ELECTRICAL NOTES

1. WIRING SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), AND / OR APPLICABLE LOCAL, STATE, AND UTILITY COMPANY RULES, LAWS, AND ORDINANCES.
2. SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR INSTALLATION OF ELECTRICAL WORK, VERIFY ALL OUTLET LOCATIONS ON JOB PRIOR TO ROUGH-IN. COORDINATE ALL OUTLET BOX LOCATIONS WITH MASONRY, IF ANY, TO MINIMIZE CUTTING AND PATCHING OF BOTH BRICK AND BLOCK.
3. THE ELECTRICAL CONTRACTOR SHALL COOPERATE WITH OTHER CONTRACTORS, INSTALL EQUIPMENT IN PROPER SEQUENCE AS NOT TO INTERFERE WITH THE PROGRESS OF OTHER CONTRACTORS, AND GIVE GENERAL CONTRACTOR ALL NECESSARY INFORMATION FOR MAKING PROPER PROVISION FOR INSTALLATION OF HIS EQUIPMENT.
4. ALL MATERIALS SHALL BE NEW, UNLESS OTHERWISE NOTED ON DRAWINGS, CARRY UNDERWIRITER'S LABEL, OR BE "LISTED" BY THAT GROUP AND BE FULLY EQUAL TO MAKES SPECIFIED.
5. ON RATED WALLS AND SEPARATION WALLS, ALL ELECTRICAL OUTLETS AND SWITCH BOXES ARE REQUIRED TO MEET I.B.C. 711 THRU 714.
6. INDIVIDUAL HOME-RUNS ARE SHOWN FOR CLARITY ONLY. E.C. CAN COMBINE THEN TOGETHER PER LATEST "NEC". ALL WIRE IS No. 12 THHN COPPER UNLESS OTHER WISE NOTED. ANY 120 VOLT OR 240 VOLT HOME-RUN WITH A DISTANCE LONGER THAN 80' FROM THE PANEL TO THE FIRST DEVICE SHALL BE UPSIZED TO ALLOW FOR VOLTAGE DROP. SEE DRAWINGS AND SCHEDULES.
7. USE ONLY INSULATED COPPER CONDUCTORS IN CONDUIT WITH A MINIMUM SIZE TO BE 1/2" TRADE SIZE, OR "MC" CABLE IF APPROVED BY LOCAL CODE. USE FLEXIBLE CONDUIT FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND SIMILAR EQUIPMENT. ALL WIRING SHALL BE CONCEALED, FLUSH OUTLETS, EXCEPT AS NOTED ON DRAWINGS. WIRE INSULATION SHALL BE COLOR COATED AS FOLLOWS OR PER LOCAL ORDNANCES: 120/240V, 1Ø - A-BLACK, B-RED, NEUTRAL-WHITE, G-GREEN.
8. BRANCH CIRCUIT PANELBOARDS SHALL BE AS NOTED ON DRAWINGS WITH THERMAL MAGNETIC BREAKERS. BREAKERS SHALL HAVE INDIVIDUAL PLASTIC CASES, SIZED AS SCHEDULED. TWO AND THREE POLE BREAKERS SHALL BE COMMON TRIP (SINGLE POLE UNITS WITH COMMON TRIP ARE NOT ACCEPTED). ALL BREAKERS ARE TO BE BOLT-IN. FURNISH AND INSTALL A NEATLY TYPED DIRECTORY CARD, LOCATED ON THE INSIDE OF THE HINGED DOOR. REASSIGN CIRCUITS TO PROPERLY BALANCE THE LOADS ON THE PHASE IF THE FINAL CONNECTIONS AND TEST SHOW IT TO BE ADVISABLE..
9. ALL PENETRATIONS IN THE RATED WALLS, FLOOR / CEILING ASSEMBLY, AND THE ROOF / CEILING ASSEMBLY SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAME AND HOT GASES. THE SEALER SHALL HAVE A T-RATING AND F-RATING OF NOT LESS THAN THAT OF THE WALL, FLOOR, OR CEILING BEING PENETRATED. THE ABOVE REQUIREMENTS SHALL MEET I.B.C. 711 THRU 714. A MAXIMUM OF TWO OUTLET BOXES PER STUD SPACE IN THE RATED WALLS. THE MAXIMUM SIZE FOR STEEL OUTLET BOXES ON 100 SQUARE INCHES FOR ANY 100 SQUARE FEET OF WALL AREA. BOXES ON OPPOSITE SIDES OF FIRE WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, I.B.C. 711 & 714.
10. ALL CONDUIT AND OUTLET BOXES (ELECTRICAL, TELEPHONE, COMPUTER, DATA, ECT,) LOCATED IN THE RATED WALLS, FLOOR, CEILING, OR ROOF SHALL BE CONSTRUCTED OF A NON-COMBUSTABLE MATERIAL TO MEET I.B.C.
11. ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN A NEAT WORKMANLIKE MANNER. UNSIGHTLY INSTALLATIONS SHALL BE REMOVED AND REWORKED AT NO ADDITIONAL EXPENSE TO THE OWNER.
12. WIRING OF MECHANICAL EQUIPMENT FURNISHED BY OTHERS: FURNISH AND INSTALL ALL POWER WIRING, AND ALL CONTROL WIRING AND INTERLOCK WIRING OF ALL UNITS, PUMPS, FANS, WATER HEATERS, ETC. CONNECT PER MANUFACTURERS WIRING DIAGRAMS. FURNISH AND INSTALL ALL NECESSARY DISCONNECT DEVICES AS REQUIRED. CONTRACTOR TO VERIFY THE ACTUAL WIRING SIZING AMPS FOR ALL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE, ELECTRICAL INSTALLATION SHALL BE BASED ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VERY SOMEWHAT FROM THE WIRE AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS. PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT SHALL BE FURNISHED WITHOUT ANY ADDITIONAL COST TO THE CONTRACT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL CHANGES TO BE MADE IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE IMPACT ON FEEDERS, PANELS, FUSE AND BREAKER SIZES CAN BE CHECKED PRIOR TO INSTALLATION.
13. WIRING OF THERMOSTATS AND TEMPERATURE CONTROLS: FURNISH AND INSTALL ALL POWER WIRING, AND ALL CONTROL AND INTERLOCK WIRING OF ALL THERMOSTATS AND TEMPERATURE CONTROL DEVICES INCLUDING NIGHTSTATS, TIME SWITCHES, OVERRIDE TIMERS, ETC. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAMS.
14. THE DRAWINGS SHOWING THE LAYOUT OF THE WORK INDICATE THE APPROXIMATE LOCATIONS OF OUTLETS, APPARATUS, AND EQUIPMENT. THE DRAWINGS ARE SCHEMATIC ONLY, AND ARE NOT INTENDED TO SHOW EXACT ROUTING OF CONDUIT, ETC. THE FINAL DETERMINATION AS TO THE ROUTING SHALL BE GOVERNED BY THE STRUCTURAL CONDITIONS AND OTHER OBSTRUCTIONS. THEY SHALL NOT BE CONSTRUED TO MEAN THE DESIGN OF THE SYSTEM MAY BE CHANGED. IT MERELY REFERS TO THE EXACT RUN OF A RACEWAY BETWEEN GIVEN POINTS. THE CONTRACTOR SHALL CONSULT ALL CONTRACT DRAWINGS WHICH MAY AFFECT THE LOCATION OF ANY OUTLET, APPARATUS, OR EQUIPMENT TO AVOID POSSIBLE INTERFERENCE AND PERMIT FULL COORDINATION OF ALL WORK. THE RIGHT TO MAKE ANY REASONABLE CHANGE IN THE LOCATION OF OUTLETS, APPARATUS, AND EQUIPMENT UP TO THE TIME OF ROUGH-IN IS RESERVED BY THE ARCHITECT WITHOUT INVOLVING ANY ADDITIONAL EXPENSE TO THE OWNER.
15. THE TELEPHONE / DATA SYSTEM SHALL CONSIST OF A CONDUIT SYSTEM ONLY, 1" MINIMUM, IN WALLS FROM THE OUTLET BOX STUBBED INTO THE CEILING CAVITY. ALL COVER PLATES, CONNECTORS, TELEPHONE / DATA WIRES, AND FINAL TERMINATIONS ARE BY OTHERS. COORDINATE ACTUAL AMOUNT OF OUTLET AND LOCATIONS WITH THE OWNER PRIOR TO ROUGH-IN.
16. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR PROVIDE THE UTILITY CO. WITH THE ELECTRICAL LOADS AND FILL OUT ALL APPROPRIATE PAPERWORK AND FORMS.

ATTENTION LOCAL INSPECTIONS DEPARTMENT - THE FOLLOWING ITEMS HAVE NOT BEING COMPLETED BY NATIONAL MODULAR.

ELECTRICAL

- MAIN UNDERGROUND ELECTRICAL SERVICE LINE, METER CAN & METER.
- AIR HANDLER "AH-1".
- CONDENSING UNIT "CU-1"
- REMOTE ICE MACHINE CONDENSERS.
- EXTERIOR CANOPY LIGHTING
- SITE AREA POLE LIGHTS

ELECTRICAL DEVICE SCHEDULE

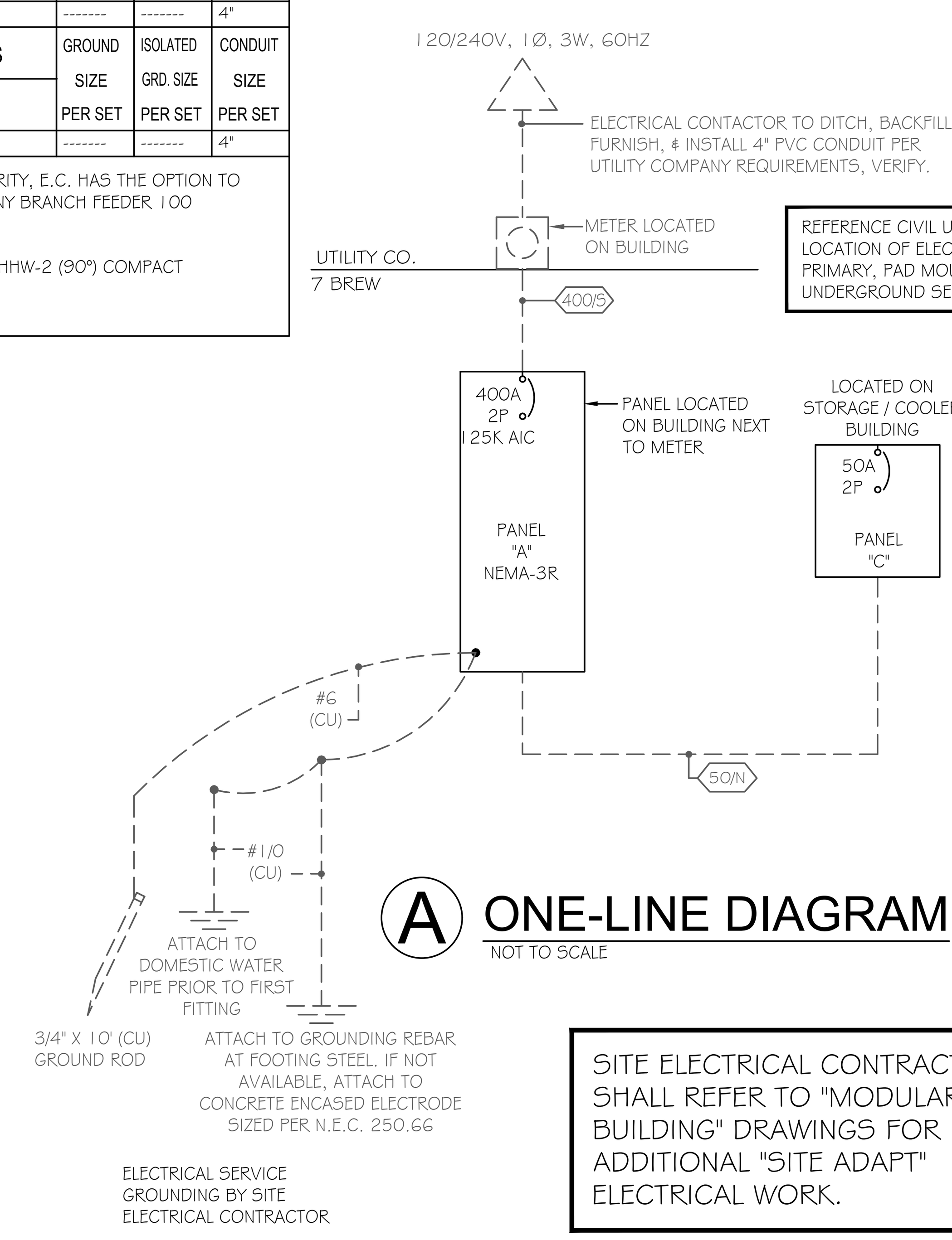
SYM	DESCRIPTION	MFGR. & CAT No.		RATING	MOUNTING	REMARKS
$	SINGLE POLE SWITCH	PASS & SEYMOUR	PS20AC1-I	20A 125V	48" A.F.F. TO TOP	
$oc	SWITCH W/ OCCUPANCY SENSOR	WATTSTOPPER	WS-250-W	- 125V	48" A.F.F. TO TOP	
	DUPLEX RECEPT.	PASS & SEYMOUR	TR5362-I	20A 125V	16" A.F.F. TO BOTTOM	
	DUPLEX RECEPT.	PASS & SEYMOUR	TR5362-I	20A 125V	AS NOTED	
	G.F.I. DUPLEX RECEPT.	PASS & SEYMOUR	2094-TRI	20A 125V	AS NOTED	
	G.F.I. DUPLEX RECEPT.	PASS & SEYMOUR	2094-TRI	20A 125V	AS NOTED	
	G.F.I. DUPLEX RECEPT.	PASS & SEYMOUR	2094-TRI	20A 125V	16" A.F.F. TO BOTTOM	W/ TAYMAC # ML500G COVER PLATE
	DOUBLE DUPLEX RECEPT.	PASS & SEYMOUR	(2) TR5362-I	20A 125V	16" A.F.F. TO BOTTOM	
	EQUIPMENT RECEPTACLE	PASS & SEYMOUR	3864	20A 250V	AS NOTED	
	EQUIPMENT RECEPTACLE	PASS & SEYMOUR	3894	50A 250V	AS NOTED	
J	NEMA-3R JUNCTION BOX	STEELCITY	4"x4" BOX		AS REQUIRED	
J	NEMA-1 JUNCTION BOX	STEELCITY	4"x4" BOX		AS REQUIRED	
▼	TELEPHNOE OUTLET	STEELCITY	2"x4" BOX		16" A.F.F. TO BOTTOM	WITH 1" C. TO ABOVE CLG.
T	THERMOSTAT	FURN. BY M.C.; INST. & CONN. BY E.C.			48" A.F.F. TO TOP	
	MOTOR	FURN. & INST. BY M.C.; CONN. BY E.C.			AS REQUIRED	
	PHOTOCELL	INTERMATIC	K4121C	1800W 125V	ON ROOF FACING NORTH	
TC	TIMECLOCK	INTERMATIC	T101	40A 125V	NEXT TO PANEL	
M	MANUAL STARTER	SQ-D	2510 FG-1	1/2 H.P. 125V	AS REQUIRED	
	DISCONNECT SWITCH	NEMA 1	2 POLE	AS SCHEDULED	AS REQUIRED	WITH 125% FLA FRN-R FUSES
	DISCONNECT SWITCH	NEMA 3R	2 POLE	AS SCHEDULED	AS REQUIRED	WITH 125% FLA FRN-R FUSES
C.T.	DENOTES COUNTER TOP MTG.	MINIMUM 1" ABOVE BLACK SPLASH			FIELD VERIFY	
W.P.	DENOTES WEATHER PROOF					
1,3,5	DENOTES CIRCUIT NUMBERS					
	BRANCH CIRCUIT	WITH NUMBER OF WIRES			UNDER FLOOR	
	BRANCH CIRCUIT	WITH NUMBER OF WIRES			ABOVE FLOOR	
	HOME RUN CONTINUED	WITH NUMBER OF WIRES			ABOVE FLOOR	
	HOME RUN	WITH NUMBER OF WIRES			ABOVE FLOOR	

NOTES:
1. APPROVED MANUFACTURERS OTHERS THAN SPECIFIED, PASS & SEYMOUR, G.E., LEVITON, SQUARE-D, CUTLER HAMMER, SIEMANS.
2. ALL 125V NON-LOCKING RECEPTACLES MOUNTED BELOW 5'-6" A.F.F. SHALL BE TAMPER RESISTANT TYPE PER N.E.C. 406-12.
3. REGARDLESS OF CONTROL REQUIREMENTS - ALL FEEDERS FROM SWITCH TO FIRST LIGHT FIXTURE SHALL INCLUDE LOW-VOLTAGE CONTROL WIRES.

FEEDER SCHEDULE

FEEDER IDENT. #	COPPER CONDUCTORS			GROUND SIZE PER SET	ISOLATED GRD. SIZE PER SET	CONDUIT SIZE PER SET
	SETS	QUANT. PER SET	SIZE			
20/1	1	2	#12 CU	#12 CU	-------	1/2"
20/2	1	2	#12 CU	#12 CU	-------	1/2"
30/2	1	2	#10 CU	#10 CU	-------	1/2"
50/2	1	2	#6 CU	#10 CU	-------	1 1/4"
400/S	1	3	#500 MCM CU	-------	-------	4"
FEEDER IDENT. #	ALUMINUM CONDUCTORS			GROUND SIZE PER SET	ISOLATED GRD. SIZE PER SET	CONDUIT SIZE PER SET
	SETS	QUANT. PER SET	SIZE			
400/S	1	3	#750 MCM AL	-------	-------	4"

1. IF APPROVED BY LOCAL CODE AUTHORITY, E.C. HAS THE OPTION TO USE ALUMINUM CONDUCTORS FOR ANY BRANCH FEEDER 100 AMPERES OR MORE.
2. ALUMINUM CONDUCTORS SHALL BE XHHW-2 (90°) COMPACT STRANDED CONDUCTORS.



REFERENCE CIVIL UTILITY DRAWINGS FOR EXACT LOCATION OF ELECTRICAL UNDERGROUND PRIMARY, PAD MOUNTED TRANSFORMER, AND UNDERGROUND SECONDARY TO BUILDING

A ONE-LINE DIAGRAM

NOT TO SCALE

SITE ELECTRICAL CONTRACTOR SHALL REFER TO "MODULAR BUILDING" DRAWINGS FOR ADDITIONAL "SITE ADAPT" ELECTRICAL WORK.

PANEL "A"

BREAKERS TO HAVE MIN. 10,000 AIC SERIES RATED

120/240V, 1Ø, 3W, SN

SURFACE MOUNTED NEMA-3R ENCLOSURE 400 AMP MAIN BREAKER RATED AT 400 AMPS

WIRE REQT'S	CKT No.	DESCRIPTION	KW	A	B	KW	DESCRIPTION	CKT No.	WIRE REQT'S
20/1	1	LIGHTS	0.5	20	20	0.35	CANOPY LIGHTS	2	20/1
20/1	3	MUFFIN TOP SIGNS	1.2	20	20	0.5	LED TAPE LIGHT	4	20/1
20/1	5	STORE SIGN	1.2	20	20	1.5	SIGN BOXES	6	20/1
20/1	7	MONUMENT SIGN	0.4	20	20	0.9	POLE LIGHTS	8	20/1 (D)
20/1	9	GENERAL RECEPTS.	0.4	20		6.1	EQUIP. EQ-3	10	50/2
20/1	11	AUDIO SECURITY	0.72	20	50			12	
20/1	13	EQUIP. EQ-6 ICE BIN	0.15	20		8.0	EQUIP. EQ-4	14	50/2
20/2	15	EQUIP. EQ-5 C.U.	3.19		50			16	
	17			30		3.19	EQUIP. EQ-5 C.U.	18	30/2
20/1	19	AUDIO RECEPTS.	0.6	20	30			20	
20/1	21	R.R. LTS & CRAWL SPACE	1.2	20	20	0.8	EQUIP. EQ-11	22	20/1
20/1 (A)	23	IRRIGATION CONTROLLER	0.5	20	20	1.2	RECEPT.	24	20/1
20/1	25	EQUIP. EQ-11	0.8	20	20	1.3	EQUIP. EQ-7	26	20/1
20/1	27	RECEPT.	1.2	20	20	0.4	RECEPTS.	28	20/1
20/1	29	EQUIP. EQ-7	1.38	20	20	0.4	RECEPTS.	30	20/1
20/1	31	EQUIP. EQ-8	1.38	20	20	0.8	SHOW WINDOW RECEPTS.	32	20/1
20/1	33	RECEPTS.	0.4	20	20	1.2	EQUIP. EQ-16	34	20/1
20/1	35	RECEPTS.	0.4	20	20	1.0	FRONT BAR RECEPTS.	36	20/1
20/1	37	EQUIP. EQ-14	1.2	20	20	1.0	FRONT BAR RECEPTS.	38	20/1
20/1	39	POS RECEPTS.	0.6	20	20	0.8	EQUIP. EQ-2	40	20/1
20/1	41	RECEPT.	1.2	20	20	0.6	"WH-1" (TANKLESS GAS)	42	20/1
30/2 (C)	43	EQUIP. EQ-10	2.4		20	0.8	EQUIP. EQ-11	44	20/1
	45			30	20	0.8	EQUIP. EQ-12	46	20/1
30/2 (C)	47	EQUIP. EQ-10 FUTURE	2.4			8.0	EQUIP. EQ-4	48	50/2
	49			30	50			50	
20/1	51	EQUIP. AC-1	0.6	20		7.0	PANEL "C" (STORAGE)	52	50/2 (B)
20/1	53	EQUIP. AC-2	0.6	20	50			54	
20/1	55	EQUIP AC-3	0.6	20	20	1.5	MUFFIN TOP & BLDG. RECEPTS.	56	20/1
40/2	57	RTU-1 (GAS HEAT)	5.57		--	--	SPACE	58	-
	59			40	--	--	SPACE	60	-
-	61	SPACE	--	--	--	--	SPACE	62	-
-	63	SPACE	--	--	--	--	SPACE	64	-
-	65	SPACE	--	--	--	--	SPACE	66	-
-	67	SPACE	--	--	--	--	SPACE	68	-
-	69	SPACE	--	--	--	--	SPACE	70	-
-	71	SPACE	--	--	--	--	SPACE	72	-
-	73	SPACE	--	--	--	--	SPACE	74	-
-	75	SPACE	--	--	--	--	SPACE	76	-
-	77	SPACE	--	--	--	--	SPACE	78	-
-	79	SPACE	--	--	--	--	SPACE	80	-
-	81	SPACE	--	--	--	--	SPACE	82	-
-	83	SPACE	--	--	--	--	SPACE	84	-

LOAD SUMMARY

LOAD	CONNECTED KW	FACTOR	DEMAND KW
LIGHTING	7.15	1.25	8.93
RECEPTACLES (1ST 10KVA)	10.0	1.00	10.0
RECEPTACLES (REMAINING)	1.52	0.50	0.76
LARGEST MOTOR	5.57	1.25	6.96
MOTORS	1.2	1.00	1.2
EQUIPMENT	42.39	0.65	27.55
MISC. ELECTRIC HEAT	0	1.00	0
PANEL "C'	7.0	1.00	7.0
TOTAL:	74.83		64.41
AMPS @ 120/240 VOLT, 1Ø, 3W, 60 Hz			260.0 AMPS

- ALL 120 VOLT CIRCUITS TO HAVE SEPARATE POWER NEUTRAL AND GROUND WIRES AS CALLED FOR IN FEEDER SCHEDULE.

(A) DIRECT WIRED IRRIGATION CONTROLLER BY SITE IRRIGATION CONTRACTOR. SITE E.C. TO CONNECT TO CIRCUIT AS REQUIRED.

(B) BREAKER FOR ON SITE NAT MOD COOLER CONNECTION

(C) FIELD VERIFY EXACT ELECTRICAL CONNECTION.IF RECEPTACLE IS NOT GFCI TYPE PROVIDE GFCI TYPE CIRCUIT BREAKER IN PANEL.

(D) SITE LIGHTING IS DESIGNED BY OTHERS. SITE ELECTRICAL CONTRACTOR TO FIELD VERIFY WITH CIVIL PLANS FOR EXACT QUANTITY AND CONNECT TO CIRCUIT AS NOTED.

PANEL "C"

BREAKERS TO HAVE MIN. 10,000 AIC SERIES RATED

120/240V, 1Ø, 3W, SN

RECESS MOUNTED NEMA-1 ENCLOSURE 50 AMP MAIN BREAKER RATED AT 50 AMPS

WIRE REQT'S	CKT No.	DESCRIPTION	KW	A	B	KW	DESCRIPTION	CKT No.	WIRE REQT'S
20/1	1	WALK-IN EVAPORATOR	0.4	20	20	0.7	STORAGE LTS. & RECEPT.	2	20/1
30/2	3	WALK-IN CONDENSER	3.6		--	--	SPACE	4	-
	5			30	--	--	SPACE	6	-
-	7	SPACE	--	--	--	--	SPACE	8	-

LOAD SUMMARY

LOAD	CONNECTED KW	FACTOR	DEMAND KW
LIGHTING	1.5	1.25	1.875
RECEPTACLES (1ST 10KVA)	0	1.00	0
RECEPTACLES (REMAINING)	0	0.50	0
LARGEST MOTOR	3.6	1.25	4.5
MOTORS	0.4	1.00	0.4
EQUIPMENT	0	0.65	0
MISC.	0	1.00	0
TOTAL:	5.5		6.775
AMPS @ 120/240 VOLT, 1Ø, 3W, 60 Hz			28.23 AMPS

- ALL 120 VOLT CIRCUITS TO HAVE SEPARATE POWER NEUTRAL AND GROUND WIRES AS CALLED FOR IN FEEDER SCHEDULE.

(A) SITE E.C. TO FURNISH AND INSTALL ELECTRICAL FEEDER FOR CONNECTION TO THE REMOTE COOLER, PANEL "C".

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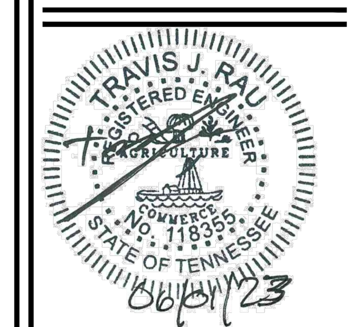


7 BREW DRIVE-THRU CLARKSVILLE, TN - RIVERSIDE

7B TENNESSEE LLC

959 NORTH RIVERSIDE DRIVE, CLARKSVILLE, TN 37040

REVISIONS

No.	Description	Date

sheet issue date: 06-01-2023

project no.: 23.05.01

sheet contents: Electrical Schedules

sheet no.: E1.0

EQUIPMENT CONNECTION SCHEDULE

No.	DESCRIPTION	QUANTITY	VOLTAGE			LOAD			DISCONNECT DEVICE AT UNIT								FUSE SIZE IN AMPS	CIRCUIT BREAKER & FEEDER SIZE AMPS	NOTES	
#			120 / 60 / 1	240 / 60 / 1	120/240/60/1	KW	FLA	MCA	NEMA-1	NEMA-3R	JCT BOX	20A / 1P	20A / 2P	30A / 2P	50A / 2P	60A / 2P				
EQ-1	WALK-IN COOLER - LIGHTS	1	●			1.0	4.2	5.25	●		J	TS					-	20/1	CONNECT AS REQUIRED	4
	WALK-IN COOLER - COMPRESSOR	1		●		3.6	17.3	21.6	●					SW			30	30/2	CONNECT AS REQUIRED	4
	WALK-IN COOLER - EVAPORATOR	1	●			0.4	3.25	4.0	●			M					-	20/1	CONNECT AS REQUIRED	4
EQ-2	BUNN WATER HEATER	1	●			1.85	15.4	19.25	●			R					-	20/1	CONNECT AS REQUIRED	
EQ-3	ESSPRESSO MACHINE	1		●		6.1	25.4	31.78	●		J						-	40/2	HARD WIRED	
EQ-4	ESSPRESSO MACHINE	2		●		8.0	33.3	41.67	●		J				R		-	50/2	HARD WIRED	3
EQ-5	ICE MAKER (REMOTE COMPRESSOR)	2		●		3.19	13.3	16.6	●					SW			-	20/2	NEMA 5-20 RECEPT.	3
EQ-6	ICE MAKER (UPRIGHT)	1	●			0.144	1.2	1.5	●			R					-	20/1	NEMA 5-20 RECEPT.	3
EQ-8	VITAMIX BLENDER	3	●			1.38	11.5	14.37	●			R					-	30/2	NEMA L6-30 RECEPT.	3
EQ-10A	SPACEMAN FREEZE MACHINE	2		●		2.4	10.0	12.5	●				R		R		-	20/2	NEMA 6-20 RECEPT.	3
EQ-10B	SPACEMAN FREEZE MACHINE	1		●		2.4	10.0	12.5	●				R		R			20/2	NEMA 6-20 RECEPT.	3
EQ-11	COFFEE GRINDER	3	●			0.8	6.66	10.0	●			R					-	20/1	NEMA 5-20 RECEPT.	
EQ-12	COFFEE GRINDER	1	●			0.8	6.66	10.0	●			R					-	20/1	NEMA 5-20 RECEPT.	
EQ-14	48" x 24" STANDING COOLER	1	●			1.2	10.0	12.5	●			R					-	20/1	NEMA 5-20 RECEPT.	
EQ-16	UNDERCOUNTER COOLER	1	●			1.2	10.0	12.5	●			R					-	20/1	NEMA 5-20 RECEPT.	3
RTU-1	AIR CONDITIONER (NATURAL GAS HEAT)	1		●		4.23	18.4	23.0	●							SW	35	40/2	VERIFY DISCONNECT MEANS	
WH-1	GAS TANKLESS WATER HEATER	1	●			0.2	1.66	2.0	●			R					-	20/1	CORD & PLUG INCLUDED	
AC-1, 2, 3	AIR CURTAIN WITHOUT ELECTRIC HEAT	-	●			0.6	5.1	6.25	●		J						-	20/1	VERIFY DISCONNECT MEANS	

EQUIPMENT NOTES

1. ALL KITCHEN EQUIPMENT ELECTRICAL REQUIREMENTS AND CONNECTIONS ARE DESIGNED ACCORDING TO INFORMATION PROVIDED AT TIME OF DESIGN. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ALL ELECT. LOADS, LOCATIONS, CONNECTION, AND PLUG CONFIGURATION REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN. IN THE EVENT THAT THE EQUIPMENT PROVIDED DIFFER FROM THE FINAL DRAWINGS IT IS THE RESPONSIBILITY OF THE EQUIP. SUPPLIER / INSTALLER TO PROVIDE THE ELECTRICAL CONTRACTOR WITH THESE CHANGES.
2. ALL SWITCHES, TIMECLOCKS, RELAYS, TRANSFORMERS, ETC, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR, UNLESS SUPPLIED WITH THE EQUIPMENT. FIELD VERIFY WITH EQUIPMENT SUPPLIER FOR ADDITIONAL INFORMATION.
3. PER N.E.C. 210.8 (B) (2) ALL 120V/1Ø, 208V/1Ø RECEPTACLES RATED 50 AMPS OR LESS, AND 208V,3Ø RECEPTACLES RATED 100 AMPS OR LESS LOCATED IN THE KITCHEN AREAS SHALL BE PROTECTED BY A GFCI TYPE RECEPTACLE OR GFCI TYPE CIRCUIT BREAKER IN THE PANEL, UNLESS OTHERWISE NOTED.
4. WALK-IN COOLER IS OWNER PROVIDED. SITE ELECTRICAL CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONNECTION REQUIREMENTS. PROVIDE ALL DISCONNECT SWITCHES NOT PROVIDED WITH EQUIPMENT AND CONNECT TO PANEL "A" AS REQUIRED.

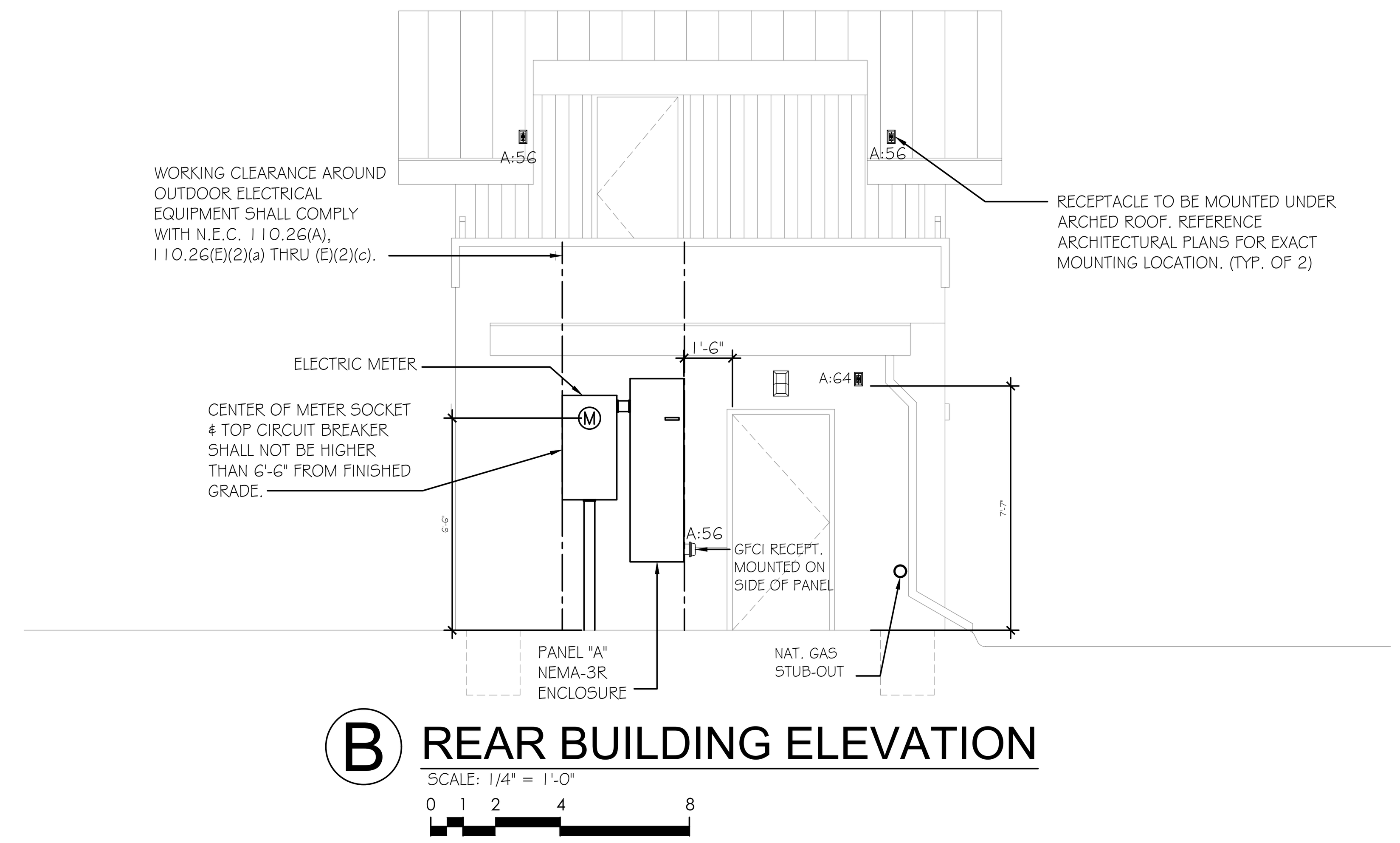
SYMBOL KEY
TS - TOGGLE SWITCH
SW - FUSIBLE DISCONNECT SWITCH
R - STANDARD RECEPTACLE
G - GFCI RECEPTACLE
M - MOTOR STARTER SWITCH
J - JUNCTION BOX, VERIFY DISCONNECT MEANS
NF - NON-FUSED DISCONNECT SWITCH

SPECIAL OUTLET SCHEDULE

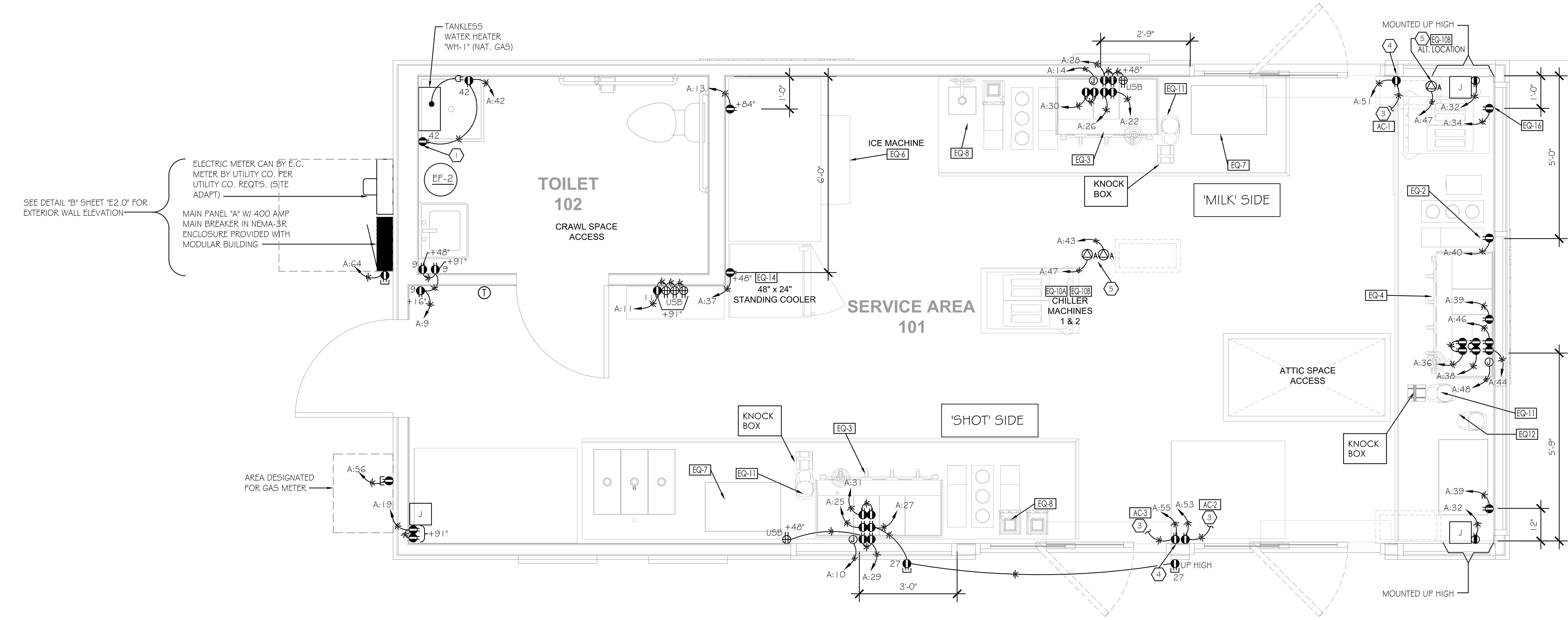
SYMBOL	DESCRIPTION
A	L6-50R RECEPTACLE FOR POWER CONNECTION TO OWNER FURNISHED EQUIPMENT. FIELD VERIFY & CONTRACTOR TO COORDINATE EXACT PLUG AND CONNECTION REQUIREMENTS WITH EQUIPMENT PROVIDED PRIOR TO ROUGH-IN.

KEY NOTES:

1. RECEPTACLE MOUNTED ON WALL FOR "EF-2",VERTICAL INCLINE EXHAUST FAN, FOR CRAWL SPACE. FIELD VERIFY EXACT LOCATION. EF TO BE CONTROLLED BY THERMOSTAT & HUMIDISTAT LOCATED IN CRAWL SPACE - REFER TO PLANS. EC TO PROVIDE ALL CONDUIT, JUNCTION BOX, WIRING & RELAYS AS REQUIRED.
2. GFI RECEPTACLE WITH IN-USE WEATHERPROOF COVER MOUNTED IN CRAWL SPACE ON UNDERSIDE OF FLOOR, FOR FUTURE CRAWL SPACE HEATER OR HEAT TRACE. CONNECT TO DEDICATED CIRCUIT AS NOTED.
3. AIR CURTAIN TO BE MOUNTED ABOVE SERVICE WINDOW / DOOR. AIR CURTAIN. DISCONNECTING MEANS TO BE ADJACENT TO AIR CURTAIN AT SAME HEIGHT.
4. GFCI RECEPTACLE MOUNTED ABOVE DOOR FOR CONNECTION TO NON-HEATED AIR CURTAIN. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
5. PROVIDE RECEPTACLES IN CEILING FOR CHILLER MACHINES. FIELD VERIFY EXACT LOCATION & CONNECTION REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN.



B REAR BUILDING ELEVATION
SCALE: 1/4" = 1'-0"



A ELECTRICAL FLOOR PLAN - POWER
SCALE: 1/2" = 1'-0"

EVERYTHING ON THIS SHEET HAS BEEN CONSTRUCTED/INSTALLED IN A CONTROLLED ENVIRONMENT & WILL BE SHIPPED TO THE JOB SITE FOR 'SITE ADAPT' CONSTRUCTION. REFER TO 'SITE ADAPT' DRAWINGS FOR ADDITIONAL INFORMATION.

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06/01/23

7 BREW DRIVE-THRU CLARKSVILLE, TN - RIVERSIDE
7B TENNESSEE LLC
959 NORTH RIVERSIDE DRIVE, CLARKSVILLE, TN 37040

REVISIONS

No.	Description	Date

sheet issue date: 06-01-2023
project no.: 23.05.01
sheet contents: Electrical Floor Plan - Power (Modular Building)
sheet no.: E2.0

LIGHTING FIXTURE SCHEDULE

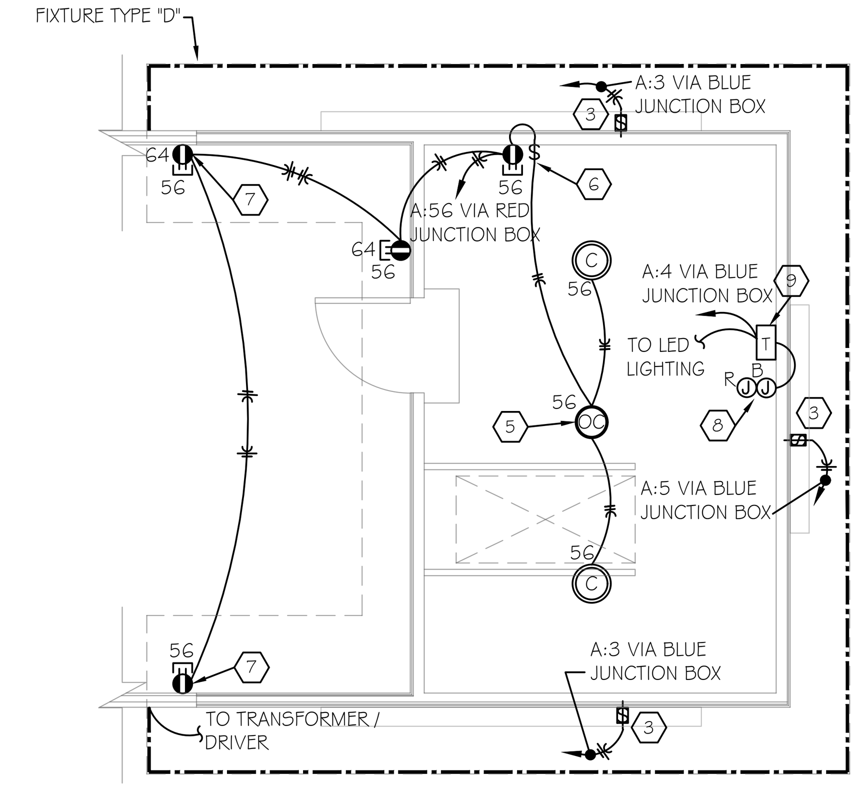
SYM	DESCRIPTION	MFGR.	CAT No.	LAMP TYPE	LAMP CODE	MOUNTING	NOTES
A	2' X 4' LED FLAT PANEL	ATLAS LIGHTING	FAELP24LEDU	LED	4543lm (38.9W)	RECESS / CEILING	5
B	EXTERIOR CANOPY LIGHT	JUNO	6RLD G4 10LM 27K 90CRI 120 FRPC WWH M6-LED-IC-AT	LED	INCLUDED	SURFACE	-
C	UTILITY LIGHT	LEVITON	9850-LED	LED	800 lm (10W)	SURFACE TO STRUCTURE	
D	EXTERIOR LED FLEX LIGHT	GLLS	NL11D1012WEBLU120J S270 BLUE NEON 120V	LED	INCLUDED	SURFACE	4
F	ENCLOSED CEILING LIGHT	ATLAS LIGHTING	ILW 48LED 4 D 4K	LED	7093lm (48W)	SURFACE / CEILING	6
	EMERGENCY LIGHT	DUAL- LITE	EV4D (WITH BATTERY BACK-UP)	LED	INCLUDED	7'-6" A.F.F.	2
	EXIT / EMERGENCY LT. COMBO	DUAL- LITE	EVCURWD4 (WITH BATTERY BACK-UP)	LED	INCLUDED	7'-6" A.F.F.	2
EM	EXTERIOR EMERGENCY LIGHT	DUAL- LITE	PG Z-HTR (WITH BATTERY BACK-UP)	LED	INCLUDED	SURFACE OVER DOOR	2
⊗	EXIT LIGHT	DUAL- LITE	EVEURWE (WITH BATTERY BACK-UP)	LED	INCLUDED	CEILING/VARIES	2

NOTES:

1. GENERAL CONTRACTOR SHALL PROVIDE FIREPROOFING AROUND ANY RECESSED LIGHT FIXTURE INSTALLED IN A FIRE RATED CEILING PER U.L. REQUIREMENTS. ELECTRICAL CONTRACTOR SHALL COORDINATE.
2. EXIT AND EMERGENCY LIGHTS TO BE CONNECTED TO THE CIRCUIT AS NOTED, UN-SWITCHED.
3. FIXTURES SHALL BE PROVIDED BY OWNER AND INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR.
4. PROVIDE ALL NECESSARY LEDNEON-FLEX CONNECTORS AS REQUIRED FOR SURFACES AND APPLICATION. PROVIDE DMX RGB CONTROLLER. RUNS OVER 18M SHALL BE FED FROM BOTH ENDS PER MANUFACTURERS INSTRUCTIONS.
5. FIXTURE IS FULLY SHIELDED AND SUITABLE FOR INSTALLATION IN FOOD PREP AREAS.
6. FIXTURE IS FULLY ENCLOSED , WET LABELED, AND SUITABLE FOR INSTALLATION IN FOOD STORAGE / COOLER AREAS.

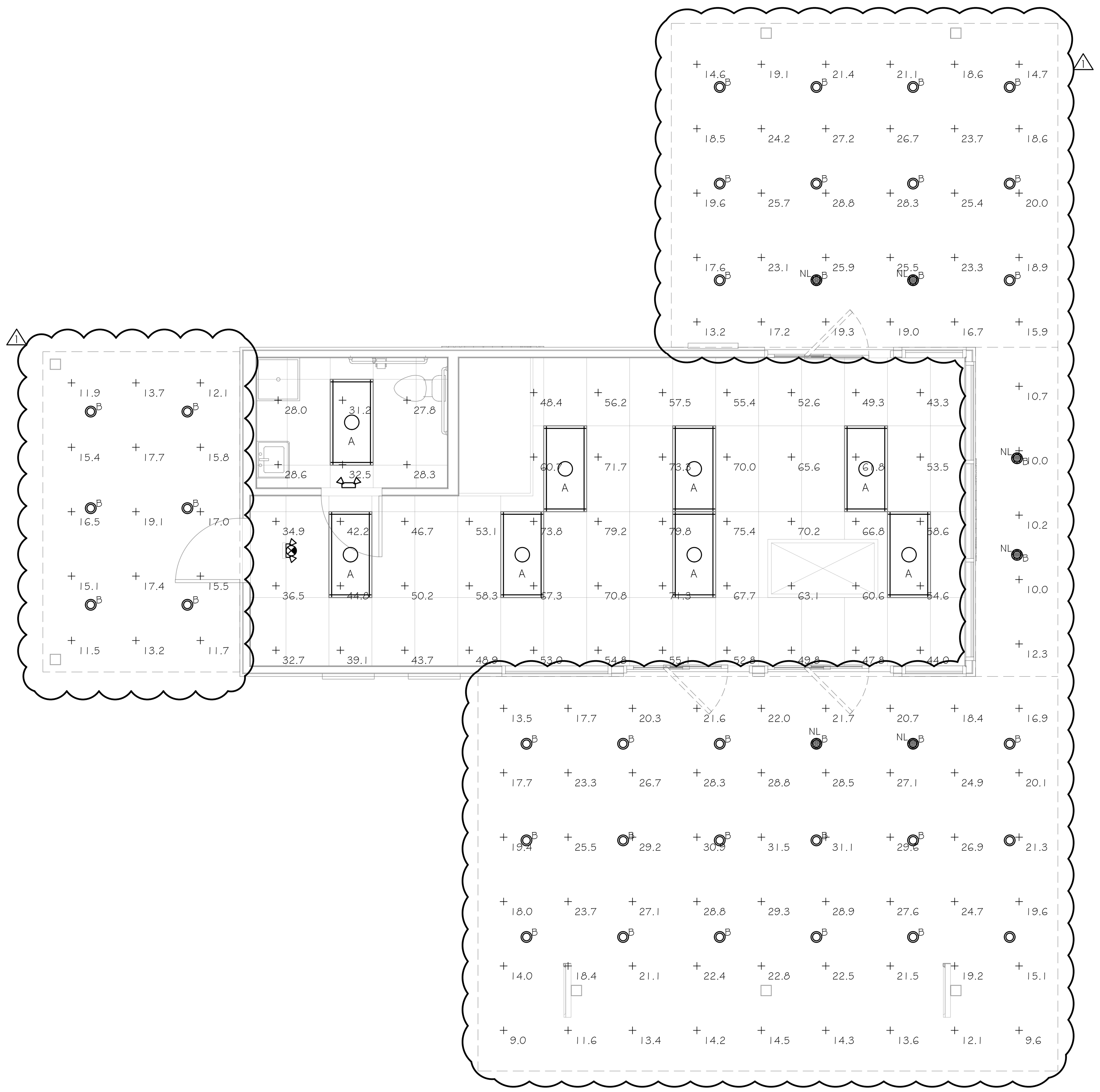
KEY NOTES:

1. EXTERIOR SIGN BOX / MENU BOARD. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXACT LOCATION PRIOR TO ROUGH-IN. TYP OF 3. FIELD VERIFY CONTROL REQUIREMENTS
2. LIGHT SWITCH FOR CRAWL SPACE LIGHT WITH CONDUIT STUBBED DOWN THRU FLOOR. CONNECT TO CIRCUIT AS NOTED FOR SUMP PUMP, HEAT TRACE, AND LIGHT IN CRAWL SPACE.
3. STORE SIGNAGE: SEE ARCH. DRAWINGS FOR ELEVATION. PROVIDE DISCONNECTING MEANS AS REQUIRED. CONTROLLED BY TIMECLOCK.
4. 2 POLE TIMECLOCK. CONNECT ALL MODULAR EXTERIOR LIGHTING TO POLE ONE, AND SITE ADAPT CANOPY LIGHTING TO POLE 2.
5. OCCUPANCY SENSOR MOUNTED TO ATTIC ROOF STRUCTURE.
6. SWITCH FOR ATTIC LIGHTS AND GFCI RECEPTACLE TO BE MOUNTED 48" A.F.F. TO TOP ABOVE ATTIC FLOOR.
7. ROOFTOP RECEPTACLES TO BE MOUNTED ABOVE CANOPY. REFERENCE ARCHITECTURAL SHEET A4.2 FOR SPECIFIC MOUNTING LOCATIONS.
8. TWO 4" X 4" JUNCTION BOXES, PAINTED BLUE FOR LED DRIVERS AND RED OR POWER, MOUNTED ON BACK WALL OF MUFFIN TOP FOR CONNECTION OF ALL ATTIC ELECTRICAL CIRCUITS. SITE ELECTRICAL CONTRACTOR TO CONNECT PROVIDED FEEDER IN BASE BUILDING, STUBBED THRU ROOF TO THE BOXES AS REQUIRED.
9. TRANSFORMERS / DRIVERS FOR LED NEON-FLEX LIGHTING. COORDINATE FINAL MOUNTING LOCATION IN ATTIC IN FIELD.
10. JUNCTION BOX ABOVE CEILING, PAINTED BLUE AND MARKED "TIMER", FOR CANOPY LIGHTING CONTROLLED BY TIMECLOCK. CONNECTION TO CANOPY LIGHTS BY SITE ELECTRICAL CONTRACTOR.
11. JUNCTION BOX ABOVE CEILING, PAINTED RED AND MARKED "POWER", FOR CANOPY LIGHTING NOT CONTROLLED BY TIMECLOCK. CONNECTION TO CANOPY LIGHTS BY SITE ELECTRICAL CONTRACTOR.



C ELECTRICAL MUFFIN TOP PLAN

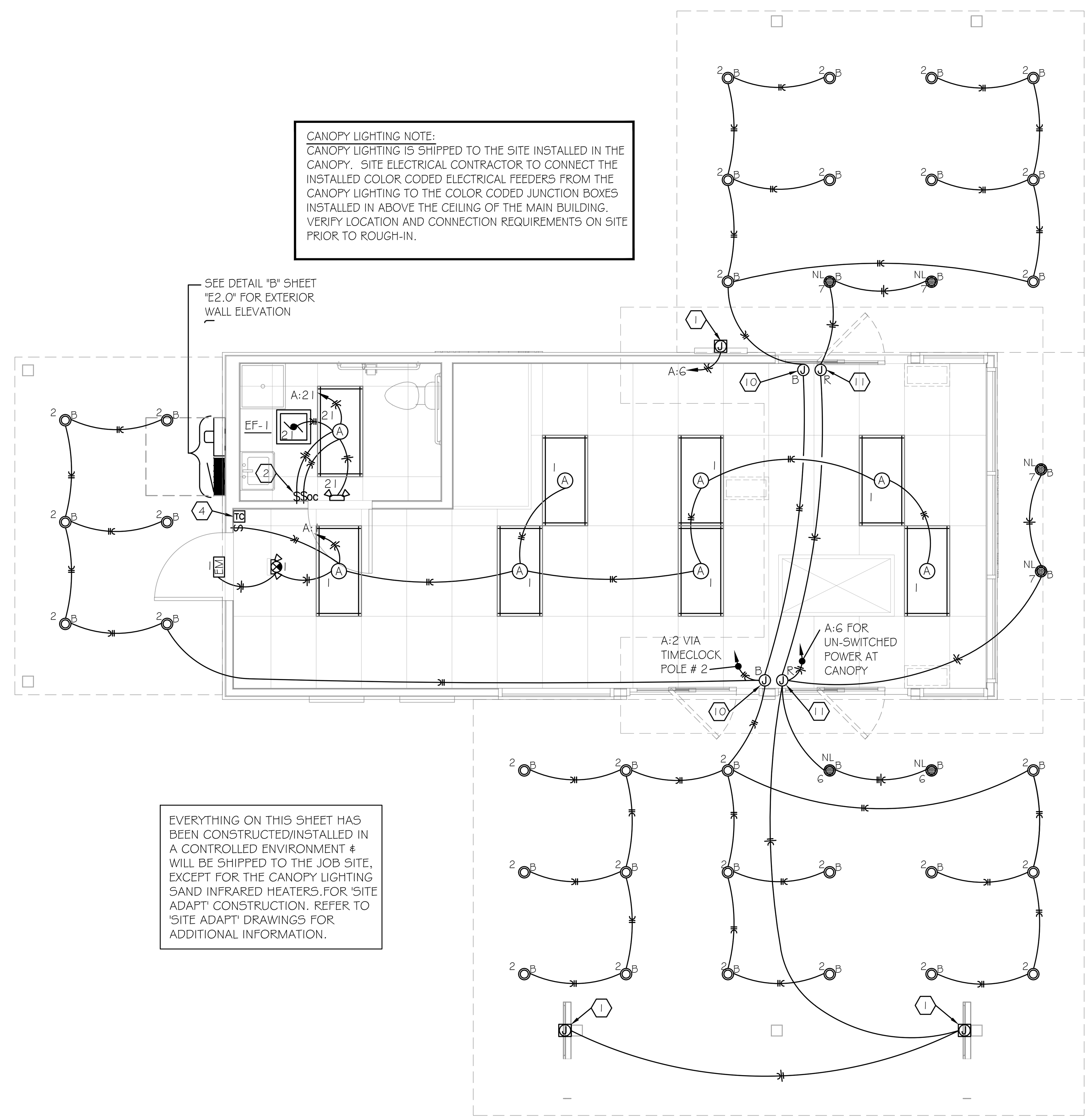
SCALE: 1/4" = 1'-0"



B ELECTRICAL FLOOR PLAN - PHOTOMETRIC

SCALE: 1/4" = 1'-0"

CANOPY LIGHTING NOTE:
CANOPY LIGHTING IS SHIPPED TO THE SITE INSTALLED IN THE CANOPY. SITE ELECTRICAL CONTRACTOR TO CONNECT THE INSTALLED COLOR CODED ELECTRICAL FEEDERS FROM THE CANOPY LIGHTING TO THE COLOR CODED JUNCTION BOXES INSTALLED IN ABOVE THE CEILING OF THE MAIN BUILDING. VERIFY LOCATION AND CONNECTION REQUIREMENTS ON SITE PRIOR TO ROUGH-IN.



EVERYTHING ON THIS SHEET HAS BEEN CONSTRUCTED/INSTALLED IN A CONTROLLED ENVIRONMENT & WILL BE SHIPPED TO THE JOB SITE, EXCEPT FOR THE CANOPY LIGHTING SAND INFRARED HEATERS.FOR 'SITE ADAPT' CONSTRUCTION. REFER TO 'SITE ADAPT' DRAWINGS FOR ADDITIONAL INFORMATION.

A ELECTRICAL FLOOR PLAN - LIGHTING

SCALE: 1/4" = 1'-0"

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7B TENNESSEE LLC

959 NORTH RIVERSIDE DRIVE, CLARKSVILLE, TN 37040

REVISIONS

No.	Description	Date
1	Site Info.	08-15-23

sheet issue date: 06-01-2023

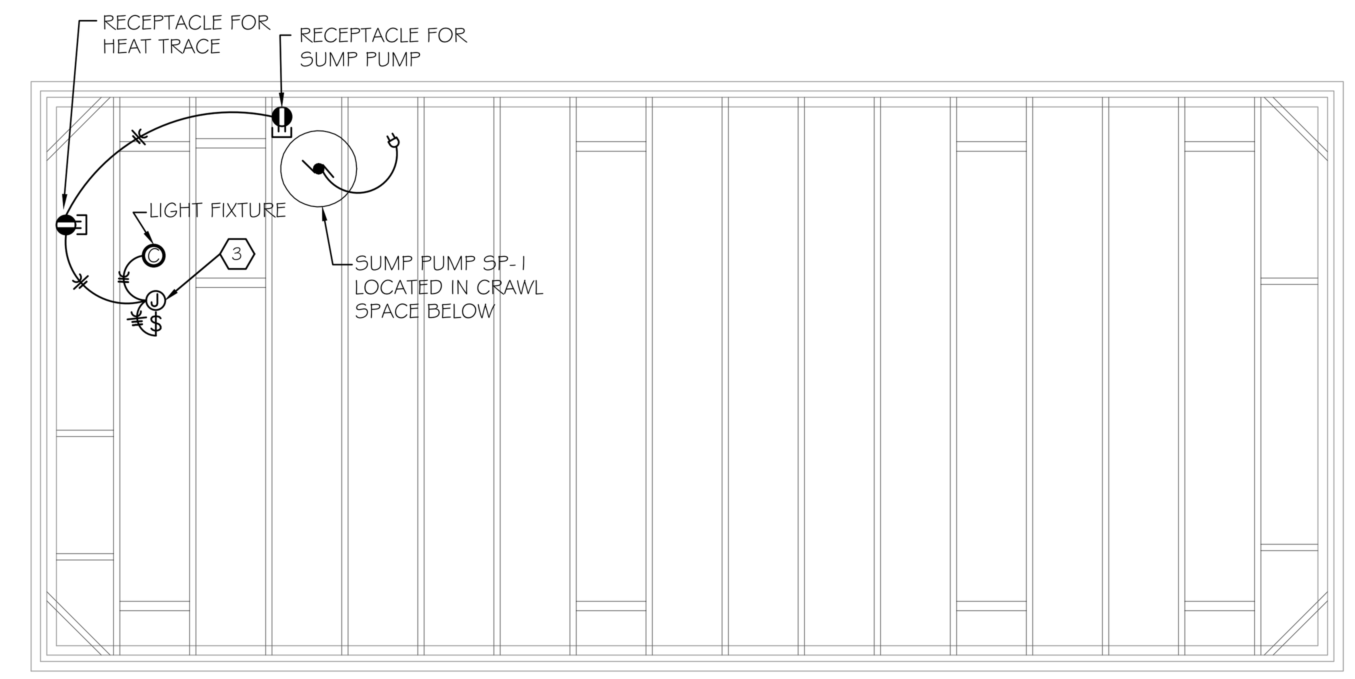
project no.: 23.05.01

sheet contents: Electrical Floor Plan - Lighting (Modular Building)

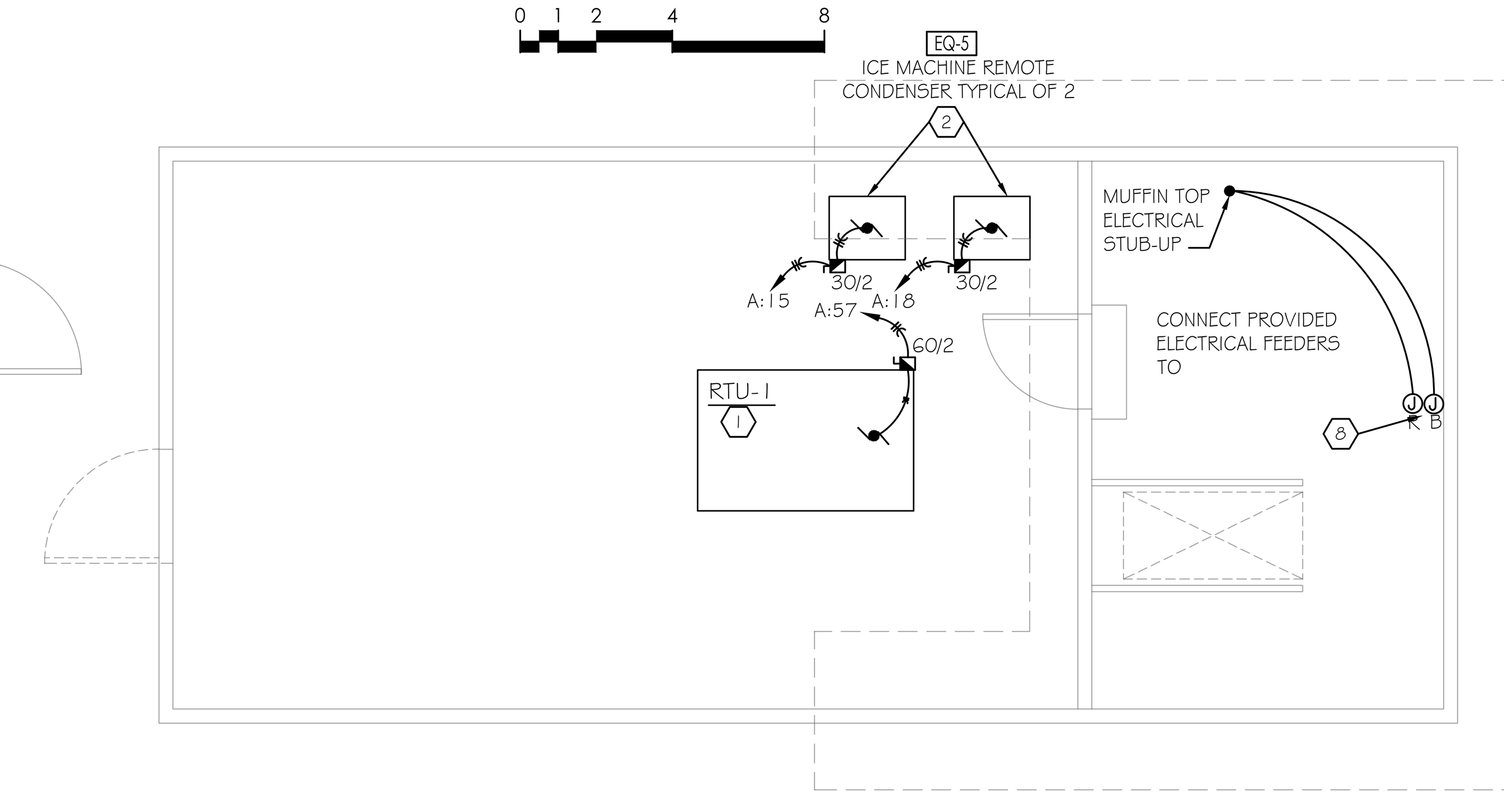
sheet no.: E3.0

ELECTRICAL KEY NOTES:

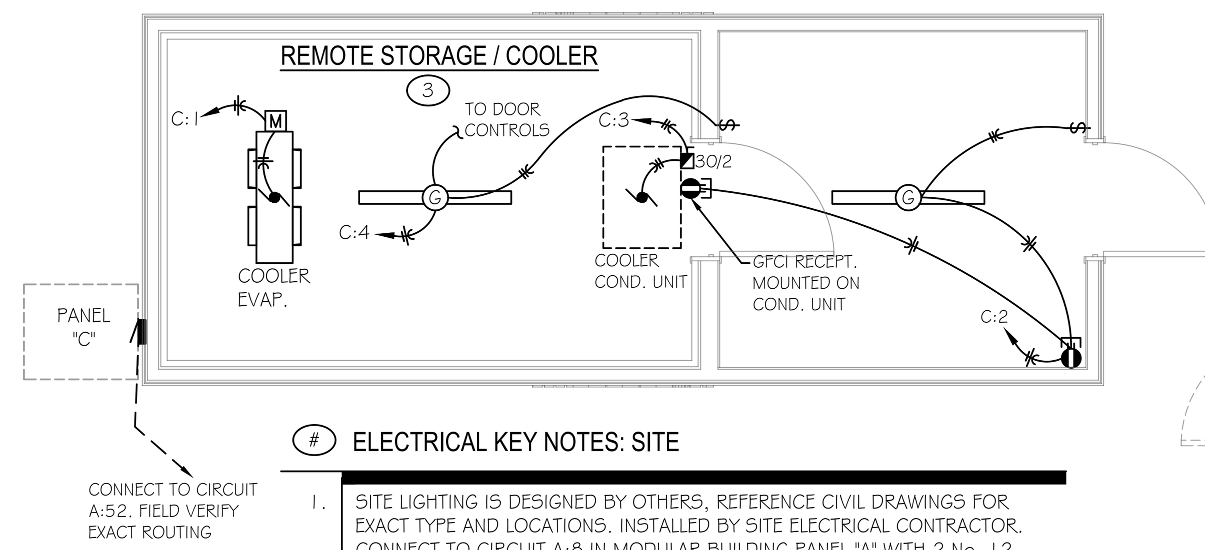
1. ROOF TOP UNIT "RTU-1" IS FURNISH AS PART OF THE MODULAR BUILDING ASSEMBLY PACKAGE AND INSTALLED ON SITE. ELECTRICAL IS ROUGH-IN ONLY, FEEDER FROM CIRCUIT BREAKER IN PANEL, CONDUIT AND WIRE, IS INSTALLED UP TO ROOF AREA AND CAPPED ABOVE CEILING FOR SHIPPING. SITE ELECTRICAL CONTRACTOR TO EXTEND FEEDER THRU ROOF CURB, FURNISH & INSTALL DISCONNECT SWITCH AND PROVIDE FINAL CONNECTIONS. REFERENCE SHEET "E2.0" FOR MORE INFORMATION.
2. ROOF MOUNTED ICE MACHINE CONDENSER IS FURNISHED AND INSTALLED ON SITE BY OTHERS. ELECTRICAL IS ROUGH-IN ONLY, FEEDER FROM CIRCUIT BREAKER IN PANEL, CONDUIT AND WIRE, AND CAPPED FOR SHIPPING. SITE ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH AND MAKE FINAL CONNECTIONS AS NOTED.
3. PROVIDE JUNCTION BOX IN CRAWL SPACE ON UNDERSIDE OF FLOOR AND CONNECT TO EXISTING CONDUIT STUB-OUT FROM SWITCH IN RESTROOM. FURNISH AND INSTALL CRAWL SPACE LIGHT AND CONNECT TO EXISTING SWITCH LEG OF CIRCUIT. FURNISH AND INSTALL (2) GFCI RECEPTACLES WITH IN-USE WEATHERPROOF COVERS MOUNTED IN CRAWL SPACE ON UNDERSIDE OF FLOOR, (1) FOR SUMP PUMP CONNECTION AND (10 FOR HEAT TRACE CONNECTION. CONNECT UNSWITCHED TO EXISTING CRAWL SPACE CIRCUIT.



B ELECTRICAL FOUNDATION PLAN
SCALE: 1/4" = 1'-0" (SITE ADAPT)



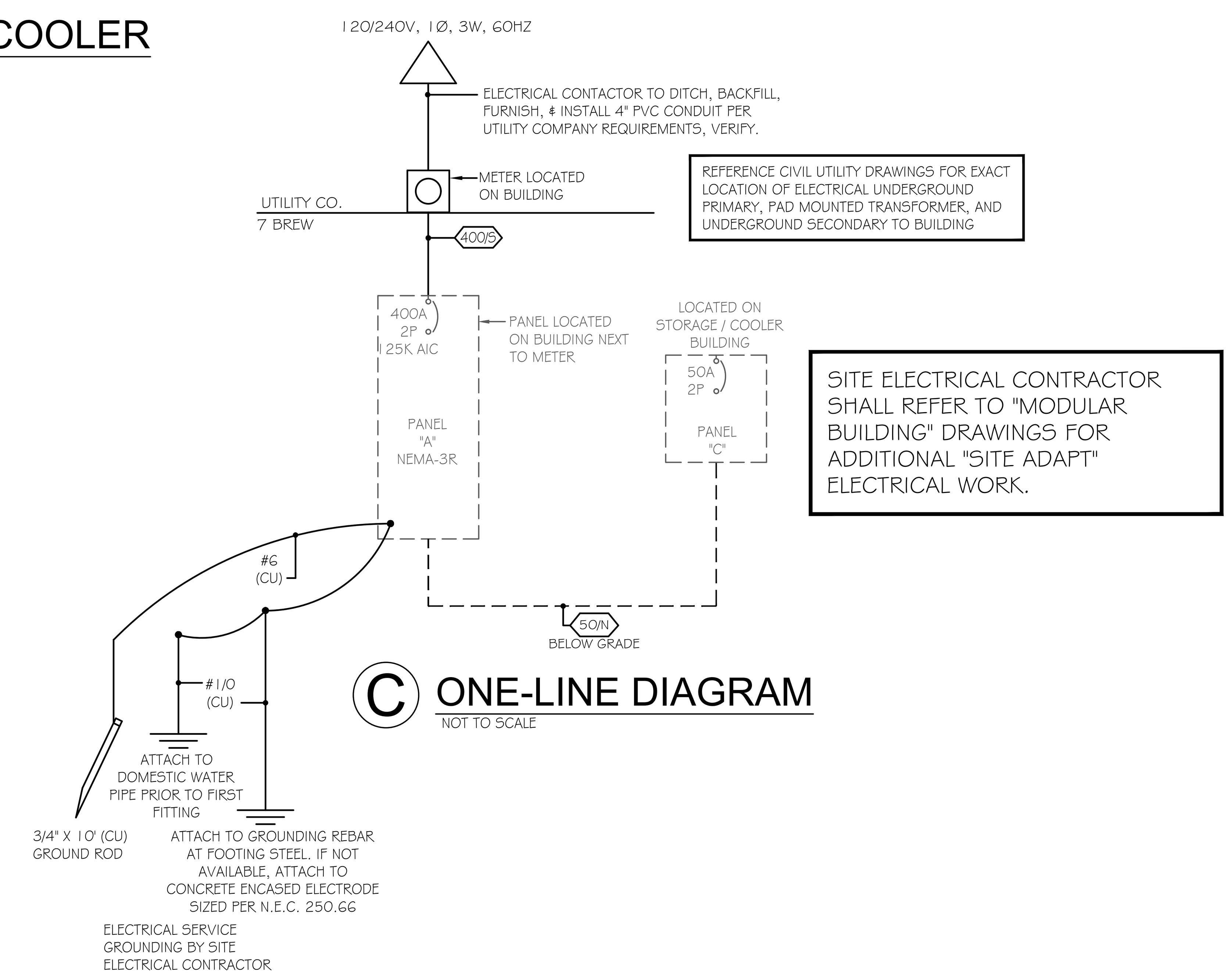
A ELECTRICAL ROOF PLAN
SCALE: 1/4" = 1'-0" (SITE ADAPT)



ELECTRICAL KEY NOTES: SITE

1. SITE LIGHTING IS DESIGNED BY OTHERS, REFERENCE CIVIL DRAWINGS FOR EXACT TYPE AND LOCATIONS. INSTALLED BY SITE ELECTRICAL CONTRACTOR. CONNECT TO CIRCUIT A:8 IN MODULAR BUILDING PANEL "A" WITH 2 No. 12 THHN & 1 No. 12 GROUND IN 1/2" CONDUIT. CONTROL VIA 2 POLE TIMECLOCK, POLE 1 AND PHOTOCELL FURNISHED WITH THE MODULAR BUILDING.
2. CANOPY LIGHTING IS SHIPPED TO THE SITE INSTALLED IN THE CANOPY. SITE ELECTRICAL CONTRACTOR TO CONNECT THE INSTALLED COLOR CODED ELECTRICAL FEEDERS FROM THE CANOPY LIGHTING TO THE COLOR CODED JUNCTION BOXES INSTALLED IN ABOVE THE CEILING OF THE MAIN BUILDING. VERIFY LOCATION AND CONNECTION REQUIREMENTS ON SITE PRIOR TO ROUGH-IN.
3. REMOTE COOLER IS FURNISHED BY NATIONAL MODULAR AND DELIVERED TO SITE. SITE ELECTRICAL CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS WITH COOLER PROVIDED AND CONNECT PANEL "C" TO CIRCUIT AS NOTED ON DRAWINGS.

D ELECTRICAL - SITE STORAGE / COOLER
SCALE: 1/4" = 1'-0"



SITE ELECTRICAL CONTRACTOR SHALL REFER TO "MODULAR BUILDING" DRAWINGS FOR ADDITIONAL "SITE ADAPT" ELECTRICAL WORK.

C ONE-LINE DIAGRAM
NOT TO SCALE

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TRAVIS J. RAU — STATE OF TENNESSEE — 06/01/23

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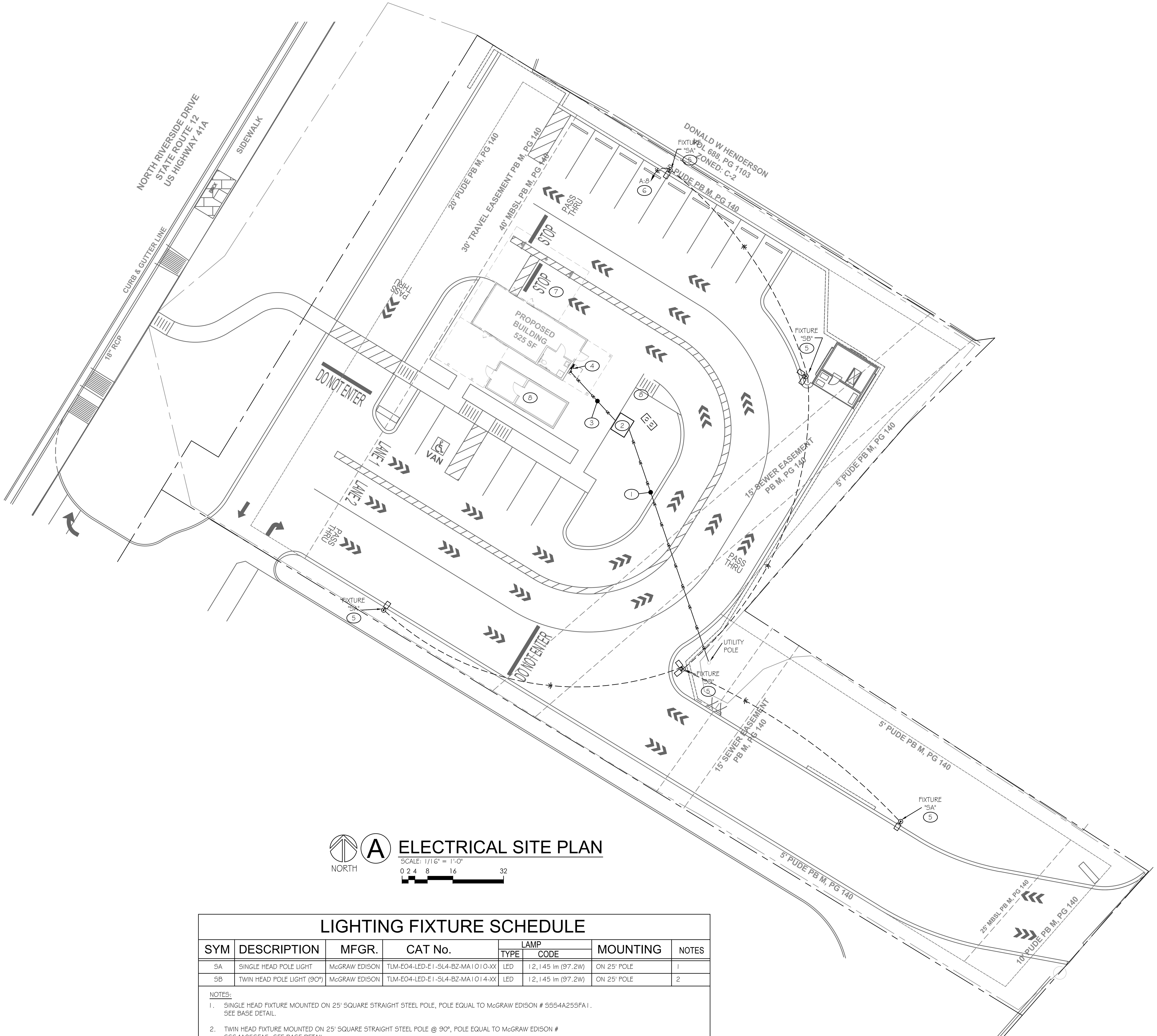
REVISIONS

No.	Description	Date

sheet issue date: 06-01-2023
project no.: 23.05.01
sheet contents: Electrical Roof / Attic & Foundation Plan - Power (Site Adapt)
sheet no.: E4.0



A ELECTRICAL SITE PLAN

NORTH

SCALE: 1/16" = 1'-0"

0 2 4 8 16 32

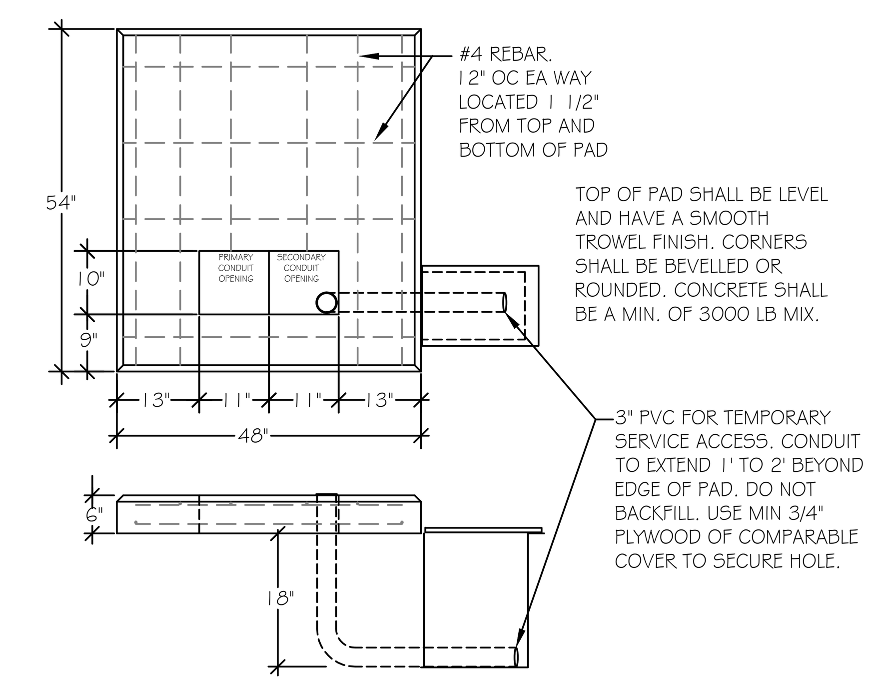
LIGHTING FIXTURE SCHEDULE

SYM	DESCRIPTION	MFGR.	CAT No.	LAMP TYPE	LAMP CODE	MOUNTING	NOTES
SA	SINGLE HEAD POLE LIGHT	McGRAW EDISON	TLM-E04-LED-E1-SL4-BZ-MA1010-XX	LED	12,145 lm (97.2W)	ON 25' POLE	1
SB	TWIN HEAD POLE LIGHT (90°)	McGRAW EDISON	TLM-E04-LED-E1-SL4-BZ-MA1014-XX	LED	12,145 lm (97.2W)	ON 25' POLE	2

NOTES:

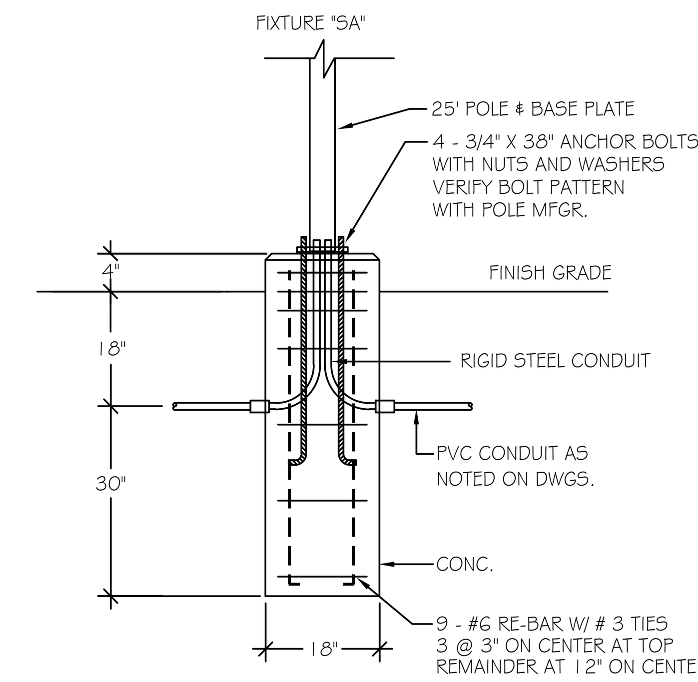
1. SINGLE HEAD FIXTURE MOUNTED ON 25' SQUARE STRAIGHT STEEL POLE, POLE EQUAL TO McGRAW EDISON # SSS4A25SFA1. SEE BASE DETAIL.

2. TWIN HEAD FIXTURE MOUNTED ON 25' SQUARE STRAIGHT STEEL POLE @ 90°, POLE EQUAL TO McGRAW EDISON # SSS4A25SFA5. SEE BASE DETAIL



B TRANSFORMER BASE DETAIL

NOT TO SCALE



C POLE BASE DETAIL

NOT TO SCALE

ELECTRICAL KEY NOTES: SITE

1. UNDERGROUND ELECTRICAL SERVICE PRIMARY TO PAD MOUNTED TRANSFORMER FIELD VERIFY EXACT ROUTING WITH UTILITY CO. PRIOR TO ROUGH-IN.
2. PAD MOUNTED TRANSFORMER. PAD BY G.C. PER UTILITY COMPANY REQUIREMENTS.
3. UNDERGROUND ELECTRICAL SECONDARY.
4. ELECTRIC METER & ELECTRICAL SERVICE PANEL. METER PROVIDED BY SITE ELECTRICAL CONTRACTOR. PANELS PROVIDED WITH BUILDING
5. SITE LIGHTING TO BE FURNISHED & INSTALLED BY SITE ELECTRICAL CONTRACTOR.
6. CONNECT TO CIRCUIT A:8 IN MODULAR BUILDING PANEL "A" WITH 2 No. 12 THHN & 1 No. 12 GROUND IN 1/2" CONDUIT. CONTROL VIA 2 POLE TIMECLOCK, POLE 1 FURNISHED WITH THE MODULAR BUILDING.
7. CANOPY LIGHT FIXTURES ARE FURNISHED INSTALLED WITH THE CANOPY AND IS PART OF THE MODULAR BUILDING. THE CANOPY IS SHIPPED SEPARATELY TO BE INSTALLED ON SITE. SITE ELECTRICAL CONTRACTOR TO CONNECT TO CIRCUIT A:2 IN EXISTING PANEL "A" WITH 2 No. 12 THHN & 1 No. 12 GROUND IN 1/2" CONDUIT. CONTROL VIA 2 POLE TIMECLOCK, POLE 2 FURNISHED WITH THE MODULAR BUILDING. REFERENCE SHEET E3.0 FOR ADDITIONAL INFORMATION.
8. REMOTE COOLER IS FURNISHED BY NATIONAL MODULAR AND SHIPPED TO THE SITE. SITE ELECTRICAL CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS WITH COOLER PROVIDED AND CONNECT TO CIRCUIT AS NOTED ON DRAWINGS. SEE DETAIL THIS SHEET.

NEW SHEET ADDED 1

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REVISIONS

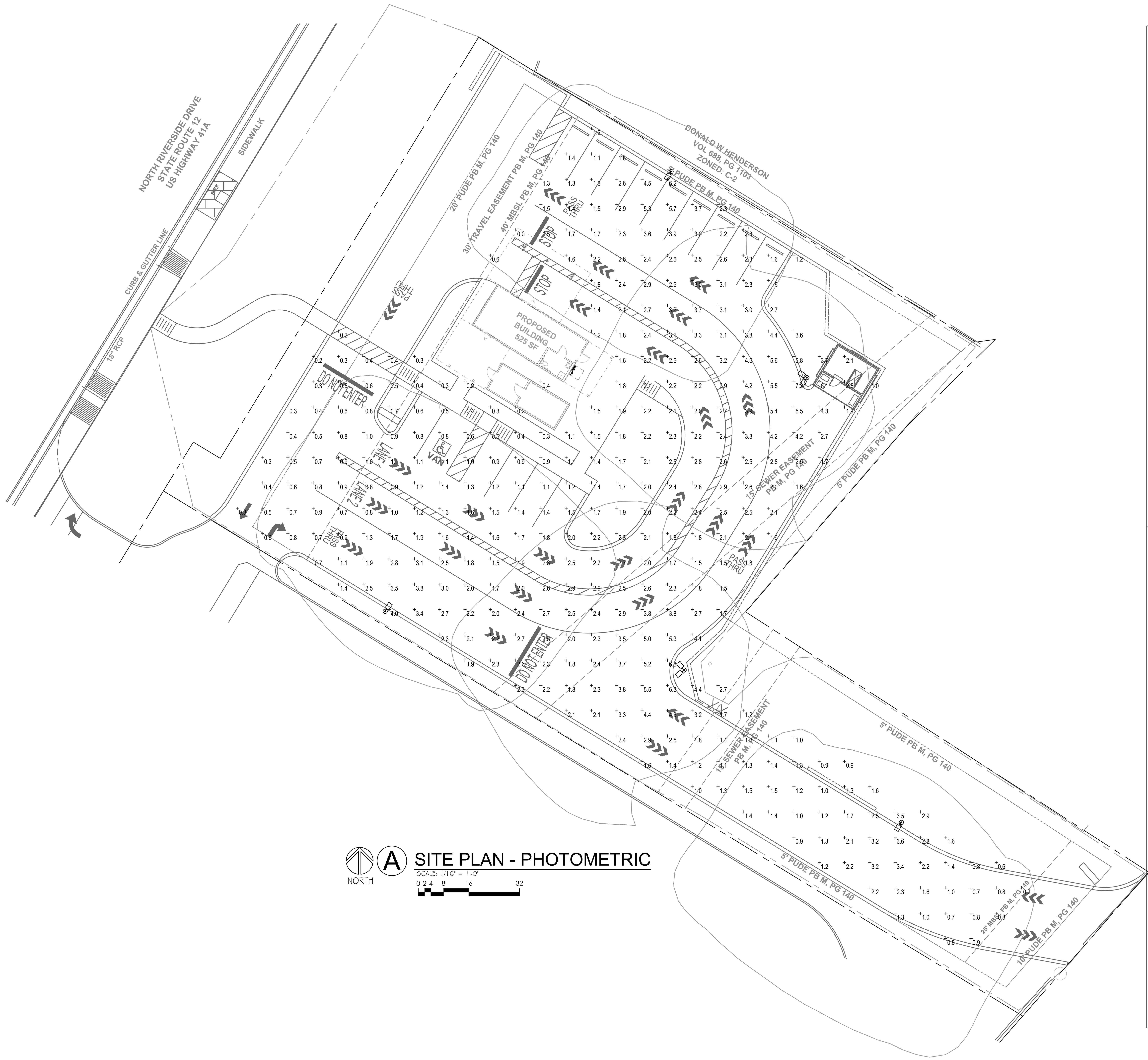
No.	Description	Date
1	Site Info.	08-15-23

sheet issue date:
06-01-2023

project no.:
23.05.01

sheet contents:
Electrical Site Plan - (Site Adapt)

sheet no.:
E4.1



A SITE PLAN - PHOTOMETRIC

NORTH

SCALE: 1/16" = 1'-0"

0 2 4 8 16 32

McGraw-Edison

DESCRIPTION

The Talon luminaire is the most versatile, functionally designed, universally adaptable outdoor luminaire available. Incorporating modular LED LightBAR™ technology, the Talon luminaire brings outstanding uniformity and energy-conscious illumination to walkways, parking lots, roadways, building areas and any security lighting application. UL/ cUL listed for wet locations.

Catalog #		Type
Project		FIXTURE SA
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction
One-piece heavy-wall, die-cast aluminum construction with integral reveal channels along top surface of housing. Optimized for reliable operation from 40°C down to -40°C, internal cast-in wall separates optical and electrical chambers allowing components to operate cooler. Stainless steel latches and hinges allow for tool-less opening and removal of door frame.

Optics
Choice of twelve patented, high-efficiency AccuLED Optics™ distributions. Optics are precisely designed to shape the light output, maximizing efficiency and application spacing. AccuLED Optics technology creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and minimum 70 CRI. Optional 3000K CCT, 5000K CCT and 5700K CCT. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics.

Electrical
LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficacy, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Greater than 0.9 power factor, less than 20% harmonic distortion. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature an IP66 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Occupancy sensor and dimming options available.

Mounting
Extruded 8" aluminum arm includes internal bolt guides allowing for easy positioning of fixture during installation to pole or wall surface. Standard single carton packaging of housing, square pole arm and round pole adapter for contractor-friendly arrival of product on site. Optional mounting methods include a wall mount plate, an external mast arm that accepts 2-3/8" O.D. horizontal tenons and direct mounting to pole or wall surfaces. Tenon adapters available to slipfit over poles equipped with 2-3/8" or 3-1/2" O.D. tenon. 3G vibration rated.

Finish
Housing and arm finished in a five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult the McGraw-Edison Architectural Colors brochure for the complete selection.Options to meet Buy American Act requirements.

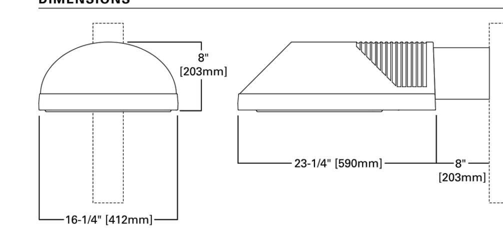
Warranty
Five-year warranty.

TLM
TALON MEDIUM LED

1 - 6 LightBARs
Solid State LED

ARCHITECTURAL AREA LUMINAIRE

DIMENSIONS



CERTIFICATION DATA
UL/cUL Listed
LM79 / LM80 Compliant
IP66 LightBARs
3G Vibration Rated
ISO 9001
DesignLights Consortium® Qualified*

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V/50 & 60Hz, 347V/60Hz, 480V/60Hz
-40°C Minimum Temperature
40°C Ambient Temperature Rating

EPA
Effective Projected Area: (Sq. Ft.)
1.89 with 8" Arm

SHIPPING DATA
Approximate Net Weight:
42 lbs. (19.09 kgs.)

COOPER Lighting Solutions

*www.designlights.org

TD500010EN
March 29, 2022 9:00 AM

Steel Poles

SSS SQUARE STRAIGHT STEEL

Catalog #		Type
Project		FIXTURE SA
Comments		Date
Prepared by		

FEATURES
- ASTM Grade steel base plate with ASTM A366 base cover
- Hand hole assembly 3" x 5" on 5" and 6" pole; and 2" x 4" on 4" pole
- 10'-39' mounting heights
- Drilled or tenon (specify)

DESIGN CONSIDERATIONS - VIBRATIONS AND NON-GROUND MOUNTED INSTALLATIONS

The information contained herein is for general guidance only and is not a replacement for professional judgment. Design considerations for wind-induced vibrations and non-ground mounted installations (e.g., installations on bridges or buildings) are not included in this document. Consult with a professional, and local and federal standards, before ordering to ensure product is appropriate for the intended purpose and installation location. Refer to the Cooper Lighting Solutions Light Pole White Paper for risk factors and design considerations. Learn more.

NOTE: The Limited Warranty for this product specifically excludes fatigue failure or similar damage resulting from vibration, harmonic oscillation or resonance.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Cooper Lighting Solutinos or visit www.cooperlighting.com for available options, accessories and ordering information.

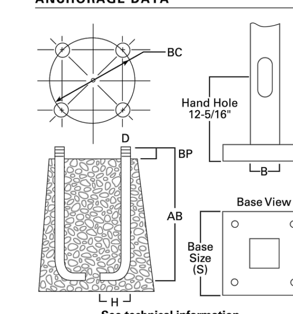
ORDERING INFORMATION

SAMPLE NUMBER: SSA5A20SFM1XG

Product Family	Shaft Size (Inches)[1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Arm Lengths (Feet)	Options (Add as Suffix)
SSS=Square Straight Steel	**4**=4" **5**=5" **6**=6"	**A**=0.120" **M**=0.188" **X**=0.250"	**10**=10' **15**=15' **20**=20' **25**=25' **30**=30' **35**=35' **39**=39'	**S**=Square Steel Base	**F**=Dark Bronze **G**=Galvanized Steel **J**=Summit White **K**=Carbon Bronze **L**=Dark Platinum **R**=Hartford Green **S**=Silver **T**=Graphite Metallic **V**=Grey **W**=White **X**=Custom Color **Y**=Black	**2**=2-3/8" O.D. Tenon (4" Long) **3**=3-1/2" O.D. Tenon (5" Long) **4**=4" O.D. Tenon (6" Long) **9**=3" O.D. Tenon (4" Long) **6**=2-3/8" O.D. Tenon (6" Long) **7**=4" O.D. Tenon (10" Long) **A**=Type A Drilling **C**=Type C Drilling **E**=Type E Drilling **F**=Type F Drilling **G**=Type G Drilling **J**=Type J Drilling **K**=Type K Drilling **M**=Type M Drilling **N**=Type N Drilling **R**=Type R Drilling **S**=Standard Upsweep Arm[6] **Z**=Type Z Drilling	**1**=Single **2**=2 at 180° **3**=Triple[2] **4**=4 at 90° **5**=2 at 90° **X**=None	**X**=None **2**=2' **3**=2.5' **4**=4' **6**=6' **8**=8'	**A**=1/2" Tapped Hub[3] **B**=3/4" Tapped Hub[3] **C**=Convenience Outlet[4] **E**=GFCI Convenience Outlet[4] **G**=Ground Lug **H**=Additional Hand Hole[5] **V**=Vibration Dampener

NOTES: 1. All shaft sizes nominal. **2.** Square poles are 3 at 90°, round poles are 3 at 120°. **3.** Tapped Hub is located 5' below the pole top and on the same side of pole as hand hole, unless specified otherwise. **4.** Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Receptacle not included, provision only. **5.** Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified. **6.** Arm must be ordered separately.

ANCHORAGE DATA



See technical information.

Pole	Template Number	Bolt Number	Bolt Circle (inches)	Number of Bolts	Bolt Size (inches)
SSS4	TMP1	AB1	8.5 - 11.0	4	3/4 x 25 x 3
SSS5	TMP1	AB1	11.0	4	3/4 x 25 x 3
SSS6	TMP2	AB3	12.5	4	1 x 36 x 4

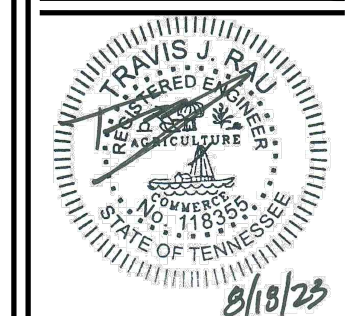
COOPER Lighting Solutions

TD513013EN
April 14, 2021 5:42 PM

NEW SHEET ADDED

veritas
architecture + design
707 n. 6th street
kansas city, ks 66101
www.veritas-ad.com
913.624.1610

consulting engineer:



7 BREW DRIVE-THRU CLARKSVILLE, TN - RIVERSIDE

7B TENNESSEE LLC

959 NORTH RIVERSIDE DRIVE, CLARKSVILLE, TN 37040

REVISIONS

No.	Description	Date
1	Site Info.	08-15-23

sheet issue date:
06-01-2023

project no.:
23.05.01

sheet contents:
Electrical Site Plan - Photometric (Site Adapt)

sheet no.:
E4.2

16010 – BASIC ELECTRICAL REQUIREMENTS

16010.01 – DRAWINGS AND SPECIFICATIONS
THE CONTRACT DRAWINGS FOR DIVISION 16 WORK ARE IN PART SCHEMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL LAYOUT, DESIGN AND ARRANGEMENT. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN THE LAYOUT OF HIS WORK AND SHALL CONSULT GENERAL INTENT CONSTRUCTION DRAWINGS, STRUCTURAL DRAWINGS, MECHANICAL DRAWINGS AND ALL OTHER DRAWINGS FOR THIS PROJECT TO DETERMINE ALL CONDITIONS AFFECTING THE DIVISION 16 WORK.

WHERE SPECIFIC DETAILS AND DIMENSIONS FOR DIVISION 16 WORK ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL TAKE MEASUREMENTS AND MAKE LAYOUTS AS REQUIRED FOR THE PROPER INSTALLATION OF THE WORK AND COORDINATION WITH ALL OTHER WORK ON THE PROJECT. IN CASE OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE SPECIFICATIONS THAT HAVE NOT BEEN CLARIFIED BY ADDENDUM PRIOR TO BIDDING, IT SHALL BE ASSUMED BY THE SIGNING OF THE CONTRACT THAT THE HIGHER COST IS INCLUDED IN THE CONTRACT PRICE.

16010.02 – WORK INCLUDED
THIS WORK SHALL INCLUDE ALL PLANT, LABOR, MATERIAL AND EQUIPMENT AS REQUIRED TO FURNISH AND INSTALL DIVISION 16 WORK INCLUDING DEMOLITION AS SHOWN ON THE DRAWINGS AND AS HEREINAFTER SPECIFIED. FURNISH AND INSTALL ALL MATERIALS, EQUIPMENT, DEVICES AND ACCESSORIES NOT SPECIFICALLY CALLED FOR BY ITEM BUT THAT ARE NECESSARY TO PROVIDE THE REQUIREMENTS IN OPERATION AND FUNCTION THAT IS ESTABLISHED BY THE DESIGN AND BY THE EQUIPMENT SPECIFIED.

WORK TO INCLUDE THE PROCUREMENT OF AND PAYMENT OF ALL PERMITS AND LICENSES REQUIRED FOR THE PERFORMANCE OF THE WORK. WORK TO INCLUDE ALL FEES AND DIRECT EXPENSES INVOLVED IN ANY INSPECTIONS REQUIRED FOR THE PROJECT. ALL SCAFFOLDS, STAGING, RUNWAYS AND EQUIPMENT REQUIRED FOR THE PERFORMANCE OF THE WORK. THE REMOVAL FROM THE PREMISES, AS IT ACCUMULATES, OF ALL DIRT AND REFUSE RESULTING IN THE PERFORMANCE OF THE WORK.

16010.03 – PROTECTION AND DUST CONTROL
THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION TO PREVENT DAMAGE TO ADJACENT AREAS, EQUIPMENT, OR FURNISHINGS; TO PREVENT ACCIDENTAL INJURY TO THE BUILDING OCCUPANTS AND THE PUBLIC; TO PREVENT THE SPREADING OF DUST, DIRT, DEBRIS, AND MOISTURE FROM GETTING ON OR IN THE BUILDING OCCUPANTS FURNISHINGS OR EQUIPMENT.

16010.04 – EXISTING CONDITIONS
EACH BIDDER SHALL INSPECT THE SITE AS REQUIRED FOR KNOWLEDGE OF EXISTING CONDITIONS AND FAILURE TO OBTAIN SUCH KNOWLEDGE SHALL NOT RELIEVE THE SUCCESSFUL BIDDER OF THE RESPONSIBILITY TO MEET THE EXISTING CONDITIONS IN PERFORMING THE WORK UNDER THE CONTRACT.

WHERE EXISTING POWER, LIGHTING OR CONTROL CIRCUITRY IS BROKEN BY REMOVAL OF EXISTING DEVICES, EQUIPMENT OR FIXTURES, OR BY DEMOLITION WORK, CUTTING OR REMOVAL OF EXISTING BUILDING CONSTRUCTION, AND WHERE THE EXISTING CIRCUITRY IS REQUIRED BY REMAINING DEVICES OR EQUIPMENT TO STAY IN SERVICE, THEN THE CIRCUITRY SHALL BE COMPLETED AS REQUIRED BY JOB CONDITIONS.

16010.05 – MATERIAL AND MANUFACTURE
ALL MATERIAL AND EQUIPMENT SHALL BE NEW EXCEPT AS STATED OTHERWISE; SHALL BE OF THE BEST QUALITY AND DESIGN; SHALL BE FREE FROM DEFECTS AND IMPERFECTIONS AND SHALL HAVE MARKINGS OR A NAMEPLATE IDENTIFYING THE MANUFACTURER AND PROVIDING SUFFICIENT REFERENCE TO ESTABLISH QUALITY, SIZE AND CAPACITY.

16010.06 – SUBSTITUTIONS
ALL PRODUCTS PROPOSED FOR USE, INCLUDING THOSE SPECIFIED BY REQUIRED ATTRIBUTES AND PERFORMANCE, SHALL REQUIRE APPROVAL BY THE ENGINEER BEFORE BEING INCORPORATED INTO THE WORK.

WHERE THE PHRASE "OR EQUAL" OR "APPROVED EQUAL" OCCURS IN THE CONTRACT DOCUMENTS, DO NOT ASSUME THAT MATERIALS, EQUIPMENT OR METHODS WILL BE APPROVED AS EQUAL UNLESS THE ITEM HAS BEEN SPECIFICALLY APPROVED FOR THIS WORK BY THE ENGINEER/ARCHITECT.

16010.07 – SAFETY REGULATIONS
ALL DIVISION 16 WORK SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE AND GOVERNING SAFETY REGULATIONS OF THE OCCUPATIONAL AND SAFETY HEALTH ACT.

16010.08 – CODES, ORDINANCES, REGULATIONS AND U.L. APPROVAL
ALL DIVISION 16 WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS INCLUDING THE CURRENT RULES AND REGULATIONS OF THE NATIONAL ELECTRICAL CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION, OSHA AND ALL STATE AND LOCAL LAWS, CODES AND ORDINANCES.

FIXTURES, APPLIANCES, EQUIPMENT AND MATERIALS WHICH ARE SUBJECT TO UNDERWRITERS LABORATORY TESTS SHALL BEAR SUCH APPROVAL.

16010.09 – OPENINGS IN FIRE RATED ASSEMBLIES
WHERE OPENINGS ARE MADE, OR LEFT DUE TO CONSTRUCTION THROUGH FIRE RATED ASSEMBLIES FOR CONDUIT OR NIPPLES, FOR SLEEVES CONTAINING CABLE OR WIRE, AND OPEN CONDUITS THROUGH FIRE RATED ASSEMBLIES THE AREA AROUND THE OPENINGS, SLEEVES AND CONDUITS SHALL BE FILLED WITH CHASE TECHNOLOGY CORP. #CTCPF-855 OR DOW CORNING #3-6548 RTV SILICONE OR APPROVED EQUAL, FIRE RESISTANT FOAM SEALANT AS APPROVED BY THE AUTHORITY HAVING JURISDICTION

16010.10 – ROOF PENETRATIONS
ALL OPENINGS IN THE ROOF FOR ELECTRICAL CONDUITS SHALL BE MADE WEATHER AND WATER TIGHT USING "STONEMAN" MULTI-FLASH OR VERSA-FLASH SEAMLESS FLASHING ASSEMBLY FOR CONDUIT THROUGH 2" DIAMETER. CONDUIT SIZES OVER 2" DIAMETER SHALL HAVE PITCH POCKETS FILLED WITH PITCH AND GALVANIZED DRIP SHIELD INSTALLED AROUND CONDUITS. THE DRIP SHIELD SHALL COMPLETELY COVER THE PITCH POCKET.

16010.11 – EXCAVATION AND BACK FILLING
PERFORM ALL EXCAVATING AND BACK FILLING FOR THE CONSTRUCTION AND INSTALLATION OF THE WORK INCLUDED UNDER THIS DIVISION. LINES SHALL BE USED TO LAYOUT THE TRENCHES FOR ALL UNDERGROUND WORK. TRENCHES CLOSE TO WALLS, FOUNDATIONS, AND COLUMNS SHALL NOT BE EXCAVATED WITHOUT PRIOR CONSULTATION WITH THE ENGINEER/ARCHITECT.

ALL EXCAVATIONS SHALL BE PROPERLY PROTECTED BY THE NECESSARY BRACING AND TIMBERS TO PREVENT ANY CAVE-INS OR INJURY TO ADJACENT IMPROVEMENTS.

CUT AND REPLACE ALL EXISTING WALKS, ROADS, STREET PAVEMENT, CURBS, STEPS, RETAINING WALLS AND MISCELLANEOUS WORK REQUIRED FOR INSTALLATION OR WORK UNDER THIS DIVISION.

THE BACK FILLING OF TRENCHES SHALL BE CARRIED OUT AS RAPIDLY AS THE FINISHED WORK IS APPROVED AND WILL PERMIT. THE TRENCH SHALL BE BACK FILLED IN LAYERS NOT TO EXCEED 6" WITH GOOD SELECTED DRY EARTH THOROUGHLY TAMPED WITH A PNEUMATIC TAMPER. AFTER BACK FILLING, ALL SURPLUS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.

16010.12 – SHOP DRAWINGS AND SAMPLES
SUBMIT FOR APPROVAL A PDF SET OF MANUFACTURER'S SHOP DRAWINGS OF ALL MAJOR ITEMS OF EQUIPMENT AND ALL ITEMS REQUIRING COORDINATION BETWEEN CONTRACTORS. ACCEPTANCE OF THE WORK SHALL BE SUBJECT TO THE ENGINEERS/ARCHITECTS APPROVAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. SHOP DRAWINGS SHALL INCLUDE MANUFACTURERS DETAIL DRAWINGS OF EQUIPMENT AND MATERIAL AND CONTRACTORS SHOP DETAILS FOR INSTALLATION OF MATERIAL AND EQUIPMENT. DESCRIPTIVE LITERATURE SHALL INCLUDE CATALOG DATA COVERING DESIGN, SIZE AND CAPACITY OF MATERIAL AND EQUIPMENT. SUBMITTALS SHALL INCLUDE THE MANUFACTURERS MODEL NUMBER, CAPACITY, PERFORMANCE DATA, ELECTRICAL CHARACTERISTICS, ETC., ALL CLEARLY SHOWN AND MARKED FOR THE SPECIFIC ITEM OF EQUIPMENT BEING FURNISHED ON THIS PROJECT.

16010.13 – RECORD DRAWINGS
THE CONTRACTOR SHALL KEEP DAY-TO-DAY RECORD OF ALL CHANGES OR VARIATIONS MADE FROM THE CONTRACT DOCUMENTS AND AT THE END OF THE PROJECT SHALL PROVIDE THE OWNER/ARCHITECT/ENGINEER WITH REPRODUCIBLE SETS AS REQUESTED.

16010.14 – WIRING OF MECHANICAL EQUIPMENT
FURNISH AND INSTALL ALL POWER WIRING, AND ALL CONTROL AND INTERLOCK WIRING OF ALL UNITS, PUMPS, FANS, WATER HEATERS, ETC. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. FURNISH AND INSTALL ALL NECESSARY DISCONNECT SWITCHES REQUIRED. AFTER INSTALLATION OF THE CONTROL INTERLOCK WIRING, THE CONTRACTOR SHALL VERIFY THAT EACH MOTOR LOAD HAS THE CORRECT PHASE ROTATION. THIS CONTRACTOR SHALL VERIFY THE ACTUAL WIRE SIZING AMPS FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE, ELECTRICAL INSTALLATION SHALL BE BASED ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VERY SOMEWHAT FROM THE WIRE AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS. PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT SHALL BE FURNISHED WITHOUT EXTRA COST TO THE CONTRACT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL CHANGES TO BE MADE IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES THAT THE IMPACT ON FEEDERS, PANELS, FUSE AND BREAKER SIZES CAN BE CHECKED PRIOR TO THE INSTALLATION.

16010.15 – WIRING OF THERMOSTATS AND TEMPERATURE CONTROLS
FURNISH AND INSTALL ALL POWER WIRING, AND ALL CONTROL AND INTERLOCK WIRING OF ALL THERMOSTATS AND TEMPERATURE CONTROL DEVICES INCLUDING NIGHTSTATS, TIME SWITCHES, OVERRIDE TIMERS, ETC. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAMS.

16010.16 – TELEPHONE SYSTEM PROVISIONS
ELECTRICAL CONTRACTOR TO FIELD VERIFY WITH LOCAL SERVICE PROVIDER FOR THE EXACT REQUIREMENTS TO BRING SERVICE TO THIS PROJECT. PROVIDE AND INSTALL FLUSH MOUNTED TELEPHONE OUTLET BOXES WITH 1" CONDUIT STUB UP CONCEALED TO ACCESSIBLE CEILING SPACE AT LOCATIONS AS SHOWN ON THE DRAWINGS.

16010.17 – DATA SYSTEM PROVISIONS.
PROVIDE AND INSTALL FLUSH MOUNTED DATA OUTLET BOXES WITH 1" CONDUIT STUB UP CONCEALED TO ACCESSIBLE CEILING SPACE AT LOCATIONS AS SHOWN ON THE DRAWINGS.

16010.18 – ADJUSTING ALIGNING AND TESTING
ALL ELECTRICAL EQUIPMENT ON THIS PROJECT FURNISHED UNDER THIS DIVISION AND ALL ELECTRICAL EQUIPMENT FURNISHED BY OTHERS SHALL BE ADJUSTED, ALIGNED AND TESTED FOR PROPER OPERATION BY THE ELECTRICAL CONTRACTOR. COMPLETE WIRING CIRCUITS SHALL BE FREE FROM SHORT CIRCUITS. ALL MOTORS SHALL BE VERIFIED FOR PROPER PHASE ROTATION. THE CONTRACTOR SHALL PROVIDE TEST DATA READINGS AS REQUESTED OR AS NOTED. THE CONTRACTOR SHALL HAVE THE FOLLOWING READILY ACCESSIBLE AT ALL TIMES DURING THIS PROJECT: A TRUE RMS READING VOLTMETER, A TRUE RMS READING AMMETER, AND A MEGGER INSULATION RESISTANCE METER.

16010.19 – OPERATION AND MAINTENANCE INSTRUCTIONS
SUBMIT TO THE ARCHITECT THREE COPIES EACH OF MATERIAL FOR MAINTENANCE AND OPERATION INSTRUCTION MANUALS, APPROPRIATELY BOUND INTO MANUAL FORM INCLUDING APPROVED COPIES OF THE FOLLOWING, REVISED IF NECESSARY TO SHOW SYSTEM AND EQUIPMENT AS ACTUALLY INSTALLED: MANUFACTURER'S CATALOG SHEETS, WIRING DIAGRAMS, MAINTENANCE INSTRUCTIONS, OPERATING INSTRUCTIONS, PARTS LIST. CONTRACTOR SHALL ALSO PROVIDE ADEQUATE VERBAL INSTRUCTIONS OF SYSTEM OPERATION TO OWNER'S REPRESENTATIVE AT THE TERMINATION OF THE WORK.

16010.20 – STARTUP OF SYSTEMS
PRIOR TO STARTUP OF THE ELECTRICAL SYSTEMS, THE CONTRACTOR SHALL CHECK ALL COMPONENTS AND DEVICES, LUBRICATE ITEMS ACCORDINGLY, AND TIGHTEN ALL SCREWED AND BOLTED CONNECTIONS. ADJUST TAPS ON EACH TRANSFORMER FOR RATED SECONDARY VOLTAGE. CHECK SERVICE ENTRANCE VOLTAGE, GROUNDING CONDITIONS, GROUNDING RESISTANCE AND PROPER PHASING. BALANCE SINGLE PHASE LOADS AT EACH PANELBOARD, REDISTRIBUTING BRANCH CIRCUIT CONNECTIONS UNTIL BALANCE IS ACHIEVED. AFTER ALL SYSTEMS HAVE BEEN INSPECTED AND ADJUSTED, CONFIRM ALL OPERATING FEATURES REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND MAKE FINAL ADJUSTMENTS AS NECESSARY.

16010.21 – GUARANTEE
GUARANTEE AGAINST WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL PAYMENT. GUARANTEE SHALL INCLUDE MATERIAL TO BE REPLACED AND ALL LABOR REQUIRED.

16014 – ELECTRICAL IDENTIFICATION

16014.01 – DESCRIPTION OF WORK
PROVIDE AND INSTALL REQUIRED IDENTIFICATION FOR THE SYSTEMS AND EQUIPMENT SHOWN ON THE DRAWINGS AND/OR SPECIFIED.

UNDERGROUND PLASTIC LINE MARKER: MANUFACTURERS STANDARD PERMANENT, BRIGHT-COLORED, CONTINUOUS-PRINTED PLASTIC TAPE, FOR DIRECT BURIAL SERVICE; MINIMUM 6" WIDE X 4 MILS THICK. PRINTING TO INDICATE TYPE OF SERVICE CABLE; WITH LARGE (MINIMUM 2-1/2") HIGH LETTERS.

CABLE/CONDUCTOR IDENTIFICATION BANDS: MANUFACTURERS STANDARD VINYL SELF-ADHESIVE SELF LAMINATING CABLE/CONDUCTOR MARKERS, WRAP AROUND TYPE; PRE-NUMBERED PLASTIC COATED, OR WRITE-ON TYPE WITH CLEAR PLASTIC SELF-ADHESIVE COVER FLAP, LETTERING TO SHOW CIRCUIT IDENTIFICATION. SIMILAR TO PANDUIT " INSTACODE" OR ACCEPTED EQUIVALENT BY T&B OR TYTON.

SELF-ADHESIVE PLASTIC SIGNS: MANUFACTURERS STANDARD, SELF ADHESIVE, PRE-PRINTED, FLEXIBLE VINYL SIGNS FOR OPERATIONAL INSTRUCTIONS OR WARNINGS.

DANGER SIGNS: MANUFACTURERS STANDARD "DANGER" SIGNS, BAKED ENAMEL FINISH ON 20 GAUGE STEEL; STANDARD RED, BLACK AND WHITE GRAPHICS.

16110 – RACEWAYS

16110.01 – DESCRIPTION OF WORK
INSTALLATION OF RACEWAY SYSTEMS FOR ALL WORK IN DIVISION 16 INCLUDING REQUIRED FITTINGS AND SUPPORTS.

ALL CONDUCTORS SHALL BE INSTALLED IN METALLIC CONDUIT UNLESS SPECIFIED.

16110.02 – PRODUCTS
ALL CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (EMT), EXCEPT CONDUIT LARGER THAN 4" DIAMETER, CONDUIT OUTDOORS OR IN WET OR DAMP LOCATIONS, OR IN NEC CLASSIFIED HAZARDOUS LOCATIONS, CONDUIT IN EARTH OR BELOW GRADE, AND EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS OR SPECIFIED OTHERWISE.

ELECTRICAL METALLIC TUBING TO BE THREADLESS, STEEL TYPE CONFORMING TO ANSI STANDARD C80.3, NEC 348, AND UL 797, GALVANIZED INSIDE AND OUT.

ALL EMT FITTINGS TO BE COMPRESSION TYPE UNLESS OTHERWISE NOTED.

ALL UNDERGROUND CONDUIT SHALL BE RIGID. ENCASE EACH UNDERGROUND CONDUIT IN CONCRETE AS INDICATED ON THE DRAWINGS.

SHORT SECTIONS OF FLEXIBLE CONDUIT (GREENFIELD) SHALL BE USED FROM JUNCTION OR OUTLET BOXES TO LIGHTING FIXTURES AS PERMITTED BY THE NATIONAL ELECTRICAL CODE. CONNECTIONS FROM OUTLET BOXES ABOVE CEILINGS TO FLUORESCENT FIXTURES RECESSED IN CEILING SHALL BE MADE WITH FLEXIBLE METALLIC STEEL CONDUIT NOT TO EXCEED 6 FEET IN LENGTH. FINAL CONNECTIONS TO MOTORS, TRANSFORMERS, AND TO ANY PIECE OF EQUIPMENT THAT WILL TRANSMIT MOTION, NOISE OR VIBRATION , SHALL BE FLEXIBLE METAL CONDUIT. FLEXIBLE CONDUIT SHALL NOT BE INSTALLED OUTDOORS OR IN DAMP LOCATIONS. ALL FLEXIBLE CONDUIT IN DENTAL SPACE SHALL BE HCF TYPE.

LIQUID TIGHT FLEXIBLE STEEL CONDUIT SHALL BE USED WHEN MAKING CONNECTIONS IN THE FOLLOWING CONDITIONS: EXPOSED TO LIQUIDS, EXPOSED TO VAPORS, EXPOSED TO SUNLIGHT.

16110.03 – INSTALLATION
CONDUITS SHALL BE RUN PARALLEL AND PERPENDICULAR TO BUILDING LINES AND SHALL BE RUN AGAINST THE STRUCTURE IN A NEAT WORKMANLIKE MANNER.

CONDUIT SHALL BE INSTALLED CONCEALED ABOVE SUSPENDED CEILINGS OR CONCEALED IN WALLS OR FLOORS WHEREVER POSSIBLE. CONDUIT SHALL BE INSTALLED TO CLEAR ALL OPENINGS, DEPRESSIONS, PIPES, DUCTS, REINFORCING STEEL, ETC. ALL CONDUIT SHALL BE RAN OVERHEAD. CONDUIT SHALL BE RAN CONTINUOUS BETWEEN CONNECTIONS TO OUTLET BOXES AND CABINETS WITH MINIMUM POSSIBLE NUMBER OF BENDS. RADIUS OF BENDS SHALL BE AS LONG AS POSSIBLE AND NEVER SHORTED THAN THE CORRESPONDING TRADE ELBOW. LONG RADIUS ELBOWS SHALL BE USED WHERE NECESSARY. CONDUITS SHALL BE SECURELY FASTENED IN PLACE WITH APPROVED STRAPS, HANGERS AND STEEL SUPPORTS AS REQUIRED. SINGLE CONDUITS FOR FEEDERS SHALL BE HUNG WITH MALLEABLE SPLIT RING HANGERS WITH ROD AND TURNBUCKLE SUSPENSION FROM INSERTS SPACED NOT OVER 10 FEET APART FROM CONSTRUCTION ABOVE. GROUPS OF HORIZONTAL FEEDER CONDUITS SHALL BE CLAMPED TO UNISTRUT STEEL CHANNELS AND SUSPENDED FROM INSERTS NOT SPACED OVER 10 FEET APART IN CONSTRUCTION ABOVE. HORIZONTAL FEEDER CONDUITS SHALL BE CLAMPED TO STRUCTURAL STEEL MEMBERS ATTACHED TO THE STRUCTURE. CABLE CLAMPS SHALL BE INSTALLED FOR SUPPORT OF VERTICAL FEEDERS WHERE REQUIRED. CONDUIT SUPPORTS SHALL BE ADDED WITHIN 12" AT ONE END OF ALL BENDS. CONDUIT SHALL NOT BE SUSPENDED FROM SUSPENDED CEILING COMPONENTS.

CONDUIT ENDS SHALL BE REAMED BEFORE INSTALLATION AND ALL CONDUIT SHALL BE THOROUGHLY CLEANED BEFORE INSTALLATION AND KEPT CLEAN AFTER INSTALLATION. PLUG CONDUIT AND BOXES AS REQUIRED DURING CONSTRUCTION TO KEEP CONDUIT CLEAN.

CONDUIT SHALL BE OF AMPLE SIZE TO PULL CONDUCTORS AND NOT SMALLER THAN THE CODE REQUIRED. MINIMUM SIZE CONDUIT SHALL BE 1/2" FOR THIS PROJECT.

WHERE BUILDING EXPANSION JOINTS ARE SHOWN ON THE DRAWINGS PROVIDE PROPER CONDUIT EXPANSION FITTING.

CONDUIT SEALS SHALL BE INSTALLED ON ALL CONDUITS PASSING FROM NON-COOLED TO COOLED SPACES AND IN ALL CONDUIT PENETRATIONS OF FREEZER AND COOLER WALLS. SEALS SHALL CONSIST OF PLIABLE COMPOUND RATED FOR -20 DEGREES F. TO 100 DEGREES F. FURNISH AND INSTALL THE NECESSARY JUNCTION BOXES, COUPLINGS, SUPPORTS, ADAPTERS, ETC. TO FORM A COMPLETE ASSEMBLY.

INSTALL A PULL WIRE IN EACH EMPTY CONDUIT WHICH IS LEFT BY THE CONTRACTOR.

ALL CONDUITS AND/OR SURFACE RACEWAYS SHALL BE PAINTED WHERE INSTALLED EXPOSED IN FINISHED SPACES. PAINTING OF SURFACE RACEWAYS SHALL BE AS DIRECTED BY THE ENGINEER/ARCHITECT.

16120 – CONDUCTORS (LOW VOLTAGE, 600 VOLTS)

16120.01 – DESCRIPTION OF WORK
FURNISH AND INSTALL 600 VOLT CONDUCTORS AND ASSOCIATED SPLICES, CONNECTORS AND TERMINATION'S FOR LIGHTING, POWER AND AUXILIARY SYSTEMS AS SHOWN ON THE CONTRACT DOCUMENTS.

16120.02 – MATERIAL
98% CONDUCTIVITY COPPER. NEC TYPE THHN/THWN (90 C DRY/75 C WET) WITH UL LABEL. ALL CONDUCTORS TO BE IN CONDUIT.

SINGLE CONDUCTOR, STRANDED (ALL SIZES), SOFT ANNEALED COPPER CONDUCTORS WITH 600 VOLT THERMOPLASTIC INSULATION AND NYLON JACKET.

WIRE SMALLER THAN #12 GAUGE SHALL NOT BE USED UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR IN THESE SPECIFICATIONS.

WIRE INSULATION SHALL BE COLOR COATED AS FOLLOWS OR PER LOCAL ORDINANCES:
120/240V – A-BLACK, B-RED, C-ORANGE, NEUTRAL-WHITE, G-GREEN

BLACK INSULATION IS ACCEPTABLE FOR #8 WIRE AND LARGER. CONDUCTOR ENDS SHALL BE WRAPPED WITH COLORED TAPE AS INDICATED ABOVE.

IF NO WIRE SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE #12 AWG WIRE AND A 20A CIRCUIT BREAKER. CONTROL WIRING SHALL HAVE 600V INSULATION AND BE OF THE PROPER TYPE, SIZE AND NUMBER REQUIRED TO ACCOMPLISH SPECIFIED FUNCTION.

16120.03 – INSTALLATION
ALL WIRING SHALL BE INSTALLED IN APPROVED RACEWAYS OR ENCLOSURES. WIRE IN CONDUIT SHALL RAN CONTINUOUS WITHOUT SPICES OR TAPS. ALL SPLICES OR TAPS SHALL OCCURS IN APPROVED BOXES AND ENCLOSURES AND SHALL BE KEPT TO A MINIMUM, AND SHALL BE MADE WITH APPROVED SOLDERLESS CONNECTIONS. ALL SPLICES, TAPS AND JOINTS SHALL BE INSULATED PER THE NATIONAL ELECTRICAL CODE. ALL MATERIALS USED TO TERMINATE, SPLICE OR TAP CONDUCTORS SHALL BE DESIGNED FOR, PROPER SIZE FOR, AND UL LISTED FOR THE SPECIFIC APPLICATION AND CONDUCTORS INVOLVED, AND SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, USING THE MANUFACTURER'S RECOMMENDED TOOLS.

WHERE WIRE IS TO BE INSTALLED, BUT THE CONNECTION IS INDICATED "FUTURE" OR "BY OTHERS", THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 3 FEET OF "PIGTAIL" AT THE BOX. TAPE ALL CONDUCTOR ENDS AND COVER THE BOX.

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 2%. ALL BRANCH CIRCUITS SHALL HAVE EQUIPMENT GROUNDING CONDUCTOR'S AND SHALL BE SIZED PER NEC TABLE 250-95.

16130 – OUTLET BOXES, JUNCTION BOXES AND WIRING BODIES/GUTTERS

16130.01 – DESCRIPTION OF WORK
FURNISH AND INSTALL OUTLET BOXES, FLOOR BOXES, PULL BOXES, JUNCTION BOXES AND WIRING GUTTERS AS SHOWN ON THE CONTRACT DOCUMENTS OR AS REQUIRED.

16130.02 – OUTLET/JUNCTION BOXES
PROVIDE WIRING DEVICES, FIXTURES AND SPECIAL SYSTEM DEVICES WITH OUTLET BOX. USE GALVANIZED STEEL BOXES CONFORMING TO UL STANDARD 514A FOR CONCEALED AND EXPOSED DRY LOCATIONS. ALL BOXES SHALL HAVE MATCHING COVER PLATES.

USE 1/16" THICK STEEL BOXES AND COVERS OF FORM AND DIMENSION ADAPTED TO ITS SPECIFIC USE AND LOCATION, KIND OF FIXTURE OR DEVICE TO BE USED AND NUMBER, SIZE AND ARRANGEMENT OF CONNECTION CONDUITS AND NUMBER OF WIRES IN OUTLET, ALL IN ACCORDANCE WITH THE NEC. ALL BOXES SHALL BE SET IN WALLS, COLUMNS, FLOORS, OR CEILINGS SO AS TO BE FLUSH WITH THE FINISHED SURFACE AND BE ACCURATELY SET AND RIGIDLY SECURED IN POSITION. PROVIDE PLASTER RINGS, EXTENSION RINGS AND MASONRY RINGS AS REQUIRED FOR FLUSH MOUNTING.

MANUFACTURER'S: NATIONAL ELECTRICAL, APPLETON, STEEL CITY OR RACO

16130.03 – LARGE PULL BOXES
FURNISH PULL, TAP AND CABLE SUPPORT BOXES REQUIRED BY THE NEC FOR EXCESSIVE NUMBER OF 90 DEGREE CONDUIT BENDS, CONDUIT TAPS AND CABLE SUPPORTS.

BOX CONSTRUCTION PER NEC AND CONFORMING TO UL STANDARD #50. BOX TO BE MANUFACTURED WITH MINIMUM 12 GAUGE GALVANIZED STEEL.

PROVIDE SEPARATE PULL BOX FOR EACH FEEDER.

BOXES LOCATED IN DAMP OR WET LOCATIONS SHALL BE WELDED CONSTRUCTION AND FINISHED WHITE INSIDE AND GRAY OUTSIDE WITH WATERPROOF PAINT. PROVIDE GASKETED DOOR AND CORNERS. PROVIDE RAIN DRIP SHIELDS. BOXES SHALL CARRY NEMA 3R (WEATHERPROOF) OR NEMA 4 (WATERTIGHT) LABELS AS SPECIFIED.

ACCEPTABLE MANUFACTURERS: HOFFMAN, KEYSTONE, BURNS

16130.04 – CONDUIT BODIES
CONDUIT BODIES SHALL BE INSTALLED TO PROVIDE EASE OF CONDUCTORS AND TO PROVIDE NEAT APPEARANCE TO CONDUIT INSTALLATION, AND AS SHOWN ON THE DRAWINGS. CONDUIT BODIES SHALL BE CONSTRUCTED OF MALLEABLE IRON OR COPPER FREE ALUMINUM CASTINGS. BODIES SHALL BE FINISHED WITH STANDARD DURABLE EXTERIOR COATINGS OF MANUFACTURER SPECIFIED. PROVIDE ROLLERS IN TYPE "C" AND TYPE "LB" BODIES, 1-1/4" SIZE AND LARGER. PROVIDE GASKETED PLATED STEEL OR MALLEABLE IRON COVERS.

ACCEPTABLE MANUFACTURERS: CROUSE-HINDS, KILLARK, APPLETON

16130.05 – GUTTERS (WIREWAYS)

8"X8" AND SMALLER – USE STANDARD ASSEMBLE CONSISTING OF CODE GAGE GALVANIZED OR PAINTED STEEL AND COMBINATION HINGED/SCREWED COVERS.

ACCEPTABLE MANUFACTURERS – SQUARE-D, GENERAL ELECTRIC, WALKER ELECTRIC, B&C STAMPING CO.

16130.06 – SURFACE METAL RACEWAYS
WHERE INDICATED ON THE DRAWINGS, WIRING SHALL BE RUN IN EXPOSED METAL RACEWAYS, COMPLETE WITH OUTLET BOXES AND FITTINGS. ALL CIRCUITS RUN IN SURFACE METAL RACEWAYS SHALL HAVE GROUND CONDUCTOR WITH GREEN INSULATION SIZED PER NEC, BUT NOT SMALLER THAN #12 AWG SCREW CONNECTED TO EACH OUTLET BOX.

ACCEPTABLE MANUFACTURERS – WIREMOLD, PANDUIT

16134 – PANELBOARDS

16134.01 – DESCRIPTION OF WORK
PROVIDE AND INSTALL LIGHTING AND POWER PANEL BOARDS, RATED FOR 600 VOLTS OR LESS, AS SPECIFIED HEREIN AND AS SHOWN OR INDICATED ON THE DRAWINGS AND SCHEDULES.

16134.02 – SUBMITTALS
PROVIDE SHOP DRAWINGS FOR EACH PANELBOARD. INCLUDE INDIVIDUAL DIAGRAM OF EACH PANELBOARD SHOWING ALL SPECIFIED REQUIREMENTS. IN ADDITION, SUBMITTALS SHALL INDICATE OVERALL PANELBOARD DIMENSIONS, INTERIOR DIMENSIONS, BUS CONFIGURATION, WIRE GUTTER DIMENSIONS, SHORT CIRCUIT RATING PANELBOARD AND OVERCURRENT DEVICES.

16134.03 – STANDARDS
CONSTRUCT PANELBOARDS IN ACCORDANCE WITH THE LATEST ADDITION OF THE FOLLOWING STANDARDS:
- UL STANDARDS NO. 50, 67, 98, 489, AND 493
- NEMA PUBLICATION PB-1
- NEC ARTICLE 384

PANELBOARD ASSEMBLY SHALL BE UL LABELED, AND LABELED AS SERVICE ENTRANCE EQUIPMENT WHERE USED FOR THAT PURPOSE.

16134.04 – BASIC PANELBOARD CONSTRUCTION
PANELBOARDS TO BE SAME MANUFACTURER AS OTHER DISTRIBUTION EQUIPMENT

PANELBOARDS, BUSSING AND OVERCURRENT DEVICE SHALL HAVE INTEGRATED EQUIPMENT FAULT RATING EQUAL TO OR GREATER THAN THE AVAILABLE FAULT CURRENT.

BUSSING SHALL BE 98% CONDUCTIVITY COPPER SIZED TO NEC AND NEMA STANDARDS.

NEUTRAL BUSSES SHALL BE COPPER AND SIZED FOR 100% ON THE SAME BASIS AS PHASE BUSSING AS DESCRIBED AND INSULATED FROM THE CABINET.

PROVIDE 100% CAPACITY CONTINUOUS COPPER GROUND BUS IN EACH PANEL CABINET. GROUND BUSSES SHALL BE BOLTED TO THE CABINET UNLESS SPECIFIED TO BE ISOLATED

FURNISH PANELBOARDS WITH VOLTAGE, CURRENT, SHORT CIRCUIT RATING, SIZE AND MOUNTING AS INDICATED ON THE DRAWINGS AND SCHEDULES. IF THE DRAWINGS DO NOT STATE THE INTERRUPT RATING IT SHALL BE 100,000AIC.

16134.05 – POWER DISTRIBUTION PANELBOARDS (1200A AND SMALLER)
POWER DISTRIBUTION PANELS TO BE SQUARE-D TYPE I-LINE OR APPROVED EQUAL. CIRCUIT BREAKERS SHALL BE BOLT-ON, THERMAL-MAGNETIC TYPE, QUICK-MAKE, QUICK-BREAK, ENCLOSURE COMPENSATED, OF SINGLE CONSTRUCTION, TRIP FREE ON FAULTS, THERMAL-INVERSE TIME DELAY ELEMENT AND MAGNETIC INSTANTANEOUS TRIP COIL IN EACH UNGROUNDED PHASE CONDUCTOR, OR APPROVED (4) FOUR FUNCTION SOLID STATE TRIP UNIT. THE (4) FOUR FUNCTION SOLID STATE TRIP UNIT SHALL INCLUDE LONG TIME DELAY, SHORT TIME DELAY, INSTANTANEOUS AND GROUND FAULT.

AT A MINIMUM GROUND FAULT PROTECTION OF EQUIPMENT SHALL BE PROVIDED FOR SOLIDLY GROUNDED WYE ELECTRICAL SERVICES FOR EACH SERVICE DISCONNECT RATED FOR 1000 AMPERES OR MORE PER NEC 230.

PANEL CABINETS SHALL BE CODE GAUGE GALVANIZED STEEL BOXES WITH TURNED EDGES, REMOVABLE BARRIERS, WIRE GUTTERS ON ALL SIDES AND KNOCKOUTS FOR CONDUIT CONNECTIONS. CABINETS SHALL HAVE ONE PIECE FRONTS AND SHALL HAVE HINGED KEY LOCKING DOORS.

16134.06 – LIGHTING AND APPLIANCE PANELBOARDS
LIGHTING AND APPLIANCE PANELBOARDS SHALL BE SQUARE-D TYPE NQOD OR NEHB OR APPROVED EQUAL. PANELBOARDS SHALL BE DESIGNED AS SHOWN ON THE DRAWINGS. NUMBER AND SIZE OF CIRCUIT BREAKERS IN EACH PANELBOARD SHALL BE AS SCHEDULED ON THE DRAWINGS.

BREAKERS SHALL BE THERMAL MAGNETIC TYPE, QUICK MAKE, QUICK BREAK, ENCLOSURE COMPENSATED, OF SINGLE CONSTRUCTION. TWO OR THREE POLE BREAKERS, WHERE CALLED FOR, SHALL BE SINGLE UNIT COMMON TRIP. BREAKERS SHALL BE BOLT-ON TYPE.

CABINETS SHALL BE CONSTRUCTED OF ONE PIECE CODE GAUGE GALVANIZED STEEL THE MOUNTING STUDS AND KNOCKOUTS FOR CONDUIT CONNECTIONS AS REQUIRED. FRONTS SHALL BE ONE PIECE ON CODE GAUGE FURNITURE STEEL WITH ADJUSTABLE FASTENERS AND RECESSED DOORS FITTED WITH CONCEALED HINGES, FLUSH CATCH AND LOCK. CABINETS SHALL BE SURFACE OR FLUSH MOUNTED AS INDICATED ON THE DRAWINGS. ALL FRONTS AND ALL SURFACE MOUNTED CABINETS SHALL HAVE RUSTPROOF PRIME COAT AND 2 FINISHED COATED OF ENAMEL OR LAQUER.

ALL BRANCH CIRCUITS TO PANELBOARDS SHALL BE CONNECTED IN A MANNER SO THAT LOADS ARE BALANCED OVER EACH PHASE AS EQUALLY AS POSSIBLE. THE BACK DOOR SHALL BE FITTED WITH A GLASS OR PLASTIC COVERED TYPEWRITTEN SCHEDULE IDENTIFYING ALL BRANCH CIRCUITS.

BREAKERS USED AS SWITCHES FOR 120 OR 277 VOLT CIRCUITS SHALL BE APPROVED FOR THE PURPOSE AND AND MARKED "SWB".

BREAKERS USED FOR PROTECTION OF HVAC EQUIPMENT SHALL BE HACR TYPE.

16134-.07 – IDENTIFICATION
PERMANENTLY ATTACH NAMEPLATES AND CIRCUIT NUMBERS TO EACH PANEL

PROVIDE EACH PANELBOARD WITH NAMEPLATE SHOWING PANEL DESIGNATION, VOLTAGE RATING AND PHASE.

LABEL SHALL BE ENGRAVED LAMINATED-PLASTIC NAMEPLATE. NAMEPLATES SHALL BE BLACK WITH 1/4" HIGH WHITE LETTERS UNLESS OTHERWISE SPECIFIED.

16134.08 – ACCEPTABLE MANUFACTURERS
- SQUARE-D
- SIEMENS
- CUTLER-HAMMER
- GENERAL ELECTRIC

16134.09 – INSTALLATION
MOUNT PANELBOARDS SECURELY TO BUILDING STRUCTURE WITH 3/8" MINIMUM DIAMETER GALVANIZED BOLTS AND INSERTS NUMBERED AS REQUIRED FOR THE SIZE OF THE PANEL, BUT NOT LESS THAN 4. MOUNT PANELBOARDS WITH CENTERLINE 4'-6" APPROXIMATELY ABOVE FINISHED FLOOR WITH THE TOP A MAXIMUM OF 74" AFF. WHERE PANELS OF DIFFERENT HEIGHTS ARE MOUNTED ADJACENT, INSTALL THE TOP PANEL TRIM AT THE SAME HEIGHT ABOVE THE FLOOR. CLOSE ALL UNUSED OPENINGS.

MOUNT FEEDER PANELBOARDS TALLER THAN 66" ON 4" HIGH 2500# CONCRETE PAD AND BOLT TO THE WALL AND THE PAD WITH 1/2" DIAMETER BOLTS AND INSERTS.

16140– SWITCHES AND RECEPTACLES

16140.01 – DESCRIPTION OF WORK
WIRING DEVICES, PLATES AND INSTALLATION.

16140.02 – DEVICES
FURNISH AND INSTALL DEVICES AND ASSOCIATED DEVICE PLATES AS SHOWN ON THE DRAWINGS. ALL OUTLETS AND SWITCHES SHALL BE OF THE SAME MANUFACTURER. COLORS OF SWITCHES AND RECEPTACLES SHALL BE AS REQUESTED BY THE ARCHITECT.

STANDARD RECEPTACLES, UNLESS OTHERWISE NOTED, SHALL BE 3 WIRE GROUNDED TYPE, NEMA CONFIGURATION 5-20R, DUPLEX RECEPTACLE RATED AT 20 AMPS AT 125VAC. RECEPTACLES TO COMPLY WITH UL STANDARD 498 AND FEDERAL SPECIFICATION W-C-596.

GROUND-FAULT INTERRUPTER (GFCI) RECEPTACLES: UL STANDARD 943, "GROUND FAULT INTERRUPTERS," FEED-THROUGH TYPE, WITH INTEGRAL NEMA 5-20R DUPLEX RECEPTACLE. ARRANGE THE GFCI RECEPTACLE TO PROTECT CONNECTED DOWNSTREAM RECEPTACLES ON THE SAME CIRCUIT AS SHOWN OR AS REQUIRED.

PENDENT CORD/CONNECTOR DEVICES: MATCHING, LOCKING TYPE, PLUG AND RECEPTACLE BODY CONNECTOR, NEMA L5-20P AND L5-20R, HEAVY DUTY GRADE UNLESS OTHERWISE SPECIFIED.

CORD AND PLUG SETS: MATCH VOLTAGE AND CURRENT RATINGS AND THE NUMBER OF CONDUCTORS TO THE REQUIREMENTS OF THE EQUIPMENT BEING CONNECTED. THE CORD SHALL BE RUBBER INSULATED, STRANDED COPPER CONDUCTORS, WITH TYPE SOW-A JACKET.

SWITCHES: QUIET TYPE A.C. SWITCHES, LISTED AND LABELED TO COMPLYING WITH UL STANDARD 20 "GENERAL USE SNAP SWITCHES", AND FEDERAL SPECIFICATION W-S-896. MANUFACTURERS AS NOTED IN ELECTRICAL DEVICE SCHEDULE.

WHERE INDICATED ON THE PLANS PROVIDE PILOT LIGHT WITH THE ABOVE SNAP SWITCHES. PILOT LIGHT SHALL AND SWITCH TO BE INSTALLED IN A TWO GANG PLATE WITH FLUSH NEON PILOT LIGHT FOR 125 OR 227 VOLT OPERATION AS APPLICABLE, WITH A RED PLASTIC JEWEL LENS.

16140.03 – ACCEPTABLE MANUFACTURERS
- PASS AND SEYMOUR/LEGRAND
- HUBBELL
- LEVITON
- BRYANT
- EAGLE

16140.04 – DEVICE PLATES
FURNISH AND INSTALL ALL DEVICE COVER PLATES, 0.1" THICK SMOOTH PLASTIC COVER PLATES. VERIFY COLOR AND MATERIAL WITH THE ARCHITECT BEFORE INSTALLATION. SWITCH PLATES IN UNFINISHED ROOMS SHALL BE STAMPED STEEL PLATES, CADMIUM PLATED.

DEVICE PLATE SHALL BE MANUFACTURED BY THE DEVICE MANUFACTURER WHERE APPLICABLE.

FURNISH WEATHER PROOF DEVICES WITH INDIVIDUAL GASKETED ALUMINUM OR STAINLESS STEEL COVERS.

16140.05 – MULTI-OUTLET ASSEMBLIES

COMPLY WITH STANDARD UL-5 "SURFACE METAL RACEWAYS AND FITTINGS".

COMPONENTS OF ASSEMBLIES: PRODUCTS OF A SINGLE MANUFACTURER DESIGNED TO BE USED TOGETHER TO PROVIDE A COMPLETE MATCHING ASSEMBLY OF RACEWAYS AND RECEPTACLES.

RACEWAY MATERIAL: METAL WITH MANUFACTURERS STANDARD CORROSION RESISTANT FINISH.

WIRE: NO. 12 AWG MINIMUM.

ACCEPTABLE MANUFACTURERS
- WIREMOLD G-3000 SERIES
- EQUAL BY ISODUCT
- EQUAL BY HUBBELL

16140.06 – INSTALLATION
INSTALL DEVICES VERTICAL 48" AFF FOR SWITCHES AND 18" AFF FOR RECEPTACLES UNLESS OTHERWISE SHOWN. DEVICES SHALL BE INSTALLED PLUMB AND SECURE ON ALL SIDES. INSTALL RECEPTACLES WITH GROUND SLOT DOWN.

16170– DISCONNECTS (MOTOR, CIRCUIT, AND SEPARATE CIRCUIT BREAKERS)

16170.01 – DESCRIPTION OF WORK
FURNISH AND INSTALL SAFETY SWITCHES, DISCONNECTS AND SEPARATELY MOUNTED ENCLOSED CIRCUIT BREAKERS RATED TO 1200 AMPERES, 600 VOLTS AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

16170.02 – STANDARDS
- UL STANDARD 98
- NEMA STANDARD KS1-1983 FOR ENCLOSED SWITCHES
- NEMA AB1-1996 FOR MOLD CASE CIRCUIT BREAKERS AND SWITCHES

16170.03 – DISCONNECT SWITCHES
DISCONNECT SWITCHES SHALL BE HEAVY DUTY, RATED FOR 250 OR 600 VOLTS AS REQUIRED. SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK OPERATION AND HORSEPOWER RATED. THE OPERATING HANDLE SHALL BE INTERLOCKED WITH THE SWITCH DOOR TO PREVENT OPENING OF THE DOOR WITH THE SWITCH CLOSED. PROVIDE MECHANICAL OVERRIDE FOR AUTHORIZED PERSONNEL TO OPEN THE SWITCH DOOR WITHOUT OPERATING THE SWITCH HANDLE.

SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE AS SHOWN. FURNISH ONE TIME, DUAL ELEMENT, CLASS K5, REJECTION TYPE FUSES FOR EACH FUSIBLE POSITION, RATING AS SHOWN. FURNISH 3 SPARE FUSES FOR EACH RATING.

FUSIBLE SWITCHES LARGER THAN 600 AMPS SHALL BE SUITABLE FOR CLASS L FUSES. FUSES SERVING PREDOMINANTLY MOTOR OR TRANSFORMER LOADS SHALL BE DUAL ELEMENT, TIME DELAY TYPE, OTHERWISE NON-TIME DELAY FAST ACTING TYPE IS REQUIRED. FUSES SHALL BE CURRENT LIMITING WITH 200,000AIC.

FURNISH SOLID NEUTRAL FOR EACH SWITCH BEING INSTALLED IN A CIRCUIT WHICH INCLUDES A NEUTRAL CONDUCTOR. FURNISH A GROUNDING PAD FOR CONNECTION OF CIRCUIT GROUND WIRES.

PROVIDE MECHANICAL LUGS AND POWER DISTRIBUTION CONNECTORS FOR NUMBER, SIZE, AND MATERIAL OF CONDUCTORS AS INDICATED ON THE DRAWINGS.

ACCEPTABLE FUSE MANUFACTURERS
- BUSSMAN
- LITTLEFUSE
- CHASE SHAWMUT

THE DISCONNECT SWITCH SHALL BE FURNISHED WITH PROVISIONS FOR LOCKING WITH A PADLOCK. ENCLOSURES FOR SWITCHES TO BE NEMA 1, GENERAL PURPOSE INDOOR, OR NEMA 3R OR 4 FOR OUTDOOR LOCATIONS, WATERTIGHT.

ACCEPTABLE SWITCH MANUFACTURERS
- SQUARE-D
- SIEMENS
- GENERAL ELECTRIC
- CUTLER HAMMER/WESTINGHOUSE

16170.04 – SEPARATELY MOUNTED CIRCUIT BREAKERS
FURNISH AND INSTALL SEPARATELY MOUNTED CIRCUIT BREAKERS FOR OVERCURRENT PROTECTION OF FEEDERS AND BRANCH CIRCUITS WHERE SHOWN ON THE DRAWINGS.

CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC, MOLDED CASE TYPE, RATED FOR 600 VOLTS. THE INTERRUPT RATING SHALL BE AS SHOWN OR ON THE DRAWINGS. IF NO INTERRUPT RATINGS ARE SHOWN ON THE DRAWINGS THEY SHALL BE RATED FOR 100,000AIC.

ENCLOSURES FOR INDIVIDUAL CIRCUIT BREAKERS TO BE NEMA 1, GENERAL PURPOSE INDOOR, OR NEMA 3R OR 4 FOR OUTDOOR LOCATIONS, WATERTIGHT.

ACCEPTABLE CIRCUIT BREAKER MANUFACTURERS
- SQUARE-D
- SIEMENS
- GENERAL ELECTRIC
- CUTLER HAMMER/WESTINGHOUSE

16450– GROUNDING

16450.01 – DESCRIPTION OF WORK
THIS SECTION INCLUDES GROUNDING OF ELECTRICAL SYSTEMS AND EQUIPMENT AND BASIC REQUIREMENTS FOR GROUNDING FOR PROTECTION OF LIFE, EQUIPMENT, CIRCUITS, AND SYSTEMS.

16450.02 – STANDARDS
- NFPA 70, ARTICLE 250 – GROUNDING
- IEEE STANDARD 142 (GREEN BOOK)

16450.03 – ELECTRICAL SYSTEM AND EQUIPMENT GROUNDING
ALL PRODUCTS SHALL BE UL LISTED AND LABELED.

BOND THE GROUND MAIN SERVICE NEUTRAL, CABINETS, EQUIPMENT, CONDUITS, ETC., PER LATEST EDITION OF THE NEC AND AS SHOWN ON THE DRAWINGS, AND SPECIFIED HEREIN.

GROUND CONDUCTORS SHALL BE 98% CONDUCTIVITY COPPER. OTHER CONDUCTOR REQUIREMENTS SHALL BE THE SAME AS DESCRIBED FOR LOW VOLTAGE, 600 VOLT, CONDUCTORS AND SPECIFIED HEREIN.

ALL CONDUIT SYSTEMS, BOXES, ELECTRICAL EQUIPMENT, ENCLOSURES, MOTOR FRAMES, ETC., SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC, LOCAL AUTHORITIES AND AS SPECIFIED.

A SEPARATE EQUIPMENT GROUND CONDUCTOR SHALL BE INSTALLED INSIDE OF EACH CONDUIT RUN FOR GROUNDING ALL CIRCUITS ABOVE 48 VOLTS. THE METALLIC CONDUIT SHALL NOT BE USED AS A GROUNDING CONDUCTOR.

GROUND WIRE SIZE THRU #10 SHALL BE STRANDED COPPER, GREEN TYPE THHN 75 DEGREES C INSULATION. GROUND WIRES SIZED #8 AND LARGER SHALL BE STRANDED COPPER, TYPE TWHN OR THW WITH GREEN INSULATION OR GREEN TRACER.

GROUNDING CONDUCTORS IN CONTACT WITH EARTH SHALL BE SOLID BARE TINNED COPPER.

NO ELECTRICAL SYSTEM NEUTRAL SHALL BE USED AS A EQUIPMENT GROUND.

GROUND WIRES SHALL BE RAN CONTINUOUS FROM TERMINATION POINT TO TERMINATION POINT WITHOUT SPLICES.

ALL OUTLET BOXES AND JUNCTION BOXES, DISCONNECTS, ETC., SHALL BE GROUNDED. THE GROUND WIRE TERMINAL OF EACH DEVICE SHALL BE CONNECTED TO THE GROUND CONDUCTOR.

ALL METAL ENCLOSURES FOR ELECTRICAL DISTRIBUTION AND CONTROLS, ALL METAL EQUIPMENT SUPPORTS FOR ELECTRICAL CONTROLS AND ALL SIMILAR ITEMS SHALL BE CONNECTED TO THE GROUND SYSTEM.

FLEXIBLE CONDUIT SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH THE NEC.

ALL FLEXIBLE CONDUITS WITH CIRCUITS CONTAINING AN AMPACITY GREATER THAN 20 AMPS SHALL INCLUDE A GROUND WIRE AS WELL AS ANY FLEXIBLE CONDUIT OVER 6 FEET IN LENGTH.

16500– LUMINAIRES

16500.01 – DESCRIPTION OF WORK
THIS SECTION SPECIFIES MATERIALS USED FOR LIGHTING LUMINAIRES, THEIR INSTALLATION AND LAMPING. SPECIFIC LUMINARE TYPES ARE SPECIFIED BY CATALOG NUMBER IN THE LUMINARE (LIGHTING) SCHEDULE ON THE DRAWINGS.

16500.02 – STANDARDS
- CMB – CERTIFIED BALLAST MANUFACTURERS
- ETL – ELECTRICAL TESTING LABORATORY
- IES – ILLUMINATING ENGINEERING SOCIETY

16500.03 – LUMINARIES
FURNISH LUMINARIES AS SHOWN ON THE DRAWINGS IN THE LUMINARE (LIGHTING) SCHEDULE. THIS SHALL INCLUDE ALL LAMPS, MATERIAL AND LABOR TO SECURELY HANG FIXTURES, CLEAN THEM AND MAKE THEM COMPLETE AND READY FOR USE. ALL FIXTURES SHALL INCLUDE ALL NECESSARY ACCESSORIES REQUIRED.

VERIFY EXACT TYPE CEILING AND RECESSING DEPTH OF RECESSED LUMINARIES AND FURNISH SPECIFIC MOUNTING TRIMS AND ACCESSORIES REQUIRED.

VERIFY PROPER VOLTAGE FOR EACH LUMINARE AND PROVIDE BALLAST'S TO MATCH ACTUAL APPLIED VOLTAGE AS SHOWN ON DRAWINGS.

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