



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY	
APPLICATION #:	OPM-0116-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: New Renewal Update to Pre-CBC 2013 OPA Number: _____

Manufacturer Information

Manufacturer: Panduit Corporation

Manufacturer's Technical Representative: Nathan Gleghorn

Mailing Address: 412 Rockwell Court, Burr Ridge, Illinois 60527

Telephone: 708-532-1800 x84249 Email: NAGL@panduit.com

Product Information

Product Name: 2 Post Cable Management Rack

Product Type: 2 post rack OPM-0116-13

Product Model Number: R2P, R2PS, R2P6S

General Description: 2 post rack with 45 rack spaces for support of standard 19-inch components.

Applicant Information

Applicant Company Name: Panduit Corporation

Contact Person: Robert Fritz

Mailing Address: 412 Rockwell Court, Burr Ridge, Illinois 60527

Telephone: 708-532-1800 x84346 Email: RLFR@panduit.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: *Robert L Fritz* Date: 06/04/2014

Title: Senior Manager Engineering Company Name: Panduit Corporation

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





OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT FACILITIES DEVELOPMENT DIVISION

Registered Design Professional Preparing Engineering Recommendations

Company Name: Degenkolb Engineers

Name: Adrian M. Nacamuli California License Number: S 4857

Mailing Address: 1300 Clay Street, 9th Floor, Oakland, California 94612

Telephone: 510-250-1216 Email: nacamuli@degenkolb.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: 04/07/2015

Print Name: Jeffrey Kikumoto

Title: SSE

Condition of Approval (if applicable): _____

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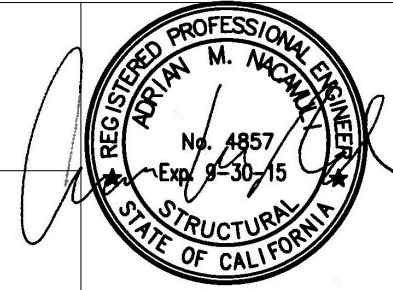




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PANDUIT 2 POST CABLE MANAGEMENT RACK

MODELS R2P, R2PS, R2P6S

GENERAL NOTES

1. THIS OSHPD PREAPPROVAL 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. PRE-APPROVED DESIGN AND MATERIALS CONFORM WITH THE 2013 EDITION OF THE CALIFORNIA BUILDING CODE. DETAILS WITHIN THIS APPROVAL MAY BE USED ANYWHERE IN THE STATE OF CALIFORNIA WHERE $S_{DS} \leq 2.0$

3. SEISMIC FORCES ON EQUIPMENT DETERMINED PER THE 2013 CBC & ASCE 7-10. ALL LOADS BELOW ARE FACTORED LOADS THAT SHALL BE USED FOR STRENGTH DESIGN.

4. EQUIPMENT MAY BE MOUNTED TO AN ELEVATED SLAB AT ANY FLOOR USING THE THROUGH BOLT CONDITION OR TO A NORMAL WEIGHT CONCRETE SLAB ON GRADE. THE MINIMUM REQUIRED SLAB PROPERTIES ARE AS FOLLOWS:

SLAB ON GRADE	ELEVATED SLAB
THICKNESS $\geq 5"$ $f_c \geq 3000$ PSI NORMAL WEIGHT CONCRETE PROVIDE 8" MIN DISTANCE TO ANY OPENINGS, THE EDGE OF SLAB, OTHER ANCHORS OR ATTACHMENTS TO SLAB 6-1/2" MIN SPACING	CONCRETE ON METAL DECK $f_c \geq 3000$ PSI NORMAL OR SAND LIGHT-WEIGHT CONCRETE SEE FIGURE ON PAGE 2 FOR MINIMUM STEEL DECK REQUIREMENTS

5. THE FACTORS USED TO CALCULATE THE SEISMIC DEMANDS ARE THE FOLLOWING:

a. $S_{DS} \leq 2.0$, $a_p = 2.5$, $R_p = 6.0$, $I_p = 1.5$, $\Omega_o = 2.5$,

WHERE $z/h \leq 1$

WHERE $z/h = 0$

- i. $F_p = 1.50 W_p$
- ii. $E_v = 0.40 W_p$
- iii. $\Omega_o F_p = 3.75 W_p$

- i. $F_p = 0.90 W_p$
- ii. $E_v = 0.40 W_p$
- iii. $\Omega_o F_p = 2.25 W_p$ (FOR ANCHORAGE TO CONCRETE)

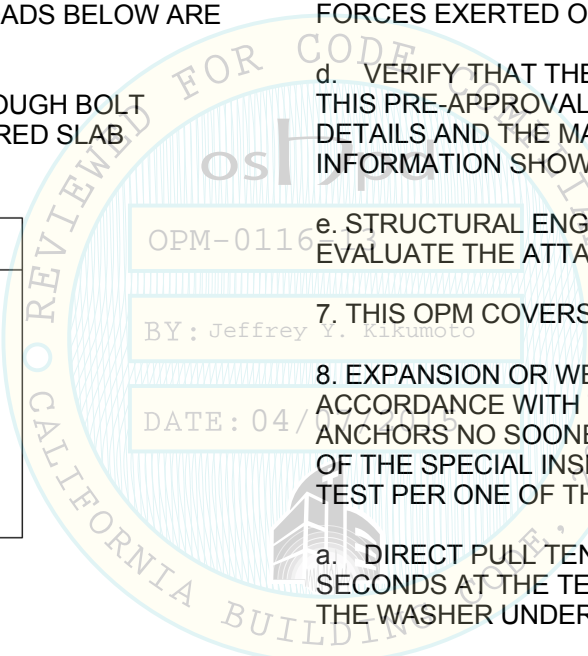
6. THE STRUCTURAL ENGINEER-OF-RECORD (S.E.O.R.) OR PRINCIPAL-IN-CHARGE OF A PROJECT SPECIFIC SITE IS RESPONSIBLE FOR THE FOLLOWING:

- a. VERIFY THAT THE ATTACHMENTS ARE A MINIMUM 8" FROM ANY OPENINGS OR EDGES.
- b. VERIFY THAT THE ATTACHMENTS ARE A MINIMUM 6-1/2" FROM ANY NEW OR EXISTING ANCHORS.
- c. DESIGN ANY SUPPLEMENTARY MEMBERS TO WHICH THE UNIT IS ATTACHED, TO SUPPORT WEIGHTS AND FORCES SHOWN. VERIFY THE ADEQUACY OF ANY EXISTING MEMBERS AND THEIR ATTACHMENTS FOR THE FORCES EXERTED ON THEM BY THE UNIT IN ADDITION TO ALL OTHER LOADS AND FORCES.
- d. VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2013 CBC AND WITH THE DETAILS SHOWN IN THIS PRE-APPROVAL. VERIFY THAT THE EQUIPMENT'S ACTUAL WEIGHT, CG LOCATION, ANCHOR LOCATIONS, DETAILS AND THE MATERIAL AND GAGE OF THE UNIT WHERE ATTACHMENTS ARE MADE AGREE WITH THE INFORMATION SHOWN IN THIS PRE-APPROVAL.
- e. STRUCTURAL ENGINEER-OF-RECORD (S.E.O.R.) OR PRINCIPAL-IN-CHARGE OF A SITE SPECIFIC PROJECT SHALL EVALUATE THE ATTACHMENT FOR CONDITIONS THAT VARY FROM THIS PRE-APPROVAL.

7. THIS OPM COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE UNIT TO THE STRUCTURE.

8. EXPANSION OR WEDGE ANCHORS INTO CONCRETE: HILTI KB-TZ (ICC ESR-1917). INSTALL ANCHORS IN ACCORDANCE WITH THE ICC REPORT AND MANUFACTURER'S RECOMMENDATIONS. TEST AT LEAST 50% OF ANCHORS NO SOONER THAN 24 HOURS AFTER INSTALLATIONS. TESTS SHALL BE CONDUCTED IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO OSHPD. TEST PER ONE OF THE FOLLOWING METHODS:

- a. DIRECT PULL TENSION TEST. ANCHOR IS ACCEPTABLE IF NO MOVEMENT IS OBSERVED FOR A MINIMUM OF 15 SECONDS AT THE TEST LOAD GIVEN IN TABLE ON THE FOLLOWING PAGE. MOVEMENT MAY BE DETERMINED WHEN THE WASHER UNDER THE NUT BECOMES LOOSE.
- b. TORQUE WRENCH TEST: TEST ANCHORS TO THE REQUIRED TORQUE LOAD GIVEN IN TABLE ON THE FOLLOWING PAGE WITHIN THE LIMIT OF ONE-HALF TURN OF THE NUT.

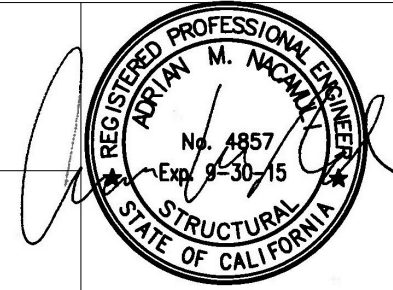




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PANDUIT 2 POST CABLE MANAGEMENT RACK

MODELS R2P, R2PS, R2P6S

GENERAL NOTES

ANCHOR TEST LOAD VALUES						
ANCHOR DIAMETER (IN)	EMBED hef (IN)	TENSION LOAD (LBS)	TORQUE LOAD (FT-LB)	CONCRETE TYPE	MINIMUM EDGE DISTANCE	MINIMUM SPACING
5/8"	3-1/8"	3,134	60	NORMAL WEIGHT	12"	6-1/2"
3/8"	2"	SEE NOTE a	25	SAND LIGHT-WEIGHT	12"	11"

a. TEST 3/8" EXPANSION ANCHORS USING THE TORQUE WRENCH TEST METHOD PER MANUFACTURER'S RECOMMENDATION AND AS DESCRIBED IN PAGE 1 OF 6

9. IF ANY ANCHOR FAILS DURING TESTING, UNIT MUST BE MOVED SO THAT NO ANCHOR IS WITHIN 8" OF AN ABANDONED ANCHOR.

10. CONTRACTOR OR SEOR MUST VERIFY ANCHOR SPACING TO ADJACENT EQUIPMENT ANCHORS. SPACING TO EXISTING ANCHORS IS TO BE GREATER THAN 8".

11. ALL MISCELLANEOUS STEEL SHALL CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED:

BOLTS A307 GR. A.
PLATE WASHER ASTM A36

12. THE TABLE ON PAGE 3 SHOWS THE MOST CRITICAL FORCES CALCULATED FOR THE SUPPORT AND ATTACHMENT DESIGN.

13. FOR THE SUPPORT AND ATTACHMENT DESIGN, THE MOST CRITICAL LOAD COMBINATION IS $(0.9 - 0.2Sds) D + E$.

14. WHEN $z/h = 0$, THE DESIGN FORCES FOR THE EXPANSION ANCHORS INTO CONCRETE WERE SCALED UP BY Ω_0 AS REQUIRED BY ASCE 7-10, SUPPLEMENT NO. 1, TABLE 13.6-1.

15. $T_{ult} + q$ IS THE FORCE DEMAND IN THE ANCHOR INCLUDING EFFECTS OF PRYING

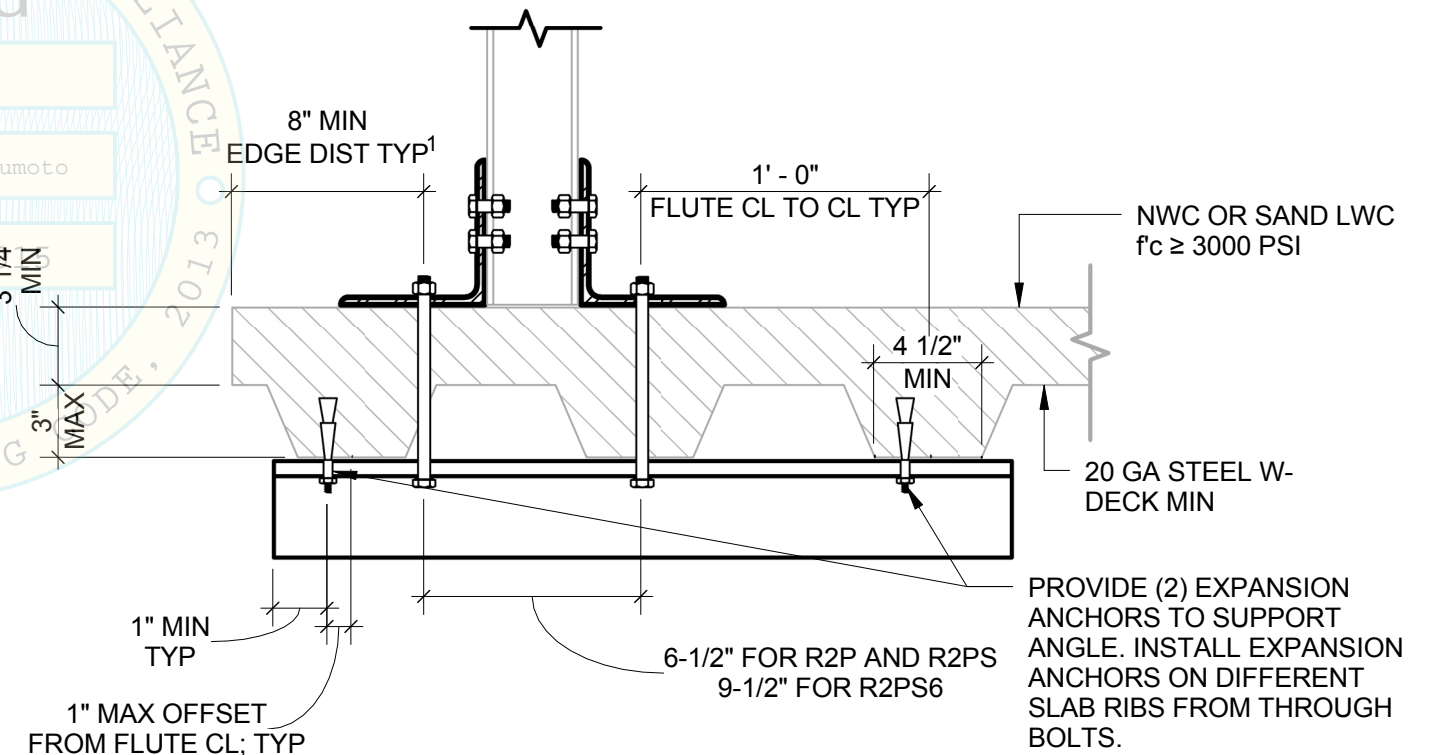
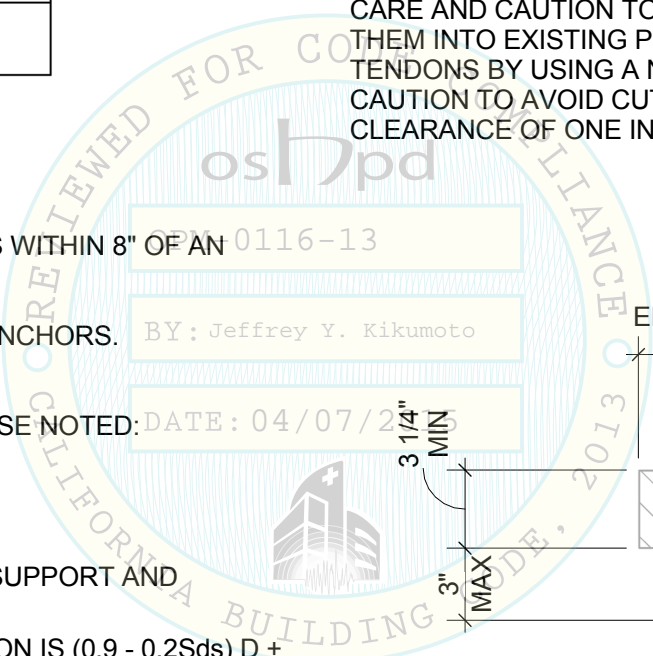
16. THE TABLE ON PAGE 4 SHOWS THE PROPERTIES OF THE DIFFERENT MODELS CONSIDERED IN THIS SUBMITTAL.

17. WHERE $q = 0$ AS INDICATED ON THE TABLE OF PAGE 3, EITHER THE SUPPORT AND ATTACHMENT MECHANISM IS GOVERNED BY THE CAPACITY OF THE BASE BRACKET OR THE FITTING HAS SUFFICIENT STIFFNESS AND STRENGTH TO DEVELOP THE FULL BOLT AVAILABLE TENSILE STRENGTH AND ELIMINATE PRYING ACTION AS DESCRIBED IN THE FOURTEENTH EDITION OF THE AISC STEEL CONSTRUCTION MANUAL

18. CENTER OF GRAVITY (C.G.) WEIGHT IS A MAXIMUM. THIS PREAPPROVAL ENCOMPASSES ALL WEIGHTS UP TO THE MAXIMUM SHOWN.

19. EQUIPMENT MANUFACTURER MUST DESIGN UNIT TO MAKE C.G. EQUAL OR LESS THAN THE C.G. HEIGHT DIMENSION SHOWN ON THE TABLE ON PAGE 4 OF 6

20. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED) LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.



NOTES

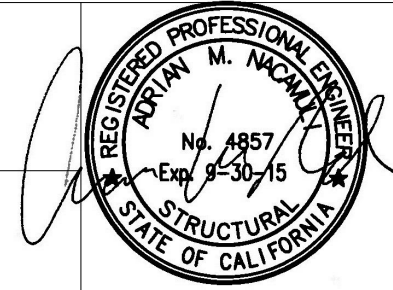
1. PROVIDE 8" MINIMUM DISTANCE TO EDGE OF SLAB, OPENINGS OR OTHER ATTACHMENTS
2. SEE NOTES ON PAGE 6 OF 6

MINIMUM STEEL DECK REQUIREMENTS

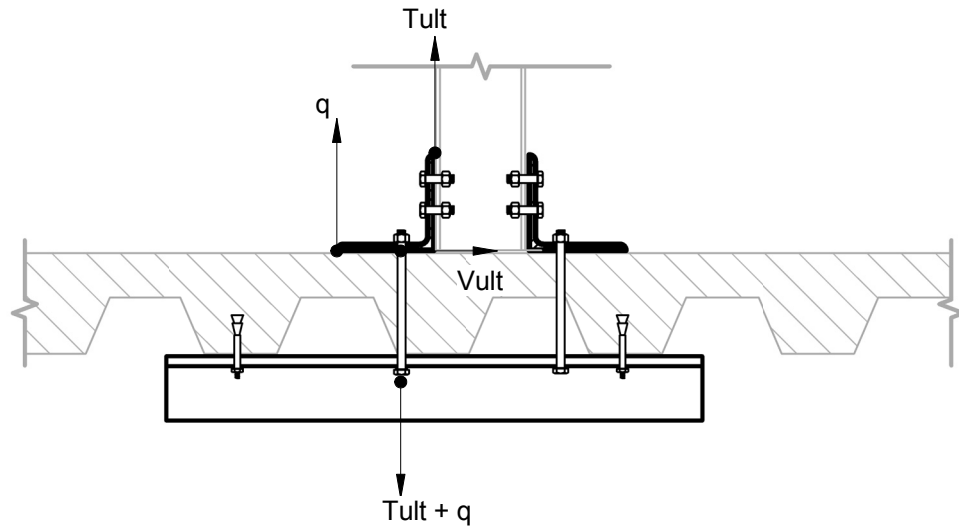


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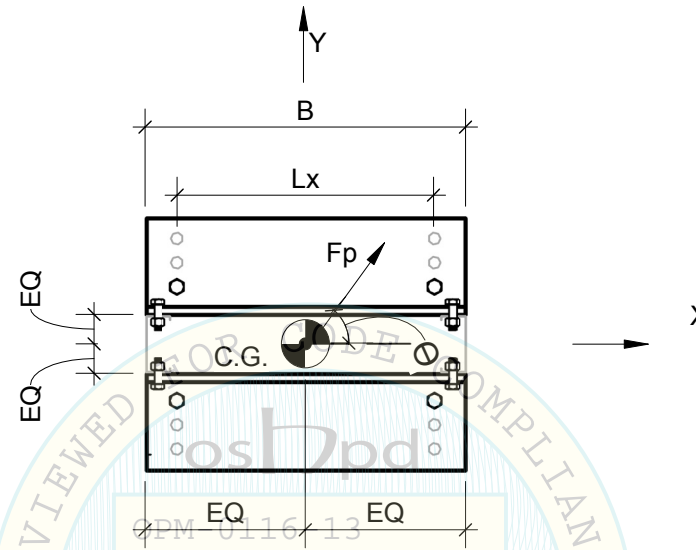
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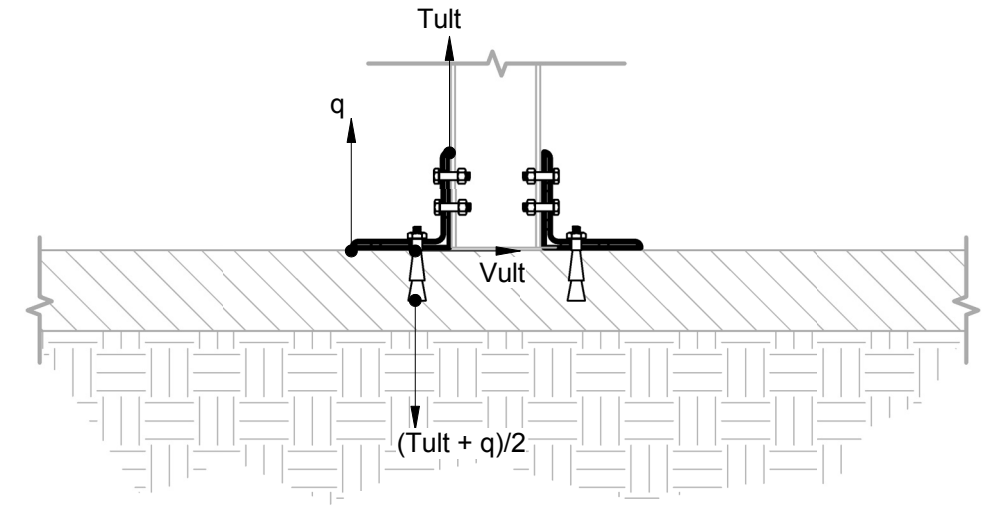
PANDUIT 2 POST CABLE MANAGEMENT RACK
MODELS R2P, R2PS, R2P6S



ELEVATED SLAB



PLAN VIEW



SLAB ON GRADE

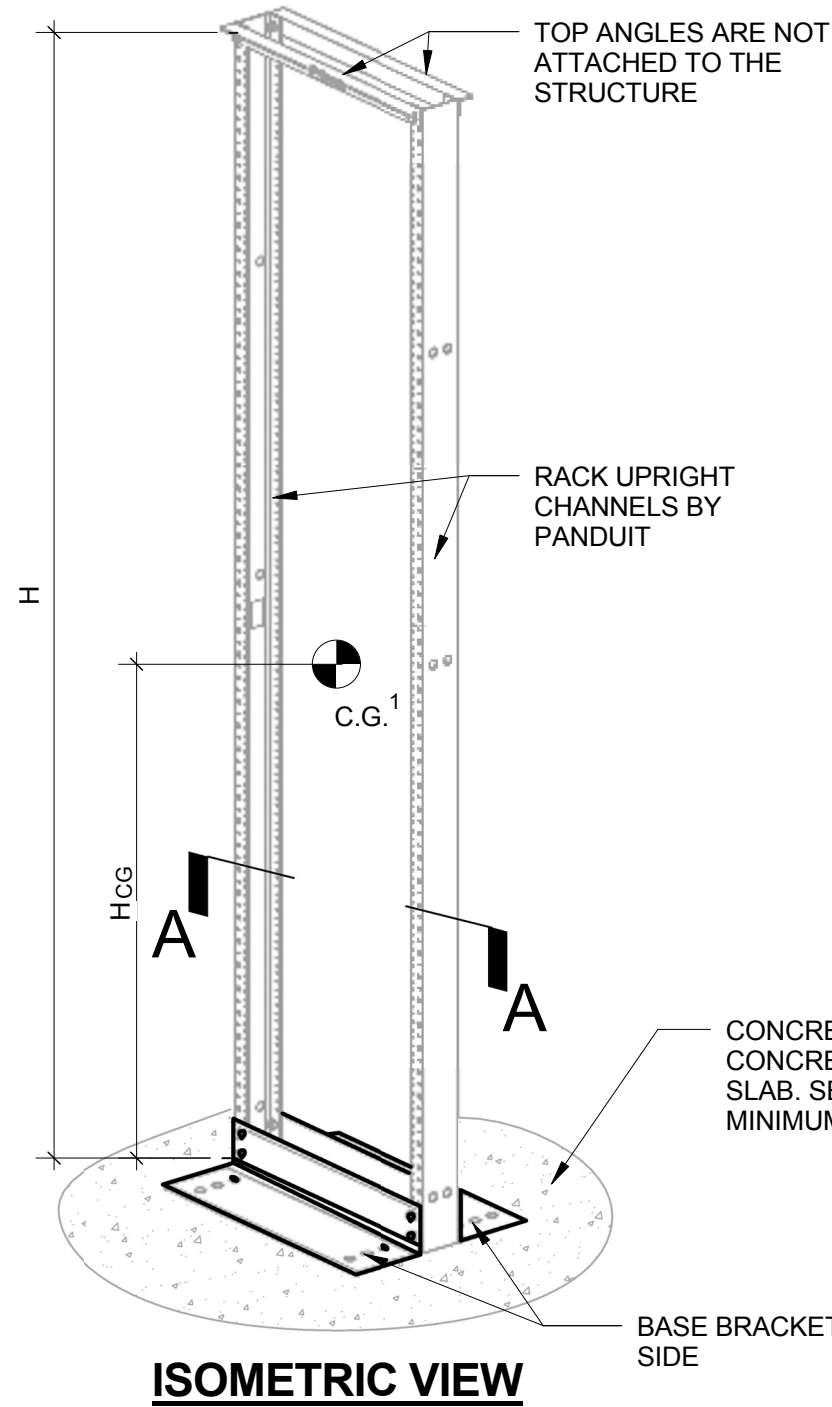
PART NUMBER	SELF-WEIGHT (LBS)	ANGLE θ (DEGREES)	LOAD RATING (LBS)	$z/h = 0$			$z/h \leq 1$			
				Tult ^a (LBS)	q ^a (PRYING FORCE) (LBS)	Vult ^a (LBS)	LOAD RATING (LBS)	Tult (LBS)	q (PRYING FORCE) (LBS)	Vult ^a (LBS)
R2P	28	70	300	990	0 (SEE NOTE 6)	75	550	3,000	0(SEE NOTE 7)	220
R2PS	53	70	250	900	60 (SEE NOTE 6)	70	250	1,530	0(SEE NOTE 7)	115
R2P6S	57	60	350	900	60 (SEE NOTE 6)	90	350	1,520	0(SEE NOTE 7)	155

a. FINAL DEMAND FORCES FOR ANCHORAGE TO CONCRETE TO INCLUDE OVERSTRENGTH FACTOR (Ω_0). SEE NOTE 4 BELOW.

NOTES:

- z IS THE HEIGHT IN THE STRUCTURE OF THE POINT OF ATTACHMENT OF THE COMPONENT WITH RESPECT TO THE BASE OF THE STRUCTURE.
- h IS THE AVERAGE ROOF HEIGHT.
- THE LOAD RATING IS IN ADDITION TO THE SELF-WEIGHT AT THE CONDITION UNDER CONSIDERATION; (**$W_p = \text{SELF-WEIGHT} + \text{LOAD RATING}$**)
- THE DESIGN FORCES Tult, q AND Vult ON THE TABLE ABOVE ARE AT STRENGTH LEVEL AND ARE NOT AMPLIFIED BY Ω_0 . FINAL DEMAND FORCES FOR ANCHORAGE TO CONCRETE TO INCLUDE OVERSTRENGTH FACTOR Ω_0 .
- θ IS THE ANGLE AT WHICH Fp GENERATES THE LARGEST TENSILE FORCE DEMAND IN THE ANCHORS
- THE BASE BRACKET HAS ENOUGH STIFFNESS AND STRENGTH TO DEVELOP THE FULL BOLT AVAILABLE TENSILE STRENGTH, BUT INSUFFICIENT STRENGTH TO PREVENT PRYING ACTION AT PART NUMBERS R2PS AND R2P6S
- THE SUPPORT AND ATTACHMENT CAPACITY IS GOVERNED BY THE FLEXURAL CAPACITY OF THE BASE BRACKET

PANDUIT 2 POST CABLE MANAGEMENT RACK
MODELS R2P, R2PS, R2P6S



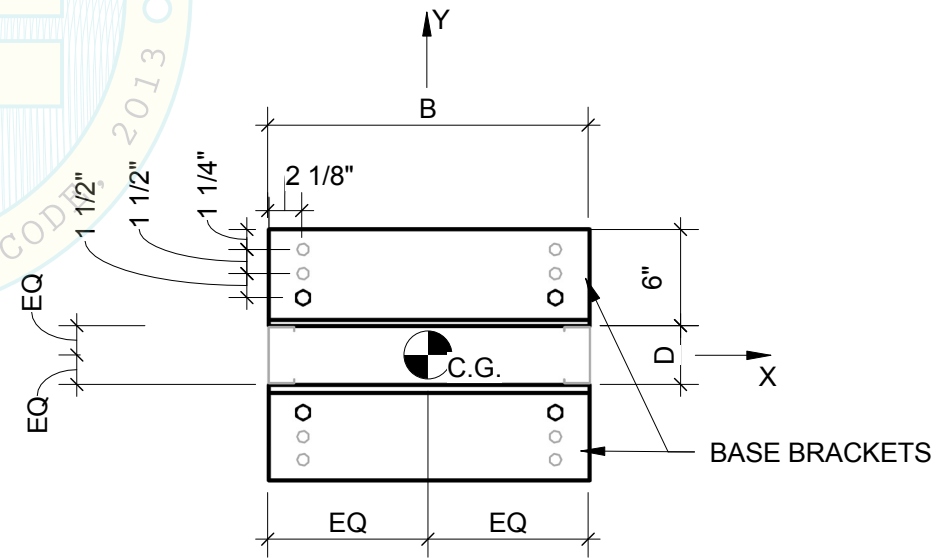
ISOMETRIC VIEW

PART NUMBER (19" RACK)	H (IN)	B (IN)	D (IN)	Hcg (IN)	MATERIAL	RACK UPRIGHT CHANNELS		BASE BRACKET		
						fy MIN (KSI)	FLANGE		THICKNESS (IN)	fy MIN (KSI)
							t _f MIN (IN)	w _f MIN (IN)		
R2P	84	20.25	3	42	ALUMINUM A6000-T6	46.4	0.190	1.250	0.250	46.4
R2PS	84	20.25	3	42	STEEL ASTM A653 CS TYPE B	30.0	0.125	1.250	0.180	30.0
R2P6S	84	20.25	6	42		30.0	0.125	1.250	0.180	30.0

1. SEE TABLE ON PAGE 3 OF 6 FOR WEIGHTS APPLIED AT C.G.
2. ALL HOLES THROUGH STEEL FOR BOLTS SHALL BE STANDARD SIZE HOLES PER AISC 14TH EDITION, TABLE J3.3 (BOLT DIAMETER + 1/16")
3. ALL HOLES THROUGH ALUMINUM SHALL BE THE BOLT DIAMETER + 1/16".

BY: Jeffrey Y. Kikumoto

DATE: 04/07/2015

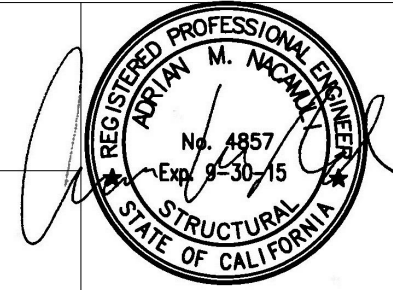


SECTION A-A

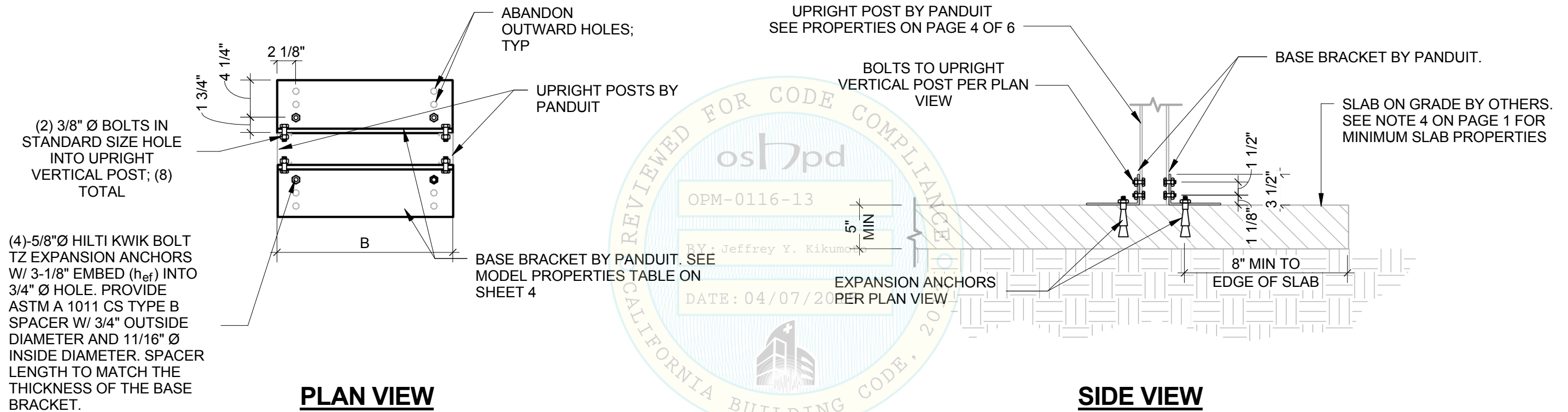


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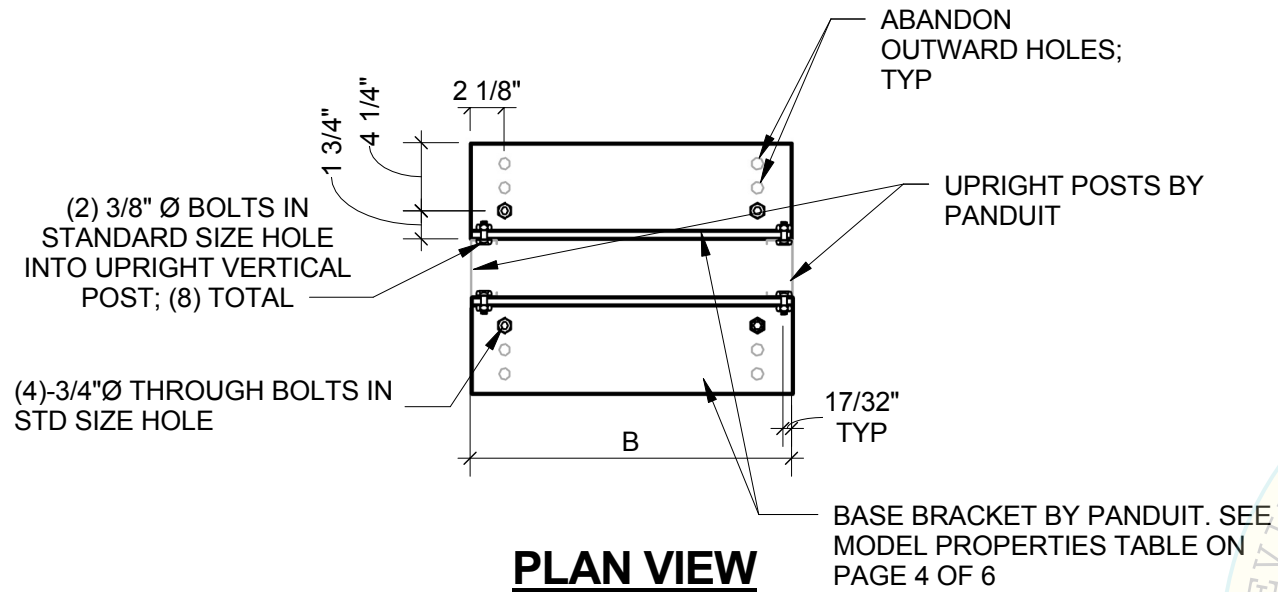


NOTES:

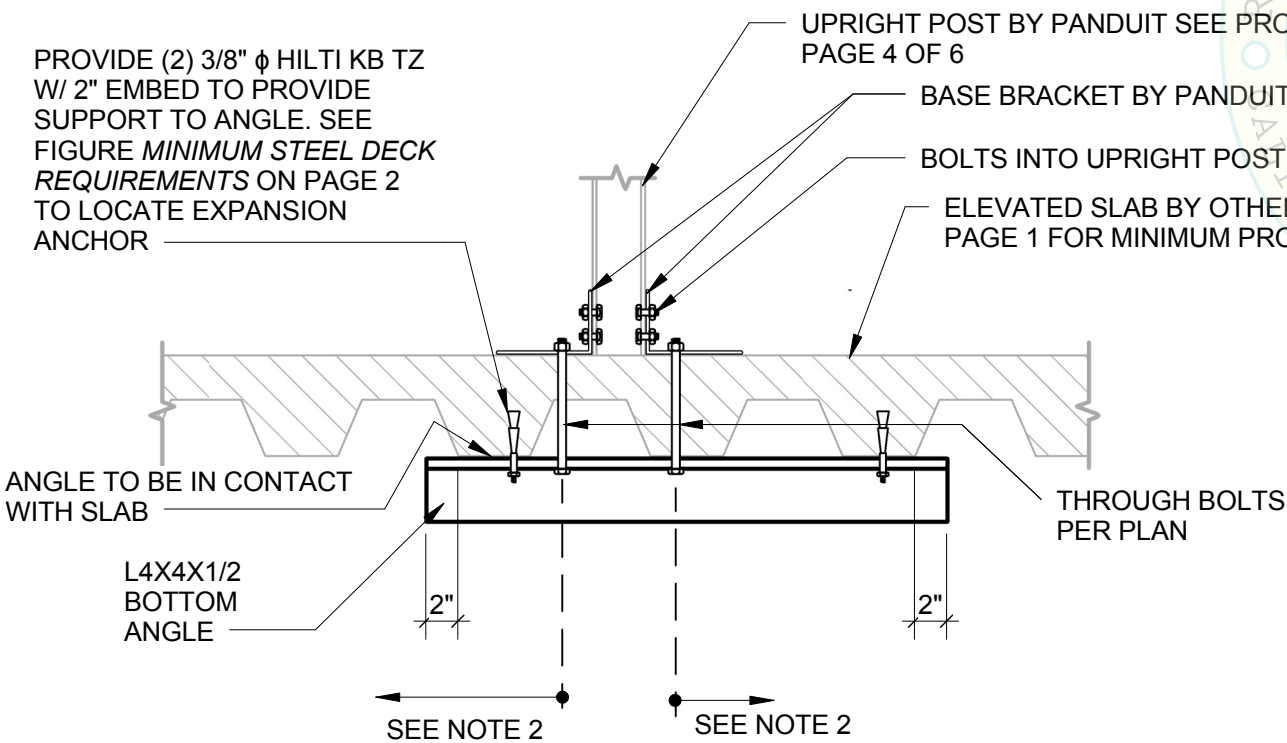
1. FOR FORCE DEMANDS AND GEOMETRIC PROPERTIES SEE PAGES 3 AND 4 RESPECTIVELY.
2. ALL HOLES THROUGH STEEL FOR BOLTS SHALL BE STANDARD SIZE HOLES PER AISC 14TH EDITION, TABLE J3.3 (BOLT DIAMETER + 1/16")

PANDUIT 2 POST CABLE MANAGEMENT RACK

MODELS R2P, R2PS, R2P6S



PLAN VIEW



TOP ANGLES PARALLEL TO METAL DECK FLUTES

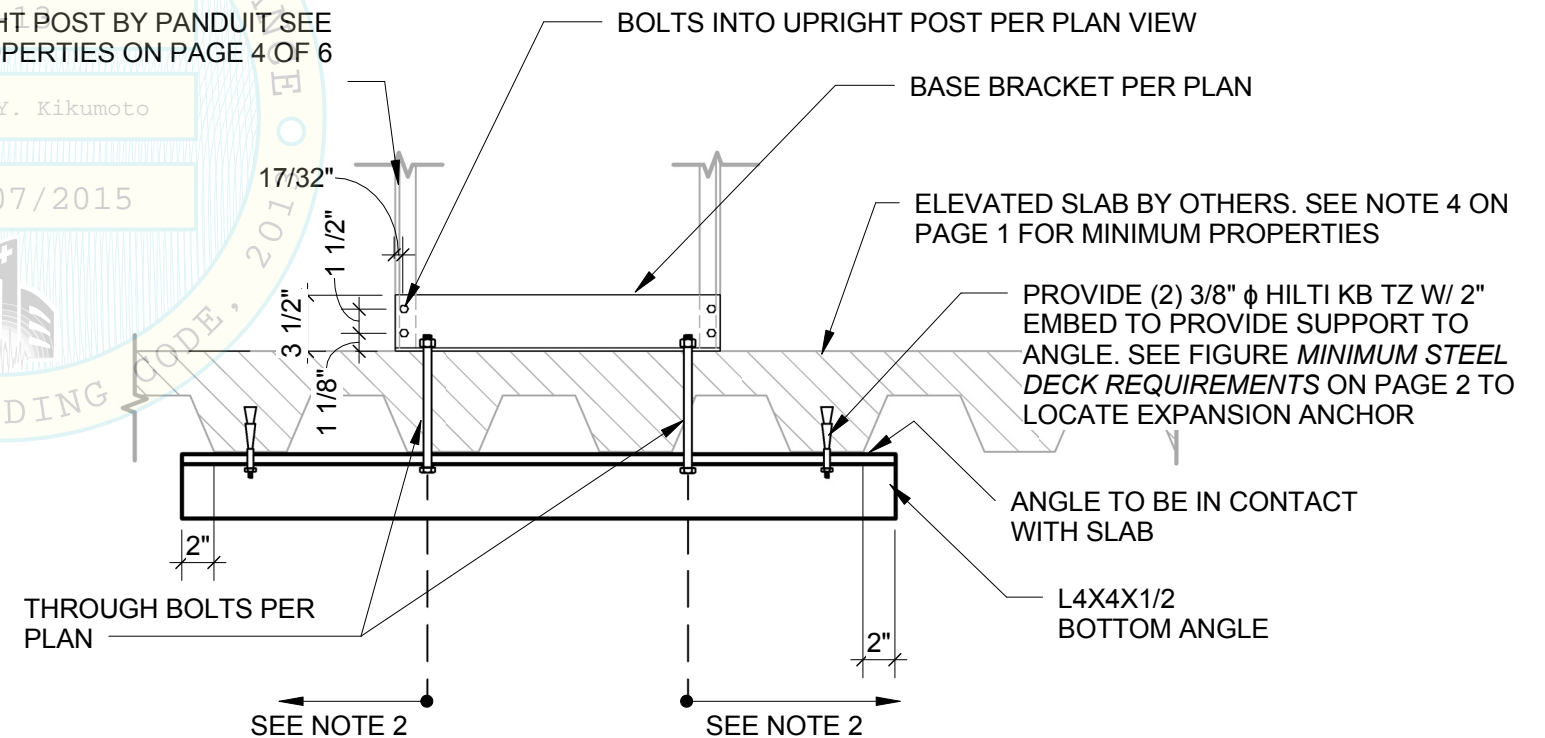
NOTES:

1. PROVIDE HEX NUT AT TOP AND BOTTOM OF BOTTOM ANGLE FLANGE, TYP. U.O.N. AT CONDITIONS WHERE NUT CANNOT BE PROVIDED AT TOP SIDE OF ANGLE FLANGE, PROVIDE TAPPED HOLE IN ANGLE
2. EXTEND THE BOTTOM ANGLE 2" PAST THE EDGE OF THE SLAB RIB TO INSTALL EXPANSION ANCHOR. DO NOT INSTALL EXPANSION ANCHOR IN THE SAME RIB AS THE THROUGH BOLT.
3. FOR FORCE DEMANDS AND GEOMETRIC PROPERTIES SEE PAGES 3 AND 4 RESPECTIVELY.
4. ALL HOLES THROUGH STEEL FOR BOLTS SHALL BE STANDARD SIZE HOLES PER AISC 14TH EDITION, TABLE J3.3
5. FOR CONCRETE ELEVATED SLAB, PROVIDE BOTTOM ANGLE SIMILAR TO TOP ANGLE PARALLEL TO METAL DECK FLUTES
6. BOLTS THROUGH CONCRETE ON METAL DECK
 - A. BOLTS SHALL BE TORQUED BY 3/4 TURN OF THE NUTS AFTER THE SNUG TIGHT CONDITION (THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT) IS ACHIEVED.
 - B. THROUGH BOLTS IN CONCRETE SHALL RECEIVE SPECIAL INSPECTION AND TESTING IN ACCORDANCE WITH REQUIREMENTS FOR POST-INSTALLED ANCHORS.

OPM - UPRIGHT POST BY PANDUIT SEE PROPERTIES ON PAGE 4 OF 6

Reviewed by Jeffrey Y. Kikumoto

DATE: 04/07/2015



TOP ANGLES PERPENDICULAR TO METAL DECK FLUTES