



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY
APPLICATION #: OPM-0119-13

OSHPD Preapproval of Manufacturer's Certification (OPM)

Type: [ ] New [X] Renewal [ ] Update to Pre-CBC 2013 OPA Number:

Manufacturer Information

Manufacturer: Panduit Corporation

Manufacturer's Technical Representative: Bruce Appino

Mailing Address: 17301 Ridgeland Ave, Tinley Park, IL 60477

Telephone: 630-455-6500 ext. 84325 Email: Bruce.Appino@panduit.com

Product Information

Product Name: Net-Access N-Type Cabinet

Product Type: Network equipment cabinet.

Product Model Number: All N8 model numbers as listed on OPM drawings.

General Description: Data center network equipment cabinet.

Applicant Information

Applicant Company Name: Panduit Corporation

Contact Person: Bruce Appino

Mailing Address: 17301 Ridgeland Ave, Tinley Park, IL 60477

Telephone: 630-455-6500 ext. 84325 Email: Bruce.Appino@panduit.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: [Signature] Date: July 31, 2017

Title: Engineering Manager 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 Name: Adrian M. Nacamuli

Mailing Address: 1300 Clay Street, 9<sup>th</sup> 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 1950-16
- Other\* (Please Specify): \_\_\_\_\_

\*Use of criteria other than those adopted by the California Building Standards Code, 2016 (CBSC 2016) 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 2016 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 2016 & ALL PRE-2016 CODE BASED PROJECTS**

Signature:  Date: 08-14-2017

Print Name: Jeffrey Kikumoto

Title: SSE

Condition of Approval (if applicable): \_\_\_\_\_

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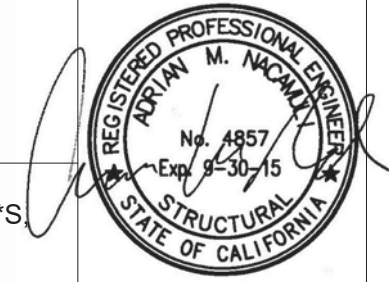




**OSHPD PRE-APPROVAL OF  
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OPM - 0119 - 13**

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415.392.6952 Phone  
415.981.3157 Fax  
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**PANDUIT NET-ACCESS N-TYPE CABINETS**



MODELS (\* DENOTES COLOR "B" = BLACK, "W" = WHITE)  
N8222\*, N8522\*, N8822\*, N8229\*, N8529\*, N8829\*, N8229\*C, N8529\*C, N8829\*C, N8222\*C, N8522\*C, N8822\*C, N8222\*E, N8522\*E, N8822\*E, N8229\*E, N8529\*E, N8829\*E, N8222\*S, N8522\*S, N8822\*S, N8229\*S, N8529\*S, N8829\*S, N8222\*U, N8522\*U, N8822\*U, N8229\*U, N8529\*U, N8829\*U, N8222\*J, N8522\*J, N8822\*J, 8229\*J, N8529\*J, N8829\*J, N8222\*M, N8522\*M, N8822\*M, N8229\*M, N8529\*M, N8829\*M, N8212B, N8512B, N8812B, N8219B, N8519B, N8819B, N8212BC, N8512BC, N8812BC, N8219BC, N8519BC, N8819BC, N8212BE, N8512BE, N8812BE, N8219BG, N8519BG, N8819BG, N8219BS, N8519BS, N8819BS, N8219BQ, N8519BQ, N8819BQ, N8219BL, N8519BL, N8819BL

GENERAL NOTES

- THIS OSHPD PREAPPROVAL 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.
- PRE-APPROVED DESIGN AND MATERIALS CONFORM WITH THE 2016 EDITION OF THE CALIFORNIA BUILDING CODE. DETAILS WITHIN THIS APPROVAL MAY BE USED ANYWHERE IN THE STATE OF CALIFORNIA WHERE  $S_{Ds} \leq 1.8$
- SEISMIC FORCES ON EQUIPMENT DETERMINED PER THE 2016 CBC & ASCE 7-10. ALL LOADS BELOW ARE FACTORED LOADS THAT SHALL BE USED FOR STRENGTH DESIGN.
- 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 12" MIN DISTANCE TO OPENINGS OR THE EDGE OF SLAB MINIMUM SPACING = 12"	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.  $S_{Ds} = 1.8$ ,  $a_p = 2.5$ ,  $R_p = 6.0$ ,  $I_p = 1.5$ ,  $\Omega_o = 2.5$ ,

WHERE  $z/h \leq 1$

WHERE  $z/h = 0$

- $F_p = 1.35 W_p$
- $E_v = 0.36 W_p$
- $\Omega_o F_p = 3.375 W_p$

- $F_p = 0.81 W_p$
- $E_v = 0.36 W_p$
- $\Omega_o F_p = 2.025 W_p$  (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:

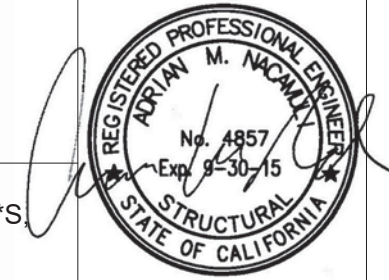
- VERIFY THAT THE ATTACHMENTS ARE A MINIMUM 12" FROM ANY OPENINGS OR EDGES.
- VERIFY THAT THE ATTACHMENTS ARE 12" MINIMUM DISTANCE FROM ANY NEW OR EXISTING ANCHORS.
- DESIGN ANY SUPPLEMENTARY MEMBERS TO WHICH THE UNIT IS ATTACHED, TO SUPPORT WEIGHTS AND FORCES SHOWN. VERIFY THE ADEQUACY OF ANY EXISTING MEMBERS AND THEIR ATTACHMENTS FOR THE FORCES EXERTED ON THEM BY THE UNIT IN ADDITION TO ALL OTHER LOADS AND FORCES.
- VERIFY THAT THE INSTALLATION IS IN CONFORMANCE WITH THE 2016 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.
- THE ATTACHMENTS TO THE ELEVATED AND ON GRADE SLABS HAVE BEEN EVALUATED FOR THE WORST CASE LOADING PER THE 2016 CBC. 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.
- THIS OPM COVERS ONLY THE SUPPORTS AND ATTACHMENTS OF THE UNIT TO THE STRUCTURE.
- 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:
  - 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.
  - 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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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"	3,035	60	NORMAL WEIGHT	26"	8.78"
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 12" OF AN ABANDONED ANCHOR.

10. CONTRACTOR OR SEOR MUST VERIFY ANCHOR SPACING TO ADJACENT EQUIPMENT ANCHORS IS TO BE GREATER THAN 12".

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

THROUGH BOLTS	A307 GR. A.
STEEL ANGLES	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  $\Omega_o$  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

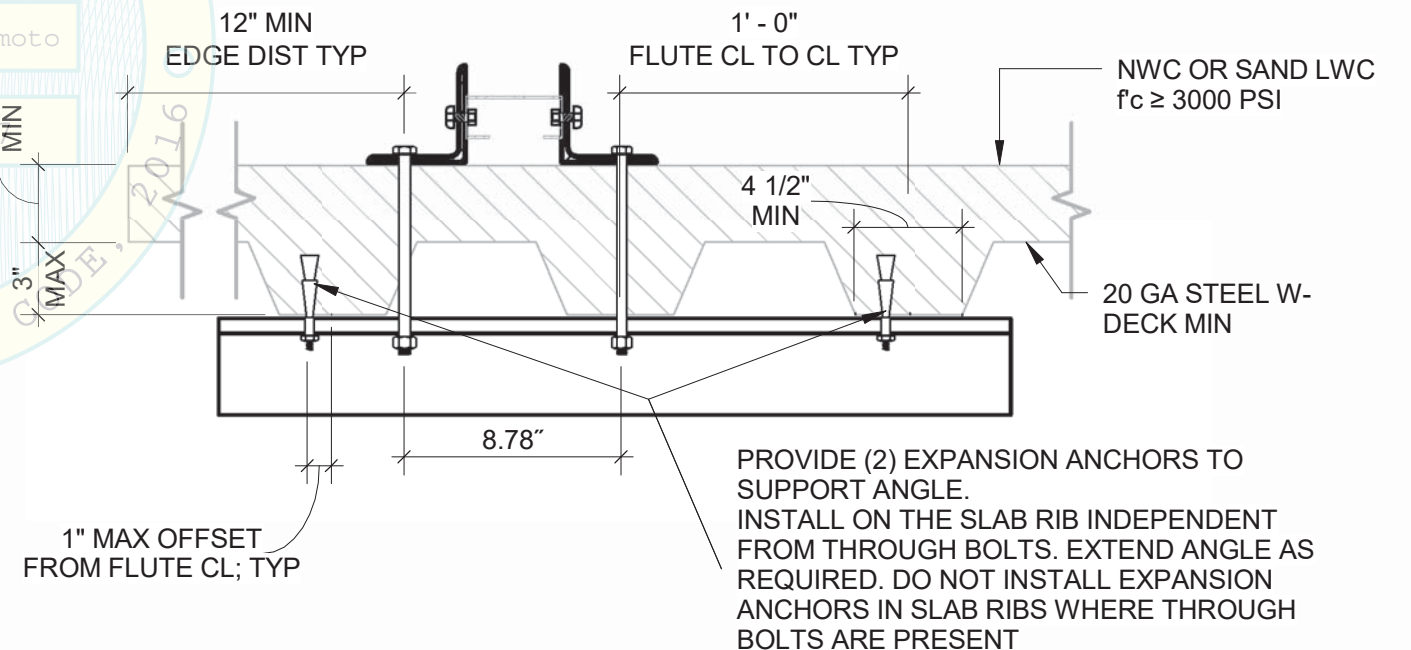
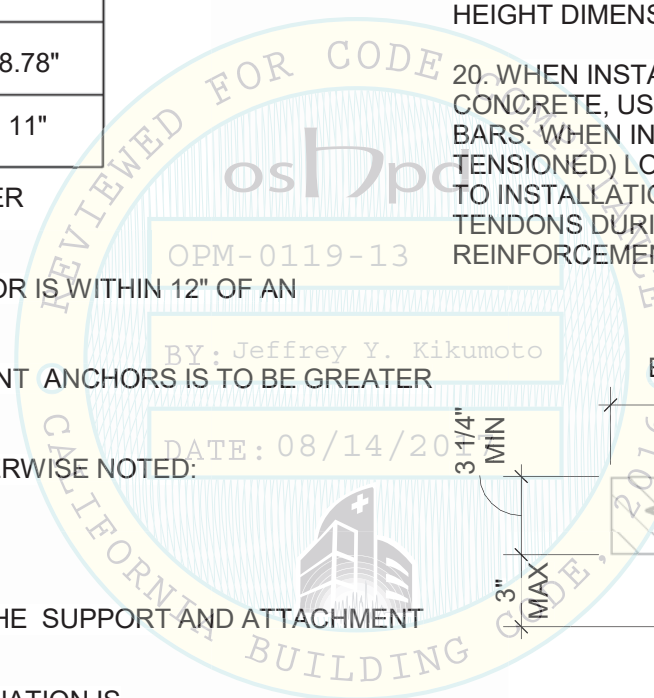
16. THE TABLE ON PAGE 4 SHOWS THE PROPERTIES OF THE DIFFERENT MODELS CONSIDERED IN THIS SUBMITTAL.

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 PGE 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 12" MINIMUM DISTANCE TO EDGE OF SLAB, OPENINGS OR OTHER ATTACHMENTS
2. REFER TO NOTES ON SHEET 6 OF 6 FOR ADDITIONAL INFORMATION

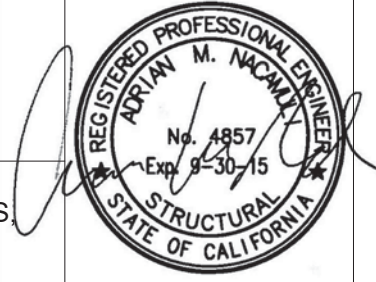
**MINIMUM STEEL DECK REQUIREMENTS**



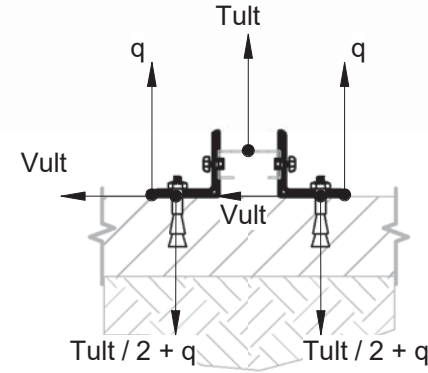
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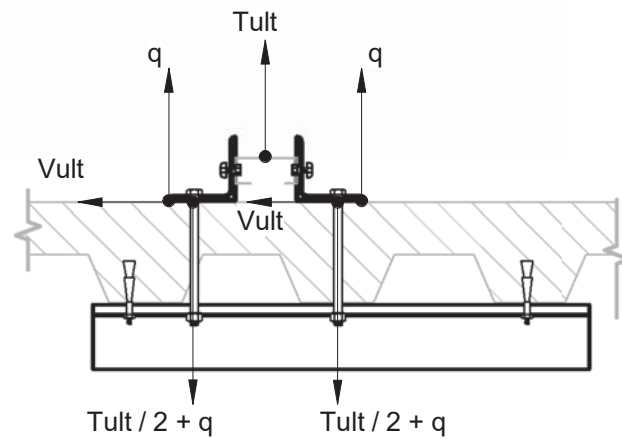
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**CABINET ON SLAB ON GRADE**



**CONCRETE ON ELEVATED SLAB**

PART NUMBER	z / h = 0						z / h ≤ 1						
	LOAD RATING LBS	Wp MAX LBS	Tult <sup>4</sup> LBS	q LBS	Tult + q <sup>4</sup> LBS	Vult <sup>4</sup> LBS	LOAD RATING LBS	Wp MAX LBS	Tult <sup>4</sup> LBS	q LBS	Tult + q <sup>4</sup> LBS	Vult <sup>4</sup> LBS	
800 X 1070 FAMILY	N821XX	1,730	2,050	1,900	0	1,900	208	1,135	1,455	2,000	0	2,000	246
	N851XX	1,550	1,885	1,900	0	1,900	190	1,025	1,360	2,000	0	2,000	230
	N881XX	1,415	1,765	1,900	0	1,900	180	965	1,265	2,000	0	2,000	213
800 X 1200 FAMILY	N822XX	1,755	2,130	1,900	0	1,900	216	1,155	1,533	2,000	0	2,000	260
	N852XX	1,590	1,990	1,900	0	1,900	201	1,030	1,430	2,000	0	2,000	240
	N882XX	1,450	1,865	1,900	0	1,900	190	915	1,330	2,000	0	2,000	225

**NOTES:**

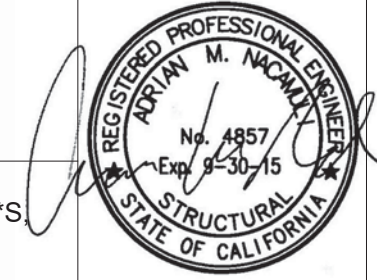
1. WHEN z = 0, THE DESIGN IS GOVERNED BY THE CAPACITY OF THE EXPANSION ANCHORS INTO CONCRETE.
2. WHEN z ≤ 1, THE DESIGN IS GOVERNED BY THE CAPACITY OF THE BOLTS CONNECTING THE ANGLES TO THE CROSS BRACE
3. THE LOAD RATING IS IN ADDITION OF THE SELF-WEIGHT SHOWN ON PAGE 4; **Wp = LOAD RATING + SELF-WEIGHT**
4. Tult, q AND Vult SHOWN ON THE TABLE ARE THE DESIGN FORCES AT STRENGTH LEVEL AND HAVE NOT BEEN AMPLIFIED BY Ωo. FOR ANCHORAGE TO CONCRETE FORCES ARE REQUIRED TO BE AMPLIFIED BY Ωo.
5. PER FORCE DIAGRAM ON THIS SHEET, NOTE THAT Tult IS THE TENSION FORCE APPLIED TO TWO ANCHORS AND Vult IS THE SHEAR FORCE APPLIED TO EACH ANCHOR.
6. PROVIDE A STEEL PLATE ATTACHED TO THE CABINET THAT CLEARLY SHOWS THE DESIGN LOAD RATING THAT THE SUPPORT AND ATTACHMENT IS DESIGNED TO.
7. SEE NOTE 5 ON PAGE 4 OF 6



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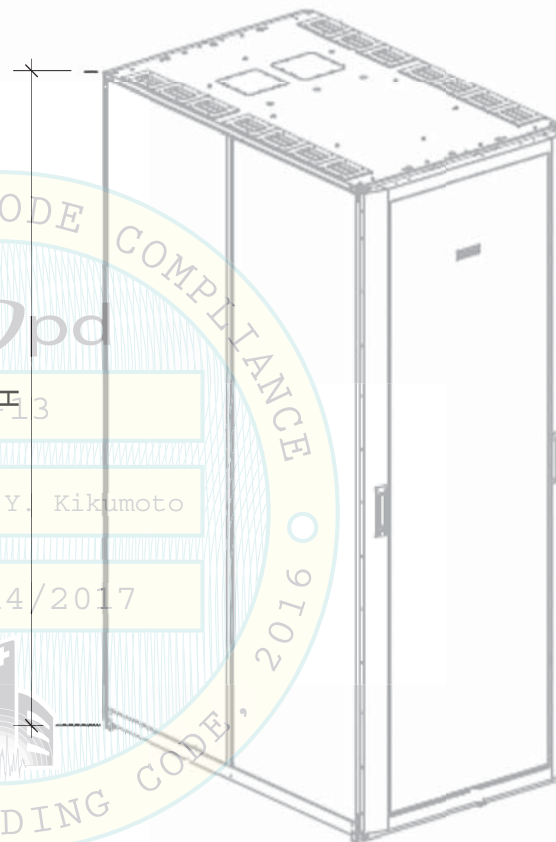
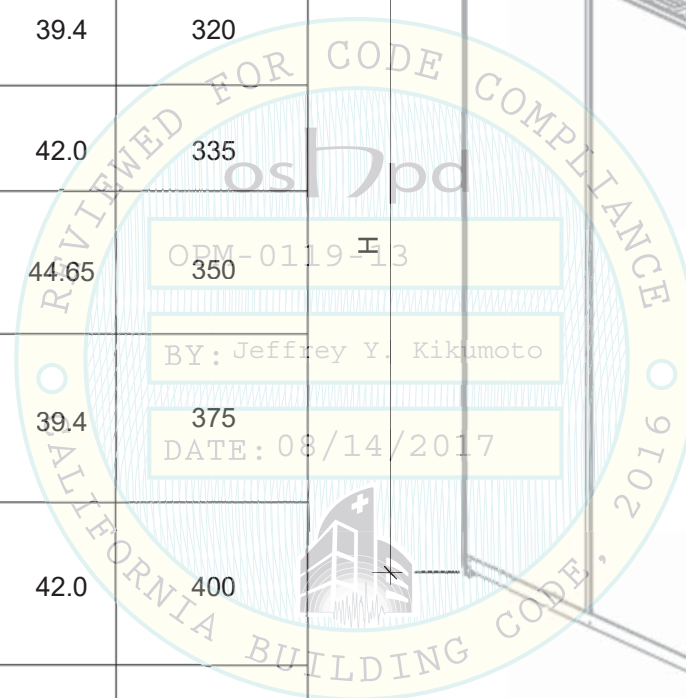
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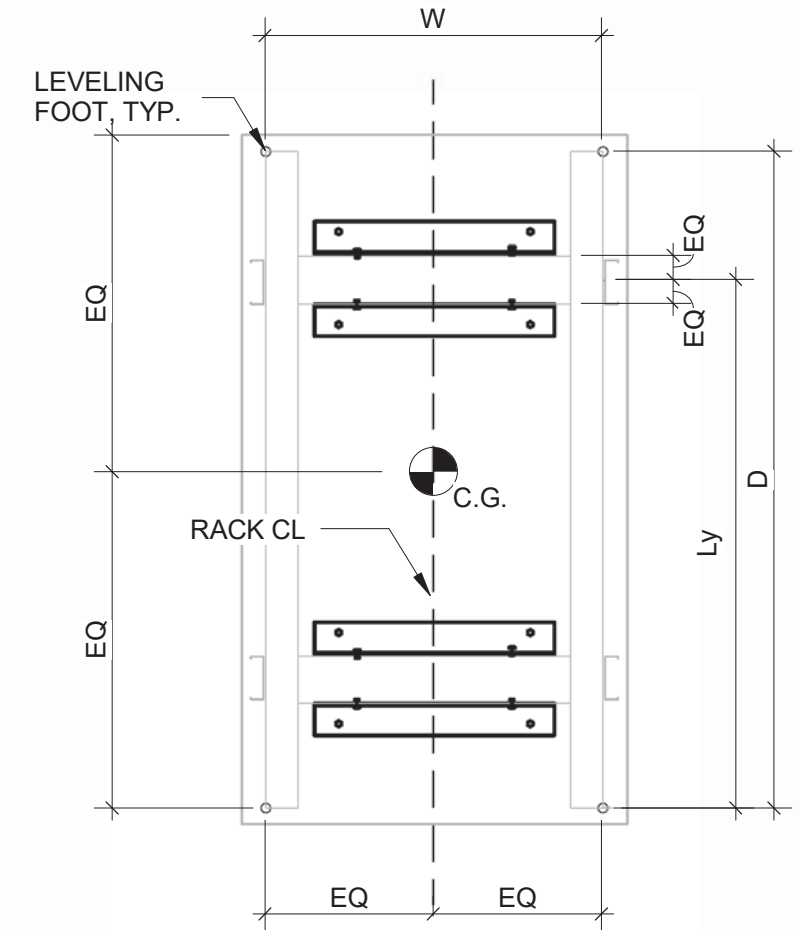


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N8212B, N8512B, N8812B, N8219B, N8519B, N8819B, N8212BC, N8512BC, N8812BC, N8219BC, N8519BC, N8819BC, N8212BE, N8512BE, N8812BE, N8219BG, N8519BG, N8819BG, N8219BS, N8519BS, N8819BS, N8219BQ, N8519BQ, N8819BQ, N8219BL, N8519BL, N8819BL

	PART NUMBER	DEPTH "D" (IN)	WIDTH "W" (IN)	Ly MIN (IN)	HEIGHT "H" (IN)	C.G. HEIGHT "H" (IN)	MAX. SELF-WEIGHT (LBS)
800 X 1070 FAMILY	N8212B, N8219B, N8212BC, N8219BC, N8212BE, N8219BG, N8219BS, N8219BQ, N8219BL	38.9	20.5	30.9	78.8	39.4	320
	N8512B, N8519B, N8512BC, N8519BC, N8512BE, N8519BG, N8519BS, N8519BQ, N8519BL	38.9	20.5	30.9	84.0	42.0	335
	N8812B, N8819B, N8812BC, N8819BC, N8812BE, N8819BG, N8819BS, N8819BQ, N8819BL	38.9	20.5	30.9	89.3	44.65	350
800 X 1200 FAMILY	N8222*, N8229*, N8229*C, N8222*C, N8222*E, N8229*E, N8222*S, N8229*S, N8222*U, N8229*U, N8222*J, N8229*J, N8222*M, N8229*M	47.1	20.5	39.1	78.8	39.4	375
	N8522*, N8529*, N8529*C, N8522*C, N8522*E, N8529*E, N8522*S, N8529*S, N8522*U, N8529*U, N8522*J, N8529*J, N8522*M, N8529*M	47.1	20.5	39.1	84.0	42.0	400
	N8822*, N8829*, N8829*C, N8822*C, N8822*E, N8829*E, N8822*S, N8829*S, N8822*U, N8829*U, N8822*J, N8829*J, N8822*M, N8829*M	47.1	20.5	39.1	89.3	44.65	415



**CABINET ISOMETRIC VIEW**



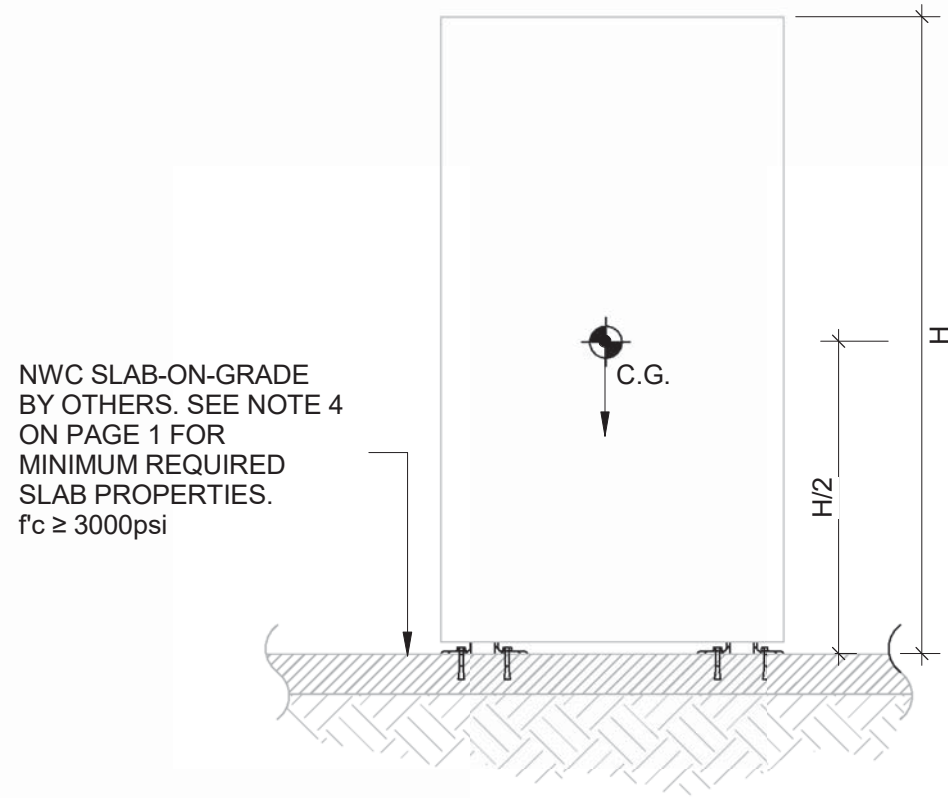
**CABINET BASE FRAME PLAN**

**NOTES**

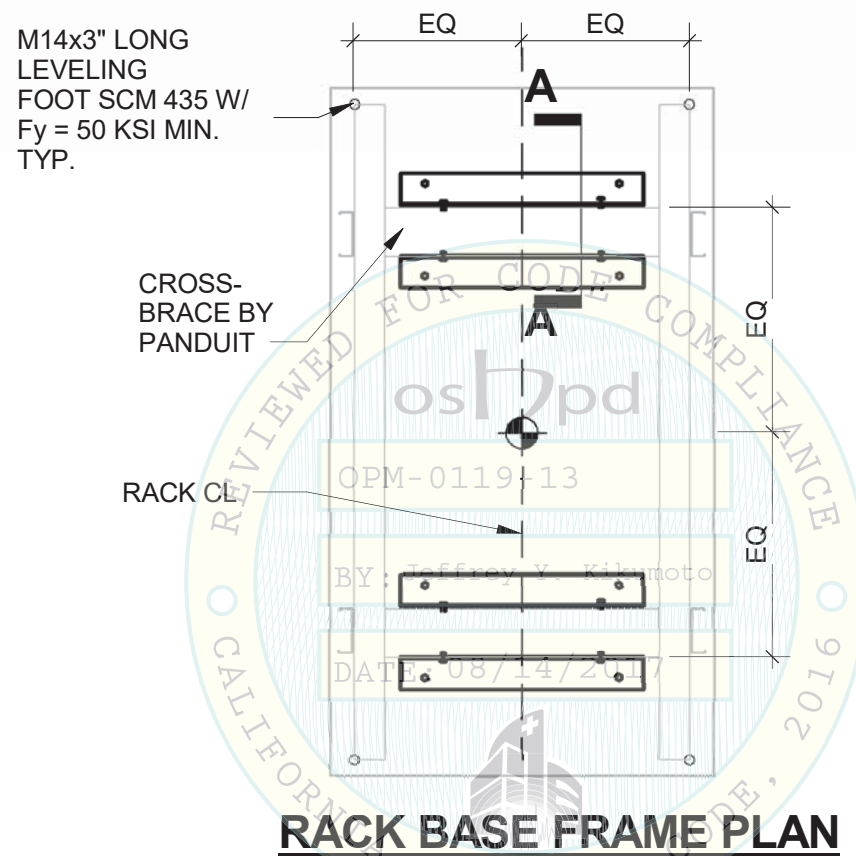
1. \* DENOTES COLOR "B" = BLACK, "W" = WHITE
2. Ly DENOTES THE DISTANCE FROM THE LEVELING LEG TO THE ANCHOR BOLT CENTER OF GRAVITY
3. W AND D REPRESENT THE WIDTH AND DEPTH DISTANCE BETWEEN LEVELING LEGS
4. H IS THE HEIGHT FROM THE TOP OF THE STRUCTURAL SLAB TO THE TOP OF THE CABINET. IT CAN VARY BY ± 1" DUE TO ADJUSTMENTS TO LEVELING LEGS.
5. BOLTS THROUGH CONCRETE ON METAL DECK
  - A. BOLTS SHALL BE TORQUED BY 3/4 TURN OF THE NUTS AFTER THE SNUG TIGHT (THE SNUG TIGHT CONDITION IS DEFINED AS THE TIGHTNESS REQUIRED TO BRING THE CONNECTED PLIES INTO FIRM CONTACT) CONDITION IS ACHIEVED.
  - B. THROUGH BOLTS IN CONCRETE SHALL RECEIVE SPECIAL INSPECTION AND TESTING IN ACCORDANCE WITH REQUIREMENTS FOR POST-INSTALLED ANCHORS.

MODELS (\* DENOTES COLOR "B" = BLACK, "W" = WHITE)

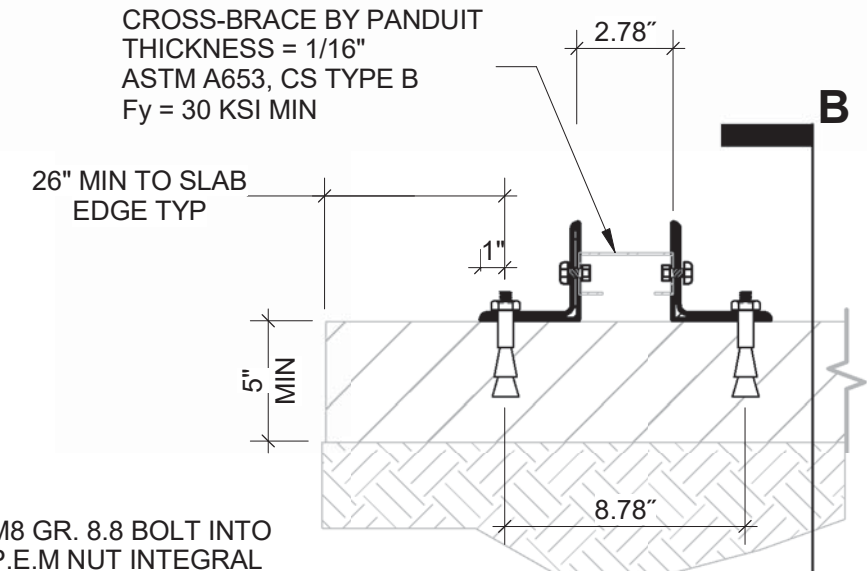
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**FRONT ELEVATION**

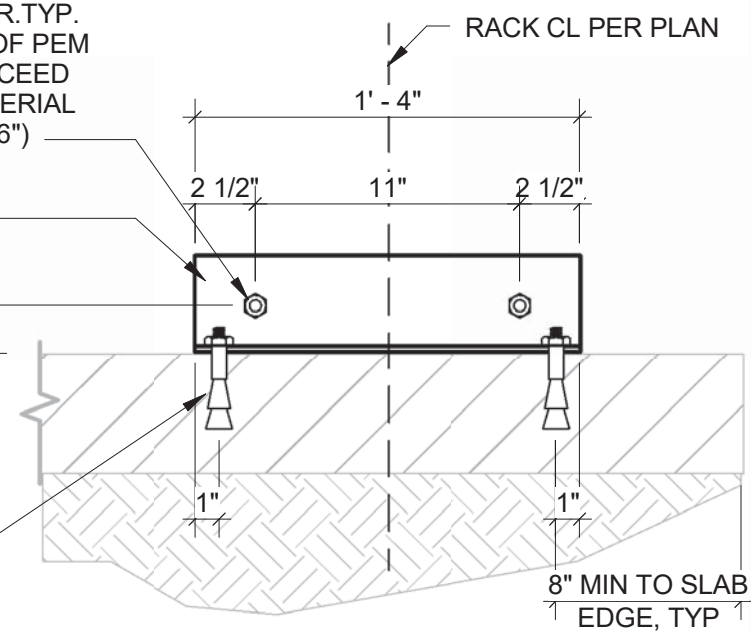


**RACK BASE FRAME PLAN**



**SECTION A-A**

M8 GR. 8.8 BOLT INTO P.E.M NUT INTEGRAL WITH UNIT W/ INSIDE DIAMETER 9.4MM AND OUTSIDE DIAMETER 12.7 MM PROVIDED BY MANUFACTURER.TYP. SHANK DEPTH OF PEM NUT NOT TO EXCEED CROSS-TIE MATERIAL THICKNESS (1/16")



**SECTION B-B**

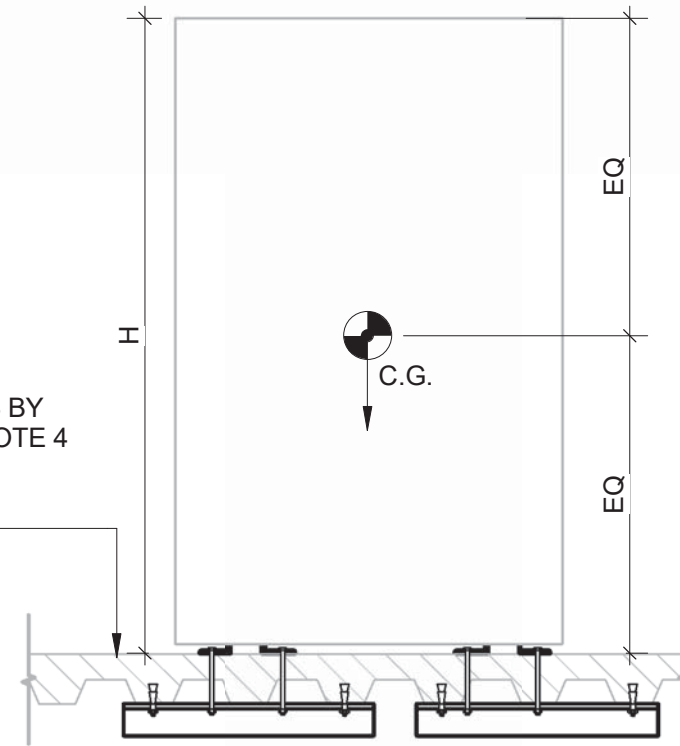
- NOTES:
1. SUPPORT AND ATTACHMENT DESIGN CONFORMS TO CBC 2016. FORCES GIVEN ARE AT STRENGTH LEVEL.
  2. SEE GENERAL NOTES SECTION ON PAGES 1 AND 2.
  3. S.E.O.R. MAY RECALCULATE MAX. ANCHOR FORCES  $V_u$  AND  $T_u$  AT THEIR DISCRETION BASED ON PROJECT SPECIFIC DEMANDS
  4. ALL HOLES THROUGH STEEL FOR BOLTS SHALL BE STANDARD SIZE HOLES PER AISC 14TH EDITION, TABLE J3.3
  5. SEE RESULTANT FORCES AND GEOMETRIC PROPERTIES OF THE CABINETS ON PAGES 3 AND 4

L4x4x1/4" W/ (2) M8 GR. 8.8 BOLTS IN STD SIZE HOLES.

5/8"Ø HILTI KWIK BOLT TZ EXPANSION ANCHORS W/ 3-1/8" EMBED ( $h_{ef}$ )

MODELS (\* DENOTES COLOR "B" = BLACK, "W" = WHITE)

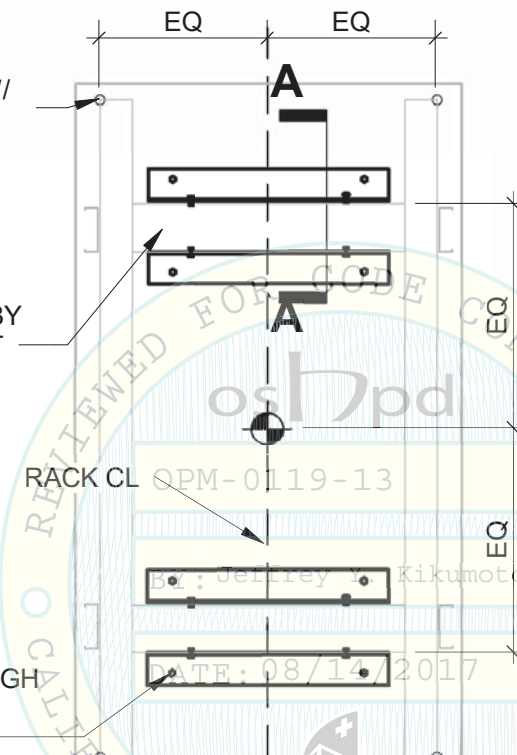
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**FRONT ELEVATION**

M14x3" LONG  
LEVELING  
FOOT SCM 435 W/  
Fy = 50 KSI MIN.  
TYP.

CROSS-  
BRACE BY  
PANDUIT



**RACK BASE FRAME PLAN**

**NOTES:**

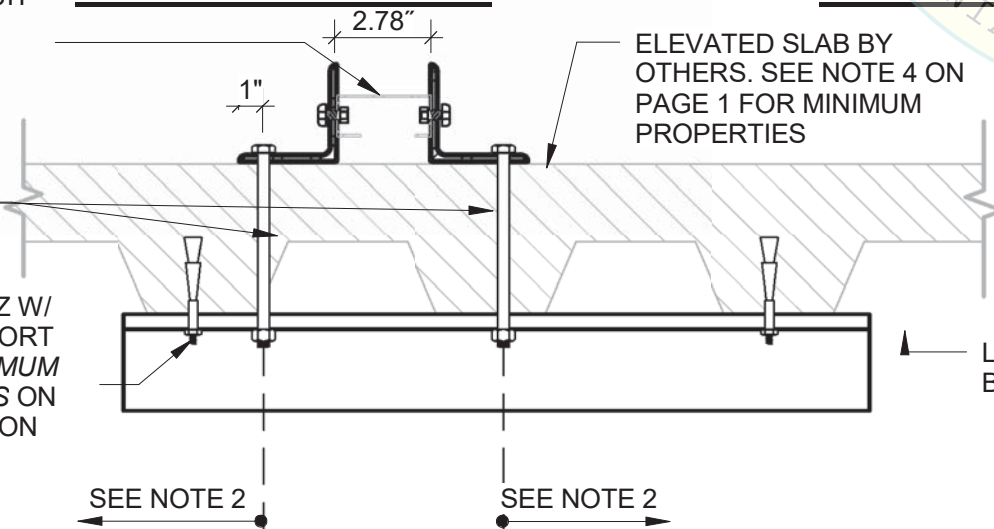
1. PROVIDE HEX NUT AT TOP AND BOTTOM OF BOTTOM ANGLE FLANGE, TYP. U.O.N. AT CONDITIONS WHERE NUT CANNOT BE PROVIDED AT TOP SIDE OF ANGLE FLANGE, PROVIDE TAPPED HOLE IN ANGLE
2. EXTEND THE BOTTOM ANGLE 2" PAST THE EDGE OF THE SLAB RIB TO INSTALL EXPANSION ANCHOR. DO NOT INSTALL EXPANSION ANCHOR IN THE SAME RIB AS THE THROUGH BOLT
3. SUPPORT AND ATTACHMENT DESIGN CONFORMS TO CBC 2016. FORCES GIVEN ARE AT STRENGTH LEVEL.
4. SEE GENERAL NOTES SECTION ON PAGES 1 AND 2.
5. S.E.O.R. MAY RECALCULATE MAX. ANCHOR FORCES  $V_u$  AND  $T_u$  AT THEIR DISCRETION BASED ON PROJECT SPECIFIC DEMANDS.
6. ALL HOLES THROUGH STEEL FOR BOLTS SHALL BE STANDARD SIZE HOLES PER AISC 14TH EDITION, TABLE J3.3
7. FOR CONCRETE ELEVATED SLAB, PROVIDE BOTTOM ANGLE SIMILAR TO TOP ANGLE PARALLEL TO METAL DECK FLUTES
8. SEE RESULTANT FORCES AND GEOMETRIC PROPERTIES OF THE CABINETS ON PAGES 3 AND 4

1/2"  $\phi$  THROUGH  
BOLTS;  
(TYP OF 8)

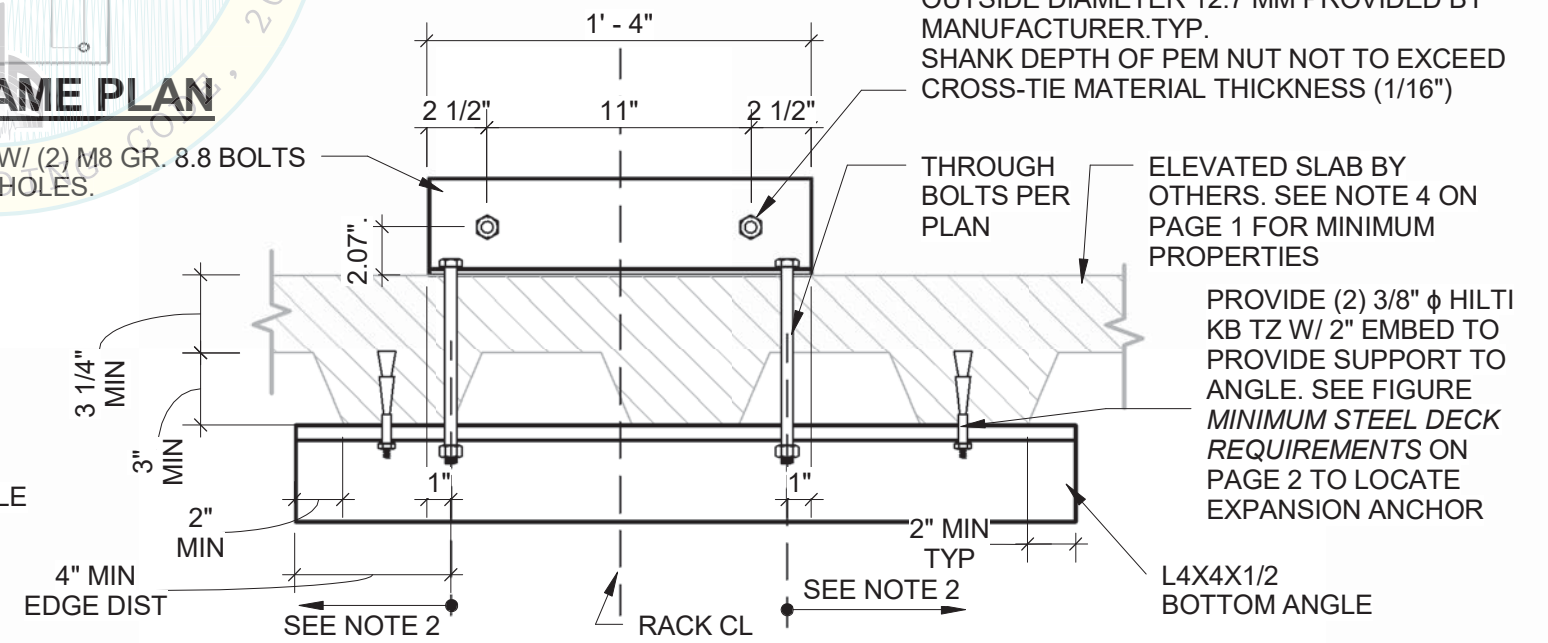
L4x4x1/4" W/ (2) M8 GR. 8.8 BOLTS  
STD SIZE HOLES.

M8 GR. 8.8 BOLT INTO P.E.M NUT INTEGRAL WITH UNIT W/ INSIDE DIAMETER 9.4MM AND OUTSIDE DIAMETER 12.7 MM PROVIDED BY MANUFACTURER.TYP. SHANK DEPTH OF PEM NUT NOT TO EXCEED CROSS-TIE MATERIAL THICKNESS (1/16")

CROSS-BRACE BY PANDUIT  
THICKNESS = 1/16"  
ASTM A653, CS TYPE B  
Fy = 30 KSI MIN.



**TOP ANGLES PARALLEL TO METAL DECK FLUTES**



**TOP ANGLES PERPENDICULAR TO METAL DECK FLUTES** PAGE 6 OF 6

PROVIDE (2) 3/8"  $\phi$  HILTI KB TZ W/ 2" EMBED TO PROVIDE SUPPORT TO ANGLE. SEE FIGURE MINIMUM STEEL DECK REQUIREMENTS ON PAGE 2 TO LOCATE EXPANSION ANCHOR

PROVIDE (2) 3/8"  $\phi$  HILTI KB TZ W/ 2" EMBED TO PROVIDE SUPPORT TO ANGLE. SEE FIGURE MINIMUM STEEL DECK REQUIREMENTS ON PAGE 2 TO LOCATE EXPANSION ANCHOR