



CBS TELEVISION CITY
 FUEL CELL INSTALLATION PROJECT

7800 BEVERLY BLVD.
 LOS ANGELES, CALIFORNIA 90036

ANSI/CSZ DEVICE NUMBER	PROTECTION FUNCTION	MAGNITUDE PARAMETER NUMBER	MAGNITUDE SETTING (RANGE)	TIME PARAMETER NUMBER	TIME SETTING (RANGE)
27	UNDER VOLTAGE	41.26	88% (88-98)	41.27	120 CYCLES (30-120)
27	FAST UNDER VOLTAGE	41.19	50% (50-98)	41.20	10 CYCLES (6-10)
59	OVER VOLTAGE	41.24	110% (102-110)	41.25	60 CYCLES (30-60)
59	FAST OVER VOLTAGE	41.17	120% (102-120)	41.18	10 CYCLES (6-10)
81	SLOW UNDER FREQUENCY	41.15	58.8 HZ (59.8-57)	41.16	300 SECONDS (0.16-300)
81	UNDER FREQUENCY	41.11	57 HZ (59.5-57)	41.23	10 CYCLES (6-10)
81	OVER FREQUENCY	41.10	60.5 HZ (59.8-60.5)	41.22	10 CYCLES (6-10)
79	RECLOSING TIME DELAY RELAY		OPEN TO TRIP	36.14	300 SECONDS (1-1000)

NOTE: THESE ARE SETTINGS INTERNAL TO THE FUEL CELL.

CERTIFICATION:

POWER PLANT IS CERTIFIED TO: ANSI/CSA AMERICA FC 1 - 2004 (FORMALLY ANSI Z21.L83) "AMERICAN NATIONAL STANDARD FOR STATIONARY FUEL CELL POWER SYSTEM" INCLUDING,

- A. UL1741 "INVERTERS, CONVERTERS, CONTROLLERS AND INTERCONNECTION SYSTEM EQUIPMENT FOR USE WITH DISTRIBUTED ENERGY RESOURCES."
- B. IEEE 1547 "STANDARD FOR INTERCONNECTING DISTRIBUTED RESOURCES WITH ELECTRIC POWER SYSTEMS."
- C. NFPA 70 NATIONAL ELECTRIC CODE (FOR INTERFACES TO CUSTOMER WIRING AND WIRING BETWEEN MODULES).

CIRCUIT BREAKER	POWER PLANT MODE		
	OFF/IDLE	GRID CONNECT (GC)	GRID INDEPENDENT (GI)
MCB001	OPEN	CLOSED	CLOSED
MCB002	CLOSED	CLOSED	OPEN

CONDUIT/WIRE IDENTIFICATION LABEL (AS SHOWN ON E011 E21L E21R & E24)	FROM	TO	DESCRIPTION	CONDUIT AND WIRE	NOTES
HVMDB-HVFC	HV SW AT SUBSTATION SS-MDB	FUEL CELL SITE XFMR T-FC	4800V FEEDER	4" C-3#4/0 [5KV CABLE AT 133% INSULATION] & 1#2GND	
TFC-DBFC	FUEL CELL SITE XFMR T-FC	DISTR BD DB-FC	480/277V XFMR SECONDARY	5 X [4" C-4#600KCMIL & 1#250KCMILGND]	
DBFC-MCCFC	DISTR BD DB-FC	MOTOR CONTR CTR MCC-FC	480V FEEDER	2 X [3" C-3#350KCMIL & 1#1/0GND]	
DBFC-FC1	DISTR BD DB-FC	FUEL CELL FC-1	480V FEEDER	2 X [4" C-3#500KCMIL & 1#1/0GND]	
DBFC-FC2	DISTR BD DB-FC	FUEL CELL FC-2	480V FEEDER	2 X [4" C-3#500KCMIL & 1#1/0GND]	
DBFC-FC3	DISTR BD DB-FC	FUEL CELL FC-3	480V FEEDER	2 X [4" C-3#500KCMIL & 1#1/0GND]	
FC1/GI-DSFC1/GI	FUEL CELL FC-1 [GI OUTPUT]	DISC SW DS-FC1/GI	GRID-INDEPENDENT/SUPPLEMENTAL 480V FEEDER	2 X [4" C-3#500KCMIL & 1#1/0GND]	
DSFC1/GI-MTSFC1/GI	DISC SW DS-FC1/GI	MANUAL TRANSFER SW MTS-FC1/GI	GRID-INDEPENDENT/SUPPLEMENTAL 480V FEEDER	2 X [4" C-3#500KCMIL & 1#1/0GND]	
JBMDR-MTS/GI	J-BOX JB-MDB	MANUAL TRANSFER SW MTS-FC1/GI	ADD SEGMENT TO EXISTING 480V FEEDER	2 X [3" C-3#350KCMIL & 1#1/0GND]	
MTSFC1/GI-DBMDR	MANUAL TRANSFER SW MTS/GI	DISTR BD MDB [VIA J-BOX JB-MDB]	480V TO DISTR BD MDB FROM MTS/GI [VIA J-BOX JB-MDB]	2 X [3" C-3#350KCMIL & 1#1/0GND]	
FC2/GI-MD2FC2/GI	FUEL CELL FC-2 [GI OUTPUT]	DISC SW MD2-FC2/GI	GRID-INDEPENDENT/SUPPLEMENTAL 480V FEEDER	2 X [4" C-3#500KCMIL & 1#1/0GND]	
MD2FC2/GI-DSFC2/GI	DISC SW MD2-FC2/GI	DISC SW DS-DBFC2/GI	GRID-INDEPENDENT/SUPPLEMENTAL 480V FEEDER	2 X [3" C-3#350KCMIL & 1#1/0GND]	
DSFC2/GI-DBFC2/GI	DISC SW DS-DBFC2/GI	DISTR BD DB-FC2/GI	GRID-INDEPENDENT/SUPPLEMENTAL 480V FEEDER	2 X [3" C-3#350KCMIL & 1#1/0GND]	
DBPM-DBFC2/GI	DISTR BD DB-PM	DISTR BD DB-FC2/GI	480V FEEDER TO GI-DESIGNATED DISTRIBUTION BOARD	2 X [3" C-3#350KCMIL & 1#1/0GND]	
MCCFC-HWP1	MOTOR CONTR CTR MCC-FC	PUMP HWP1 [VIA DISC SW DS-HWP1]	480V PUMP FEEDER	1" C-3#10 & 1#10GND	
MCCFC-CWP1	MOTOR CONTR CTR MCC-FC	PUMP CWP-1 [VIA DISC SW DS-CWP1]	480V PUMP FEEDER	1" C-3#10 & 1#10GND	
MCCFC-CWP1	MOTOR CONTR CTR MCC-FC	PUMP CWP-1 [VIA DISC SW DS-CWP1]	480V PUMP FEEDER	1" C-3#10 & 1#10GND	
MCCFC-CT1	MOTOR CONTR CTR MCC-FC	COOLING TOWER CT-1 [VIA DISC SW DS-CT1]	480V PUMP FEEDER	1" C-3#10 & 1#10GND	
MCCFC-AC1	MOTOR CONTR CTR MCC-FC	CHILLER AC-1 [VIA DISC SW DS-AC1]	480V CHILLER FEEDER	1" C-3#10 & 1#10GND	
MCCFC-IFCL	MOTOR CONTR CTR MCC-FC	LOADCENTER TRANSFORMER T-FCL	480V TRANSFORMER FEEDER	1" C-3#6 & 1#10GND	
IFCL-FCL	LOADCENTER TRANSFORMER T-FCL	PANELBOARD FCL	TRANSFORMER 120/208V SECONDARY	1-1/2" C-4#2 & 1#8GND	
DBPM-HWP2	DISTR BD PM	PUMP HWP-2 [VIA ENCL. MOTOR CONTR. MC-HWP2]	480V PUMP FEEDER	1" C-3#10 & 1#10GND	
DBPM-HWP3	DISTR BD PM	PUMP HWP-3 [VIA ENCL. MOTOR CONTR. MC-HWP3]	480V PUMP FEEDER	1" C-3#10 & 1#10GND	
DBFC-RMS/KYZ	DISTR BD DB-FC [LADWP METER]	RMS CABINET	UTILITY METER KYZ SIGNAL TO RMS/HRM SYSTEM	1" C-(1) 4C/#16AWG SHIELDED TWISTED-PAIR	
DBFC-LADWP/IS1379	DISTR BD DB-FC	LADWP IS1379 SERVICE YARD [LADWP-PROVIDED RTAC CABINET]	LADWP-TO-FUEL CELL CONTROL INTERCONNECTIONS	2" C-(1) 8C/#12AWG SHIELDED TWISTED-PAIR	
FC1-CM1	FUEL CELL FC-1	FC COOL MOD CM-1	230VAC SOURCED FROM FUEL CELL	2" C-3#6 & 1#10GND	
FC1-RMS/120V	FUEL CELL FC-1	RMS/HRM [AUTO. TRANSFER SW. ATS-RMS]	120VAC SOURCED FROM FUEL CELL	1" C-2#12 & 1#12GND	
FC1-RMS/COM	FUEL CELL FC-1	RMS/HRM ENCLOSURE	COMM LINK TO FUEL CELL	2" C-(1) UTP CABLE CAT 5E	
FC1-N2	FUEL CELL FC-1	N2 PRESSURE SWITCH	24VDC CONTROL CIRCUIT	1" C-2#14 & 1#14GND	
DBFC-FC1/DWP	DISTR BD DB-FC	FUEL CELL FC-1	CONTROL CIRCUIT WIRING FOR LADWP	2" C-(1) 8C/#12AWG SHIELDED TWISTED-PAIR	
FC2-CM2	FUEL CELL FC-2	FC COOL MOD CM-2	230VAC SOURCED FROM FUEL CELL	2" C-3#6 & 1#10GND	
FC2-RMS/120V	FUEL CELL FC-2	RMS/HRM [AUTO. TRANSFER SW. ATS-RMS]	120VAC SOURCED FROM FUEL CELL	1" C-2#12 & 1#12GND	
FC2-RMS/COM	FUEL CELL FC-1	RMS/HRM ENCLOSURE	COMM LINK TO FUEL CELL	2" C-(1) UTP CABLE CAT 5E	
FC2-N2	FUEL CELL FC-2	N2 PRESSURE SWITCH	24VDC CONTROL CIRCUIT	1" C-2#14 & 1#14GND	
DBFC-FC2/DWP	DISTR BD DB-FC	FUEL CELL FC-2	CONTROL CIRCUIT WIRING FOR LADWP	2" C-(1) 8C/#12AWG SHIELDED TWISTED-PAIR	
FC3-CM3	FUEL CELL FC-3	FC COOL MOD CM-3	230VAC SOURCED FROM FUEL CELL	2" C-3#6 & 1#10GND	
FC3-RMS/120V	FUEL CELL FC-3	RMS/HRM [AUTO. TRANSFER SW. ATS-RMS]	120VAC SOURCED FROM FUEL CELL	1" C-2#12 & 1#12GND	
FC3-RMS/COM	FUEL CELL FC-3	RMS/HRM ENCLOSURE	COMM LINK TO FUEL CELL	2" C-(1) UTP CABLE CAT 5E	
FC3-N2	FUEL CELL FC-3	N2 PRESS SWITCH	24VDC CONTROL CIRCUIT	1" C-2#14 & 1#14GND	
DBFC-FC3/DWP	DISTR BD DB-FC	FUEL CELL FC-3	CONTROL CIRCUIT WIRING FOR LADWP	2" C-(1) 8C/#12AWG SHIELDED TWISTED-PAIR	

CKT NO.	EQUIPMENT	HP	KVA	FLA	REMARKS
1	HWP-1	7.50	9.20	11.00	
2	CHWP-1	2.00	2.85	3.40	
3	CWP-1	7.50	9.20	11.00	
4	CT-1	10.00	11.70	14.00	
5	AC-1		5.60	6.75	
6	PANEL FC1 (30KVA Transformer)		30.00	36.10	
TOTAL KVA			68.55		
AMPS @ 480V-3PH.				82.5A	
CKT NO.	EQUIPMENT	HP	NONE KVA	FLA	REMARKS
1	CB-1 (FUEL CELL FC-1)		150.00	180.60	
2	CB-2 (FUEL CELL FC-2)		150.00	180.60	
3	CB-3 (FUEL CELL FC-3)		150.00	180.60	
TOTALS			450.00		
AMPS @ 480V-3PH.				541.6A	
CKT NO.	EQUIPMENT	HP	KVA	FLA	REMARKS
1	Future Load (N.I.C.)		40.00	48.20	
2	Future Load (N.I.C.)		40.00	48.20	
3	Future Load (N.I.C.)		40.00	48.20	
4	Future Load (N.I.C.)		40.00	48.20	
5	Future Load (N.I.C.)		40.00	48.20	
TOTALS			200.00		
AMPS @ 480V-3PH				240.7A	(Allowance/Future)
CKT NO.	EQUIPMENT	HP	NONE KVA	FLA	REMARKS
1	Future Load (N.I.C.)		40.00	48.20	
2	Future Load (N.I.C.)		40.00	48.20	
3	Future Load (N.I.C.)		40.00	48.20	
4	Future Load (N.I.C.)		40.00	48.20	
5	Future Load (N.I.C.)		40.00	48.20	
TOTALS			200.00		
AMPS @ 480V-3PH				240.7A	(Allowance/Future)

SINGLE LINE DIAGRAM - [PART 2 OF 2]

ID	DATE	REMARKS	PRELIMINARY DESIGN REVIEW	PLAN CHECK	UTL. RECOMMENDED CORRECTIONS	REV.	PLAN CHECK CORRECTIONS
1	7/02/12						
2	8/20/12						
3	9/14/12						
4	8/19/12						
5	10/18/12						

ENGR: DRWN BY: TEAM 1
 CHCK'D BY: RLL
 DATE: 9/19/12
 JOB NO.: 12-010
 SCALE: AS NOTED



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