GENERAL NOTES:

A. INSTALLATION

1. INSTALL ANCHORS THROUGH HOLES IN EQUIPMENT BASE AS SHOWN. USE HOLES PROVIDED BY MANUFACTURER WHERE SPACED AS SHOWN IN DETAILS OR DRILL HOLES THROUGH EQUIPMENT BASE WHERE SHOWN. HOLES SHALL NOT BE OVERSIZED OR OVAL IN SHAPE. IF HOLES PROVIDED OR DRILLED ARE OVERSIZED WELD TWO PARALLEL SIDES OF THE ¾" PLATE WASHER WITH 3/16" FILLET WELDS. FOR DRILLED HOLES THE MINIMUM EDGE DISTANCE FROM HOLE CENTER LINE TO EDGE OF BASE METAL SHALL BE 1 INCH.
2. INSTALL ANCHORS IN HOLES DRILLED INTO THE CONCRETE WITH CARBON TIPPED MASONRY DRILL BITS COMPLYING WITH ANSI B212.12-1994. THE NOMINAL DRILL BIT DIAMETER MUST BE EQUAL TO THAT OF THE ANCHOR AND THE DRILL HOLE MUST EXCEED THE DEPTH OF THE ANCHOR EMBEDMENT BY AT LEAST ONE ANCHOR DIAMETER TO PERMIT OVER FILLING OF ANCHORS AND TO PROVIDE A DUST COLLECTION AREA AS REQUIRED. THE ANCHOR MUST BE HAMMERED INTO THE PREDRILLED HOLE UNTIL AT LEAST FOUR THREADS ARE BELOW FIXTURE SURFACE. THE NUT MUST BE TIGHTENED AGAINST THE WASHER UNTIL THE ABOVE LISTED TORQUE VALUES ARE ACHIEVED.
3. IF EQUIPMENT IS TO BE SUPPORTED ON A RAISED HOUSEKEEPING PAD, THE PAD SHALL EITHER BE POURED MONOLITHICALLY WITH THE FLOOR SLAB, MEET THE MINIMUM SLAB THICKNESS REQUIREMENT IN ESR 1917, OR HAVE A MINIMUM ANCHOR BOLT EMBEDMENT SPECIFIED ABOVE INTO THE STRUCTURAL SLAB (NEGLECTING THE HOUSE KEEPING PAD DEPTH).
4. IF EQUIPMENT IS TO BE SUPPORTED DIRECTLY ON EXISTING SLAB-ON-GRADE VERIFY IN FIELD THAT SLAB IS NORMAL WEIGHT CONCRETE.

B. TESTING AND INSPECTION

1. PROVIDE TESTING AND INSPECTIONS FOR POST INSTALLED ANCHORS AND EPOXIED DOWELS IN ACCORDANCE WITH REQUIREMENTS OF CBC 1704A, 1916A.8, DSA IR 17-4, and IR 19-1 AND MAINTAIN COPIES OF THESE DOCUMENTS IN THE FIELD.
2. FOR EXPANSION ANCHOR PROVIDE SPECIAL INSPECTION DURING INSTALLATON TO VERIFY THAT THE SCHEDULED INSTALLATION/TESTING TORQUE IS ACHIEVED.
3. TESTION TEST #3 EPOXIED DOWELS TO 2500 LBS.
4. IF ANY ANCHOR OR DOWEL FAILS TESTING, TEST ALL ANCHORS OF THE SAME TYPE, NOT PREVIOUSLY TESTED UNTIL TWENTY (20) CONSECUTIVE ANCHORS PASS, THEN RESUME
5. WHEN EXPANSION-TYPE ANCHORS ARE USED FOR NONSTRUCTURAL APPLICATIONS SUCH AS EQUIPMENT ANCHORAGE, 50 PERCENT OR ALTERNATE BOLTS IN A GROUP, INCLUDING AT LEAST ONE-HALF THE ANCHORS IN EACH GROUP, SHALL BE TENSION OR TORQUE TESTED. THE TENSION TESTING OF THE EXPANSION ANCHORS SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO THE ENFORCEMENT AGENCY. IF ANY ANCHORS FAIL THE TESTING REQUIREMENTS, THE ADDITIONAL TESTING REQUIREMENTS SHALL BE ACCEPTABLE TO THE ENFORCEMENT AGENCY. THE ABOVE REQUIREMENTS SHALL ALSO APPLY TO OTHER POST-INSTALLED ANCHORS ACCEPTABLE TO THE ENFORCEMENT AGENCY AND BOLTS OR ANCHORS SET IN CONCRETE WITH CHEMICAL IF THE LONG-TERM DURABILITY AND STABILITY OF THE CHEMICAL MATERIAL AND ITS RESISTANCE TO LOSS OF STRENGTH AND CHEMICAL CHANGE AT ELEVATED TEMPERATURES ARE ESTABLISHED TO THE SATISFACTION OF THE ENFORCEMENT AGENCY.

GENERAL NOTES

NO SCALE

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19172 De Havilland Drive Saratoga CA 95070
tel 408.517.0373 fax 408.817.1686

PROJECT: SKYLINE COLLEGE BUILDINGS 1A, 1 AND 2
CUSTOMER: RANDAL LAMB ASSOCIATES, INC.

DATE: 14 JULY 2009 | JOB: 09023_a | DRAWN: AA | SCALE: NONE | REVISION 6 12/08/2009 | Page S0

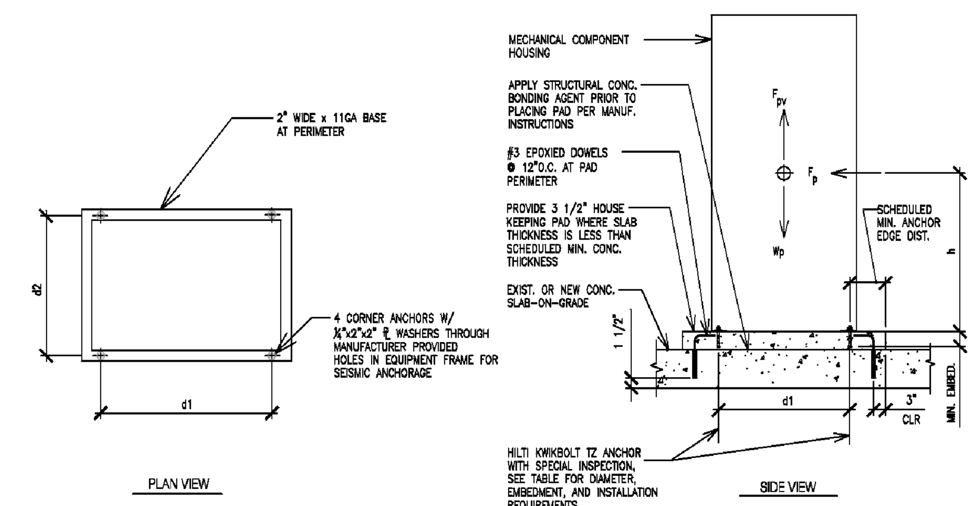
REGISTERED PROFESSIONAL ENGINEER DOUGLAS R. ROBERTSON No. 3424 Exp. 3-31-11 STRUCTURAL STATE OF CALIFORNIA

EQUIPMENT ANCHORING GENERAL NOTES

SCALE: NONE (0/E-300)

ANCHORAGE SCHEDULE											
ID #	COMPONENT	OPERATING WEIGHT (MAX) Wp (lbf)	DIMENSIONS HxWxD (in.)	CENTER OF GRAVITY HEIGHT h (in.)	MINIMUM FASTENER DISTANCE d1 (in.)	MINIMUM FASTENER DISTANCE d2 (in.)	CONC. ANCHOR DIAMETER (in.)	NUMBER OF ANCHORS REQUIRED	MIN. ANCHOR CONC. EMBEDMENT. LENGTH (in.)	ANCHOR INSTALLATION/ TESTING TORQUE (ft-lb)	MINIMUM ANCHOR EDGE DISTANCE (in.)	MINIMUM CONC. THICKNESS (in.)
1a	15.0 KV MV SWGR Section 1	1635	90x75x48	49	63	44	3/8	4	2	25	4 1/2	4
1b	15.0 KV MV SWGR Section 2	972	90x54x38	49	48	36	3/8	4	2	25	4 1/2	4

SCHEDULE NOTES:
1. USE HILTI BOLT TZ ANCHORS INSTALLED IN CONCRETE WITH F'c=3000 PSI MIN AND INSTALL PER MANUFACTURERS PUBLISHED INSTRUCTIONS AND PER ESR 1917.
2. FOR INTERIOR INSTALLATIONS USE CARBON STEEL ANCHORS AND FOR EXTERIOR INSTALLATIONS USE STAINLESS STEEL ANCHORS.



SLAB-ON-GRADE SUPPORTED EQUIPMENT

NO SCALE

PROJECT: SKYLINE COLLEGE BUILDING 1A
CUSTOMER: RANDAL LAMB ASSOCIATES, INC.

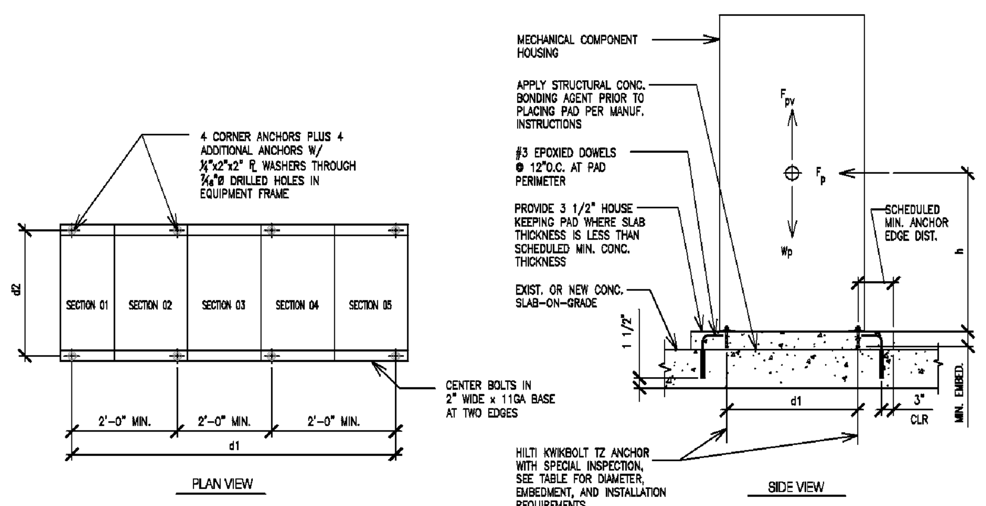
DATE: 14 JULY 2009 | JOB: 09023_a | DRAWN: DRR | SCALE: NONE | REVISION 6 12/08/09 | Page S1

EQUIPMENT ANCHORING DETAIL - 12KV METER/MAIN AT BLDG 1A

SCALE: NONE (1/E-300)

ANCHORAGE SCHEDULE												
ID #	COMPONENT	OPERATING WEIGHT Wp (lbf)	DIMENSIONS HxWxD (in.)	CENTER OF GRAVITY HEIGHT h (in.)	MINIMUM FASTENER DISTANCE d1 (in.)	MINIMUM FASTENER DISTANCE d2 (in.)	CONC. ANCHOR DIAMETER (in.)	NUMBER OF ANCHORS REQUIRED	MIN. ANCHOR CONC. EMBEDMENT. LENGTH (in.)	ANCHOR INSTALLATION/ TESTING TORQUE (ft-lb)	MINIMUM ANCHOR EDGE DISTANCE (in.)	MINIMUM CONC. THICKNESS (in.)
2	MV DIST. NW1	2605	90x85x37	45	90	35	3/8	8	2	25	4 1/2	4

SCHEDULE NOTES:
1. USE HILTI BOLT TZ ANCHORS INSTALLED IN CONCRETE WITH F'c=3000 PSI MIN AND INSTALL PER MANUFACTURERS PUBLISHED INSTRUCTIONS AND PER ESR 1917.
2. FOR INTERIOR INSTALLATIONS USE CARBON STEEL ANCHORS AND FOR EXTERIOR INSTALLATIONS USE STAINLESS STEEL ANCHORS.



SLAB-ON-GRADE SUPPORTED EQUIPMENT

PROJECT: SKYLINE COLLEGE BUILDING 1A
CUSTOMER: RANDAL LAMB ASSOCIATES, INC.

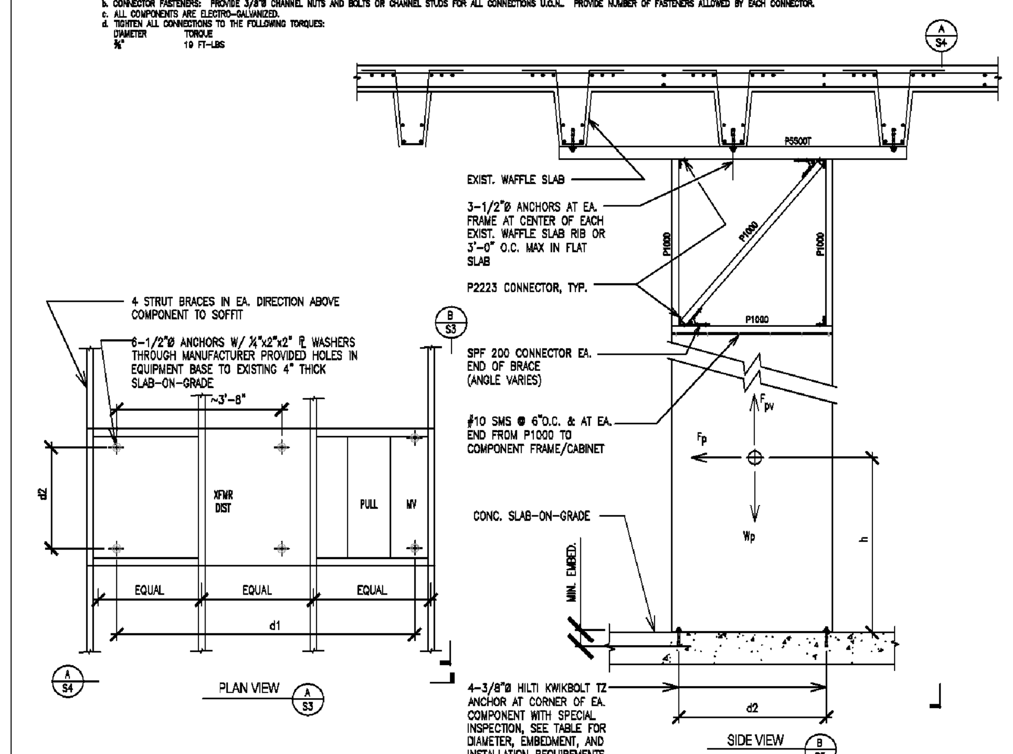
DATE: 14 JULY 2009 | JOB: 09023_a | DRAWN: DRR | SCALE: NONE | REVISION 6 12/08/09 | Page S2

EQUIPMENT ANCHORING DETAIL - 12KV DISTRIBUTION AT BLDG 1A

SCALE: NONE (2/E-300)

ANCHORAGE SCHEDULE													
ID #	COMPONENT	OPERATING WEIGHT (MAX) Wp (lbf)	DIMENSIONS HxWxD (in.)	CENTER OF GRAVITY HEIGHT h (in.)	MINIMUM FASTENER DISTANCE d1 (in.)	MINIMUM FASTENER DISTANCE d2 (in.)	ANCHOR LOCATION	NUMBER ANCHOR DIAMETER (in.)	OF ANCHORS REQUIRED	MIN. ANCHOR CONC. EMBEDMENT. LENGTH (in.)	ANCHOR INSTALLATION/ TESTING TORQUE (ft-lb)	MINIMUM ANCHOR EDGE DISTANCE (in.)	MINIMUM CONC. THICKNESS (in.)
3	MODEL III SUBSTATION	7500	90x86x37	45	79	27	TOP	1/2	12	3 1/4	50	2 3/4	6
							BOTTOM	1/2	6	2	50	5 3/4	4

SCHEDULE NOTES:
1. USE HILTI BOLT TZ ANCHORS (CARBON STEEL) INSTALLED IN CONCRETE WITH F'c=3000 PSI MIN AND INSTALL PER MANUFACTURERS PUBLISHED INSTRUCTIONS AND PER ESR 1917. 5. IF EQUIPMENT IS TO BE SUPPORTED DIRECTLY ON EXISTING SLAB-ON-GRADE VERIFY IN FIELD THAT SLAB IS NORMAL WEIGHT CONCRETE. WAFFLE SLAB AT SOFFIT IS EXPECTED TO BE LIGHT WEIGHT CONCRETE.
3. USE HITLI KWIK-PRO SELF-DRILLING TAPPING SCREWS (XX"Ø S-MD XX-18x2" HWH #3) FOR CONNECTION TO LIGHT GAUGE FRAMING (REF. ESR 2196)
4. UNISTRUT BRACING SYSTEM:
a. FRAMING MEMBER AND CONNECTOR DESIGNATIONS SHOWN ON THE DRAWINGS REFER TO PRODUCTS MANUFACTURED BY "UNISTRUT" (PHONE: 800.521.7730). PRODUCTS FURNISHED SHALL HAVE ICC APPROVED LOAD VALUES (80% OF VALUES USED IN THE DESIGN)
b. CONNECTOR FASTENERS: PROVIDE 3/8"Ø CHANNEL NUTS AND BOLTS OR CHANNEL STUDS FOR ALL CONNECTIONS U.O.N.. PROVIDE NUMBER OF FASTENERS ALLOWED BY EACH CONNECTOR.
c. ALL COMPONENTS ARE ELECTRO-GALVANIZED.
d. TIGHTEN ALL CONNECTIONS TO THE FOLLOWING TORQUES:
DIAMETER ⅜" TORQUE 19 FT-LBS



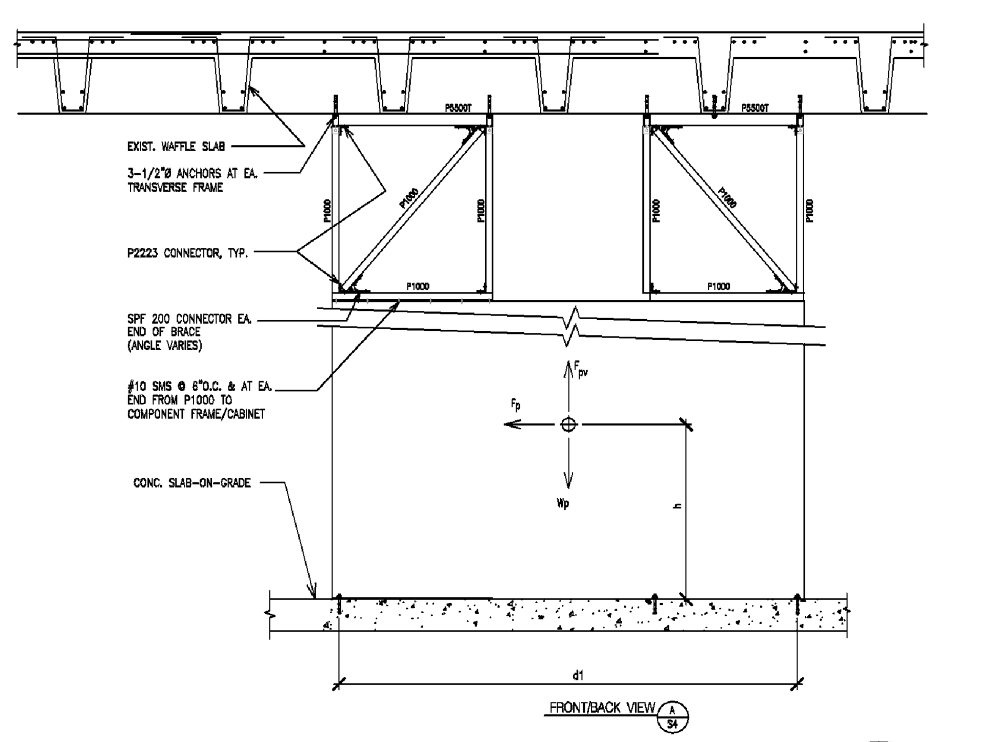
SLAB-ON-GRADE SUPPORTED AND SOFFIT BRACED EQUIPMENT

PROJECT: SKYLINE COLLEGE BUILDINGS 1 & 2
CUSTOMER: RANDAL LAMB ASSOCIATES, INC.

DATE: 14 JULY 2009 | JOB: 09023_a | DRAWN: AA | SCALE: NONE | REVISION 6 12/08/09 | Page S3

EQUIPMENT ANCHORING DETAIL - LOAD CENTERS AT BLDG 1 AND 2

SCALE: NONE (3/E-300)



SLAB-ON-GRADE SUPPORTED AND SOFFIT BRACED EQUIPMENT

PROJECT: SKYLINE COLLEGE BUILDING 2
CUSTOMER: RANDAL LAMB ASSOCIATES, INC.

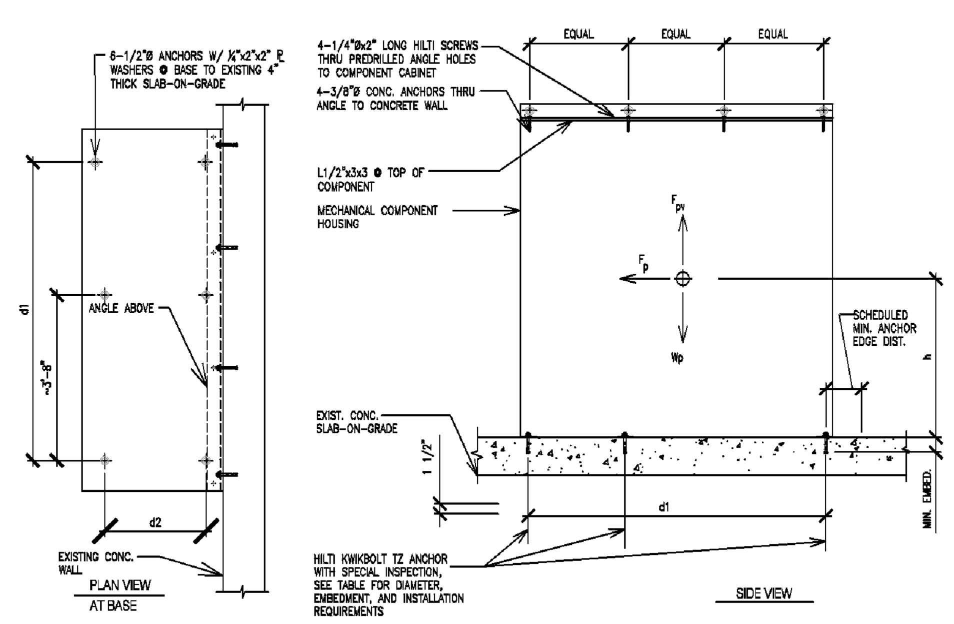
DATE: 14 JULY 2009 | JOB: 09023_a | DRAWN: AA | SCALE: NONE | REVISION 6 12/08/09 | Page S4

EQUIPMENT ANCHORING DETAIL - LOAD CENTER AT BLDG 1

SCALE: NONE (4/E-300)

ANCHORAGE SCHEDULE													
ID #	COMPONENT	OPERATING WEIGHT (MAX) Wp (lbf)	DIMENSIONS HxWxD (in.)	CENTER OF GRAVITY HEIGHT h (in.)	MINIMUM FASTENER DISTANCE d1 (in.)	MINIMUM FASTENER DISTANCE d2 (in.)	ANCHOR LOCATION	CONC. ANCHOR DIAMETER (in.)	NUMBER OF ANCHORS REQUIRED	MIN. ANCHOR CONC. EMBEDMENT. LENGTH (in.)	ANCHOR INSTALLATION/ TESTING TORQUE (ft-lb)	MINIMUM ANCHOR EDGE DISTANCE (in.)	MINIMUM CONC. THICKNESS (in.)
4	MODEL III SUBSTATION	7500	90x86x37	45	84	29	TOP	3/8	4	2	25	5 1/2	4
							BOTTOM	1/2	6	2	50	5 3/4	4

SCHEDULE NOTES:
1. FOR MODEL III SUBSTATION ANCHORAGE THICKEN STRUCTURAL SLAB-ON-GRADE TO 6" MINIMUM, PLACE 2" MINIMUM THICK HOUSE KEEPING PAD POURED MONOLITHICALLY WITH SLAB-ON-GRADE, OR PLACE 6" THICK HOUSEKEEPING PAD ON TOP OF SLAB-ON-GRADE AND EPOXY DOWEL PAD TO SLAB.
2. USE HILTI BOLT TZ ANCHORS INSTALLED IN CONCRETE WITH F'c=3000 PSI MIN (NORMAL OR LIGHT WEIGHT) AND INSTALL PER MANUFACTURERS PUBLISHED INSTRUCTIONS AND PER ESR 1917.
3. FOR INTERIOR INSTALLATIONS USE CARBON STEEL ANCHORS AND FOR EXTERIOR INSTALLATIONS USE STAINLESS STEEL ANCHORS.
4. USE HITLI KWIK-PRO SELF-DRILLING TAPPING SCREWS (XX"Ø S-MD XX-16x2" HWH #3) FOR CONNECTION TO LIGHT GAUGE FRAMING (REF. ESR 2196) OR SCREWS OF EQUAL CAPACITY PROVIDED BY MANUFACTURER.



SLAB-ON-GRADE SUPPORTED AND WALL BRACED EQUIPMENT

PROJECT: SKYLINE COLLEGE BUILDING 2
CUSTOMER: RANDAL LAMB ASSOCIATES, INC.

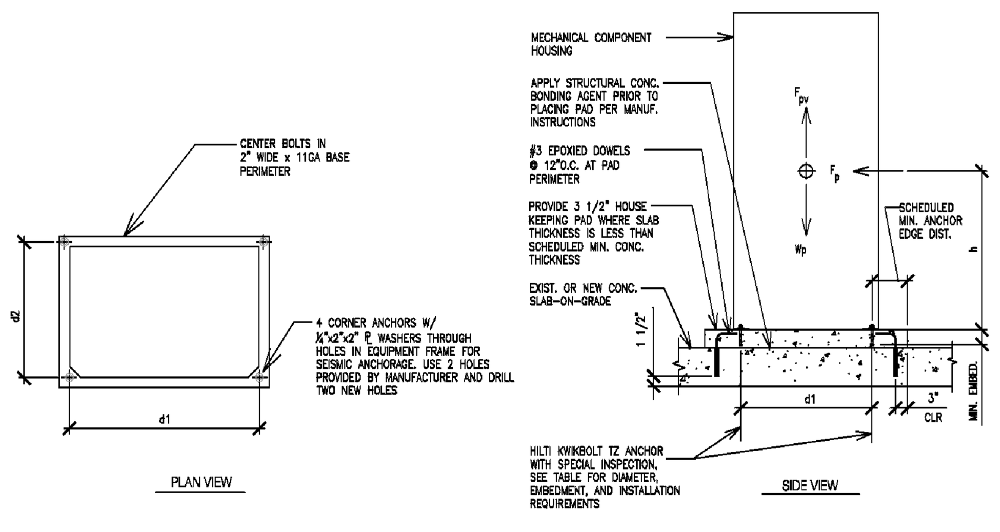
DATE: 14 JULY 2009 | JOB: 09023_a | DRAWN: AA | SCALE: NONE | REVISION 6 12/08/09 | Page S5

EQUIPMENT ANCHORING DETAIL - LOAD CENTER AT BLDG 2

SCALE: NONE (5/E-300)

ANCHORAGE SCHEDULE												
ID #	COMPONENT	OPERATING WEIGHT (MAX) Wp (lbf)	DIMENSIONS HxWxD (in.)	CENTER OF GRAVITY HEIGHT h (in.)	FASTENER DISTANCE d1 (in.)	FASTENER DISTANCE d2 (in.)	CONC. ANCHOR DIAMETER (in.)	NUMBER OF ANCHORS REQUIRED	MIN. ANCHOR CONC. EMBEDMENT. LENGTH (in.)	ANCHOR INSTALLATION/ TESTING TORQUE (ft-lb)	MINIMUM ANCHOR EDGE DISTANCE (in.)	MINIMUM CONC. THICKNESS (in.)
5	15.0 KV VACUUM SWITCHGEAR	2570	54x72x43	27	68	39	3/8	4	2	25	4 1/2	4

SCHEDULE NOTES:
1. USE HILTI BOLT TZ ANCHORS INSTALLED IN CONCRETE WITH F'c=3000 PSI MIN (NORMAL OR LIGHT WEIGHT) AND INSTALL PER MANUFACTURERS PUBLISHED INSTRUCTIONS AND PER ESR 1917.
2. FOR INTERIOR INSTALLATIONS USE CARBON STEEL ANCHORS AND FOR EXTERIOR INSTALLATIONS USE STAINLESS STEEL ANCHORS.



SLAB-ON-GRADE SUPPORTED EQUIPMENT

PROJECT: SKYLINE COLLEGE BUILDING 2
CUSTOMER: RANDAL LAMB ASSOCIATES, INC.

DATE: 14 JULY 2009 | JOB: 09023_a | DRAWN: AA | SCALE: NONE | REVISION 6 12/08/09 | Page S6

EQUIPMENT ANCHORING DETAIL - SELECTOR SWITCH 1 AT BLDG 2

SCALE: NONE (4/E-300)

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LIC. NO. 3779 C-10

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ARCHITECT | ENGINEER

REGISTERED PROFESSIONAL ENGINEER AARON J. STRAUCH E15200 ELECTRICAL STATE OF CALIFORNIA

NO.	ISSUES/REVISIONS	DATE
1	DSA SUBMITTAL	7/31/09
2	DSA BACK CHECK	11/17/09
3	RECORD DRAWINGS	08/13/10

DRAWING STATUS	DATE
○ DSA PLAN CHECK	07/31/2008
○ DSA BACK CHECK	11/17/2009
○ BIDDING	
○ CONSTRUCTION	
● AS-BUILTS	08/31/2010

DIVISION OF THE STATE ARCHITECT
APPL # 01-110884
FILE # 41-C1
AC ____ FLS ____
SSS ____ DATE ____
IDENTIFICATION STAMP

AS-BUILTS RECORD SET

SKYLINE COLLEGE
SAN MATEO COUNTY COMMUNITY COLLEGE DISTRICT

CIP2 DESIGN-BUILD PROJECT CAMPUS 12KV SYSTEM UPGRADE

KEYPLAN

PROJECT NO.: SF10570.01 DRAWN BY: MS
DATE: 08/31/10 CHECKED BY: AS
SCALE: AS INDICATED

SHEET TITLE:
STRUCTURAL ANCHORING CALCULATIONS

SHEET NO:
E-300

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If this drawing is not 30"x42", then the drawing has been revised from its original size. Noted scales must be adjusted. This line should be equal to one inch