

OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OPM-0544

X Renewal/Update

OSHPD Preapproval of Manufacturer's Certification (OPM)

Manufacturer Information

Manufacturer: 2 Way	Manufacturer:	2 Way
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Manufacturer's Technical Representative: Jason Way

Mailing Address:	23 Patiki Rd. Avondale, 1026 New Zealand, Avondale, Au 1026
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Telephone: () -

Email: INFO@2WAY.CO.NZ

Product Information

Product Name: Gridlok

Product Type: Suspended Ceiling Brace System

Product Model Number: GRD 10, GRD 10CT, GRD 10P

General Description: Rigid Brace System Designed to be used with suspended ceiling frid systems

Applicant Information

Applicant Company Name: BRACELOK IP Ltd Contact Person: Scott Simpson

Mailing Address: 2550 Haas Street, Escondido, CA 92025

Telephone: (619) 9 ²	17-1688
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Email: scott.simpson@bracelok.com

Title: Technical Director

"Access to Safe. Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"

STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY

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OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Registered Design Professonal Preparing Engineering Recommendations				
Company Name: DEGENKOLB ENGINEERS				
Name: Alvaro Celestino California License Number: S5580				
Mailing Address: 225 Broadway Suite 1325, San Diego, CA 92101				
Telephone: (213) 309-2044	Email: acelestino@degenkolb.com			
OSHPD Special Seismic Certification Preapproval (OSP)				
Special Seismic Certification is preapproved u	under OSP OSP Number:			

Certification Method
Testing in accordance with: X 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 O BY: Jeffrey Kikumoto O
Experience Data
X Combination of Testing, Analysis, and/or Experience Data (Please Specify): Testing and Analysis
CODE CODE
OSHPD Approval BUILDING
Date: 12/8/2020
Name: Jeffrey Kikumoto Title: Senior Structural Engineer
Condition of Approval (if applicable):



GENERAL NOTES

١. GENERAL

- THIS OSHPD PRE-APPROVAL OF MANUFACTURE'S CERTIFICATION (OPM) IS BASED ON 1. THE CBC 2019. THE DEMAND (DESIGN FORCES) FOR USE WITH THIS OPM SHALL BE BASED ON THE CBC 2019
- THIS PRE-APPROVAL IS VALID THROUGHOUT THE STATE OF CALIFORNIA AND IS VALID 2 FOR ACOUSTICAL TILE OR LAY IN PANEL CEILING GRIDS INSTALLED AT THE SDS LIMITATIONS AS SHOWN ON SHEET S3
- THIS PRE-APPROVAL IS LIMITED TO CEILING ASSEMBLIES LISTED IN TABLE 1 ON SHEET 3. S2; HAVING MAXIMUM DEAD WEIGHT OF 4 PSF, INCLUDING LIGHTING FIXTURES (LUMINERIES) AND MECHANICAL SERVICES, EACH WEIGHING LESS THAN 56 LBS AND ATTACHED TO THE CEILING FRAME SYSTEM. HEAVIER SYSTEMS AND THOSE SUPPORTING LATERAL FORCES FROM PARTITION WALLS ARE OUTSIDE THE SCOPE OF THIS OPM

II. RESPONSIBILITIES OF THE STRUCTURAL ENGINEER OF RECORD

- VERIFY MATERIALS AND WORKMANSHIP TO CONFORM WITH THE 2019 EDITION OF 1 THE CALIFORNIA BUILDING CODE AND THE REQUIREMENTS OF THIS PRE-APPROVAL DOCUMENT.
- 2. VERIFY THE ADEQUACY OF THE EXISTING FRAMING TO SUPPORT THE LOADS INDICATED ON TABLE 1, SHEET S3, IN ADDITION TO ALL OTHER LOADS.
- VERIFY ANCHORS ARE AT ADEQUATE DISTANCES FROM OPENINGS AND EDGES OF 3. SLABS AS NOTED IN THE GENERAL NOTES SECTION IV.
- 4. VERIFY ANCHORS ARE AT ADEQUATE DISTANCES FROM NEW OR EXISTING ANCHORS AS NOTED IN THE GENERAL NOTES SECTION IV.
- DESIGN ANY SUPPLEMENTARY MEMBERS AND THEIR ATTACHMENTS OTHER THAN 5. THOSE DETAILED WITHIN THIS PRE-APPROVAL.
- VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2019 CBC AND WITH 6 THE DETAILS SHOWN IN THIS PRE-APPROVAL.
- VERIFY THAT THE SITE SEISMIC PARAMETERS DON'T EXCEED WHAT IS PERMITTED 7. UNDER THIS OPM

III. COLD-FORMED METAL FRAMING

- STUDS: ASTM C955 AND ASTM A1003, "C" SHAPED WITH LIPPED FLANGES AND 1. PUNCHED WEB. PROVIDE G60 COATING MINIMUM.
 - 43 MIL (18 GAGE) AND LIGHTER: GRADE 33 TYPE H
 - 54 MIL (16 GAGE) AND HEAVIER: GRADE 50 TYPE H STUDS.
- FRAMING DESIGNATIONS ON PLANS ARE BASED ON THE STEEL STUD 2. MANUFACTURER'S ASSOCIATION (SSMA) PRODUCT TECHNICAL GUIDE (ICC-ESR-3064P).

- SHEET METAL SCREWS: SELF-DRILLING, SELF-TAPPING, HDG PER ASTM A153. PAN OR 3 HEX WASHER HEAD AS REQUIRED BY FINISH.
 - PRODUCTS: ITW-BUILDEX TEKS SELF-DRILLING FASTENERS (ICC-ESR-1976), A. GRABBER DRIVALL (ICC-ESR-1271) UNLESS OTHERWISE NOTED IN THE FOLLOWING SHEETS.
- MINIMUM SCREW SPACING AND EDGE DISTANCE TO BE 3/4" UNLESS OTHERWISE 4 NOTED IN THE FOLLOWING SHEETS.

POWDER ACTUATED FASTENERS FOR HANGER WIRES: HILTI LOW-VELOCITY 5 FASTENERS (ICC-ESR-2269).

BASE	FASTENERS	MINIMUM	MINIMUM EDGE	MINIMUM
MATERIAL		EMBEDMENT	DISTANCE	SPACING
STEEL	HILTI X-U	PER MANUF	1/2"	1"
CONCRETE	HILTI X-U	1"	3"	5 1/2"

WHERE DETAILS REFER TO 0.145" DIAMETER PAF. THE SHOT PINS ARE TO BE PER ESR 1799, 2024, 2138, OR 2269, INSTALL PER ICC REPORT, MIN EMBED IN SAND LIGHT WEIGHT CONCRETE (LWC) OVER METAL DECK AND SOLID NORMAL WEIGHT CONCRETE (NWC) SLAB TO BE 1 1/4". MIN SPACING TO BE 5.1" AND MIN EDGE DISTANCE TO BE 4".

PAF FOR HANGER WIRES SHALL NOT BE USED IN PRE-STRESSED CONCRETE UNLESS 6 NON-DESTRUCTIVE TESTING METHODS ARE USED TO LOCATE STRAND AND REINFORCEMENT PRIOR TO FASTENER INSTALLATION.

IV. MECHANICAL ANCHORS

[7]

OPM-0544

- EXPANSION OR WEDGE ANCHORS INTO CONCRETE: HILTI KB-TZ (ICC ESR-1917). 2 INSTALL ANCHORS IN ACCORDANCE WITH LATEST ICC-ESR REPORT AND MANUFACTURER INSTRUCTIONS.BY: Jeffrey Kikumoto
- IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE 3 HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE ANCHOR AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT APPROVED BY THE ENGINEER OF RECORD. NOTIFY THE ENGINEER OF RECORD IF ANY REINFORCING IS DAMAGED.
- ANCHORS WILL BE PROOF-TESTED BY OWNER'S TESTING AND INSPECTION AGENCY. Δ WITH A REPORT OF THE TEST RESULTS SUBMITTED TO OSHPD.
- IF ANY ANCHOR FAILS TESTING, REPLACE ANCHOR AND TEST ADDITIONAL ANCHORS 5. OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN RESUME INITIAL TESTING FREQUENCY.
- TEST ANCHORS NO SOONER THAN 24 HOURS AFTER INSTALLATION. 6 エアリアル

TEST WEDGE ANCHORS PER THE FOLLOWING METHOD: 7 TORQUE WRENCH METHOD: TEST ANCHORS TO THE TORQUE LOAD INDICATED IN THE TABLE BELOW WITHIN THE FOLLOWING LIMITS: ONE-HALF TURN OF THE NUT.



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10. SEE SHEETS S11, S12 AND S13.

1.	AN INDE	PEND	ENI
	CONFOR	RMING	ТО
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VI. DESIGN CRITERIA

APPLICABLE CODE SEISMIC DESIGN: SEISMIC FORCE
WHERE: S _{DS} = VARIES Ip = 1.5 z/h ≤ 1.0
Rp = 2.5 ap = 1.0 Ω = 2.0





DEGENKOLB ENGINEERS 225 Broadway, Suite 1325 San Diego, CA 92101 619.515.0299 PHONE www.degenkolb.com

BRACELOK™ GRIDLOK-10P, GRIDLOK-10CT AND GRIDLOK-10 CONNECTORS Design GRIDLOK OPM-0544-13 Check: GENERAL NOTES Date

HI

WEDGE			
ANCHOR DIA. (IN) TORQUE LOAD (FT-LBS)			
1/2	40		
5/8	60		

FOR POST INSTALLED ANCHORS USED FOR NONSTRUCTURAL APPLICATIONS, 50 PERCENT OR ALTERNATE BOLTS IN A GROUP, INCLUDING AT LEAST ONE-HALF THE ANCHORS IN EACH GROUP, SHALL BE TESTED.

MINIMUM EDGE DISTANCE: SEE SHEET S11.

MINIMUM SPACING (FROM NEW OR EXISTING ADJACENT ANCHORS):

V. STRUCTURAL TESTS, INSPECTIONS, AND OBSERVATIONS

AN INDEPENDENT APPROVED TESTING AGENCY AND SPECIAL INSPECTORS, O 2019 CBC SECTION 1703A, WILL BE RETAINED BY THE FORM THE FOLLOWING TESTS AND INSPECTIONS. PROVIDE RNISH SAMPLES TO THE AGENCY AS REQUIRED. ITEMS REQUIRE TESTS AND INSPECTIONS IN ACCORDANCE REMENTS OF THE CHAPTER "STRUCTURAL TESTS AND F THE CODE. ICAL ANCHORS: IZERIFY TYPE OF ANCHOR, ANCHOR DIMENSIONS, CONCRETE TYPE AND COMPRESSIVE STRENGTH, PREDRILLED HOLE IMENSIONS, ANCHOR SPACING, EDGE DISTANCE, SLAB

HICKNESS AND ANCHOR EMBEDMENT.

ROOF-TEST AS INDICATED IN THE MECHANICAL ANCHORS ECTION OF THESE GENERAL NOTES.

E: 2019 CALIFORNIA BUILDING CODE.

 $F_P (LRFD) = 0.4 * S_{DS} * a_p (1 + 2* z/h) Wp$ (R_p / I_p)

SEE SCHEDULE ON SHEET S3

FOR CEILINGS FOR CEILINGS FOR CEILINGS

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PGM/LH	Rev:		
AC	Scale:	NTS	
12/07/2020			

Sheet **S1**

GENERAL NOTES, CONT

VII. HOW TO USE THIS PRE-APPROVAL

- REVIEW AND UNDERSTAND ALL GENERAL NOTES AND FIGURES BEFORE PROCEEDING. 1
- 2. SELECT A GRIDLOK CLIP TO MATCH THE CEILING GRID ICC REPORT PER SHEET S2.
- DETERMINE THE MAXIMUM ALLOWABLE GRIDLOCK SPACING BASED ON THE SITE SEISMICITY 3. (S_{DS}) FROM TABLE 1 ON SHEET S3.
- BASED ON THE PLENUM HEIGHT 'H' AND THE CHOSEN GRIDLOK SPACING CHOSEN ON STEP 3 4. ABOVE, SELECT BRACE SIZE PER TABLE 1 ON SHEET S4. BRACE STUDS MUST NOT BE REPLACED BY WIRE.
- BASED ON THE PLENUM HEIGHT 'H' AND THE CHOSEN GRIDLOK SPACING CHOSEN ON STEP 3 5. ABOVE, SELECT VERTICAL STRUT SIZE PER TABLE 2 ON SHEET S4. VERTICAL STRUTS MUST NOT BE REPACED BY WIRE.
- BASED ON THE DECK TYPE SELECT THE APPROPRIATE CONNECTION TO THE SUPPORTING 6. STRUCTURE ABOVE PER TABLE 3 ON SHEET S4.
- RDP TO DETERMINE THE IMPACT ON THE EXISTING STRUCTURE FROM THE GRIDLOK BASED 7. ON THE PROVIDED 'F' ASD FORCE ON TABLE 1 ON SHEET S3.

SHEET LIST

- S1 GENERAL NOTES
- GENERAL NOTES AND SCHEDULES S2
- S3 GENERAL PLAN AND SCHEDULES
- S4 3D SECTION AND SCHEDULES
- S5 SECTIONS
- S6 GRIDLOK-10P ASSEMBLY DETAILS
- S7 GRIDLOK-10 ASSEMBLY DETAILS
- S8 GRIDLOK-10CT ASSEMBLY DETAILS
- S9 GRIDLOK PARTS
- GRIDLOK PARTS S10

PROFESSION

RO CELES

No. S 5580

- S10A GRIDLOK PARTS
- S11 CONNECTION DETAILS
- S12 CONNECTION DETAILS
- S13 CONNECTION DETAILS
- S14 CONNECTION DETAILS
- S15 CONNECTION DETAILS
- S16 CONNECTION DETAILS

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- OPD-0002-13 DETAILS (CL2.60, CL2.50) S17
- S18 OPD-0002-13 DETAILS (CL0.02, CL4.10)
- S19 OPD-0002-13 DETAILS (CL4.21, CL4.22)
- S20 OPD-0002-13 DETAILS (CL4.23, CL4.24)
- S21 OPD-0002-13 DETAILS (CL4.25)

TABLE 1: GRIDLOK ASSEMBLY SCHEDULE			
CEILING GRID ASSEMBLY	GRIDLOK ASSEMBLY	ASSEMBLY DETAIL	
WORTHINGTON ARMSTRONG VENTURE (ICC ESR-1308)	GRIDLOK-10P	1/S6	
USG LLC (ICC ESR-1222)	GRIDLOK-10	1/S7	
CERTAIN TEED CORPORATION (ICC ERS-3336)	GRIDLOK-10CT	1/S8	

TABLE 1 NOTES:

CODF

OPM-0544

- 1. ONLY CEILING GRIDS THAT MEET THE ICC REPORTS LISTED ABOVE ARE APPROVED FOR USE WITH THIS OPM. MATCH GRIDLOK ASSEMBLY CLIP WITH CEILING GRID TYPE PER TABLE ABOVE.
- 2. THE CEILING SYSTEMS ARE LIMITED TO INTERIOR APPLICATIONS.
- 3. ONLY HEAVY-DUTY MAIN TEES DEFINED IN SPECIFICATION C635 SHALL BE USED (DIRECT HUNG; MIN LOAD CARRYING CAPABILITY = 16.0 PLF; CEILING LOAD = 4 PSF).
- 4. THE MAIN RUNNERS AND CROSS RUNNERS OF THE CEILING SYSTEM AND THEIR SPLICES, INTERSECTION CONNECTORS, AND EXPANSION DEVICES SHALL BE DESIGNED & CONSTRUCTED TO CARRY A MEAN ULTIMATE TEST LOAD OF NOT LESS THAN 180 LBS IN COMPRESSION AND IN TENSION WHEN TESTED PER TEST METHODS E3090/E3090M. THE TENSILE TEST SHALL ALLOW FOR A 5° OFFSET OF THE CONNECTION IN ANY DIRECTION. THE BY: Jeffrey Kikumoto connectors at splices and intersections shall be the mechanical LOCKING TYPE.

BRACELOK™ GRIDLOK-10P, GRIDLOK-10CT AND GRIDLOK-10 CONNECTORS GRIDLOK OPM-0544-13

GENERAL NOTES AND SCHEDULES

Drawn Desian Check: Date

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S2

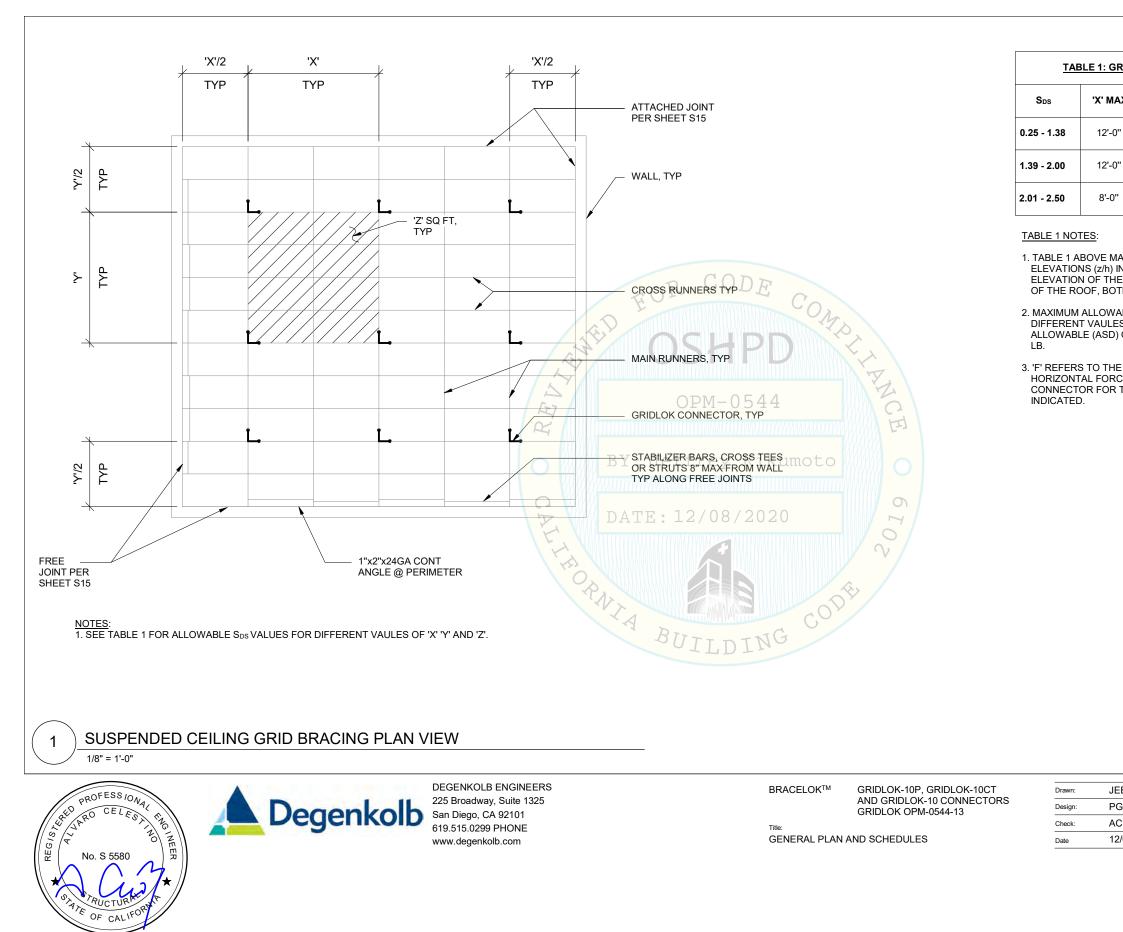


TABLE 1: GRIDLOK SPACING SCHEDULE

MAX	'Ү' МАХ	'Z' MAX	'F' ASD (LBS)
2'-0''	12'-0''	144 SF	400 LB
2'-0''	8'-0"	96 SF	400 LB
8'-0''	8'-0"	64 SF	400 LB

1. TABLE 1 ABOVE MAY BE USED FOR ALL FLOOR ELEVATIONS (z/h) IN A BUILDING, WHERE 'z' IS THE ELEVATION OF THE FLOOR AND 'h' IS THE ELEVATION OF THE ROOF, BOTH WITH RESPECT TO GRADE LEVEL.

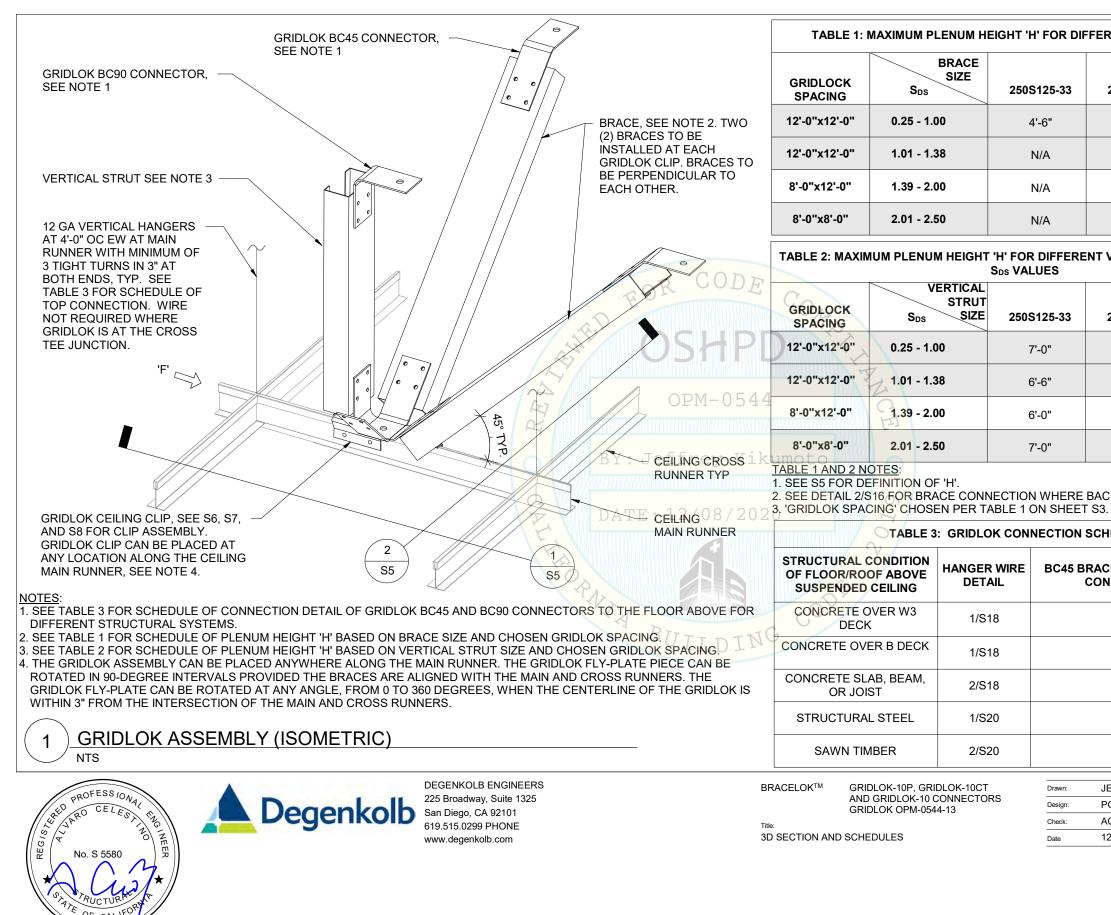
2. MAXIMUM ALLOWABLE BRACE SPACING FOR DIFFERENT VAULES OF $S_{\rm DS}$ ARE BASED ON A MAXIMUM ALLOWABLE (ASD) GRIDLOK SYSTEM CAPACITY OF 400

3. 'F' REFERS TO THE MAXIMUM ALLOWABLE (ASD) HORIZONTAL FORCE APPLIED TO THE GRIDLOK CONNECTOR FOR THE SEISMICITY AND SPACING

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Sheet

S3

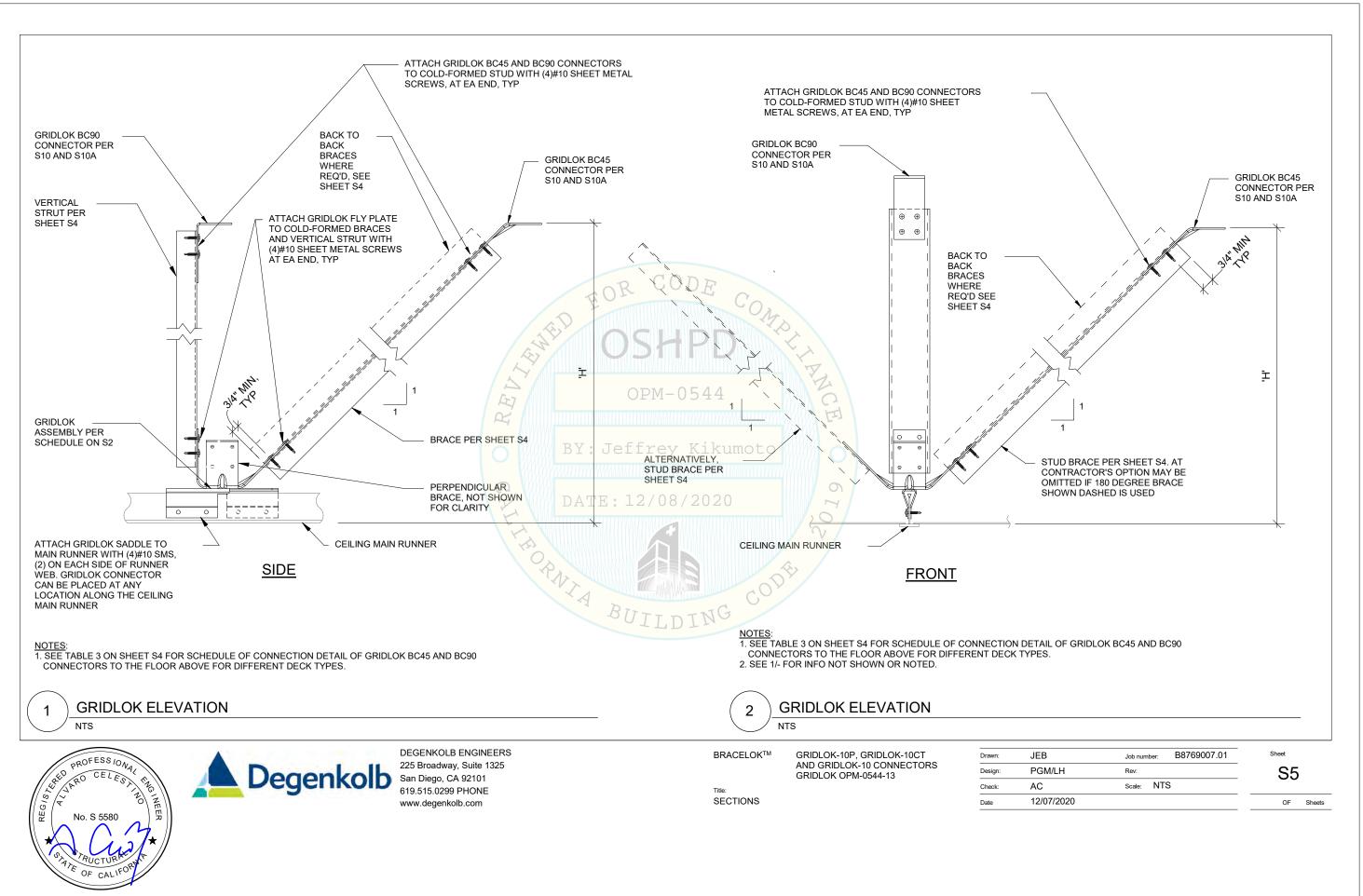


ERENT BRACE	SIZES AND SDS	VALUES
250S162-33	362S162-33	(2) 250S162-33 BACK-TO-BACK
6'-0"	7'-6"	9'-6"
5'-0"	6'-6"	9'-6"
5'-0"	6'-6"	9'-6"
5'-6"	7'-6"	9'-6"
VERTICAL ST	RUT SIZES AND)
250S162-33	362S162-33	
9'-6"	9'-6"	
8'-0"	9'-6"	
8'-0"	9'-6"	
9'-0"	9'-6"	
ACK-TO-BACK B 3.	RACES ARE RE	EQUIRED.
HEDULE		
ACE AND BC90 S ONNECTION DE		
1/S12, 2/S12		
1/S13, 2/S/13		
1/S11		

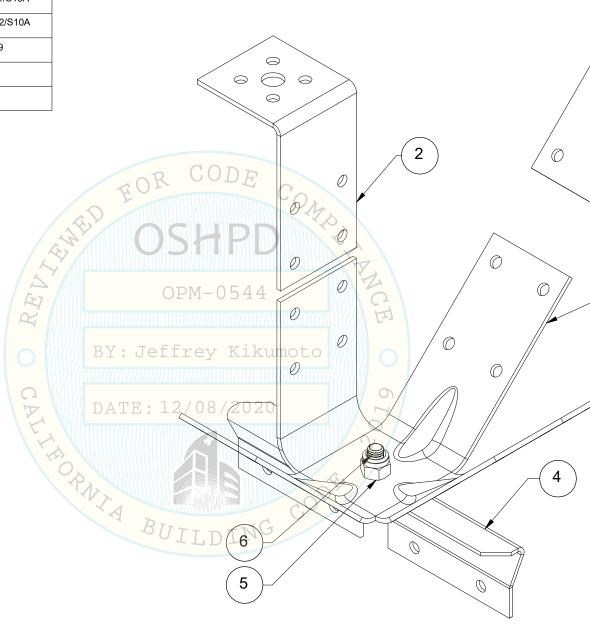
1/S14

1/S15

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ITEM NO.	PART NO.	GRIDLOK-10 P / QTY	DETAIL
1	GRIDLOK-FLY-PLATE	1	2/S9
2	GRIDLOK-BC90-CONNECTOR	1	1/S10 & 1/S10A
3	GRIDLOK-BC45-CONNECTOR	2	2/S10 & 2/S10A
4	GRIDLOK-10 P-SADDLE	1	1/S9
5	ISO 7041-M8-S	1	-
6	PEM FH-M8-18 X-S	1	-



NOTES: 1. SEE SCHEDULE ON S2 FOR ACCEPTABLE CEILING GRID ASSEMBLY TO BE USED WITH GRIDLOK-10P ASSEMBLY.

GRIDLOK-10 P ASSEMBLY

3/32" = 1'-0"



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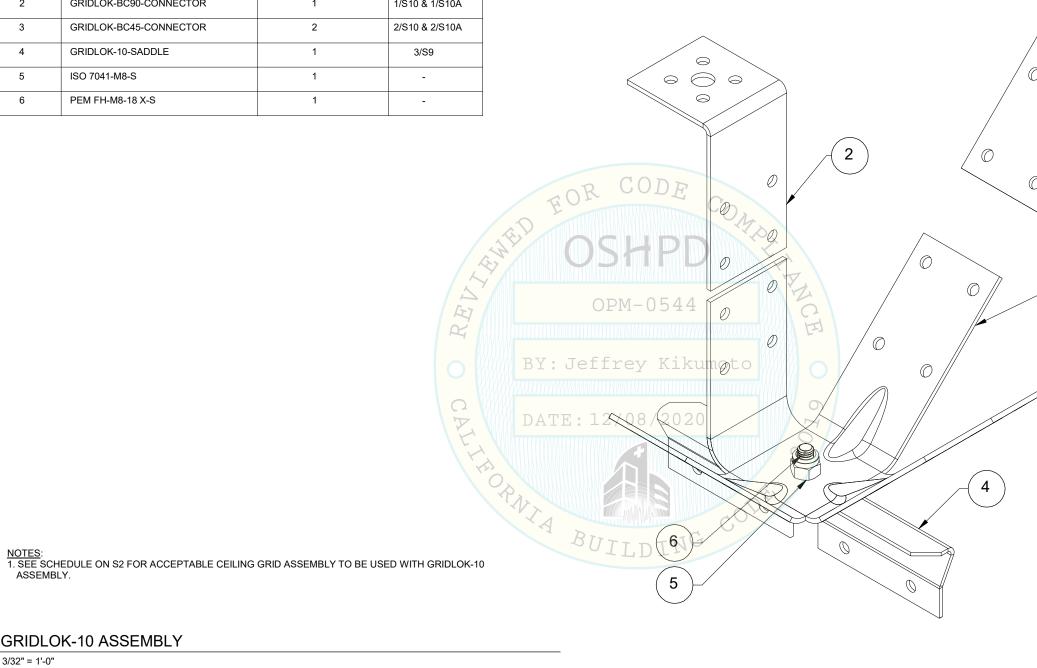
GRIDLOK-10P, GRIDLOK-10CT AND GRIDLOK-10 CONNECTORS GRIDLOK OPM-0544-13 BRACELOK™ Title

GRIDLOK-10P ASSEMBLY DETAILS

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AC		

ITEM NO.	PART NO.	GRIDLOK-10 / QTY	DETAIL
1	GRIDLOK-FLY-PLATE	1	2/S9
2	GRIDLOK-BC90-CONNECTOR	1	1/S10 & 1/S10A
3	GRIDLOK-BC45-CONNECTOR	2	2/S10 & 2/S10A
4	GRIDLOK-10-SADDLE	1	3/S9
5	ISO 7041-M8-S	1	-
6	PEM FH-M8-18 X-S	1	-



Title

GRIDLOK-10 ASSEMBLY

3/32" = 1'-0"



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GRIDLOK-10P, GRIDLOK-10CT AND GRIDLOK-10 CONNECTORS GRIDLOK OPM-0544-13 BRACELOK™

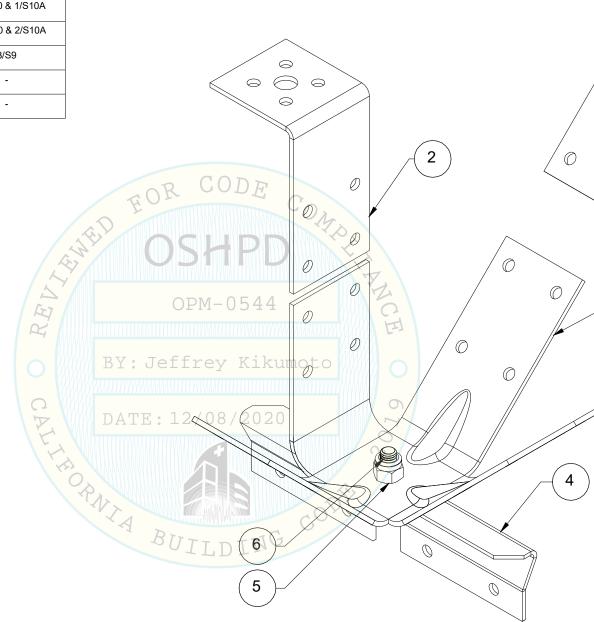
GRIDLOK-10 ASSEMBLY DETAILS

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PEB PGM/LH	Job number: B8769007.01 Rev: Scale: AS INDICATED	Sheet S7

ITEM NO.	PART NO.	GRIDLOK-10 CT / QTY	DETAIL
1	GRIDLOK-FLY-PLATE	1	2/S9
2	GRIDLOK-BC90-CONNECTOR	1	1/S10 & 1/S10A
3	GRIDLOK-BC45-CONNECTOR	2	2/S10 & 2/S10A
4	GRIDLOK-10CT-SADDLE	1	3/S9
5	ISO 7041-M8-S	1	-
6	PEM FH-M8-18 X-S	1	-



NOTES: 1. SEE SCHEDULE ON S2 FOR ACCEPTABLE CEILING GRID ASSEMBLY TO BE USED WITH GRIDLOK-10CT ASSEMBLY.

GRIDLOK-10CT ASSEMBLY

3/32" = 1'-0"

1



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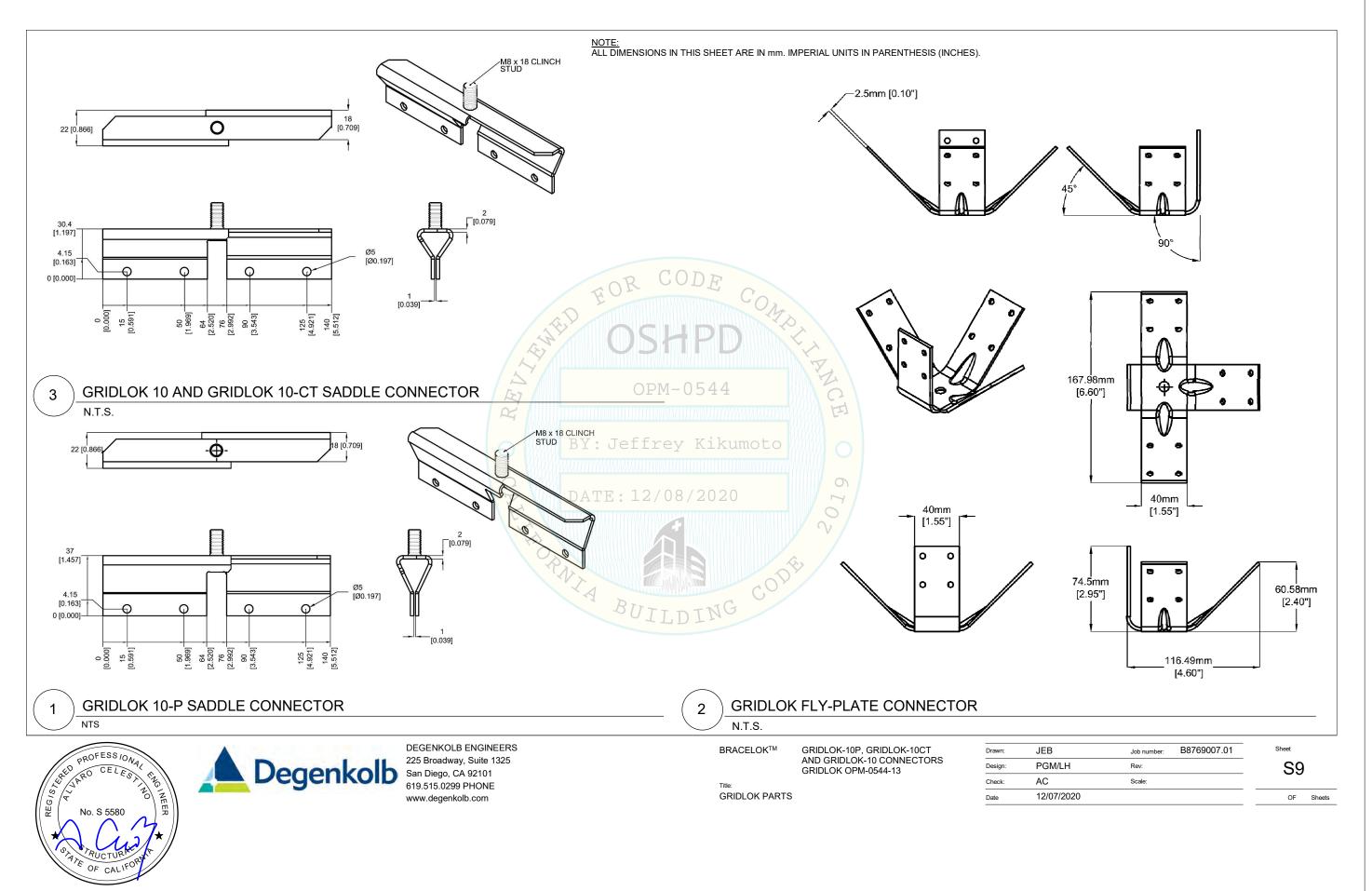
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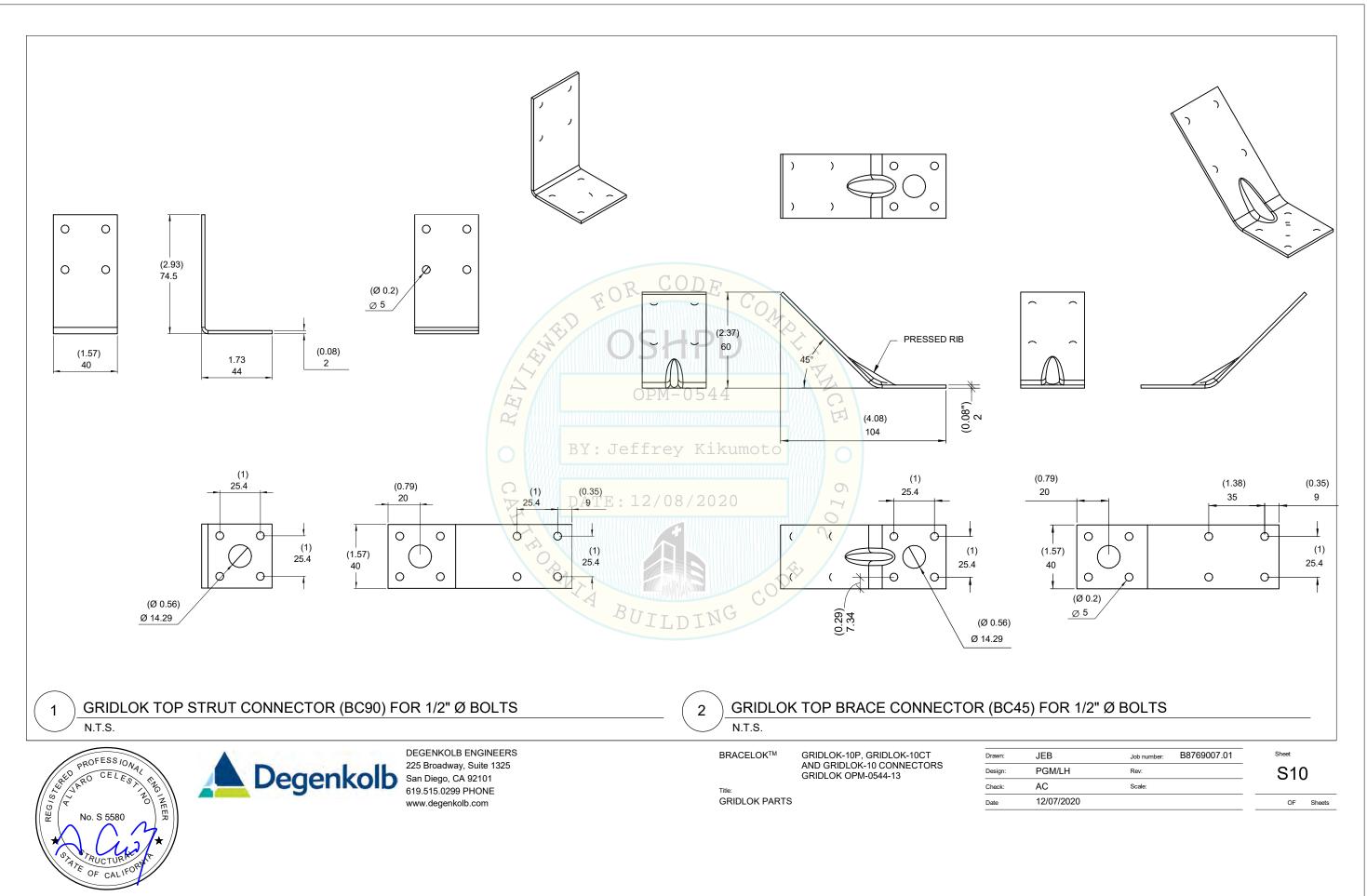
GRIDLOK-10P, GRIDLOK-10CT AND GRIDLOK-10 CONNECTORS GRIDLOK OPM-0544-13 BRACELOK™ Title

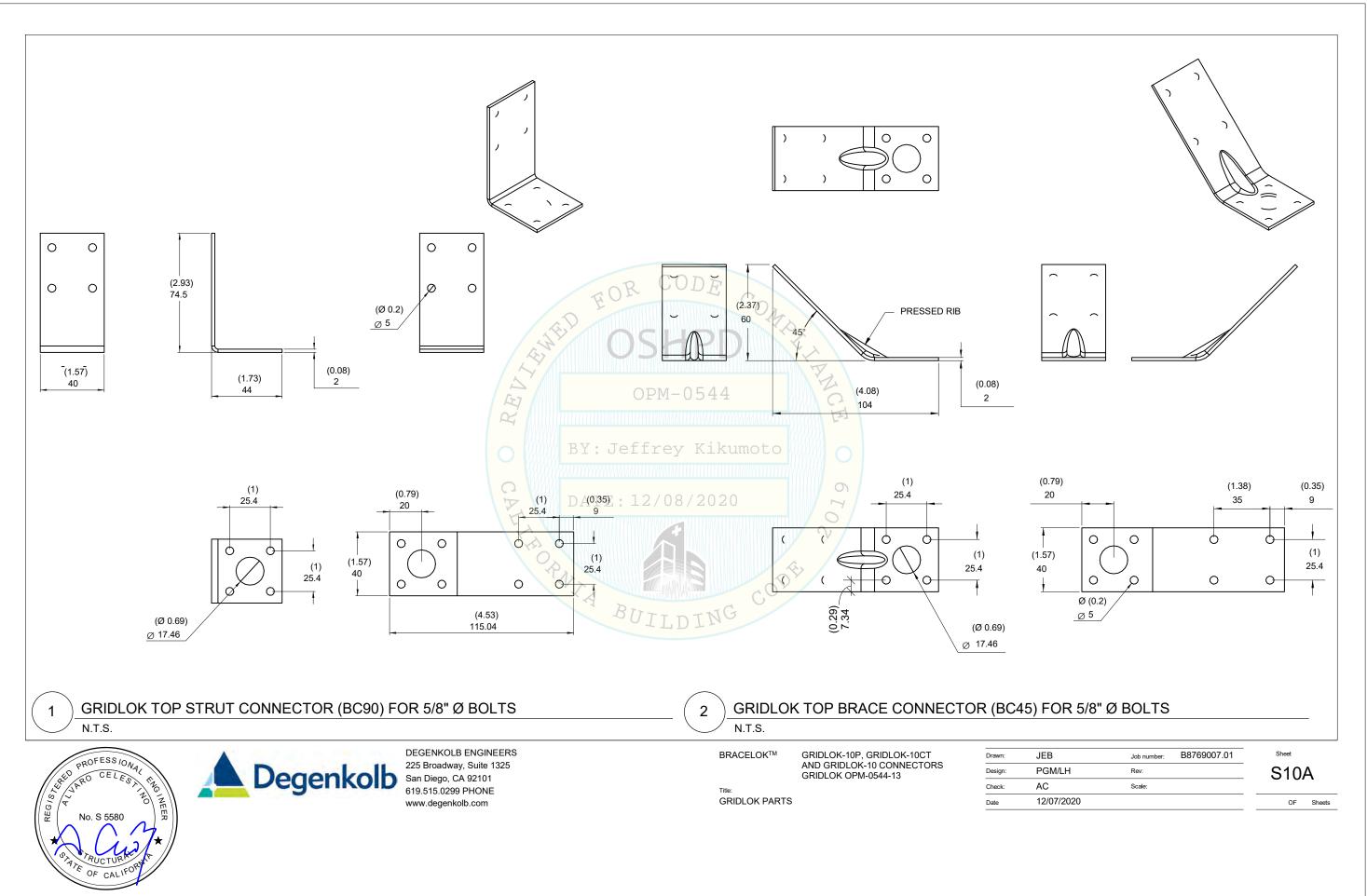
GRIDLOK-10CT ASSEMBLY DETAILS

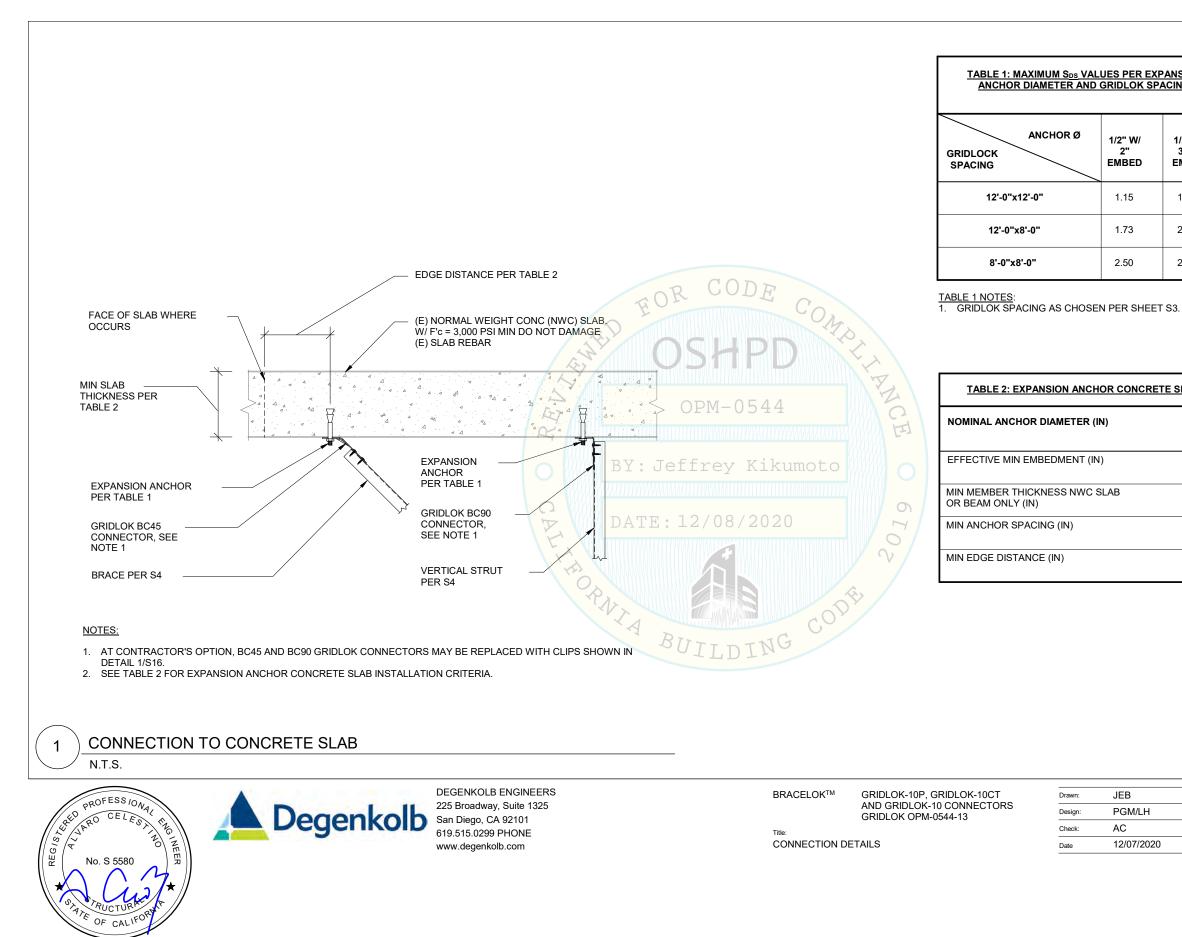
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JEB PGM/LH AC 12/07/2020	Job number: B8769007.01 Rev: Scale: AS INDICATED	Sheet S8









OPM-0544: Reviewed for Code Compliance by Jeffrey Kikumoto

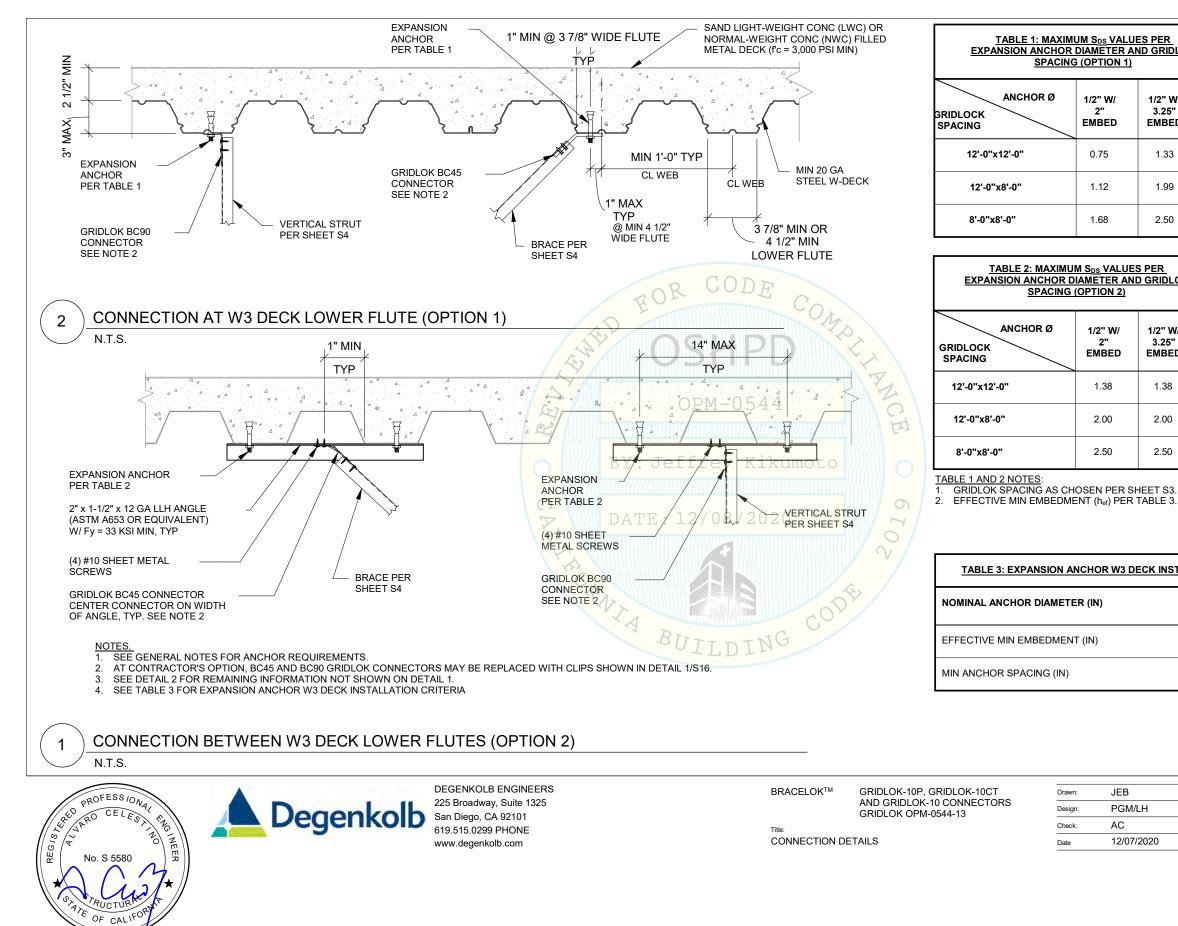
ES PER EXPANSION RIDLOK SPACING			
1/2" W/ 2" EMBED	1/2" W/ 3.25" EMBED	5/8" W/ 4" EMBED	
1.15	1.38	1.38	
1.73	2.00	2.00	
2.50	2.50	2.50	

R CONCRETE SLAB INSTALLATION CRITERIA			
) 1/2" 1/2" 5/8"		5/8"	
	2	3 1/4	4
AB	4.5	6	7 1/4
	6 3/4	9 3/4	12
	6	7 1/2	8 3/4

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S11



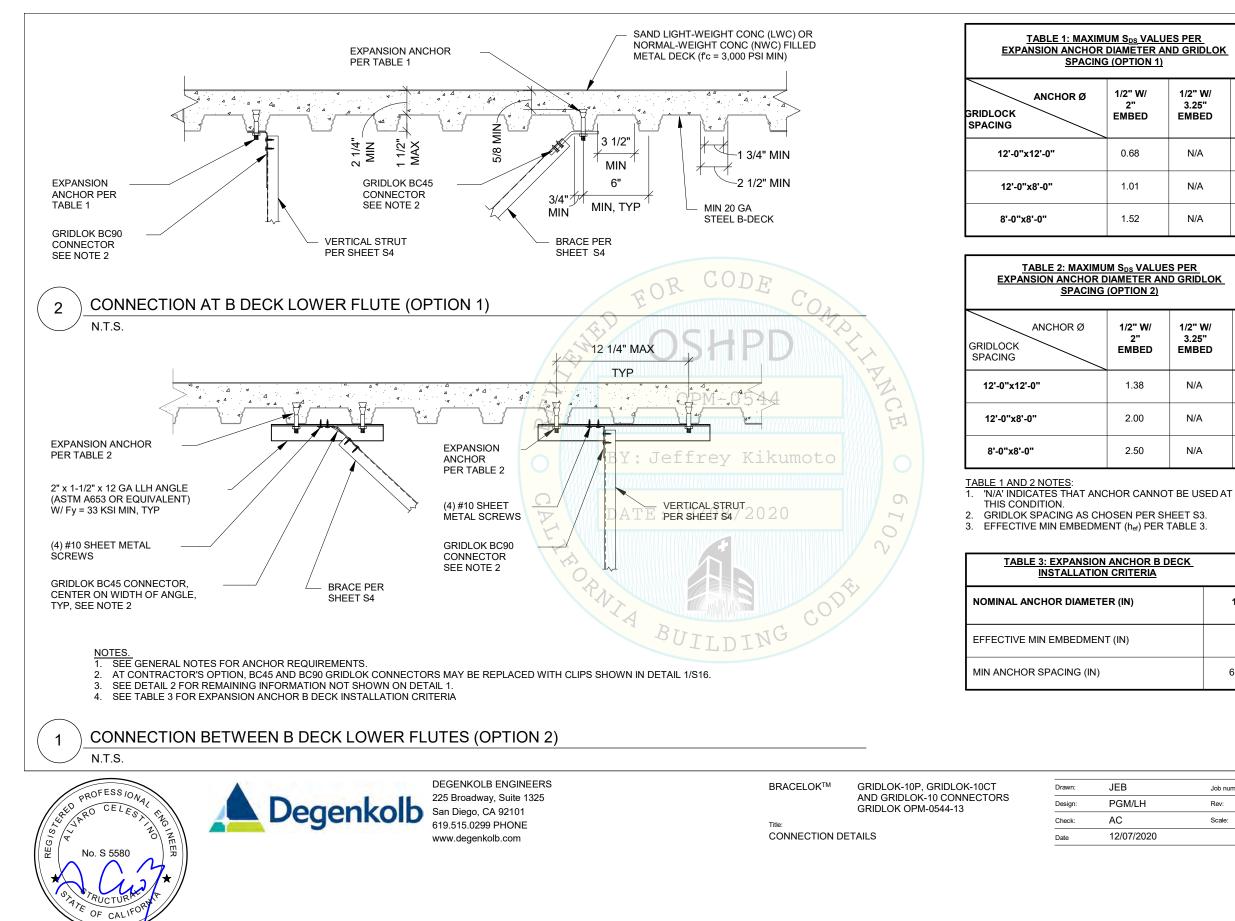
<u>VALUES PER</u> TER AND GRIDLOK ON 1)					
N/ ED	1/2" W/ 3.25" EMBED	5/8" W/ 4" EMBED			
5	1.33	1.38			
2	1.99	2.00			
}	2.50	2.50			

VALUES PER ER AND GRIDLOK IN 2)				
W/ " BED	1/2" W/ 3.25" EMBED	5/8" W/ 4" EMBED		
38	1.38	1.38		
00	2.00	2.00		
50	2.50	2.50		

R W3 DECK INSTALLATION CRITERIA			
	1/2"	1/2"	5/8"
	2	3 1/4	4
	6 3/4	9 3/4	12

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Sheet S12



IUM S _{DS} VALUES PER DIAMETER AND GRIDLOK G (OPTION 1)			
1/2" W/ 1/2" W/ 2" 3.25" EMBED EMBED		5/8" W/ 4" EMBED	
	0.68	N/A	N/A
	1.01	N/A	N/A
	1.52	N/A	N/A

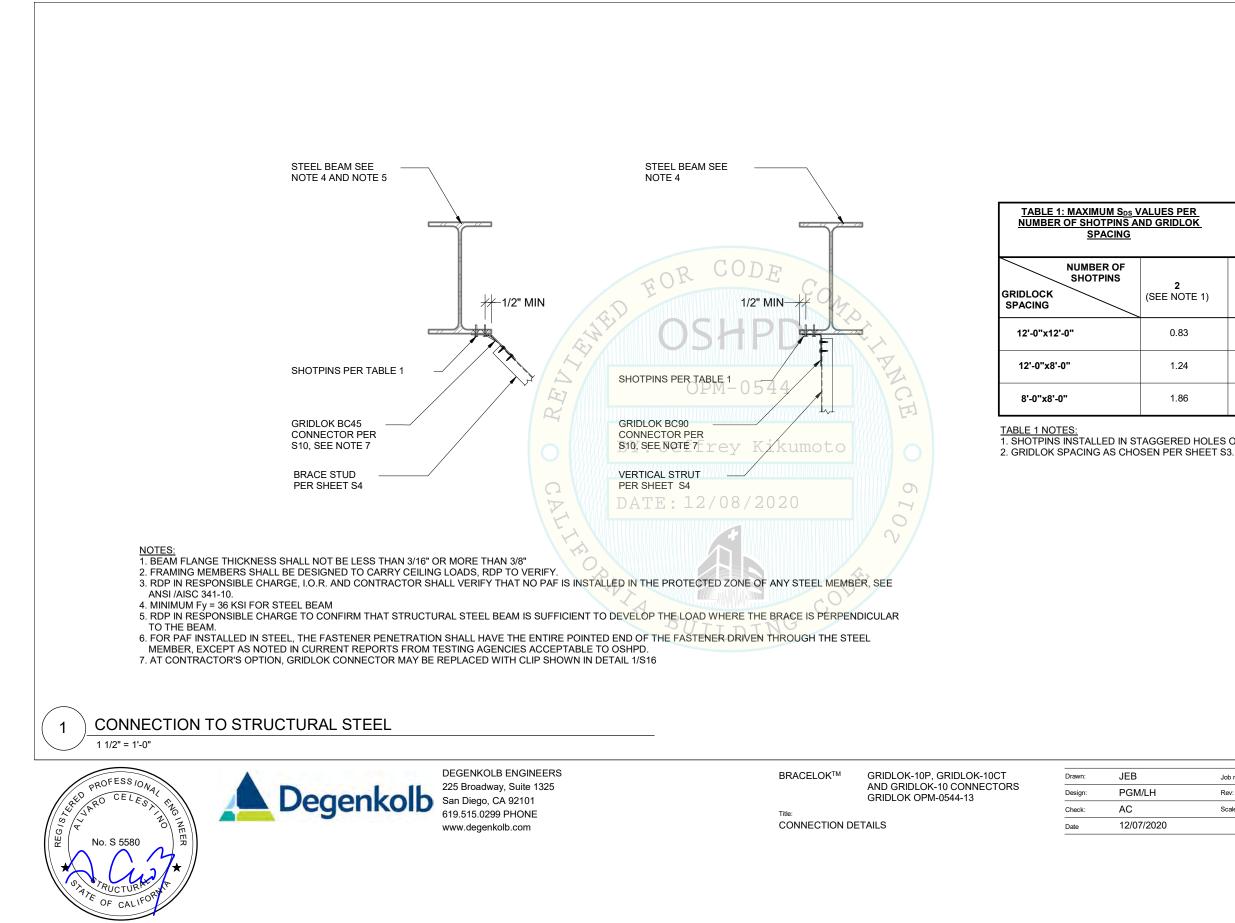
JM S _{DS} VALUES PER_ DIAMETER AND GRIDLOK_ 6 (OPTION 2)			
	1/2" W/ 2" EMBED	1/2" W/ 3.25" EMBED	5/8" W/ 4" EMBED
	1.38	N/A	N/A
	2.00	N/A	N/A
	2.50	N/A	N/A

N ANCHOR B DECK N CRITERIA	
ER (IN)	1/2"
IT (IN)	2
	6 3/4

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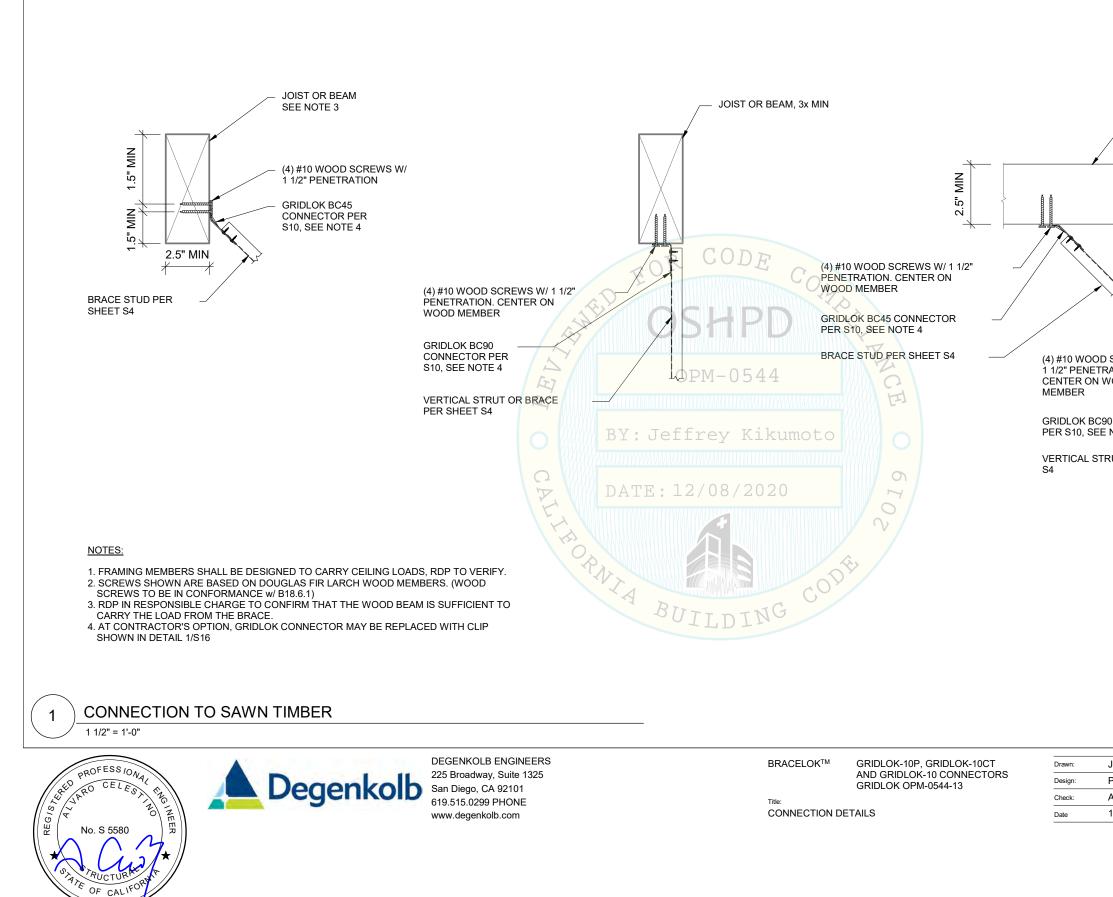
S13



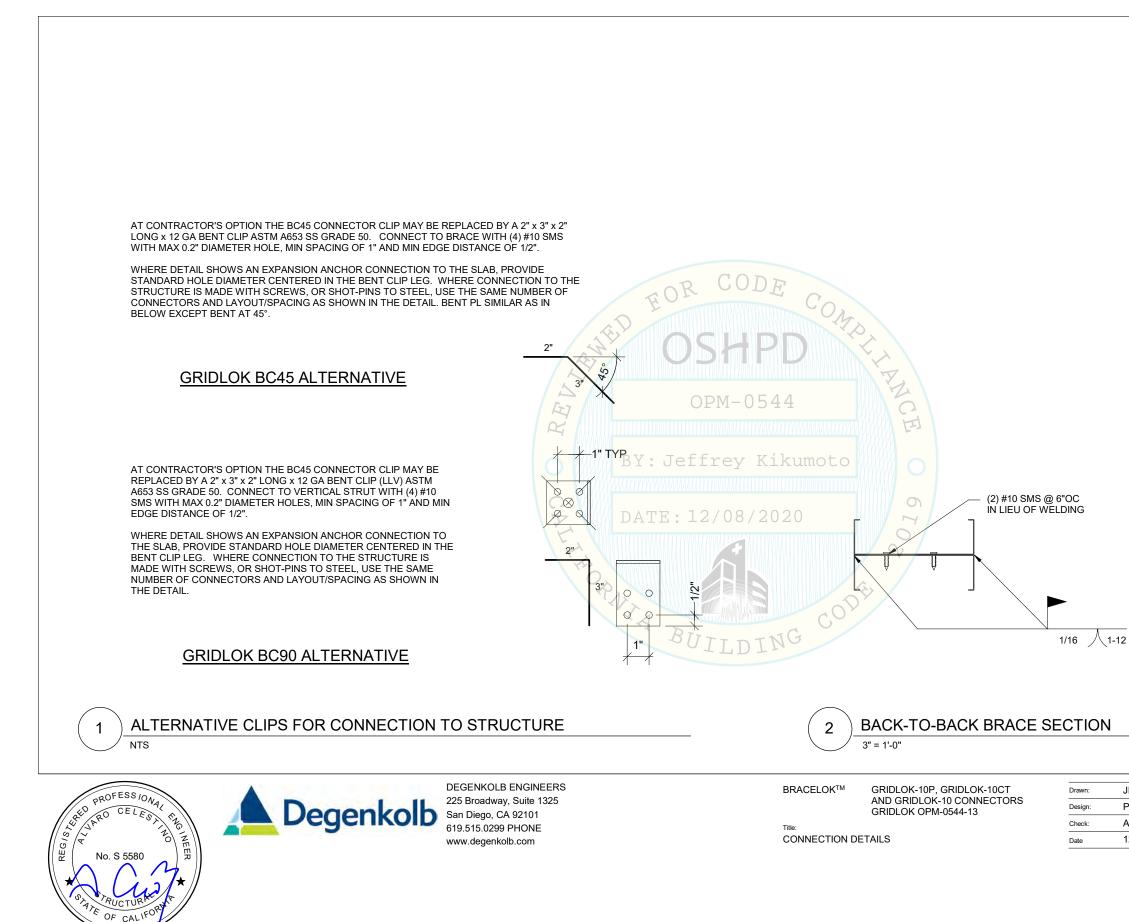
I <u>SDS VALUES PER</u> INS AND GRIDLOK ING			
OF IS	2 (SEE NOTE 1)	4	
	0.83	1.38	
	1.24	2.00	
	1.86	2.50	

1. SHOTPINS INSTALLED IN STAGGERED HOLES ON DIAGONAL.

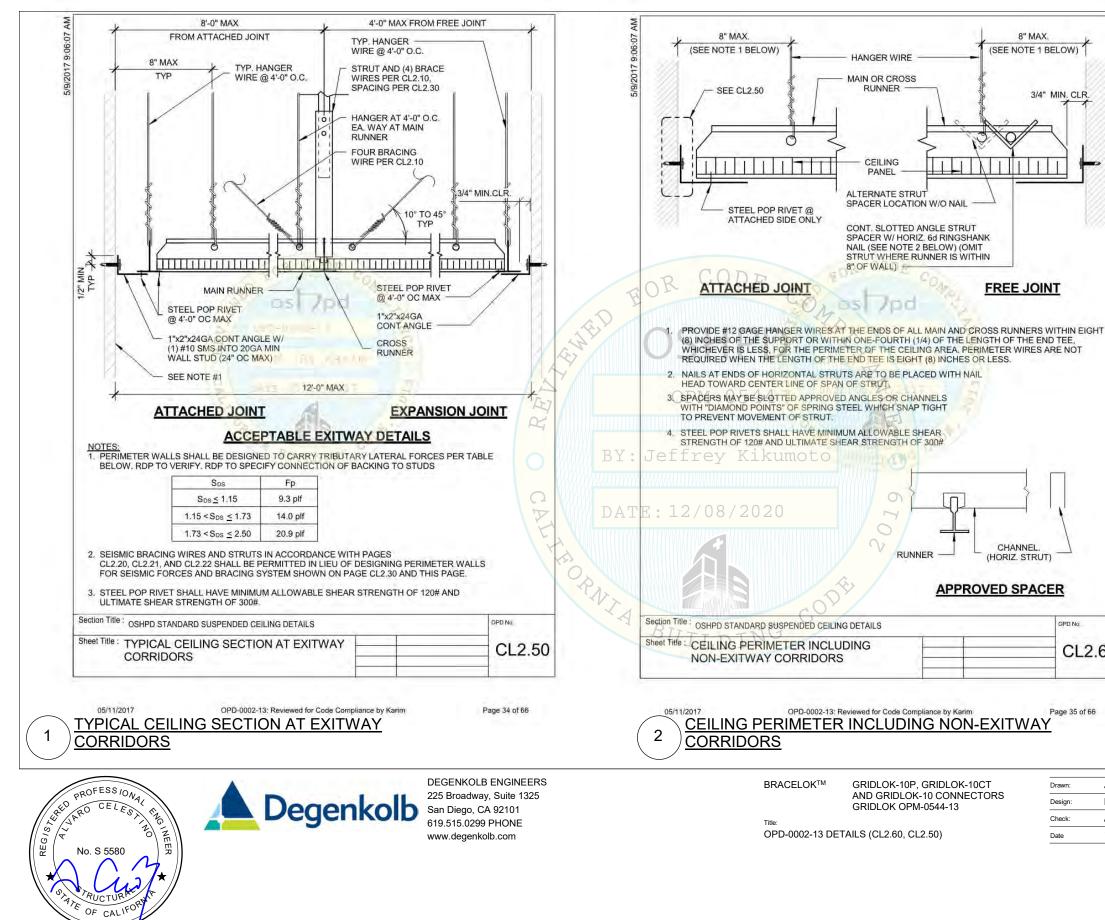
JEB	Job number: B8769007.01	Sheet
PGM/LH	Rev:	S14
AC	Scale: AS INDICATED	011
12/07/2020		OF Sheets



PLAT WOOD O SCREWS W/ RATION. WOOD PO CONNECTOR E NOTE 4 RUT PER SHEET	ELEMENT OR BLKG	
JEB PGM/LH	Job number: B8769007.01	Sheet S15

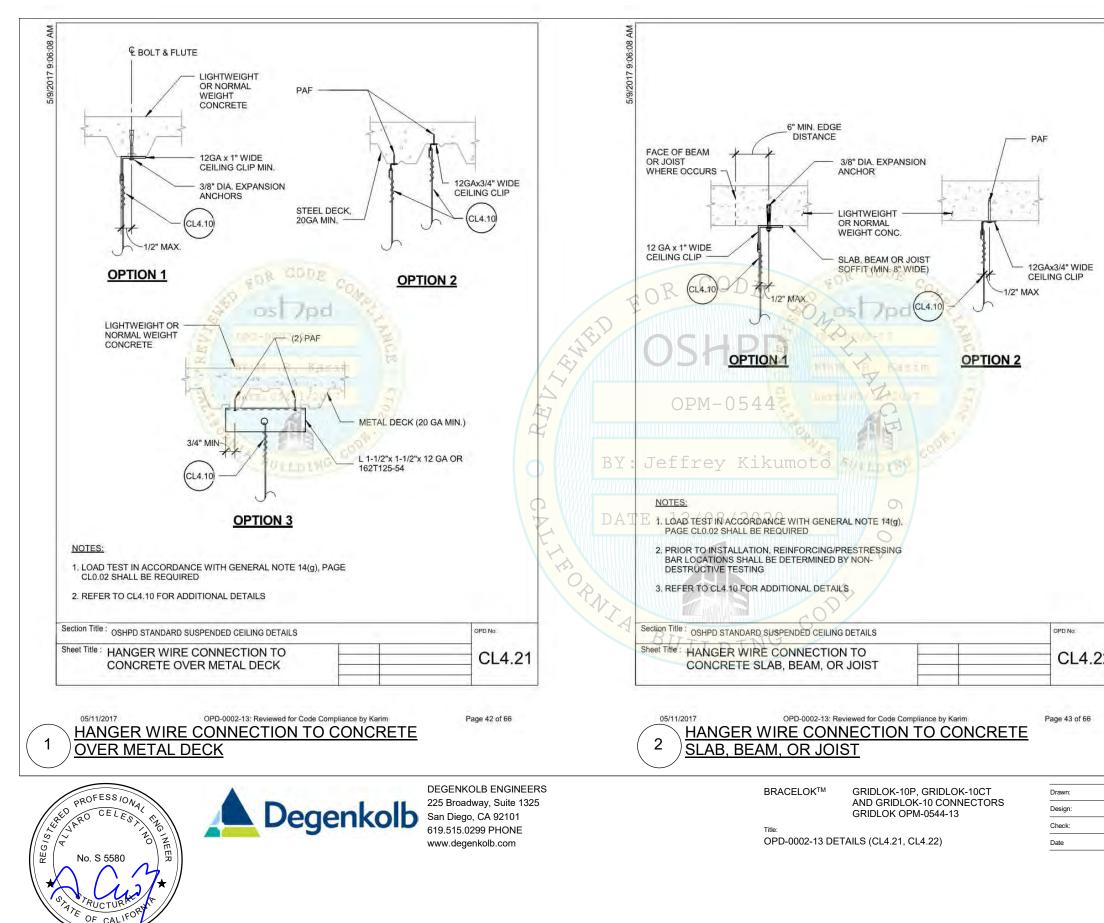


JEB Job number:	B8769007.01	Sheet	
PGM/LH Rev:		S16	5
AC Scale: AS I	NDICATED	010	
12/07/2020		OF	Sheets

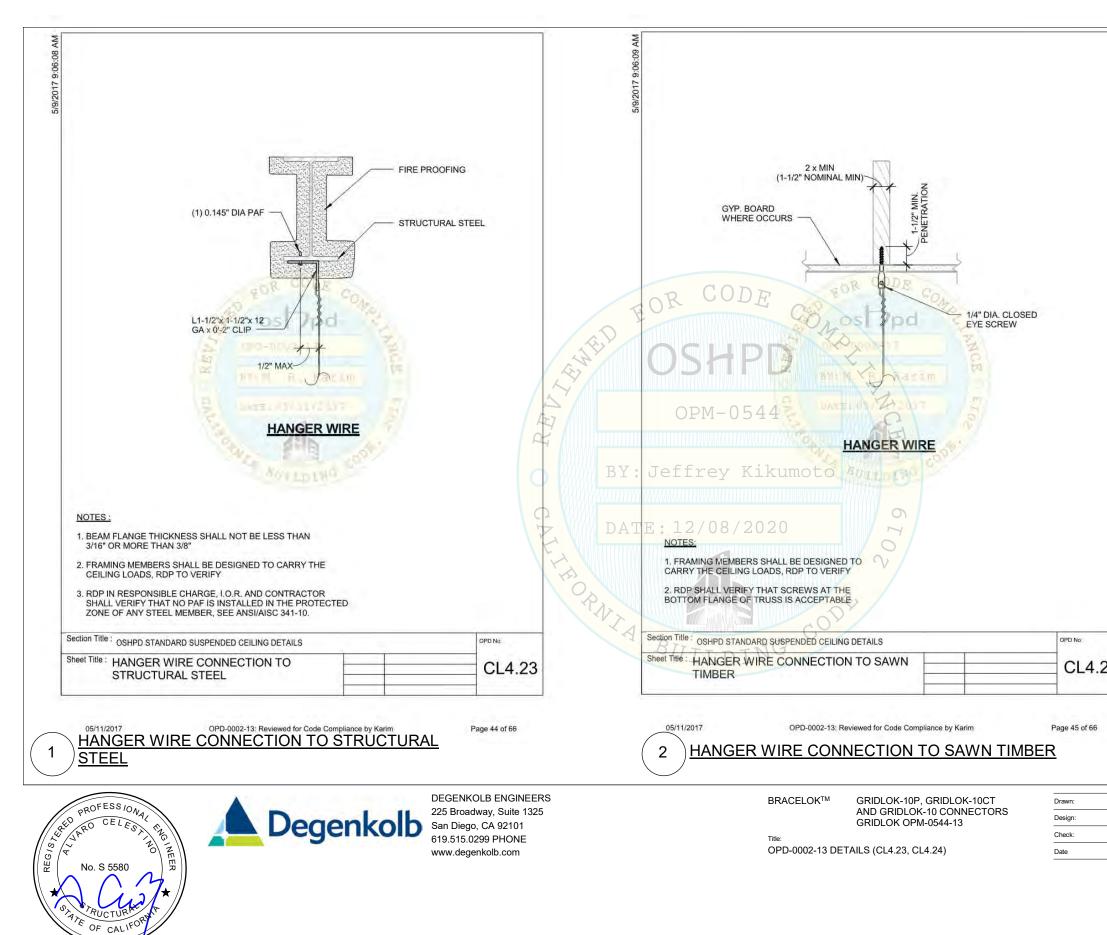


SHEET NOTES: 1. NOTES AND DETAIL CALLOUTS IN SPEC DETAILS TAKE PRECEDENCE OVER THE DETAILS CALLED OUT ON THIS SHEET.	
Job number: B8769007.01 /LH Rev: Scale: NTS	^{Sheet} S17

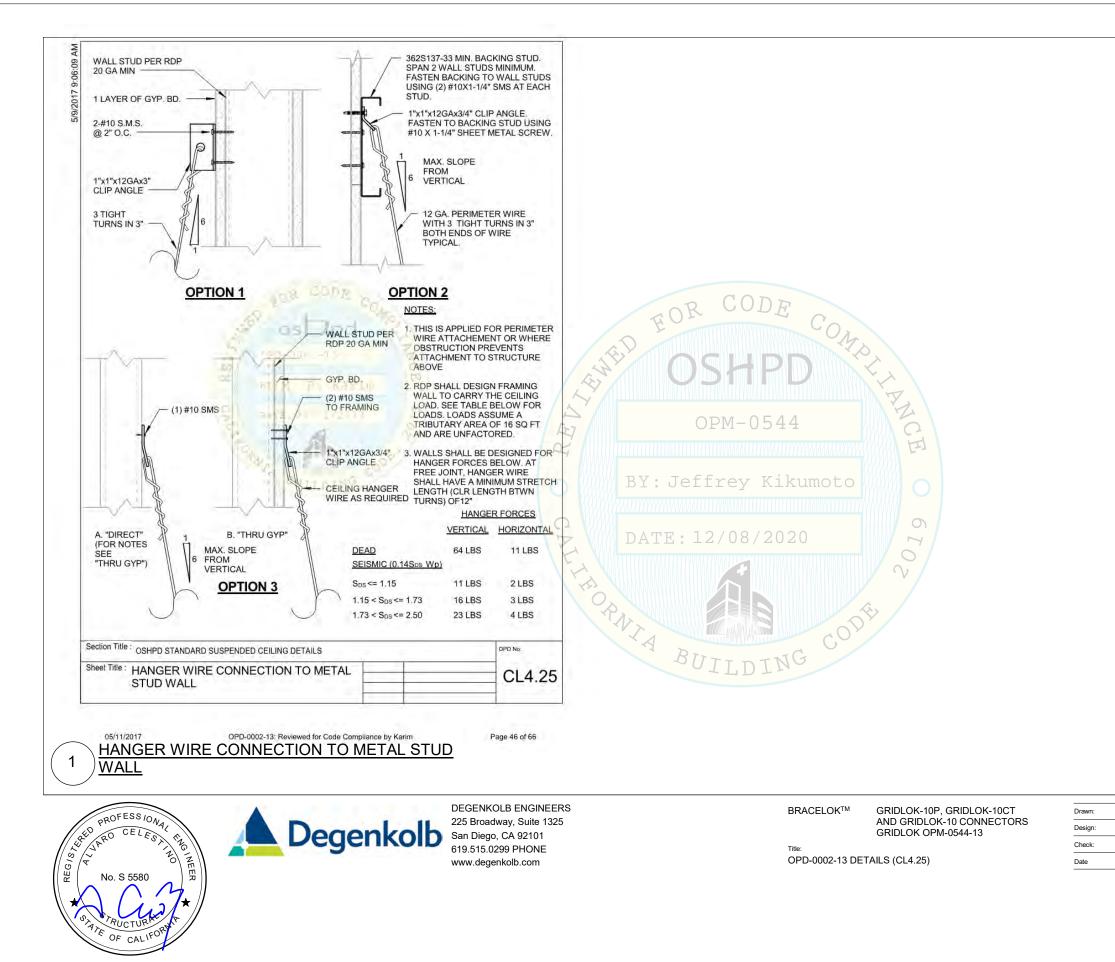
12. EXPANSION JOINTS, SEISMIC SEPARATIONS, AND PENETRATIONS:	3 AM	
a. EXPANSION JOINTS SHALL BE PROVIDED IN THE CEILING AT INTERSECTIONS OF CORRIDORS AND AT JUNCTIONS OF CORRIDORS WITH LOBBIES OR OTHER SIMILAR AREAS.	88 1/2" MAX U.N.O.	SHEET NOTES: 1. NOTES AND DETAIL CALLOUTS IN SPECIFIC
b. FOR CEILING AREAS EXCEEDING 2500 SQUARE FEET, A SEISMIC SEPARATION JOINT SHALL BE PROVIDED TO DIVIDE THE CEILING INTO AREAS NOT EXCEEDING 2500 SQ. FT.	国 国 1000	DETAILS TAKE PRECEDENCE OVER THE "OPD" DETAILS CALLED OUT ON THIS SHEET.
c. PENETRATIONS THROUGH THE CEILING FOR SPRINKLER HEADS AND OTHER SIMILAR DEVICES THAT ARE NOT INTEGRALLY TIED TO THE CEILING SYSTEM IN THE LATERAL DIRECTION SHALL HAVE A TWO (2) INCH OVERSIZED RING, SLEEVE OR ADAPTER THROUGH THE CEILING TILE TO ALLOW FREE MOVEMENT OF ONE (1) INCH IN ALL HORIZONTAL DIRECTIONS. A FLEXIBLE SPRINKLER HOSE FITTING THAT CAN ACCOMMODATE ONE (1) INCH OF CEILING MOVEMENT SHALL BE PERMITTED TO BE USED IN LIEU OF THE OVERSIZED RING, SLEEVE OR ADAPTER. SUCH TLEXIBLE SPRINKLER HOSE SHALL BE ADEQUATELY SUPPORTED FROM SOFFIT SO AS NOT TO EXCEED THE MAXIMUM TRIBUTARY WEIGHT OF THE CEILING.	FOR CONNECTION TO STRUCTURE SEE CONNECTION MATRIX ON CL4.11	2. FOR THE SCOPE OF THIS OPM, BRACING WIRES HAVE BEEN REPLACED BY THE GRIDLOK BRACING SYSTEM AND ARE NOT APPLICABLE FOR USE UNDER THIS OPM. GRIDLOK BRACES TO BE INSTALLED AT 45 DEGREES AS
13. LATERAL FORCE BRACING: LATERAL FORCE BRACING IS REQUIRED IN ACCORDANCE WITH THIS SECTION FOR ALL CEILING AREAS, UON.		INDICATED ON SPECIFIC DETAIL SHEETS.
EXCEPTION: LATERAL FORCE BRACING MAY BE OMITTED FOR SUSPENDED ACOUSTICAL CEILING SYSTEMS WITH A CEILING AREA OF 144 SQ. FT. OR LESS, WHEN PERIMETER SUPPORT IN ACCORDANCE WITH ASTM E580 ARE PROVIDED AND PERIMETER WALLS ARE DESIGNED TO CARRY THE CEILING LATERAL FORCES.	3 TURNS @ HANGER WIRE TYPICAL @ EACH END	
a. PROVIDE LATERAL-FORCE BRACING ASSEMBLIES CONSISTING OF A STRUT AND FOUR (4) #12 GAGE BRACING WIRES ORIENTED 90 DEGREES FROM EACH OTHER.		
b. LATERAL-FORCE BRACING ASSEMBLIES SHALL BE SPACED IN ACCORDANCE WITH CL2.20 THROUGH CL2.22 AND CL2.30 FROM EACH WALL AND AT THE EDGES OF ANY CHANGE OF ELEVATION OF THE CEILING.	#12 GAGE WIRE ASTM A641 WITH CLASS 1 COATING	
C. THE SLOPE OF BRACING WIRES MAY BE FROM 10 TO 45 DEGREES BUT MAY NOT EXCEED 45 DEGREES FROM THE PLANE OF THE CEILING AND WIRES SHALL BE TAUT.	FOR CODE	
d. STRUTS SHALL BE ADEQUATE TO RESIST THE VERTICAL COMPONENT INDUCED BY THE BRACING WIRES, AND SHALL NOT BE MORE THAN 1 (HORIZONTAL) IN 6 (VERTICAL) OUT OF PLUMB.	HANGER WIRE	
14. ATTACHMENT OF HANGER AND BRACING WIRES:	1/2" MAX, U.O.N.	
a. FASTEN #12 HANGER WIRES WITH NOT LESS THAN THREE (3) TIGHT TURNS IN 3 INCHES. HANGER WIRE LOOPS SHALL BE TIGHTLY WRAPPED AND SHARPLY BENT TO PREVENT ANY VERTICAL MOVEMENT OR ROTATION OF THE MEMBER WITHIN THE LOOPS	FOR CONNECTION TO	
b. FASTEN #12 BRACING WIRES WITH FOUR (4) TIGHT TURNS, MAKE ALL TIGHT TURNS WITHIN A DISTANCE OF 1 1/2"	OPM-0544	
c. HANGER OR BRACING WIRE ANCHORED TO THE STRUCTURE SHOULD BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE ANCHOR ALIGNS AS CLOSELY AS POSSIBLE WITH THE DIRECTION OF THE WIRE.		
d. SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST SIX (6) INCHES FROM ALL UNBRACED DUCTS, PIPES CONDUITS, ETC.	BY: Jeffrey Kikumote 4 TURNS @ BRACE WIRES	
B. HANGER WIRES SHALL NOT BE ATTACHED TO OR BEND AROUND INTERFERING MATERIAL OR EQUIPMENT. PROVIDE TRAPEZE OR OTHER SUPPLEMETARY SUPPORT MEMBERS AT OBSTRUCTIONS TO TYPICAL HANGER SPACING. PROVIDE ADDITIONAL HANGERS, STRUTS OR BRACES AS REQUIRED AT ALL CEILING BREAKS, SOFFITS, OR DISCONTINUOUS AREAS.	@ EACH END 10° TO 45°	IF.
f. HANGER WIRES THAT ARE MORE THAN 1 (HORIZONTAL) IN 6 (VERTICAL) OUT OF PLUMB SHALL REQUIRE PROJECT	DATE: 12/08/2020	
9. WHEN DRILLED-IN CONCRETE ANCHORS OR PAF ARE USED IN REINFORCED CONCRETE FOR HANGER WIRES, 1 OUT OF 10 WIRE/ ANCHOR ASSEMBLIES SHALL BE FIELD TESTED FOR 200 LBS. IN TENSION. WHEN DRILLED-IN CONCRETE ANCHORS ARE USED FOR BRACING WIRES, 1 OUT OF 2 WIRE/ANCHOR ASSEMBLIES SHALL BE FIELD TESTED FOR 440 LBS. IN TENSION IN THE DIRECTION OF THE WIRE. PAF IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES.	BRACING WIRE	
Section Title : OSHPD STANDARD SUSPENDED CEILING DETAILS	Section Title : OSHPD STANDARD SUSPENDED CEILING DETAILS OPD No:	
Sheet Title : GENERAL NOTES - PAGE 3 OF 4 CL0.02	Sheet Tille - LANOED AND DA CING MUDE	4.10
05/11/2017 OPD-0002-13: Reviewed for Code Compliance by Karim Page 13 of 66 GENERAL NOTES - PAGE 3 OF 4	05/11/2017 OPD-0002-13: Reviewed for Code Compliance by Karim Page 40 of <u>HANGER AND BRACING WIRE CONNECTION -</u> <u>TYPICAL WIRE TURNS</u>	66
PROFESS /0/y DEGENKOLB ENGINEERS 225 Broadway, Suite 1325	BRACELOK TM GRIDLOK-10P, GRIDLOK-10CT Drawn:	JEB Job number: B8769007.01 Sheet
No. S 5580	AND GRIDLOK-10 CONNECTORS GRIDLOK OPM-0544-13	PGM/LH Rev: S1
CARE OF COLOR OF COLO	Title:	AC scale: NTS
Www.degenkolb.com	OPD-0002-13 DETAILS (CL0.02, CL4.10)	12/07/2020 OF
No. S 5580		



1	SHEET NOTES:	
	 NOTES AND DETAIL CALLOUTS IN SPEC DETAILS TAKE PRECEDENCE OVER THE DETAILS CALLED OUT ON THIS SHEET. 	
	2. FOR THE SCOPE OF THIS OPM, BRACIN WIRES HAVE BEEN REPLACED BY THE O BRACING SYSTEM AND ARE NOT APPLIC FOR USE UNDER THIS OPM.	GRIDLOK
ΞB	Job number: B8769007.01	Sheet
GM C	/LH Rev: Scale: NTS	S19
		OF Sheets



JEB Job number: B8769007.01 Sheet PGM/LH Rev: S20 AC Scale: NTS			
DETAILS TAKE PRECEDENCE OVER THE "OPD" DETAILS CALLED OUT ON THIS SHEET. 2. FOR THE SCOPE OF THIS OPM, BRACING WIRES HAVE BEEN REPLACED BY THE GRIDLOK BRACING SYSTEM AND ARE NOT APPLICABLE FOR USE UNDER THIS OPM. 2. DOR USE UNDER THIS OPM.	SHEE	ET NOTES:	
MIRES HAVE BEEN REPLACED BY THE GRIDLOK BRACING SYSTEM AND ARE NOT APPLICABLE FOR USE UNDER THIS OPM.	DE	TAILS TAKE PRECEDENCE OVER THE	
JEB Job number: B8769007.01 Sheet PGM/LH Rev: S20 AC Scale: NTS	WII BR	RES HAVE BEEN REPLACED BY THE G ACING SYSTEM AND ARE NOT APPLIC	RIDLOK
JEB Job number: B8769007.01 Sheet PGM/LH Rev: S20 AC Scale: NTS			
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PGM/LH Rev: S20 AC Scale: NTS			
AC Scale: NTS			
			520
12/07/2020 OF Sheets	12/07/2020		OF Sheets



SHEET NOTES:

- 1. NOTES AND DETAIL CALLOUTS IN SPECIFIC DETAILS TAKE PRECEDENCE OVER THE "OPD" DETAILS CALLED OUT ON THIS SHEET.
- 2. FOR THE SCOPE OF THIS OPM, BRACING WIRES HAVE BEEN REPLACED BY THE GRIDLOK BRACING SYSTEM AND ARE NOT APPLICABLE FOR USE UNDER THIS OPM.

	S21
NTS	021
	OF Sheets
	N15