	LIGHTING FIXTURE SCHEDULE											
TVDE	YPE MANUFACTURER	CATALOG NUMBER		LAMPS		VOLTS	MOUNTING	REMARKS				
IIIFL			LUMEN	WATT	TYPE			NLIVIARRO				
Α	EFFICIENT LIGHTING	EL-865-30LED-BN	2100	30	LED	120	SURFACE	18" DIAMETER				
В	EFFICIENT LIGHTING	EL-825-15LED-BN	1050	15	LED	120	SURFACE	12" DIAMETER				
С	LITHONIA	FMLWL48 830	2380	40	LED	120	SURFACE	LINEAR				
D	LITHONIA	LK7B2MW BR30LED - LC6	850	12.5	LED	120	RECESSED	6" DOWNLIGHT				
F	EFFICIENT LIGHTING	EL-200-20LED-PN	1400	20	LED	120	WALL	VANITY				
G	EFFICIENT LIGHTING	EL-1541-15LED-W	1050	15	LED	120	WALL	EXTERIOR SCONCE				
Н	LITHONIA	OFLR 6LC 120 P WH	1096	20	LED	120	WALL	EXTERIOR FLOOD W/ INTEGRAL PHOTOCELL				
XEM	LITHONIA	LHQM LED R			LED	120	WALL	COMBINATION EXIT SIGN EMERGENCY LIGHT				

LIGHTING FIXTURE NOTES:

- TYPE 'XEM' EMERGENCY FIXTURES/EXIT SIGNS SHALL BE WIRED TO LINE SIDE OF AREA LIGHTING CIRCUIT TO SENSE LOSS
 OF NORMAL POWER AND PROVIDE CONTINUOUS TRICKLE CHARGE, AND SHALL OPERATE AT A MINIMUM OF 1 1/2 HOURS
 UPON LOSS OF NORMAL POWER. SEE SCHEDULE THIS SHEET.
 VERIFY ALL LIGHT FIXTURE FINISHES WITH ARCHITECT PRIOR TO PURCHASE.

PANE	EL SCHEDULE														
	VOLTAGE	120	/208		MAII	N RATING	4	100			/	NOUNTING	SURFACE		
	PHASE 3			3 MLO/MCB 300A MCB							LOCATION		BASE	BASEMENT	
	WIRE		FEEDER 4#350+#2G, 3"C							DEMAND LOAD		83.5			
CKT#	AREA SERVED		WIRE	CONNE	CTED LOAD IN KW		SE	CKT#	AREA SERVED	C/B	WIRE	CONNECTED LO) IN KW	
JN1#	AREA SERVED	C/B	VVIINE	MOTOR	RECEPT.	LIGHT	GHT HA	CKI #	AREA SERVED	С/В	WIKE	MOTOR	RECEPT.	LIGHT	
1	OFFICE/EXT RECEPTS/EXT LIGHT	20/1	#12		1.2	0.1	Α	2	BRK RM CNTR/GEN RECEPT	20/1	#12		8.0		
3	BREAKROOM BATHROOM	20/1	#12	0.1	0.2	0.1	В	4	SPARE	20/1					
5	SPARE	20/1					С	6	OFFICE/EXT RECEPT	20/1	#12		1.4		
7	PLAYROOM/EXT RECEPTS/EXT LIGHT	20/1	#12		1.0	0.2	Α	8	WASHER	20/1	#12	0.5			
9	WASHER	20/1	#12	0.5			В	10	DRYER	30/2	#10	5.0			
11	LAUNDRY RM/EXT RECEPT/EXT LIGHT	20/1	#12		0.8	0.2	С	12	DRIER	3072	#10	3.0			
13	DRYER	30/2	#10	5.0			Α	14	KITCHEN COUNTER	20/1	#12		0.4		
15	DIVIER	3072	#10	3.0			В	16	DISHWASHER	20/1	#12	1.5			
17	KITCHEN COUNTER	20/1	#12		0.4		С	18	KITCHEN COUNTER	20/1	#12		0.4		
19	2ST FLR BATHROOM	20/1	#12	0.1	0.2	0.1	A	20	1ST FLR BEDROOM/EXT RECEPT	20/1	#12		1.0	0.2	
21	1ST FLR BEDROOM/SIDE LIGHT	20/1	#12		1.0	0.1	В	22	2ND FLR BEDROOM	20/1	#12		8.0	0.1	
23	2ND FLR BEDROOM	20/1	#12		1.0	0.1	С	24	2ND FLR BEDROOM	20/1	#12		1.2	0.1	
25	2ND FLR BATHROOM	20/1	#12	0.1	0.2	0.1	Α	26	2ND FLR BATHROOM	20/1	#12	0.1	0.2	0.1	
27	2ND FLR BEDROOM	20/1	#12		8.0	0.1	В	28	2ND FLR BEDROOM	20/1	#12		1.0	0.1	
29	BASEMENT LIGHTING	20/1	#12			0.2	С	30	BASEMENT RECEPTS	20/1	#12		1.2		
31	OLD BOILER RM	20/1	#12		0.8	0.1	Α	32	PANEL RECEPT	20/1	#12		0.2		
33 35	BASEBOARDS 1ST FLR SOUTH	20/2	#12	1.0			ВС	34 36	BASEBOARDS 1ST FLR NORTH	20/1	#12	2.5			
37 39	BASEBOARDS 2ND FLR	20/2	#12	2.0			A B	38	GENERATOR PANEL		#1/0	50.0			
41	SPARE	20/1					С	40	-			55.5			

PANEL SCHEDULE GENERATOR														
VOLTAGE 120/208					MAIN RATING 225						MOUNTING		SURFACE	
PHASE 3					MLO/MCB	150/	MCE	3		LOCATION		BASEMENT		
WIRE 4					FEEDER 4#1/0+#6G, 2"C							AND LOAD	50.0	
OVT #	APEA CERVER	O/D	MUDE	CONNECTED LOAD I		IN KW	SE	OVT #	ADEA CEDVED	C/B			CTED LOAD IN KW	
CKT#	AREA SERVED	C/B	WIRE	MOTOR	RECEPT.	LIGHT	PHASE	CKT#	# AREA SERVED		WIRE	MOTOR	RECEPT.	LIGHT
1							Α	2	INID COD A CLINITO	20/2	#12	1.1		
3	CONDENSING UNIT	60/3	#6	14.5			В	4	INDOOR AC UNITS		#12	1.1		
5							С	6	WATER HEATER/CONDENSATE PUMP	20/1	#12	0.7		
7	AC CONTROLS	20/1	#12	0.1			Α	8	BREAKROOM FRIDGE/COUNTER	20/1	#12		1.4	
9	FRIDGE	20/1	#12		1.2		В	10	FRIDGE	20/1	#12		1.2	
11	RANGE	50/2	#8	8.3			С	12	RANGE HOOD	20/1	#12	0.1		0.1
13	MINOL	30/2	#0	6.5			Α	14	BASEMENT FRIDGE	20/1	#12		1.2	
15	BASEMENT FREEZER	20/1	#12		1.2		В	16	BASEMENT FRIDGE	20/1	#12		1.2	
17	BASEMENT FREEZER	20/1	#12		1.2		C	18	FACP	20/1	#12	1.9		
19	EXISTING WELL PUMP	20/2	#12	1.0			Α	20	LIVING ROOM/EXT RECEPT	20/1	#12		1.2	0.1
21	EXISTING WELL FOWIF	20/2	#12	1.0			В	22	HALLWAY/KITCHEN LIGHTS		#12		1.0	0.2
23	2ND FLR HALL/STAIR LIGHTING	20/1	#12		0.4	0.2	С	24	MAIN ENTRY/FRONT LIGHTS	20/1	#12		0.6	0.1
25	HALLWAY	20/1	#12		0.2	0.2	Α	26	2ND FLR PASSAGE/EXT LIGHT-RECEP	20/1	#12		0.4	0.1
27	LIGHTING SOUTH	20/1	#12			0.7	В	28	OFFICE RECEPTS/FRONT LIGHTS	20/1	#12		1.0	0.1
29	OFFICE RECEPTS	20/1	#12		0.8		С	30	OFFICE RECEPTS	20/1	#12		8.0	
31							Α	32	INDOOR AC UNITS	20/2	#12	0.2		
33	CONDENSING UNIT	30/3	#10	6.8			В	34	THE PROPERTY AND THE PARTY AND		#12	0.2		
35							С	36	BASEBOARDS OFFICE		#12	1.0		
37	SPARE	20/1					Α	38			#12	1.0		
39	SPARE	20/1					В	40	SPARE	20/1				
41	SPARE	20/1					С	42	SPARE	20/1				

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
0	CEILING MOUNTED LIGHT FIXTURE — SUBLETTER INDICATES TYPE
0	RECESSED DOWNLIGHT FIXTURE — SUBLETTER INDICATES TYPE
<u> </u>	WALL MOUNTED LIGHT FIXTURE — SUBLETTER INDICATES TYPE
	SURFACE MOUNTED FLUORESCENT LIGHT FIXTURE — SUBLETTER INDICATES TYPE
<u>4P</u>	BUILDING MOUNTED FLOOD LIGHT — SUBLETTER INDICATED TYPE
484	COMBINATION EXIT SIGN/EMERGENCY BATTERY UNIT WITH TWO DIRECTIONAL HEADS
S	SINGLE POLE TOGGLE SWITCH - MOUNT AT 48" A.F.F.
S ₃	THREE WAY TOGGLE SWITCH - MOUNT AT 48" A.F.F.
S ₄	FOUR WAY TOGGLE SWITCH — MOUNT AT 48" A.F.F.
S _T	THERMAL OVERLOAD SWITCH - MOUNT AT FRACTIONAL HP MOTORS
₩	GROUNDED DUPLEX RECEPTACLE - MOUNT AT 18" A.F.F.
= 0A	GROUNDED DUPLEX RECEPTACLE - MOUNT ABOVE COUNTER BACKSPLASH OR 42" A.F.F.
⇒ G	GROUNDED DUPLEX RECEPTACLE - GFI TYPE - MOUNT AT 18" A.F.F SEE NOTE BELOW
₩P	GROUNDED DUPLEX GFI RECEPTACLE IN "WEATHERPROOF WHILE IN-USE" COVER
*	GROUNDED DOUBLE DUPLEX RECEPTACLE - MOUNT AT 18" A.F.F.
Ю	SPECIAL PURPOSE RECEPTACLE - MATCH NEMA CONFIGURATION OF EQUIPMENT SERVED - MOUNT AT 18" A.
F	MANUAL FIRE ALARM PULL STATION — MOUNT AT 48" A.F.F.
\$	AREA COMBINATION SMOKE DETECTOR/CARBON MONOXIDE DETECTOR W/SOUNDER BASE
EX	FIRE ALARM AUDIBLE/VISUAL INDICATING UNIT — MOUNT AT 80" A.F.F.
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM REMOTE ANNUNCIATOR PANEL
图	COMBINATION DISCONNECT SWITCH/MAGNETIC MOTOR STARTER
K	SECURITY SYSTEM KEY PAD
VIIIII	ELECTRIC PANEL
	BRANCH CIRCUIT WIRING
	BRANCH CIRCUIT FEEDER
———— III	ELECTRICAL GROUND
A	AMPERE
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
С	CONDUIT
C/B	CIRCUIT BREAKER
CIR	CIRCUIT
CUH	CABINET UNIT HEATER
EBU	EMERGENCY BATTERY UNIT
EF	EXHAUST FAN
EM	ITEM PROVIDED WITH OR CONNECTED TO EMERGENCY POWER
EMT	ELECTRICAL METALLIC TUBING
FA	FIRE ALARM
GFI	GROUND FAULT INTERRUPTER
IG	ISOLATED GROUND
JB	JUNCTION BOX
Р	POLE
PE	PRIMARY ELECTRIC SERVICE
PVC	POLYMNYL CHLORIDE CONDUIT
RTU	ROOFTOP UNIT
SE	SECONDARY ELECTRIC SERVICE
T T	TELEPHONE SERVICE
TV	TELEVISION
	TRANSFORMER
TX	UNLESS NOTED OTHERWISE
UNO	WIRELESS ACCESS POINT
WAP	

ELECTRICAL LEGEND NOTES:

- 1. RECEPTACLES LOCATED WITHIN 6'-0" OF A WATER SOURCE, LOCATED OUTSIDE AND WHERE REQUIRED BY CODE SHALL BE PROVIDED WITH A GFI TYPE RECEPTACLE WHETHER INDICATED OR NOT. ADDITIONALLY, THOSE EXTERIOR RECEPTACLES SHALL BE PROVIDED WITH LOCKABLE COVERS RATED "WEATHER PROOF WHILE IN USE" ALL KEYED ALIKE.
- 2. ALL 120V, SINGLE PHASE 15— AND 20—AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED COMBINATION-TYPE ARC-FAULT CIRCUIT INTERRUPTER, INSTALLED TO PROVIDE PROTECTION OF THE ENTIRE BRANCH
- 3. ALL BRANCH CIRCUITS TO BE PROVIDED WITH INDIVIDUAL DEDICATED NEUTRAL. MULTI-CIRCUIT FEEDERS UTILIZING COMMON
- NEUTRALS WILL NOT BE ACCEPTED.

 4. ALL SYMBOLS MAY NOT BE USED.

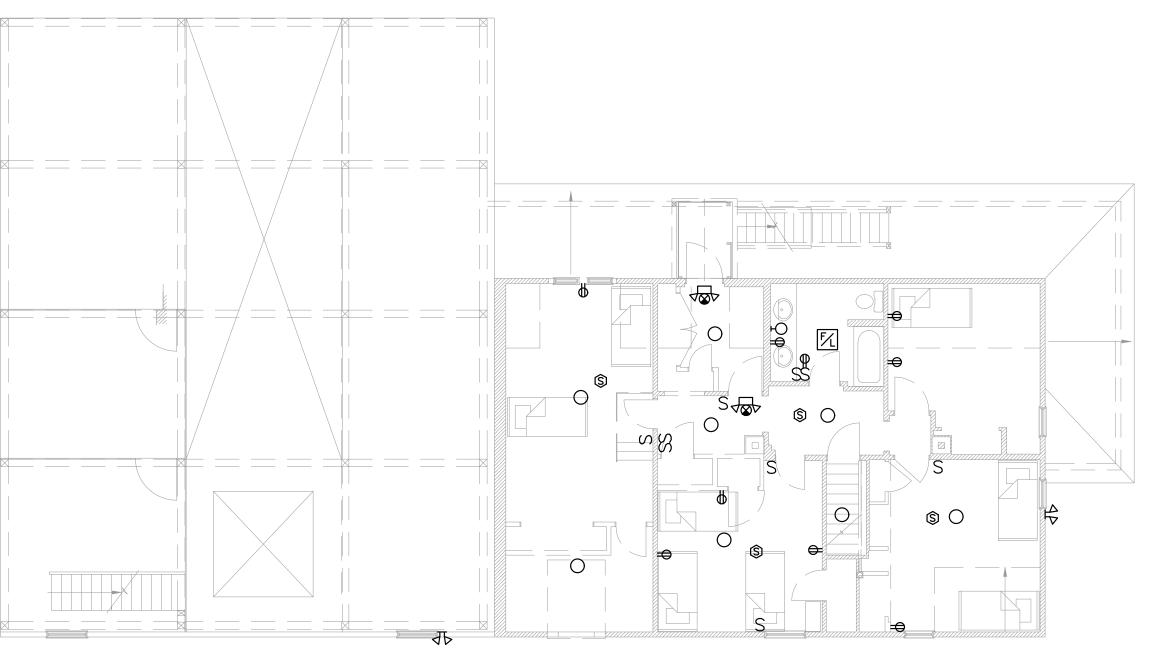
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Killingly, ELECTRICAL SYMBOLS AND SCHEDULES

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<u>DEMOLITION NOTES:</u>
1. DEVICES SHOWN ARE BASED ON CASUAL OBSERVATION. NOT ALL DEVICES SHOWN DUE TO OCCUPATION AT TIME OF FIELD VISIT. CONTRACTOR TO VERIFY IN FIELD ALL

2 SECOND FLOOR ED-1 SCALE: 1/8" = 1'-0"

DEVICES PRIOR TO DEMOLITION.

2. ALL EXISTING DEVICES WITHIN SCOPE OF WORK, INCLUDING LIGHT FIXTURES, TO BE DISCONNECTED AND REMOVED COMPLETE, INCLUDING WIRING, BACK TO SOURCE, UNLESS NOTED OTHERWISE.

3. EXISTING PANELBOARDS TO BE DISCONNECTED AND

BE DISCONNECTED AND REMOVED BACK TO POLE.

REMOVED. REMOVE EXISTING FEEDERS BACK TO METER. 4. EXISTING METERS AND INCOMING SERVICE FEEDERS TO

COORDINATE WORK WITH UTILITY COMPANY AND PERFORM PER UTILITY COMPANY REQUIREMENTS. 5. EXISTING CAMERAS TO BE DISCONNECTED AND REMOVED AND TURNED OVER TO OWNER FOR REUSE. COORDINATE WITH OWNERS SECURITY COMPANY.

6. EXISTING FIRE ALARM SYSTEM AND ALL ASSOCIATED PERIPHERAL DEVICES TO BE DISCONNECTED AND REMOVED COMPLETE. NOTIFY FIRE DEPARTMENT PRIOR TO REMOVAL.

7. EXISTING FIRE ALARM DEVICES IN BARN TO BE REPLACED WITH NEW. MAINTAIN EXISTING CIRCUITING FOR CONNECTION TO NEW FIRE ALARM PANEL INSTALLED DURING NEW WORK PHASE.

8. DISCONNECT EXISTING PLUMBING AND MECHANICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO, WATER HEATER BOILER, AIR HANDLERS, ETC. REMOVE WIRING COMPLETE BACK TO SOURCE.

9. EXISTING WELL PUMP AND PRESSURE TANK TO REMAIN.

PANEL.

MAINTAIN EXISTING CIRCUITING FOR CONNECTION TO NEW

ELECTRICAL DEMOLITION FLOOR PLANS

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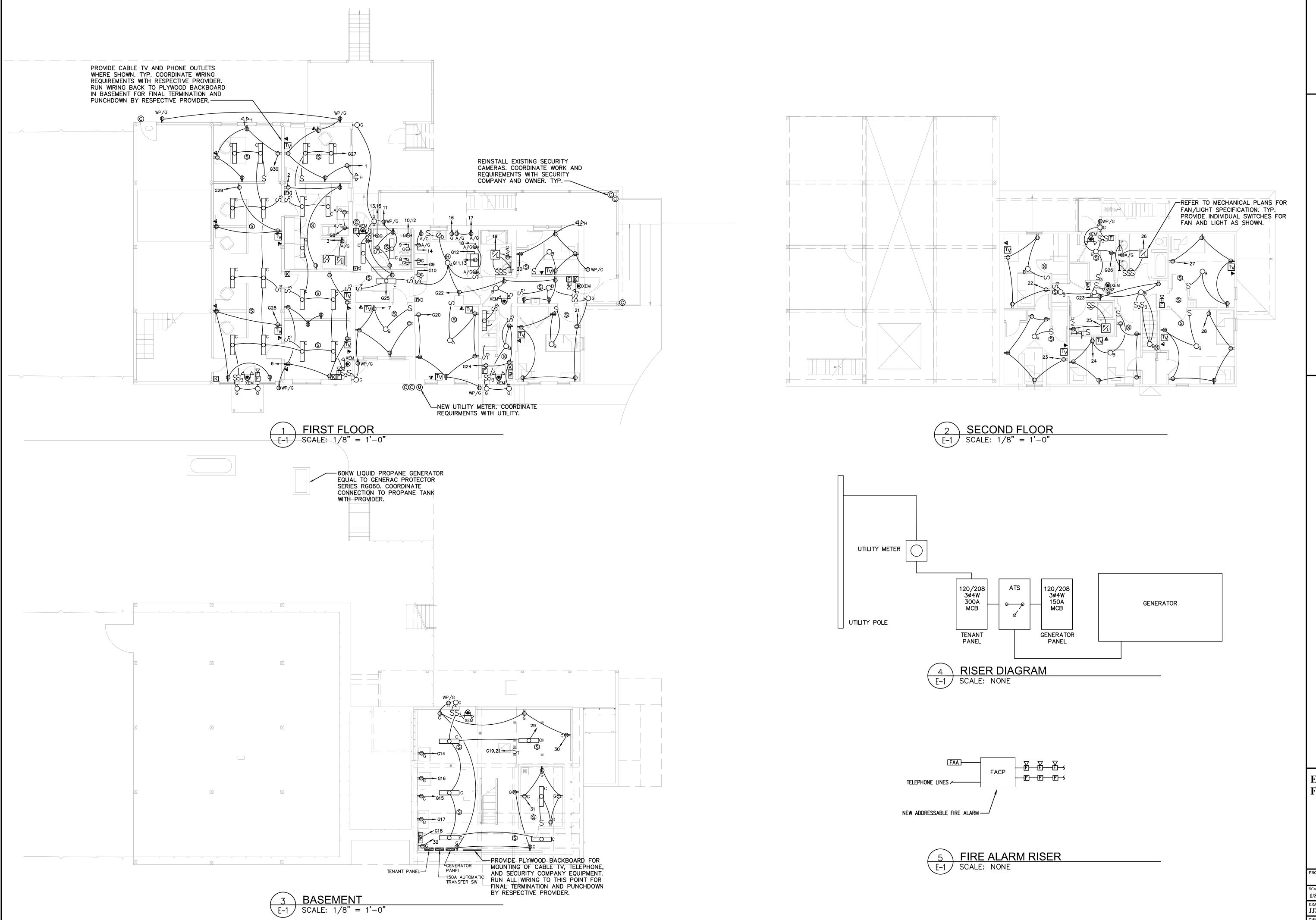
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2017-03.12

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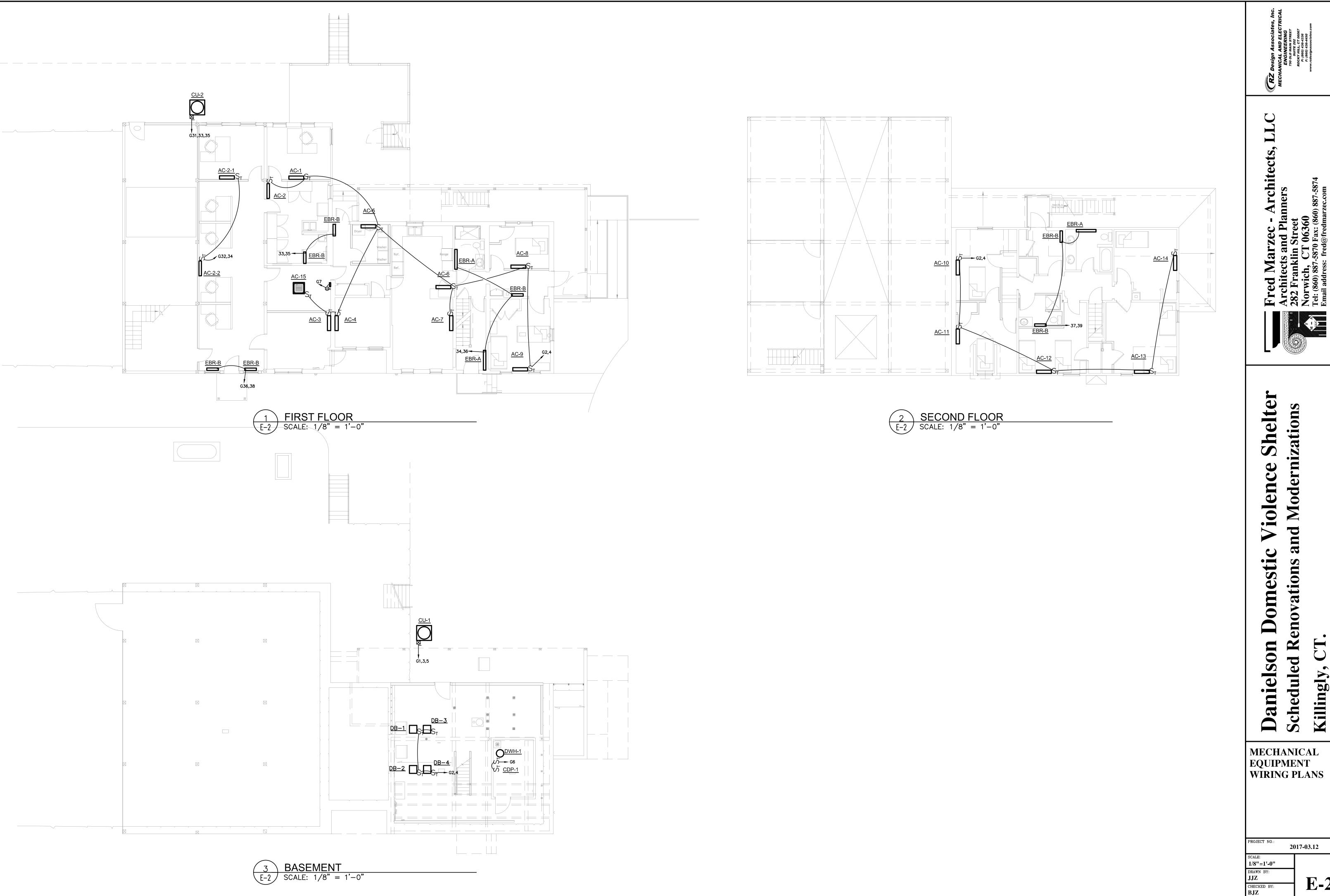
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ELECTRICAL FLOOR PLANS

2017-03.12 1/8"=1'-0"

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ELECTRICALLY OPERATED EQUIPMENT LISTED IN THE SPECIFICATIONS OR SHOWN ON THE CONTRACT DRAWINGS. 2. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND EQUIPMENT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED INTO, AND BECOME A PART OF THIS DIVISION. THIS CONTRACTOR SHALL EXAMINE ALL SUCH DRAWINGS AND SPECIFICATIONS AND BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS CONTAINED THEREIN. THE SUBMISSION OF HIS BID SHALL INDICATE SUCH KNOWLEDGE.

3. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. THEY ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT AND CONDUIT. DIMENSIONS GIVEN ON THE PLANS, IN FIGURES, SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS AND SHALL BE VERIFIED IN THE FIELD. THE ELECTRICAL CONTRACTOR SHALL LAYOUT ALL EQUIPMENT ROOMS TO MAKE SURE THE EQUIPMENT, AS PURCHASED, FITS IN THE ROOM OR SPACE SHOWN. EXACT LOCATION OF ALL EQUIPMENT SHALL BE VERIFIED IN THE FIELD AND ROUTING OF CONDUITS SHALL SUIT

4. UNTIL THE TIME OF INSTALLATION, THE ARCHITECT RESERVES THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATION OF CONDUIT AND EQUIPMENT WITHOUT ADDITIONAL COST TO THE CONTRACT.

5. THE ELECTRICAL DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER. MATERIAL AND LABOR NECESSARY TO THE PROJECT SHALL BE FURNISHED AND INSTALLED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH, LABOR AND/OR MATERIALS NEITHER SHOWN NOR SPECIFIED, BUT OBVIOUSLY NECESSARY FOR THE COMPLETION AND PROPER FUNCTIONING OF THE SYSTEM, SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AT NO ADDITIONAL COST.

6. ARRANGE ALL EQUIPMENT SUBSTANTIALLY AS SHOWN ON THE DRAWINGS. MAKE DEVIATIONS ONLY WHERE NECESSARY TO AVOID INTERFERENCE. CHECK ALL EQUIPMENT SIZES AGAINST AVAILABLE SPACE PRIOR TO SHIPMENT TO AVOID INTERFERENCE.

7. EXAMINE THE WORK OF OTHER TRADES INSOFAR AS THEIR WORK COMES IN CONTACT WITH OR IS COVERED BY THIS WORK. IN NO CASE ATTACH TO, OR FINISH AGAINST ANY DEFECTIVE WORK OR INSTALL WORK IN A MANNER WHICH WILL PREVENT PROPER INSTALLATION OF THE WORK OF OTHER TRADES.

8. ELECTRICAL CONTRACTOR SHALL VERIFY WITH OTHER TRADES ALL ELECTRICAL CHARACTERISTICS OF EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS. CONTRACTOR SHALL VERIFY VOLTAGE, PHASE AND HORSEPOWER AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO START OF WORK. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECTING MEANS AND OVERLOAD PROTECTION FOR ALL EQUIPMENT, UNLESS FURNISHED INTEGRAL WITH

9. IT IS THE INTENT OF THESE DRAWINGS THAT THIS BE A COMPLETE ELECTRICAL JOB. ANY ERRORS OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING THE JOB.

1. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK. THE SUBMISSION OF HIS PROPOSAL SHALL INDICATE SUCH KNOWLEDGE. NO ADDITIONAL PAYMENT SHALL BE MADE ON CLAIMS THAT ARISE FROM A LACK OF KNOWLEDGE OF THE EXISTING CONDITIONS.

C. CODE AND PERMITS 1. INSTALLATION SHALL BE IN FULL ACCORDANCE WITH ALL CODES, RULES AND REGULATIONS OF MUNICIPAL, CITY, COUNTY, STATE AND PUBLIC UTILITIES AND ALL OTHER AUTHORITIES HAVING JURISDICTION OVER THE PREMISES. 2. COMPLY WITH ANY SPECIFICATION REQUIREMENTS THAT ARE IN EXCESS BUT NOT IN CONFLICT WITH CODE

3. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, PLAN REVIEWS AND CERTIFICATES OF INSPECTION IN CONNECTION WITH HIS WORK, REQUIRED BY THE FOREGOING AUTHORITIES. BEFORE FINAL PAYMENT OF THE

CONTRACT IS ALLOWED, ALL CERTIFICATES SHALL BE DELIVERED TO THE ARCHITECT IN DUPLICATE. 4. ELECTRICAL MATERIAL AND EQUIPMENT SHALL BEAR THE UL LABEL EXCEPT WHERE UL DOES NOT LABEL SUCH TYPES OF MATERIAL AND EQUIPMENT.

D. SHOP DRAWINGS SUBMITTALS 1. THE ELECTRICAL CONTRACTOR SHALL SUBMIT FIVE (5) SETS OF SHOP DRAWINGS. THE SHOP DRAWINGS OF THE FOLLOWING EQUIPMENT USING THE INDICATED NUMBERING SYSTEM AND TITLES, SHALL BE SUBMITTED THROUGH THE ARCHITECT TO THE ENGINEER AND THEN RESUBMITTED FOR FINAL APPROVAL, IF NECESSARY. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS:

b. Panelboards and safety switches including fault current study based on equipment being

c. CONTACTORS, TIME SWITCHES AND PHOTOCELL

d. LIGHTING FIXTURES

e. SUPERVISORY ALARM SYSTEM 2. ALL SUBMITTED SHOP DRAWINGS (MANUFACTURERS "EQUIPMENT DESCRIPTIVE SHEETS OR VENDORS" PREPARED DRAWINGS) SHALL HAVE THE GENERAL CONTRACTOR'S OR SUBCONTRACTOR'S "STAMP OF APPROVAL" INDICATING THAT THE ITEM SUBMITTED IS AS CALLED FOR ON THE PLANS AND SPECIFICATIONS, IS APPROVED BY THE GENERAL CONTRACTOR OR SUBCONTRACTOR, THE DATE OF APPROVAL AND INITIALED BY THE PERSON APPROVING

THE SUBMITTAL AND THE NAME OF THE COMPANY SUBMITTING SAID EQUIPMENT FOR APPROVAL. 3. SUBMIT BOUND BROCHURES COMPLETE WITH A TABLE OF CONTENTS. LOOSE OR STAPLED TOGETHER SHEETS ARE NOT ACCEPTABLE. ANY SUBMITTALS NOT IN BROCHURE FORM OR NOT AS SPECIFIED SHALL BE RETURNED AT

THE CONTRACTOR'S EXPENSE FOR RESUBMITTAL. 4. ALL DESCRIPTIVE LITERATURE SHALL BE SUBMITTED IN A THREE (3) HOLE BROCHURE WITH A COVER IDENTIFYING THE FOLLOWING:

a. NAME OF THE JOB. b. LOCATION OF THE JOB, ADDRESS, CITY AND STATE.

c. NAME AND ADDRESS OF THE COMPANY SUBMITTING THE BROCHURES.

d. Date of the submittal. 5. EVERY EFFORT SHALL BE MADE, IN CHECKING THE SHOP DRAWINGS, TO DETECT AND CORRECT ALL ERRORS, OMISSIONS AND INACCURACIES. FAILURE TO DO THIS WILL NOT RELIEVE THE ELECTRICAL CONTRACTOR OF THE RESPONSIBILITY FOR THE PROPER AND COMPLETE INSTALLATION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. E. RECORD DRAWINGS

1. SUBMIT TO THE ARCHITECT ONE SET OF REPRODUCIBLE (MYLARS) ELECTRICAL DRAWINGS SHOWING THE RECORD CONDITIONS.

F. STANDARDS AND SUBSTITUTIONS

1. WHEREVER THE WORDS "APPROVED BY", "APPROVED EQUAL", "AS DIRECTED" OR SIMILAR PHRASES ARE USED IN THE FOLLOWING SPECIFICATIONS, THEY SHALL BE UNDERSTOOD TO REFER TO THE OWNER AS THE APPROVING AGENCY. THE NAME OR MAKE OF ANY EQUIPMENT OR MATERIALS NAMED IN THIS SPECIFICATION (WHETHER OR NOT THE WORDS "OR APPROVED EQUAL" ARE USED) SHALL BE KNOWN AS THE "STANDARD".

2. THESE SPECIFICATIONS ESTABLISH QUALITY STANDARD OF MATERIALS AND EQUIPMENT TO BE PROVIDED. SPECIFIC ITEMS ARE IDENTIFIED BY MANUFACTURER. TRADE NAME OR CATALOG DESIGNATION. THIS CONTRACTOR SHALL SUBMIT HIS BASE BID PRICE BASED UPON STANDARD SPECIFIED EQUIPMENT DESCRIBED HEREIN AND AS DETAILED ON DRAWINGS AND ASSOCIATED CONTRACT DOCUMENTS. THESE SPECIFICATIONS ARE NOT TO BE CONSIDERED PROPRIETARY THE CONTRACTOR MAY SUBMIT INFORMATION ON MATERIALS AND MANUFACTURERS (OTHER THAN THOSE LISTED) FOR REVIEW BY THE ARCHITECT AND ENGINEER NO LATER THAN TEN (10) DAYS BEFORE BIDS ARE SUBMITTED. IN ADDITION, SAMPLES OF PROPOSED EQUIPMENT MAY BE REQUIRED TO BE SUBMITTED TO THE ENGINEER FOR REVIEW NO LATER THAN TEN (10) DAYS BEFORE BIDS ARE SUBMITTED. MANUFACTURERS OF PRODUCTS ACCEPTED BY THE ARCHITECT AND ENGINEER WILL BE LISTED IN AN ADDENDUM TO THE SPECIFICATIONS AS AN ACCEPTABLE SUBSTITUTION EQUIPMENT ACCEPTED AS DETAILED BELOW AND SHALL BE Shown as a separate add or deduct price to be factored into the base bid price by the architect AND OWNER IF ACCEPTED.

3. SHOULD THE CONTRACTOR PROPOSE TO FURNISH MATERIALS AND EQUIPMENT OTHER THAN THOSE SPECIFIED OR APPROVED BY ADDENDUM, SUBMIT A WRITTEN REQUEST FOR SUBSTITUTIONS TO THE ARCHITECT AT THE BID OPENING. THE REQUEST SHALL BE AN ALTERNATE TO THE ORIGINAL BID; BE ACCOMPANIED WITH COMPLETE DESCRIPTIVE (MANUFACTURER, BRAND NAME, CATALOG NUMBER, ETC.) AND TECHNICAL DATA FOR ALL ITEMS. FAILURE BY THIS CONTRACTOR TO SUBMIT THE REQUISITE DOCUMENTATION DETAILED ABOVE SHALL BE UNDERSTOOD BY THE ARCHITECT AND ENGINEER TO INDICATE THAT SUBSTITUTE EQUIPMENT WILL NOT BE PRESENTED BY THE CONTRACTOR FOR CONSIDERATION. SUCH SUBSTITUTIONS WILL NOT BE CONSIDERED AFTER THE BID OPENING DATE AND DELAY OF PROJECT WILL NOT BE PERMITTED FOR FURTHER INSPECTION AND

EVALUATION AFTER THIS DATE. 4. WHERE SUCH SUBSTITUTIONS ALTER THE DESIGN OR SPACE REQUIREMENTS INDICATED ON THE DRAWINGS, INCLUDE ALL ITEMS OF COST FOR THE REVISED DESIGN AND CONSTRUCTION INCLUDING COST OF ALL ALLIED

5. ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO APPROVAL OF THE ARCHITECT AND ENGINEER. IF REQUESTED, THE CONTRACTOR SHALL SUBMIT (AT HIS COST) INSPECTION SAMPLES OF BOTH THE SPECIFIED AND PROPOSED SUBSTITUTE ITEMS.

6. IN ALL CASES WHERE SUBSTITUTIONS ARE PERMITTED, THE CONTRACTOR SHALL BEAR ANY EXTRA COST OF EVALUATING THE QUALITY OF THE MATERIAL AND EQUIPMENT TO BE PROVIDED, INCLUDING ALL ARCH/ENGINEER FEES ASSOCIATED WITH CHANGE.

G. TESTING AND PLACING IN SERVICE 1. ANY MATERIAL OR EQUIPMENT FAILING A TEST SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. 2. TESTS SHALL INCLUDE THE FOLLOWING:

a. Measure the load on each phase of the main service and each phase of every feeder under full LOAD CONDITIONS b. Measure the No-load and full-load voltages (phase to phase, phase to neutral and phase to

GROUND FOR EACH PHASE OF EACH SERVICE, OF EACH SEPARATELY DERIVED SYSTEM, AND AT EACH PANELBOARD OR TRANSFORMER). c. MEASURE THE GROUND RESISTANCE OF THE MAIN SERVICE GROUNDING ELECTRODE AND THE GROUND

RESISTANCE OF EACH SEPARATELY DERIVED SYSTEM'S GROUNDING ELECTRODE. d. MAKE INSULATION RESISTANCE TESTS ON ALL DRY TYPE TRANSFORMERS AND MOTORS.

1. BEFORE THE INSTALLATION OF ANY ITEM BEGINS, THE ELECTRICAL CONTRACTOR SHALL CAREFULLY ASCERTAIN THAT IT DOES NOT INTERFERE WITH CLEARANCES FOR THE ERECTION OF FINISH BEAMS, COLUMNS, PILASTERS, WALLS OR OTHER STRUCTURAL OR ARCHITECTURAL MEMBERS AS SHOWN ON THE ARCHITECTURAL DRAWINGS. IF ANY WORK IS INSTALLED AND THE ARCHITECTURAL DESIGN CANNOT BE FOLLOWED, THIS CONTRACTOR SHALL, AT HIS OWN EXPENSE, MAKE CHANGES IN HIS WORK AS DIRECTED BY THE ARCHITECT TO PERMIT THE COMPLETION OF THE ARCHITECTURAL WORK IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.

2. IT SHALL BE THE DUTY OF THIS CONTRACTOR TO REPORT ANY INTERFERENCES BETWEEN HIS WORK AND THAT OF ANY OF THE OTHER CONTRACTORS AS SOON AS THEY ARE DISCOVERED. THE ARCHITECT SHALL DETERMINE WHICH EQUIPMENT WILL BE RELOCATED, REGARDLESS OF WHICH WAS INSTALLED FIRST. HIS DECISION WILL BE FINAL. I. QUALITY ASSURANCE

ALL PRODUCTS SHALL BE NEW AND OF THE TYPE AND QUALITY SPECIFIED. WHERE MATERIALS, EQUIPMENT, APPARATUS OR OTHER PRODUCTS ARE SPECIFIED BY MANUFACTURER, BRAND NAME, TYPE OF CATALOG NUMBER, SUCH DESIGNATION SHALL ESTABLISH THE STANDARDS OF THE DESIRED QUALITY AND STYLE. IT IS THE INTENT OF THESE SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY OF MATERIALS AND EQUIPMENT INSTALLED.

BASIC ELECTRICAL MATERIALS AND METHODS

1. GENERAL: FURNISH AND MOUNT ON EACH PANELBOARD, SWITCHBOARD (INCLUDING BRANCH SWITCHES), LARGE JUNCTION BOX, SAFETY SWITCH, STARTER, REMOTE CONTROL, PUSH BUTTON STATION, AND ALL SIMILAR CONTROLS, A NAMEPLATE DESCRIPTIVE OF THE EQUIPMENT OR EQUIPMENT CONTROLLED.

2. PROVIDE BLACK AND WHITE NAMEPLATES CONSTRUCTED FROM LAMINATED PHENOLIC WITH A WHITE CENTER CORE. LETTERS SHALL BE ENGRAVED IN THE PHENOLIC TO FORM WHITE LETTERS 3/8" HIGH. FASTEN THE NAMEPLATES WITH SCREWS AND AN ADHESIVE TYPE FASTENER. B. MOUNTING ACCESSORIES

1. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL ANGLE IRON, CHANNEL IRON, RODS, SUPPORTS, HANGERS, CONCRETE OR PLYWOOD REQUIRED TO INSTALL, MOUNT AND SUPPORT ANY ELECTRICAL EQUIPMENT OR DEVICE CALLED FOR ON THE PLANS.

2. SUPPORTING MATERIAL SHALL BE COMPLETE WITH HANGERS, CONNECTORS, BOLTS, CLAMPS AND NECESSARY ACCESSORIES TO MAKE A COMPLETE INSTALLATION. SUPPORTING MATERIAL SHALL BE GALVANIZED, PAINTED OR OTHERWISE SUITABLY FINISHED. PRODUCTS BY BRINKLEY, STEEL CITY OR RACO WILL BE ACCEPTABLE.

3. ALL SURFACE-MOUNTED EQUIPMENT ON BLOCK WALLS SHALL BE MOUNTED ON 3/4" PLYWOOD BACKBOARD. ALL FLOOR-MOUNTED EQUIPMENT SHALL BE INSTALLED ON A 4" HIGH CONCRETE HOUSEKEEPING PAD. C. EXECUTION 1. THE ELECTRICAL WORK FOR CONSTRUCTION PROPOSED SHALL CONFORM TO ALL FEDERAL (OSHA), STATE, ALL

SPECIFIC SAFETY REQUIREMENTS AND THE REQUIREMENTS OF THE CURRENT EDITION OF THE NEC. 2. CHECK THE HVAC AND PLUMBING SPECIFICATIONS FOR ELECTRICAL REQUIREMENTS AND INCLUDE THE SAME IN THE

3. EQUIPMENT CONNECTIONS, STARTERS, DISCONNECT SWITCHES, CONTROL TRANSFORMERS AND PUSHBUTTON STATIONS FOR THE EQUIPMENT FURNISHED BY THE OWNER OR UNDER A SEPARATE CONTRACT SHALL BE INSTALLED AND CONNECTED UNDER THIS DIVISION, AS INDICATED ON THE CONTRACT DRAWINGS. 4. ALL CUTTING, PATCHING, EXCAVATING, BACKFILLING AND CONCRETE WORK RELATED TO THIS CONTRACT WILL BE

THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. THIS CONTRACTOR SHALL ASSUME THE RESPONSIBILITY OF PROVIDING THE SLEEVES, CHASES AND OPENINGS NECESSARY FOR THE ELECTRICAL INSTALLATION AND FOR THEIR REPAIR IN AN ACCEPTABLE MANNER, AS DETERMINED BY THE ARCHITECT. ALL HOLES SHALL BE CORE-DRILLED. PROVIDE FIRE STOP IN ALL OPENINGS CREATED THROUGH FIRE—RATED WALLS, FLOORS OR CEILINGS. 5. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL REQUIRED ACCESS PANELS NECESSARY FOR HIS

WORK, COORDINATE WITH ARCHITECT PRIOR TO INSTALLATION. D. MATERIALS AND WORKMANSHIP

1. ALL WORK SHALL BE INSTALLED IN A PRACTICAL AND WORKMANLIKE MANNER, BY MECHANICS SKILLED IN THE SEVERAL TRADES NECESSARY. 2. ALL MATERIALS SHALL BE NEW AND FREE FROM DEFECTS AND SHALL BE THE BEST OF THEIR SEVERAL KINDS

UNLESS SPECIFIED OR INDICATED ON THE DRAWINGS TO THE CONTRARY. 3. DURING EACH PHASE AND AT THE COMPLETION OF THE CONSTRUCTION, THIS CONTRACTOR SHALL REMOVE ALL DEBRIS AND EXCESS MATERIALS CAUSED BY HIS WORK. HE SHALL LEAVE THE AREA OF OPERATION BROOM

4. ALL ELECTRICAL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OR ETL LABEL. 5. THIS CONTRACTOR SHALL GUARANTEE HIS WORKMANSHIP AND MATERIAL (LAMPS EXCEPTED) FOR A PERIOD OF ONE YEAR FROM THE DATE OF BUILDING OPENING AND LEAVE HIS WORK IN PERFECT ORDER AT THE COMPLETION. SHOULD DEFECTS DEVELOP WITHIN THE GUARANTEE PERIOD, THE CONTRACTOR SHALL, UPON NOTICE OF THE SAME, REMEDY THE DEFECTS AND HAVE ALL DAMAGES TO OTHER WORK OR FURNISHINGS CAUSED BY THE

REPAIRS CORRECTED AT HIS EXPENSE TO THE CONDITION BEFORE SUCH DAMAGE. E. SCOPE OF WORK 1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL, STORAGE, UNPACKING AND PLACEMENT; TO INCLUDE BUT NOT BE LIMITED TO. THE FOLLOWING ITEMS:

 a. COMPLETE POWER AND LIGHTING DISTRIBUTION SYSTEM INCLUDING ALL PANELS AND FEEDERS. b. COMPLETE BRANCH CIRCUIT WIRING SYSTEM.

c. COMPLETE POWER WIRING FOR ALL AIR CONDITIONING EQUIPMENT, PLUMBING SYSTEM, HEATING EQUIPMENT, VENTILATING AND EXHAUST EQUIPMENT. d. LIGHTING FIXTURE INSTALLATION, INCLUDING LAMPS

e. COMPLETE TELEPHONE AND COMMUNICATION CONDUIT SYSTEM INCLUDING PULL BOXES, OUTLET BOXES, AND CONDUIT AS SPECIFIED, SHOWN ON THE DRAWINGS AND REQUIRED BY THE LOCAL TELEPHONE COMPANY AND/OR OWNER, FROM EACH OUTLET PROVIDE A 1" EMPTY EMT CONDUIT ROUTED INTO THE CEILING CAVITY OR TO THE CLOSEST TELECOMMUNICATIONS CLOSET. PROVIDE A DRAG LINE IN EACH RUN AND TERMINATE IN A BUSED ELBOW.

f. TEMPORARY ELECTRICAL POWER AND LIGHTING AS REQUIRED FOR CONSTRUCTION. g. TESTING OF ALL CABLES AND CIRCUIT WIRING AFTER INSTALLATION.

h. EXIT LIGHT SYSTEM.

i. Wiring Devices.

j. LIGHTING CONTROLS. k. GROUNDING OF THE ELECTRICAL SYSTEM.

IDENTIFY RACEWAYS AND CABLES WITH COLOR BANDING AS FOLLOWS:

2. COLORS: a).FIRE ALARM SYSTEM: RED

b).SECURITY SYSTEM: BLUE AND YELLOW. c).TELECOMMUNICATION SYSTEM: GREEN AND YELLOW.

GROUNDING AND BONDING

A. GROUND ALL EQUIPMENT PER N.E.C.

B. ALL CONDUITS SHALL CONTAIN A CODE-SIZED GROUND WIRE SIZED PER N.E.C. IN ADDITION TO THE CONDUCTORS SHOWN ON THE PLANS. WHERE CIRCUIT CONDUCTORS ARE INCREASED IN SIZE FOR VOLTAGE DROP, THE GROUND

WIRE SIZE SHALL BE INCREASED PROPORTIONATELY. C. AFTER INSTALLING GROUNDING SYSTEM BUT BEFORE PERMANENT ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, TEST FOR COMPLIANCE WITH REQUIREMENTS.

WIRE AND CABLE

A. COLOR CODE CONDUCTORS (EXCEPT CONTROL AND INSTRUMENTATION CONDUCTORS) AS FOLLOWS: 208/120V SYSTEM=PHASE A BLACK; PHASE B RED; PHASE C BLUE; NEUTRAL WHITE; GROUND GREEN. 1. #12 AND #10 CONDUCTORS SHALL HAVE CONTINUOUS INSULATION COLOR. AS LISTED ABOVE.

2. COLOR CODE CONDUCTORS LARGER THAN ABOVE, WHICH DO NOT HAVE CONTINUOUS INSULATION COLOR BY APPLICATION OF AT LEAST TWO LAPS OF COLORED TAPE ON EACH CONDUCTOR AT ALL POINTS OF ACCESS INCLUDING JUNCTION BOXES. COLOR TAPE SHALL BE THE EQUAL OF 3M PRODUCTS SCOTCH #35. 3. CONDUCTORS SHALL BE SOFT ANNEALED COPPER INSULATED FOR 600 VOLTS UNLESS SPECIFICALLY INDICATED

OTHERWISE. ALUMINUM CONDUCTORS ARE NOT ALLOWED ON THIS PROJECT. B. INSULATION TYPE SHALL BE TYPE THWN FOR WIRE SIZES #8 AWG AND LARGER AND THHN OR THWN FOR #10AWG AND SMALLER. THHN SHALL NOT BE USED IN WET OR DAMP LOCATIONS.

C. FLEXIBLE CORD SHALL BE HEAVY DUTY TYPE SO WITH AN EQUIPMENT GROUND CONDUCTOR IN ADDITION TO THE CURRENT CARRYING CONDUCTORS

D. PROVIDE #12 CONDUCTORS, UNLESS OTHERWISE INDICATED. 1. CONTROL CONDUCTORS SHALL BE #14 MINIMUM FOR NEC CLASS I AND #16 FOR NEC CLASS II. E. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.

F. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. G. INSTALL WIRING IN CONDUIT. CONCEALED WIRING IN WALLS OR ABOVE CEILINGS, OR EXPOSED IN UNFINISHED AREAS (WHERE NOT SUBJECT TO PHYSICAL DAMAGE) MAY BE RUN IN MC OR AC CABLE. H. CONNECT #10 AND SMALLER WIRES WITH CONSTANT PRESSURE EXPANDABLE SPRING TYPE CONNECTORS,

"SCOTCHLOK" BY 3M OR B-CAP BY BUCHANAN. I. CONNECT #8 AND LARGER WIRES WITH COMPRESSION CONNECTORS OR SPLICES AS MANUFACTURED BY BURNDY OR

J. INSULATE SPLICING CONNECTORS TO AT LEAST 200% OF THE WIRE INSULATION. USE PRE-STRETCHED TUBING CONNECTOR INSULATORS, 3M PST FOR #2 AND LARGER CONDUCTORS. K. PULL CONDUCTORS USING RECOGNIZED METHODS AND EQUIPMENT LEAVING AT LEAST 6" WIRE AT ALL JUNCTION

BOXES FOR CONNECTIONS. 1. CLEANOUT EACH CONDUIT SYSTEM BEFORE PULLING WIRE.

L. FORM AND TIE ALL WIRING IN PANELBOARDS. M. THERE SHALL BE NO WIRENUT JOINTS OR SPLICES MADE INSIDE SWITCHBOARDS/PANELBOARDS.

N. BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED LIMIT OF 3%.

O. WIRE SIZES SHALL BE BASED ON THE 60 DEGREES C. AMPACITIES FOR WIRE SIZES NO. 14-1 A.W.G., AND 75 DEGREES C. AMPACITIES FOR WIRE SIZES #1/O A.W.G. AND LARGER. P. CIRCUITS MAY BE MULTI-PLEXED IN CONDÜIT PROVIDED WIRE IS PROPERLY DERATED AND CONDUIT SIZED PER CODE. UNDER NO CIRCUMSTANCE SHALL MORE THAN (8) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT.

A. RACEWAYS 1. ALL WIRE SHALL BE RUN IN ACCORDANCE WITH CODE IN CORROSION RESISTANT, RIGID, THREADED, METAL CONDUIT OR ELECTRICAL METALLIC TUBING (E.M.T.) UNLESS OTHERWISE SPECIFICALLY STATED HEREIN.

a. CONDUIT IN EXTERIOR WALLS, BELOW FLOOR SLAB, OR UNDERGROUND SHALL BE RIGID, THREADED, GALVANIZED, HEAVY WALL TYPE. b. Carlon PVC TYPE 40 HEAVY WALL CONDUIT WITH GROUND WIRE MAY BE USED BELOW FLOOR SLAB OR UNDERGROUND IN LIEU OF RIGID, THREADED, GALVANIZED CONDUIT. PVC 40 CONDUIT SHALL NOT BE RUN IN OR ABOVE FLOOR SLAB. PVC CONDUIT SHALL TERMINATE BELOW FLOOR SLAB WITH RIGID, THREADED METAL

CONDUIT ADAPTER. CONDUIT ABOVE SLAB SHALL BE METAL. c. CONDUIT RUN EXPOSED TO THE WEATHER SHALL BE HEAVY WALL, METAL THREADED TYPE. d. Provide Branch Circuit conductors that are type thhn or thwn as required. Mc cable can be USED FOR LIGHT FIXTURE TO LIGHT FIXTURE.

2. CONDUIT SIZE SHALL BE 3/4" MINIMUM. 3. CONDUIT SHALL BE SECURELY FASTENED IN PLACE.

4. ALL CONDUIT SHALL BE CONCEALED IN WALLS, FLOOR AND CEILINGS WHEREVER POSSIBLE. EXPOSED CONDUIT IN FINISHED AREAS WILL NOT BE PERMITTED. EXPOSED CONDUIT WILL BE PERMITTED IN UNFINISHED AREAS WITH THE SPECIFIC APPROVAL OF THE ARCHITECT.

5. USE FLEXIBLE CONDUIT FOR THE CONNECTION TO RECESSED OR SEMI-RECESSED LIGHTING FIXTURES (6' LENGTH MAXIMUM). USE LIQUID TIGHT METAL CONDUIT FOR ALL CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION AND IN AREAS SUBJECT TO MOISTURE.

6. USE WATERTIGHT JOINTS WITH BURIED AND CONCRETE ENCASED CONDUIT. ALL BURIED CONDUITS OUTSIDE OF BUILDINGS SHALL HAVE A MINIMUM OF 24" OF COVER. METAL CONDUITS BURIED IN EARTH SHALL BE PAINTED (TWO COATS) WITH HEAVY ASPHALTUM PAINT.

7. SUPPORT RUNS OF CONDUIT AS DETAILED IN THE APPROPRIATE TABLE OF THE NATIONAL ELECTRICAL CODE (NEC). 8. INSTALL EXPOSED RUNS OF CONDUIT AND CONDUIT ABOVE LAY—IN CEILINGS PARALLEL OR PERPENDICULAR TO THE WALLS, STRUCTURAL MEMBERS OF INTERSECTIONS OF VERTICAL PLANES AND CEILINGS. PROVIDE RIGHT ANGLE TURNS USING FITTINGS OR SYMMETRICAL BENDS. SUPPORT CONDUITS WITHIN 1" OF ALL CHANGES IN

9. IF A CONDUIT IS SUSPENDED, IT SHALL BE SUPPORTED ON TRAPEZE HANGERS WHICH USE "ALL-THREAD" RODS FROM THE STRUCTURAL STEEL. THE USE OF CEILING SUPPORT WIRE OR SIMILAR MATERIAL WILL NOT BE 10.INSTALL EMPTY CONDUIT FOR FUTURE USE AS INDICATED ON THE DRAWINGS. CONDUIT SHALL BE COMPLETE WITH

JETLINE OR PULL ROPE, JUNCTION/OUTLET BOXES, TILE RINGS AND APPROPRIATE COVER PLATES. 11.PROVIDE PITCHPOCKETS WHERE CONDUITS PENETRATE THE ROOF. 12.THREAD LUBRICATION/SEALANT IS REQUIRED ON OUTDOOR AND UNDERGROUND THREADED METAL JOINTS. 13.INSTALL FIRE SEAL FITTINGS WHERE CONDUITS PENETRATE CONCRETE FLOOR SLABS OR MASONRY WALLS

REQUIRED TO BE FIRE RATED. 14.HORIZONTAL PORTION OF CONDUIT EXPOSED ON THE ROOF AND FEEDING EQUIPMENT SHALL NOT BE MORE THAN 5'-0" UNLESS THE WRITTEN APPROVAL FROM ARCHITECT OR ENGINEER IS OBTAINED.

1. INSTALL PULL AND JUNCTION BOXES WHERE SHOWN ON THE DRAWINGS, AND WHERE REQUIRED FOR CHANGES IN DIRECTION, AT JUNCTION POINTS, AND TO FACILITATE WIRE PULLING. FURNISH BOX SIZES IN ACCORDANCE WITH

NEC UNLESS LARGER BOXES ARE INDICATED. 2. PROVIDE STEEL BOXES AND REMOVABLE COVERS OF CODE GAGE, HOT ROLLED SHEET STEEL, HOT DIPPED GALVANIZED INSIDE AND OUTSIDE, FOR ABOVE GROUND WORK. FURNISH WEATHERPROOF BOXES WHEN INSTALLED

ABOVE GROUND OUTSIDE. 3. PROVIDE CAST IRON BOXES, HOT DIPPED GALVANIZED INSIDE AND OUTSIDE WHERE SHOWN ON THE DRAWINGS. FURNISH REMOVABLE COVERS WITH GASKETS AND STAINLESS STEEL, BRASS OR BRONZE SCREWS.

4. PROVIDE CONCRETE BOXES FOR UNDERGROUND WORK UNLESS OTHERWISE INDICATED ON THE DRAWINGS. FURNISH STEEL FRAMES AND COVERS WITH THE COVER ATTACHED TO THE FRAME WITH HEXAGON HEAD, BRASS OR BRONZE CAP SCREWS, 3/8" DIAMETER. PROVIDE A RUBBER GASKET FOR SEALING BETWEEN THE COVER AND THE FRAME. PAINT THE COVER WITH TWO COATS OF HEAVY ASPHALTUM.

1. USE SHEET STEEL BOXES, ZINC COATED OR CADMIUM PLATED, FOR CONCEALED INTERIOR WORK. 2. USE CAST BOXES, ZINC-CADMIUM FINISH MALLEABLE IRON, FOR EXPOSED INTERIOR WORK, AND FOR EXPOSED OR CONCEALED WORK IN WET, DAMP OR EXTERIOR LOCATIONS. 3. WALL BOX SIZES (MINIMUM) SHALL BE 4" SQUARE x 2-1/2" DEEP WHERE WALL CONSTRUCTION PERMITS.

WHERE WALL CONSTRUCTION DICTATES, THE WIDTH MAY BE REDUCED TO 2-1/8" OR 1-1/2" UNDER SPECIAL 4. FIXTURE OUTLETS IN CEILINGS (MINIMUM) SHALL BE 4" OCTAGONAL x 1-1/2" DEEP (4-11/16" OCTAGONAL x 2-1/2" DEEP WHERE REQUIRED TO ACCOMMODATE LARGER CONDUIT OR LARGER NUMBER OF WIRES).

5. GANG BOXES SHALL BE ONE PIECE (MINIMUM), 2-1/8" DEEP. 6. Flush mount boxes in all finishèd walls. Install the plaster rings in drywalled plastered walls AND RAISED COVERS AS REQUIRED IN WALLS WITH OTHER FINISHES SO THAT THE COVER PLATES FIT TIGHTLY

AGAINST BOXES OR RINGS, 3/16" MAXIMUM GAPS ARE ALLOWED FOR NONCOMBUSTIBLE WALLS. 7. ADJUST LOCATION OF OUTLETS IN MASONRY OR TILE CONSTRUCTION TO OCCUR IN THE NEAREST JOINT TO THE HEIGHT SPECIFIED. HEIGHTS SHALL MEET A.D.A. REQUIREMENTS.

8. SUPPORT ALL BOXES TO MAINTAIN PROPER ALIGNMENT AND RIGIDITY. 10.CLEAN BOXES OF ALL FOREIGN MATTER PRIOR TO THE INSTALLATION OR WIRING OF DEVICES. 11.MOUNTING HEIGHTS ON THE DRAWINGS ARE TO THE CENTERLINE OF THE BOX UNLESS OTHERWISE NOTED.

A. WIRING DEVICE COLOR SHALL BE WHITE. UNLESS OTHERWISE INDICATED. B. GENERAL SWITCHES SHALL BE DECORATOR STYLE AS MANUFACTURED BY PASS & SEYMOUR. C. PROVIDE NEMA CONFIGURATION 5-20R DUPLEX 125 VOLT GROUNDING TYPE RECEPTACLES RATED FOR 20 AMPERES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

D. RECEPTACLES SHALL BE DECORATOR STYLE AS MANUFACTURED BY PASS & SEYMOUR. E. RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR CONFIGURATIONS DIFFERENT FROM THE DUPLEX CONVENIENCE RECEPTACLES ABOVE SHALL BE AS INDICATED ON THE DRAWINGS.

F. PROVIDE OTHER RECEPTACLES OF A QUALITY, MATERIAL AND WORKMANSHIP EQUAL TO THAT SPECIFIED FOR DUPLEX CONVENIENCE RECEPTACLES.

G. PROVIDE COVER OR DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS OTHERWISE NOTED: 1. FINISHED AREAS: WHITE THERMOPLASTIC. 2. UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL, AS APPROPRIATE FOR THE TYPE OF

3. EXTERIOR AREAS: COPPER FREE ALUMINUM WITH WHITE, POWDER EPOXY FINISH, GASKET, WEATHERPROOF. 4. TELEPHONE, COMMUNICATION, AND SIGNAL OUTLET PLATES, SHALL MATCH THOSE USED FOR RECEPTACLES AND SWITCHES. ALL OUTLET AND/OR JUNCTION BOXES SHALL BE COMPLETE WITH A COVER PLATE BY THIS

CONTRACTOR 5. WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A COMMON COVERPLATE. I. LOCATE THE SWITCHES APPROXIMATELY 4'-0" ABOVE THE FINISHED FLOOR ELEVATION OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), UNLESS OTHERWISE INDICATED. THE LONG DIMENSION OF THE SWITCHES SHALL BE

J. LOCATE RECEPTACLES APPROXIMATELY 1"-6" ABOVE THE FINISHED FLOOR ELEVATION OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), UNLESS NOTED OTHERWISE. THE LONG DIMENSION OF RECEPTACLES SHALL BE

A. SAFETY SWITCHES SHALL BE THE ENCLOSED HEAVY-DUTY TYPE (TYPE HD) WITH QUICK-MAKE, QUICK-BREAK MECHANISM AND EXTERNAL PAD LOCKABLE OPERATING HANDLE.

B. SAFETY SWITCHES SHALL BE RATED FOR 240 OR 600 VOLTS AS APPLICABLE. THEY SHALL BE HORSEPOWER RATED WHEN USED IN MOTOR CIRCUITS. C. SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE, 2, 3, OR 4 POLE AS INDICATED ON THE DRAWINGS.

D. SAFETY SWITCHES SHALL BE SINGLE THROW UNLESS OTHERWISE INDICATED ON THE DRAWINGS. E. ENCLOSURES SHALL BE NEMA 1 INDOORS AND NEMA 3R OUTDOORS UNLESS OTHERWISE INDICATED ON DRAWINGS. F. MANUFACTURER SHALL BE SQUARE D, SIEMENS, OR CUTLER-HAMMER. ALL SAFETY SWITCHES SHALL BE BY ONE

G. MOUNT THE SAFETY SWITCHES SECURELY BETWEEN 3' & 6' LEVELS ABOVE THE FLOOR UNLESS OTHERWISE INDICATED ON THE DRAWINGS. H. SWITCHES ON BLOCK WALLS SHALL BE MOUNTED ON A 3/4" PLYWOOD BACKBOARD, WHERE LOCATED INDOORS.

A. PANELBOARDS 1. PANELBOARDS SHALL BE FULLY RATED TO INTERRUPT SYMMETRICAL SHORT CIRCUIT AT THE TERMINALS. 2. PANELBOARDS SHALL BE LABELED WITH PHENOLIC NAMEPLATES INSCRIBED AS INDICATED ON THE DRAWNGS.

PROVIDE LABELS AFFIXED TO PANELBOARDS AS REQUIRED BY NFPA 70E. 3. PANELBOARDS SHALL BE ENCLOSED DEAD FRONT SAFETY TYPE WITH FEATURES AND RATINGS AS SCHEDULED ON THE DRAWINGS. 4. MOLDED CASE CIRCUIT BREAKERS SHALL BE AS SCHEDULED ON THE DRAWINGS AND SPECIFIED IN THIS DIVISION.

5. ALL BUS BARS SHALL BE RECTANGULAR TIN PLATED ALUMINUM. 6. SPACE, WHERE SHOWN IN PANEL SCHEDULES, DESIGNATES SPACE FOR FUTURE PROTECTIVE DEVICES AND SHALL INCLUDE BUS AND SUPPORT.

7. INSTALL CABINETS SO THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE THE FINISHED

8. ENTRIES ON DIRECTORY CARDS SHALL BE TYPED, COMPLETE AND ACCURATE.

9. ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS. 10. ELECTRICAL CONTRACTOR SHALL ARRANGE CIRCUITS AS NEAR AS POSSIBLE TO CIRCUIT NUMBERS ON THE DRAWINGS. AT COMPLETION OF JOB. ELECTRICAL CONTRACTOR SHALL TAKE CURRENT READING CHECKS OF RESPECTIVE PHASES. A MINIMUM OF CIRCUIT CONNECTIONS SHALL BE REARRANGED TO BALANCE, AS CLOSELY AS POSSIBLE. THE LOAD IN THE PANEL.

11.ALL BREAKERS SHALL BE BOLT-ON TYPE. 12. MANUFACTURE SHALL BE SQUARE D AS THE PREFERRED SWITCHGEAR.

<u>LIGHTING FIXTURES</u> A. NEW LIGHT FIXTURES SHALL BE AS LISTED IN THE LIGHTING FIXTURE SCHEDULE.

B. ALL LIGHTING FIXTURES SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR AS INDICATED ON THE LIGHTING FIXTURE SCHEDULE, INCLUDING LAMPS. LAMPS SHALL BE OF SAME MANUFACTURER FOR ALL TYPES. C. ALL FIXTURES SHALL BEAR THE UNDERWRITER'S LABORATORIES LABEL AND SHALL BE INSTALLED ACCORDING TO

MANUFACTURER'S INSTRUCTIONS.

D. THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY SUPPORT MEDIA FOR ALL LIGHTING FIXTURES INCLUDING STRUCTURAL STEEL, ANGLE, RODS, ETC. IN GENERAL, FIXTURES SHALL BE SUPPORTED IN A MANNER ACCEPTABLE TO THE LOCAL INSPECTION AUTHORITIES. ALL FIXTURES SHALL BE FIRMLY SUPPORTED FROM BEAMS OR

1. PROVIDE ALL NECESSARY BACKING, BLOCKING AND SUPPORTS FOR WALL MOUNTED FIXTURES.

2. FIXTURES SHALL NOT BE SUPPORTED FROM ROOF DECK. G. ALL FIXTURES SHALL BE U.L. LISTED AND APPROVED FOR THE PURPOSE INTENDED.

H. RECESSED FIXTURES IN FIRE RATED CEILING OR SUPPLY AIR PLENUMS SHALL BE APPROVED FOR THE FIRE RATING OF THE CEILING. PROVIDE AIR-TIGHT GASKETS TO SEAL AROUND OPENINGS.

I. ALL ADJUSTABLE FIXTURES SHALL BE AIMED AND ADJUSTED DURING EVENING HOURS TO THE SATISFACTION OF THE

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ELECTRICAL SPECIFICATIONS

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2017-03.12 NONE

CHECKED BY:

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