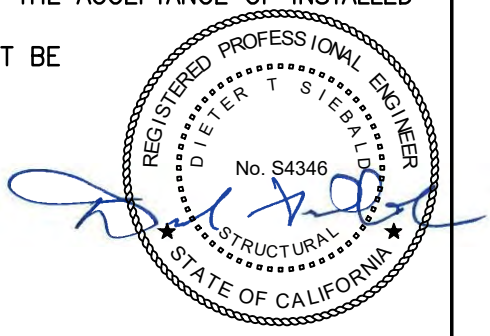
GENERAL NOTES:

1. THIS HCAI PRE–APPROVAL OF MANUFACTURER'S CERTIFICATION (OPM) IS BASED ON THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE W/ THIS OPM SHALL BE BASED ON THE CBC 2019.
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 & WT SPECIFIED FOR EA EQUIP IN ADDITION TO ALL OTHER LOADS. PROVIDE & DESIGN SUPPLEMENTARY MEMBERS AS REQ.
   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 NEW OR EXISTING ANCHORS. THE SPCG SHOWN IN THE TEST TORQUE TABLE BLW IS THE REQ MIN SPCG OF THE GIVEN DIA ANCHORS. THE REQ SPCG FROM ANCHORS OF OTHER DIAMETERS & EMBEDMENTS MAY VARY & SHALL BE EVALUATED BY THE SEOR.
   D. THAT THE INSTALLATION IS IN CONFORMANCE W/ THE CBC 2019 & W/ THE DETAILS SHOWN IN THIS PRE–APPROVAL.
   E. THAT THE ACTUAL EQUIP'S WT, CENTER OF GRAVITY (CG) LOCATION, ANCHOR LOCATIONS, ANCHOR DETAILS, & THE MATERIAL & GAUGE OF THE EQUIP WHERE ATTACHMENTS ARE MADE, AGREE W/ THE INFO SHOWN ON THE PRE–APPROVAL DOCUMENTS.
   F. THAT THE PROJECT SPECIFIC VALUES OF S_{DS} & z/h RESULT IN SEISMIC FORCES THAT DO NOT EXCEED THE VALUES IN THE DESIGN CRITERIA.
3. EXPANSION ANCHORS INSTALLED IN NWC OR SLWC SHALL BE CARBON STL HILTI KB–TZ OR HILTI KB–TZ2 EXPANSION ANCHORS AS NOTED COMPLYING W/ ESR–1917 REISSUED MAY 2021 OR ESR–4266 REVISED DECEMBER 17, 2021 RESPECTIVELY.
   A. INSTALLATION: INSTALL THE EXPANSION ANCHORS IN ACCORDANCE W/ THE REQUIREMENTS GIVEN IN THE ICC EVALUATION REPORT FOR THE SPECIFIC ANCHOR & THE PARAMETERS GIVEN IN THE TABLE BLW.
   B. JOB TESTING: FOR VERIFYING SATISFACTORY INSTALLATION WORKMANSHIP, PERFORM JOBSITE TESTING IN ACCORDANCE W/ THE TEST LOAD TABLE PROVIDED IN THIS DOCUMENT. TORQUE TEST 50% OF THE INSTALLED ANCHORS. ALL TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE SPECIAL INSPECTOR & REPORT OF TEST RESULTS SHALL BE SUBMITTED TO HCAI. 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, HOWEVER NUT SHALL BE RETORQUED TO INSTALLATION TORQUE AFTER EQUIP INSTALL. ALSO REFER TO CBC 1910A.5 "TESTS FOR POST–INSTALLED ANCHORS IN CONCRETE". REPORT OF TEST RESULTS SHALL BE SUBMITTED TO HCAI. TESTING SHALL BE PERFORMED BY AN APPROVED TESTING AGENCY EMPLOYED BY THE FACILITY OWNER. TEST REPORTS SHALL BE SUBMITTED TO THE IOR, OWNER & THE ARCHITECT OR ENGINEER IN RESPONSIBLE CHARGE. (CAC 7–149)
   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.
   D. AVOID DAMAGING (E) STL REINF IN CONC SLAB WHEN INSTALLING CONC EXPANSION ANCHORS.
   E. PROVIDE FOR FULL THRD ENGAGEMENT OF NUT & WASHER.



SHEET TITLE: GENERAL NOTES

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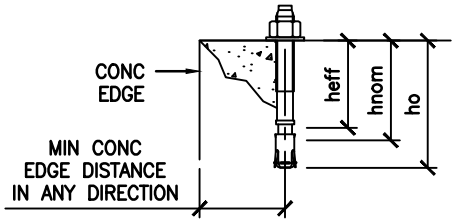
GENERAL NOTES CONTINUED:

3F. EXPANSION ANCHOR TABLE FORr HILTI KB–TZ & KB–TZ2 ANCHORS:

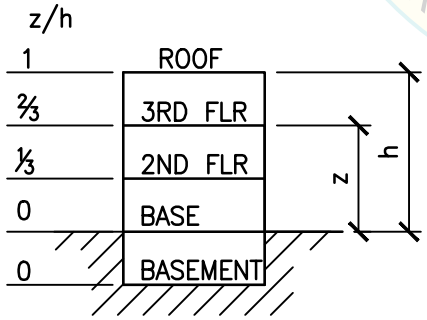


CONDITION OF ANCHORAGE	ANCHOR DIA (INCH)	INSTALLATION EMBED (INCH) hnom	EFFECTIVE EMBED (INCH) hef	HOLE DEPTH (INCH) ho	MIN CONC THK (INCH) h	MIN CONC EDGE DISTANCE (INCH)	MIN ANCHOR SPCG (INCH)	TEST TORQUE (FT–LBS)
CASE 1 STRUT P'S	3/8	1 13/16" (1 7/8")	1 1/2	2	3 1/4	6	5	25 (30)
CASE 2	1/2	2 3/8" (2 1/2")	2	2 5/8 (2 3/4)	4	12	5	40 (50)

NOTES:

1. VALUES IN PARENTHESES ARE FOR HILTI KB–TZ2.
2. VALUES ARE THE SAME FOR BOTH ANCHORS WHERE ONLY ONE NUMBER IS REPORTED.

4. BOLTS THROUGH 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, UNO.
   B. THROUGH BOLT HOLES SHALL BE 1/16" LARGER THAN BOLT SIZE (HOLE SIZE = BOLT SIZE + 1/16")
   C. THROUGH BOLTS IN CONC SHALL RECEIVE SPECIAL INSPECTION & TESTING (THROUGH BOLTS W/ STL TO STL CONN 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:



BUILDING ELEVATION

CASE 1: ATTACHMENT DTLS LOCATED AT UPPER FLRS ABV THE BASE OF A BLDG (z/h<=1.0), IT IS ASSUMED THAT THE FLRS ARE BUILT OF A MIN 3 1/4" SLWC TOPPING OVER MTL DECK (f'c = 3000 PSI, MIN).

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

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SHEET TITLE: GENERAL NOTES (CONTINUED)

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GENERAL NOTES CONTINUED:

6. THIS PRE–APPROVAL MAY BE USED AT ANY GEOGRAPHICAL LOCATIONS IN THE STATE OF CALIFORNIA WHERE S_{DS} & z/h COMPLY W/ VALUES SHOWN BLW. OTHER COMBINATIONS OF S_{DS} & z/h ARE ACCEPTABLE PROVIDED THAT SEOR DEMONSTRATES THAT THE CORRESPONDING Fp VALUE IS LESS THAN OR EQ TO VALUE SHOWN ABV.

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 2019 CBC AT LRFD LEVEL FORCES.

OTHER MECHANICAL OR ELECTRICAL COMPONENTS PER TABLE 13.6–1 OF ASCE 7–16:

$a_p = 1.0$ $R_p = 1.5$ $I_p = 1.5$ $\Omega_0 = 1.5$ (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 7-16 SEISMIC FORCE REQUIREMENTS
F_y	SPECIFIED MINIMUM YIELD STRESS OF STEEL
GA	GAUGE
HCAI	CALIFORNIA DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
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
OPM	HCAI PRE-APPROVAL OF MANUFACTURER'S CERTIFICATION
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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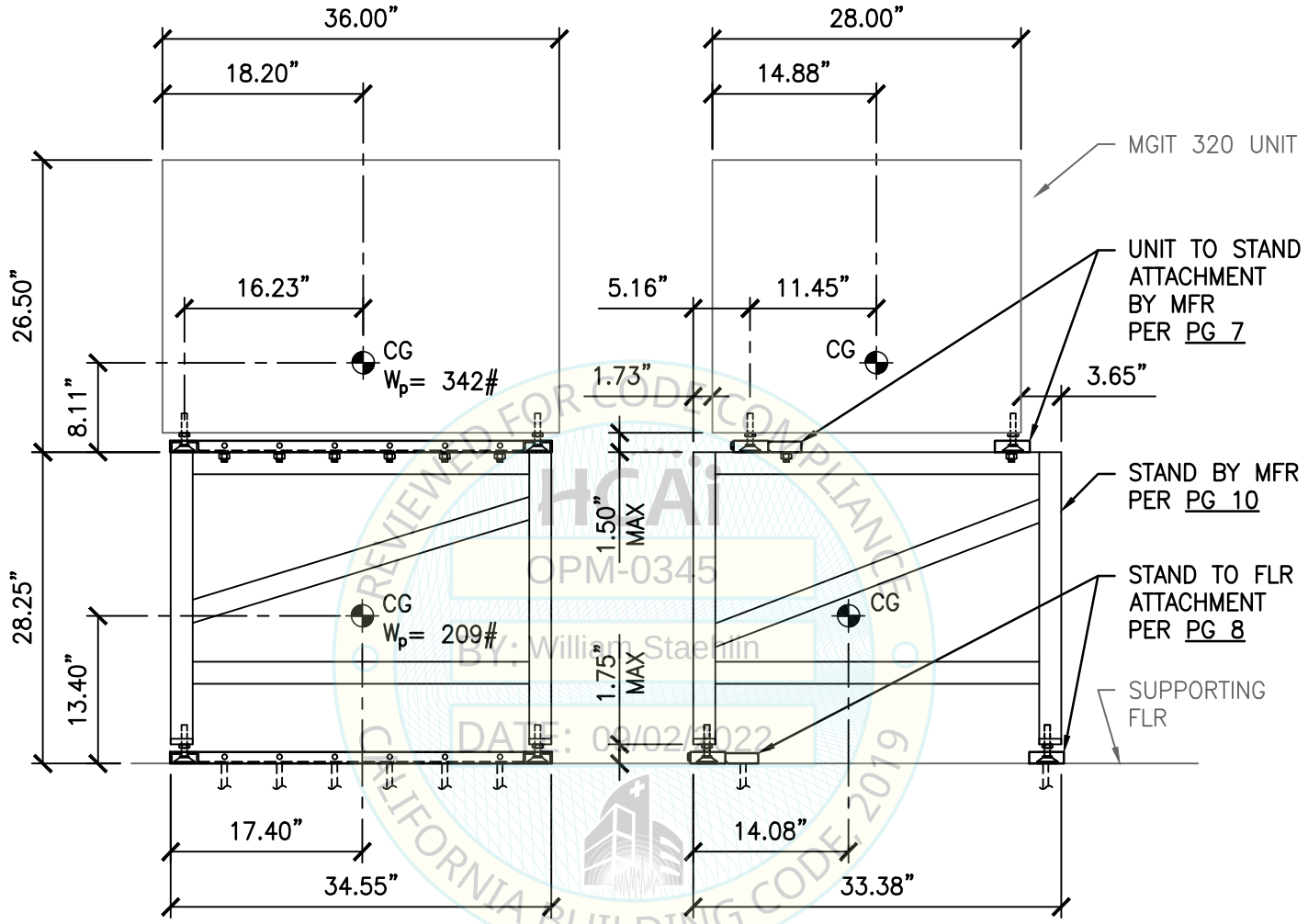
BD INTEGRATED DIAGNOSTIC SOLUTIONS
BACTEC™ MGIT™ 320



FRONT ELEV

SIDE ELEV

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SHEET TITLE: STAND CONFIGURATION ELEVATIONS

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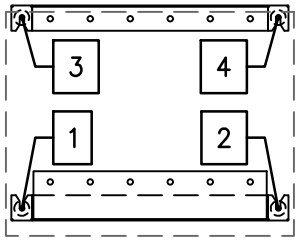
BD INTEGRATED DIAGNOSTIC SOLUTIONS
BACTEC™ MGIT™ 320

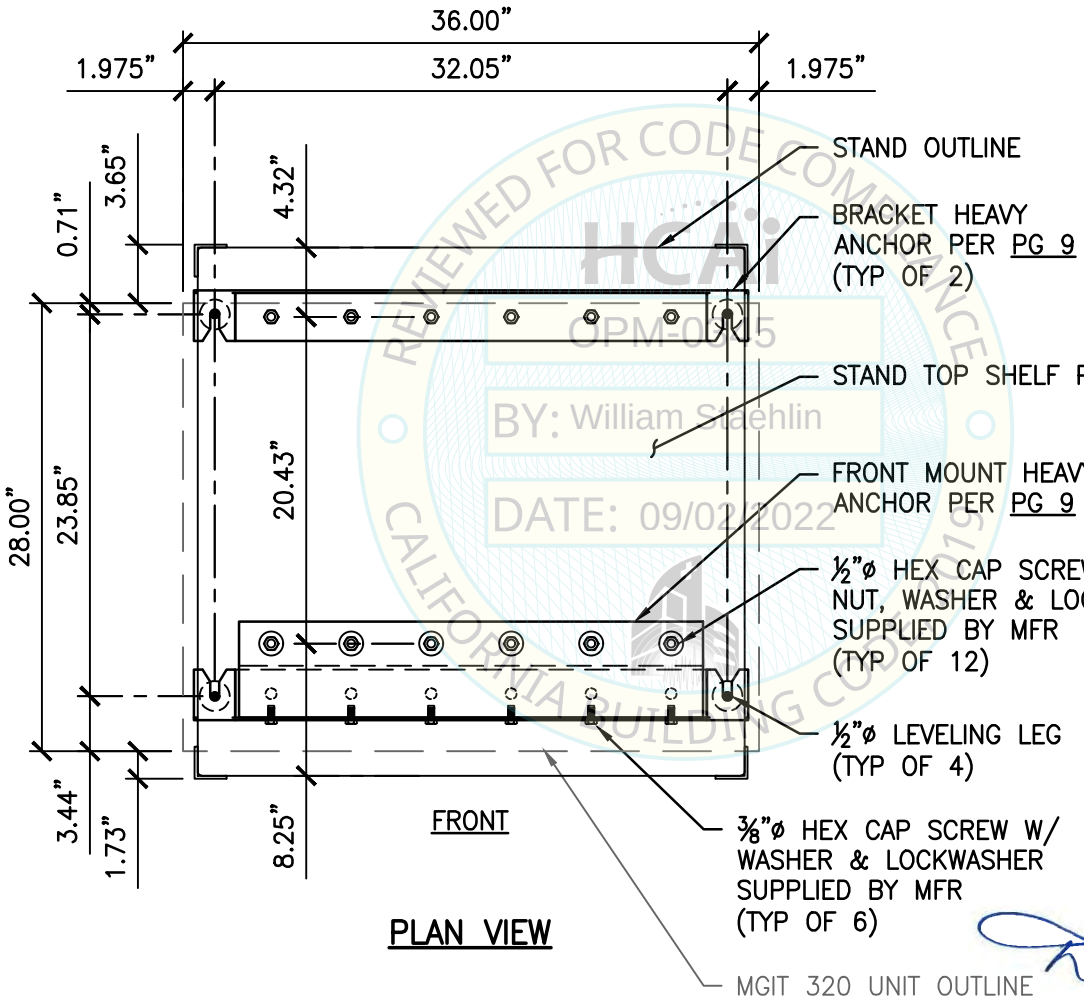
MAX LRFD FORCES AT LEVELING LEGS[1] (LBS)

	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

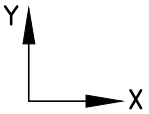
1. ECCENTRICITY & PRYING ACTION MUST BE CONSIDERED BASED ON THE BRACKET CONFIGURATION.



LEG KEY PLAN



PLAN VIEW



NOTE:
SEE PG 6 FOR CG LOCATION & WT.

SHEET TITLE: ATTACHMENT PLAN
UNIT TO STAND

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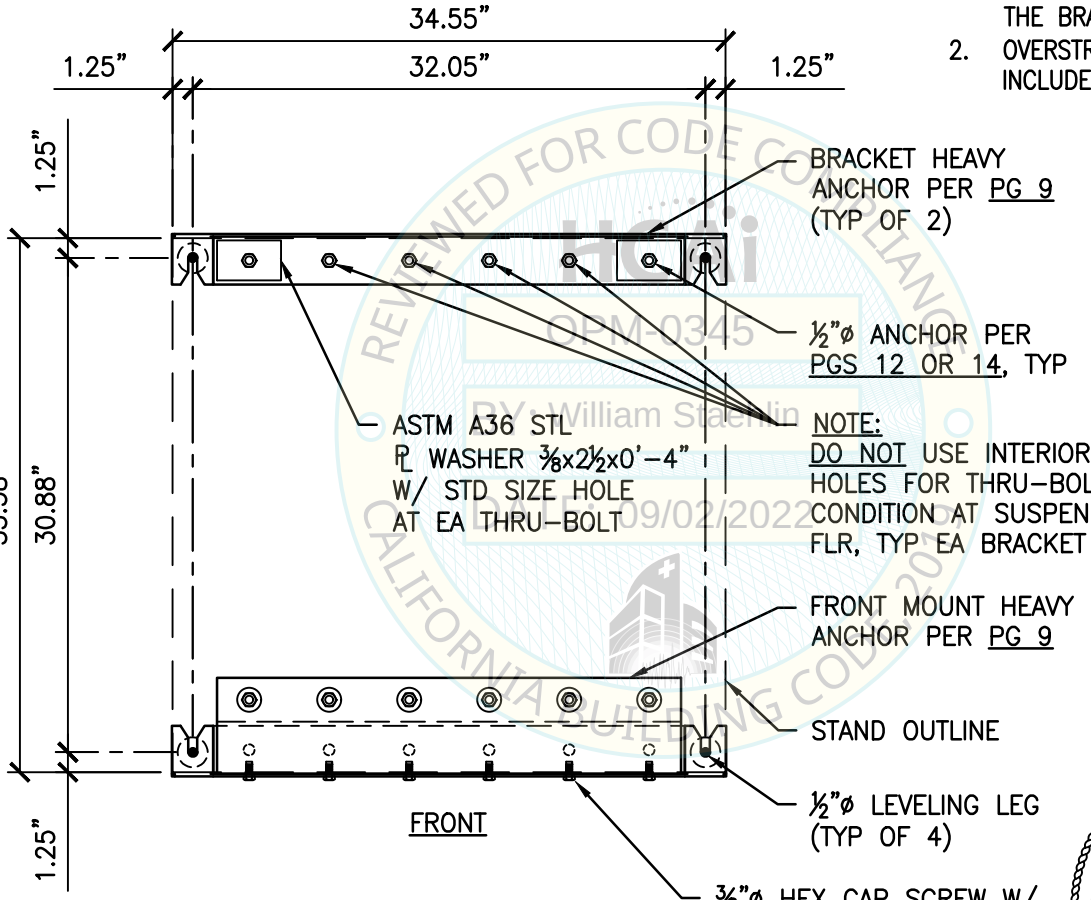
BD INTEGRATED DIAGNOSTIC SOLUTIONS
BACTEC™ MGIT™ 320

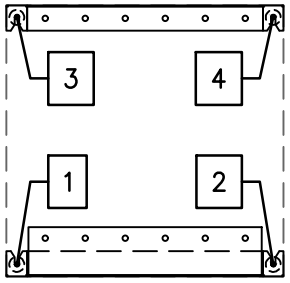
MAX LRFD FORCES AT LEVELING LEGS[1] (LBS)

	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

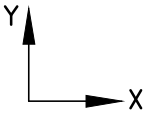
1. ECCENTRICITY & PRYING ACTION MUST BE CONSIDERED BASED ON THE BRACKET CONFIGURATION.
2. OVERSTRENGTH FACTOR (Ω_o) INCLUDED WHERE NOTED.



PLAN VIEW



LEG KEY PLAN



NOTE:
SEE PG 6 FOR CG LOCATION & WT.

SHEET TITLE: ATTACHMENT PLAN
STAND TO FLOOR

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BD INTEGRATED DIAGNOSTIC SOLUTIONS
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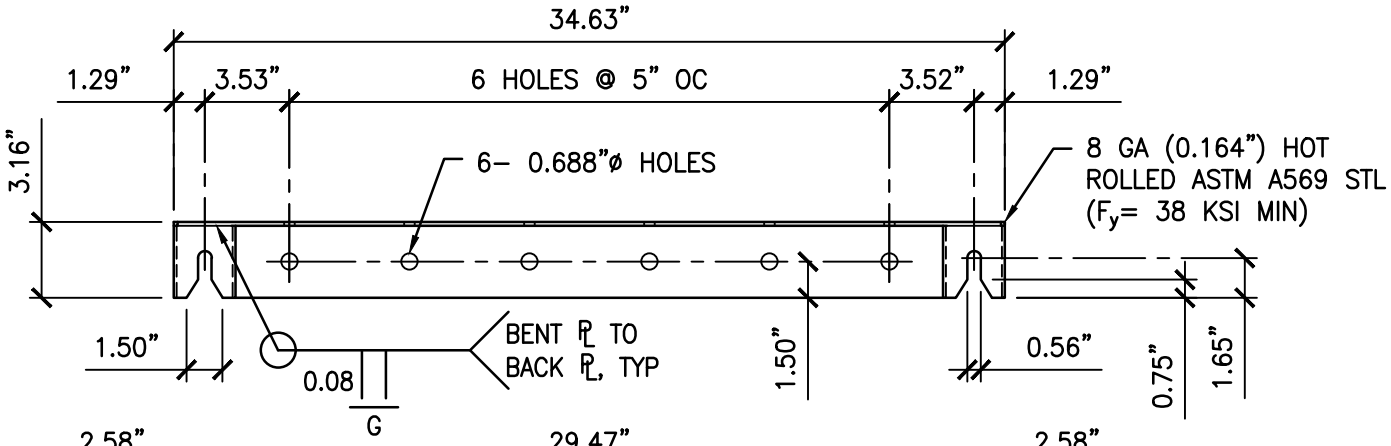
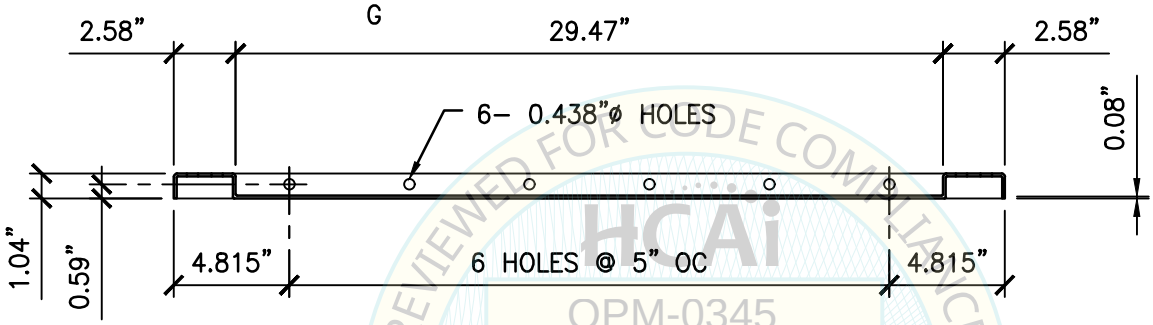
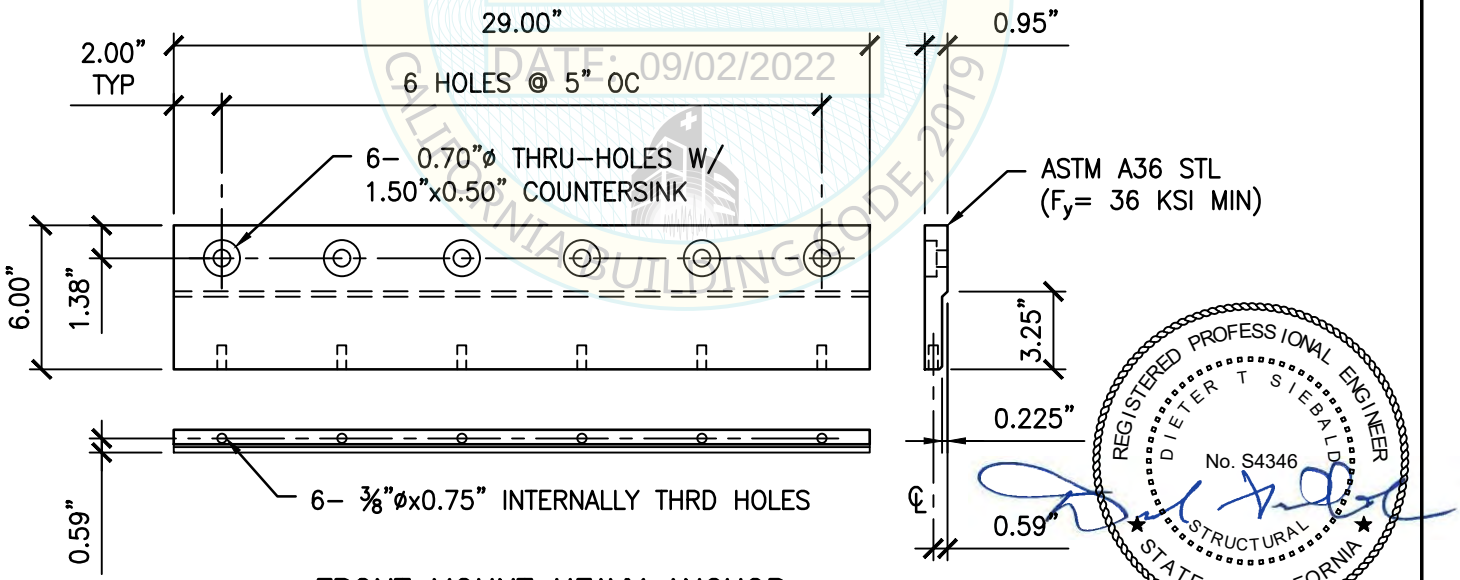




BRACKET HEAVY ANCHOR



FRONT MOUNT HEAVY ANCHOR

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

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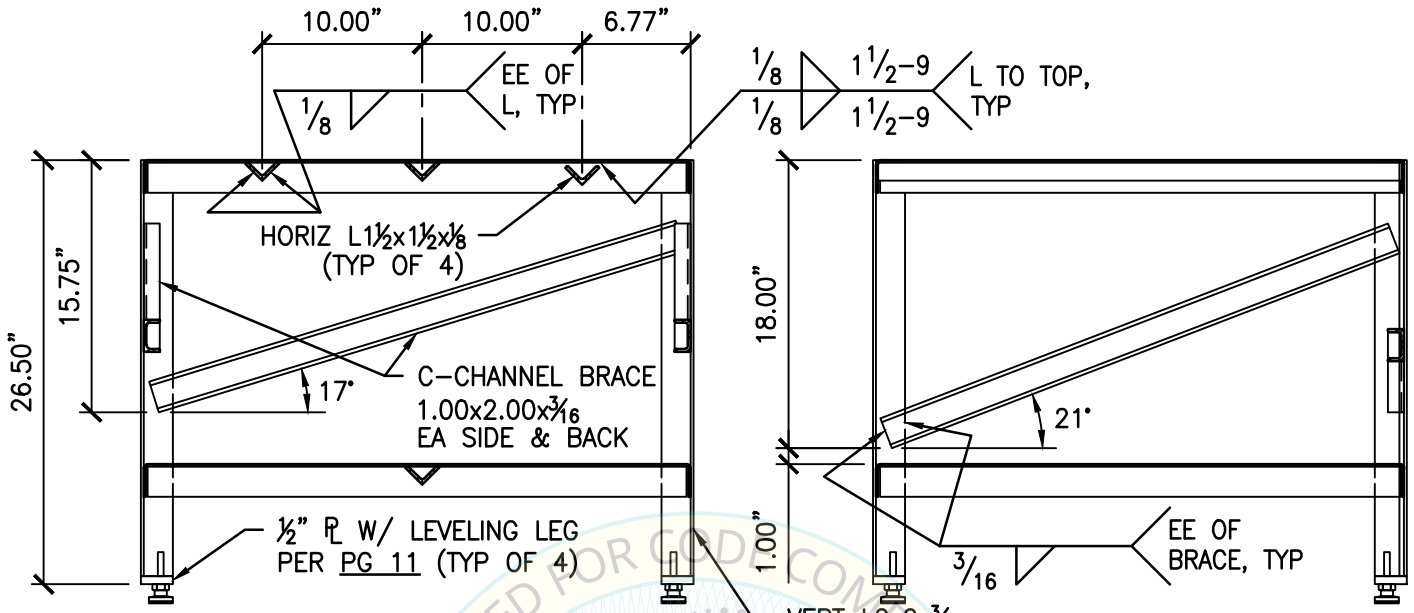
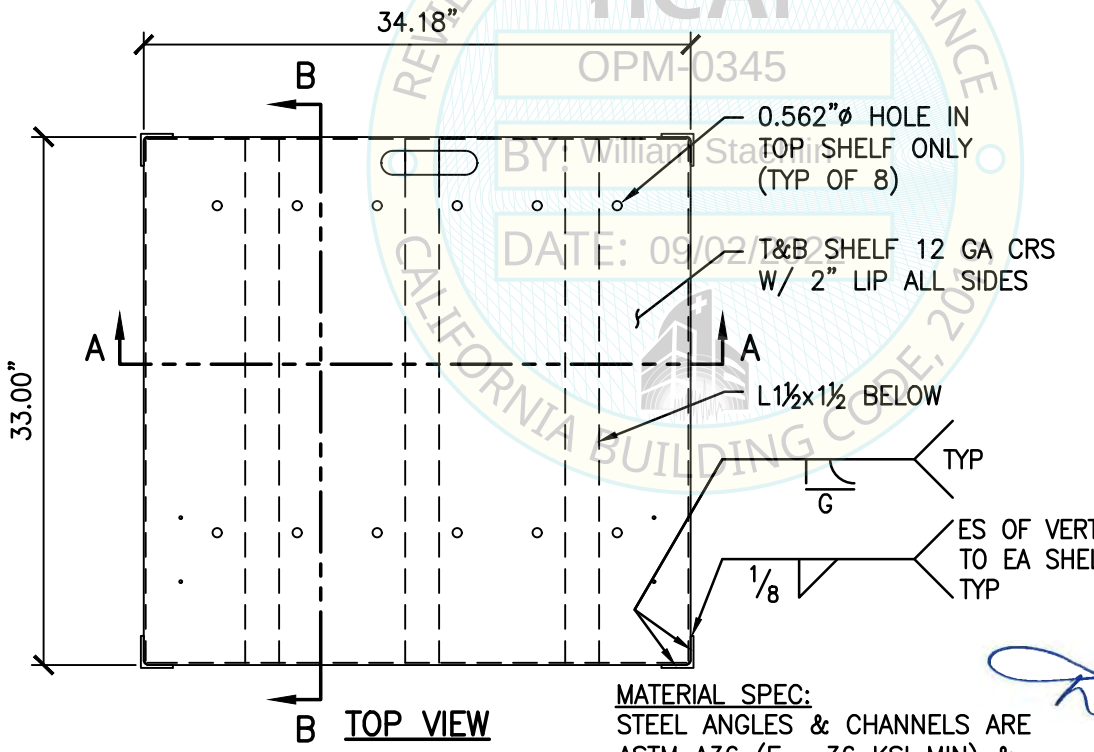
BACTEC™ MGIT™ 320



SECTION A–A

SECTION B–B



TOP VIEW

ISOMETRIC VIEW

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

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SHEET TITLE: STAND ASSEMBLY DETAIL

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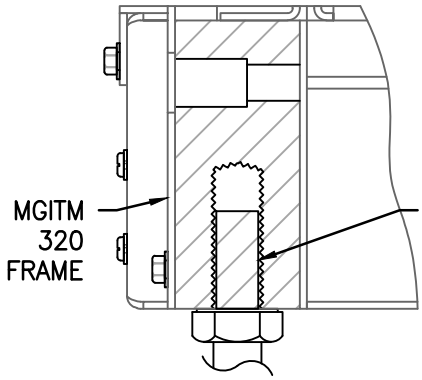
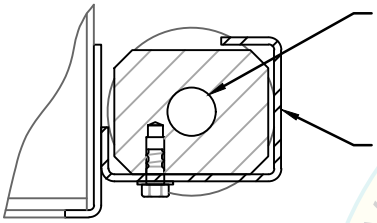
BD INTEGRATED DIAGNOSTIC SOLUTIONS
BACTEC™ MGIT™ 320



SECTION C–C



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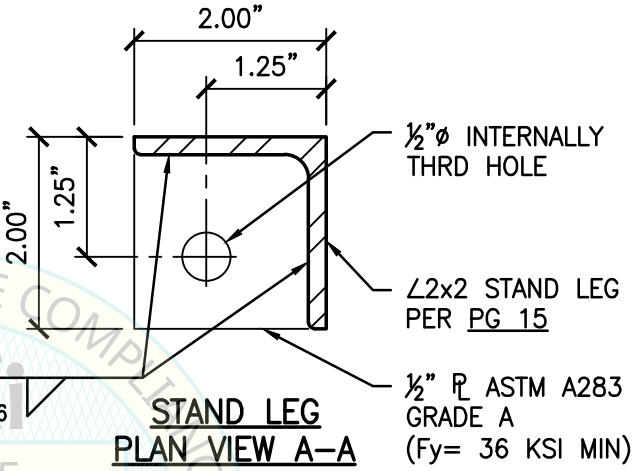
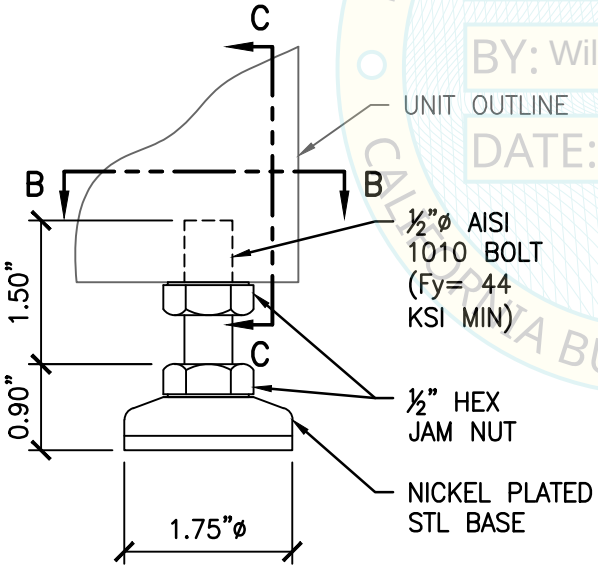
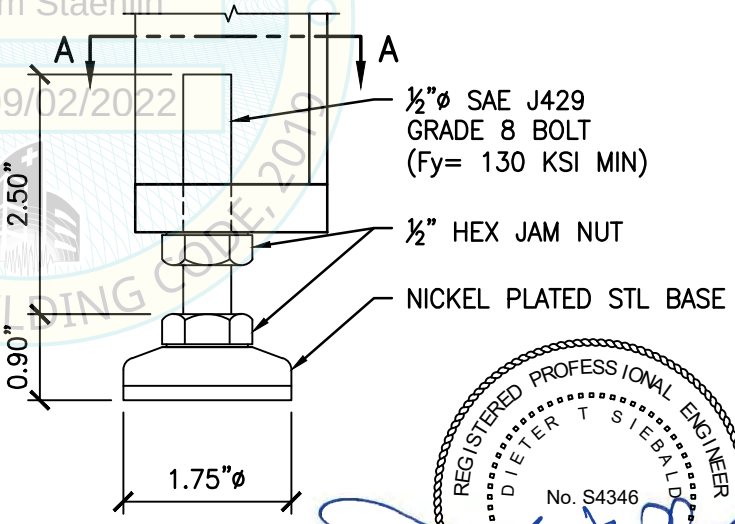


STAND LEG
PLAN VIEW A–A



ELEV VIEW

MGIT UNIT LEVELING LEG



ELEV VIEW

STAND LEVELING LEG

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: LEVELING LEG DETAILS

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833
TEL (916) 920-2020
www.cyseng.com

Job No:	22018.05
Date:	08-31-2022
Page:	11 of 14

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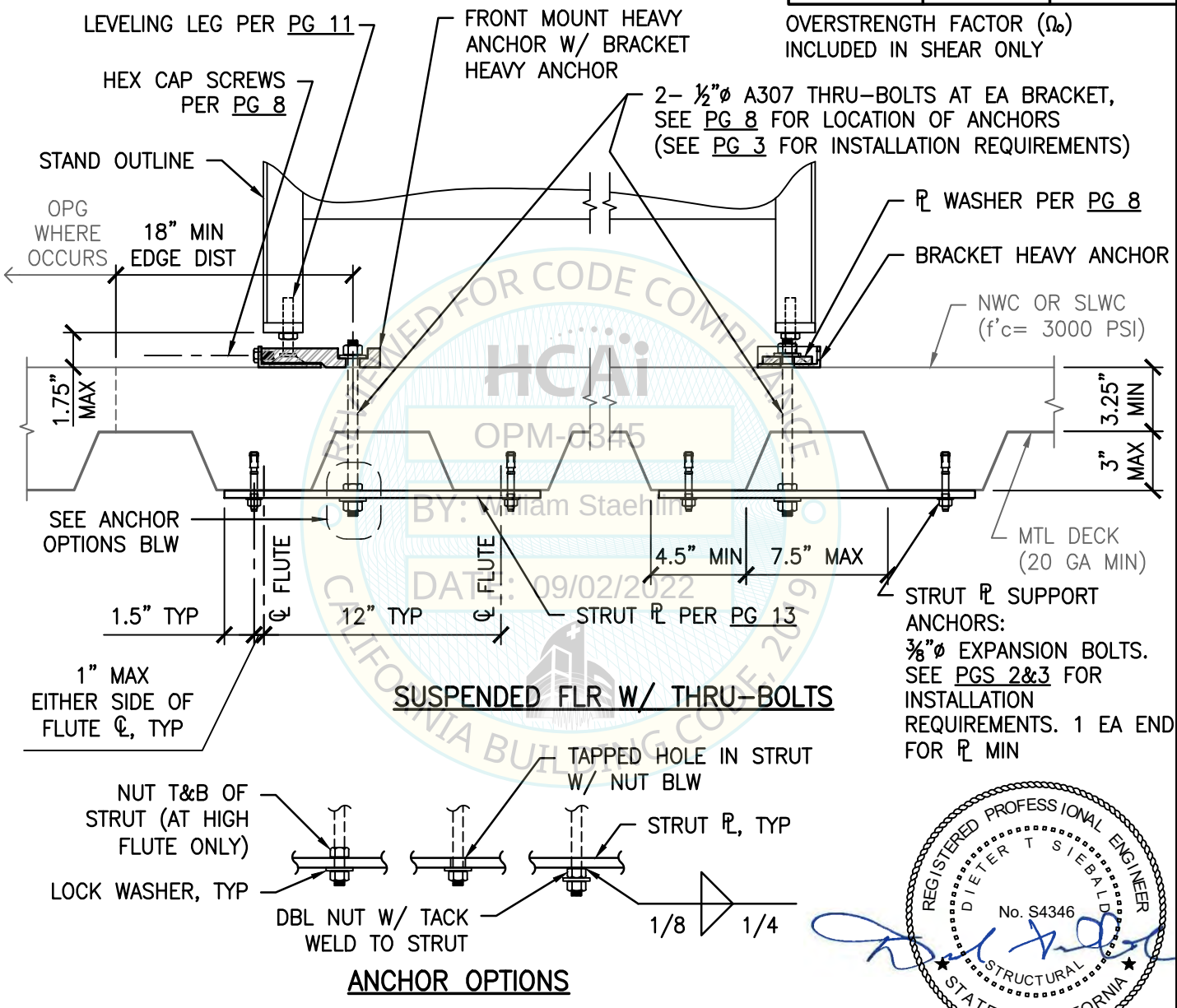
BD INTEGRATED DIAGNOSTIC SOLUTIONS
BACTEC™ MGIT™ 320

	MAX ANCHOR FORCES AT LRFD AT EA AB	
	Tu	Ω_oVu
CASE 1 z/h = 0	2496#	209#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED IN SHEAR ONLY



SUSPENDED FLR W/ THRU–BOLTS

ANCHOR OPTIONS

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

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

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833
TEL (916) 920-2020
www.cyseng.com

Job No:	22018.05
Date:	08-31-2022
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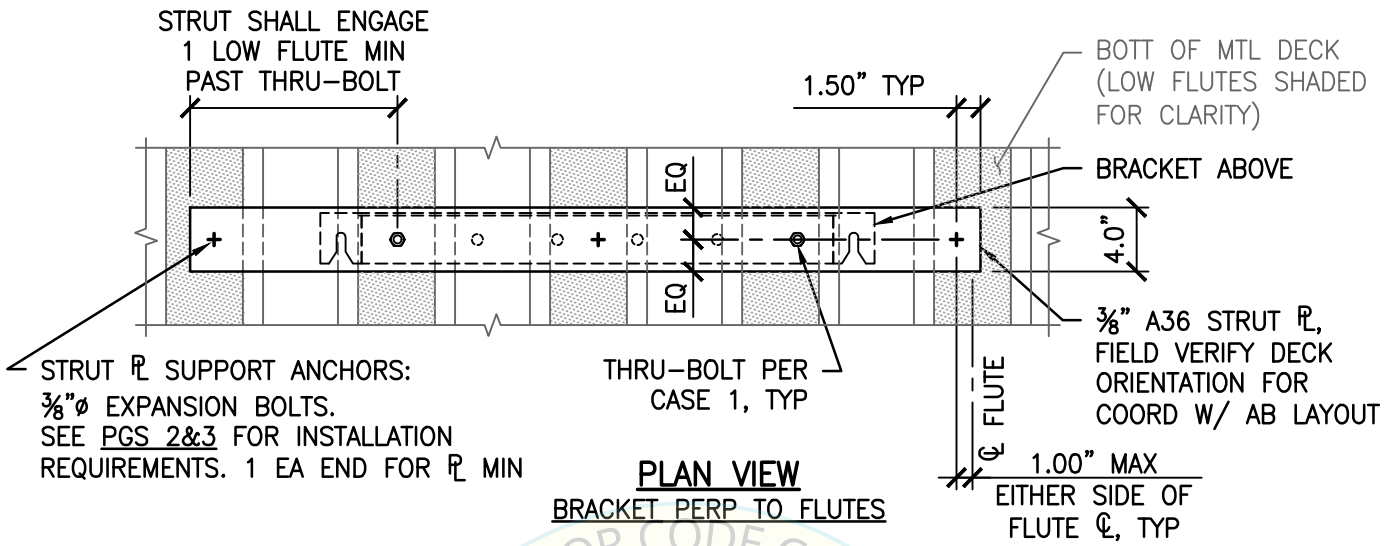
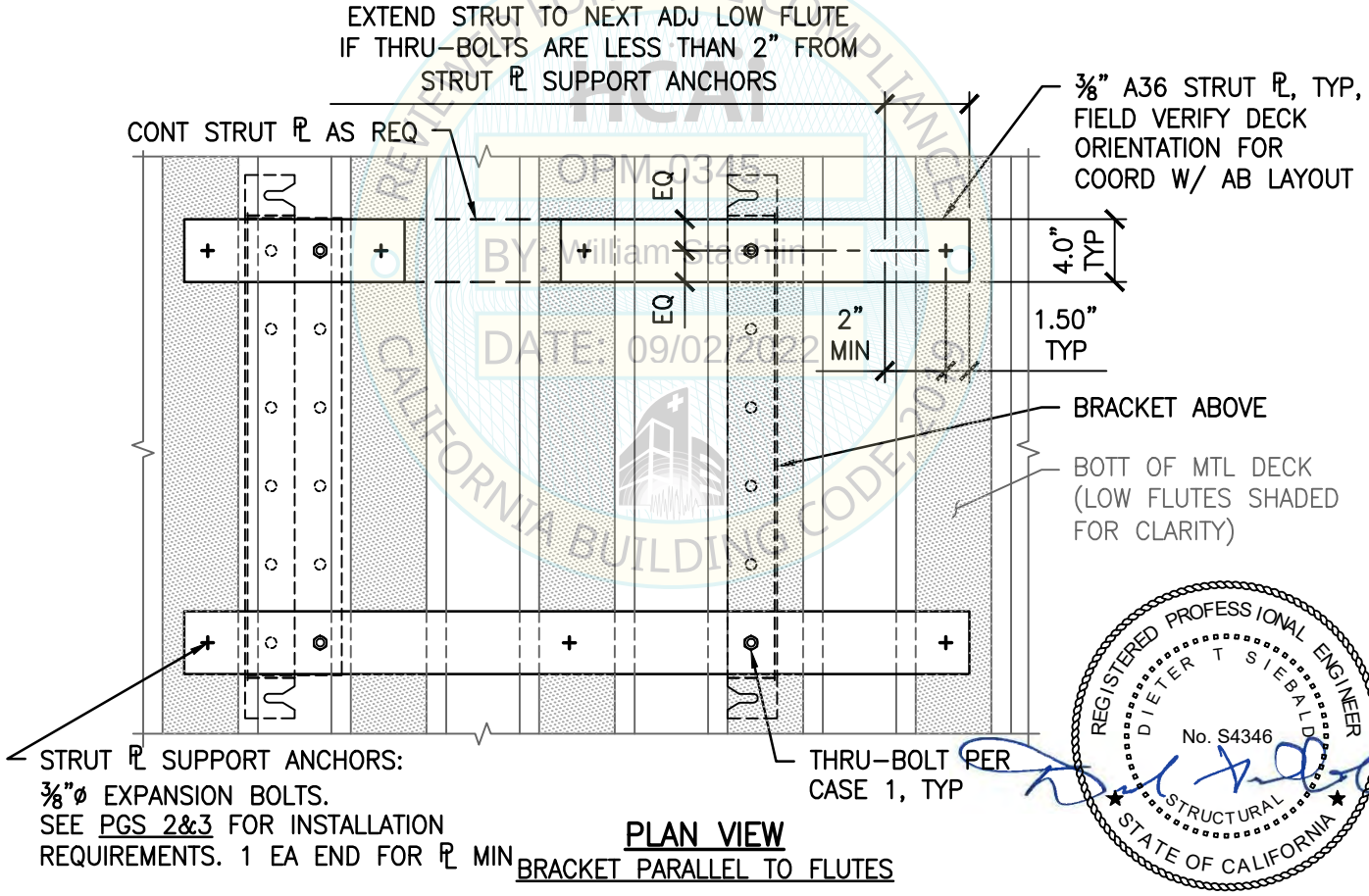
BD INTEGRATED DIAGNOSTIC SOLUTIONS
BACTEC™ MGIT™ 320



PLAN VIEW
BRACKET PERP TO FLUTES



PLAN VIEW
BRACKET PARALLEL TO FLUTES

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE: STRUT PLATE DETAIL

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833
TEL (916) 920-2020
www.cyseng.com

Job No:	22018.05
Date:	08-31-2022
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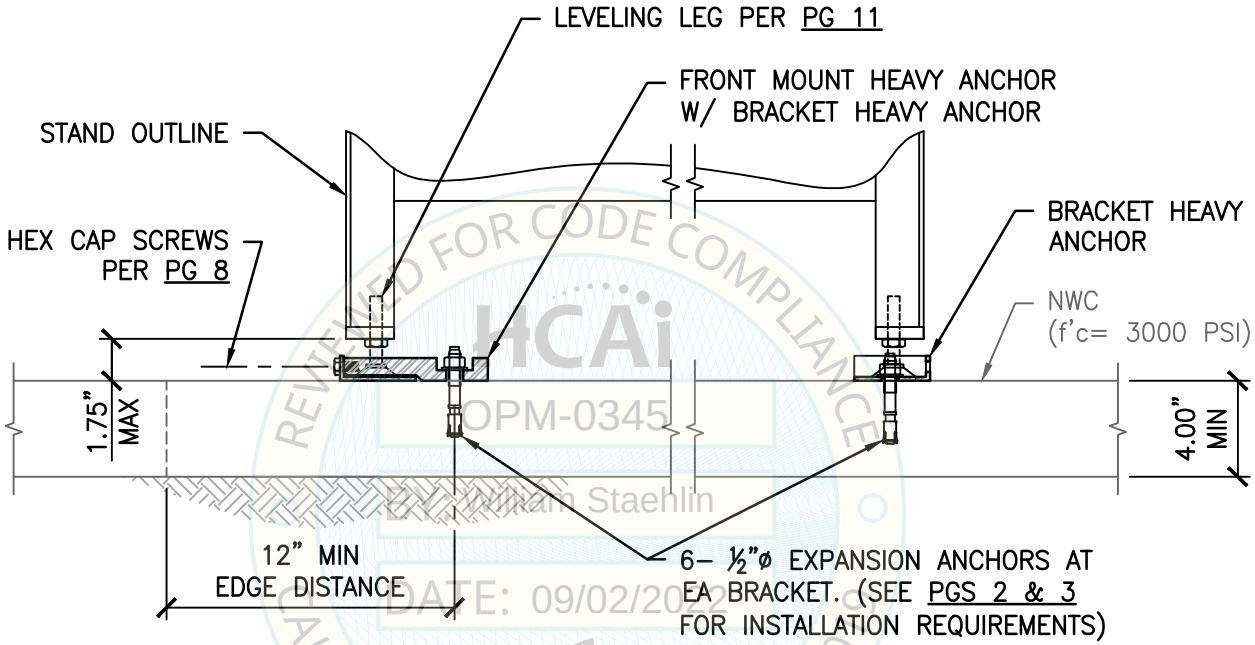
BD INTEGRATED DIAGNOSTIC SOLUTIONS
BACTEC™ MGIT™ 320

	MAX ANCHOR FORCES AT LRFD AT EA AB	
	$\Omega_o Tu$	$\Omega_o Vu$
CASE 2 z/h = 0	576#	116#

OVERSTRENGTH FACTOR (Ω_o) INCLUDED



4" SLAB ON GRADE

REGISTERED PROFESSIONAL ENGINEER
DIETER T SIEBALD
No. S4346
STRUCTURAL
STATE OF CALIFORNIA

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

CYS STRUCTURAL ENGINEERS, INC.
2495 NATOMAS PARK DRIVE, SUITE 650
SACRAMENTO, CA 95833
TEL (916) 920-2020
www.cyseng.com

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Date:	08-31-2022
Page:	14 of 14

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