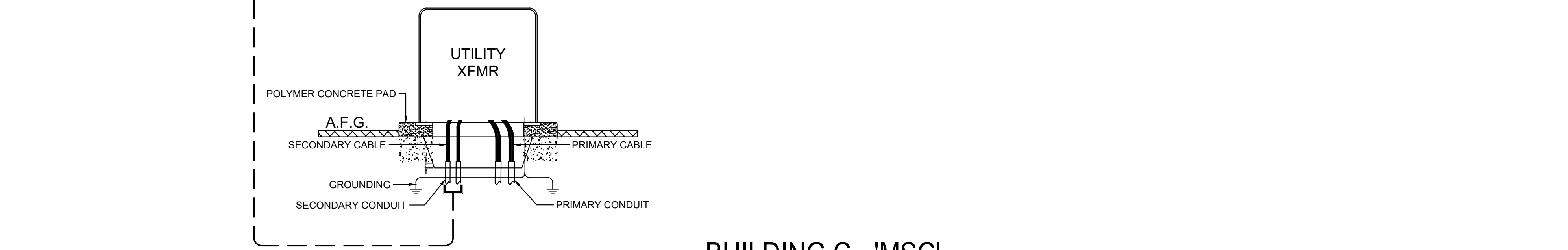
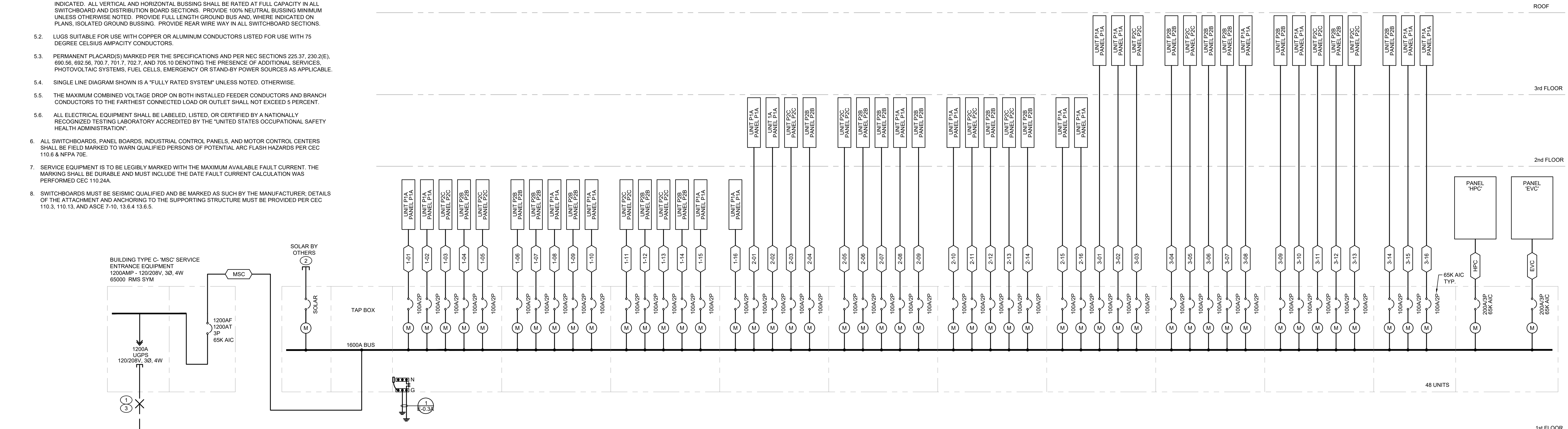


**SINGLE-LINE DIAGRAM GENERAL NOTES**

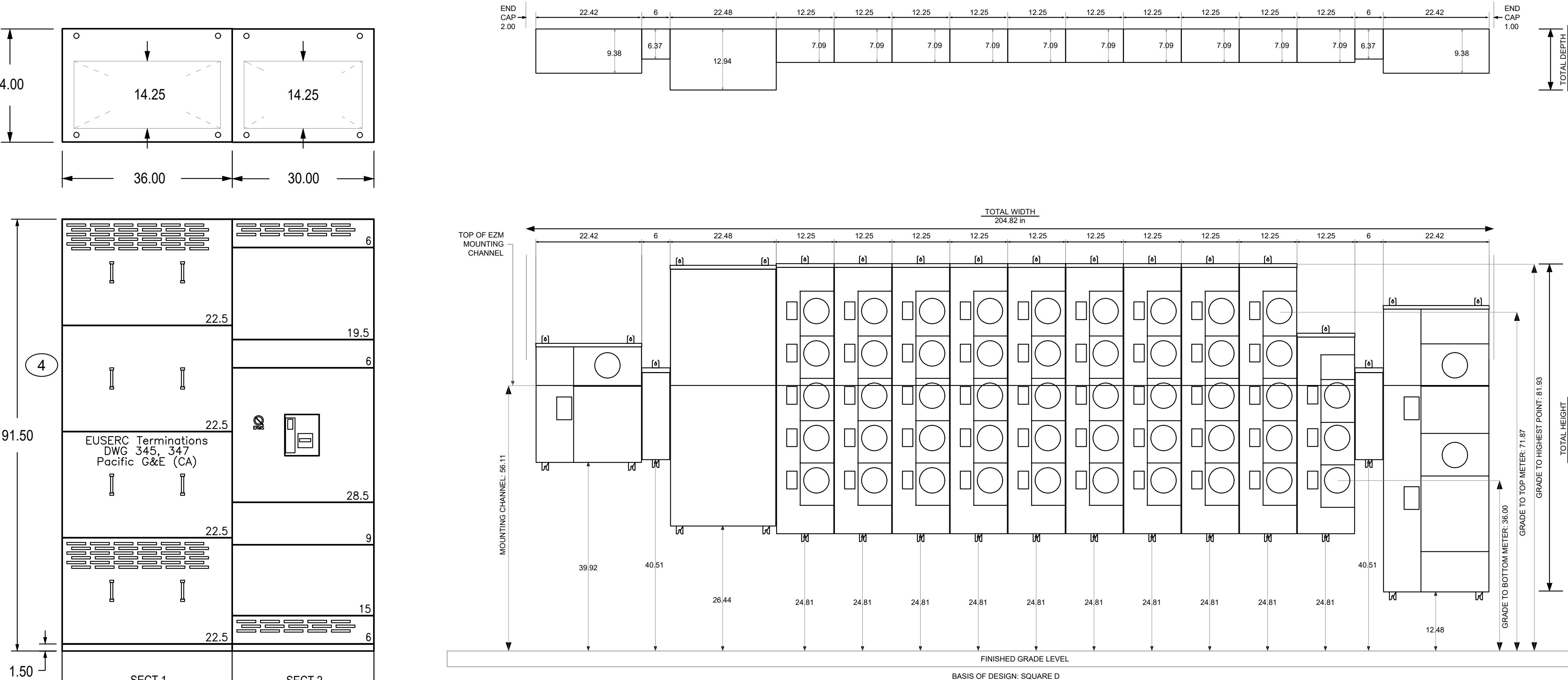
- THE MAXIMUM AVAILABLE FAULT CURRENT IS BASED ON WORST CASE FAULT CURRENT PUBLISHED BY THE UTILITY COMPANY. CONTRACTOR TO OBTAIN FAULT CURRENT LETTER FROM UTILITY COMPANY FOR EACH SERVICE BEFORE ORDERING SWITCHBOARD. IF AVAILABLE FAULT CURRENT IS HIGHER THAN SHOWN IN THE DRAWINGS, CONTACT ELECTRICAL ENGINEER IMMEDIATELY. PROVIDE A PERMANENT PLAQUE OR STICKER AT SERVICE EQUIPMENT THAT INDICATES THE AVAILABLE FAULT CURRENT AND THE DATE THE STUDY WAS PERFORMED SHALL BE PROVIDED.
- LETTER FOR SHORT CIRCUIT CURRENT VALUE FROM UTILITY COMPANY SHALL BE AVAILABLE AT THE JOB SITE FOR INSPECTION.
- ELECTRICAL EQUIPMENT SHALL BE LISTED BY THE CITY, WHERE THE PROJECT IS LOCATED, RECOGNIZED ELECTRICAL TESTING LABORATORY OR APPROVED BY THE DEPARTMENT.
- ALL NEW CIRCUIT BREAKERS, FUSIBLE SWITCHES AND ELECTRICAL EQUIPMENT SHALL BE FULLY RATED HAVING A SHORT-CIRCUIT (AIC) RATING EXCEEDING THE AVAILABLE SHORT-CIRCUIT CURRENT AT THE EQUIPMENT. SERIES RATINGS OF EQUIPMENT IS NOT ALLOWED.
- ALL SWITCHBOARDS AND DISTRIBUTION BOARDS SHALL HAVE:
  - TIN-PLATED ALUMINUM BUSSING WITH RECTANGULAR CROSS SECTION. HORIZONTAL AND VERTICAL BUSSING SHALL BE FULL LENGTH AND SHALL HAVE PROVISIONS FOR FUTURE EXTENSIONS. ALL BUSSING SHALL HAVE MINIMUM WITHSTAND RATING EQUAL TO THE AVAILABLE FAULT CURRENT INDICATED. ALL VERTICAL AND HORIZONTAL BUSSING SHALL BE RATED AT FULL CAPACITY IN ALL SWITCHBOARD AND DISTRIBUTION BOARD SECTIONS. PROVIDE 100% NEUTRAL BUSSING MINIMUM UNLESS OTHERWISE NOTED. PROVIDE FULL LENGTH GROUND BUS AND, WHERE INDICATED ON PLANS, ISOLATED GROUND BUSSING. PROVIDE REAR WIRE WAY IN ALL SWITCHBOARD SECTIONS.
- LUGS SUITABLE FOR USE WITH COPPER OR ALUMINUM CONDUCTORS LISTED FOR USE WITH 75 DEGREE CELSIUS AMPACITY CONDUCTORS.
- PERMANENT PLACARD(S) MARKED PER THE SPECIFICATIONS AND PER NEC SECTIONS 225.37, 230.2(E), 690.56, 692.56, 700.7, 701.7, 702.7, AND 705.10 DENOTING THE PRESENCE OF ADDITIONAL SERVICES: PHOTOVOLTAIC SYSTEMS, FUEL CELLS, EMERGENCY OR STAND-BY POWER SOURCES AS APPLICABLE.
- SINGLE LINE DIAGRAM SHOWN IS A "FULLY RATED SYSTEM" UNLESS NOTED, OTHERWISE.
- THE MAXIMUM COMBINED VOLTAGE DROP ON BOTH INSTALLED FEEDER CONDUCTORS AND BRANCH CONDUCTORS TO THE FARTHEST CONNECTED LOAD OR OUTLET SHALL NOT EXCEED 5 PERCENT.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE "UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION".
- ALL SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS, AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ARC FLASH HAZARDS PER CEC 110.6 & NFPA 70E.
- SERVICE EQUIPMENT IS TO BE LEGIBLY MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE MARKING SHALL BE DURABLE AND MUST INCLUDE THE DATE FAULT CURRENT CALCULATION WAS PERFORMED CEC 110.24A.
- SWITCHBOARDS MUST BE SEISMIC QUALIFIED AND BE MARKED AS SUCH BY THE MANUFACTURER; DETAILS OF THE ATTACHMENT AND ANCHORING TO THE SUPPORTING STRUCTURE MUST BE PROVIDED PER CEC 110.3, 110.13, AND ASCE 7-10, 13.6.4 13.6.5.

**SINGLE-LINE DIAGRAM KEYED NOTES**

- VERIFY WITH SERVICE PLANNER FOR AIC RATING AND ELECTRICAL INFORMATION BEFORE ISSUING ANY BID. NOTIFY ENGINEER IMMEDIATELY IF MAJOR DISCREPANCIES OCCURS.
- STUB UP CONDUIT FOR PV SYSTEM. PV SYSTEM SHALL BE SUBMITTED UNDER A SEPARATE PERMIT. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH PV CONSULTANT FOR THE EXACT SIZE OF CONDUIT AND ALL ELECTRICAL REQUIREMENTS.
- REFER TO UTILITY PLAN FOR LAYOUT AND EXACT CONDUIT AND WIRE SIZE.
- THE SWITCHGEAR SHOP DRAWING SHALL BE APPROVED BY PG&E.



**BUILDING C - 'MSC'**  
1200AMPS, MAIN BREAKER, THREE PHASE SWITCHBOARD  
48 UNITS & 1 HOUSE METER



**ELECTRICAL EQUIPMENT ELEVATION - BUILDING C**  
SCALE: 3/4" = 1'-0"

Voltage Drop and Short Circuit Calculation

CABLE NAME	PANEL NAME	UNIT CIRCUIT	VOLTS	PHASE	DEMAND AMP	AMPS	FEEDER		EQUIPMENT GROUNDING CONDUCTOR	CONDUCTOR MATERIAL	CONDUCTOR INSULATION	CONDUIT TYPE	CONDUIT SIZE	FILL% (40%)	FAULT CURRENT				
							PARALLEL RUNS	PHASE CONDUCTOR							DISTANCE (FT)	V/VO	FAULT CURRENT	Isc	AIC
MSC	MSC	MAIN	208	3	1200	1200	4	500	250	ALUM	THHN	EMT	3	36.47%	20	0.32	65000	58004	65000
HPC	HPC	HOUSE	208	3	200	200	1	250	4	ALUM	THHN	EMT	2 1/2	28.51%	25	0.42	56804	28754	42000
EVC	EVC	EV PANEL	208	3	200	200	1	250	4	ALUM	THHN	EMT	2 1/2	28.51%	20	0.33	56804	31905	42000
1-01	P1A	UNIT P1A	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	51	0.58	56804	14451	22000
1-02	P1A	UNIT P1A	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	44	0.92	56804	11028	22000
1-03	P2C	UNIT P2C	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	63	1.19	56804	9166	10000
1-04	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	75	1.4	56804	7021	10000
1-05	P2C	UNIT P2C	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	83	1.55	56804	6420	10000
1-06	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	97	1.81	56804	5585	10000
1-07	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	130	2.40	56804	4274	10000
1-08	P1A	UNIT P1A	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	157	2.54	56804	4303	10000
1-09	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	152	2.84	56804	3666	10000
1-10	P1A	UNIT P1A	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	180	2.69	56804	3870	10000
1-11	P2C	UNIT P2C	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	199	2.97	56804	3523	10000
1-12	P2B	UNIT P2B	208	1	97	100	1	30	2	ALUM	THHN	SER	N/A	-	211	2.76	56804	4041	10000
1-13	P2C	UNIT P2C	208	1	97	100	1	30	2	ALUM	THHN	SER	N/A	-	220	2.87	56804	3887	10000
1-14	P2B	UNIT P2B	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	233	2.59	56804	4421	10000
1-15	P1A	UNIT P1A	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	297	2.64	56804	4038	10000
1-16	P1A	UNIT P1A	208	1	97	100	1	250	10	ALUM	THHN	SER	N/A	-	293	2.73	56804	4000	10000
2-01	P1A	UNIT P1A	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	41	0.76	56804	11649	22000
2-02	P1A	UNIT P1A	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	54	1.01	56804	9304	10000
2-03	P2C	UNIT P2C	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	73	1.36	56804	7189	10000
2-04	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	85	1.59	56804	6286	10000
2-05	P2C	UNIT P2C	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	84	1.75	56804	5745	10000
2-06	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	106	1.98	56804	5154	10000
2-07	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	141	2.63	56804	3964	10000
2-08	P1A	UNIT P1A	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	167	2.49	56804	4149	10000
2-09	P2B	UNIT P2B	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	182	2.42	56804	3887	10000
2-10	P1A	UNIT P1A	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	190	2.84	56804	3679	10000
2-11	P2C	UNIT P2C	208	1	97	100	1	30	2	ALUM	THHN	SER	N/A	-	209	2.73	56804	4077	10000
2-12	P2B	UNIT P2B	208	1	97	100	1	30	2	ALUM	THHN	SER	N/A	-	221	2.89	56804	3870	10000
2-13	P2C	UNIT P2C	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	230	2.36	56804	4474	10000
2-14	P2B	UNIT P2B	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	242	2.46	56804	4209	10000
2-15	P1A	UNIT P1A	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	267	2.74	56804	3887	10000
2-16	P1A	UNIT P1A	208	1	97	100	1	250	10	ALUM	THHN	SER	N/A	-	303	2.83	56804	3877	10000
3-01	P1A	UNIT P1A	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	51	0.95	56804	9757	10000
3-02	P1A	UNIT P1A	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	64	1.19	56804	8056	10000
3-03	P2C	UNIT P2C	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	82	1.53	56804	6490	10000
3-04	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	85	1.77	56804	5891	10000
3-05	P2C	UNIT P2C	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	104	1.94	56804	5244	10000
3-06	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	117	2.18	56804	4709	10000
3-07	P2B	UNIT P2B	208	1	97	100	1	10	4	ALUM	THHN	SER	N/A	-	151	2.82	56804	3718	10000
3-08	P1A	UNIT P1A	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	177	2.84	56804	3531	10000
3-09	P2B	UNIT P2B	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	172	2.57	56804	4037	10000
3-10	P1A	UNIT P1A	208	1	97	100	1	20	3	ALUM	THHN	SER	N/A	-	209	2.61	56804	4246	10000
3-11	P2C	UNIT P2C	208	1	97	100	1	30	2	ALUM	THHN	SER	N/A	-	218	2.85	56804	3920	10000
3-12	P2B	UNIT P2B	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	231	2.37	56804	4458	10000
3-13	P2C	UNIT P2C	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	240	2.46	56804	4302	10000
3-14	P2B	UNIT P2B	208	1	97	100	1	40	1	ALUM	THHN	SER	N/A	-	253	2.5	56804	4087	10000
3-15	P1A	UNIT P1A	208	1	97	100	1	250	10	ALUM	THHN	SER	N/A	-	277	2.58	56804	4214	10000
3-16	P1A	UNIT P1A	208	1	97	100	1	250	10	ALUM	THHN	SER	N/A	-	319	2.92	56804	3781	10000

NOTE: THE VOLTAGE DROP IN THE ABOVE TABLE IS AN ESTIMATED LENGTH THE CONTRACTOR SHALL REVISE THE FEEDER SCHEDULE BASED ON THE ACTUAL LENGTH IN THE FIELD AND INCREASE OR DECREASE THE FEEDER SIZE TO ACCOMMODATE THE VOLTAGE DROP. ELECTRICAL CONTRACTOR SHALL INFORM THE ENGINEER OF RECORD IN EVENT FIELD CONDITIONS THAT CAUSE A SUBSTANTIAL INCREASE IN OVERALL FEEDER LENGTH. THE FEEDER SHALL BE SIZED TO PREVENT VOLTAGE DROP FROM EXCEEDING 3%, AND TOTAL VOLTAGE DROP FOR BRANCH CIRCUIT AND FEEDER SHALL NOT EXCEED 5% PER NEC 210.19(2).

**REVISIONS**

NO.	DATE	DESCRIPTION
04/07/23	PLAN CHECK	
06/22/23	PLAN CHECK	
08/15/23	PLAN CHECK	
12/07/23	RFI 50	
04/02/24	CLIENT REV.	
06/19/24	EV REVISION	
08/02/24	PLAN CHECK	

SHEET NAME:  
SINGLE LINE DIAGRAM  
BUILDING C

PROJECT NUMBER:  
66139

ENGINEER:  
DRAFTER:

SHEET NUMBER:  
**E-0.6**