DEVICES

$ **	SINGLE POLE TOGGLE SWITCH MC = MOMENTARY CONTACT WP = WEATHERPROOF 3W = 3-WAY EX = EXPLOSION PROOF 4W = 4-WAY T = THERMAL OVERLOAD 2P = TWO POLE P = PILOT LIGHT 3P = THREE POLE D = DIMMING SWITCH LV = LOW VOLTAGE K = KEY OPERATED
$ D1	LUTRON N1000 (INCANDESCENT) OR =, WHITE SLIDE 1P DIMMER SWITCH LUTRON NF10 (FLUORESCENT) OR =, WHITE SLIDE 1P DIMMER SWITCH LUTRON NLV1000 (MAGNETIC. LV) OR =, WHITE SLIDE 1P DIMMER SWITCH
$ SS	SENTRY SWITCH (WIRED TO NEW / EX LIGHTING CONTROL SYSTEM)
$ ts	WATT STOPPER TS200 (SPST) ELECTRONIC IN WALL TIMER SWITCH, OR =
$ ms	20A,1Ø MANUAL MOTOR STARTER - SQUARE D CLASS 2510, TYPE K02 OR =
$ mts	30A,3Ø MANUAL MOTOR STARTER - SQUARE D CLASS 2510,TYPE KO6 OR =
LC LR	LIGHTING CONTACT IN ENCLOSURE / LIGHTING RELAY CABINET
8	DOORBELL
PC	PHOTOCELL
TS	TIME SWITCH
T	THERMOSTAT
$ LO $ PB	LOCKOUT SWITCH / PUSH BUTTON
⊢• / ⊢•• / ⊢•••	PUSHBUTTON STATION WITH ONE / TWO / THREE BUTTONS
⊢•••	PUSHBUTTON STATION WITH TWO BUTTONS AND PILOT LIGHT
• KR	KEY-RESET CONTROL STATION
• SL	STOP-LOCK PUSHBUTTON STATION
⊢D	EMERGENCY POWER OFF MUSHROOM BUTTON
Φ	SINGLE RECEPTACLE (wall mounted)
Φ	DUPLEX RECEPTACLE (wall mounted)
Φ	DOUBLE DUPLEX RECEPTACLE (wall mounted)
Φ	SPLIT WIRED DUPLEX RECEPTACLE (wall mounted)
Φ CR	SPLIT WIRED DUPLEX RECEPTACLE. TOP HALF OF RECEPTACLE TO BE CONTROLLED PER CA ENERGY CODE, BOTTOM HALF NOT CONTROLLED
Φ / Φ	GFI DUPLEX RECEPTACLE / GFI DOUBLE DUPLEX RECEPTACLE (wall mount)
Φ WP	EXTERIOR WEATHER PROOF GFI DUPLEX RECEPTACLE
Φ / Φ	SINGLE RECEPTACLE (flush floor mounted) DUPLEX RECEPTACLE (flush floor mounted)
Φ	DOUBLE DUPLEX RECEPTACLE (flush floor mounted)
Φ / Φ	SINGLE RECEPTACLE (poke-thru) / DUPLEX RECEPTACLE (poke-thru)
Φ	DOUBLE DUPLEX RECEPTACLE (poke-thru)
Φ	RECEPTACLE CONNECTED TO CELLULAR FLOOR SYSTEM
Φ	RECEPTACLE MOUNTED ABOVE COUNTERTOP
⊗	RECEPTACLE 250V 1Ø 3W
●	RECEPTACLE 3Ø 5W
©	CLOCK OUTLET RECEPTACLE
◷	CLOCK OUTLET AND CLOCK FOR INTEGRATED CLOCK SYSTEM
EL SS	ELEVATOR SELECTOR SWITCH FURNISHED BY ELEVATOR CONTRACTOR. INSTALLED BY E.C.
R	MECHANICALLY HELD, ELECTRONICALLY OPERATED RELAY EQUAL TO ASCO 917 SERIES.
CP	CONTROL PANEL FURNISHED WITH OCP AND PREWIRED WITH EQUIPMENT
⊕ ◫	WALKER POWER FLOOR BOX #880CS1-1 (OR =) WITH COVER PLATE, UNO. COORDINATE LOCATION, COLOR & ALL REQUIREMENTS WITH GC.
⊕▼	WALKER COMBO POWER / DATA FLOOR BOX #880CS2-1 (OR =) W/COVER PLATE, UNO. COORDINATE LOCATION, COLOR & ALL REQ'S WITH GC.
⊕▼ ◫▼ ●▼	WALKER COMBO POWER / DATA POKE THRU #RC700 SERIES (OR =) WITH COVER PLATE, UNO. COORDINATE LOCATION, COLOR & ALL REQ'S W/GC.
⊖	UNO, 30A, 208V, L6-30R CORD CAP S.O. CORD DROP, REFER TO PLANS.
⊕	UNO, 30A, 208V, L15-30R CORD CAP S.O. CORD DROP, REFER TO PLANS.
⊖ 5-30R TP-12	SPECIAL RECEPTACLE, FLUSH WALL MOUNT, 18"AFF UNO. NUMBER NEXT TO DEVICE IS NEMA#. VIF TYPE & LOCATION WITH GC PRIOR TO INSTALL.
⊕	UNO, 20A, 120V, FOURPLEX CORD CAP S.O. CORD DROP, REFER TO PLANS

LIGHTING

├──┤	STRIPLIGHT
▭	1 x 4 FLUORESCENT FIXTURE
□ / ▭	2 x 2 / 2 X 4 FLUORESCENT FIXTURE
⊕	PENDANT MOUNTED FIXTURE
○ / ○	RECESSED DOWNLIGHT / RECESSED DOWNLIGHT WALL WASHER
▽ ▽ ▽	TRACK LIGHTING WITH TRACK AND FIXTURE
├─●─┤	STRIPLIGHT ON EM CIRCUIT OR 90 MINUTE BATTERY
◢	1 x 4 FLUORESCENT FIXTURE ON EM CIRCUIT OR 90 MINUTE BATTERY
◪	2 x 2 FLUORESCENT FIXTURE ON EM CIRCUIT OR 90 MINUTE BATTERY
◢	2 x 4 FLUORESCENT FIXTURE ON EM CIRCUIT OR 90 MINUTE BATTERY
◑	RECESSED DOWNLIGHT ON EM CIRCUIT OR 90 MINUTE BATTERY
⧓ / ◆	EMERGENCY BATTERY PACK LIGHT / REMOTE HEAD EM LIGHT
◑	PHOTOCELL FOR CONTROL OF LIGHTING DUSK TO DAWN. INTERMATIC K4100 SERIES
⊗	EXIT/DIRECTIONAL SIGN
"A" H1-6a	FIXTURE TAG - TEXT DENOTES FIXTURE TYPE, CKT, SWITCH CONTROL
←OS→ W	CEILING MOUNT OCCUPANCY SENSOR, WATT STOPPER #W2000 OR = / WALL MOUNT OCCUPANCY SENSOR, WATT STOPPER #W1-300 OR =.
←DS→	CEILING MOUNT DAYLIT SENSOR, WATT STOPPER OR =.

RACEWAY AND WIRING

⌒→	CONDUIT RUN CONCEALED IN CEILING OR WALL ARROW IMPLIES DIRECT PATH TO DESIGNATED PANEL
⌒→	CONDUIT RUN CONCEALED IN OR BELOW FLOOR
⌒→	GROUND WIRE CONCEALED IN CEILING OR WALL ARROWHEAD DENOTES HOMERUN TO PANELBOARD. TICK MARK INDICATE QUANTITY OF WIRE: PHASE AND SWITCH LEGS DENOTED AS SHORT LINES NEUTRAL DENOTED AS LONG LINE. GROUND WIRES DENOTED AS LONG LINES WITH DOT
F5 P1-1,3,5	CONDUIT HOMERUN TO PANEL WITH FEEDER TAG FOR CONDUIT & WIRE
UP DN	CONDUIT STUBBED UP / CONDUIT STUBBED DOWN
J	FLEXIBLE CONDUIT JUNCTION BOX (exposed or in ceiling)
J	JUNCTION BOX (wall or ceiling mounted) "FB" INDICATES FLOOR BOX WITH BLANK COVER
J B	JUNCTION BOX (ceiling mounted - FAN RATED) W/ DECORATIVE COVER. MULBERRY #40430
⬡	EQUIPMENT TAG
⌒	CONDUIT SEAL
▮▮▮▮▮	MULTI-OUTLET ASSEMBLY
W W W	WIREWAY
CT CT CT	CABLE TRAY
B B B	BUSWAY (BUSDUCT)
☰	UNDERFLOOR DUCT SYSTEM: INDICATES POWER DUCT INDICATED TELEPHONE DUCT INDICATES SYSTEM DUCT
CTB	CABLE TAP BOX
☰	VARIOUS SYMBOLS IDENTIFY LOCATION OF DIFFERENT TYPES OF OUTLETS OR CONNECTIONS TO UNDERFLOOR DUCT SYSTEM.
MH / HH	MANHOLE / HANDHOLE
PB	PULLBOX
J / J	JUNCTION BOX / WALL JUNCTION BOX
J	FURNITURE PARTITION BASE FEED JB, ONE FOR POWER, ONE FOR DATA, SIZED PER CODE, INSTALLED @ 18" AFF, UNO. INSTALL 3/4" FOR POWER & 1" (VIF) DATA CONDUIT STUBBED INTO CEILING CAVITY.
P D	WIREMOLD 30TP2 POWER POLE, UNO. REQUIRED POWER PER THE PLANS.
J PP	FURNITURE PARTITION POWER POLE JB IN CLG, SIZED PER CODE. POWER POLE F&I BY FURNITURE CONTRACTOR, WIRED BY THE EC. COORDINATE ALL REQUIREMENTS & LOCATION WITH THE FURNITURE CONTRACTOR.
F9 / 202	BRANCH CIRCUIT / FEEDER TAG. REFER TO CORRESPONDING FEEDER SCH.

TELEPHONE/DATA DEVICES

◁ DATA	DATA OUTLET, STUB 3/ 4" CONDUIT TO ABOVE FINISHED CEILING.
◁ PH	TELEPHONE OUTLET, STUB 3/ 4" CONDUIT TO ABOVE FINISHED CEILING.
◁	TELEPHONE/DATA COMBINATION OUTLET, STUB 3/ 4" CONDUIT TO ABOVE FINISHED CEILING.
◁ TV	TV CABLE OUTLET, STUB 3/ 4" CONDUIT TO ABOVE FINISHED CEILING.
◀	TELEPHONE OUTLET (floor mounted) See Telephone/Data specifications.
◁	DATA OUTLET (floor mounted) See Telephone/Data specifications.
◀	TELEPHONE/DATA COMBINATION OUTLET (floor mounted) See Telephone/Data specifications.
◀	TELEPHONE OUTLET (poke-thru) See Telephone/Data specifications.
◁	DATA OUTLET (poke-thru) See Telephone/Data specifications.
◀	TELEPHONE/DATA COMBINATION OUTLET (poke-thru) See Telephone/Data specifications.
◀ W ◀ P	WALL MOUNTED TELEPHONE / PUBLIC PAY PHONE
◀ R	HANDS FREE COMMUNICATIONS DEVICE AT AREA OF RESCUE ASSISTANCE. 2-WAY COMMUNICATIONS DEVICE WITH AUDIBLE & VISUAL SIGNAL. ROUTE 3/4" CONDUIT TO TELEPHONE TERMINAL BOARD FOR CONNECTION TO AUTOMATIC DIALER FOR "911", TYP. VERIFY EXACT REQUIREMENTS WITH THE CITY OF CHICAGO FIRE DEPARTMENT AND COMPLY WITH THE IBC.
TDV	COMBINATION OUTLET (wall mounted) T = CATV (CABLE TELEVISION) D = DATA V = VOICE (TELEPHONE)
TV	COMBINATION OUTLET (wall mounted) T = CATV (CABLE TELEVISION) V = VOICE (TELEPHONE)
NID	NETWORK INTERFACE DEVICE
-	NOT USED

SIGNAL SYMBOLS

□/	BUZZER
CH	CHIME
▭◁	CLOSED CIRCUIT TELEVISION CAMERA
I	INTERCOM (wall or ceiling mount)
TTC	TELEPHONE TERMINAL CABINET
AMP	AMPLIFIER
M	MICROPHONE JACK
VC	VOLUME CONTROL
MS	MOTION SENSOR
CR	CARD READER (verify exact location) See Security and Architectural Specifications
ES	ELECTRIC STRIKE (verify exact location) See Security and Architectural Specifications
KP	KEYPAD (verify exact location) See Security and Architectural Specifications
DR	DOOR RELEASE
DC	SECURITY DOOR CONTACT
EP	EMERGENCY PANIC STATION
TES	TELEPHONE ENTRY SYSTEM
GAP	GENERATOR ANNUNCIATOR PANEL

FIRE ALARM

A / AV	GENERAL ALARM DEVICE / GENERAL ALARM DEVICE WITH VISUAL ALARM DEVICE
F	FIRE ALARM AUDIO VISUAL DEVICE
H / M	FIRE ALARM MINI HORN / FIRE ALARM MINI HORN STROBE DEVICE
PS / PSV	PRE-SIGNAL ALARM DEVICE / PRE-SIGNAL ALARM DEVICE WITH VISUAL ALARM
SL / CL	LOCAL SMOKE DETECTOR WITH BATTERY BACKUP & FA SYSTEM INTERFACE LOCAL CARBON MONOXIDE DETECTOR WITH BATTERY BACKUP
S / B	VOICE COMMUNICATION SPEAKER / BEACON
SV	VOICE COMMUNICATION SPEAKER WITH VISUAL ALARM DEVICE
SL◁	LOCAL SMOKE DETECTOR WITH BATTERY BACKUP & FA SYSTEM INTERFACE, AND WITH INTEGRAL SOUNDER DEVICE TO PROVIDE 70 DECIBELS AT PILLOW
V	VISUAL ALARM DEVICE (PER FIRE PREVENTION)
RA	REMOTE ANNUNCIATOR LAMP FOR SELECTED DEVICES
HD	HEAT DETECTOR (135° FIXED TEMPERATURE/RATE OF RISE)
SD	SYSTEM SMOKE DETECTOR
SD◀	SYSTEM SMOKE DETECTOR WITH INTEGRAL HORN
-	NOT USED
DD	HVAC DUCT SMOKE DETECTOR
SD T	BEAM SYSTEM SMOKE DETECTOR (UL-268) TRANSMITTER
SD R	BEAM SYSTEM SMOKE DETECTOR (UL-268) RECEIVER
S	MANUAL PULL STATION
WF	SPRINKLER WATERFLOW INDICATOR
AV	SPRINKLER ALARM VALVE ATTACHMENT
PS	SPRINKLER PRESSURE SWITCH
HES	HALON EXTINGUISHING SYSTEM
DES	DRY CHEMICAL EXTINGUISHING SYSTEM
WES	WET CHEMICAL EXTINGUISHING SYSTEM
GES	GASEOUS EXTINGUISHING SYSTEM
H	MAGNETIC/ELECTRONIC DOOR HOLD OPEN DEVICE
◆	ELECTRIC DOOR LOCK
VSS	SPRINKLER VALVE SUPERVISORY (TAMPER) SWITCH
CBT	CITY FIRE ALARM BOX TIE AND DISCONNECT PANEL
FA	CITY FIRE ALARM BOX
CST	CENTRAL STATION TIE AND DISCONNECT
TB	TROUBLE BELL WITH TEST AND SILENCE SWITCH WITH LAMP
NAC	FIRE ALARM NOTIFICATION APPLIANCE CIRCUIT PANEL
FACP / FAAP	FIRE ALARM CONTROL PANEL / FIRE ALARM ANNUNCIATOR PANEL
VCP	VOICE COMMUNICATION CONTROL PANEL
ECP	ELEVATOR STATUS/CONTROL PANEL
D	HVAC DUCT FIRE DAMPER CONTROL
$ RT	DUCT SMOKE DETECTOR REMOTE TEST SWITCH WITH HORN AND LIGHT.
J FA	JUNCTION BOX W/ BLANK COVER & 1"c ROUTED TO FACP FOR EXTENSION OF FUTURE FA SYSTEM PAINTED RED & STENCIL "FIRE ALARM"

POWER

▯▯▯	SWITCHGEAR, SWITCHBOARD, OR MOTOR CONTROL CENTER
▨	DISTRIBUTION BOARD (surface mounted)
⏚	METER (surface mounted)
▬	PANELBOARD (surface mounted)
▬	PANELBOARD (recessed mounted)
○	MOTOR (rating as indicated) "D" INDICATES MOTOR OPERATED DAMPER
F	FUSED DICONNECT SWITCH
CP	CONTROL PANEL FURNISHED WITH PACKAGE EQUIPMENT
□	NON-FUSED DISCONNECT SWITCH
⊠	COMBINATION MOTOR STARTER AND FUSED DISCONNECT: NEMA SIZE 1 - UP TO 10HP 480V 3Ø NEMA SIZE 2 - UP TO 25HP 480V 3Ø NEMA SIZE 3 - UP TO 50HP 480V 3Ø NEMA SIZE 1 - UP TO 7 1/2HP 208V 3Ø NEMA SIZE 2 - UP TO 15HP 208V 3Ø NEMA SIZE 3 - UP TO 30HP 208V 3Ø
VFD ⊠	VARIABLE FREQUENCY DRIVE (VFD) STARTER 1Ø &/OR 3Ø FURNISHED BY OTHERS, RECEIVED & INSTALLED BY E.C.
C	MAGNETICALLY HELD CONTACTOR
TP	UNIT LOAD CENTER, FLUSH MOUNT
HNC	HOME NETWORK CENTER, FLUSH MOUNT
M	UTILITY COMPANY KWH METER
GF	GROUND FAULT CURRENT SENSING CT'S FOR MAIN GROUND FAULT BREAKER
-	NOT USED
-	NOT USED

RESCUE ASSISTANCE

RACS	RESCUE ASSISTANCE CALL STATION, SEE 2-E1.1C.
RAS	RESCUE ASSISTANCE SIGNAGE, SEE 2-E1.1C.
RACP	RESCUE ASSISTANCE CONTROL PANEL, SEE 2-E1.1C.

GENERAL NOTES (AS APPLICABLE)

1. ALL WORK SHALL SHALL COMPLY WITH 2013 CALIFORNIA BUILDING & ELECTRIC CODES.
2. ALL ELECTRICAL INSTALLATIONS SHALL COMPLY WITH ALL APPLICABLE PROJECT SPECIFICATIONS, VIF WITH THE GC.
3. ALL CONDUIT INSTALLATIONS SHALL BE CONCEALED, & MINIMUM SIZE TO BE 1/ 2" UNO.
4. UNO, MINIMUM CONDUCTOR SIZE SHALL BE #14 AWG FOR UNITS, AND SHALL BE #12 AWG FOR ALL COMMERCIAL & COMMON AREAS, & SHALL BE COPPER THHN OR THWN.
5. EC SHALL COORDINATE ALL WORK WITH ALL OTHER TRADES, AND BE FAMILIAR WITH ALL PROJECT DRAWINGS.
6. ANY APPLICABLE REQUIRED POWER SHUTDOWNS SHALL BE COORDINATED WITH THE GC IN ADVANCE OF THE SHUTDOWN.
7. ALL EQUIPMENT AND DEVICES SHALL BE PROPERLY IDENTIFIED AND LABELED.
8. UNO, ALL CONDUIT FEEDERS AND BRANCH CIRCUITS SHALL HAVE AN EQUIPMENT GROUND SIZED PER CEC / NEC 250.122.
9. MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES SHALL BE AS REFLECTED BELOW DIMENSIONS ARE TO DEVICE CENTER, UNO. ALSO, REFER TO THE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

A.	RECEPTACLES, VOICE / DATA / TV OUTLETS	18"
B.	OUTDOOR RECEPTACLES	24"
C.	TOGGLE SWITCHES	44"
D.	FA AUDIO VISUAL DEVICES	80"
E.	EXIT SIGN FIXTURES	90"
F.	THERMOSTAT JUNCTION BOX, SECURITY / NURSE CALL STATIONS	46"
G.	CLOCK AND PAGING SPEAKER OUTLETS	84"
H.	INDIVIDUAL DISCONNECT SWITCHES, STARTERS	60"
I.	GROUPED DISCONNECT SWITCHES, STARTERS	>15" THROUGH <79"
J.	PANELBOARD OVERCURRENT DEVICES	>15" THROUGH <79"
K.	WALL AND CORRIDOR MOUNT LIGHT FIXTURES	80"

10. 20A, 120V BRANCH CIRCUIT (ASSUMING 80% LOADING) WIRING SHALL BE ADJUSTED FOR VOLTAGE DROP REQ'S PER THE FOLLOWING:
    - A. UP TO 85' IN LENGTH = #12 AWG CU CONDUCTORS.
    - B. 85' THROUGH 150' = #10 AWG CU CONDUCTORS.
    - C. 150' THROUGH 200' = #8 AWG CU CONDUCTORS.
    - D. 200' THROUGH 250' = #6 AWG CU CONDUCTORS.

11. ALL ELECTRICAL PANELS SHALL HAVE AN ACCURATE & TYPEWRITTEN PANEL CARD DIRECTORIES.
12. EC SHALL MAINTAIN AT THE JOB SITE UP TO DATE "AS BUILT" DRAWINGS, AND SHALL BE TURNED OVER TO THE EC PROJECT MANAGER UPON PROJECT COMPLETION.
13. ALL ELECTRICAL SYSTEMS INSTALLED OUTDOORS SHALL BE AN APPROVED WEATHERPROOF TYPE INSTALLATION.
14. COORDINATE ALL DEVICE LOCATIONS WITH GC & ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATIONS.
15. COORDINATE DEVICE AND PLATE FINISH COLOR WITH ARCHITECTURAL DRAWINGS & PROJECT SPECIFICATIONS.
16. ALL ELECTRICAL EQUIPMENT BY THE EC & THE CUSTOMER TO BE LISTED & LABELED PER CEC / NEC 90.7 & 110.3.
17. ALL PANELBOARD/SWITCHBOARDS SHALL HAVE ALUMINUM BUSSING & BOLT ON STYLE BREAKERS, UNO. SEE APPLICABLE ADDITIONAL NOTES ON POWER PLAN SHEETS.
18. ALL BREAKER AIC RATINGS SHALL MATCH THE CORRESPONDING PANEL / SWITCH BOARD AIC RATING.
19. ALL XFMRS SHALL COMPLY WITH CEC / NEC ARTICLE 450-21 VIA 155° OR HIGHER INSULATION RATING.
20. ALL DISCONNECT SWITCHES LOCATED ABOVE ACCESSIBLE CEILINGS SHALL COMPLY WITH CEC / NEC 404.8A, EX 2.
21. ALL FUSES & HEATERS FOR STARTERS & DISCONNECT SWITCHES SHALL BE SIZED PER EQUIPMENT NAMEPLATE, VIF.
22. ALL ELECTRICAL EQUIPMENT CLEARANCES SHALL COMPLY WITH CEC / NEC 110-26.
23. AS APPLICABLE, PERFORM VISUAL INSPECTION OF EXISTING SWITCHBOARDS & PANELBOARDS, & NOTIFY GC / CLIENT OF APPLICABLE VIOLATIONS &/OR HAZARDS.
24. REFER TO LIGHTING & POWER PLANS FOR ADDITIONAL NOTES, & SPECIFICATIONS.
25. IN BLDGS WITH MORE THAN ONE NOMINAL VOLTAGE, EACH UNGROUNDED SYSTEM CONDUCTOR TO BE IDENTIFIED PER PHASE & SYSTEM. MEANS OF IDENTIFICATION SHALL BE PERMANENTLY POSTED AT EACH BRANCH CIRCUIT PANELBOARD, PER CEC / NEC 210.4.D. PHASE COLOR CODING SHALL BE BROWN, ORANGE, YELLOW FOR 480Y/277V SYSTEMS & BLACK, RED, BLUE FOR 208Y/120V SYSTEMS. FOR ALL 240/120V, 3Ø, 4W DELTA SYSTEMS, EC TO PROVIDE ORANGE MARKING FOR HIGH LEG CONDUCTOR (SHOULD BE BØ, VIF) AT ALL PANELS PER CEC / NEC 110-15, 230-56, & 408.3. ALSO PROVIDE A PHENOLIC LABEL ON ALL APPLICABLE PANELS. LABEL SHALL READ "PNL **-240/120V,3Ø,4W DELTA".
26. EC SHALL VIF WITH UTILITY COMPANY REGARDING THAT NEW PROJECT LOADING ON UTILITY XFMR IS ACCEPTABLE.
27. ALL ELECTRICAL INSTALLATIONS SHALL COMPLY WITH ARC FLASH REQUIREMENTS PER NEC 110.16 & NFPA 70E-2009.
28. 100% RATED CBS SHALL COMPLY & BE LABELED PER CEC / NEC ARTICLE 90.7, 110.1, 110.2, & 110.3, & ANY ASSOCIATED FEEDERS SHALL COMPLY WITH 215.3 & 230.42.
29. THIS ELECTRICAL DESIGN IS A CONCEPTUAL DESIGN. EC TO VIF ALL INSTALLATION METHODS & REQUIREMENTS.
30. REFLECTED CONDUIT ROUTING PATHS ARE FOR REFERENCE ONLY, EC SHALL VIF ALL ROUTING. FIELD REVISIONS TO CONDUIT AND CONDUCTORS SHALL COMPLY WITH ALL APPLICABLE CODES. FIELD REVISIONS TO CONDUCTORS SHALL COMPLY WITH CEC / NEC ARTICLES, 110.14, 210.19, 215.2, 230.42, 240.3, 310.15-16.
31. ALL J-BOXES & WIREWAY SHALL BE SIZED & INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CEC / NEC ARTICLES.
32. ALL WIRING SYSTEMS LOCATED ABOVE ALL GRID CEILINGS SHALL COMPLY WITH CEC / NEC ARTICLE 300-11.
33. ALL J-BOXES LOCATED ABOVE ALL SHEET ROCK CEILINGS SHALL BE ACCESSIBLE.
34. COORDINATE ALL EQUIPMENT LOCATIONS & REQ'S WITH THE GC PRIOR TO HOOK UP.
35. ALL ELECTRICAL PANELS & EQUIPMENT SHALL HAVE A MINIMUM OF 1"x2" ID LABEL.
36. MIN OF 36" CLEARANCE SHALL BE MAINTAINED IN FRONT OF ALL ELECTRICAL PANELS.
37. ALL WALL & FLOOR CORES & PENETRATIONS TO BE PERFORMED IN A NEAT MANNER, & BE SEALED WITH AN APPROVED FIRE SEALANT, AS WELL AS ALL ONE HOUR WALL DEVICES. SEE DETAILS ON SHEET E1.2.
38. EC SHALL MAINTAIN NEAT / SAFE WORK AREAS AT ALL TIMES. ALL WORK AREAS AND METHODS SHALL COMPLY WITH ALL OSHA, GC, ALL OTHER TRADES REQUIREMENTS AT ALL TIMES. TRASH & ITEMS NOT NEEDED FOR CONSTRUCTION SHALL BE REMOVED FROM SITE DAILY. ALL DEMOLISHED ELECTRICAL EQUIPMENT / MATERIAL SHALL BE REMOVED FROM THE JOBSITE & PLACED IN TRASH CONTAINERS, VIF WITH THE GC.
39. ALL CONDUCTORS IN PARALLEL SHALL BE OF THE SAME LENGTH, & COMPLY WITH CEC / NEC 310-4.
40. REFER TO ARCHITECTURAL DRAWINGS FOR ANY APPLICABLE DEVICE DIMENSIONING.
41. PER ADA SECTION 4.2, ALL WALL MOUNTED DEVICES THAT ARE ACCESSIBLE TO WHEEL CHAIR ACCESS SHALL COMPLY WITH THE FORWARD REACH REQ'S AS IS FOLLOWING. MAXIMUM HIGH FORWARD REACH = 48" AFF TO TOP, MAX LOW = 15" AFF TO BOTTOM.
42. PROVIDE ALL APPLICABLE &/OR REQUIRED DEMOLITION WORK FOR CONSTRUCTION OF THIS PROJECT. COORDINATE ALL REQUIREMENTS WITH THE GC. ALL REMOVED WIRING SYSTEMS SHALL BE REMOVED BACK TO THE CORRESPONDING ELECTRICAL PANEL. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DEMOLITION REQUIREMENTS.
43. EC SHALL COORDINATE ALL REQUIRED POWER SHUTDOWNS WITH THE GC WELL IN ADVANCE OF ANY SHUTDOWN. DISRUPTIONS OF THE POWER SYSTEM WITHOUT GC APPROVAL IS PROHIBITED.
44. ALL MOTOR & FEEDER TAPS SHALL COMPLY WITH CEC / NEC 430.28, 430.24 & 240.21.
45. ALL BACK TO BACK ELECTRICAL OUTLET BOXES INSTALLED IN ONE HOUR FIRE RATED ASSEMBLY SHALL BE SEPARATED HORIZONTALLY BY A MINIMUM OF 24" BETWEEN THE OUTLET BOXES.
46. ALL ROOF PENETRATIONS SHALL COMPLY WITH DETAIL 6-E1.2 ON SHEET E1.2.
47. ALL APPLICABLE ROOF CONDUIT INSTALLATION METHODS TO CONFORM TO EXISTING BUILDING STANDARD METHODS, & SHALL COMPLY WITH ALL APPLICABLE ARTICLES OF THE CEC / NEC.
48. COORDINATE EQUIPMENT LOCATIONS & REQ'S WITH GC PRIOR TO INSTALLATIONS.
49. COORDINATE ALL MECHANICAL EQUIPMENT LOCATIONS & REQUIREMENTS WITH MC & MECHANICAL DRAWING PRIOR TO ALL ELECTRICAL INSTALLATIONS, AS APPLICABLE.
50. EC SHALL HAVE ALL UNDERGROUND UTILITIES & SYSTEMS LOCATED VIA USA OR AN APPROVED EQUAL PRIOR TO ALL ESCAVATION & / OR ANY AUGERING WORK.
51. APPLICABLE RECEPTACLES & LIGHTING FED VIA EM PANEL SHALL BE INSTALLED IN SEPARATE CONDUIT SYSTEMS APART FROM NORMAL POWER WIRING SYSTEMS, & SHALL BE IDENTIFIED AS SUCH, PER CEC / NEC 700.9.
52. EQUIPMENT HOOK UP & WIRING INSTALLATIONS TO COMPLY WITH CEC / NEC 400 & 422.
53. SERVER ROOMS THAT ARE CLASSIFIED & CONSTRUCTED AS AN INFORMATION TECHNOLOGY EQUIPMENT ROOM ARE REQUIRED TO COMPLY WITH CEC / NEC 645.
54. REFER TO ARCH. DRAWINGS FOR ADDITIONAL POWER PLAN GENERAL & SHEET NOTES.
55. COORDINATE DOWN LIGHT ROUGH IN LOCATIONS WITH GC PRIOR TO INSTALLATION.
56. DOWN LIGHT FIXTURES LOCATED IN CEILING TILES TO BE CENTERED IN THE TILE, VIF.
57. SEE DETAIL 8-E1.2 FOR APPLICABLE OCCUPANCY SENSOR WIRING & INSTALL REQ'S.
58. SEE DETAIL 3-E1.2 FOR APPLICABLE LIGHTING CONTROL PANEL WIRING REQ'S.
59. ALL SWITCHES SHALL BE LABELED TO INDICATE THE AREA SERVED BY THE SWITCH.
60. ALL LIGHT FIXTURE INSTALLATIONS TO COMPLY WITH IBC & CEC, & DETAIL 9-E1.2.
61. SWITCH GROUPING WHERE VOLTAGE BETWEEN SWITCHES IS >300V, REQUIRE BARRIERS PER CEC / NEC 404.8B.
62. BRANCH CIRCUIT VOLTAGE LIMITATIONS SHALL COMPLY WITH CEC / NEC 210.0.
63. VIF ALL FIXTURE LOCATIONS WITH GC, & ALL OTHER TRADES PRIOR TO INSTALLATIONS
64. SEE ARCH DRAWINGS FOR ADDITIONAL CEILING PLAN GENERAL & SHEET NOTES.
65. IF SUSPENDED CEILING SYSTEM IS CLASSIFIED AS A RETURN AIR PLENUM CEILING, COMPLIANCE WITH CEC / NEC 300.22C IS REQUIRED FOR ALL ABOVE CEILING WIRING.
66. SEE SHEET E0.1 FOR INTERIOR & EXTERIOR LIGHT FIXTURE SCHEDULES, AS APPLICABLE.
67. EXIT & EM FIXTURE FIXTURE WIRING & INSTALLATIONS SHALL COMPLY WITH CEC / NEC 700.9 & 700.12, & CBC 1006, 1011, 2701 AS APPLICABLE. EM POWER SOURCE FOR EXIT & EM FIXTURES SHALL BE VIA STORAGE BATTERIES, UNIT EQUIPMENT, OR AN ON-SITE GENERATOR. EXIT & EM FIXTURES SHALL BE ILLUMINATED AT ALL TIMES. ILLUMINATION SHALL NOT BE LESS THAN 90 MIN IN THE EVENT OF PRIMARY POWER LOSS. EXIT PLACEMENT TO COMPLY WITH CBC 1011.1. EM LIGHTING TO BE ARRANGED TO PROVIDE AN AVERAGE OF 1 FOOT CANDLE ALONG THE ENTIRE PATH OF EGRESS.
68. ALL ELECTRICALLY POWERED FURNITURE CUBICLE PARTITIONS SHALL COMPLY WITH CEC / NEC ARTICLE 605.
69. ALL MULTIWIRE BRANCH CIRCUITS SHALL COMPLY WITH CEC / NEC ARTICLE 210.4.
70. ALL ROOF CONDUIT INSTALLATIONS SHALL COMPLY WITH NEC ARTICLE 310.15.B.2.C.
71. ALL UG CONDUITS SHALL HAVE PROPERLY SIZED EQUIPMENT GROUND CONDUCTOR.
72. ALL SERIES RATED EQUIPMENT SHALL COMPLY WITH CEC / NEC 240.86 & 110.22.
73. ALL EQUIPMENT BACKBOARDS SHALL BE 3/4" FIRE RETARDANT TREATED PLYWOOD.
74. ALL RECESSED DOWN LIGHTS INSTALLED IN CONTACT WITH INSULATION MATERIALS SHALL BE IC RATED LIGHTING FIXTURES, & BE LISTED AS SUCH IN FIXTURE SCHEDULE
75. ALL RECESSED LIGHTING IN A ONE HOUR CEILING TO COMPLY WITH CBC 713. REFER TO DETAILS ON E1.2B AS APPLICABLE FOR FIRESTOP REQ'S FOR LIGHT FIXTURES.
76. ALL CONDUIT WALL & FLOOR PENETRATIONS SHALL BE FIRE PROOFED PER THE CORRESPONDING HILTI FIRE STOP DETAILS ON E1.2A & E1.2B, AS APPLICABLE.
77. PENETRATIONS TO THE MEMBRANE OF ALL FIRE PARTITIONS BY ELECTRICAL BOXES & DEVICES SHALL COMPLY WITH CBC 713. REFER ALSO TO FIRE STOP DETAIL ON E1.2B.
78. ALL DISCONNECT SWITCHES FOR HVAC HEAT PUMPS SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE ROOM ACCESS POINT.
79. EM & OR EXIT LIGHTING FIXTURES WITH TEST BUTTONS SHALL HAVE TEST BUTTONS INSTALLED IN AN ACCESSIBLE LOCATION WITHOUT REMOVING ANY PART OF FIXTURE.
80. EM / NIGHT LIGHT FIXTURES SHALL BE WIRED SO AS TO REMAIN ON ALL THE TIME (24/7).

ABBREVIATIONS

1P/2P/3P	SINGLE POLE, TWO POLE, THREE POLE
A/AMP	AMPERES (AMPS)
AF	AMPERE FUSE
AS	AMPERE SWITCH
A/C	AIR CONDITIONER
AC	ALTERNATING CURRENT
ACL	ACROSS THE LINE
AFC	AVAILABLE FAULT CURRENT
AFF / AFG	ABOVE FLOOR FINISH ABOVE FINISH GRADE
AIC	AMPERES INTERRUPTING CAPACITY
AL	ALUMINUM
ANN	ANNUNCIATOR
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BJ	BONDING JUMPER
BS/BLDG	BUILDING STEEL, BUILDING
BAL	BALLAST
BGB	BUILDING GROUND BOX
BOC	BOTTOM OF CONDUIT
BR	BRANCH
BRKR	BREAKER
C	CONDUIT
C.U.	COEFFICIENT of UTILIZATION
CAB	CABINET
CATV / COAX	CABLE TELEVISION COAXIAL
CB	CIRCUIT BREAKER
CC	COMMUNICATIONS CONTRACTOR
CCC	CURRENT CARRYING CONDUCTOR
CLG / CLO	CEILING / CLOSET
CFL	COMBO FAN LIGHT
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CO/Co.	CONDUIT ONLY COMPANY
CEC/CBC	CALIFORNIA ELECTRIC CODE / CALIFORNIA BUILDING CODE
CECHA	COMMONWEALTH EDISON CHICAGO HOUSING AUTHORITY
ComEd	COMMONWEALTH EDISON COMPANY
COMP	COMPRESSOR
CONN	CONNECTED
CONV	CONVENIENCE
CP	CATHODIC PROTECTION
CT	CURRENT TRANSFORMER
CU	COPPER
CUH	CABINET UNIT HEATER
D/D	(for switches) DIMMER SWITCH, DEDICATED
DC	DIRECT CURRENT
DISC.SW.	DISCONNECT SWITCH
DP	DISTRIBUTION PANEL
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DWG	DRAWING
E/P	ELECTRIC/PNEUMATIC SWITCH
E.C.	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EHD	ELECTRIC HAND DRYER
EL	ELEVATION
ELEC	ELECTRIC (ITY)
EM	EMERGENCY
EMT	ELECTRICAL METALLIC CONDUIT
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EQ	EQUIPMENT
ER/EX	EXISTING TO REMAIN / EXISTING
EUH	ELECTRIC UNIT HEATER
EWC / EWH	ELECTRIC WATER COOLER / HEATER
F	FUSE or FUSED
FA	FIRE ALARM
FAAP / FACP	FIRE ALARM ANNUNCIATOR PANEL / CONTROL PNL
FB	FLOOR BOX
FC/FC	FAULT CURRENT / FOOT CANDLE
FDC	FIRE DEPARTMENT CONNECTION
F&I / F&IBO	FURNISHED & INSTALLED / BY OTHERS
FLUOR	FLUORESCENT
FLR	FLOOR
FP	FAN POWERED BOX
FS	FUSED SWITCH
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPT
GEC / GRD	GROUNDING ELECTRODE CONDUTOR / GROUND
GP	GENERAL PURPOSE
GRS	GALVANIZED RIGID STEEL CONDUIT
HID / HPS	HIGH INTENSITY DISCHARGE / HIGH PRESSURE SOD.
HP	HORSEPOWER
HPFF	HIGH POINT of FINISHED FLOOR
HV	HIGH VOLTAGE
Hz	HERTZ (cycles per second)
IBC	INTERNATIONAL BUILDING CODE
IC	INTERRUPTING CAPACITY
IG	ISOLATED GROUND
IMC	INTERMEDIATE METALLIC CONDUIT
INC	INCANDESCENT
JB	JUNCTION BOX
K	(for switches) KEY SWITCH
KA	THOUSAND AMPERE
KEC	KITCHEN EQUIPMENT CONTRACTOR
KO	KNOCK-OUT
kVA	KILOVOLT-AMPERES
kW / KWH	KILOWATT / KILOWATT HOURS
LA	LIGHTNING ARRESTOR
LC	LEAD COVERED
LPS/HPS	LOW PRESSURE SODIUM / HIGH PRESSURE SOD.
LS	LOUD SPEAKER
LTG	LIGHTING
LV / LVC	LOW VOLTAGE / LOW VOLTAGE CONTRACTOR
M	METER
MC	(for switches) MOMENTARY CONTACT
MCB / MFS	MAIN CIRCUIT BREAKER / MAIN FUSED SWITCH
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MIL
MERC	MERCURY VAPOR
MFR	MANUFACTURER
MH/M.H.	METAL HALIDE / MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
MM	METER MAIN
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTR	MOTOR
MV	MULTI-VAPOR
N	NEW
NC / NO	NORMALLY CLOSED / NORMALLY OPEN
NEC	NATIONAL ELECTRIC CODE
NEUT	NEUTRAL
NF	NON-FUSED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OCPD	OVER CURRENT PROTECTION DEVICE
OH	OVERHEAD
P	(for switches) PILOT LIGHT
PA	PUBLIC ADDRESS
PB	PULLBOX
PDU	POWER DISTRIBUTION UNIT
PH	PHASE
PNL	PANEL
PRI	PRIMARY
PROT	PROTECTION or PROTECTIVE
PT	POTENTIAL TRANSFORMER
PWR	POWER
R	RESISTANCE
RC	REMOTE CONTROL
REC	RECTIFIER
RECEP	RECEPTACLE
RF	RADIO FREQUENCY
RH	RHEOSTAT
RT	RAIN-TIGHT
R/RL/RW	REMOVE / RELOCATE / REWIRE
S	SWITCH
S/T	SHUNT-TRIP
SEC	SECONDARY
SC	SEPARATE CIRCUIT
SIG	SIGNAL
SLD	SINGLE LINE DIAGRAM
SPDT / SPST	SINGLE POLE DOUBLE THROW / SINGLE THROW
SPEC	SPECIFICATION
SPKR	SPEAKER
SS	STAINLESS STEEL
STA	STATION
STF	SEAL TITE FLEX
SWBD/SWGR	SWITCHBOARD / SWITCHGEAR
SYM / SYS	SYMMETRICAL / SYSTEM
T/D	TELEPHONE/DATA
T.C. / TC	TERMINAL CABINET / TIME CLOCK
TEL / TEL CL	TELEPHONE / TELEPHONE CLOSET
TGL	TOGGLE
TL	TWIST-LOCK
TOC	TOP OF CONDUIT
TR / TO	TRIP / THERMAL OVERLOAD
TRANS	TRANSFER
TVTC / TTC	TELEVISION / TELEPHONE TERMINAL CABINET
MTVTC/MTTC	MAIN TELEVISION / MAIN TELEPHONE TERMINAL CABINET
TYP	TYPICAL
UG / UNG	UNDERGROUND / UNGROUNDED
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SYSTEM
UV	UNDERVOLTAGE
V / VA / W	VOLT / VOLT AMPS / WATTS
VAV / VS	VARIABLE AIR VOLUME / VARIABLE SPEED
VIF	VERIFY IN FIELD
VP / VT	VAPOR-PROOF / VAPOR TIGHT
WM	WIRE MOLD
WH	WATT-HOUR
WP / WT	WATER-PROOF / WATER TIGHT
XFMR	TRANSFORMER

MSB SINGLE LINE DIAGRAM

SEE SHEET E2.3 FOR SINGLE LINE DIAGRAM

PROJECT KEY PLAN (NTS), AREA OF WORK

PROJECT SCOPE OF WORK

SYNNEX B4 SCOPE OF WORK (EX BLDG, NEW STANDBY EMERGENCY GENERATOR) - 44217 NOBEL DRIVE - FREMONT, CA

1. THE OBJECTIVE OF THIS ELECTRICAL DESIGN & INSTALLATION IS TO PROVIDE A NEW 2750 KW, 480Y/277V, 3Ø, 4W STANDBY EMERGENCY GENERATOR, TO SERVE THE EXISTING MSB, AS IS REFLECTED ON SHEET E2.1 & E2.3. THIS PROJECT DOES NOT ADD ANY NEW LOAD TO THE EXISTING ELECTRICAL SYSTEM, & ONLY PROVIDES THE NEW GENERATOR.

DRAWING LIST

E0.1	DRAWING INDEX, SYMBOL LIST, GENERAL NOTES, SINGLE LINE DIAGRAM NOTE, KEY PLAN / AREA OF WORK.
E1.2A	ELECTRICAL DETAILS.
E2.1	SYNNEX B4 POWER / SITE PLAN, PANEL SCHEDULES, SCHEDULES.
E2.2	EMERGENCY GENERATOR DETAILS.
E2.3	NEW SWITCHBOARD DETAILS, SINGLE LINE DIAGRAM.

PROJECT VICINITY MAP

REV./COMM.	BY
△ 10.27.14 CUSTOMER 90% C.D. REVIEW	MJ
△ 10.29.14 BUILDING DEPT. PERMIT SUBMITTAL	MJ
△	
△	
△	
△	
△	
△	

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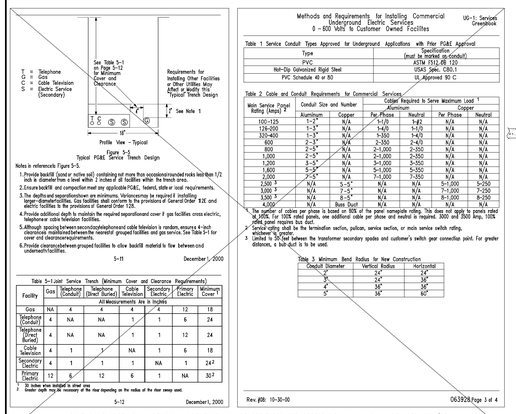
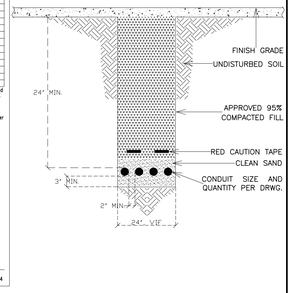
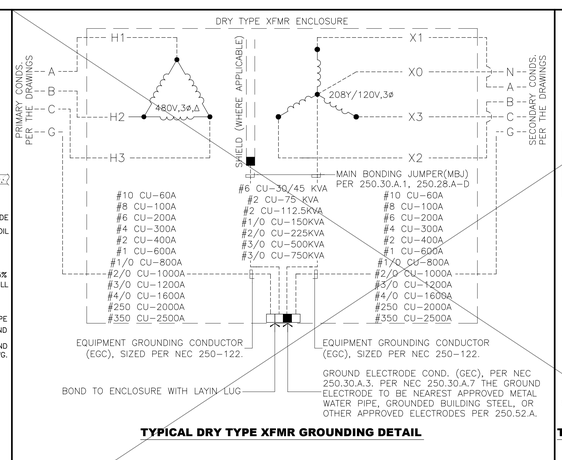
5060 HILO STREET FREMONT, CA 94538
PHONE: 510.792.2740, LICENSE #C10 - 751497

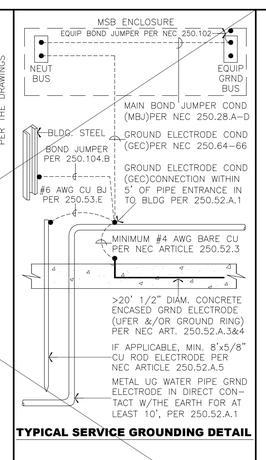
SYNNEX CORPORATION
EXISTING BUILDING - NEW STANDBY GENERATOR INSTALLATION
44217 NOBEL DRIVE, BUILDING 4 - FREMONT, CA 94538
GENERAL NOTES, SYMBOLS, ABBREVIATIONS, 1-LINE

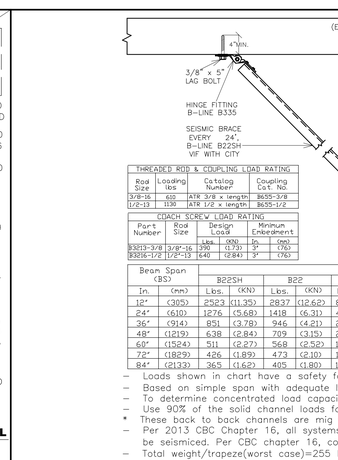
Date 09.10.14
Scale AS NOTED
Drawn MJ
Job MJE #14116
Sheet E0.1
1 Of 5 Sheets

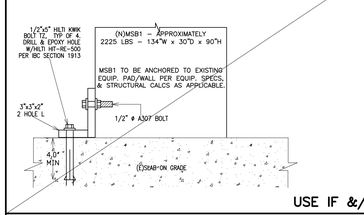


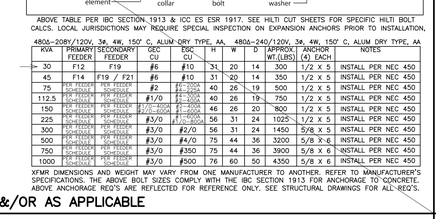


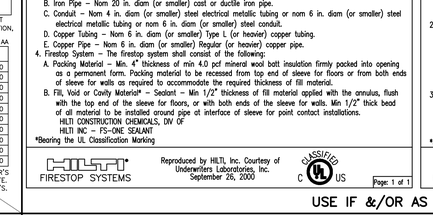


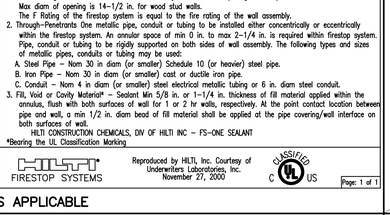


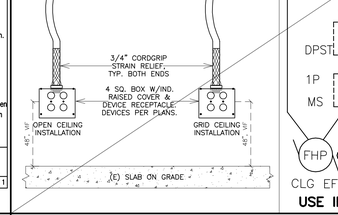












Methods and Requirements for Installing Commercial Underground Electric Services 0 – 600 Volts to Customer Owned Facilites

UG–1: Services Greenbook

Table 1 Service Conduit Types Approved for Underground Applications with Prior PG&E Approval

Type	Specification (must be marked on conduit)
PVC	ASTM F512 DB 120
Hot–Dip Galvanized Rigid Steel	USAS Spec. C80.1
PVC Schedule 40 or 80	UL Approved 90 C

Table 2 Cable and Conduit Requirements for Commercial Services

Main Service Panel Rating (Amps) 2	Conduit Size and Number		Cables Required to Serve Maximum Load 1			
			Aluminum		Copper	
	Aluminum	Copper	Per Phase	Neutral	Per Phase	Neutral
100–125	1–2"	N/A	1–1/0	1–#2	N/A	N/A
126–200	1–3"	N/A	1–4/0	1–1/0	N/A	N/A
320–400	1–3"	N/A	1–350	1–4/0	N/A	N/A
600	2–3"	N/A	2–350	2–4/0	N/A	N/A
800	2–5"	N/A	2–1,000	2–350	N/A	N/A
1,000	2–5"	N/A	2–1,000	2–350	N/A	N/A
1,200	3–5"	N/A	3–1,000	3–350	N/A	N/A
1,600	5–5"	N/A	5–1,000	5–350	N/A	N/A
2,000	7–5"	N/A	7–1,000	7–350	N/A	N/A
2,500 3	N/A	5–5"	N/A	N/A	5–1,000	5–250
3,000 3	N/A	7–5"	N/A	N/A	7–1,000	7–250
3,500 3	N/A	8–5"	N/A	N/A	8–1,000	8–250
4,000	N/A	Buss Duct	N/A	N/A	N/A	N/A

1 The number of cables per phase is based on 80% of the panel nameplate rating. This does not apply to panels rated at 100%. For 100% rated panels, one additional cable per phase and neutral is required. 3000 and 3500 Amp, 100% rated panel requires bus duct.

2 Service rating shall be the termination section, pullcan, service section, or main service switch rating, whichever is greater.

3 Limited to 50 feet between the transformer secondary spades and customer's switch gear connection point. For greater distances, a bus duct is to be used.

Table 3 Minimum Bend Radius for New Construction

Conduit Diameter	Vertical Radius	Horizontal
2"	24"	24"
3"	24"	36"
4"	36"	36"
5"	36"	60"

Rev. #08: 10–30–00

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Figure 5–5 Typical PG&E Service Trench Design

Notes in reference to Figure 5–5.

1. Provide backfill (sand or native soil) containing not more than occasional rounded rocks less than 1/2 inch in diameter from a level within 2 inches of all facilities within the trench area.
2. Ensure backfill and compaction meet any applicable PG&E, federal, state or local requirements.
3. The depths and separations shown are minimums. Variances may be required if installing larger–diameter facilities. Gas facilities shall conform to the provisions of General Order 112E and electric facilities to the provisions of General Order 128.
4. Provide additional depth to maintain the required separation and cover if gas facilities cross electric, telephone or cable television facilities.
5. Although spacing between secondary telephone and cable television is random, ensure a 4–inch clearance is maintained between the nearest of grouped facilities and gas service. See Table 5–1 for cover and clearance requirements.
6. Provide clearance between grouped facilities to allow backfill material to flow between and underneath facilities.

5–11 December 1, 2000

Table 5–1 Joint Service Trench (Minimum Cover and Clearance Requirements)

Facility	Gas	Telephone (Conduit)	Telephone (Direct Buried)	Cable Television	Secondary Electric	Primary Electric	Minimum Cover 1
	All Measurements Are in Inches						
Gas	NA	4	4	4	4	12	18
Telephone (Conduit)	4	NA	NA	1	1	6	24
Telephone (Direct Buried)	4	NA	NA	1	1	12	24
Cable Television	4	1	1	NA	1	6	18
Secondary Electric	4	1	1	1	NA	1	24 2
Primary Electric	12	6	12	6	1	NA	30 2

1 30 inches when installed in street area
2 Greater depth may be necessary at the riser depending on the radius of the riser sweep used.

5–12 December 1, 2000

ABOVE PG&E GREEN BOOK DETAILS & SPECIFICATIONS ARE REFLECTED FOR REFERENCE ONLY, & SHALL BE USED IF &/OR AS APPLICABLE. EC SHALL CONFIRM ALL INSTALLATION METHODS & REQUIREMENTS WITH PG&E PRIOR TO ALL INSTALLATIONS.

USE IF &/OR AS APPLICABLE

TYP. UG CONDUIT TRENCH DETAIL

SCALE: N.T.S.

1

TYPICAL DRY TYPE XFMR GROUNDING DETAIL

TYPICAL SERVICE GROUNDING DETAIL

SEE SLD ON SHEET E0.1 FOR ALL GROUNDING METHODS & GROUND CONDUCTOR SIZES. ALL XFMR & SERVICE GROUNDING & BONDING & CONNECTIONS SHALL COMPLY W/2008 NEC (2010 CEC) ART 250, & SPECIFICALLY W/250.28, 250.30, 250.50, 250.53, 250.64 & 250.104.

USE IF &/OR AS APPLICABLE

TYPICAL XFMR GROUNDING DETAILS

SCALE: N.T.S.

2

THREADED ROD & COUPLING LOAD RATING

Rod Size	Loading lbs	Catalog Number	Coupling Cat. No.
3/8–16	610	ATR 3/8 x length	B655–3/8
1/2–13	1130	ATR 1/2 x length	B655–1/2

COACH SCREW LOAD RATING

Part Number	Rod Size	Design Load		Minimum Embedment	
		Lbs.	(KN)	In.	(mm)
B3213–3/8	3/8"–16	390	(1.73)	3"	(76)
B3216–1/2	1/2"–13	640	(2.84)	3"	(76)

Beam Span (BS)		Channel Type & Uniform Load Rating													
		B22SH		B22		B22AMIG*		B12		B12A*		B11		B11A*	
In.	(mm)	Lbs.	(KN)	Lbs.	(KN)	Lbs.	(KN)	Lbs.	(KN)	Lbs.	(KN)	Lbs.	(KN)	Lbs.	(KN)
12"	(305)	2523	(11.35)	2837	(12.62)	8165	(36.32)	5498	(24.25)	3259	(14.49)	4395	(19.54)	4309	(19.16)
24"	(610)	1276	(5.68)	1418	(6.31)	4083	(18.16)	2750	(12.23)	3259	(14.49)	4395	(19.54)	4309	(19.16)
36"	(914)	851	(3.78)	946	(4.21)	2722	(12.11)	1833	(8.15)	3259	(14.49)	2930	(13.03)	4309	(19.16)
48"	(1219)	638	(2.84)	709	(3.15)	2042	(9.08)	1374	(6.11)	3259	(14.49)	2197	(9.77)	4309	(19.16)
60"	(1524)	511	(2.27)	568	(2.52)	1633	(7.26)	1100	(4.89)	3231	(14.37)	1758	(7.82)	4309	(19.16)
72"	(1829)	426	(1.89)	473	(2.10)	1361	(6.05)	916	(4.07)	2693	(11.98)	1465	(6.51)	4309	(19.16)
84"	(2133)	365	(1.62)	405	(1.80)	1167	(5.19)	785	(3.49)	2308	(10.26)	1256	(5.58)	3824	(17.01)

- Loads shown in chart have a safety factor of 2
- Based on simple span with adequate lateral bracing using an allowable stress of 21,000 psi(144.7 MPa)
- To determine concentrated load capacity at mid–span, multiply the uniform load by 0.5.
- Use 90% of the solid channel loads for corresponding SH and SHA channels.

* These back to back channels are mig welded.

- Per 2013 CBC Chapter 16, all systems weighing 20 lbs or more suspended from a roof structure,must be seismiced. Per CBC chapter 16, conduits less than 2 1/2" are exempt from seismic requirements.
- Total weight/trapeze(worst case)=255 lbs./rack (8' 4000A GE spectra series alum busway @ 30 lbs/ft = 240 lbs / 8', miscellaneous racking material = 15 lbs).
- Typical trapeze support & seismic detail, w/load calcs. Load calcs are calculated for max. loading (i.e. from new generator to new panel MSB1). All variations to comply w/nec & above loading charts.
- If applicable, submit detail to structural engineer to verify bldg. structure is adequate to support weight.

USE IF &/OR AS APPLICABLE

TYPICAL TRAPEZE RACK DETAIL

SCALE: N.T.S.

3

TABLE 1—SETTING INFORMATION (CARBON STEEL AND STAINLESS STEEL ANCHORS)

SETTING INFORMATION	Symbol	Units	Nominal anchor diameter (in.)													
			3/8			1/2				5/8				3/4		
Anchor O.D.	d_a $(d_o)^2$	In.	0.375			0.5				0.625				0.75		
		(mm)	(9.5)			(12.7)				(15.9)				(19.1)		
Nominal bit diameter	d_{bit}	In.	3/8			1/2				5/8				3/4		
Effective min. embedment	h_{ef}	In.	2			2	3-1/4			3-1/8	4			3-3/4	4-3/4	
		(mm)	(51)			(51)	(83)			(79)	(102)			(95)	(121)	
Nominal embedment	h_{nom}	in.	2-5/16			2-3/8	3-5/8			3-9/16	4-7/16			4-5/16	5-9/16	
		(mm)	(59)			(60)	(91)			(91)	(113)			(110)	(142)	
Min. hole depth	h_o	In.	2-5/8			2-5/8	4			3-3/4	4-3/4			4-1/2	5-3/4	
		(mm)	(67)			(67)	(102)			(95)	(121)			(114)	(146)	
Min. thickness of fastened part¹	t_{min}	In.	1/4			3/4	1/4			3/8	3/4			1/8	1 5/8	
		(mm)	(6)			(19)	(6)			(9)	(19)			(3)	(41)	
Required Installation torque	T_{inst}	ft-lb	25			40				60				110		
		(Nm)	(34)			(54)				(81)				(149)		
Min. dia. of hole in fastened part	d_h	In.	7/16			9/16				11/16				13/16		
		(mm)	(11.1)			(14.3)				(17.5)				(20.6)		
Standard anchor lengths	ℓ_{anch}	In.	3	3-3/4	5	3-3/4	4-1/2	5-1/2	7	4-3/4	6	8-1/2	10	5-1/2	8	10
		(mm)	(76)	(95)	(127)	(95)	(114)	(140)	(178)	(121)	(152)	(216)	(254)	(140)	(203)	(254)
Threaded length (incl. dog point)	ℓ_{thread}	In.	7/8	1-5/8	2-7/8	1-5/8	2-3/8	3-3/8	4-7/8	1-1/2	2-3/4	5-1/4	6-3/4	1-1/2	4	6
		(mm)	(22)	(41)	(73)	(41)	(60)	(86)	(124)	(38)	(70)	(133)	(171)	(38)	(102)	(152)
Unthreaded length	ℓ_{unthr}	In.	2-1/8			2-1/8				3-1/4				4		
		(mm)	(54)			(54)				(83)				(102)		

FIGURE 1—HILTI CARBON STEEL KWIK BOLT TZ (KB-TZ)

ABOVE TABLE PER IBC SECTION 1913 & ICC ES ESR 1917. SEE HILTI CUT SHEETS FOR SPECIFIC HILTI BOLT CALCS. LOCAL JURISDICTIONS MAY REQUIRE SPECIAL INSPECTION ON EXPANSION ANCHORS PRIOR TO INSTALLATION,

480Δ–208Y/120V, 3ø, 4W, 150° C, ALUM DRY TYPE, AA, 480Δ–240/120V, 3ø, 4W, 150° C, ALUM DRY TYPE, AA

KVA	PRIMARY FEEDER	SECONDARY FEEDER	GEC CU	EGC CU	H	W	D	APPROX. WT.(LBS)	ANCHOR (4) EACH	NOTES
30	F12	F19	#6	#10	31	20	14	300	1/2 X 5	INSTALL PER NEC 450
45	F14	F19 / F21	#6	#10	31	20	14	350	1/2 X 5	INSTALL PER NEC 450
75	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#2	#6–200A #4–225A	40	26	19	500	1/2 X 5	INSTALL PER NEC 450
112.5	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#1/0	#4–300A #2–400A	40	26	19	750	1/2 X 5	INSTALL PER NEC 450
150	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#1/0–400A #2/0–600A	#2–400A #1–600A	46	26	20	800	1/2 X 5	INSTALL PER NEC 450
225	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#3/0	#1–600A #1/0–800A	56	31	24	1025	1/2 X 5	INSTALL PER NEC 450
300	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#3/0	#2/0	56	31	24	1450	5/8 X 5	INSTALL PER NEC 450
500	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#3/0	#4/0	75	44	36	3200	5/8 X 6	INSTALL PER NEC 450
750	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#3/0	#350	75	44	36	3900	5/8 X 6	INSTALL PER NEC 450
1000	PER FEEDER SCHEDULE	PER FEEDER SCHEDULE	#3/0	#500	76	60	50	4350	5/8 X 6	INSTALL PER NEC 450

XFMR DIMENSIONS AND WEIGHT MAY VARY FROM ONE MANUFACTURER TO ANOTHER. REFER TO MANUFACTURER'S SPECIFICATIONS. THE ABOVE BOLT SIZES COMPLY WITH THE IBC SECTION 1913 FOR ANCHORAGE TO CONCRETE. ABOVE ANCHORAGE REQ'S ARE REFLECTED FOR REFERENCE ONLY. SEE STRUCTURAL DRAWINGS FOR ALL REQ'S.

USE IF &/OR AS APPLICABLE

TYP. SEISMIC ANCHORING DETAILS

SCALE: N.T.S.

4

System No. C-AJ-1155
F Rating - 3 Hr
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - 4 CFM/sq ft

CAJ 1155

1. Floor or Wall Assembly – Min 4–1/2 in. thick reinforced lightweight or normal weight (100–150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 26 in. See Concrete Blocks (CAZT) category in Fire Resistance Directory for names of manufacturers.
2. Metallic Sleeve (Optional) – Nom 24 in. diam (or smaller) Schedule 40 (or heavier) steel pipe cast or grouted into floor or wall assembly, flush with floor or wall assembly.
3. Through Penetrants – One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The annular space shall be min 0 in.(point contact) to max 2–1/4 in. The following types and sizes of metallic pipes or tubing may be used:
   - A. Steel Pipe – Nom 20 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   - B. Iron Pipe – Nom 20 in. diam (or smaller) cast or ductile iron pipe.
   - C. Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing or nom 6 in. diam (or smaller) steel electrical metallic tubing or nom 6 in. diam (or smaller) steel conduit.
   - D. Copper Tubing – Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   - E. Copper Pipe – Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
4. Firestop System – The firestop system shall consist of the following:
   - A. Packing Material – Min. 4" thickness of min 4.0 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top end of sleeve for floors or from both ends of sleeve for walls as required to accommodate the required thickness of fill material.
   - B. Fill, Void or Cavity Material* – Sealant – Min 1/2" thickness of fill material applied with the annulus, flush with the top end of the sleeve for floors, or with both ends of the sleeve for walls. Min 1/2" thick bead of all material to be installed around pipe at interface of sleeve for point contact installations.
     HILTI CONSTRUCTION CHEMICALS, DIV OF
     HILTI INC – FS–ONE SEALANT

*Bearing the UL Classification Marking

FIRESTOP SYSTEMS

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September 26, 2000

CLASSIFIED C UL US

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System No. W-L-1054
F Rating - 1 & 2 Hr (See items 1 & 3)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - 4 CFM/sq ft

CAJ 1054

1. Floor or Wall Assembly – The 1 or 2 hr fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   - A. Studs Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2–1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw–attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.
   - B. Gypsum Board* 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32–1/4 in. for steel stud walls. Max diam of opening is 14–1/2 in. for wood stud walls.
     The F Rating of the firestop system is equal to the fire rating of the wall assembly.
2. Through–Penetrants One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. An annular space of min 0 in. to max 2–1/4 in. is required within firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   - A. Steel Pipe – Nom 30 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   - B. Iron Pipe – Nom 30 in diam (or smaller) cast or ductile iron pipe.
   - C. Conduit – Nom 4 in diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
3. Fill, Void or Cavity Material* – Sealant Min 5/8 in. or 1–1/4 in. thickness of fill material applied within the annulus, flush with both surfaces of wall for 1 or 2 hr walls, respectively. At the point contact location between pipe and wall, a min 1/2 in. diam bead of fill material shall be applied at the pipe covering/wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – FS–ONE SEALANT

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FIRESTOP SYSTEMS

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USE IF &/OR AS APPLICABLE

TYPICAL HILTI FIRESTOP DETAILS

SCALE: N.T.S.

5

SEE SINGLE LINE DIAGRAM ON SHEET E0.1, & SHEET E2.1, FOR GROUND BAR & GEC SIZES, & ADDITIONAL REQUIREMENTS & INSTALLATION METHODS. GROUNDING ELECTRODE CONDUCTOR INSTALLATIONS SHALL COMPLY W/NEC ART. 250–50, 250–52, 250–66 250–68 & 250–104. ABOVE INSTALLATION REFLECTS A TYPICAL INSTALLATION. EC TO VIF ACTUAL FIELD CONDITIONS.

TYP. ROOF PENETRATION OR APPROVED EQUAL

USE IF &/OR AS APPLICABLE

MISCELLANEOUS DETAILS

SCALE: N.T.S.

6

USE IF &/OR AS APPLICABLE

POKE THRU-FLOORBOX-POWER POLE

SCALE: N.T.S.

7

TYPICAL OCCUPANCY SENSOR WIRING DETAIL – N.T.S.

TYPICAL SENSOR OPERATION:

1. SENSOR DETECTS MOTION, LIGHTS COME ON.
2. INTEGRAL DUAL OVER RIDE SWITCHES (BI–LEVEL SW) FOR WALL SENSORS, OR REMOTE BI–LEVEL TOGGLE SWITCHES FOR CEILING SENSORS ALLOW OCCUPANT TO OVER RIDE SENSORS & SHUT OFF HALF OR ALL OF THE LIGHT FIXTURES. THUS, COMPLIANCE WITH TITLE 24 BI–LEVEL SWITCHING & RM AUTOMATION IS ASSURED.
3. PER 2005 T24 STANDARDS, ALL ROOMS 100 SQ' OR MORE IN WHICH LTG LOAD IS >.8 WATT/SQ', SHALL HAVE BI–LEVEL SWITCHING.

TYPICAL WALL SENSOR WIRING DETAIL–N.T.S.

TYPICAL WALL SENSOR WIRING DETAIL–N.T.S.

DEVICE LEGEND

② = W2000A WITH B277E–P PPACK*

Ⓦ = WI–300 WITH DUAL OVERIDE SW

*INSTALL PER MANUFACTURER SPECS, 1 P–PACK/2to4 SENSORS

NOTE: WATT STOPPER SENSORS MAY BE SUBSTITUTED W/AN APPROVED T24 COMPLIANT =, IE PCI CONTROLS.

WATT STOPPER

DRAWN:	DATE	TITLE
CHECKED:		
ENGINEER:		
APPROVED:		SIZE – DRAWING NO. REV
APPROVED:		
APPROVED:		SCALE: 1/1 SHEET 1 OF

USE IF &/OR AS APPLICABLE

TYP. OCCUPANCY SENSOR DETAILS

SCALE: N.T.S.

8

TYPICAL FL. HIGH BAY FIXTURE. SEE FIXTURE SCH. ON SHEET E3.2 FOR HEIGHT AFF. AS APPLICABLE

TYPICAL FL. HIGH BAY FIXTURE. SEE FIXTURE SCH. ON SHEET E3.2 FOR HEIGHT AFF. AS APPLICABLE

TYPICAL LINEAR LTG. SUPPORT. SEE FIXTURE SCH. ON SHEET E3.2 FOR HEIGHT AFF. AS APPLICABLE

TYPICAL HID HIGH BAY FIXTURE. SEE FIXTURE SCH. ON SHEET E3.2 FOR HEIGHT AFF. AS APPLICABLE

TYPICAL GRID TROFFER FIXTURE. SEE FIXTURE SCH. ON SHEET E3.2 FOR HEIGHT AFF. AS APPLICABLE

USE IF &/OR AS APPLICABLE

TYPICAL LIGHTING FIXTURE DETAILS

SCALE: N.T.S.

9

REV./COMM.	BY
10.27.14 CUSTOMER 90% C.D. REVIEW	MJ
10.29.14 BUILDING DEPT. PERMIT SUBMITTAL	MJ

EUGENE W. JOBE No. 9754 REGISTERED PROFESSIONAL ENGINEER ELECTRICAL STATE OF CALIFORNIA

MICHAEL JOBE ENGINEERING
ELECTRICAL DESIGN SERVICES
FOR ELECTRICAL CONTRACTORS
46 S. Del Puerto Ave, Ste B-134 - Patterson, CA 95363
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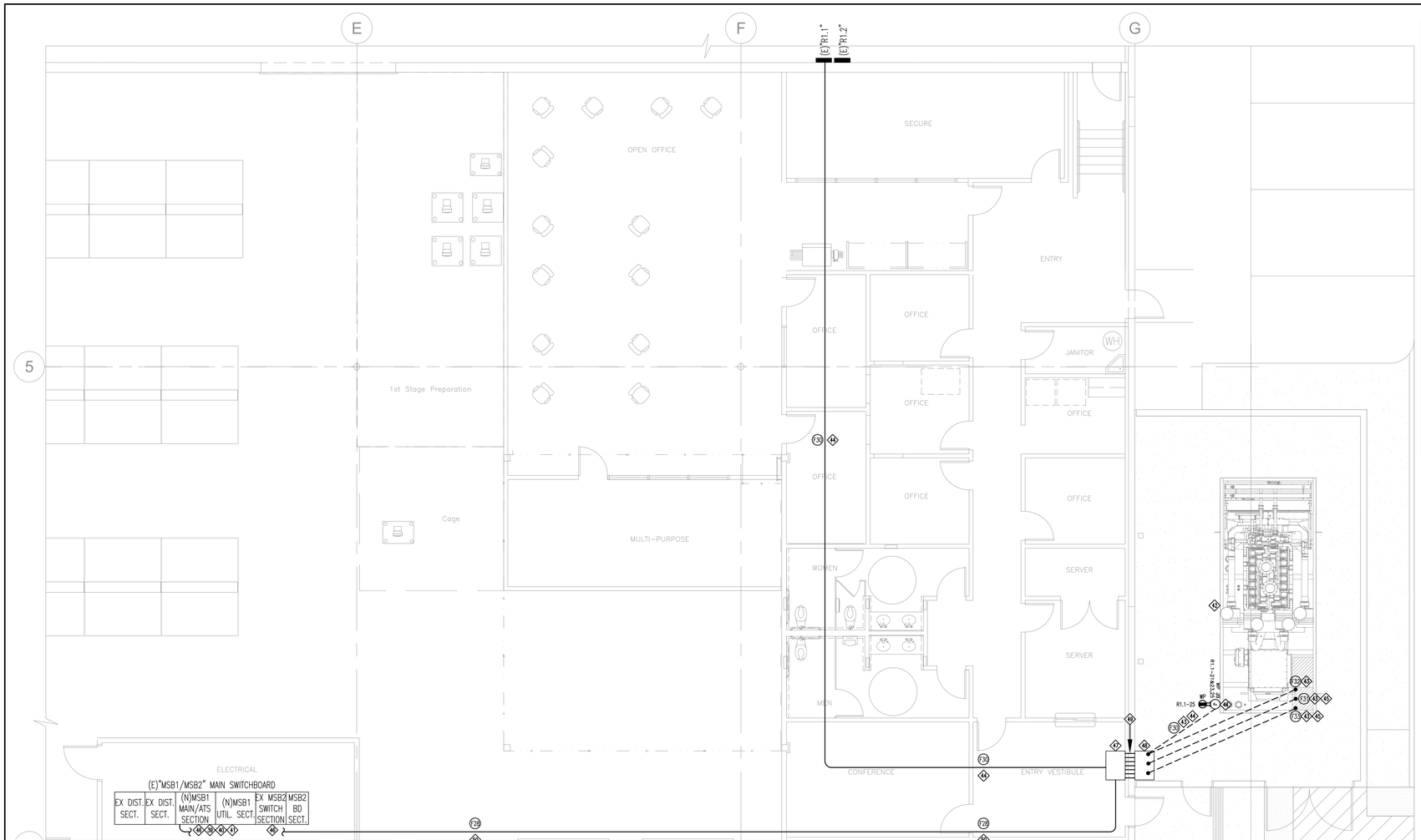
TRI - CITY ELECTRIC
5060 HILO STREET FREMONT, CA 94538
PHONE: 510.792.2740, LICENSE #C10 - 751497

SYNNEX CORPORATION
EXISTING BUILDING – NEW STANDBY GENERATOR INSTALLATION
44217 NOBEL DRIVE, BUILDING 4 – FREMONT, CA 94538

ELECTRICAL DETAILS

Date	09.10.14
Scale	AS NOTED
Drawn	MJ
Job	MJE #14116
Sheet	E1.2A

2 Of 5 Sheets



SYNNEX B4 PARTIAL PLAN
SCALE: 3/16" = 1' - 0"

1 / E2.1

RECEPTACLE & DEVICE LEGEND. USE THIS SCHEDULE AS APPLICABLE.

DEVICE SYMBOL	DEVICE NEMA #	LOCATION AS NOTED, U.O.N.	ADDITIONAL NOTES
	5-20R	WALL/WM	DUPLEX
	(2)5-20R	WALL/WM	4PLEX
	5-20R GFI	WALL/WM	DUPLEX
	5-20R W/2G DATA	WALL/WM	DUPLEX W/DATA
	(2)5-20R W/2G DATA	WALL/WM	4PLEX W/DATA
	5-20R	FLUSH CLG.	NA
	(2)5-20R	FLUSH CLG.	NA
L5-30R	L5-30R	CEILING	NEMA# PER DEVICE
L5-30R	L5-30R	WALL	NEMA# PER DEVICE
	(2)5-20R	CLG DROP	SEE SHEET NOTE 18
	5-20R W/DATA	FLOORBOX	SEE SHEET NOTE 7
	2G DATA	WALL	4SQ BOX W/1" C.
	2G DATA	VIF	DATA FLEX DROP
NEMA#/DEVICE	PER E2.1	CLG DROP	SEE SHEET NOTE 18
PTS	5-20R(VIF) W/DATA	POWERPOLE	SEE SHEET NOTE **
$ ms	20A-2P 600V	WALL	MANUAL MOTOR SW SQD TYPE KO2
$ mts	30A-3P 600V	WALL	MANUAL MOTOR SW SQD TYPE KO6
$ o	20A-1P 120/277V	WALL	TOGGLE SWITCH
D# D# D#	5-20R(VIF) W/DATA	POKE-THRU	SEE SHEET NOTE 8
D#	(1)6-30R W/DATA	POKE-THRU	SEE SHEET NOTE 8
(24)	CUST. EQUIPMENT TAG, SEE ARCH. DRAWINGS		

ALL DEVICE TYPES & COLOR, & WALL PLATE FINISH & COLOR, SHALL BE WHITE PLASTIC, UNO. REFER ALSO TO SHEET E0.1 SYMBOL LIST & GENERAL NOTES FOR ADDITIONAL REQUIREMENTS. 5-15R RECEPTACLES MAY BE SUBSTITUTED FOR 5-20R CONVENIENCE RECEPTACLES, UNO.

FEEDER / BRANCH CKT SCHEDULE. CONDUCTORS TO BE CU, UNO. USE SCHEDULE AS APPLICABLE.

TAG	CONDUIT QTY	CONDUIT SIZE	CONDUIT TYPE	CONDUCTORS PHASE QTY	PHASE SIZE	NEUTRAL QTY	NEUTRAL SIZE	GROUND QTY	GROUND SIZE
(1)	1	1/2	EMT/FLEX	1	12	1	12	1	12
(2)	1	1/2	EMT/FLEX	2	12	1	12	1	12
(3)	1	1/2	EMT/FLEX	3	12	1	12	1	12
(4)	1	3/4	EMT/FLEX	2	10	1	10	1	10
(5)	1	3/4	EMT/FLEX	3	10	1	10	1	10
(6)	1	3/4	EMT/FLEX	3	10	2	10	1	10
(7)	1	3/4	EMT/FLEX	4	10	2	10	1	10
(8)	1	1	EMT/FLEX	5	10	2	10	1	10
(9)	1	1	EMT/FLEX	6	10	2	10	1	10
(10)	1	3/4	EMT/FLEX	3#10-H, 1#10-EGC					
(11)	1	3/4	EMT/FLEX	3#8-H, 1#10-EGC					
(12)	1	1	EMT/FLEX	3	6	0	6	1	10
(13)	1	1	EMT/FLEX	3	6	1	6	1	10
(14)	1	1	EMT/FLEX	3	4	0	4	1	8
(15)	1	1-1/4	EMT/FLEX	3	4	1	4	1	8
(16)	1	1-1/4	EMT/FLEX	3	2	0	2	1	8
(17)	1	1-1/4	EMT/FLEX	3	2	1	2	1	8
(18)	1	1-1/2	EMT/FLEX	3	1	0	1	1	6
(19)	1	1-1/2	EMT/FLEX	3	1	1	1	1	6
(20)	1	1-1/2	EMT/FLEX	3	1/0	0	1/0	1	6
(21)	1	2	EMT/FLEX	3	1/0	2	1/0	1-0	6-6G
(22)	1	2	EMT/FLEX	3	4/0	0	4/0	1	4
(23)	1	2	EMT/FLEX	3	3/0	1	3/0	1	6
(24)	1	2-1/2	EMT/FLEX	3	350	0	350	1	2
(25)	1	2 1/2	EMT/FLEX	3	300	1	300	1	3
(26)	2	3	EMT/FLEX	3	500	0	500	1	1/0
(27)	4	2-1/2	EMT/FLEX	3	350	0	350	1	3/0
(28)	1	4000A	BUSWAY	4000A, 3#, 3#ALUMINUM BUSWAY					
(29)	4	3	EMT/FLEX	3#350-H,1#350-N,1#3/0-EGC IN EA.					
(30)	1	1	PVC/EMT	3#8-H, 1#8-N, 1#8-EGC					
(31)	1	1	PVC/EMT	PULL STRING FOR FUTURE RAP1 WIRING					
(32)	11	4	PVC/EMT	3-#600-H,1#600-N,1#500-EGC IN EA.					
(33)	1	1	PVC/EMT	SPARE WITH PULL STRING					

1. ALL CONDUCTORS SHALL BE TYPE THWN-THWN-2 600V COPPER FOR ABOVE GRADE, & THWN-2 90° 600V COPPER FOR BELOW GRADE/WET LOCATIONS, UNO.
2. REFLECTED CONDUCTORS HAVE NOT BEEN DE-RATED FOR NON-STANDARD AMBIENT TEMPERATURES & ARE BASED ON 30°C AMBIENT.
3. REFLECTED CONDUIT SIZES ARE MINIMUM SIZES PER NEC CHAPTER 9 (CONDUIT CONDUCTOR CHARTS).
4. ALL CONDUCTOR SIZINGS INCLUDES VOLTAGE DROP & DERATING CALCS, & SHALL COMPLY WITH NEC ART. 310.
5. SHOULD UG PVC CONDUIT BE SUBSTITUTED FOR EMT CONDUITS, PROVIDE EGC SIZED PER NEC TABLE 250-122, & INCREASE EC SIZE AS REQ'D FOR COMPLIANCE.

TYPICAL LTG & POWER SHEET NOTES [◇] (SEE ALSO GENERAL NOTES ON E0.1)

[1] SEE SINGLE LINE DIAGRAM ON SHEET E0.1, & DETAILS ON SHEET E1.2A. FOR ALL APPLICABLE WIRING &/OR GROUNDING REQUIREMENTS. SEE DETAIL 4 ON SHEET E1.2A FOR SEISMIC ANCHORING REQUIREMENTS ON ALL ELECTRICAL EQUIPMENT EXCEEDING 400 LBS. IN WEIGHT.
[2] ALL POWER / DEVICES / LIGHTING THIS ROOM / AREA ARE EXISTING, SHALL REMAIN AS IS, & ARE NIC, UNO.
[3] PROVIDE CEILING J-BOX WITH REFLECTED CIRCUITS FOR FURNITURE POWER POLE, PP IS F&IBO, & WIRED BY THE EC. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC & CUSTOMER.
[4] PROVIDE FLUSH WALL J-BOX FOR POWER & DATA @18" AFF FOR CUBICLE BASE FEED. BASE FEED IS F&IBO, WIRED BY THE EC. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC & CUSTOMER.
[5] PROVIDE NEW BLDG STANDARD 225A, 208Y/120V, 3Ø, 4W, N1, 100% N, 10 KAIC, 42 CKT, MLO SURFACE MOUNT PANELBOARD. SEE SLD ON SHEET E2.1 & DETAIL 1/2 ON SHEET E1.2A FOR WIRING / GROUNDING REQUIREMENTS. COORDINATE LOCATION WITH GC & CUSTOMER. EC TO VIF CONDUIT ROUTING PATH FOR NEW PANEL FROM SOURCE, & PROVIDE JB'S AS REQ'D FOR NEC COMPLIANCE.
[6] PROVIDE NEW BLDG STANDARD 100A, 480Y/277V, 3Ø, 4W, N1, 14 KAIC, 30 CKT, MLO, SURFACE MOUNT PANELBOARD. SEE SLD ON SHEET E2.1, & DETAIL 2 ON SHEET E1.2A FOR WIRING / GROUNDING REQUIREMENTS. 100A PANEL FEEDER IS EXISTING FROM PREVIOUS TENANT CONFIGURATION. RE-ROUTE PANEL FEEDER TO NEW PANEL "1030.H1" AS REQUIRED. COORDINATE LOCATION WITH GC & CUSTOMER. EC TO VIF CONDUIT ROUTING PATH FOR NEW PANEL FROM SOURCE, & PROVIDE JB'S AS REQUIRED FOR NEC COMPLIANCE.
[7] PROVIDE BLDG. STANDARD OR = WALKER COMBO FLOOR BOX 880CS3-1 W/827B BRASS COVER PLATE. PROVIDE 3/4" (UNO) PVC SCH 40 POWER/DATA CONDUITS FROM BOX TO NEAREST DEVICE AS REFLECTED. ALL SLAB ON GRADE SAW CUTTING & PATCHING F&I BY GC. EC TO VIF THE SLAB IS FREE OF OBSTRUCTIONS PRIOR TO ALL SAW CUTTING. COORDINATE BOX LOCATION / REQUIREMENTS WITH GC. INSTALLATION SHALL COMPLY WITH THE NEC & MANUFACTURERS SPECS. SEE ALSO DETAIL ON SHEET E1.2A COORDINATE POWER & DATA CONNECTION TO FURNITURE PANELS WITH GC.
[8] PROVIDE WALKER POKE THROUGH FITTING RC700-A &/OR RC700-6A, OR APPROVED =, EC SHALL PROVIDE FLOOR CORE FOR THE FITTING PER THE MANUFACTURER'S SPECIFICATIONS. EC SHALL VIF ANY OBSTRUCTIONS IN THE FLOOR SLAB PRIOR TO CORING. ALL CONDUIT & WIRING SHALL BE INSTALLED IN TENANT SPACE BELOW, & SHALL TERMINATE INTO THE ADJACENT WIRING DEVICE AS REFLECTED. COORDINATE LOCATION/ALL REQUIREMENTS WITH THE GC & CUSTOMER. SEE DETAIL ON SHEET E1.2A FOR PICTORAL REFERENCE ONLY. PROVIDE DEVICES PER THE DRAWINGS. REFLECTED POKE THRU MAY BE EX FROM PREVIOUS FURNITURE & RELOCATED TO THIS LOCATION, VIF.
[9] PROVIDE 120V POWER FOR FRACTIONAL HP CEILING MOUNT EXHAUST FAN, WHICH IS F&IBO, & WIRED BY THE EC. FAN SHALL BE CONTROLLED BY LIGHT SWITCH AS REFLECTED ON SHEET E3.1 & DETAIL 6 ON SHEET E1.2A. COORDINATE LOCATION & ALL REQUIREMENTS WITH GC / MC.
[10] PROVIDE 120V OR 208V POWER IN FLUSH WALL J-BOX @ 18" AFF(VIF) FOR FLEXIBLE CONNECTION TO NEW WATER HEATER. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC / PC.
[11] PROVIDE 120V POWER (IF APPLICABLE) IN CEILING/WALL J-BOX FOR CONNECTION TO NEW CARD READER CARD ACCESS SYSTEM. ALSO PROVIDE 1-GANG FLUSH BOX @ 44" AFF(VIF) WITH 3/4" C. FROM BOX TO 6" ABOVE CEILING. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC / CUSTOMER.
[12] PROVIDE 120V IN CEILING 4SQ. J-BOX FOR CONNECTION TO FIRE-SMOKE DAMPERS. COORDINATE LOCATION & ALL REQUIREMENTS WITH MC / GC & THE MECHANICAL DRAWINGS.
[13] PROVIDE 120V IN CEILING 4SQ. J-BOX FOR CONNECTION TO FIRE ALARM SYSTEM EQUIPMENT. COORDINATE LOCATION & ALL REQUIREMENTS WITH LIFE SAFETY CONTRACTOR & THE GC.
[14] PROVIDE 120V POWER IN CEILING J-BOX & UP/DOWN LV WALL SWITCH CONTROL FOR CONNECTION TO NEW PROJECTOR SCREEN. COORDINATE LOCATION & ALL REQUIREMENTS WITH GC & CUSTOMER.
[15] PROVIDE 4PLEX RECEPTACLE FLUSH IN CEILING FOR CEILING PROJECTOR. COORDINATE LOCATION & ALL REQUIREMENTS WITH GC / CUSTOMER. LABEL DEVICES "CEILING PROJECTOR".
[16] PROVIDE 120V POWER IN CEILING J-BOX FOR CONNECTION TO SECURITY SYSTEM CAMERA. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC / CUSTOMER.
[17] PROVIDE 120V POWER IN CEILING J-BOX FOR CONNECTION TO 12V DOOR CONTACTS FOR SECURITY SYSTEM. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC / CUSTOMER.
[18] PROVIDE REFLECTED CEILING CORD DROP AS REFLECTED. SEE APPLICABLE SHEET E1.2A DETAIL FOR INSTALLATION REQUIREMENTS. COORDINATE LOCATION & REQUIREMENTS WITH GC & CUSTOMER.
[19] PROVIDE 120V POWER IN CEILING J-BOX FOR CONNECTION TO ELECTRIFIED MECHOSHADE. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC & CUSTOMER.
[20] PROVIDE GFI RECEPTACLE WITHIN 25' OF MECHANICAL EQUIPMENT PER NEC ARTICLE 210-63. EXTEND SAME 120V TO ANY APPLICABLE HVAC ACCESSORIES, IE CONDENSATE PUMP & SMOKE DETECTOR.
[21] PROVIDE WIREMOLD 30TP-2V OR 30TP-4V OR 25DTP-412(V/IF) POWER POLE WITH DEVICES AS REFLECTED ON THE SHEET E2.1. REFER TO DETAIL 7 ON SHEET E1.2A FOR PICTORAL REFERENCE. COORDINATE LOCATION & ALL REQUIREMENTS WITH THE GC & CUSTOMER.
[22] PROVIDE BUILDING STANDARD G4000 WIREMOLD ON STRUT STANDS @ 24" TO CENTER, VIF. ALL OF THE WIREMOLD INSTALLATIONS SHALL COMPLY W/NEC ART. 386. THE SUM OF THE CROSS SECTIONAL AREA OF ALL CONTAINED CONDUCTORS SHALL NOT EXCEED 20% OF INTERIOR CROSS SECTIONAL AREA OF WIREMOLD. FURTHERMORE, THERE SHALL NOT BE MORE THAN 30 CURRENT CARRYING CONDUCTORS AT ANY POINT IN THE WIREMOLD. CONDUITS FEEDING WIREMOLD SHALL ALSO COMPLY WITH ALL CONDUCTOR DERATING REQUIREMENTS AS REFLECTED IN NEC ART. 310-15. COORDINATE ALL WIREMOLD & RECEPTACLE LOCATIONS, REQUIREMENTS & INSTALLATIONS METHODS WITH THE GC & CUSTOMER. #10 CONDUCTOR DERATING IS AS FOLLOWS, & IS ACCEPTABLE: @10 AMPACITY 35A x .5 FOR 10-20 CONDUCTORS = 17.5A, WHICH IS GREATER THAN ACTUAL EQUIPMENT & CONDUCTOR LOAD OF 10-15A). SEE DETAIL 7 ON SHEET E2.1A FOR ADDITIONAL INSTALLATION REQUIREMENTS.
[23] PROVIDE 120V SHOW WINDOW RECEPTACLE FLUSH IN CEILING EVERY 12' PER NEC 210.62., 220.14. RECEPTACLES SHALL BE CONTROLLED VIA TC1 AS REFLECTED IN DETAIL 3 SHEET ON E1.2A.
[24] ALL ELECTRICAL EQUIPMENT IN THIS ROOM SHALL COMPLY WITH CLEARANCES PER NEC 110.26, VIF.
[25] EC TO VIF ALL DEVICE LOCATIONS & REQUIREMENTS IN THIS ROOM WITH GC PRIOR TO INSTALLATIONS.
[26] EXISTING SERVER ROOM IS NOT CLASSIFIED & CONSTRUCTED AS AN INFORMATION TECHNOLOGY EQUIPMENT ROOM. THUS, COMPLIANCE WITH NEC / CEC ARTICLE 645 IS NOT REQUIRED.
[27] ALL SERVER / IDF ROOM DATA WIRING, IF APPLICABLE, IS F&IBO. EC SHALL VIF WITH GC & CUSTOMER FOR ALL CONDUIT REQUIREMENTS FOR DATA LADDER RACK REQUIREMENTS AS APPLICABLE.
[28] PROVIDE 208V, 3Ø POWER & DISCONNECT SWITCH FOR CONNECTION TO ROOF MOUNT HVAC EQUIP. COORDINATE LOCATION & ALL REQUIREMENTS, INCLUDING CONTROL REQUIREMENTS, WITH THE MC.
[29] PROVIDE 480V, 3Ø POWER & DISCONNECT SWITCH FOR CONNECTION TO ROOF MOUNT HVAC EQUIP. COORDINATE LOCATION & ALL REQUIREMENTS, INCLUDING CONTROL REQUIREMENTS, WITH THE GC.
[30] PROVIDE 120V, 1Ø POWER & DISCONNECT SWITCH FOR CONNECTION TO ROOF MOUNT HVAC EQUIP. COORDINATE LOCATION & ALL REQUIREMENTS, INCLUDING CONTROL REQUIREMENTS, WITH THE MC.
[31] REFLECTED CIRCUITS (VIF) ARE EXISTING IN CEILING J/B FROM PREVIOUS LAYOUT CONFIGUATION. EC SHALL EXTEND EXISTING CIRCUITRY TO NEW &/OR RELOCATED RECEPTACLES AS REFLECTED.
[32] PROVIDE MISCELLANEOUS ELECTRICAL DEMO IN THIS ROOM, REFER TO ARCHITECTURAL DEMO PLAN.
[33] PROVIDE 480V, 3Ø POWER & DISCONNECT SWITCH FOR CONNECTION TO ROOF MOUNT HVAC EQUIP. COORDINATE LOCATION & ALL REQUIREMENTS, INCLUDING CONTROL REQUIREMENTS, WITH THE MC.
[34] PROVIDE 30 kVA, 480V Δ TO 208Y/120V, 3Ø, N1, XFMR AT REFLECTED LOCATION. SEE SLD ON E0.1 & DETAIL 2 ON SHEET E1.2A FOR WIRING & GROUNDING REQUIREMENTS. VIF XFMR LOCATION WITH GC. SEE DETAIL 4 ON SHEET E1.2A, & STRUCTURAL DRAWING AS APPLICABLE FOR ANCHORING XFMR TO EX FLOOR SLAB. UPON PROJECT COMPLETION & WITH XFMR UNDER FULL LOAD, VIF XFMR SECONDARY OUTPUT VOLTAGE, & ADJUST TAPS AS REQ'D TO MAINTAIN 208V (L-L) & 120V (L-G). EC TO VIF CONDUIT ROUTING PATH FOR NEW XFMR FROM SOURCE, & PROVIDE JB'S AS REQ'D FOR NEC COMPLIANCE.
[35] PROVIDE 75 kVA, 480V Δ TO 208Y/120V, 3Ø, N1, XFMR AT REFLECTED LOCATION. SEE SLD ON E0.1 & DETAIL 2 ON SHEET E1.2A FOR WIRING & GROUNDING REQUIREMENTS. VIF XFMR LOCATION WITH GC. SEE DETAIL 4 ON SHEET E1.2A, & STRUCTURAL DRAWING AS APPLICABLE FOR ANCHORING XFMR TO EX FLOOR SLAB. UPON PROJECT COMPLETION & WITH XFMR UNDER FULL LOAD, VIF XFMR SECONDARY OUTPUT VOLTAGE, & ADJUST TAPS AS REQ'D TO MAINTAIN 208V (L-L) & 120V (L-G). EC TO VIF CONDUIT ROUTING PATH FOR NEW XFMR FROM SOURCE, & PROVIDE JB'S AS REQUIRED FOR NEC COMPLIANCE.
[36] PROVIDE NEW BUILDING STANDARD (IEM OR APPROVED =) 2000A, 208Y/120V, 3Ø, 4W, N1, 200% N, 50 KAIC, 100%, MCB, SURFACE DISTRIBUTION. PANEL, SEE SLD ON SHEET E2.3 FOR WIRING, GROUNDING & APPLICABLE INSTALLATION REQUIREMENTS. COORDINATE LOCATION WITH THE GC & CUSTOMER.
[37] PROVIDE NEW BUILDING STANDARD (IEM OR APPROVED =) 1200A, 480Y/277V, 3Ø, 4W, N1, 50 KAIC, 80%, MLO, SURFACE MOUNT DISTRIBUTION PANEL. SEE SLD ON SHEET E2.3 FOR WIRING, GROUNDING & APPLICABLE INSTALLATION REQUIREMENTS. COORDINATE LOCATION WITH THE GC & / OR MITAC. EC TO VIF CONDUIT ROUTING PATH FOR (N)DPH1 FROM MSB, & PROVIDE JB'S AS REQ'D FOR NEC COMPLIANCE.
[38] PROVIDE 4"x36" ABOVE GRADE GRS CONCRETE FILLED BOLLARD WITH CAP AT REFLECTED LOCATIONS. BOLLARDS SHALL BE PAINTED CAUTION YELLOW & SHALL BE SECURED TO FLOOR VIA (4)5/8"x 4" WEDGE ANCHORS. COORDINATE LOCATIONS/ALL REQ'S WITH GC, & STRUCTURAL DRAWINGS IF APPLICABLE.
[39] REPLACE EXISTING MSB1 UGPS & MSB1 MAIN SWITCH SECTIONS WITH NEW MSB1 UTILITY SECTION & NEW MSB1 MAIN SWITCH & 3P ATS SECTION. SWBD TO BE 4000A, 480Y/277V, 3Ø, 4W, N1, 65 KAIC W/1 UTILITY METER SOCKET & (2)4000/3 65 KAIC, 80% RATED MAIN BREAKERS AS IS REFLECTED IN SLD. SEE DETAILS & SPECIFICATION SHEETS ON SHEET E2.3, WHICH ARE REFLECTED FOR REFERENCE ONLY. EC TO PROCURE SHOP DRAWINGS FROM SWBD VENDOR, & SUBMIT TO PG&E & CITY OF FREMONT FOR APPROVAL, ALONG WITH ELECTRICAL DESIGN, PRIOR TO PURCHASE OF SWBD. SEE SLD ON E2.3 & APPLICABLE ADDITIONAL REQUIREMENTS ON E2.1 FOR WIRING & GROUNDING REQ'S. IF APPLICABLE, REFER ALSO TO GENERAL NOTE 43 ON E0.1.
[40] EQUIPMENT SHALL BE SECURED TO EXISTING EQUIPMENT PAD PER THE EQUIPMENT SPECIFICATIONS, & THE STRUCTURAL DRAWINGS IF APPLICABLE. THE EQUIPMENT WEIGHS >400 LBS. THUS, EQUIPMENT IS REQUIRED TO HAVE SEISMIC ANCHORING PER CBC / UBC. REFER TO APPLICABLE STRUCTURE DRAWINGS OR DETAIL 4-E1.2A ON SHEET E1.2A FOR ALL EQUIPMENT MOUNTING REQUIREMENTS.
[41] EC SHALL HAVE NEW MSB1 TESTED & CERTIFIED BY AN APPROVED TESTING AGENCY, I.E POWER SYSTEMS INC. THE TESTING SHALL INCLUDE MAIN BREAKER TESTING & GROUND RESISTANCE TESTING. A COPY OF THE TESTING REPORT TO BE SUBMITTED TO THE CUSTOMER. A CERTIFICATION STICKER SHALL BE SECURED TO SWITCHBOARD ADJACENT TO THE MSB1 MAIN BREAKER.
[42] NEW 2750 kW, 480Y/277V, 3Ø, 4W, STANDBY GENSET IS FURNISHED BY SYNNEX, & INSTALLED BY THE EC. SEE SLD ON E2.3 FOR ALL WIRING & GROUNDING REQUIREMENTS. GENSET SHALL BE INSTALLED ON NEW EQUIPMENT PAD (PAD F&IBO) PER THE NEC & THE GENSET MANUFACTURERS SPECIFICATIONS. REFER TO STRUCTURAL DRAWINGS FOR GENSET ANCHORAGE REQUIREMENTS TO THE NEW EQUIPMENT PAD. COORDINATE GENSET LOCATION, ORIENTATION, & ALL REQUIREMENTS WITH THE THE GC & SYNNEX. EC SHALL SUBMIT A COPY OF THE GENSET SPECIFICATIONS ALONG WITH ELECTRICAL & STRUCTURAL DESIGNS TO THE CITY OF FREMONT FOR THEIR APPROVAL. SEE ALSO GENSET DRAWINGS ON E2.2 WHICH ARE REFLECTED FOR REFERENCE ONLY. EC TO VIF ALL GENSET REQUIREMENTS WITH GENSET VENDOR. REFLECTED GENSET FOOT PRINT & GENSET LOCATION IS FOR REFERENCE ONLY, SEE GENSET SPECIFICATIONS FOR GENSET DIMENSIONS. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR GENERATOR PLAN & ELEVATION DETAILS, AS APPLICABLE.
[43] PROVIDE UG CONDUITS, SIZED PER THE REFLECTED FEEDER TAGS, FROM GENSET TO NEW BUS DUCT TRANSITION CABINET AS IS REFLECTED ON THIS SHEET. COORDINATE CONDUIT STUB UP LOCATIONS AT THE GENSET WITH THE GENSET SPECIFICATIONS & E2.2 PRIOR TO ALL INSTALLATIONS. REFER ALSO TO DETAIL 1-E1.2A ON SHEET E1.2A FOR UG CONDUIT INSTALLATION REQUIREMENTS.
[44] PROVIDE 120V & 208V, 1Ø POWER, EX PNL R1.1-21&23,25 (V/F), FOR GENSET BATTERY CHARGER & BLOCK HEATER & GFI SERVICE RECEPTACLE. COORDINATE BATTERY CHARGER & BLOCK HEATER POWER LOCATIONS & ALL REQUIREMENTS WITH THE GENSET SPECIFICATIONS. THE REFLECTED CKTS ARE EXISTING IN PANEL R1.1 FROM PREVIOUS LOADS, THUS NO NEW LOADS ARE ADDED TO EX PANEL R1.1.
[45] PROVIDE (2) 1" CONDUITS FROM GENERATOR TO BUS DUCT TRANSITION CABINET. ONE WILL BE FOR FUTURE GENERATOR REMOTE ANNUNCIATOR PANEL RAP1 IF APPLICABLE. THE SECOND CONDUIT IS A SPARE. COORDINATE ANNUNCIATOR REQUIREMENTS, INCLUDING THE REQUIRED CONTROL WIRES IF APPLICABLE, WITH GENSET SPECIFICATIONS & GC, & FIELD CONDITIONS.
[46] EC TO PROVIDE A RED PHENOLIC 4" X 6" PLACARD WITH WHITE LETTERING ON FACE OF NEW MSB1 & EX MSB2. PLACARDS TO INDICATE "PANEL MSB1 & MSB2 IS FED VIA UTILITY POWER, & EMERGENCY POWER VIA STANDBY GENERATOR LOCATED AT BUILDING EXTERIOR". SEE ALSO SLD ON E2.3 FOR REQ'S.
[47] PROVIDE N1 CUSTOM BUS DUCT TRANSITION CABINET MANUFACTURED BY IEM, FOR TRANSITION FROM THE 4000A CABLE FEEDER TO 4000A BUS DUCT FEED. CABINET TO BE SECURED TO EXISTING SLAB ON GRADE & EXISTING EXTERIOR WALL PER THE MANUFACTURERS SPECIFICATIONS. CABINET TO BE BONDED WITH THE #500 MCM AWG CU EGC FROM THE 4000A FEEDER. VERIFY WITH IEM ALL CABINET REQUIREMENTS. VIF WITH THE GC & SYNNEX FOR CABINET LOCATION & ALL REQUIREMENTS. REFER TO GENERAL NOTE 7 & 16 ON SHEET E0.1 FOR ADDITIONAL REQUIREMENTS.
[48] PROVIDE 36W"x24D"x90H" N3R CUSTOM CABINET FOR THE GENERATOR 4000A FEEDER TO THE BUS DUCT TRANSITION CABINET. CABINET TO BE USED FOR TRANSITIONING THE UG 4000A GENERATOR FEEDER THROUGH THE WALL TO THE BUS DUCT TRANSITION CABINET. CABINET TO BE SECURED TO EXISTING SLAB ON GRADE & EXISTING EXTERIOR WALL PER THE MANUFACTURERS SPECIFICATIONS. CABINET TO BE BONDED WITH THE #500 MCM AWG CU EGC FROM THE 4000A FEEDER. VIF WITH SYNNEX ALL REQ'S.
[49] PROVIDE (11) 4" & (3) 1" GRS NIPPLES FROM THE N3R CUSTOM CABINET THROUGH THE EXISTING EXTERIOR WALL TO THE CUSTOM BUS DUCT CABINET. EC SHALL X-RAY EXISTING PRECAST WALL PRIOR TO ANY & ALL CORING TO VERIFY THE WALL IS FREE FROM OBSTRUCTIONS. ALL CORES SHALL BE FIRE SEALED PER DETAIL 5-E1.2A ON SHEET E1.2A PRIOR TO INSTALLING THE CABINETS. VIF ALL REQ'S.
[50] PROVIDE BUILDING STANDARD GE SPECTRA SERIES 4000A, 600V, 3Ø, 5W, 65 KA ALUMINUM BUSWAY ON NEW STRUT TRAPEZE RACKING FROM NEW BUS DUCT TRANSITION CABINET TO FEED NEW MSB1 SECTION AS REFLECTED. BUSWAY ASSEMBLY INSTALLATIONS SHALL COMPLY WITH NEC ART 368, WITH GE BUSWAY INSTALLATION SPECIFICATIONS, WITH APPLICABLE STRUCTURAL DRAWINGS, WITH DETAIL 3-E1.2A ON SHEET E1.2A, & SHALL CONFORM TO EXISTING SYNNEX BUSWAY ASSEMBLY STANDARDS. VIF BUSWAY LOCATION & ROUTING PATH, & ALL REQUIREMENTS. THE PHYSICAL DIMENSIONS OF THE BUSWAY ARE 23"W x 4.5"H, & WEIGHS 30 LBS. PER FOOT.

REV./COMM.	BY
10.27.14 CUSTOMER 90% CD REVIEW	MJ
10.29.14 BUILDING DEPT PERMIT SUBMITTAL	MJ

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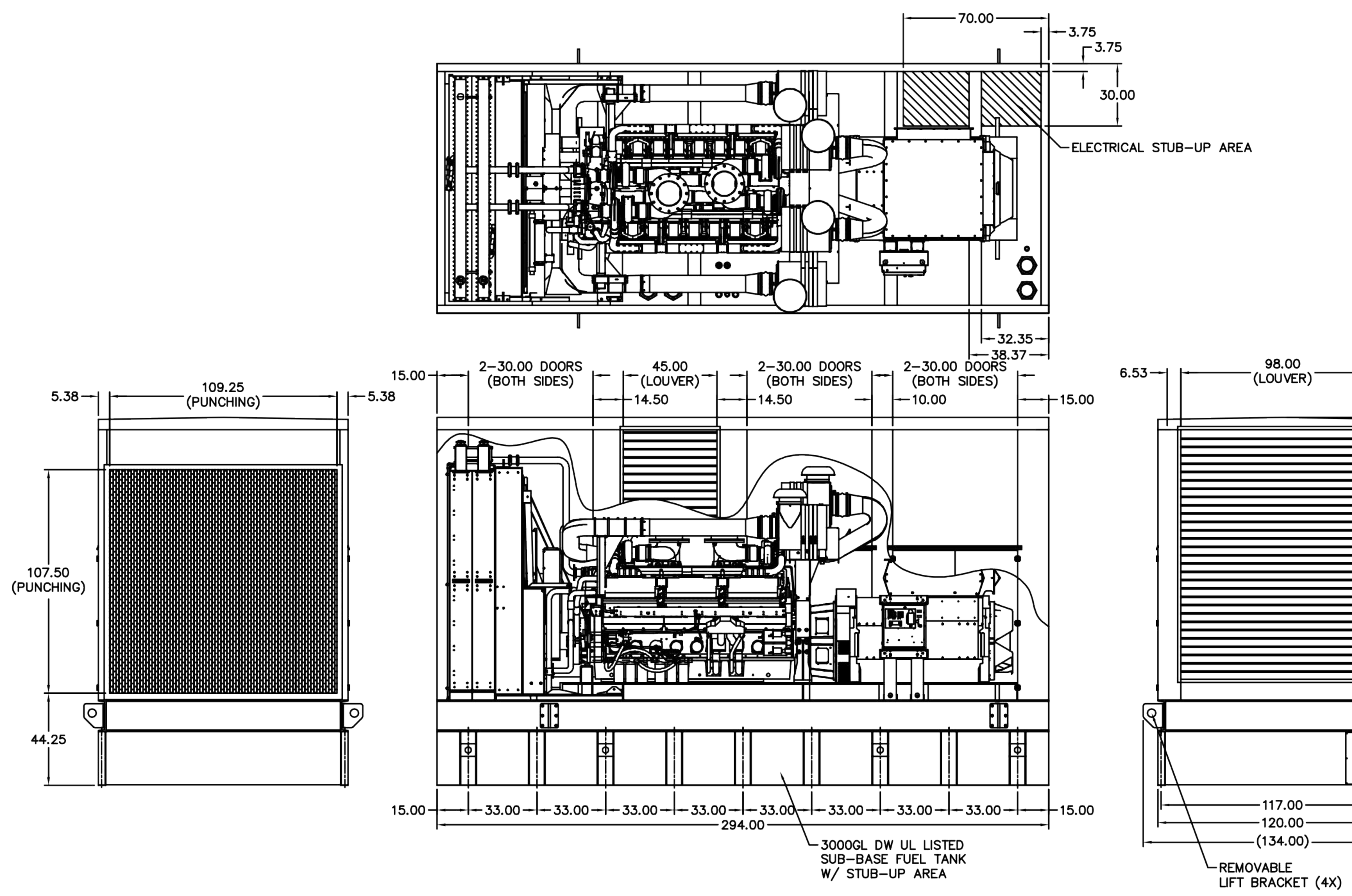
SYNNEX CORPORATION
EXISTING BUILDING - NEW STANDBY GENERATOR INSTALLATION
44217 NOBEL DRIVE, BUILDING 4 - FREMONT, CA 94538

SYNNEX B4 PARTIAL SITE PLAN, SCHEDULES

Date	09.10.14
Scale	AS NOTED
Drawn	MJ
Job	MJE #14116
Sheet	E2.1

3 Of 5 Sheets

DRAWING: CRIT-WPE-CD2500-001

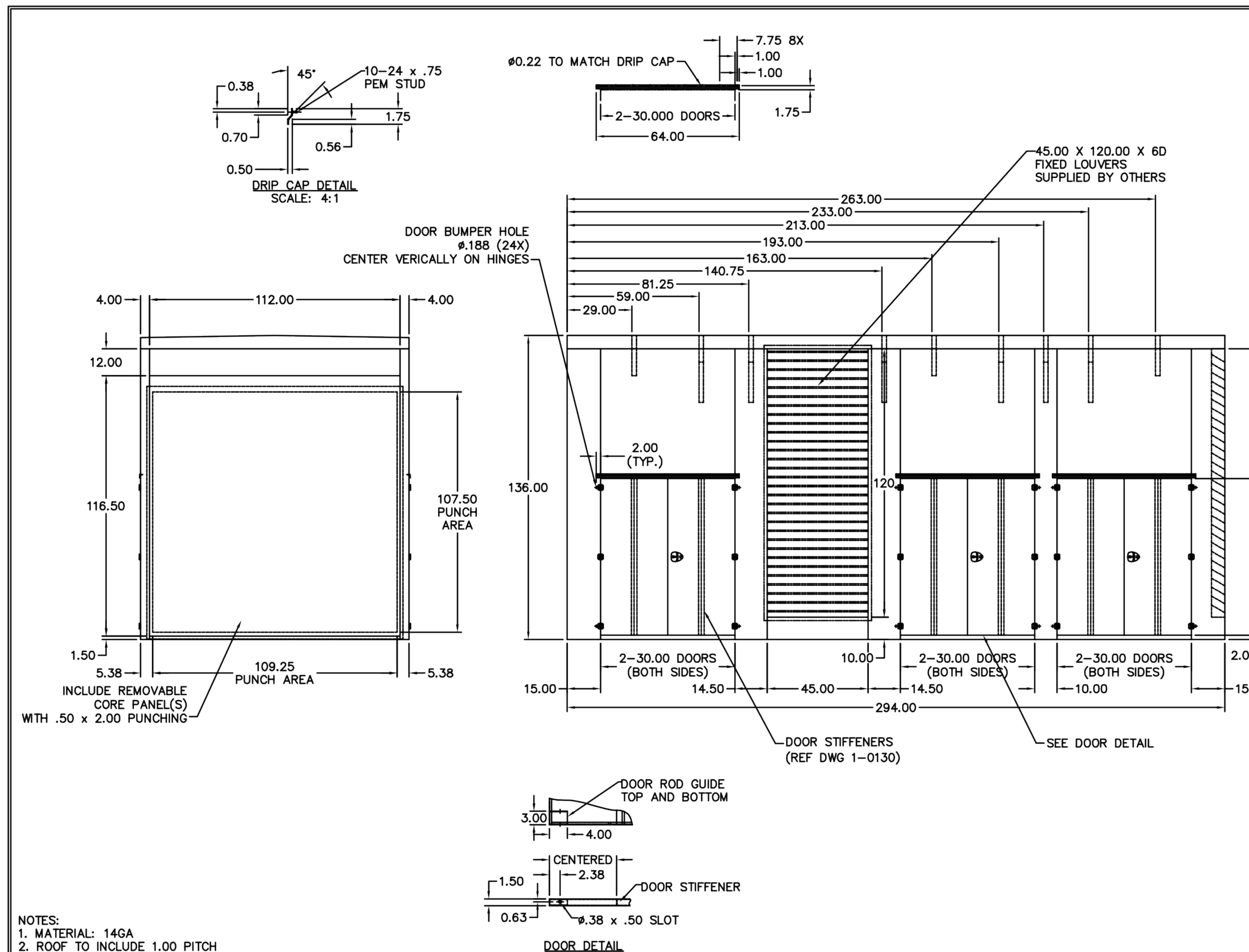


REVISIONS:			
LEVEL:	DESCRIPTION:	DATE:	BY:
NA	NA	NA	NA

BLUE STAR Power Systems Inc.

ENG:	QSK78-G10	TANK:	2-0325		
RAD:	40C	BASE:	2-0335	HSG:	WPE-071
DATE:	09-24-14	BY:	KAP	DRAWN TO SCALE	

DRAWING: WPE-071



NOTES:
1. MATERIAL: 14GA
2. ROOF TO INCLUDE 1.00 PITCH
3. FINISH PAINT PER PURCHASE ORDER
4. INCLUDE 3-6.00 AND 6-12.00 ROOF SUPPORTS
5. INCLUDE 6-12.00 X 12.00 AND 12-18.00 X 18.00 ANGLE SUPPORTS
6. ROOF AND ANGLE SUPPORTS TO INCLUDE 1/4-20 PEM NUTS (SIDES AND TOP)
7. ENCLOSURE TO INCLUDE CLEARANCE HOLES TO MOUNT SUPPORTS AND GUSSETS (SIDES AND ROOF)
8. ROOF SUPPORTS AND ANGLE SUPPORTS TO BE 2.00 WIDE.
9. ENCLOSURE DESIGNED TO INCLUDE SELF GRIPPING D-FOAM BS PN: 14670
10. REFERENCE ENCLOSURE 13134 WPE-043 FOR SIMILAR DESIGN

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES - DO NOT SCALE DRAWING

SHEET METAL				STRUCTURAL STEEL			
ANGLES	.X	.XX	.XXX	STRAIGHTNESS PER 8FT	.X	.XX	.XXX
± 1.0°	± .13	± .06	± .06	.18	± .18	± .06	± .06

REVISIONS:			
LEVEL:	DESCRIPTION:	DATE:	BY:
NA	NA	NA	NA

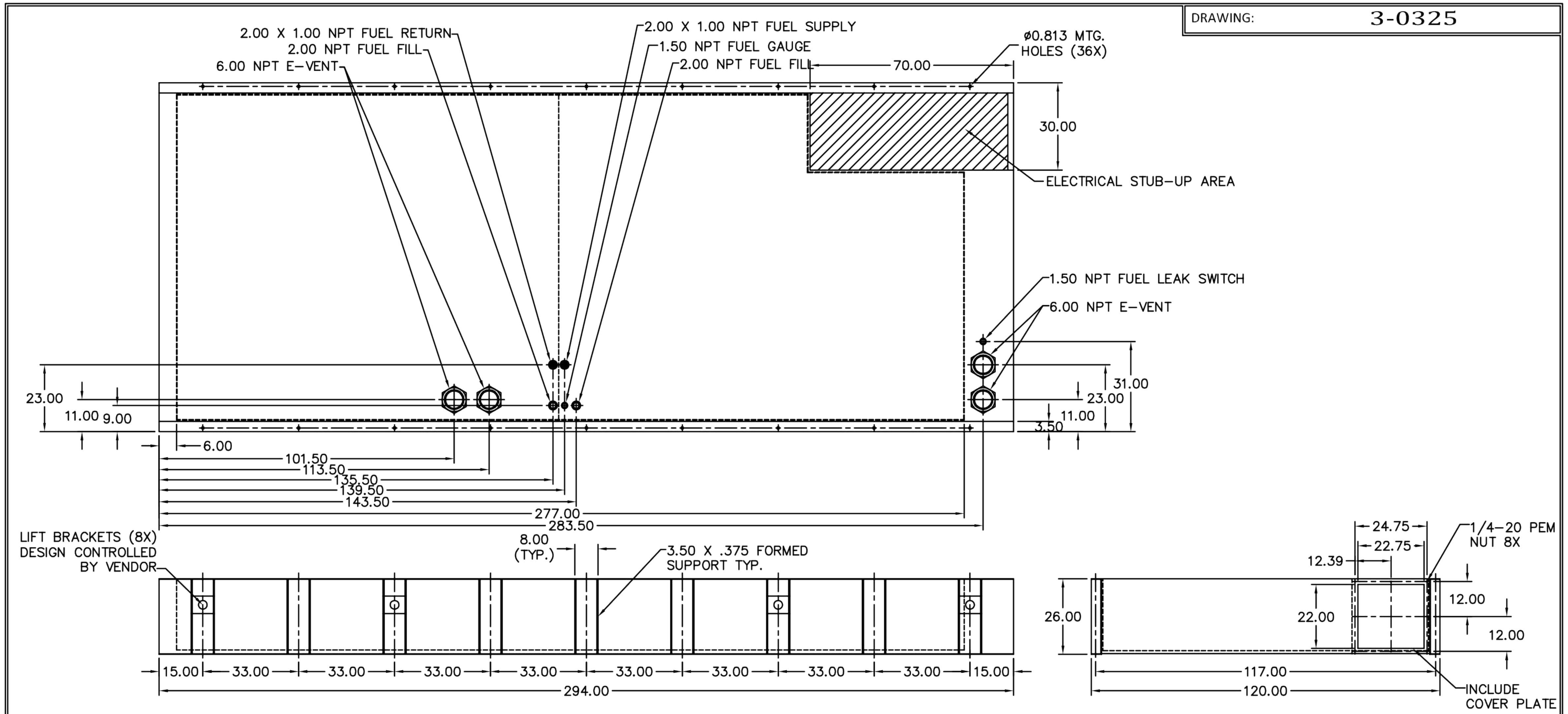
BLUE STAR Power Systems Inc.

WEATHER PROOF ENCLOSURE 294"L x 120"W x 136"H

P/N: 16939

DATE: 09-17-14 BY: KAP DRAWN TO SCALE

DRAWING: 3-0325



NOTES:
1. MATERIAL: 7GA. RUPTURE BASIN
7GA. INNER TANK
2. SECONDARY CONTAINMENT TANK
3. FINISH PAINT GLOSS BLACK
4. TANK TO INCLUDE
- 1.00 FUEL SUPPLY / 1.00 RETURN DIP TUBES
- LIFTING / TIE DOWN BRACKETS
5. FUEL TANK TO SUPPORT GENSET WEIGHT

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES - DO NOT SCALE DRAWING

SHEET METAL				STRUCTURAL STEEL			
ANGLES	.X	.XX	.XXX	STRAIGHTNESS PER 8FT	.X	.XX	.XXX
± 1.0°	± .13	± .06	± .06	.18	± .18	± .06	± .06

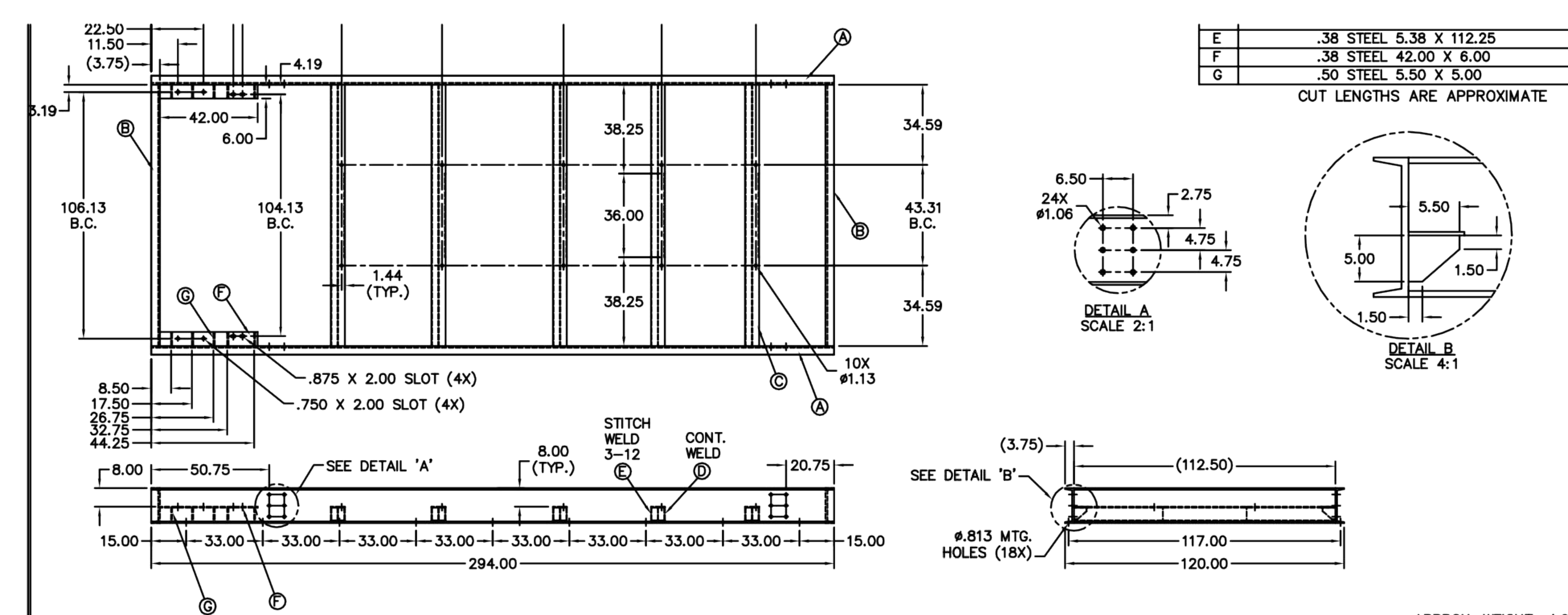
REVISIONS:			
LEVEL:	DESCRIPTION:	DATE:	BY:
NA	NA	NA	NA

BLUE STAR Power Systems Inc.

TANK SB 3000GL DW UL LISTED 294"L x 120"W x 26"H

P/N: 16938

DATE: 09-22-14 BY: KAP DRAWN TO SCALE



REVISIONS:			
LEVEL	DESCRIPTION	DATE	BY
NA	NA	NA	NA

BLUE STAR Power Systems Inc.

ABOVE GENERATOR DRAWINGS ARE PROVIDED BY CUMMINS POWER GENERATION, NOT BY MJE OR TCE ELECTRIC. GENSET INSTALLATION SHALL COMPLY WITH ABOVE DRAWINGS & CUMMINS GENSET SPECIFICATION SHEETS PROVIDED TO EC, WITH NEC & ADDITIONAL REQUIREMENTS AS REFLECTED ON SHEET E2.1 & E2.3.

REV./COMM.	BY
1 10.27.14 CUSTOMER 90% C.D. REVIEW	MJ
2 10.29.14 BUILDING DEPT. PERMIT SUBMITTAL	MJ

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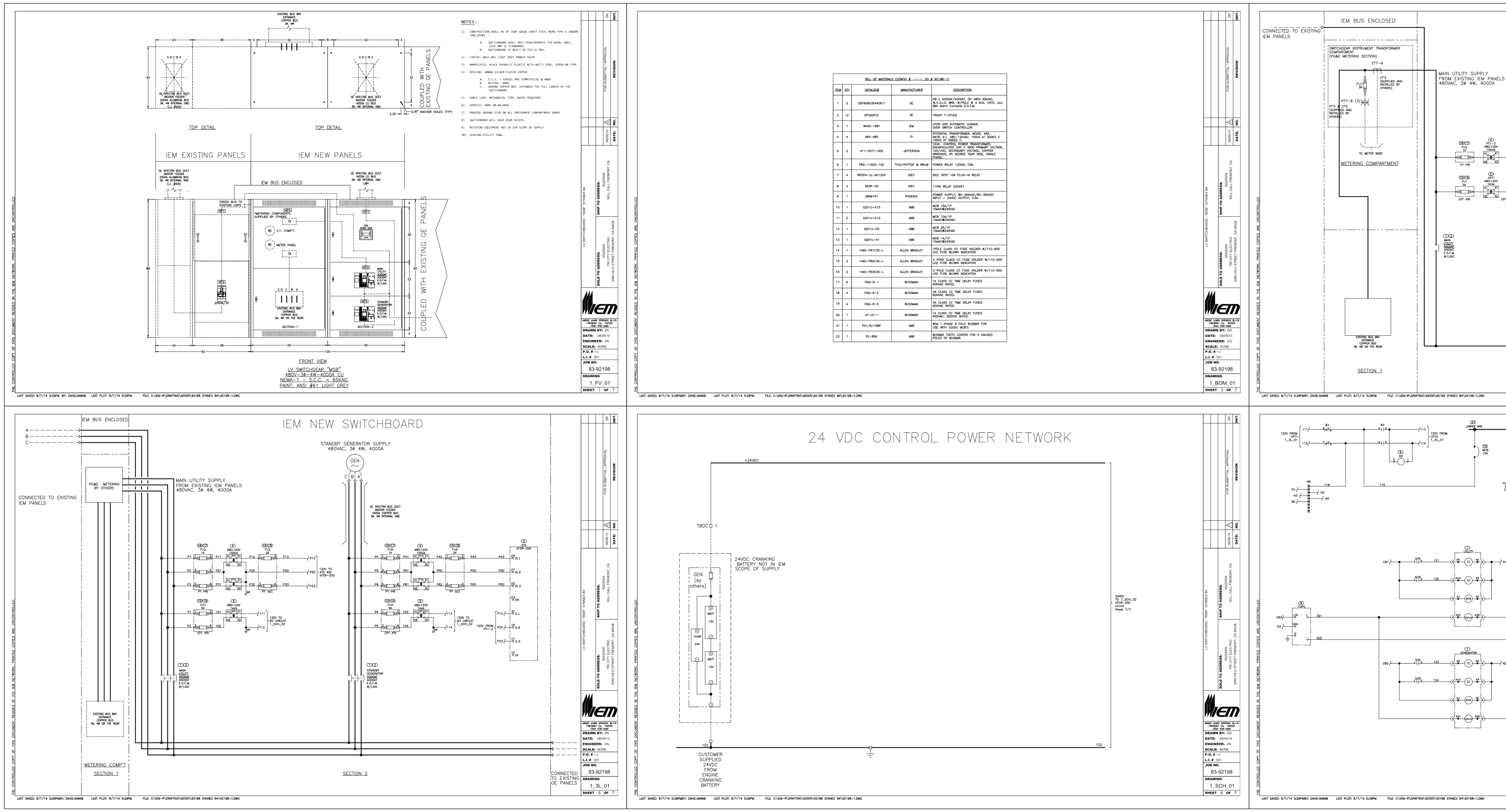
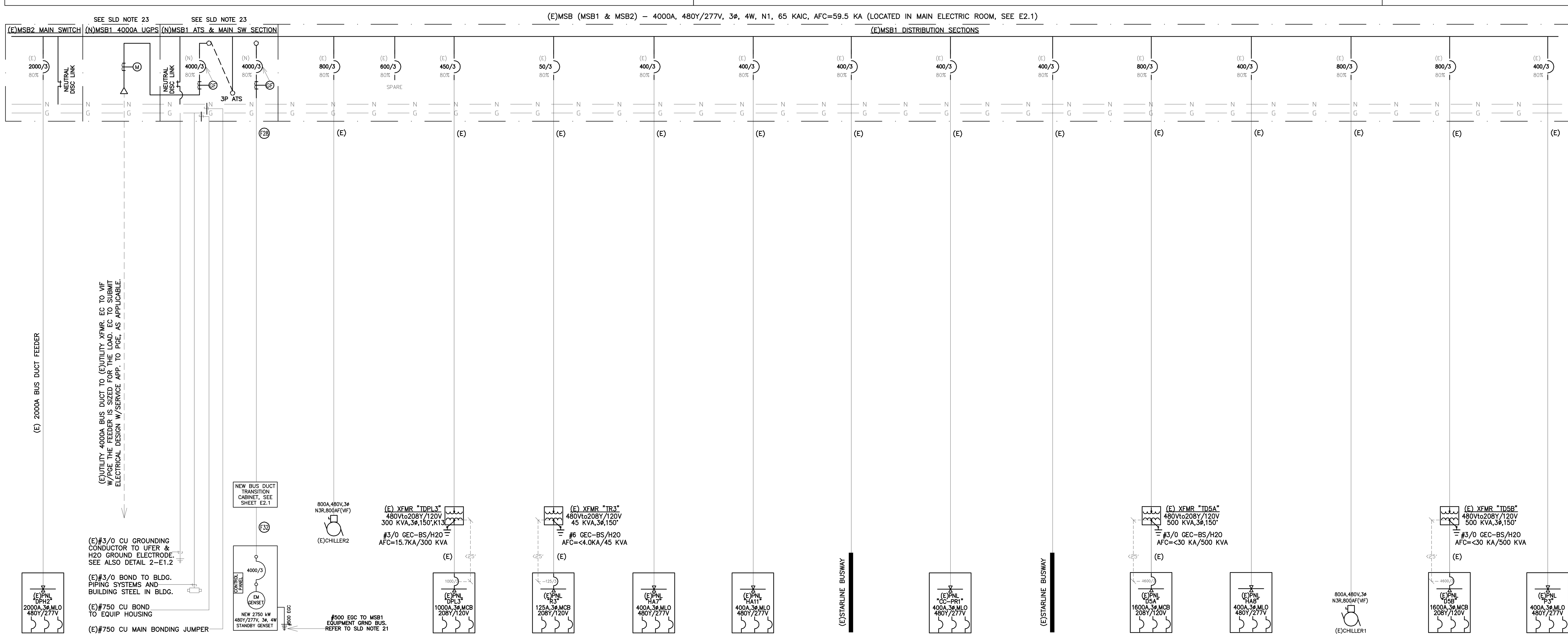
SYNNEX CORPORATION
EXISTING BUILDING – NEW STANDBY GENERATOR INSTALLATION
44217 NOBEL DRIVE, BUILDING 4 – FREMONT, CA 94538
GENERATOR DETAILS

Date	09.10.14
Scale	AS NOTED
Drawn	MJ
Job	MJE #14116
Sheet	E2.2





SINGLE LINE DIAGRAM GENERAL NOTES (USE IF &/OR AS APPLICABLE OR REFERRED TO)

1. EXCEPT FOR NEW ITEMS IN CLOUDED AREA, ALL SINGLE LINE DIAGRAM COMPONENTS ARE EX, TO REMAIN AS IS & ARE REFLECTED FOR REFERENCE ONLY.
2. ALL TRANSFORMER SECONDARY CONDUCTORS IF APPLICABLE, SHALL NOT EXCEED 25' TO THE RESPECTIVE OCP DEVICE.
3. ALL XFMRS TO COMPLY WITH NEC 450-21 VIA 155° OR > INSULATION RATING, & ALSO WITH CEC TITLE 20 STANDARD & BE LABELED AS TP1 COMPLIANT.
4. ALL BREAKERS SHALL HAVE AN AIC RATING TO MATCH THEIR RESPECTIVE PANEL BOARD AIC RATING.
5. SEE GENERAL NOTES ON SHEET E0.1 FOR APPLICABLE SINGLE LINE DIAGRAM COMPONENT INSTALLATION REQUIREMENTS.
6. ALL APPLICABLE MOTOR FEEDER TAPS, & FEEDER TAPS SHALL COMPLY WITH NEC ARTICLE 430.28, 430.24 & 240.21.
7. SEE FEEDER SCHEDULE ON SHEET E2.1 FOR ALL APPLICABLE FEEDER SCHEDULE & FEEDER TAG INFORMATION.
8. SEE PANEL SCHEDULES ON SHEET E0.1, E2.3 FOR APPLICABLE ADDITIONAL PANEL BOARD CONSTRUCTION REQUIREMENTS.
9. SEE SHEET E0.1, E1.2, E2.1 FOR ADDITIONAL INSTALLATION REQUIREMENTS FOR APPLICABLE ELECTRICAL & HVAC EQUIP.
10. SEE SHEET E2.1 FOR LOCATION OF APPLICABLE (E)/(N) PANEL BOARDS & MAIN SWITCHBOARD MSB USED FOR PROJECT.
11. CB IS SIZED FOR SHORT CIRCUIT PROTECTION PER NEC ART. 430.52. OVERLOAD PROTECTION PROVIDED VIA DISC. SWITCH.
12. EC SHALL VIF WITH UTILITY COMPANY REGARDING THAT NEW PROJECT LOADING ON EXISTING UTILITY XFMR IS ACCEPTABLE.
13. ALL NEW PANEL BOARDS, DISTRIBUTION PANELS, ETC.. TO BE LABELED FOR ARC FLASH POTENTIAL PER NEC ART. 110.16.
14. ALL SERVICES TO COMPLY W/NEC SERVICE DISCONNECT REQUIREMENT IN 230-70,71,80,90,95, & BE PERMANENTLY MARKED AS A SERVICE DISCONNECT.
15. FOR APPLICABLE SMALL 208V, 1Ø & 208V, 3Ø NEW MOTORS NOT REFLECTED ABOVE, SEE PANEL SCHEDULES ON SHEET E0.1 & E2.3.
16. IF APPLICABLE, PROVIDE 1"x3" BLACK PHENOLIC LABEL W/WHITE LETTERING & 2 SCREWS, LOCATED ADJACENT TO UTILITY METER. LABEL TO INDICATE PROJECT ADDRESS. COORDINATE LABELING REQUIREMENTS WITH PG&E & CITY OF FREMONT. EC TO SUBMIT A COPY OF THIS DESIGN W/PG&E SERVICE APPLICATION TO PG&E FOR APPROVAL & METER RELEASES. APPLICABLE MULTIPLE SERVICE LABELING TO ALSO COMPLY WITH NEC 225.37 & 230.2.E.
17. IF APPLICABLE, ABOVE UPS W/INTERNAL COMPONENTS IS REFLECTED FOR REFERENCE ONLY. SEE UPS MANUFACTURER SPECS FOR ACTUAL INTERNAL COMPONENTS. UPS1 IS EX & F&I BY CUST., & WIRED BY EC. SEE ALSO SHEET E2.1 & E2.2 FOR UPS LOCATION & ADDITIONAL REQ'S AS APPLICABLE.
18. ALL APPLICABLE GROUNDING ELECTRODE, & GEC INSTALLATIONS TO COMPLY WITH NEC 250-50, 52, 66, 68 & 104. SEE ALSO DETAIL 2-E1.2A ON E1.2A.
19. (N)SWBD MSB1 IS REQUIRED TO BE GROUNDED IN ACCORDANCE W/SERVICE GROUNDING REQUIREMENTS IN NEC 250-50. MSB SHALL BE GROUNDED VIA #3/0 CU GEC TO EX #4 STEEL REBAR UFER GROUND ELECTRODE, OR APPROVED =. #4 UFER TO BE >20' IN LENGTH, SHALL BE CONCRETE ENCASED, SHALL BE INSTALLED IN SLAB ON GRADE FOOTING & IF APPLICABLE BE INSPECTED BY CITY OF FREMONT PRIOR TO APPLICABLE CONCRETE POUR.
20. PROVIDE 4" x 6" RED PHENOLIC PLACARD W/1" WHITE LETTERING ON FACE OF NEW PANEL BOARD UPS1. THE PLACARD SHALL INDICATE "PANEL UPS1 IS FED WITH NORMAL & BATTERY POWER VIA ADJACENT UPS1 IN THIS NOC ROOM".
21. GROUND NEW GENSET & ATS WITH REFLECTED EGC ONLY. PER NEC 250-30, THE GENSET IS NOT REQUIRED TO BE GROUNDED IN ACCORDANCE WITH NEC 250-20, AS THE NEUTRAL CONDUCTOR IS UN-SWITCHED & SOLIDLY CONNECTED TO THE EX BUILDING ELECTRICAL SERVICE SUPPLY VIA THE 3 POLE ATS.
22. REPLACE EXISTING MSB IEM 1200A RATING PLUG WITH NEW IEM 1600A RATING PLUG. VIF WITH IEM ALL REQUIREMENTS.
23. PROVIDE NEW 4000A METER / MAIN SWITCHBOARD "MSB1", IEM SERIES OR APPROVED =(EUSERC ONLY)COMMERCIAL METERED SWITCHBOARD. SWBD TO BE 4000A, 480Y/277V, 3Ø, 4W, N1, 65 KAIC W/1 UTILITY METER SOCKET, (1)2000/3 65 KAIC, 100% RATED MAIN BREAKER AS IS REFLECTED IN SLD. SEE DETAILS & SPECIFICATION SHEETS ON E0.1 & E2.1, WHICH ARE REFLECTED FOR REFERENCE ONLY. EC TO PROCURE SHOP DRAWINGS FROM SWBD VENDOR, & SUBMIT TO PG&E & CITY OF FREMONT FOR APPROVAL, ALONG WITH ELECTRICAL DESIGN, PRIOR TO PURCHASE OF SWBD. SEE SLD ON E0.1 & APPLICABLE ADDITIONAL REQUIREMENTS ON E2.1 FOR WIRING & GROUNDING REQ'S. IF APPLICABLE, REFER ALSO TO GENERAL NOTE 30 ON E0.1.
23. REPLACE EXISTING MSB1 UGPS & MSB1 MAIN SWITCH SECTIONS WITH NEW MSB1 UTILITY SECTION & NEW MSB1 MAIN SWITCH & 3P ATS SECTION. SWBD TO BE 4000A, 480Y/277V, 3Ø, 4W, N1, 65 KAIC WITH ONE UTILITY METER SOCKET & (2) 4000/3 65 KAIC, 80% RATED MAIN BREAKERS AS IS REFLECTED IN SLD. SEE DETAILS & SPECIFICATION SHEETS ON SHEET E2.3, WHICH ARE REFLECTED FOR REFERENCE ONLY. EC TO PROCURE SHOP DRAWINGS FROM SWBD VENDOR, & SUBMIT TO PG&E & CITY OF FREMONT FOR APPROVAL, ALONG WITH ELECTRICAL DESIGN, PRIOR TO PURCHASE OF SWBD. SEE SLD ON E2.3 & APPLICABLE ADDITIONAL REQUIREMENTS ON E2.1 FOR WIRING & GROUNDING REQ'S. IF APPLICABLE, REFER ALSO TO GENERAL NOTE 43 ON E0.1.
24. EXISTING 2000/3 80% RATED MAIN BREAKER TO BE REPLACED WITH 2000/3 100% RATED 65 KAIC CB. CB TO BE OF SAME MANUFACTURER AS EX CB. COORDINATE SERVICE SHUTDOWN & BREAKER INSTALLATION WITH GC/CUST. EC TO HAVE NEW MAIN BREAKER TESTED/CERTIFIED BY AN APPROVED TESTING AGENCY, I.E ELECTROTEST INC. TESTING TO INCLUDE MAIN BREAKER TESTING & GROUND RESISTANCE TESTING. A COPY OF TESTING REPORT TO BE SUBMITTED TO CUSTOMER. A CERTIFICATION STICKER SHALL BE SECURED ADJACENT TO MSB1 CB. SEE ALSO GENERAL NOTE 30 ON E0.1 ABOVE.
25. PROVIDE (N)CLASS 3000 SERIES EMON CUSTOMER KWH METER, #208100C KIT, VIF. METER TO BE LOCATED IN 1st FLOOR RM #103, SEE DETAIL 1-E2.1 FOR LOCATION. VIF REQ'S, LOCATION & PROGRAMMING WITH CUSTOMER. METER TO BE INSTALLED PER EMON'S SPECS & APPLICABLE NEC ARTICLES.
26. FOR ALL 240/120V, 3Ø, 4W DELTA SYSTEMS, EC TO PROVIDE ORANGE MARKING FOR HIGH LEG CONDUCTOR (SHOULD BE BØ, VIF) AT ALL PANELS PER NEC 110-15, 230-56, & 408.3. ALSO PROVIDE A PHENOLIC LABEL ON ALL APPLICABLE PANELS. LABEL SHALL READ "PNL **-240/120V,3Ø,4W DELTA".

REV./COMM.	BY
10.27.14 CUSTOMER 90% C.D. REVIEW	MJ
10.29.14 BUILDING DEPT. PERMIT SUBMITTAL	MJ

MICHAEL JOBE ENGINEERING
ELECTRICAL DESIGN SERVICES FOR ELECTRICAL CONTRACTORS

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SYNNEX CORPORATION

EXISTING BUILDING - NEW STANDBY GENERATOR INSTALLATION
44217 NOBEL DRIVE, BUILDING 4 - FREMONT, CA 94538

IEM SWBD SHOP DRAWINGS, SINGLE LINE DIAGRAM

Date	09.10.14
Scale	AS NOTED
Drawn	MJ
Job	MJE #14116
Sheet	E2.3