

285 LINCOLN ST. STREET  
 ASHEVILLE, NC 28801

CLARK NEXSEN  
 201 COLLEGE STREET, SUITE 300  
 ASHEVILLE, NC 28801  
 828-232-9888  
 CLARK NEXSEN LICENSE NUMBER: C-1428

PROFESSIONAL SEAL  
  
 03.12.2021  
 CONSTRUCTION DOCUMENTS

8-SHEET  
**SCHEDULES & POWER RISER  
 DIAGRAM**  
**EP601**  
 02/01/2021 8:42:00 AM  
 02/01/2021 8:42:00 AM  
 02/01/2021 8:42:00 AM  
 CN 7904-A

### MECHANICAL EQUIPMENT CONNECTION SCHEDULE

EQUIPMENT DESIGNATION	VOLTS	PHASE	DISCONNECT SWITCH	CONDUCTOR	CONDUIT	PANEL	CIRCUIT NUMBER	BREAKER	NOTES
RTU-1	208	3	300A/3P/3R	3#3/0/RG6	2"	MDP	2	200A/3P	1
RTU-2	208	3	100A/3P/3R	3#4/RG6	1"	MDP	8	70A/3P	1
RTU-3	208	3	100A/3P/3R	3#4/RG6	1"	MDP	14	80A/3P	1
EF-1	120	1	M.R.S.	3#12	1/2"	LA	30	20A/1P	1
EF-2	120	1	M.R.S.	3#12	1/2"	LA	30	20A/1P	1
EF-3	120	1	M.R.S.	3#12	1/2"	LA	30	20A/1P	1
EF-4	120	1	M.R.S.	3#12	1/2"	LA	33	20A/1P	1
EF-5	120	1	M.R.S.	3#12	1/2"	LA	33	20A/1P	1
DF-1	208	3	30A/3P	3#12, #12G	1/2"	MDP	25	15A/3P	1
DF-2	208	3	30A/3P	3#12, #12G	1/2"	MDP	31	15A/3P	1
UH-1	208	1	30A/2P	2#12, #12G	1/2"	LB	36	20A/2P	1
UH-2	208	1	30A/2P/4X	2#12, #12G	1/2"	PP	14	20A/2P	1
UH-3	208	1	30A/2P/4X	2#12, #12G	1/2"	PP	18	20A/2P	1
UH-4	208	1	30A/2P/4X	2#12, #12G	1/2"	PP	22	20A/2P	1
UH-5	208	1	30A/2P	2#12, #12G	1/2"	LB	40	20A/2P	1
WR-1	208	1	60A/2P	2#8, #10G	3/4"	MDP	26	40A/2P	1
CP-1	120	1	NDNE	3#12	1/2"	LA	28	20A/1P	2
MECH. CONTROL PANEL	120	1	NDNE	3#12	1/2"	LA	25	20A/1P	1

1. COORDINATE WITH MECHANICAL FOR CONDUITS.  
 2. PROVIDE GFCI RECEPTACLE TO POWER UNIT.

### NEW PANEL LA SCHEDULE

208 AMP MCO	208V/120 VOLT S	3PH, 4W, 60 HZ	MIN. 22 KAC	SURFACE MOUNTED
1	208	120	21.8	200
2	208	120	21.8	200
3	208	120	21.8	200
4	208	120	21.8	200
5	208	120	21.8	200
6	208	120	21.8	200
7	208	120	21.8	200
8	208	120	21.8	200
9	208	120	21.8	200
10	208	120	21.8	200
11	208	120	21.8	200
12	208	120	21.8	200
13	208	120	21.8	200
14	208	120	21.8	200
15	208	120	21.8	200
16	208	120	21.8	200
17	208	120	21.8	200
18	208	120	21.8	200
19	208	120	21.8	200
20	208	120	21.8	200
21	208	120	21.8	200
22	208	120	21.8	200
23	208	120	21.8	200
24	208	120	21.8	200
25	208	120	21.8	200
26	208	120	21.8	200
27	208	120	21.8	200
28	208	120	21.8	200
29	208	120	21.8	200
30	208	120	21.8	200
31	208	120	21.8	200
32	208	120	21.8	200
33	208	120	21.8	200
34	208	120	21.8	200
35	208	120	21.8	200
36	208	120	21.8	200
37	208	120	21.8	200
38	208	120	21.8	200
39	208	120	21.8	200
40	208	120	21.8	200
41	208	120	21.8	200
42	208	120	21.8	200

1. PROVIDE WITH FEED THRU LUGS.  
 1. PROVIDE GFCI BREAKER

### NEW PANEL LB SCHEDULE

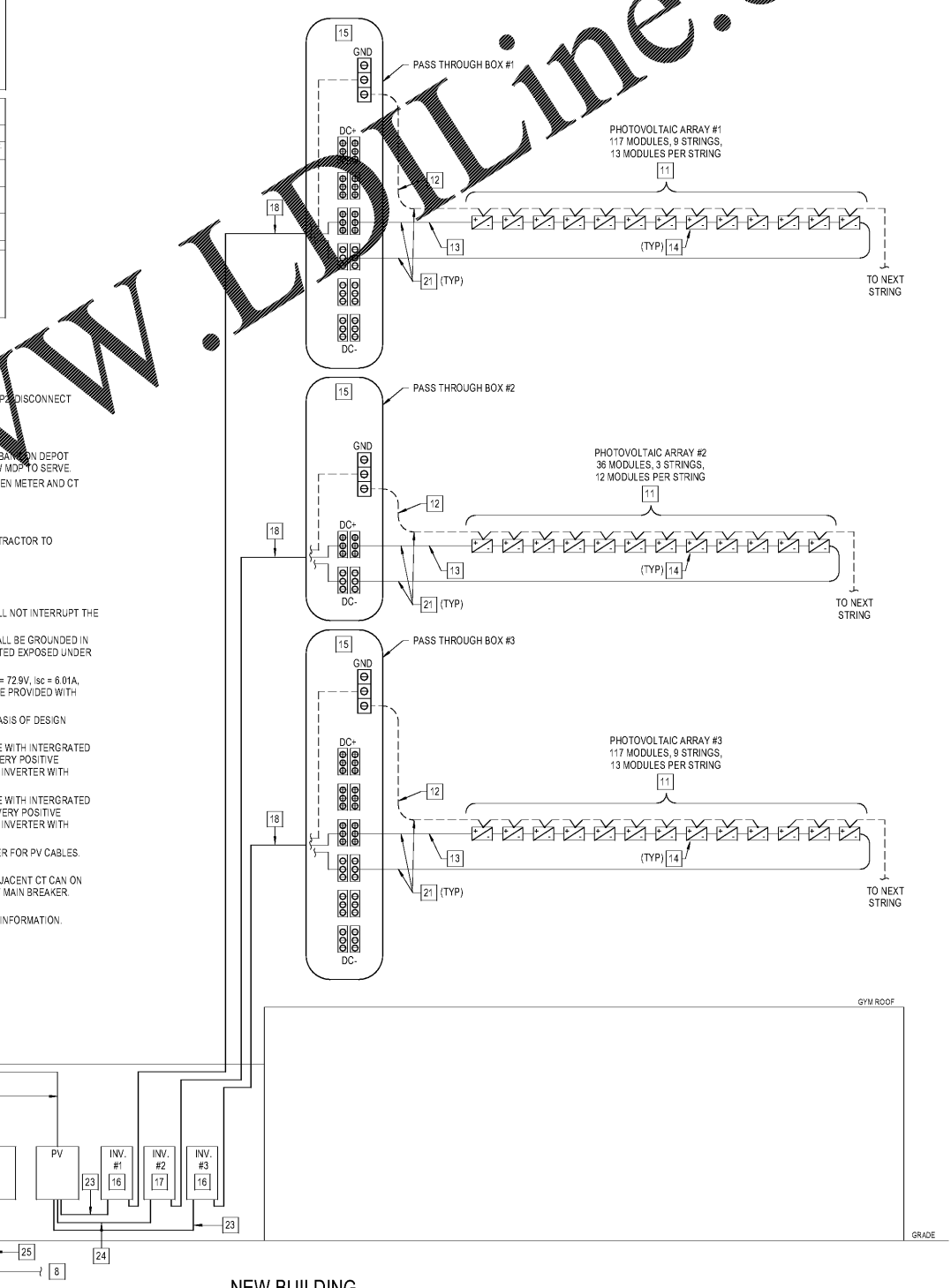
400 AMP MCO	208V/120 VOLT S	3PH, 4W, 60 HZ	MIN. 22 KAC	SURFACE MOUNTED	NEMA 4X
1	400	120	14.4	14.4	14.4
2	400	120	14.4	14.4	14.4
3	400	120	14.4	14.4	14.4
4	400	120	14.4	14.4	14.4
5	400	120	14.4	14.4	14.4
6	400	120	14.4	14.4	14.4
7	400	120	14.4	14.4	14.4
8	400	120	14.4	14.4	14.4
9	400	120	14.4	14.4	14.4
10	400	120	14.4	14.4	14.4
11	400	120	14.4	14.4	14.4
12	400	120	14.4	14.4	14.4
13	400	120	14.4	14.4	14.4
14	400	120	14.4	14.4	14.4
15	400	120	14.4	14.4	14.4
16	400	120	14.4	14.4	14.4
17	400	120	14.4	14.4	14.4
18	400	120	14.4	14.4	14.4
19	400	120	14.4	14.4	14.4
20	400	120	14.4	14.4	14.4
21	400	120	14.4	14.4	14.4
22	400	120	14.4	14.4	14.4
23	400	120	14.4	14.4	14.4
24	400	120	14.4	14.4	14.4
25	400	120	14.4	14.4	14.4
26	400	120	14.4	14.4	14.4
27	400	120	14.4	14.4	14.4
28	400	120	14.4	14.4	14.4
29	400	120	14.4	14.4	14.4
30	400	120	14.4	14.4	14.4
31	400	120	14.4	14.4	14.4
32	400	120	14.4	14.4	14.4
33	400	120	14.4	14.4	14.4
34	400	120	14.4	14.4	14.4
35	400	120	14.4	14.4	14.4
36	400	120	14.4	14.4	14.4
37	400	120	14.4	14.4	14.4
38	400	120	14.4	14.4	14.4
39	400	120	14.4	14.4	14.4
40	400	120	14.4	14.4	14.4
41	400	120	14.4	14.4	14.4
42	400	120	14.4	14.4	14.4

### NEW PANEL PV SCHEDULE

400 AMP MCO	208V/120 VOLT S	3PH, 4W, 60 HZ	MIN. 22 KAC	SURFACE MOUNTED	NEMA 4X
1	400	120	14.4	14.4	14.4
2	400	120	14.4	14.4	14.4
3	400	120	14.4	14.4	14.4
4	400	120	14.4	14.4	14.4
5	400	120	14.4	14.4	14.4
6	400	120	14.4	14.4	14.4
7	400	120	14.4	14.4	14.4
8	400	120	14.4	14.4	14.4
9	400	120	14.4	14.4	14.4
10	400	120	14.4	14.4	14.4
11	400	120	14.4	14.4	14.4
12	400	120	14.4	14.4	14.4
13	400	120	14.4	14.4	14.4
14	400	120	14.4	14.4	14.4
15	400	120	14.4	14.4	14.4
16	400	120	14.4	14.4	14.4
17	400	120	14.4	14.4	14.4
18	400	120	14.4	14.4	14.4
19	400	120	14.4	14.4	14.4
20	400	120	14.4	14.4	14.4
21	400	120	14.4	14.4	14.4
22	400	120	14.4	14.4	14.4
23	400	120	14.4	14.4	14.4
24	400	120	14.4	14.4	14.4
25	400	120	14.4	14.4	14.4
26	400	120	14.4	14.4	14.4
27	400	120	14.4	14.4	14.4
28	400	120	14.4	14.4	14.4
29	400	120	14.4	14.4	14.4
30	400	120	14.4	14.4	14.4
31	400	120	14.4	14.4	14.4
32	400	120	14.4	14.4	14.4
33	400	120	14.4	14.4	14.4
34	400	120	14.4	14.4	14.4
35	400	120	14.4	14.4	14.4
36	400	120	14.4	14.4	14.4
37	400	120	14.4	14.4	14.4
38	400	120	14.4	14.4	14.4
39	400	120	14.4	14.4	14.4
40	400	120	14.4	14.4	14.4
41	400	120	14.4	14.4	14.4
42	400	120	14.4	14.4	14.4

### NOTES - POWER RISER DIAGRAM

- EXISTING MAIN DISTRIBUTION PANEL IN MECHANICAL ROOM 108 OF THE EXISTING BUILDING TO REMAIN AND BE REWIRED MDP DISCONNECT INTERNAL NEUTRAL AND GROUND BUS CONNECTIONS.
- EXISTING UTILITY CO. METER TO BE DEMOLISHED. PLUG HOLE IN CT CAN AS REQUIRED WITH LIKE MATERIAL.
- EXISTING CT CAN TO REMAIN AND BE UTILIZED AS A PULLBOX.
- INTERCEPT EXISTING (2) 4" PVC UNDERGROUND FEEDER COMING FROM EXISTING UTILITY CO. POLE MOUNTED TRANSFORMER BANK ON DEPOT STREET AND EXTEND TO NEW PANEL MDP. EXISTING 4#50MCM WIRING TO BE REMOVED. PROVIDE #600 MCM, 1#2" CONDUIT TO NEW MDP TO SERVE.
- NEW METER BASE PROVIDED BY UTILITY CO. AND INSTALLED BY ELECTRICAL CONTRACTOR. PROVIDE 1" G.R.S CONDUIT BETWEEN METER AND CT CAN.
- NEW 1200 AMP BUSSED CT CABINET MOUNTED AT 3'-6" ABOVE GRADE TO THE TOP OF THE PANEL.
- ROUTE (4) SETS #4#50MCM, 3" CONDUIT FROM NEW CT CABINET THROUGH WALL TO NEW PANELS.
- ROUTE (4) 3" CONDUITS FROM NEW CT CABINET TO UTILITY CO. POLE MOUNTED TRANSFORMER BANK ON DEPOT STREET. CONTRACTOR TO COORDINATE NEW TRANSFORMER BANK SIZE WITH UTILITY.
- 4#40, #4G, 2 1/2" CONDUIT.
- #40 AWG.
- PHOTOVOLTAIC ARRAY SHOWN IS DIAGRAMATIC. SEE DRAWING EP601 FOR PV ARRAY LAYOUT.
- EQUIPMENT GROUND (#6 BARE COPPER CONDUCTOR) SHALL BE RAN IN SUCH A WAY THAT IF ANY MODULE IS REMOVED IT SHALL NOT INTERRUPT THE GROUND PATH.
- ARRAY MODULES INTERCONNECTED BY 10 COPPER PV CABLES PER INCH PHOTOVOLTAIC MODULES AND RACKING SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH NEC SECTIONS 690.45 AND 250.56. ARRAY INTERCONNECTIONS AND HOME RUN CIRCUITS SHALL BE ROUTED EXPOSED UNDER ARRAY.
- PV MODULES SHALL BE RATED MONOCRYSTALLINE TYPE WITH NOMINAL RATING P<sub>mp</sub> = 410 WATT DC AT STC. V<sub>oc</sub> = 85.5V, V<sub>mp</sub> = 72.9V, I<sub>sc</sub> = 6.01A, AND I<sub>mp</sub> = 5.62A. BASIS OF DESIGN SUNPOWER EPIRES 677-19-410-COM. MODEL EFFICIENCY 19.1%. EACH MODULE SHALL BE PROVIDED WITH POWER OPTIMIZER. OPTIMIZER IS SOLAREGE #P485 WITH INPUT DC POWER 485W AND MAXIMUM OUTPUT CURRENT 15A.
- SOLAR CABLES PASS THROUGH BOX (SIZE AS REQUIRED), 600 VDC, CONSTRUCTED IN ACCORDANCE WITH UL 1741, NEMA 4X BASIS OF DESIGN EACH PROVIDE 2 AMBS OF TERMINATIONS AS INDICATED TO ACCOMMODATE EACH ARRAY.
- PHOTOVOLTAIC INVERTER #32 KW, 30, 208V. INVERTER SHALL BE GRID-INTERACTIVE DC-TO-AC WALL MOUNTED TYPE. PROVIDE WITH INTEGRATED DC AND AC DISCONNECTS. MAX DC VOLTAGE: 600 VOLT, MAX AMP OUTPUT: 120 A, WEIGHTED CEC EFFICIENCY: 97% AT 208V. EVERY POSITIVE CONDUCTOR SHALL BE FUSED. SURGE PROTECTION SHALL BE PROVIDED ON THE DC AND AC SIDE OF THE INVERTER. PROVIDE INVERTER WITH INTEGRATED ARC FAULT PROTECTION AND RAPID SHUTDOWN PER NEC. BASIS OF DESIGN SOLAREGE #SE43.2KUS.
- PHOTOVOLTAIC INVERTER 144 KW, 30, 208V. INVERTER SHALL BE GRID-INTERACTIVE DC-TO-AC WALL MOUNTED TYPE. PROVIDE WITH INTEGRATED DC AND AC DISCONNECTS. MAX DC VOLTAGE: 600 VOLT, MAX AMP OUTPUT: 40 A, WEIGHTED CEC EFFICIENCY: 97.5% AT 208V. EVERY POSITIVE CONDUCTOR SHALL BE FUSED. SURGE PROTECTION SHALL BE PROVIDED ON THE DC AND AC SIDE OF THE INVERTER. PROVIDE INVERTER WITH INTEGRATED ARC FAULT PROTECTION AND RAPID SHUTDOWN PER NEC. BASIS OF DESIGN SOLAREGE #SE14.4KUS.
- PROVIDE (2) 1-1/4" CONDUITS EACH FOR BOXES #1 AND #3, AND (1) 1-1/4" FOR BOX #2 FROM PASS THROUGH BOX TO PV INVERTER FOR PV CABLES. SEE EP102 FOR MORE INFORMATION.
- PROVIDE SERVICE ENTRANCE RATED, 600V/4000A, NEMA 3R FUSED DISCONNECT (FUSED AT 400A) DISCONNECT MOUNTED ADJACENT CT CAN ON EXTERIOR OF BUILDING FOR CONNECTION OF PV SYSTEM TO MAIN PANEL. CONNECTION TO PANEL MDP SHALL BE LINE SIDE OF MAIN BREAKER. PROVIDE PHENOLIC TAG ON DISCONNECT THAT READS "PHOTOVOLTAIC DISCONNECT MEANS".
- PROVIDE ADDITIONAL LUGS AS REQUIRED FOR CONNECTION TO PHOTOVOLTAIC SYSTEM. SEE NOTE 19 THIS SHEET FOR MORE INFORMATION.
- TWO (2) #10 COPPER PV CABLE (POS, NEG) AND GROUND #6 COPPER TO PASS-THROUGH BOX.
- 2 SETS 4#30, #10G, 2" CONDUIT.
- 4#10, #4G, 2" CONDUIT.
- 4#8, #6G, 1" CONDUIT.
- 4#40, #4G, 2 1/2" CONDUIT.
- #2 AWG.



### NEW PANEL MDP SCHEDULE

1200 AMP MCO	208V/120 VOLT S	3PH, 4W, 60 HZ	MIN. 22 KAC	SURFACE MOUNTED	SEPARATED
--------------	-----------------	----------------	-------------	-----------------	-----------