

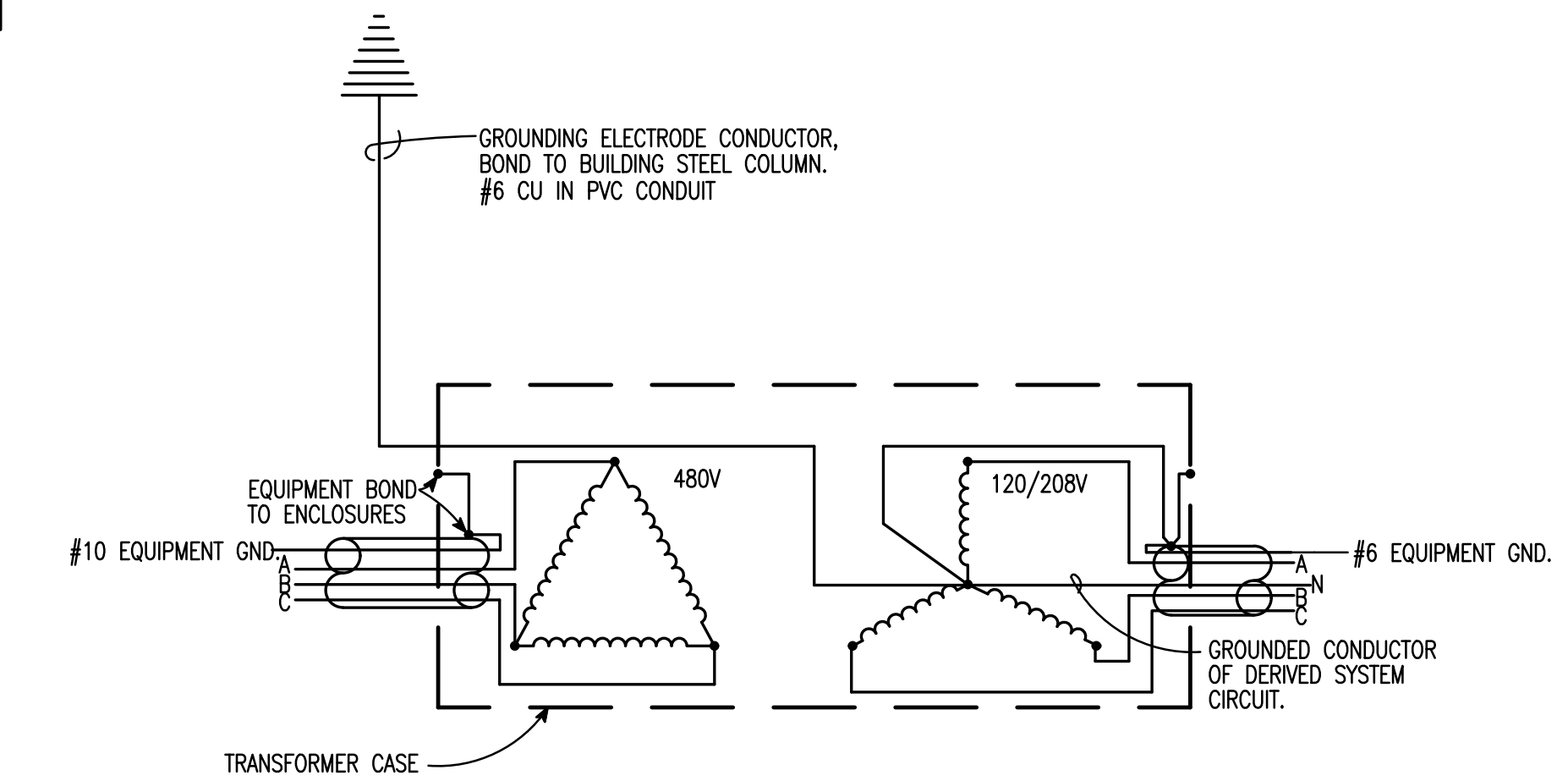
**KEYED NOTES:**

- ① (2) SETS OF 4#350kcmil Cu., 3°C.
- ② POWER COMPANY REVENUE METER AND C.T. CABINET.
- ③ MAIN DISCONNECT SWITCH, 600V, 3-POLE, 600A WITH (3) 600A CLASS J FUSES, IN NEMA 3R ENCLOSURE AND SERVICE ENTRANCE RATED.
- ④ (2) SETS OF 4#350kcmil Cu., 1#1 Cu. G., 3 1/2°C.
- ⑤ 4#1 Cu., 1#8 Cu. G., 1 1/2°C.
- ⑥ 3#4 Cu., 1#10 Cu. G., 1 1/4°C.
- ⑦ 45 kVA DRY TYPE TRANSFORMER. LOCATE TRANSFORMER IN ELECTRICAL ROOM. VERIFY APPROVED LOCATION WITH OWNER AND AUTHORITY HAVING JURISDICTION.
- ⑧ 4#3/0 Cu., 1#6 Cu. G., 2°C.

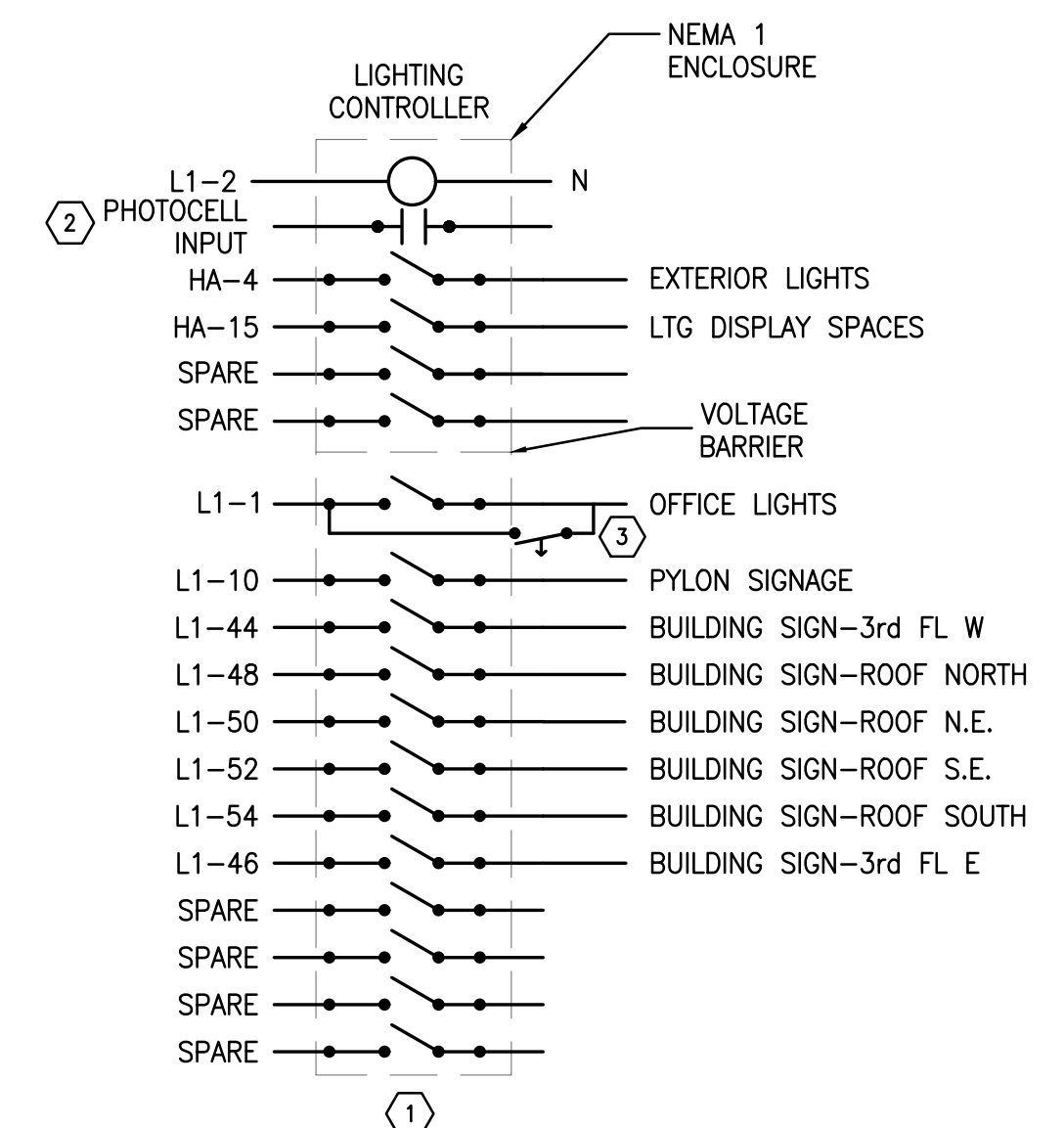
**SINGLE LINE DIAGRAM**  
SCALE: NONE

ELECTRICAL CONTRACTOR SHALL CONTACT THE LOCAL POWER COMPANY TO DETERMINE THE AIC RATING REQUIREMENTS FOR ALL ELECTRICAL PANELS AND EQUIPMENT. ELECTRICAL PANEL AIC RATING'S SHALL BE SIZED PER LOCAL POWER COMPANY'S AIC RATING AT SECONDARY SIDE OF POWER COMPANY TRANSFORMER.

POWER COMPANY: GEORGIA POWER CO.  
CONTACT: LMA MORALES (404) 276-1376  
AVAILABLE FAULT CURRENT: PER POWER CO.



**GROUNDING FOR 45KVA, 480V DELTA-208/120V WYE, TRANSFORMER**  
SCALE: NONE



**KEYED NOTES:**

- ① 16 POLE PROGRAMMABLE LIGHTING CONTROL PANEL, BASIS OF DESIGN DOUGLAS MODEL WPAK16-3351-S. SET CONTROLS PER OWNER'S REPRESENTATIVE'S INSTRUCTIONS.
- ② FIELD LOCATE PHOTOCCELL ON ROOF FACING NORTHEAST FOR BEST CONTROL.
- ③ PROVIDE A MAXIMUM OF 2 HOUR "AFTER HOURS" OVERRIDE SWITCH FOR OFFICE. COORDINATE FINAL LOCATION OF SWITCH w/ OWNER PRIOR TO ROUGH-IN.

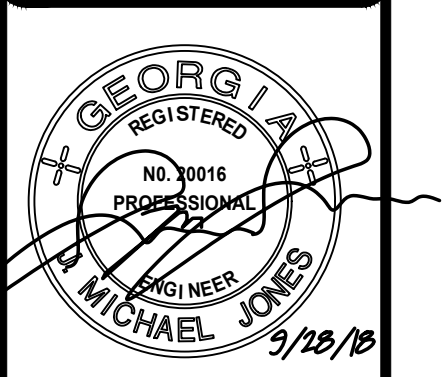
**EXTERIOR LIGHTING CONTROL WIRING DIAGRAM**  
SCALE: NONE

**MARSHALL & BOLLWERK ENGINEERING, INC.**  
8881 Highway 92, Suite 400  
Woodstock, Ga. 30189  
p: (678) 795-0333, f: (678) 325-4559  
e: mbe@mbeinc.net

RELEASED FOR CONSTRUCTION

REVISIONS	BY
10/01/18	

PRINTED
PERMIT
10/01/18



1150 LAKE HEARN DR - SUITE 150  
ATLANTA, GA 30342 (404) 303-7008

PROPOSED NEW BUILDING:  
**BROWARD NORTHSIDE CLIMATE CONTROLLED STORAGE**  
924 NORTHSIDE DRIVE NW  
ATLANTA, GA 30318

Colin Lichtenstein and Associates

DRAWN
EFJ
CHECKED
JMJ
DATE
09/2018
SCALE
AS NOTED
JOB NO.
0000
SHEET

E-03

PANEL "HM"		VOLTAGE: 480/277 VAC		MOUNTING: SURFACE				
MAINS: 200 AMP		PHASE: 3		ENCLOSURE: NEMA 3R				
MLO/MCB: MLO		WIRE: 4		SURFACE				
BRKR	TRIP POLES	DESCRIPTION	LOAD(VA)	PHASE	LOAD(VA)	DESCRIPTION	TRIP POLES	BRKR
1			5,125	A	5,125			2
3	20/3	AIR HANDLING UNIT - "AH1"	5,125	B	5,125	AIR HANDLING UNIT - "AH2"	20/3	4
5			5,125	C	5,125			6
7			5,125	A	5,125			8
9	20/3	AIR HANDLING UNIT - "AH3"	5,125	B	5,125	AIR HANDLING UNIT - "AH4"	20/3	10
11			5,125	C	5,125			12
13			5,125	A	5,125			14
15	20/3	AIR HANDLING UNIT - "AH5"	5,125	B	5,125	AIR HANDLING UNIT - "AH6"	20/3	16
17			5,125	C	5,125			18
19			5,125	A	5,125			20
21	20/3	AIR HANDLING UNIT - "AH7"	5,125	B	5,125	AIR HANDLING UNIT - "AH8"	20/3	22
23			5,125	C	5,125			24
25			5,125	A	5,125			26
27	20/3	AIR HANDLING UNIT - "AH9"	5,125	B	5,125	AIR HANDLING UNIT - "AH10"	20/3	28
29			5,125	C	5,125			30
31				A				32
33	3P	SPACE		B		SPACE	3P	34
35				C				36
37				A				38
39	3P	SPACE		B		SPACE	3P	40
41				C				42
TOTAL PHASE A:			51,245	TOTAL CONNECTED:			153,735	
TOTAL PHASE B:			51,245	TOTAL DEMAND:			86,294	
TOTAL PHASE C:			51,245					

AIC: 14,000 AMPS (MIN)  
NOTES: PROVIDE EQUIPMENT GROUND BUS.

PANEL "HA"		VOLTAGE: 480/277 VAC		MOUNTING: SURFACE				
MAINS: 100 AMP		PHASE: 3		ENCLOSURE: NEMA 3R				
MLO/MCB: MLO		WIRE: 4		SURFACE				
BRKR	TRIP POLES	DESCRIPTION	LOAD(VA)	PHASE	LOAD(VA)	DESCRIPTION	TRIP POLES	BRKR
1			1,197	A	1,197			2
3	15/3	HEAT PUMP 1 - "HP1"	1,197	B	1,197	HEAT PUMP 2 - "HP2"	15/3	4
5			1,197	C	1,197			6
7			1,839	A	2,327			8
9	15/3	HEAT PUMP 3 - "HP3"	1,839	B	2,327	HEAT PUMP 4 - "HP4"	15/3	10
11			1,839	C	2,327			12
13			2,327	A		SPACE	1P	14
15	15/3	HEAT PUMP 5 - "HP5"	2,327	B		SPACE	1P	16
17			2,327	C		SPACE	1P	18
TOTAL PHASE A:			8,886	TOTAL CONNECTED:			26,658	
TOTAL PHASE B:			8,886	TOTAL DEMAND:			21,327	
TOTAL PHASE C:			8,886					

AIC: 14,000 AMPS (MIN)  
NOTES: PROVIDE WITH SOLID EQUIPMENT GROUND BUS.

PANEL "L1" (2 SECTION PANEL w/ MCB PROTECTED FEED-THRU LUGS.)		VOLTAGE: 208/120 VAC		MOUNTING: SURFACE				
MAINS: 125 AMPS		PHASE: 3		ENCLOSURE: NEMA 3R				
MLO/MCB: 125 A MCB		WIRE: 4		SURFACE				
BRKR	TRIP POLES	DESCRIPTION	LOAD(VA)	PHASE	LOAD(VA)	DESCRIPTION	TRIP POLES	BRKR
1	20/1	L1G - B01,B02,B06,B07	540	A	500	LIGHTING CONTROLS	20/1	2
3	20/1	REC - OFFICE	540	B	0	SPARE	20/1	4
5	20/1	REC - WINDOW	360	C	0	SPARE	20/1	6
7	20/1	REC - OFFICE	720	A	0	SPARE	20/1	8
9	20/1	REC - UTILITY RM	540	B	1,000	PYLON SIGN	20/1	10
11	20/1	REC - ROOF	720	C	2,400	INST WATER HTR - "IWH1"	20/1	12
13	20/1	REC - OFFICE	900	A	0	SPARE	20/1	14
15	20/1	REC - ELECT RM	180	B	400	ELEV. #2 LIGHTS	20/1	16
17	20/1	ELEV. #1 LIGHTS	400	C	360	REC - ELEV. PITS	20/1	18
19	20/1	SPARE	0	A	1,440	SUMP PUMP - "SP2"	20/1	20
21	20/1	SUMP PUMP - "SP1"	1,440	B	200	LIGHTS - ELEV. PITS	20/1	22
23	20/1	SPARE	0	C	252	ELEV. M/C RM. #2 LIGHT	20/1	24
25	20/1	ELEV M/C RM #1 LIGHT	252	A	500	TELEPHONE BACK BD	20/1	26
27	20/1	REC AT "AHS" LOWER LVL	720	B	500	TELEPHONE BACK BD	20/1	28
29	20/1	REC AT "AHS" 1st FL	720	C	500	FIRE ALARM PANEL	20/1	30
31	20/1	REC AT "AHS" 2nd FL	720	A	500	DRINKING - FOUNTAIN	20/1	32
33	20/1	REC AT "AHS" 3rd FL	1,080	B	900	RECEPT. AT HEAT PUMPS	20/1	34
35		DUCTLESS SPLIT SYSTEM - "DS1/C1"	1,872	C	1,000	DOOR OPERATOR	20/1	36
37	25/2	DUCTLESS SPLIT SYSTEM - "DS1/C1"	1,872	A	1,000	DOOR OPERATOR	20/1	38
39		DUCTLESS SPLIT SYSTEM - "DS2/C2"	1,872	B	1,500		20/1	40
41	25/2	DUCTLESS SPLIT SYSTEM - "DS2/C2"	1,872	C	1,500	WATER HEATER - "EWH"	20/2	42
43	1P	SPACE		A	1,000	BLDG SIGN - 3rd FL WEST	20/1	44
45	1P	SPACE		B	1,000	BLDG SIGN - 3rd FL EAST	20/1	46
47	1P	SPACE		C	1,000	BLDG SIGN - ROOF NORTH	20/1	48
49	1P	SPACE		A	1,000	BLDG SIGN - ROOF N.E.	20/1	50
51	1P	SPACE		B	1,000	BLDG SIGN - ROOF S.E.	20/1	52
53	1P	SPACE		C	1,000	BLDG SIGN - ROOF SOUTH	20/1	54
55	1P	SPACE		A		SPACE	1P	56
57	1P	SPACE		B		SPACE	1P	58
59	1P	SPACE		C		SPACE	1P	60
TOTAL PHASE A:			10,944	TOTAL CONNECTED:			37,772	
TOTAL PHASE B:			12,872	TOTAL DEMAND:			30,218	
TOTAL PHASE C:			13,956					

AIC: 10,000 AMPS  
NOTES: PROVIDE WITH SOLID EQUIPMENT GROUND BUS.  
# ROUTE THRU LIGHTING CONTROLS.  
## PROVIDE GFI TYPE BREAKER.

SYM	DESCRIPTION	CIRCUIT	FEEDER	VOLTS/#	DISCONNECT	STARTER	HP/VA	MCA
AH1	AIR HANDLER UNIT	HM-1,3,5	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH2	AIR HANDLER UNIT	HM-2,4,6	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH3	AIR HANDLER UNIT	HM-7,9,11	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH4	AIR HANDLER UNIT	HM-8,10,12	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH5	AIR HANDLER UNIT	HM-13,15,17	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH6	AIR HANDLER UNIT	HM-14,16,18	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH7	AIR HANDLER UNIT	HM-19,21,23	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH8	AIR HANDLER UNIT	HM-20,22,24	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH9	AIR HANDLER UNIT	HM-25,27,29	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
AH10	AIR HANDLER UNIT	HM-26,28,30	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P NON-FUSED DISCONNECT	FWE	-	19.25 AMPS
SP1	SUMP PUMP	L1-21	2 #12, 1 #12G, 3/4"	120V/1#	CORD & PLUG	-	1.0 HP	12.0 AMPS
SP2	SUMP PUMP	L1-20	2 #10, 1 #10G, 3/4"	120V/1#	CORD & PLUG	-	1.0 HP	12.0 AMPS
IWH1	INSTANTANEOUS WATER HEATER	L1-12	2 #10, 1 #10G, 3/4"	120V/1#	BREAKER IN PANEL w/ LOCK-OUT DEVICE	-	2,400 VA	20.0 AMPS
EWH	ELECTRIC WATER HEATER	L1-40,42	2 #12, 1 #12G, 3/4"	208V/1#	30A NON-FUSED DISCONNECT SWITCH	-	3,000 VA	14.4 AMPS
CP	CONDENSATE PUMP	VARIOUS	2 #12, 1 #12G, 3/4"	120V/1#	CORD & PLUG	-	-	0.24 AMPS

PANEL "H"		VOLTAGE: 480/277 VAC		MOUNTING: SURFACE				
MAINS: 600 AMP		PHASE: 3		ENCLOSURE: NEMA 3R				
MLO/MCB: MLO		WIRE: 4		SURFACE				
BRKR	TRIP POLES	DESCRIPTION	LOAD(VA)	PHASE	LOAD(VA)	DESCRIPTION	TRIP POLES	BRKR
1	20/1	L1G - LOWER LEVEL	3,936	A	490	LIGHTS - STAIRS	20/1	2
3	20/1	LIGHTING - 1st FLOOR	3,630	B	1,230	LIGHTS - EXTERIOR	20/1	4
5	20/1	LIGHTING - 2nd FLOOR	3,630	C	0	SPARE	20/1	6
7	20/1	LIGHTING - 3rd FLOOR	3,630	A	0	SPARE	1P	8
9	20/1	SPARE	0	B		SPACE	1P	10
11	20/1	SPARE	0	C		SPACE	1P	12
13	20/1	SPARE	0	A		SPACE	1P	14
15	20/1	LIGHTING - DISPLAY AREAS	3,510	B		SPACE	1P	16
17	1P	SPACE		C		SPACE	1P	18
19			2,327	A	2,327			20
21	15/3	HEAT PUMP - "HP7"	2,327	B	2,327	HEAT PUMP - "HP6"	15/3	22
23			2,327	C	2,327			24
25			2,327	A	2,327			26
27	15/3	HEAT PUMP - "HP9"	2,327	B	2,327	HEAT PUMP - "HP8"	15/3	28
29			2,327	C	2,327			30
31			1,197	A	8,886	PANEL "HA"	100/3	34
33	15/3	HEAT PUMP - "HP10"	1,197	B	8,886			36
35			1,197	C	8,886			38
37	20/1	WALL HEATER 1 - "WH1"	2,936	A	51,245	PANEL "HM"	200/3	40
39	20/1	WALL HEATER 2 - "WH2"	2,936	B	51,245			42
41	20/1	WALL HEATER 3 - "WH3"	2,410	C	51,245			44
43				A	15,000	PANEL "L1" - THRU TRANSFORMER "X1"	70/3	46
45				B	15,000			48
47				C	15,000			50
49			18,005	A	18,005			52
51	150/3	ELEVATOR #1	18,005	B	18,005	ELEVATOR #2	150/3	54
53			18,005	C	18,005			56
55	1P	SPACE		A		SPACE	1P	58
57	1P	SPACE		B		SPACE	1P	60
59	1P	SPACE		C		SPACE	1P	60
TOTAL PHASE A:			132,039	TOTAL CONNECTED:			392,582	
TOTAL PHASE B:			132,039	TOTAL DEMAND:			301,651	
TOTAL PHASE C:			127,685					

AIC: VERIFY WITH UTILITY  
NOTES: PROVIDE WITH EQUIPMENT GROUND BUS.  
# ROUTE THRU LIGHTING CONTROLS.

#### CONNECTED LOAD CALCULATIONS

BASED ON NEC 220 PART III

LIGHTING LOADS -  
26 kVA x 100% = 26.41 kVA

RECEPTACLE LOADS -  
Total kVA 17 kVA  
1st 10kVA 10 kVA x 100% = 10.00 kVA  
> 10kVA 7 kVA x 50% = 3.42 kVA

HVAC LOADS - (Heat Pumps & AHUs)  
HP's - 74 kVA x 100% = 73.94 kVA  
Heating - 1st 8 kVA x 100% = 8.00 kVA  
Heating - 146 kVA x 40% = 58.20 kVA

MOTOR LOADS -  
All 108 kVA x 100% = 108.08 kVA  
Largest 54 kVA x 25% = 13.51 kVA

TOTAL 301.65 kVA

DEMAND ON 480 VOLT SYSTEM = 362.83 AMPS

SYM	DESCRIPTION	CIRCUIT	FEEDER	VOLTS/#	DISCONNECT	STARTER	HP/VA	MCA
HP1	HEAT PUMP	HA-1,3,5	3 #12, 1 #12G, 3/4"	480V/3#	CIRCUIT BREAKER IN PANEL	FWE	-	5.4 AMPS
HP2	HEAT PUMP	HA-2,4,6	3 #12, 1 #12G, 3/4"	480V/3#	CIRCUIT BREAKER IN PANEL	FWE	-	5.4 AMPS
HP3	HEAT PUMP	HA-7,9,11	3 #12, 1 #12G, 3/4"	480V/3#	CIRCUIT BREAKER IN PANEL	FWE	-	8.3 AMPS
HP4	HEAT PUMP	HA-8,10,12	3 #12, 1 #12G, 3/4"	480V/3#	30A/600V/3P/3R FUSED @ 15A	FWE		