

**PHOTOVOLTAIC ONE-LINE DIAGRAM**  
NOT TO SCALE

**GENERAL NOTES :** BID AS ADD ALTERNATE

- PROVIDE NEW AND COMPLETE 480V (ESTIMATED) PHOTOVOLTAIC (PV) SOLAR ARRAY. THE PV SYSTEM AND EQUIPMENT SHALL BE TIED INTO THE CUSTOMER'S DISTRIBUTION PANELS AND GRID-TIED. ALL THE ELECTRICAL COMPONENTS RELATED TO THIS PV SYSTEM SHALL BE CONNECTED TO DUKE ELECTRIC'S UTILITY GRID, VIA EXISTING 480V 3 PHASE TRANSFORMER. ALL FINAL CONNECTIONS AND TERMINATIONS TO THE TRANSFORMER SHALL BE REVIEWED AND APPROVED BY TECO.
- PV CONTRACTOR SHALL PROVIDE COMPLETE SHOP DRAWINGS AND INSTALLATION DOCUMENTS FOR ALL EQUIPMENT SUPPLIED.
- PV CONTRACTOR SHALL IDENTIFY AND LABEL ALL PV EQUIPMENT AND RACEWAYS SUPPLYING POWER TO THE ELECTRICAL SYSTEM.
- CONTRACTOR SHALL COORDINATE WITH THE UTILITY DUKE ELECTRIC, TO PROPERLY LOCATE AND IDENTIFY ALL UTILITY REQUIRED CONNECTIONS AND DISCONNECTING MEANS.
- PV CONTRACTOR SHALL PROVIDE ALL REQUIRED WIRING, CIRCUITING, GROUNDING, AND LABELING PER NEC ARTICLE 690. PROVIDE DATA SUBSTANTIATING THE SIZE AND RATINGS OF ALL SUPPLIED EQUIPMENT.
- EXACT SYSTEM DESIGN AND OPERATION WILL BE DETERMINED BY PV CONTRACTOR AND THE OWNER.
- CONFIRM WITH OWNER FOR ANY ADDITIONAL REQUIREMENTS REGARDING DATA AND RECORDING OF PV OUTPUT.

**TRANSFORMER SCHEDULE (ALUMINUM FEEDERS)**

KVA	PRIMARY VOLTAGE	PRIMARY AMPS	PRIMARY 480V OVERCURRENT	PRIMARY FEEDER (3 PHASE, 3 WIRE WITH GROUND)	SECONDARY VOLTAGE	SECONDARY AMPS	SECONDARY 208V OVERCURRENT	SECONDARY FEEDER (3 PHASE, 4 WIRE WITH GROUND)	GROUNDING CONDUCTOR
30	480	36	60A - 3P	3 #4 & 1 #6 EG - 1" C	208	83	100A - 3P	4 #1 & 1 #6 EG - 1-1/2" C	1 #6 - 3/4" C
45	480	54	80A - 3P	3 #2 & 1 #6 EG - 1-1/4" C	208	125	175A - 3P	4 #40 & 1 #2 EG - 2-1/2" C	1 #2 - 3/4" C
75	480	90	125A - 3P	3 #210 & 1 #4 EG - 2" C	208	208	300A - 3P	4 #500 KCML & 1 #10 EG - 3-1/2" C	1 #10 - 3/4" C
112.5	480	135	175A - 3P	3 #410 & 1 #4 EG - 2-1/2" C	208	313	400A - 3P	2-SETS 4 #250 KCML & 1 #10 EG 2-1/2" C	1 #10 - 3/4" C
150	480	181	250A - 3P	3 #350 KCML & 1 #2 EG - 3" C	208	417	600A - 3P	2-SETS 4 #500 KCML & 1 #40 EG 3-1/2" C	1 #40 - 1" C
225	480	271	350A - 3P	2 SETS 3 #410 & 1 #1 EG - 2-1/2" C	208	625	800A - 3P	3-SETS 4 #400 KCML & 1 #40 EG - 3" C	1 #40 - 1" C

- TRANSFORMER SCHEDULE NOTES:**
- THE TRANSFORMER SHALL BE GROUNDING AND BONDED IN ACCORDANCE WITH THE NEC.
  - PROVIDE VENTILATION CLEARANCE AS REQUIRED BY THE TRANSFORMER MANUFACTURER.
  - SECONDARY OVER CURRENT PROTECTION SHALL BE LOCATED WITHIN 10 FEET OF THE TRANSFORMER.
  - FEEDER CONDUCTORS AND GROUNDING CONDUCTOR SIZES ARE BASED ON BASED ON ALUMINUM CONDUCTORS, (NEC 310.16, 250.66 AND 250.122)
  - 600 KCML AND LARGER CONDUCTORS SHALL BE PROVIDED WITH MMC ADAPTERS AS REQUIRED TO COORDINATE WITH STANDARD CIRCUIT BREAKER LUG SIZES.

**FEEDER SCHEDULE (ALUMINUM)**  
BASED ON NEC TABLE 310.16 FOR TYPE THHN ALUMINUM CONDUCTORS

FEEDER AMPERE RATING	FEEDER (3 PHASE, 4 WIRE WITH GROUND)	CONDUIT NO. - SIZE
100A	4 #1 & 1 #6 EG	1-1/2"
125A	4 #210 & 1 #4 EG	2"
150A	4 #310 & 1 #4 EG	2"
175A	4 #410 & 1 #4 EG	2-1/2"
200A	4 #250 & 1 #4 EG	2-1/2"
225A	4 #300 & 1 #2 EG	2-1/2"
250A	4 #350 KCML & 1 #2 EG	3"
300A	4 #500 KCML & 1 #2 EG	3-1/2"
350A	(2) SETS OF 4 #410 & 1 #1 EG	(2) 2-1/2"
400A	(2) SETS OF 4 #250 KCML & 1 #1 EG	(2) 2-1/2"
500A	(2) SETS OF 4 #350 KCML & 1 #10 EG	(2) 3"
600A	(2) SETS OF 4 #500 KCML & 1 #20 EG	(2) 3-1/2"
800A	(3) SETS OF 4 #400 KCML & 1 #30 EG	(3) 3-1/2"
1000A	(3) SETS OF 4 #600 KCML & 1 #40 EG	(3) 3-1/2"
1200A	(4) SETS OF 4 #500 KCML & 1 #250 KCML EG	(4) 3-1/2"
1600A	(5) SETS OF 4 #600 KCML & 1 #350 KCML EG	(5) 3-1/2"
2000A	(6) SETS OF 4 #600 KCML & 1 #500 KCML EG	(6) 3-1/2"
2500A	(8) SETS OF 4 #600 KCML & 1 #600 KCML EG	(8) 3-1/2"

600 KCML AND LARGER CONDUCTORS SHALL BE PROVIDED WITH MMC ADAPTERS AS REQUIRED TO COORDINATE WITH STANDARD CIRCUIT BREAKER LUG SIZES.

**LEGEND**

NEW EQUIPMENT

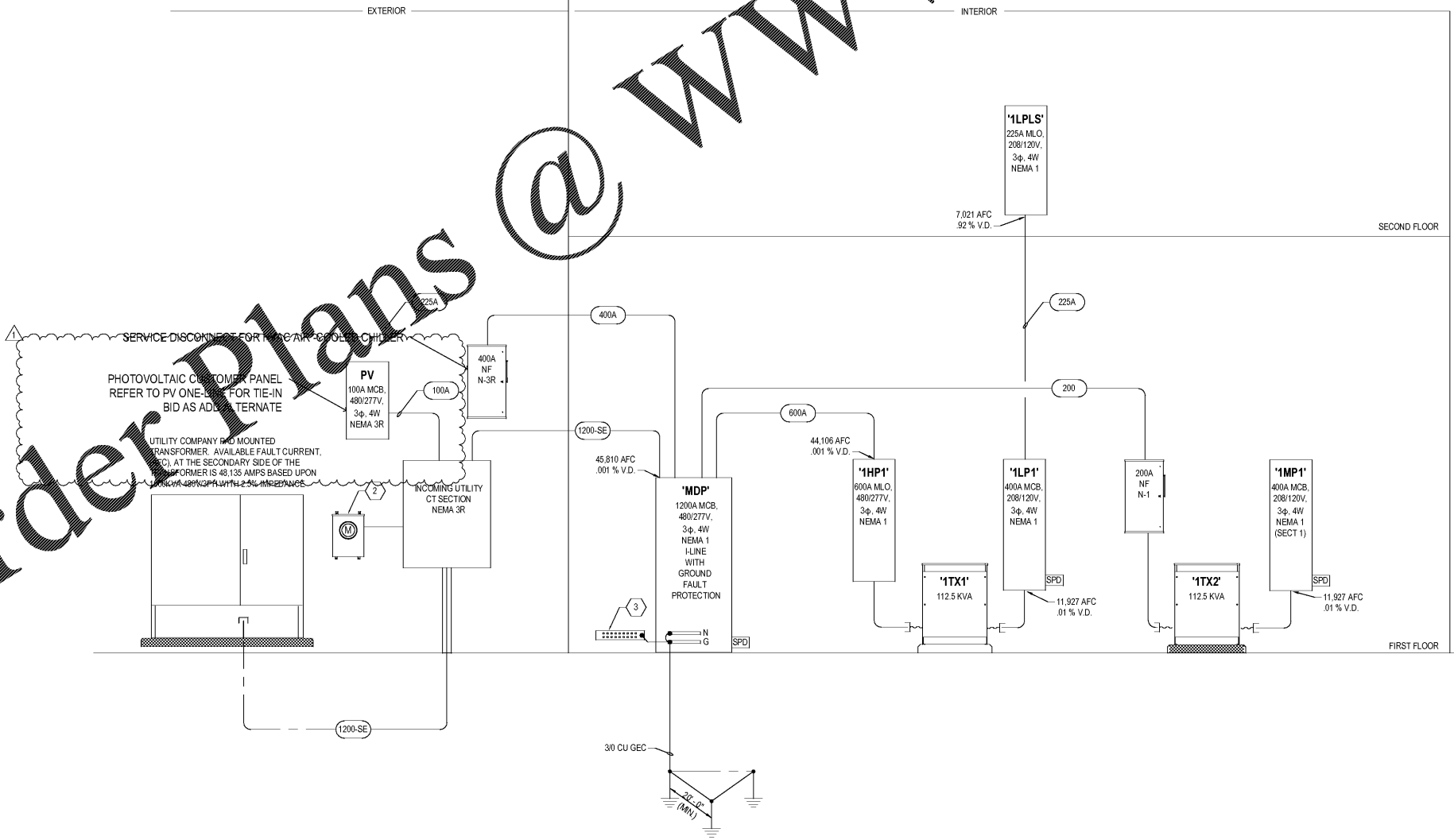
**SURGE PROTECTION LEGEND**

PANEL TYPE	SURGE PROTECTION MODEL
MDP / SERVICE ENTRANCE PANELS	PQ PROTECTION MODEL PQS300
DISTRIBUTION PANELS	PQ PROTECTION MODEL PQM200
BRANCH / SUB PANELS	PQ PROTECTION MODEL PQM100

**SERVICE ENTRANCE FEEDER SCHEDULE**  
BASED ON NEC TABLE 310.16 FOR TYPE THHN ALUMINUM CONDUCTORS

FEEDER AMPERE RATING	FEEDER (3 PHASE, 4 WIRE)	CONDUIT NO. - SIZE
1200-SE	(2) SETS OF 4 #500 KCML	(4) 4"
1600-SE	(5) SETS OF 4 #600 KCML	(5) 4"
2000-SE	(6) SETS OF 4 #600 KCML	(6) 4"
2500-SE	(8) SETS OF 4 #600 KCML	(8) 4"
3000-SE	(9) SETS OF 4 #600 KCML	(9) 4"
4000-SE	(12) SETS OF 4 #600 KCML	(12) 4"

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**GENERAL NOTES**

A. XXXX

**KEYNOTES**

NUMBER NOTES

**VOLT AIR**

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**PERMIT SET**

NO: 42527  
STATE OF FLORIDA  
PROFESSIONAL ENGINEER

FGA PROJECT NUMBER  
**19048**

ISSUE DATE  
**04-15-2020**

NO.	DATE	NOTES
1	05.26.20	Permit Comments

SHEET NAME  
**RISER DIAGRAM - ELECTRICAL**

SHEET NUMBER  
**E5.1**