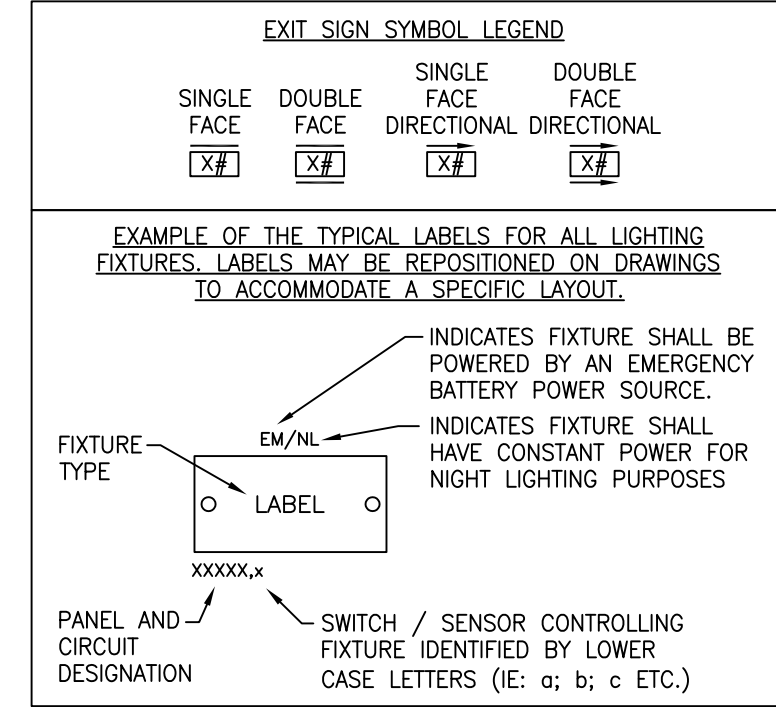


ELECTRICAL SYMBOLS LEGEND
NOT ALL SYMBOLS MAY BE REPRESENTED ON DRAWINGS

POWER SYMBOLS	LIGHTING CONTROL SYMBOLS	FIRE ALARM SYMBOLS
---#12--- SIGNIFIES TWO(2) CONDUCTORS - 2#12 + 1#12 GRND. IN 1/2" CONDUIT.	§ TOGGLE SWITCH (SINGLE-POLE)	! FACP FIRE ALARM CONTROL PANEL
---#3+12--- SIGNIFIES THREE(3) CONDUCTORS - 3#12 + 1#12 GRND. IN 3/4" CONDUIT.	§LULV TOGGLE SWITCHES (SINGLE-POLE, GANGED)	[AP] FIRE ALARM REMOTE ANNUNCIATOR PANEL
---#4+12--- SIGNIFIES FOUR(4) CONDUCTORS - 4#12 + 1#12 GRND. IN 3/4" CONDUIT.	§3 TOGGLE SWITCH (SINGLE-POLE, 3-WAY)	[F] FIRE ALARM PULLSTATION - INSTALL 48" A.F.F. TO CENTER OF BOX
---#5+12--- SIGNIFIES FIVE(5) CONDUCTORS - 5#12 + 1#12 GRND. IN 3/4" CONDUIT.	§LULV TOGGLE SWITCH (SINGLE-POLE, 3-WAY, GANGED)	[CM] CARBON MONOXIDE DETECTOR WITH AUDIBLE BASE. WIRE INTO SUPERVISORY CIRCUITS OF BUILDING FIRE ALARM SYSTEM. INSTALL @ FINISHED CEILING.
---#10--- SIGNIFIES TWO(2) CONDUCTORS - 2#10 + 1#10 GRND. IN 1/2" CONDUIT.	§4 TOGGLE SWITCH (SINGLE-POLE, 4-WAY)	[S] PHOTOELECTRIC SMOKE DETECTOR WITH STANDARD BASE. WIRE INTO INITIATING CIRCUITS OF BUILDING FIRE ALARM SYSTEM. INSTALL @ FINISHED CEILING.
---#8--- SIGNIFIES THREE(3) CONDUCTORS - 3#8 + 1#8 GRND. IN 3/4" CONDUIT.	§K KEYED SWITCH (SINGLE-POLE)	[H] HEAT DETECTOR - FIXED TEMPERATURE OF 135°. WIRED INTO INITIATING CIRCUITS OF BUILDING FIRE ALARM SYSTEM. INSTALL @ FINISHED CEILING.
HOMERUN TO PANELBOARD	§T TIME DELAY SWITCH (SINGLE-POLE)	[DS] DUCT SMOKE DETECTOR - WIRED INTO INITIATING CIRCUITS OF BUILDING FIRE ALARM SYSTEM. INSTALL WITHIN HVAC DUCTWORK.
JUNCTION BOX (SIZE AS REQUIRED)	§PL PILOT LIGHT SWITCH (SINGLE-POLE)	[V] VISUAL DEVICE (WALL) - WIRE INTO SIGNALING CIRCUITS OF BUILDING FIRE ALARM SYSTEM. INSTALL 80" A.F.F. TO BOTTOM OF BOX
CONDUIT/WIRE BREAK	§D DIMMER (SINGLE-POLE)	[X] COMBINATION AUDIO/VISUAL DEVICE (WALL) - WIRE INTO SIGNALING CIRCUITS OF BUILDING FIRE ALARM SYSTEM. INSTALL 80" A.F.F. TO BOTTOM OF BOX
CONDUIT STUB OUT	§M MOMENTARY CONTACT SWITCH (SINGLE-POLE)	[FL] FLOW SWITCH - PROVIDED & INSTALLED BY SPRINKLER CONTRACTOR. WIRED INTO BUILDING FIRE ALARM SYSTEM BY ELECTRICAL CONTRACTOR.
CONDUIT STUB-DOWN	§OS DUAL TECHNOLOGY WALL SWITCH OCCUPANCY SENSOR OCCUPANCY TIME DELAY = 15 MINUTES. ACUITY CONTROLS - SENSOR SWITCH #WSX-PDT-SA-WH PROGRAM SENSOR FOR MANUAL / AUTOMATIC CONTROL IN INDIVIDUAL ROOMS PER CURRENT IECC REQUIREMENTS.	[TA] TAMPER SWITCH - PROVIDED & INSTALLED BY SPRINKLER CONTRACTOR. WIRED INTO BUILDING FIRE ALARM SYSTEM BY ELECTRICAL CONTRACTOR.
CONDUIT STUB-UP		[MM] MONITORING MODULE
208Y/120V RECESSED OR SURFACE MOUNTED PANELBOARD	[OS] LOW-VOLTAGE, DUAL TECHNOLOGY, LARGE MOTION CEILING MOUNT OCCUPANCY SENSOR. OCCUPANCY TIME DELAY = 20 MINUTES. ACUITY CONTROLS - SENSOR SWITCH #CM-PDT-10 (OR EQUAL)	[RT] REMOTE TEST STATION
480Y/277V RECESSED OR SURFACE MOUNTED PANELBOARD	[PC] EXTERIOR REMOTE PHOTOCELL TORK MODEL #2101 OR EQUAL	[Z] 4"SQ. ELECTRIC BOX INSTALLED 80" A.F.F. WITH A BLANK COVERPLATE FOR THE INSTALLATION OF A FIRE ALARM DEVICE AT A FUTURE DATE.
1# POWER TERMINAL CONNECTION TO EQUIPMENT ITEM SUPPLIED BY OTHERS.		[J] FIRE ALARM JUNCTION BOX - 4"SQ. X 2 1/2" DEEP (MIN. SIZE) WITH A BLANK RED COVERPLATE.
3# POWER TERMINAL CONNECTION TO EQUIPMENT ITEM SUPPLIED BY OTHERS.		
[HP] ELECTRIC MOTOR - PROVIDED & INSTALLED BY OTHERS, WIRE BY E.C. XX = HORSE POWER RATING	GENERAL NOTES TO ELECTRICAL SYMBOLS LEGEND:	
[R] RECEPTACLE (SIMPLEX)	a. UTILIZE TYPE "MC" CABLE IN CONCEALED AREAS UNLESS NOTED OTHERWISE. EXPOSED ELECTRICAL WORK SHALL BE INSTALLED WITHIN CODE SIZED CONDUIT WITH STEEL SET SCREW FITTINGS.	
[R] RECEPTACLE (DUPLX)	b. MULTIWIRE BRANCH CIRCUITS SHALL BE INSTALLED PER ALL REQUIREMENTS OF N.E.C. ARTICLE 210.4. HANDLE TIES MUST BE INSTALLED TO IDENTIFY SINGLE-POLE, MULTIWIRE BRANCH CIRCUITS PER ALL REQUIREMENTS OF N.E.C. ARTICLE 240.15(b).	
[R] RECEPTACLE (QUAD)	c. ALL STANDARD RECEPTACLES SHALL BE INSTALLED 18" A.F.F., TO CENTER OF BOX, FLUSH TO FINISHED WALL, UNLESS OTHERWISE NOTED.	
[R] RECEPTACLE (DUPLX) W/ GROUND FAULT PROTECTION	d. ALL INTERIOR GF RECEPTACLES SHALL BE INSTALLED 44" A.F.F., TO CENTER OF BOX/ABOVE COUNTER TOP, FLUSH TO FINISHED WALL, UNLESS OTHERWISE NOTED. COORDINATE INSTALLATION HEIGHT WITH ARCHITECTURAL MILLWORK/ELEVATION PLANS WHEN APPLICABLE.	
[R] RECEPTACLE (QUAD) W/ GROUND FAULT PROTECTION	e. ALL EXTERIOR GF RECEPTACLES SHALL BE INSTALLED HORIZONTALLY 24" A.F.F.G., TO CENTER OF BOX, FLUSH TO FINISHED WALL, UNLESS OTHERWISE NOTED. PROVIDE A WEATHERPROOF COVERPLATE FOR EXTERIOR USE.	
[WP] RECEPTACLE (DUPLX) W/ GROUND FAULT PROTECTION & A WEATHERPROOF COVER	f. ALL TOGGLE SWITCHES, DIMMERS, KEYED SWITCHES ETC... SHALL BE INSTALLED 48" A.F.F., TO CENTER OF BOX, FLUSH TO FINISHED WALL, UNLESS OTHERWISE NOTED.	
SPECIAL RECEPTACLE - VERIFY NEMA TYPE AND INSTALLATION LOCATION IN FIELD.	g. ELECTRICAL DEVICES WITH HANDICAP ACCESSIBLE ROOMS SHALL BE INSTALLED AT HEIGHTS PER ADA REQUIREMENTS.	
[FB] RECESSED FLOOR BOX	h. COMMUNICATION DEVICES (IE: TELEPHONE, DATA, CATV) SHALL BE INSTALLED 18" A.F.F., TO CENTER OF BOX, FLUSH TO FINISHED WALL, UNLESS OTHERWISE NOTED.	
§MS MANUAL MOTOR STARTER	i. FIRE ALARM DEVICES SHALL BE INSTALLED AS NOTED IN INDIVIDUAL DESCRIPTIONS.	
[X] MAGNETIC MOTOR STARTER		
[X] COMBINATION MOTOR STARTER/FUSED DISCONNECT SWITCH		
[] NON-FUSED DISCONNECT SWITCH		
[F] FUSED DISCONNECT SWITCH		
[CC] CLOSE CIRCUIT SECURITY CAMERA		

LIGHTING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	LAMP (QTY/TYPER/COLOR)	VOLT	VA	MOUNTING	MANUFACTURER/ MODEL #
[A]	2'X4' LED PRISMATIC LENS TROFFER WITH WITH A FLUSH ALUMINUM DOOR AND 0-10V DIMMING DRIVER.	LED/4000K/4000 LUMEN	MVOLT	32W	LAY-IN	LITHONIA LIGHTING: ZTL4-40L-FW-A12-EZ1-LP840
[B]	ARCHITECTURAL STYLE EXTERIOR LED WALL PACK WITH AN ALUMINUM HOUSING AND AN INTEGRAL MOTION/AMBIENT SENSOR FOR DUSK/DAWN AND DAYLIGHT HARVESTING CONTROL. FIXTURE STYLE IS INTENDED TO MATCH EXISTING. LAMP COLOR TEMPERATURE OF NEW FIXTURES SHALL MATCH EXISTING. FIELD VERIFY EXISTING WALL PACK COLOR TEMPERATURE PRIOR TO ORDERING.	LED/T80/3000 LUMENS	MVOLT	25W	SURFACE ON WALL ±9"-0"	LITHONIA LIGHTING: WST LED-P2-(T80)-WV-MVOLT-PE-PR1FC3V-DBLX0
[C]	4' LINEAR LED STRIP LIGHT WITH A WHITE HOUSE, FROSTED LENS DIFFUSER AND 0-10V DIMMING DRIVER. UTILIZE CHAIN FOR PENDANT INSTALLATION	LED/4000K/5000 LUMENS	MVOLT	42W	SUSPEND ±8"-0" A.F.F.	LITHONIA LIGHTING: ZLTN-L48-5000LM-FST -MVOLT-40K-800CR-WH
[LED]	EMERGENCY LED LIGHTING UNIT WITH A WHITE IMPACT & SCRATCH RESISTANT THERMOPLASTIC HOUSING, TWIN ADJUSTABLE HEADS & AN INTEGRAL BATTERY PACK.	TWO 1.5W/3.6V LEDs FURNISHED WITH FIXTURES	120/277V	N/A	WALL-8"-0" A.F.F. or 8" from FINISHED CEILING	LITHONIA LIGHTING: "QUANTUM" ELM2-LED
[HO EXIT]	COMBINATION LED EXIT SIGN / EMERGENCY LIGHTING UNIT. UNIVERSAL MOUNT WITH CANOPY. WHITE IMPACT & SCRATCH RESISTANT THERMOPLASTIC HOUSING, 8" STENOILED RED LETTERS WITH TWIN ADJUSTABLE HEADS FOR EMERGENCY LIGHTING & AN INTEGRAL HIGH OUTPUT BATTERY PACK.	LED (EXIT), TWO 1.5W/9.6V LEDs (EMER.) FURNISHED WITH FIXTURE	120/277V	N/A	WALL-8"-0" A.F.F. or 8" from FINISHED CEILING	LITHONIA LIGHTING: "QUANTUM" LHQM-LED-R-HO
[]	REMOTE EMERGENCY LED FIXTURE WITH TWIN, ADJUSTABLE LAMP HEADS AND A WEATHER-PROOF ALUMINUM HOUSING. FOR EMERGENCY EGRESS ILLUMINATION. LAMP HEADS SHALL BE SUPPLIED BY A AN LED REMOTE BATTERY PACK OR COMBO UNIT.	TWO 1.5W/9.6V LEDs	9.6V	N/A	WALL ±8"-6" A.F.F.	LITHONIA LIGHTING: ELA-T-QWP-L0309



GENERAL SYMBOLS & ABBREVIATION
NOT ALL ABBREVIATIONS MAY BE REPRESENTED ON DRAWINGS

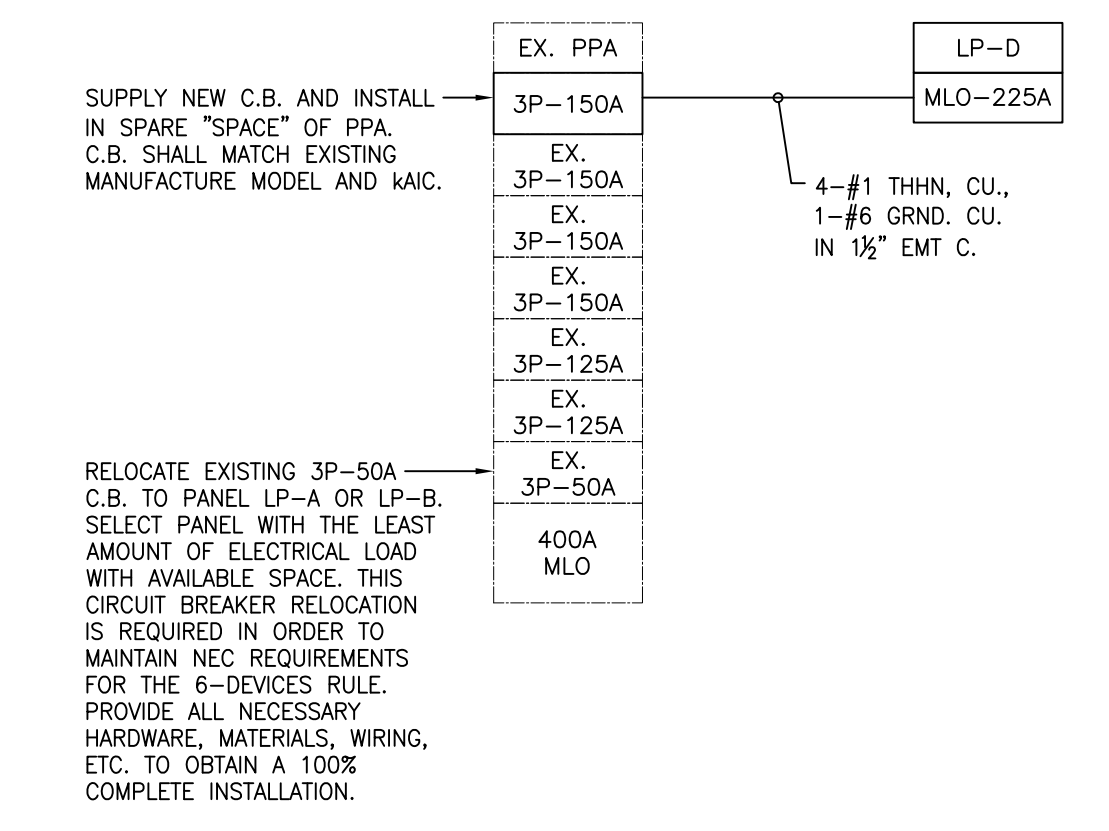
---	SIGNIFIES EXISTING ELECTRICAL EQUIPMENT/ DEVICES TO REMAIN	GND	GROUND
---	SIGNIFIES EXISTING ELECTRICAL EQUIPMENT/ DEVICES TO BE REMOVED	GRC	GALVANIZED RIGID STEEL CONDUIT
◇	KEYNOTE	HDA	HAND-OFF-AUTOMATIC SWITCH
☆	REVISION TAG	HVAC	HEATING, VENTILATION, AIR CONDITIONING
Φ	PHASE	HZ	HERTZ
AC	ALTERNATING CURRENT	IG	ISOLATED GROUND
A/C	AIR CONDITIONING	IMC	INTERMEDIATE METAL CONDUIT
AF	AMPERE FRAME	INT	INTERLOCK
AFF	ABOVE FINISHED FLOOR	KCML	THOUSAND CIRCULAR MILS
AHU	AIR HANDLING UNIT	KVA	KILOVOLT-AMPERES
AIC	AMPERE INTERRUPTING CAPACITY	LC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
AL	ALUMINUM	LFCM	LIQUID TIGHT FLEXIBLE METAL CONDUIT
AT	AMPERE TRIP	MAU	MAKE-UP AIR UNIT
ATS	AUTOMATIC TRANSFER SWITCH	M.C.	MECHANICAL CONTRACTOR
AWG	AMERICAN WIRE GAUGE	MCA	MINIMUM CIRCUIT AMPS
C	CONDUIT	MCB	MAIN CIRCUIT BREAKER
CATV	CABLE TELEVISION	MCC	MOTOR CONTROL CENTER
CB	CIRCUIT BREAKER	MCP	MOTOR CIRCUIT PROTECTION
C.C.	CIVIL CONTRACTOR	MIN	MINIMUM
CCV	CLOSED CIRCUIT TELEVISION	MLO	MAIN LUGS ONLY
CD	CANDELA	NA	NOT APPLICABLE
CKT	CIRCUIT	NAC	NOTIFICATION APPLIANCE CIRCUIT
CLF	CURRENT LIMITING FUSE	NC	NORMALLY CLOSED
CM	CEILING MOUNT	NEC	NATIONAL ELECTRICAL CODE
CPT	CONTROL POWER TRANSFORMER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CT	CURRENT TRANSFORMER	NL	NIGHT LIGHT
CU	COPPER	NO	NORMALLY OPEN
DC	DIRECT CURRENT	NTS	NOT TO SCALE
DIA	DIAMETER	OC	OVER COUNTER
EC	ELECTRICAL CONTRACTOR	OHE	OVER HEAD ELECTRIC
EF	EXHAUST FAN	PB	PULL BOX
ELEV	ELEVATOR	PC	PLUMBING CONTRACTOR
EM	EMERGENCY	PNL	PANEL
EMT	ELECTRICAL METALLIC TUBING	PWR	POWER
EPO	EMERGENCY POWER OFF	PT	POTENTIAL TRANSFORMER
EX	EXISTING	PVC	RIGID NON-METALLIC CONDUIT
EXR	EXISTING RECOATED	QTY	QUANTITY
EWC	ELECTRIC WATER COOLER	RM	RIGID METAL CONDUIT
F	FUSE	RTS	REMOTE TEST STATION
FAA	FIRE ALARM ANNUNCIATOR	RUF	ROOF TOP UNIT
FCU	FAN COIL UNIT	S.C.	STRUCTURAL CONTRACTOR
FLA	FULL LOAD AMPERES	ST	SHUNT TRIP
FMC	FLEXIBLE METAL CONDUIT	TBD	TO BE DETERMINED BY EC
G	GROUND	UC	UNDER GROUND COMMUNICATIONS
G.C.	GENERAL CONTRACTOR	UGE	UNDER GROUND ELECTRIC
GFI	GROUND FAULT CIRCUIT INTERRUPTER	UL	UNDERWRITERS LABORATORY
		V	VOLT
		VA	VOLT-AMPERE
		W	WATT
		WG	WIRE GUARD
		WP	WEATHER PROOF
		XFMR	TRANSFORMER

AS A REQUIREMENT FOR ALL PROSPECTIVE BIDDERS SHALL:

1. VISIT THE SITE PRIOR TO BID SUBMISSION
2. FIELD VERIFY ALL MEASUREMENTS
3. GENERATE A COMPREHENSIVE LIST DETAILING SITE CONDITIONS FOR FIELD PERSONNEL.

THE SUCCESSFUL BIDDING CONTRACTOR SHALL:

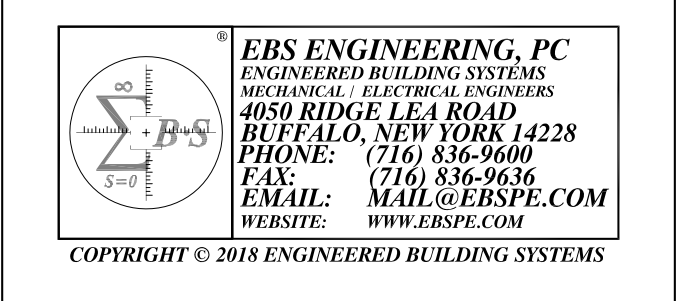
1. ENGAGE THE SERVICES OF A NEW YORK STATE UNDERGROUND UTILITY LOCATING SERVICE AND HAVE THE SITE PROPERLY MARKED PRIOR TO COMMENCING ANY UNDERGROUND EXCAVATION.
2. REVIEW ENTIRE DRAWING PACKAGE AND EFFECTIVELY COORDINATE ELECTRICAL INSTALLATION WITH ALL OTHER TRADES.
3. COORDINATE ALL BUILDING INTERCONNECTIONS AND POWER SYSTEMS SHUTDOWN WITH OWNER.
4. PROVIDE ONE COMPLETE SET OF AS-BUILD DRAWINGS TO THE ENGINEER OF RECORD AND ONE TO THE OWNER.



ELECTRICAL ONE-LINE DIAGRAM
SCALE: N.T.S.

DESCRIPTION	208Y/120V 225 Amp Mains		Three Phase Four Wire 22 Kva (Fully Rated) 42ckt.		MAIN LUGS ONLY		DESCRIPTION	ckt#	
	BREAKER	L1	L2	L3	BREAKER	MAIN BREAKER			
1	40A-3P	25.00	5.90	25.00	5.90	15A-3P	Make-Up Air Unit (RTU-1)	2	
3	40A-3P							4	
5	40A-3P							6	
7	50A-3P	46.30	3.80	46.30	3.80	15A-3P	Exhaust Fan (EF-1)	8	
9	50A-3P							10	
11	50A-3P							12	
13	20A-2P	12.10	4.40			20A-1P	Exhaust Fan (EF-2)	14	
15	20A-1P			12.10	3.00	20A-1P	Exterior Bldg. Receptacles	16	
17	20A-1P				6.50	3.10	20A-1P	Kitchen & Exterior Bldg. Lights	18
19	20A-1P	7.10	3.00				Kitchen Com. Receptacles	20	
21	20A-1P			10.80	3.00	20A-1P	Kitchen Com. Receptacles	22	
23	20A-1P				15.00	13.26	20A-1P	Shed Recept. / Lights	24
25	20A-1P	1.50	0.00				SPARE	26	
27	20A-1P			6.00	0.00	20A-1P	SPARE	28	
29	20A-1P				0.00	0.00	20A-1P	SPARE	30
31	20A-1P	0.00	0.00				20A-1P	SPARE	32
33	SPACE			0.00	0.00		SPACE	34	
35	SPACE				0.00	0.00	SPACE	36	
37	SPACE	0.00	0.00				SPACE	38	
39	SPACE			0.00	0.00		SPACE	40	
41	SPACE				0.00	0.00	SPACE	42	
TOTAL CONNECTED AMP/LEGS		109.10	115.90	118.86			TOTAL CONNECTED KVA	41.26	
(*) DENOTES GFICI TYPE C.B. (**) DENOTES SHUNT-TRIP C.B.							TOTAL CONNECTED AMPERES	114.62	

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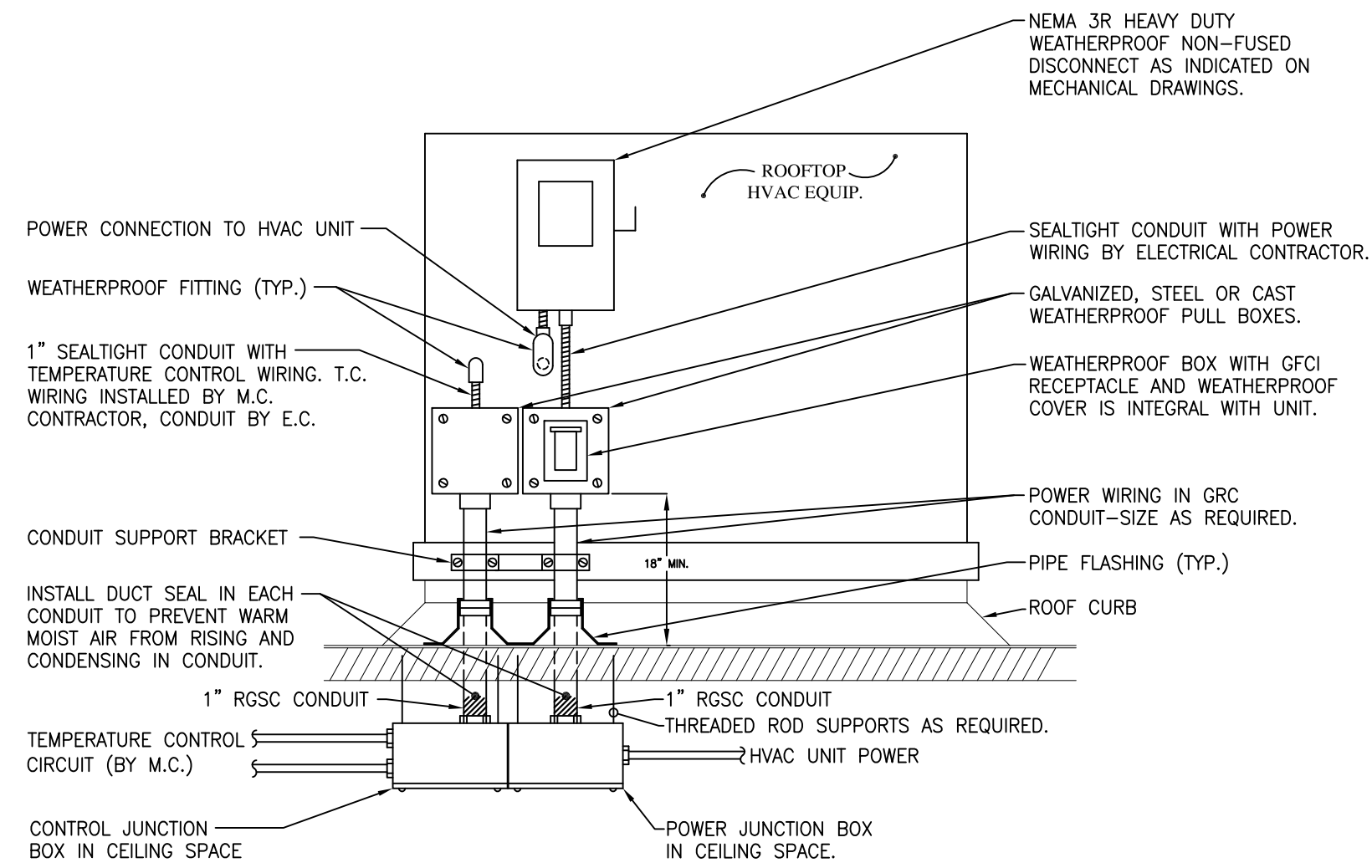
JAFFARAZA CENTER ADDITION
10300 Transit Road, Amherst, NY

ISSUE:
SA PROJECT TEAM: PRINCIPAL P. Silvestri
PROJ. ARCH. G. Amisic DRAFT R.
JOB CAPT. A. Sobieski INTERIORS K. Bentley

SEAL:
TITLE:
ELECTRICAL SCHEDULES, ONE LINE & NOTES



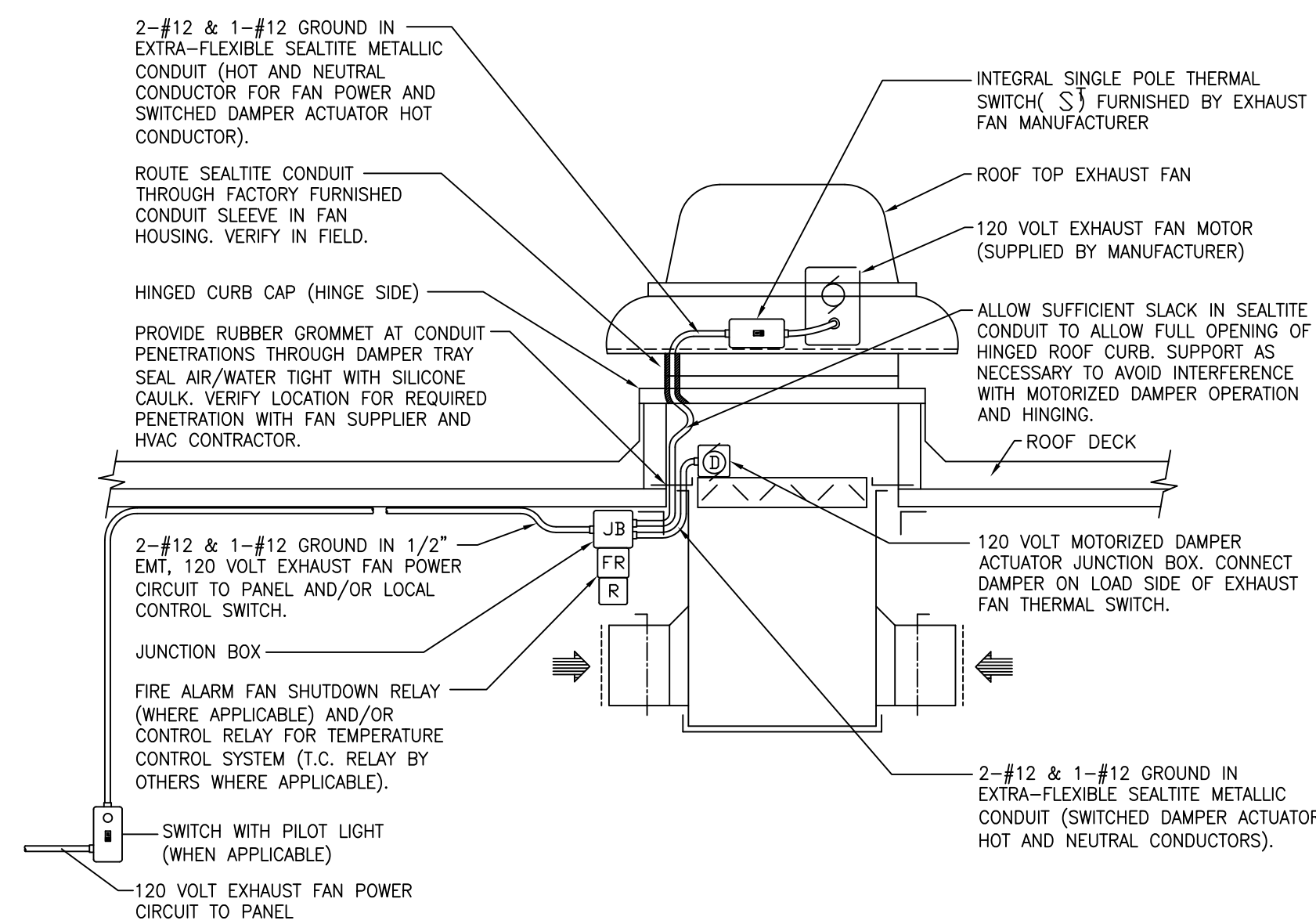
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DRAWING #: E-1



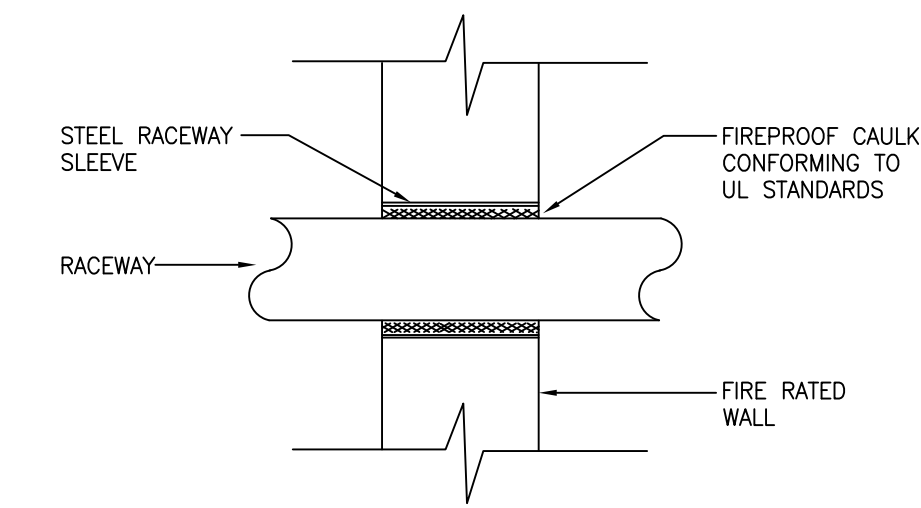
NOTES:

- a. WIRING TO THE ROOFTOP HVAC EQUIPMENT SHALL EXTEND THROUGH THE ROOF IN CONDUITS LOCATED OUTSIDE OF THE EQUIPMENT ROOF CURB AS SHOWN, UNLESS OTHERWISE SPECIFICALLY ALLOWED BY THE UNIT MANUFACTURER.
- b. WIRE RUN INSIDE HVAC EQUIPMENT SHALL BE ACCOMPLISHED IN A MANNER ACCEPTABLE WITH THE UNIT MANUFACTURER AND SHALL MEET ALL REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.
- c. COORDINATE CONTROL WIRING RACEWAY INSTALLATION WITH THE MECHANICAL CONTRACTOR. TEMPERATURE CONTROL WIRING BY MECHANICAL CONTRACTOR.
- d. REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT SUPPLIED (E. DISCONNECT SWITCHES, STARTERS ETC.) UNDER THE MECHANICAL CONTRACT AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

1 **TYPICAL ROOFTOP HVAC UNIT**
E-2 SCALE: N.T.S. Electrical Detail



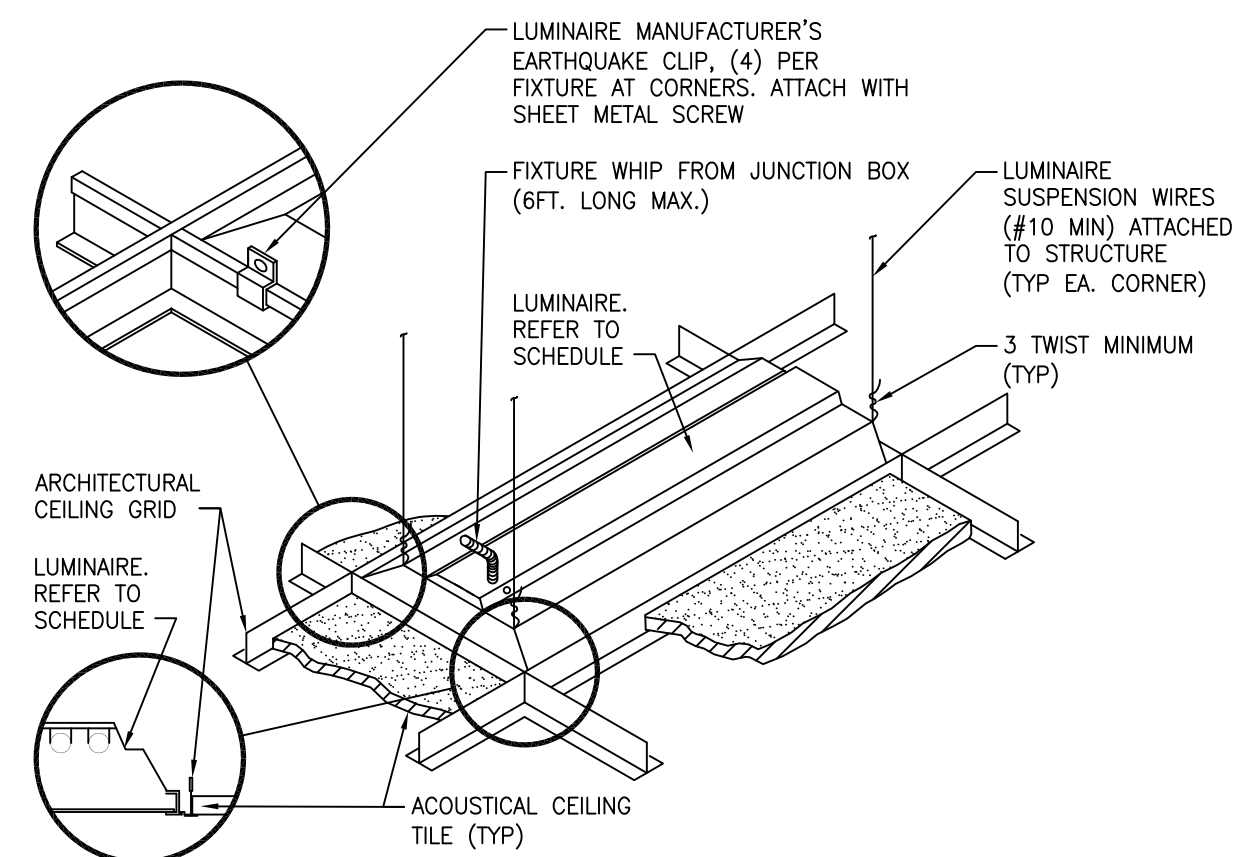
2 **TYPICAL 120V ROOFTOP EXHAUST FAN**
E-2 SCALE: N.T.S. Electrical Detail



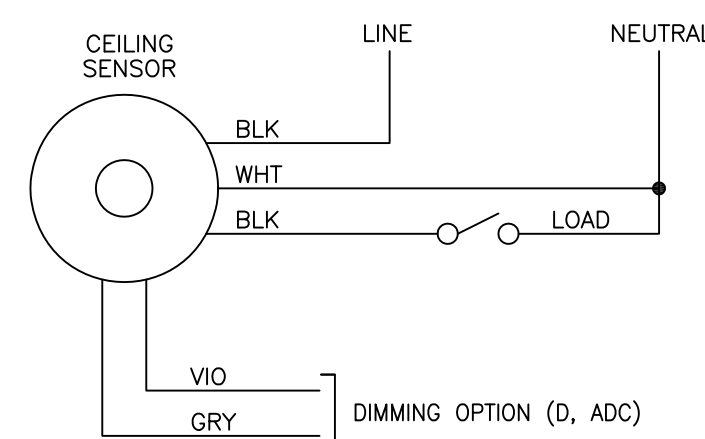
NOTES:

- a. ELECTRICAL CONTRACTOR SHALL PROVIDE NECESSARY PENETRATIONS FOR CONDUIT SLEEVES AND FIRESTOP AS INDICATED ABOVE. THIS DETAIL IS TYPICAL TO ALL FLOOR TO FLOOR AND FIREWALL PENETRATIONS.

3 **RACEWAY PENETRATION THRU FIRE RATED WALL/CEILING**
E-2 SCALE: N.T.S. Electrical Detail



4 **LUMINAIRE MOUNTING - LAY-IN CEILING**
E-2 SCALE: N.T.S. Electrical Detail



NOTES:

- a. DETAIL SHOWN FOR REFERENCE ONLY. INSTALL AND WIRE PER MANUFACTURE INSTRUCTIONS.
- b. PROGRAMMING FUNCTIONS SHALL REMAIN AT DEFAULT SETTING EXCEPT FOR AS FOLLOWS:
-OCCUPANCY TIME DELAY = 20 MINUTES

5 **TYPICAL LINE-VOLTAGE CEILING MOUNT OCCUPANCY SENSOR**
E-2 SCALE: N.T.S. Electrical Detail

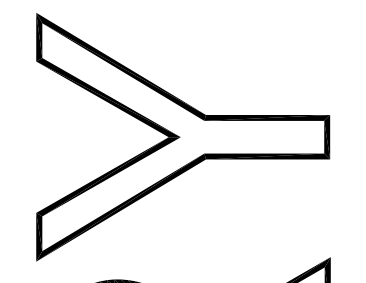
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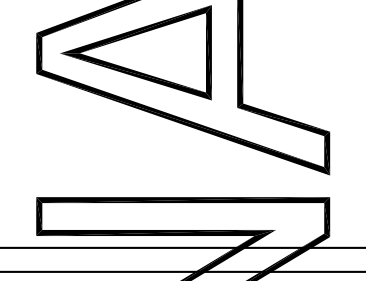
**JAFFAR YA
CENTER
KITCHEN
ADDITION**
10300 Transit Road,
Amherst, NY

ISSUE:

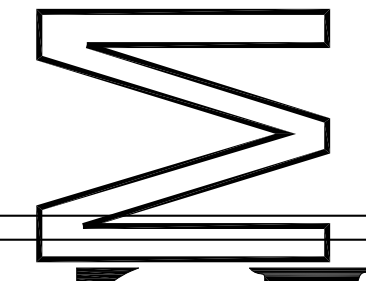


SA PROJECT TEAM: PRINCIPAL P. Silvestri
PROJ. ARCH. G. Gamsic DRAFTER
JOB CAPT. A. Schick INTERIORS K. Bentley

SEAL:



TITLE:
**ELECTRICAL
DETAILS**

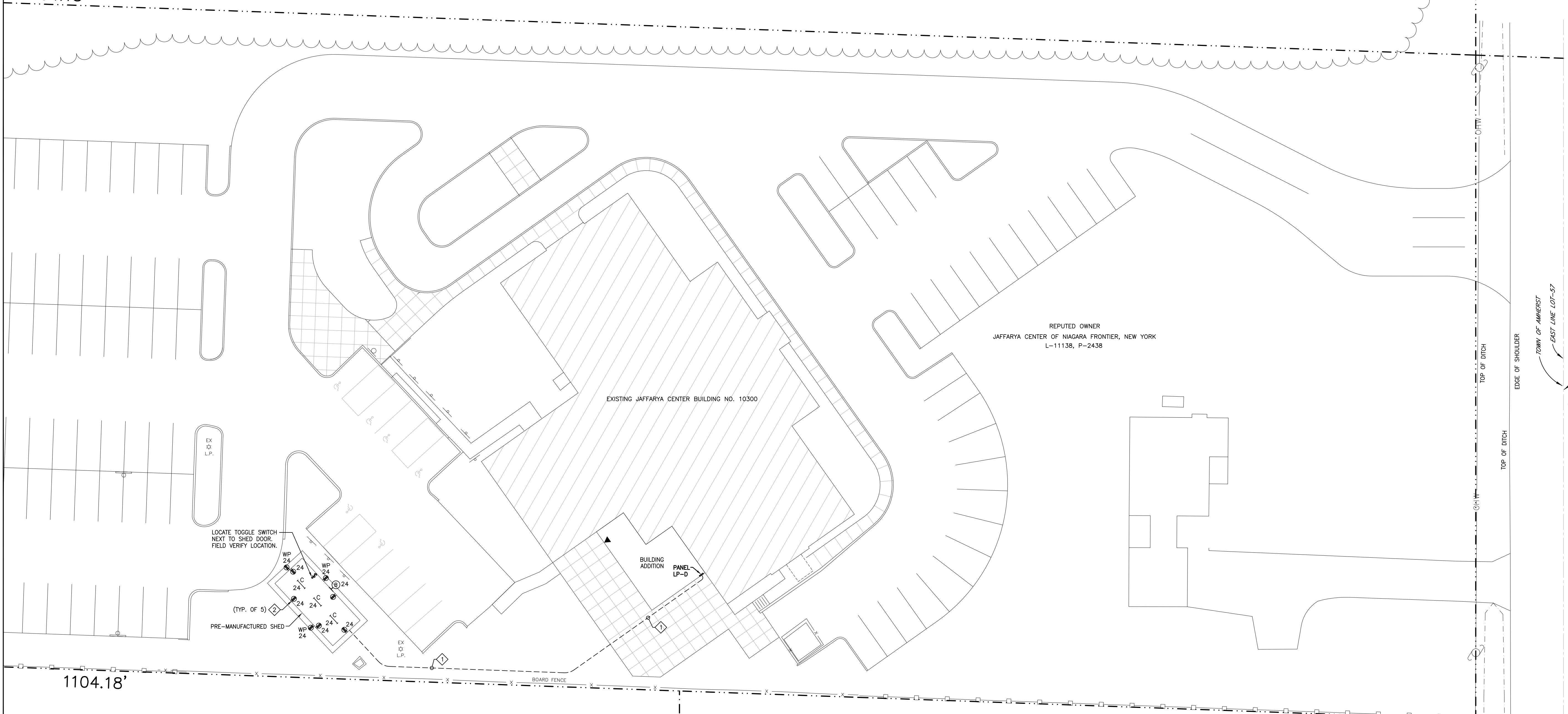


SA JOB #: 07129.03 DATE:
DRAWING #: E-2

NOT FOR CONSTRUCTION



1104.18'



REPUTED OWNER
JAFFARYA CENTER OF NIAGARA FRONTIER, NEW YORK
L-11138, P-2438

EXISTING JAFFARYA CENTER BUILDING NO. 10300

LOCATE TOGGLE SWITCH
NEXT TO SHED DOOR.
FIELD VERIFY LOCATION.

(TYP. OF 5)

PRE-MANUFACTURED SHED

BUILDING ADDITION

PANEL LP-D

DRAWING KEYNOTES:

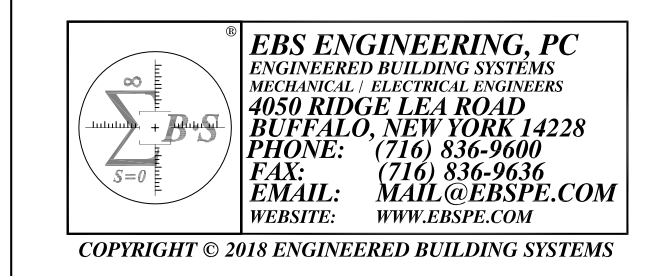
- 2-#10 THWN CU., 1-#10 GRND. CU. IN 1" PVC SCH-40 CONDUIT INSTALLED 24" (MIN.) BELOW FINISHED GRADE FROM PANEL LP-D TO SHED.
- GFCI RECEPTACLES LOCATED WITHIN SHED SHALL BE MOUNTED ±40" A.F.F.

1
E-3 **ELECTRICAL SITE PLAN**
SCALE: 1" = 20'-0"

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JAFFARYA CENTER
KITCHEN ADDITION
10300 Transit Road,
Amherst, NY

ISSUE:

NO

SA PROJECT TEAM: PRINCIPAL P. Silvestri
 PROJ. ARCH. G. Gamsic DRAFTER
 JOB CAPT. A. Schick INTERIORS K. Bentley

SEAL:

NO

TITLE:

ELECTRICAL SITE PLAN



SA JOB #:

07129.03

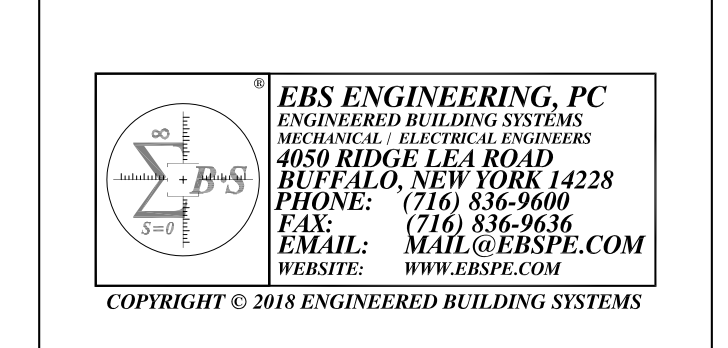
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E-3

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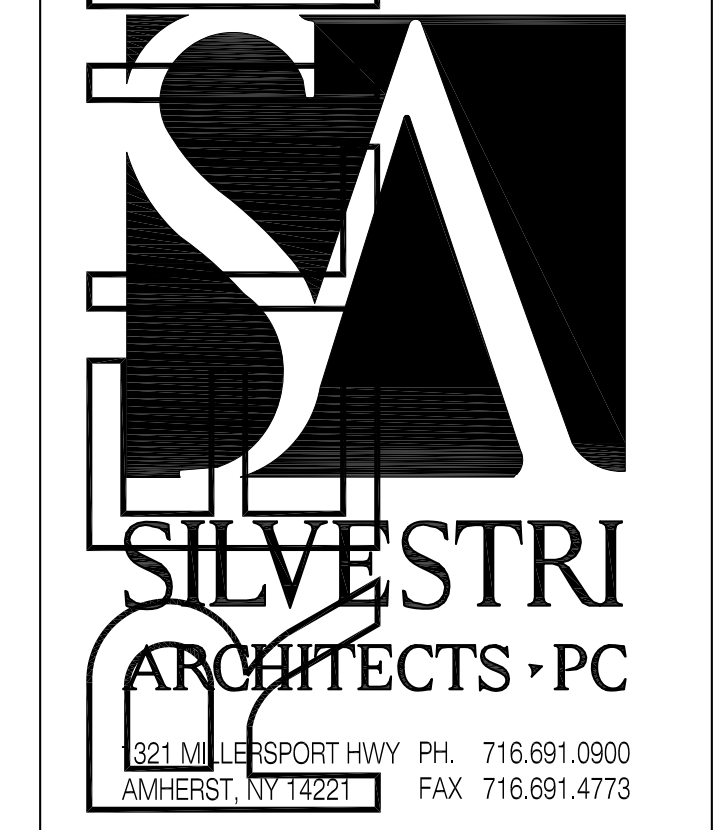


JAFFAROVA CENTER FOR ELECTRONICS ADDITION
 10300 Transit Road,
 Amherst, NY

ISSUE:
 SA PROJECT TEAM: PRINCIPAL P. Silvestri
 PROF. ARCH. G. Gamsic DRAFT R.
 JOB CAPT. A. Szeles INTERIORS K. Bentley

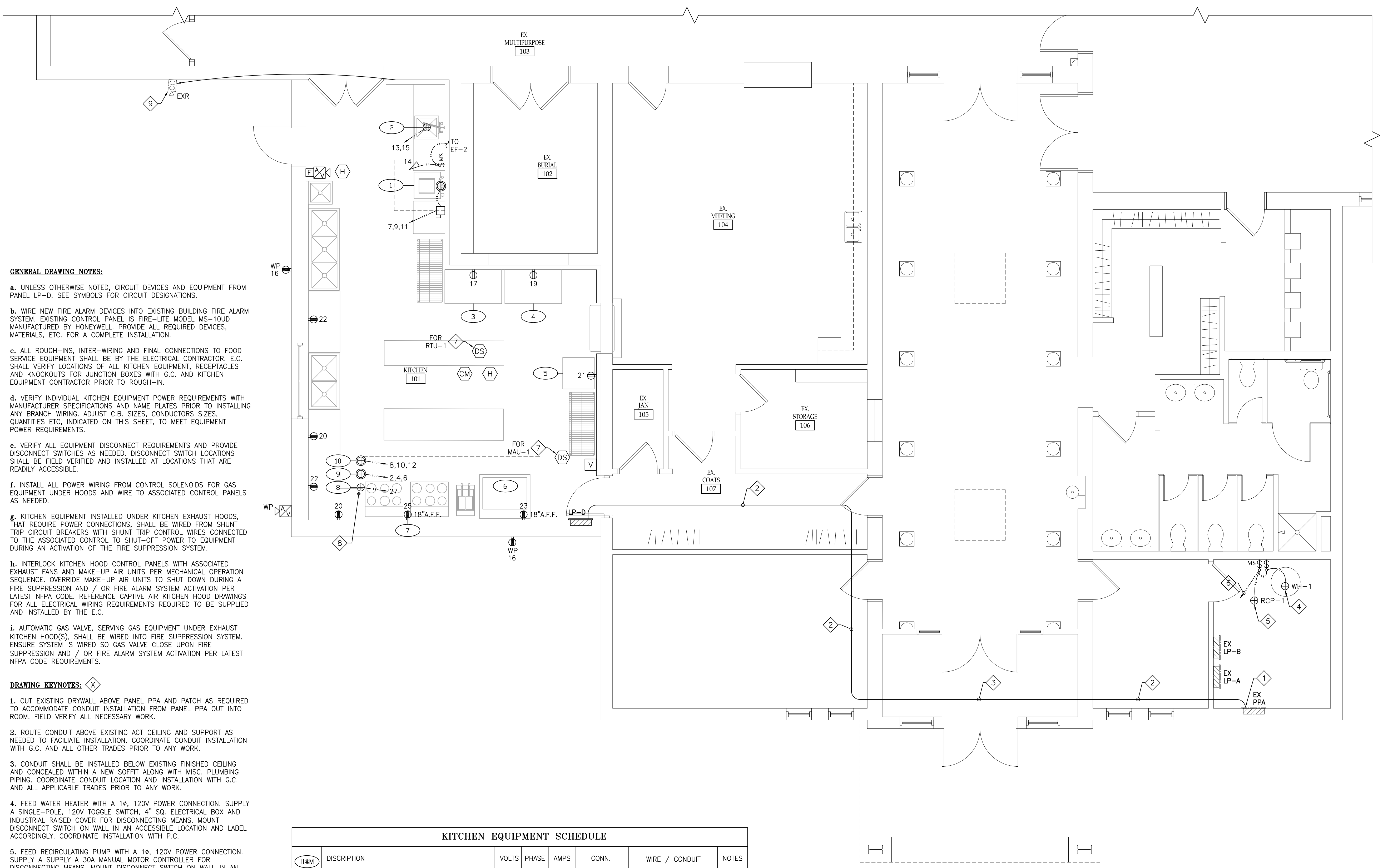
SEAL:
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TITLE:
 ELECTRICAL POWER & FIRE ALARM FLOOR PLAN



SA JOB #: 07129.03 DATE:

DRAWING #: E-4



- GENERAL DRAWING NOTES:**
- UNLESS OTHERWISE NOTED, CIRCUIT DEVICES AND EQUIPMENT FROM PANEL LP-D. SEE SYMBOLS FOR CIRCUIT DESIGNATIONS.
 - WIRE NEW FIRE ALARM DEVICES INTO EXISTING BUILDING FIRE ALARM SYSTEM. EXISTING CONTROL PANEL IS FIRE-LITE MODEL MS-10UD MANUFACTURED BY HONEYWELL. PROVIDE ALL REQUIRED DEVICES, MATERIALS, ETC. FOR A COMPLETE INSTALLATION.
 - ALL ROUGH-INS, INTER-WIRING AND FINAL CONNECTIONS TO FOOD SERVICE EQUIPMENT SHALL BE BY THE ELECTRICAL CONTRACTOR. E.C. SHALL VERIFY LOCATIONS OF ALL KITCHEN EQUIPMENT, RECEPTACLES AND KNOCKOUTS FOR JUNCTION BOXES WITH G.C. AND KITCHEN EQUIPMENT CONTRACTOR PRIOR TO ROUGH-IN.
 - VERIFY INDIVIDUAL KITCHEN EQUIPMENT POWER REQUIREMENTS WITH MANUFACTURER SPECIFICATIONS AND NAME PLATES PRIOR TO INSTALLING ANY BRANCH WIRING. ADJUST C.B. SIZES, CONDUCTORS SIZES, QUANTITIES ETC. INDICATED ON THIS SHEET, TO MEET EQUIPMENT POWER REQUIREMENTS.
 - VERIFY ALL EQUIPMENT DISCONNECT REQUIREMENTS AND PROVIDE DISCONNECT SWITCHES AS NEEDED. DISCONNECT SWITCH LOCATIONS SHALL BE FIELD VERIFIED AND INSTALLED AT LOCATIONS THAT ARE READILY ACCESSIBLE.
 - INSTALL ALL POWER WIRING FROM CONTROL SOLENOIDS FOR GAS EQUIPMENT UNDER HOODS AND WIRE TO ASSOCIATED CONTROL PANELS AS NEEDED.
 - KITCHEN EQUIPMENT INSTALLED UNDER KITCHEN EXHAUST HOODS, THAT REQUIRE POWER CONNECTIONS, SHALL BE WIRED FROM SHUNT TRIP CIRCUIT BREAKERS WITH SHUNT TRIP CONTROL WIRES CONNECTED TO THE ASSOCIATED CONTROL TO SHUT-OFF POWER TO EQUIPMENT DURING AN ACTIVATION OF THE FIRE SUPPRESSION SYSTEM.
 - INTERLOCK KITCHEN HOOD CONTROL PANELS WITH ASSOCIATED EXHAUST FANS AND MAKE-UP AIR UNITS PER MECHANICAL OPERATION SEQUENCE. OVERRIDE MAKE-UP AIR UNITS TO SHUT DOWN DURING A FIRE SUPPRESSION AND / OR FIRE ALARM SYSTEM ACTIVATION PER LATEST NFPA CODE. REFERENCE CAPTIVE AIR KITCHEN HOOD DRAWINGS FOR ALL ELECTRICAL WIRING REQUIREMENTS REQUIRED TO BE SUPPLIED AND INSTALLED BY THE E.C.
 - AUTOMATIC GAS VALVE, SERVING GAS EQUIPMENT UNDER EXHAUST KITCHEN HOOD(S), SHALL BE WIRED INTO FIRE SUPPRESSION SYSTEM. ENSURE SYSTEM IS WIRED SO GAS VALVE CLOSE UPON FIRE SUPPRESSION AND / OR FIRE ALARM SYSTEM ACTIVATION PER LATEST NFPA CODE REQUIREMENTS.
- DRAWING KEYNOTES:**
- CUT EXISTING DRYWALL ABOVE PANEL PPA AND PATCH AS REQUIRED TO ACCOMMODATE CONDUIT INSTALLATION FROM PANEL PPA OUT INTO ROOM. FIELD VERIFY ALL NECESSARY WORK.
 - ROUTE CONDUIT ABOVE EXISTING ACT CEILING AND SUPPORT AS NEEDED TO FACILITATE INSTALLATION. COORDINATE CONDUIT INSTALLATION WITH G.C. AND ALL OTHER TRADES PRIOR TO ANY WORK.
 - CONDUIT SHALL BE INSTALLED BELOW EXISTING FINISHED CEILING AND CONCEALED WITHIN A NEW SOFFIT ALONG WITH MISC. PLUMBING PIPING. COORDINATE CONDUIT LOCATION AND INSTALLATION WITH G.C. AND ALL APPLICABLE TRADES PRIOR TO ANY WORK.
 - FEED WATER HEATER WITH A 1ø, 120V POWER CONNECTION. SUPPLY A SINGLE-POLE, 120V TOGGLE SWITCH, 4" SQ. ELECTRICAL BOX AND INDUSTRIAL RAISED COVER FOR DISCONNECTING MEANS. MOUNT DISCONNECT SWITCH ON WALL IN AN ACCESSIBLE LOCATION AND LABEL ACCORDINGLY. COORDINATE INSTALLATION WITH P.C.
 - FEED RECIRCULATING PUMP WITH A 1ø, 120V POWER CONNECTION. SUPPLY A SUPPLY A 3ØA MANUAL MOTOR CONTROLLER FOR DISCONNECTING MEANS. MOUNT DISCONNECT SWITCH ON WALL IN AN ACCESSIBLE LOCATION AND LABEL ACCORDINGLY. COORDINATE INSTALLATION WITH P.C.
 - WIRE FROM A SPARE 20A CIRCUIT BREAKER IN EX. PANEL LP-B. FIELD VERIFY SPARE CIRCUIT BREAKER AVAILABILITY.
 - INSTALL DUCT SMOKE DETECTOR, WITH SAMPLING TUBE, IN RETURN AIR DUCT OF ROOF TOP UNIT (RTU) AND SUPPLY AIR DUCT OF MAKE-UP AIR UNIT (MAU). FIELD VERIFY EXACT LOCATION WITH M.C. SUPPLY A REMOTE TEST STATION FOR EACH DUCT DETECTOR AND INSTALL IN JANITOR RM. 105. LABEL TEST STATION ACCORDINGLY. WIRE SO THAT UNIT SHUTS-DOWN UPON FIRE ALARM SYSTEM ACTIVATION. SUPPLY REQUIRED DEVICES, MATERIALS AND PROGRAMMING OF FACP TO OBTAIN A 100% COMPLETE INSTALLATION.
 - WIRE KITCHEN HOOD FIRE SUPPRESSION SYSTEM INTO FACP AND PROGRAM SO THAT ACTIVATION OF FIRE SUPPRESSION SYSTEM ACTIVATES BUILDING FIRE ALARM SYSTEM.
 - SUPPLY ALL REQUIRED HARDWARE, MATERIALS, WIRING ETC. AS NEEDED FOR SECURITY CAMERA RELOCATION. VERIFY FINAL LOCATION WITH OWNER. PATCH AND SEAL EXISTING OPENING WATER TIGHT AS REQUIRED. COORDINATE ALL NECESSARY WORK WITH G.C.

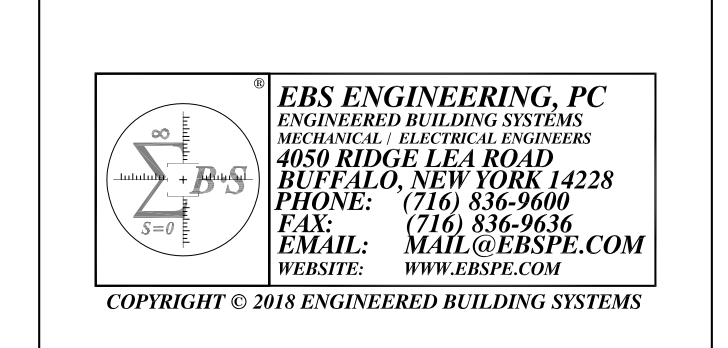
KITCHEN EQUIPMENT SCHEDULE							
ITEM	DISCRPTION	VOLTS	PHASE	AMPS	CONN.	WIRE / CONDUIT	NOTES
1	DISHWASHER (WITH BOOSTER HEATER)	208	3	46.3	DIRECT	3-#6, 1-#8G IN 1" C	1
2	GARBAGE DISPOSAL	208	1	12.1	DIRECT	2-#12, 1-#12G IN 1/2" C	1,2
3	REACH-IN FREEZER	120	1	6.5	NEMA 5-20R	2-#12, 1-#12G IN 1/2" C	1
4	REACH-IN REFRIGERATOR	120	1	7.1	NEMA 5-20R	2-#12, 1-#12G IN 1/2" C	1
5	HOLDING CABINET	120	1	10.8	NEMA 5-20R	2-#12, 1-#12G IN 1/2" C	1
6	OVEN / STEAMER	120	1	15.0	NEMA 5-20R	2-#12, 1-#12G IN 1/2" C	1,3
7	KITCHEN HOOD CONVENIENCE OUTLET	120	1	1.5	NEMA 5-20R	2-#12, 1-#12G IN 1/2" C	3
8	KITCHEN HOOD CONTROL PANEL AND LIGHTS	120	1	6.0	DIRECT	2-#12, 1-#12G IN 1/2" C	1,4
9	KITCHEN HOOD MAKE-UP AIR UNIT	208	3	5.9	DIRECT	3-#12, 1-#12G IN 1/2" C	1,4
10	KITCHEN HOOD EXHAUST FAN	208	3	3.8	DIRECT	3-#12, 1-#12G IN 1/2" C	1,4

KITCHEN EQUIPMENT SCHEDULE KEYNOTES:

- EQUIPMENT SUPPLIED BY OTHERS. VERIFY EXACT ELECTRICAL REQUIREMENTS PRIOR TO ROUGH-IN.
- CONTROL PANEL WITH ON/OFF FUNCTION AND LINE DISCONNECT SHALL BE INCLUDED WITH EQUIPMENT. INSTALL AND WIRE PER MANUFACTURE INSTRUCTIONS.
- FEED FROM SHUNT TRIP C.B.
- REFERENCE CAPTIVE AIR KITCHEN HOOD AND EQUIPMENT DRAWINGS FOR ALL ELECTRICAL WIRING REQUIREMENTS REQUIRED TO BE SUPPLIED AND INSTALLED BY THE E.C.

1 E-4
 ELECTRICAL POWER AND FIRE ALARM - FLOOR PLAN
 SCALE: 1/4" = 1'-0"

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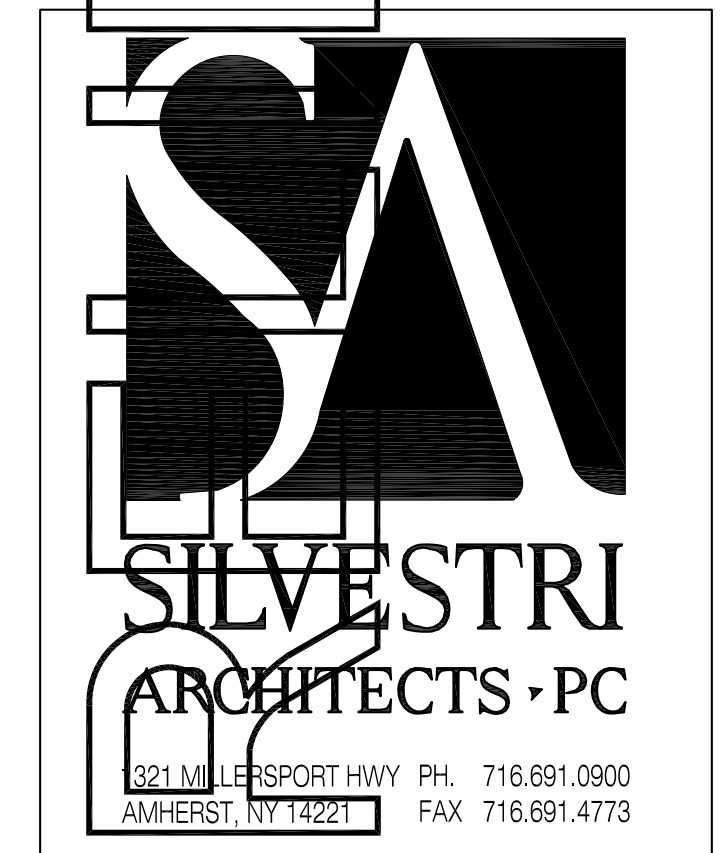


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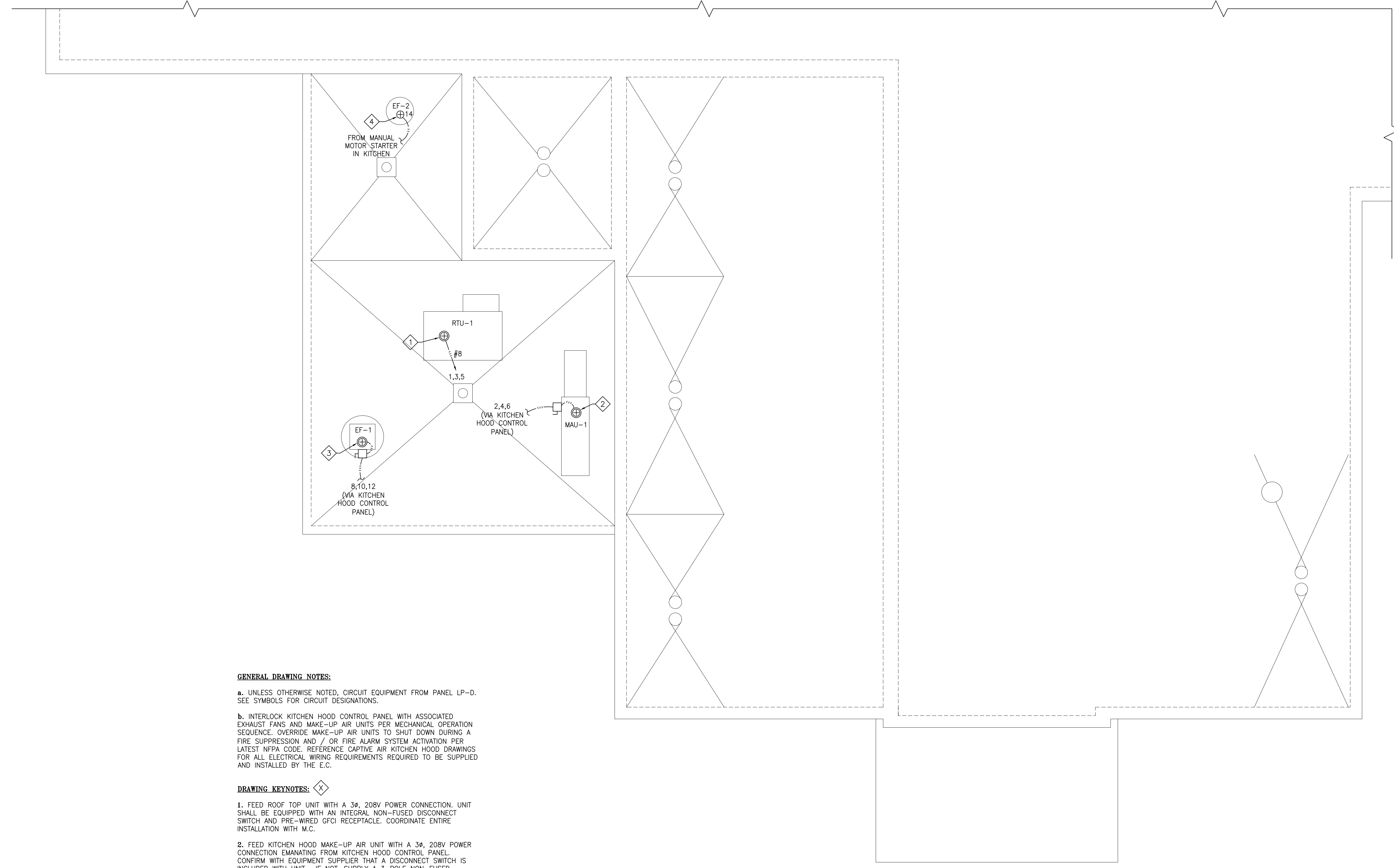
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ELECTRICAL POWER ROOF PLAN



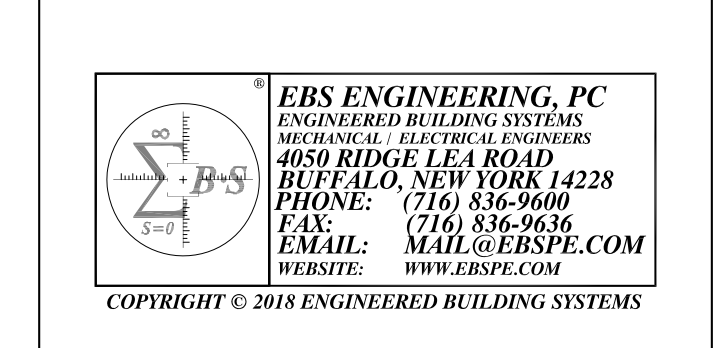
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- GENERAL DRAWING NOTES:**
- UNLESS OTHERWISE NOTED, CIRCUIT EQUIPMENT FROM PANEL LP-D. SEE SYMBOLS FOR CIRCUIT DESIGNATIONS.
 - INTERLOCK KITCHEN HOOD CONTROL PANEL WITH ASSOCIATED EXHAUST FANS AND MAKE-UP AIR UNITS PER MECHANICAL OPERATION SEQUENCE. OVERRIDE MAKE-UP AIR UNITS TO SHUT DOWN DURING A FIRE SUPPRESSION AND / OR FIRE ALARM SYSTEM ACTIVATION PER LATEST NFPA CODE. REFERENCE CAPTIVE AIR KITCHEN HOOD DRAWINGS FOR ALL ELECTRICAL WIRING REQUIREMENTS REQUIRED TO BE SUPPLIED AND INSTALLED BY THE E.C.
- DRAWING KEYNOTES:**
- FEED ROOF TOP UNIT WITH A 3 ϕ , 208V POWER CONNECTION. UNIT SHALL BE EQUIPPED WITH AN INTEGRAL NON-FUSED DISCONNECT SWITCH AND PRE-WIRED GFCI RECEPTACLE. COORDINATE ENTIRE INSTALLATION WITH M.C.
 - FEED KITCHEN HOOD MAKE-UP AIR UNIT WITH A 3 ϕ , 208V POWER CONNECTION EMANATING FROM KITCHEN HOOD CONTROL PANEL. CONFIRM WITH EQUIPMENT SUPPLIER THAT A DISCONNECT SWITCH IS INCLUDED WITH UNIT. IF NOT, SUPPLY A 3-POLE NON-FUSED, COMBINATION STARTER/DISCONNECT DISCONNECT SWITCH WITH A NEMA 3R ENCLOSURE AND INSTALL ON UNIT HOUSING IN AN ACCESSIBLE LOCATION. CONFIRM UNIT LOCATION WITH G.C. AND ALL WIRING REQUIREMENTS WITH CAPTIVE AIR EQUIPMENT DRAWINGS.
 - FEED EXHAUST FAN WITH A 3 ϕ , 208V POWER CONNECTION EMANATING FROM KITCHEN HOOD CONTROL PANEL. CONFIRM WITH EQUIPMENT SUPPLIER THAT A DISCONNECT SWITCH IS INCLUDED WITH EXHAUST FAN. IF NOT, SUPPLY A 3-POLE NON-FUSED, COMBINATION STARTER/DISCONNECT SWITCH WITH A NEMA 3R ENCLOSURE AND INSTALL ON UNIT HOUSING IN AN ACCESSIBLE LOCATION. CONFIRM UNIT LOCATION WITH G.C. AND ALL WIRING REQUIREMENTS WITH CAPTIVE AIR EQUIPMENT DRAWINGS.
 - FEED EXHAUST FAN WITH A 1 ϕ , 120V POWER CONNECTION WIRED THROUGH A MANUAL MOTOR STARTER WITH A NEMA 3R ENCLOSURE LOCATED IN KITCHEN NEXT TO DISHWASHER HOOD. CONFIRM WITH EQUIPMENT SUPPLIER THAT A DISCONNECT SWITCH IS INCLUDED WITH EXHAUST FAN. IF NOT, SUPPLY A 1-POLE NON-FUSED DISCONNECT SWITCH WITH A NEMA 3R ENCLOSURE AND INSTALL ON UNIT HOUSING IN AN ACCESSIBLE LOCATION. CONFIRM UNIT LOCATION WITH G.C. AND ALL WIRING REQUIREMENTS WITH CAPTIVE AIR EQUIPMENT DRAWINGS.

1
E-4 ELECTRICAL POWER - ROOF PLAN
 SCALE: 1/4" = 1'-0"

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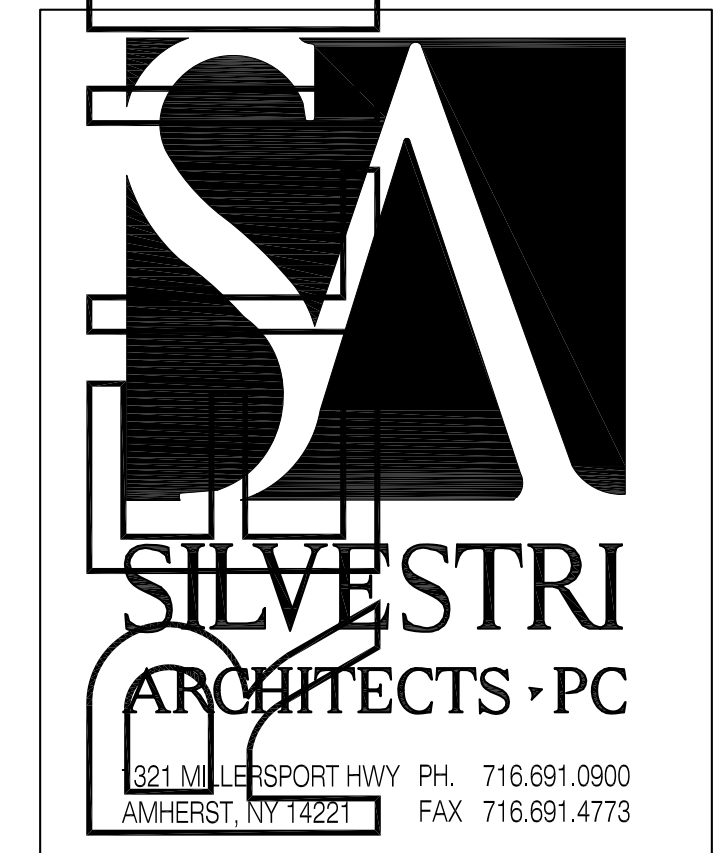
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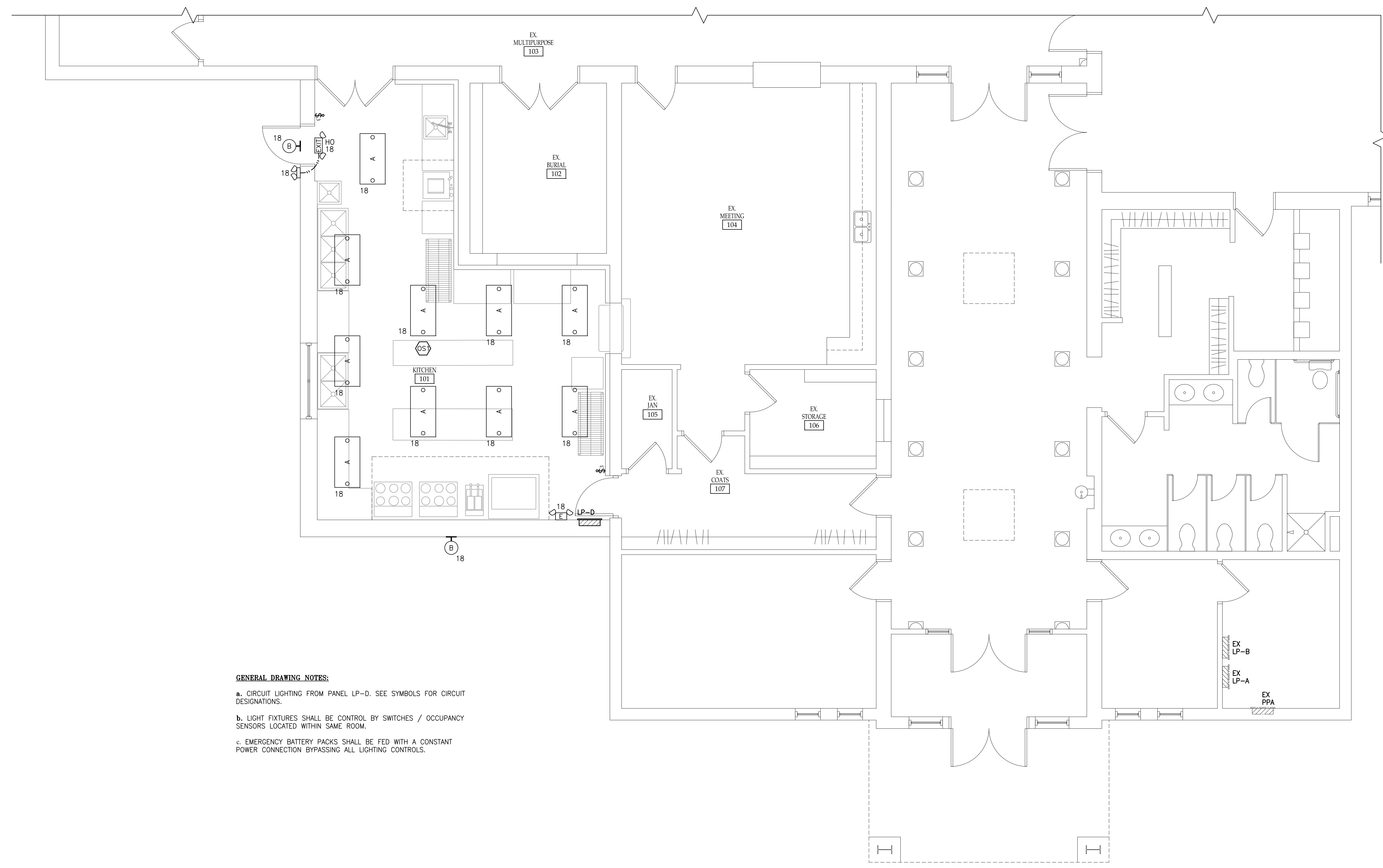
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TITLE:
ELECTRICAL LIGHTING FLOOR PLAN



SA JOB #: 07129.03 DATE:

DRAWING #: E-6



GENERAL DRAWING NOTES:
 a. CIRCUIT LIGHTING FROM PANEL LP-D. SEE SYMBOLS FOR CIRCUIT DESIGNATIONS.
 b. LIGHT FIXTURES SHALL BE CONTROL BY SWITCHES / OCCUPANCY SENSORS LOCATED WITHIN SAME ROOM.
 c. EMERGENCY BATTERY PACKS SHALL BE FED WITH A CONSTANT POWER CONNECTION BYPASSING ALL LIGHTING CONTROLS.

1
E-6 ELECTRICAL LIGHTING - FLOOR PLAN
 SCALE: 1/4" = 1'-0"

GENERAL PROVISIONS

- A. GENERAL: 1. REQUIREMENTS SPECIFIED ON COVER SHEET, ALONG WITH ELECTRICAL SPECIFICATIONS AND ALL ITS SECTIONS, COMPRISE THE CONTRACT DOCUMENTS FOR THE ELECTRICAL CONTRACT... 2. THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND EQUIPMENT DRAWINGS AND SPECIFICATIONS ARE INCORPORATED INTO, AND BECOME A PART OF THIS DIVISION... 3. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC. THEY ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT AND CONDUIT DIMENSIONS GIVEN ON THE PLANS... 4. UNTIL THE TIME OF INSTALLATION, THE ARCHITECT RESERVES THE RIGHT TO MAKE MINOR CHANGES... 5. THE ELECTRICAL DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER... 6. ARRANGE ALL EQUIPMENT SUBSTANTIALLY AS SHOWN ON THE DRAWINGS... 7. EXAMINE THE WORK OF OTHER TRADES INsofar AS THEIR WORK COMES IN CONTACT WITH OR IS COVERED BY THIS WORK... 8. ELECTRICAL CONTRACTOR SHALL VERIFY WITH OTHER TRADES ALL ELECTRICAL CHARACTERISTICS OF EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS... 9. IT IS THE INTENT OF THESE DRAWINGS THAT THIS BE A COMPLETE ELECTRICAL JOB... B. VISIT TO THE SITE: 1. THIS CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK... 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... D. ELECTRICAL INSPECTION: 1. ALL ELECTRICAL INSPECTIONS SHALL BE BY A 3RD PARTY AGENCY APPROVED BY THE LOCAL TOWN... E. RECORD DRAWINGS: 1. IMMEDIATELY AFTER THE CONTRACT IS SIGNED, THE CONTRACTOR SHALL OBTAIN A COMPLETE SET OF REPRODUCTIONS OF THE CONTRACT DRAWINGS... 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 APPROVER... 2. THESE SPECIFICATIONS ESTABLISH QUALITY STANDARD OF MATERIALS AND EQUIPMENT TO BE PROVIDED... 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... 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 TRADES INVOLVED... 5. ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO APPROVAL OF THE ARCHITECT AND ENGINEER... 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... 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... H. INTERFERENCES: 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... 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...

- I. QUALITY ASSURANCE: 1. ALL PRODUCTS SHALL BE NEW AND OF THE TYPE AND QUALITY SPECIFIED... 2. TYPE OF CATALOG NUMBER SUCH DESIGNATION SHALL ESTABLISH THE STANDARDS OF THE DESIRED QUALITY AND STYLE... J. EXCAVATION AND BACKFILLING: 1. THE ELECTRICAL CONTRACTOR SHALL HAVE THE ENTIRE SITE MARKED PRIOR TO PERFORMING ANY DIGGING & EXCAVATION NECESSARY TO FACILITATE HIS WORK... 2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASSOCIATED COSTS INVOLVED WITH THE REPAIRING OF EXISTING UTILITIES AND SERVICES IN THE EVENT OF DAMAGE OCCURRING AS A RESULT OF HIS WORK... K. LABOR: 1. THE ELECTRICAL CONTRACTOR SHALL HAVE COMPETENT SUPERVISION IN RESPONSIBLE CHARGE OF THE WORK, WHO SHALL BE ON THE SITE DURING THE ERECTION OF THE MATERIAL FURNISHED UNDER THESE SPECIFICATIONS... L. STORAGE AND PROTECTION: 1. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LOSS OR DAMAGE TO THE BUILDING AND ITS CONTENTS CAUSED BY HIS EMPLOYEES OR EQUIPMENT... M. VERIFICATION OF MEASUREMENTS: 1. BEFORE ORDERING ANY MATERIAL OR DOING ANY WORK, THIS CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AT THE BUILDING AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF SAME... BASIC ELECTRICAL MATERIALS AND METHODS: A. NAMEPLATES: 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... 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... 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... D. OPENINGS AND CHASES: 1. DETERMINE AND BE RESPONSIBLE FOR PROPER SIZE AND LOCATION OF OPENINGS AND CHASES REQUIRED... E. MATERIALS AND WORKMANSHIP: 1. ALL WORK SHALL BE INSTALLED IN A PRACTICAL AND WORKMANLIKE MANNER, BY MECHANICS SKILLED IN THE SEVERAL TRADES NECESSARY... F. FIRE STOPPING: 1. FIRE-STOPPING FOR OPENINGS THROUGH FIRE AND SMOKE RATED WALLS AND ALL FLOOR ASSEMBLIES SHALL BE LISTED OR CLASSIFIED BY AN APPROVED INDEPENDENT TESTING LABORATORY FOR "THROUGH-PENETRATION FIRE-STOP SYSTEMS..."

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. WIRING DEVICES. e. COMPLETE LIGHTING FIXTURE INSTALLATION INCLUDING ALL REQUIRED LAMPS. f. ILLUMINATED EXIT LIGHT SYSTEM. g. LIGHTING CONTROLS. h. OUTDOOR LIGHTING AND CONTROLS. i. FIRE ALARM SYSTEM EXPANSION. j. GROUNDING OF THE ELECTRICAL SYSTEM. k. TESTING OF ALL CABLES AND CIRCUIT WIRING AFTER INSTALLATION. l. UNDERGROUND WARNING TAPE: PERMANENT, BRIGHT-COLORED, CONTINUOUS-PRINTED, VINYL TAPE NOT LESS THAN 6 INCHES WIDE BY 4 MILS THICK WITH EMBEDDED CONTINUOUS METALLIC STRIP OR CORE AND PRINTED LEGEND THAT INDICATES TYPE OF UNDERGROUND LINE. m. IDENTIFY RACEWAYS AND CABLES WITH COLOR BANDING AS FOLLOWS: a). FIRE ALARM SYSTEM: RED n. TEMPORARY ELECTRICAL POWER AND LIGHTING AS REQUIRED FOR CONSTRUCTION.

TEMPORARY SERVICE:

- 1. THE ELECTRICAL CONTRACTOR SHALL FURNISH, INSTALL AND REMOVE AS REQUIRED ALL TEMPORARY POWER AND TEMPORARY LIGHTING IN ALL AREAS AND INDIVIDUAL ROOMS WHEN NEEDED BY THE INDIVIDUAL TRADES IN THE PERFORMANCE OF THEIR WORK... 2. NEW LIGHT FIXTURES SHALL NOT BE USED FOR TEMPORARY LIGHTING.

ELECTRIC SERVICE:

- 1. EXISTING 208Y/120V ELECTRIC SERVICE, METERING, ETC. SCHEDULE TO REMAIN AS-IS.

WIRE AND CABLE:

- 1. UNLESS OTHERWISE SPECIFIED, MC CABLE MAY BE UTILIZED FOR BRANCH WIRING WHEN CONCEALED WITHIN WALLS OR ABOVE FINISHED CEILING... 2. CONDUCTORS SHALL BE ANNEALED COPPER, STRANDED 98% CONDUCTIVITY, 600 V RATED FOR FEEDERS AND BRANCH CIRCUITS... 3. COLOR CODE CONDUCTORS (EXCEPT CONTROL AND INSTRUMENTATION CONDUCTORS) AS FOLLOWS: a. 208/120V 3φ SYSTEM PHASE A-BLACK; PHASE B-RED; PHASE C-BLUE; NEUTRAL-WHITE; GROUND-GREEN b. #12 AND #10 CONDUCTORS SHALL HAVE CONTINUOUS INSULATION COLOR, AS LISTED ABOVE... 4. #12 AND #10 CONDUCTORS SHALL HAVE CONTINUOUS INSULATION COLOR, AS LISTED ABOVE... 5. 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... 7. CONTROL CONDUCTORS SHALL BE #14 MINIMUM FOR NEC CLASS I AND #16 FOR NEC CLASS II... 11. CONNECT #10 AND SMALLER WIRES WITH CONSTANT PRESSURE EXPANDABLE SPRING TYPE CONNECTORS... 12. CONNECT #8 AND LARGER WIRES WITH COMPRESSION CONNECTORS OR SPLICES AS MANUFACTURED BY BURNDY OR T&B... 14. PULL CONDUCTORS USING RECOGNIZED METHODS AND EQUIPMENT LEAVING AT LEAST 6" WIRE AT ALL JUNCTION BOXES FOR CONNECTIONS... 15. CLEANOUT EACH CONDUIT SYSTEM BEFORE PULLING WIRE... 16. PULL CONDUCTORS USING RECOGNIZED METHODS AND EQUIPMENT LEAVING AT LEAST 6" WIRE AT ALL JUNCTION BOXES FOR CONNECTIONS... 17. FORM AND TIE ALL WIRING IN PANELBOARDS... 18. THERE SHALL BE NO WIRE/UT JUNCTIONS OR SPLICES MADE INSIDE SWITCHBOARDS/PANELBOARDS... 19. MAKE ALL CONNECTIONS TO DISCONNECT SWITCHES, MOTOR CONTROLLERS, MOTORS AND OTHER EQUIPMENT SHOWN ON THE PLANS... 20. INSTALL MULTIWIRE BRANCH CIRCUITS PER ALL REQUIREMENTS OF N.E.C. ARTICLE 210.4. HANDLE TIES MUST BE INSTALLED TO IDENTIFY SINGLE-POLE, MULTIWIRE BRANCH CIRCUITS PER ALL REQUIREMENTS OF N.E.C. ARTICLE 240.15(B)... 21. BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP... 22. 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%.

RACEWAYS AND BOXES

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... 2. CONDUIT SHALL BE SECURELY FASTENED IN PLACE. 3. CONDUIT SHALL BE CONCEALED IN WALLS, FLOOR AND CEILINGS WHEREVER POSSIBLE. 4. EXPOSED CONDUIT IN FINISHED AREAS WILL NOT BE PERMITTED... 5. USE FLEXIBLE CONDUIT FOR THE CONNECTION TO RECESSED OR SEMI-RECESSED LIGHTING FIXTURES... 6. USE WATERTIGHT JOINTS WITH BURIED AND CONCRETE ENCASED CONDUIT... 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... 9. IF CONDUIT IS SUSPENDED, IT SHALL BE SUPPORTED ON TRAPEZE HANGERS WHICH USE "ALL-THREAD" RODS FROM THE STRUCTURAL STEEL... 10. INSTALL EMPTY CONDUIT FOR FUTURE USE AS INDICATED ON THE DRAWINGS... 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. B. PULL & JUNCTION BOXES: 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... 2. PROVIDE STEEL BOXES AND REMOVABLE COVERS OF CODE GAGE, HOT ROLLED SHEET STEEL, HOT DIPPED GALVANIZED INSIDE AND OUTSIDE, FOR ABOVE GROUND WORK... 3. PROVIDE CAST IRON BOXES, HOT DIPPED GALVANIZED INSIDE AND OUTSIDE WHERE SHOWN ON THE DRAWINGS... 4. PROVIDE CONCRETE BOXES FOR UNDERGROUND WORK... 5. PROVIDE SIZE AS REQUIRED FOR NUMBER AND SIZE OF CONDUIT AND CONDUCTORS...

GROUNDING AND BONDING

A. GENERAL:

- 1. ALL GROUNDING AND GROUNDING CIRCUITRY SHALL MEET OR EXCEED THE REQUIREMENTS OF NEC 2014, ARTICLE 250. RACEWAY SYSTEMS WHICH INCLUDE ALL METAL CONDUIT, PULLBOXES, JUNCTION BOXES, ENCLOSURES, MOTOR FRAMES, ETC. SHALL BE MADE TO FORM A CONTINUOUS CONDUCTING, PERMANENT GROUND CIRCUIT OF THE LOWEST PRACTICAL IMPEDANCE TO ENHANCE THE SAFE CONDUCTION OF GROUND FAULT CURRENTS AND TO PREVENT OBJECTIONABLE DIFFERENCES IN VOLTAGE BETWEEN METAL CURRENT CARRYING PARTS OF THE ELECTRICAL SYSTEM... 3. ALL GROUNDING SYSTEMS SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER... 4. GROUND EACH OUTSIDE LIGHTING POLE SEPARATELY. 5. SEE CONTRACT DOCUMENTS FOR ADDITIONAL GROUNDING INFORMATION SPECIFIC TO THIS PROJECT.

B. CONDUCTORS:

- 1. EXPOSED GROUNDING CONDUCTORS SUCH AS BARS, STRAPS, CABLES, FLEXIBLE JUMPERS, BRAIDS, SHUNTS, ETC., SHALL BE BARE COPPER UNLESS OTHERWISE CALLED FOR... 2. CONDUCTORS SHALL BE COPPER... 3. PROVIDE CONDUCTORS WITH THHN/THWN INSULATION... 4. GROUND EACH OUTSIDE LIGHTING POLE SEPARATELY.

C. TESTS:

- 1. GROUNDS AND GROUNDING SYSTEM SHALL HAVE A RESISTANCE TO SOLID EARTH GROUND NOT TO EXCEED THE FOLLOWING VALUES: a. FOR GROUNDING SECONDARY SERVICE NEUTRAL; 25 OHMS b. FOR GROUNDING NON-CURRENT CARRYING METAL PARTS ASSOCIATED WITH SECONDARY DISTRIBUTION SYSTEM; 25 OHMS 2. PROVIDING GROUNDING TESTS TO VERIFY THE ABOVE VALUES... WHERE THESE VALUES ARE NOT MET, ADD ADDITIONAL GROUND RODS OR CONNECTIONS IN ORDER TO MEET THESE VALUES.

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EBS ENGINEERING, PC ENGINEERED BUILDING SYSTEMS MECHANICAL & ELECTRICAL ENGINEERS 4150 RIDGE LANE ROAD SUITE 100 NEW YORK, NY 11228 PHONE: (716) 836-9400 FAX: (716) 836-9411 EMAIL: MAIL@EBSPE.COM WEBSITE: WWW.EBSFCOM COPYRIGHT © 2018 ENGINEERED BUILDING SYSTEMS

JAFFARZA CENTER ADDITION 10300 Transit Road, Amherst, NY

ISSUE: SA PROJECT TEAM: PRINCIPAL P. Silvestri, PROJ. ARCH. G. Gamsic, DRAFT. R. JOB CAPT. A. Sokolski, INTERIORS K. Bentley

SEAL: TITLE: ELECTRICAL SPECIFICATIONS

SILVESTRI ARCHITECTS · PC 821 MILLERSPORT HWY PH. 716.691.9090 AMHERST, NY 14221 FAX 716.691.4773

SAJOB #: 07129.03 DATE: DRAWING #: E-7

NOT FOR CONSTRUCTION

WIRING DEVICES

A. GENERAL:

- PROVIDE WIRING DEVICES, IN TYPES, CHARACTERISTICS, GRADES AND ELECTRICAL RATINGS FOR APPLICATIONS INDICATED WHICH ARE UL LISTED AND WHICH COMPLY WITH NEMA WD 1 AND OTHER APPLICABLE UL AND NEMA STANDARDS.
- WIRING DEVICE COLOR SHALL BE SELECTED BY ARCHITECT, UNLESS OTHERWISE INDICATED.
- PROVIDE COVER OR DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS OTHERWISE NOTED:
 - FINISHED AREAS: THERMOPLASTIC – COLOR TO MATCH DEVICE.
 - UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL, AS APPROPRIATE FOR THE TYPE OF BOX.
 - EXTERIOR AREAS: COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKET, WEATHERPROOF, CROUSE-HINDS "WLRD" FOR DUPLEX RECEPTACLES AND "WLRs" FOR SINGLE RECEPTACLES OR EQUAL.
 - WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A COMMON COVERPLATE.
- LOCATE SWITCHES AND WALL SWITCH SENSORS AT A MAXIMUM HEIGHT OF 4'-0" A.F.F., MEASURED TO CENTER OF BOX, OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS) UNLESS OTHERWISE INDICATED. THE LONG DIMENSION OF THE SWITCHES SHALL BE VERTICAL. INSTALL ALL SWITCHES ON STRIKE SIDE OF DOOR.
- LOCATE RECEPTACLES AT A MINIMUM HEIGHT OF 1'-6" A.F.F., MEASURED TO CENTER OF BOX, OR NEAREST BLOCK COURSE (WITHIN A.D.A. REQUIREMENTS), UNLESS NOTED OTHERWISE. THE LONG DIMENSION OF RECEPTACLES SHALL BE VERTICAL.
- ALL WIRING DEVICES SHALL BE INSTALLED NEATLY AND PARALLEL WITH BUILDING LINES.

B. SUBMITTALS:

- SUBMIT DEVICE PRODUCT DATA SHEETS IDENTIFYING MANUFACTURE AND MODEL NUMBERS.

C. RECEPTACLES:

- PROVIDE NEMA CONFIGURATION 5-20R DUPLEX 125 VOLT GROUNDING TYPE RECEPTACLES RATED FOR 20 AMPERES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- STANDARD RECEPTACLES SHALL BE SPECIFICATION GRADE.
- GFI RECEPTACLES SHALL BE SPECIFICATION GRADE.
- RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR CONFIGURATIONS DIFFERENT FROM THE DUPLEX CONVENIENCE RECEPTACLES ABOVE SHALL BE AS INDICATED ON THE DRAWINGS OR AS REQUIRED FOR EQUIPMENT SUPPLIED BY OTHERS.
- CONNECT WIRING DEVICE GROUNDING TERMINAL TO BRANCH CIRCUIT EQUIPMENT GROUNDING CONDUCTOR.
- PROVIDE OTHER RECEPTACLES OF A QUALITY, MATERIAL AND WORKMANSHIP EQUAL TO THAT OF ABOVE DESCRIPTIONS.
- ACCEPTABLE MANUFACTURES INCLUDED EATON/ARROW HART, LEGRAND (P&S), HUBBELL OR LEVITON. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURE.

E. WALL SWITCHES:

- PROVIDE SINGLE-POLE, THREE-WAY, AND FOUR-WAY 20A, 120/277 VOLT HEAVY-DUTY SPECIFICATION GRADE DEVICES WITH COPPER ALLOY CONTACT ARM, HEAVY DUTY BUMPER PADS FOR QUIET SMOOTH OPERATION, HIGH STRENGTH THERMOPLASTIC POLYCARBONATE TOGGLE, AND SILVER ALLOY CONTACTS.
- ACCEPTABLE MANUFACTURES INCLUDE EATON/ARROW HART, LEGRAND (P&S), HUBBELL, LUTRON OR LEVITON. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURE.

F. AUTOMATIC LIGHTING CONTROL DEVICES:

- ALL LIGHTING CONTROL DEVICES MUST BE SELECTED, INSTALLED AND WIRED TO MEET CURRENT LOCAL AND STATE ENERGY CODE REQUIREMENTS. WHEN LOCAL AND STATE CODES ARE NOT APPLICABLE THE 2015 IECC (INTERNATIONAL ENERGY CONSERVATION CODE) SHALL BE APPLIED. ANY DISCREPANCIES BETWEEN THESE DESIGN DOCUMENTS AND CURRENT ENERGY CODES MUST BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BID SUBMISSION.
- PROVIDE SINGLE RELAY, DUAL TECHNOLOGY, 120/277 VOLT, WALL SENSOR SWITCH, UNLESS OTHERWISE INDICATED IN DESIGN DOCUMENTS. BASIC PROGRAMMING SHALL INCLUDE MANUAL ON, AUTOMATIC OFF WITH THE OCCUPANCY SENSOR TIME DELAY SET FOR 15 MINUTES. REMAINING PROGRAMMING OPTIONS SHALL BE FACTORY DEFAULT UNLESS OTHERWISE INDICATED OR REQUIRED.
- PROVIDE SINGLE ZONE, DUAL TECHNOLOGY 120/277V CEILING MOUNT DIMMING AND PHOTOCONTROL OCCUPANCY SENSOR WITH 360 DEGREE VIEWING ANGLE, UNLESS OTHERWISE INDICATED IN DESIGN DOCUMENTS. PROVIDE ALL REQUIRED POWER PACKS, SLAVE POWER PACKS, CONTROL UNITS, RELAYS, BACKBOXES, MOUNTING PLATES AND OTHER EQUIPMENT NECESSARY FOR PROPER SYSTEM OPERATION. BASIC PROGRAMMING SHALL INCLUDE OCCUPANCY SENSOR TIME DELAY SET FOR 15 MINUTES AND DIMMING SET TO 3V. REMAINING PROGRAMMING OPTIONS SHALL BE FACTORY DEFAULT UNLESS OTHERWISE INDICATED.
- ACCEPTABLE MANUFACTURERS INCLUDE SENSOR SWITCH, WATTSTOPPER OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURE.

LIGHTING

A. GENERAL:

- SEE SHEET E-1 FOR PROJECT LIGHT FIXTURE SPECIFICATIONS.
- ALL LIGHTING FIXTURES SHALL BE UL LISTED AND BARE THE UL LABEL OF APPROVAL
- SET LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS UNLESS OTHERWISE INDICATED.
- INSTALL LAMPS IN EACH LUMINAIRE AS NEEDED.
- FIXTURES SHALL BE SUPPORTED FROM BUILDING STRUCTURE.
- NFPA 70 REQUIRES MINIMUM SUPPORT FOR FIXTURES. REFER TO "LAY-IN CEILING LIGHTING FIXTURES SUPPORTS" PARAGRAPH BELOW FOR MORE SPECIFIC SUPPORT REQUIREMENTS AND REQUIREMENTS EXCEEDING CODE MINIMUMS. FOR PROJECTS REQUIRING SEISMIC DESIGN, ADDITIONAL SUPPORTS, AND RESTRAINING DEVICES BEYOND THOSE SPECIFIED HERE MAY BE REQUIRED.

B. SUBMITTALS:

- SUBMIT LIGHT FIXTURE DATA SHEETS IDENTIFYING MANUFACTURE AND MODEL NUMBERS.

C. LAY-IN CEILING LIGHTING FIXTURES SUPPORTS:

- USE GRID AS A SUPPORT ELEMENT.
- INSTALL CEILING SUPPORT SYSTEM RODS OR WIRES FOR EACH FIXTURE. LOCATE NOT MORE THAN 8 INCHES FROM LIGHTING FIXTURE CORNERS.
- SUPPORT CLIPS: FASTEN TO LIGHTING FIXTURES AND TO CEILING GRID MEMBERS AT OR NEAR EACH FIXTURE CORNER WITH CLIPS THAT ARE UL LISTED FOR THE APPLICATION.
- FIXTURES OF SIZES LESS THAN CEILING GRID: INSTALL AS INDICATED ON REFLECTED CEILING PLANS OR CENTER IN ACOUSTICAL PANEL, AND SUPPORT FIXTURES INDEPENDENTLY WITH AT LEAST TWO 3/4-INCH METAL CHANNELS SPANNING AND SECURED TO CEILING TEES.

- IMMEDIATELY PRIOR TO OCCUPANCY, DAMP CLEAN ALL DIFFUSERS, GLASSWARE, FIXTURE TRIMS, REFLECTORS, LAMPS AND REPLACE BURNED OUT LAMPS.

SAFETY SWITCHES & FUSES

A. SWITCHES:

- SAFETY SWITCHES SHALL BE THE ENCLOSED HEAVY-DUTY TYPE (TYPE HD) WITH QUICK-MAKE, QUICK-BREAK MECHANISM AND EXTERNAL PAD LOCKABLE OPERATING HANDLE.
- SAFETY SWITCHES SHALL BE RATED FOR 240 OR 600 VOLTS AS APPLICABLE. THEY SHALL BE HORSEPOWER RATED WHEN USED IN MOTOR CIRCUITS.
- SAFETY SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE, 2, 3, OR 4 POLE AS INDICATED ON THE DRAWINGS.
- SAFETY SWITCHES SHALL BE SINGLE THROW UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- ENCLOSURES SHALL BE NEMA 1 INDOORS AND NEMA 3R OUTDOORS UNLESS OTHERWISE INDICATED ON DRAWINGS.
- MANUFACTURER SHALL BE SQUARE D, SIEMENS, OR CUTLER-HAMMER. ALL SAFETY SWITCHES SHALL BE BY ONE MANUFACTURER.
- MOUNT THE SAFETY SWITCHES SECURELY BETWEEN 3' x 6' LEVELS ABOVE THE FLOOR UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- SWITCHES ON BLOCK WALLS SHALL BE MOUNTED ON A 3/4" PLYWOOD BACKBOARD, WHERE LOCATED INDOORS.

B. FUSES:

- THE CONTRACTOR SHALL FURNISH A COMPLETE SET OF FUSES FOR ALL SWITCHES, PLUS FUSIBLE EQUIPMENT FURNISHED BY OTHER TRADES. UNLESS INDICATED OTHERWISE ON PLANS, THE FUSES SHALL BE OF THE FOLLOWING TYPES:
 - FUSES 601 TO 6000 AMPS SHALL BE UL CLASS. TRADE TYPE SHALL BE KRP-C AS MANUFACTURED BY THE BUSSMANN COMPANY.
 - FUSES 1/10 TO 600 AMPS SHALL BE UL CLASS RK1. TRADE TYPE SHALL BE LOW PEAK LPS-RK (600V) AND LPN-RK (250V) AS MANUFACTURED BY BUSSMANN COMPANY.
 - ALL OTHER FUSES SHALL BE DUAL-ELEMENT CURRENT-LIMITING TYPE WITH 200,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY.
 - FUSES SHALL BE MANUFACTURED BY BUSSMANN, GOULD-SHAUMUTT, OR RELIANCE.
 - SPARE FUSES AMOUNTING TO A DUPLICATE SET OF EACH SIZE INSTALLED SHALL BE TURNED OVER TO THE OWNER UPON COMPLETION OF THE PROJECT. PROVIDE AND PLACE IN A SPARE FUSE CABINET SIMILAR TO BUSSMANN # SFC.
 - THIS CONTRACTOR SHALL REPLACE ALL FUSES BLOWN DURING CONSTRUCTION.

C. MOTOR CONTROLLERS:

- TYPE A (FULL VOLTAGE, NON-MAGNETIC, SINGLE PHASE): TOGGLE SWITCH, STAINLESS STEEL ENCLOSURE, THERMOPLASTIC COVERPLATE; SIEMENS CLASS SMF SERIES, OR ACCEPTED EQUAL.
- TYPE A1 (FULL VOLTAGE, NON-MAGNETIC SINGLE PHASE): SIMILAR TO TYPE A ABOVE, EXCEPT WITH RED PILOT LIGHT; SIEMENS CLASS SMF SERIES, OR ACCEPTED EQUAL.
- TYPE B (FULL VOLTAGE MAGNETIC): NEMA 1 ENCLOSURE WITH PILOT LIGHT; SIEMENS CLASS 14 SERIES WITH AUXILIARY CONTACTS, OR ACCEPTED EQUAL.
- TYPE B1 (FULL VOLTAGE, COMBINATION MAGNETIC): FUSIBLE DISCONNECT SWITCH TYPE, NEMA 1 ENCLOSURE, PILOT LIGHT AND HOA IN COVER; SIEMENS CLASS 17 SERIES WITH AUXILIARY CONTACTS, OR ACCEPTED EQUAL.

PANELBOARDS

A. MANUFACTURER:

- ALL EQUIPMENT IDENTIFIED IN THIS SECTION, AND THROUGHOUT DESIGN DOCUMENTS, IS BASED ON THE MANUFACTURER OF SQUARE-D. ACCEPTABLE ALTERNATE MANUFACTURERS INCLUDE CUTLER-HAMMER, SIEMENS OR EQUAL PROVIDED EQUIPMENT MEETS ALL DESIGN CRITERIA AND PHYSICAL CHARACTERISTICS OF THE PROJECT.

B. SUBMITTALS:

- SUBMIT EQUIPMENT DATA SHEETS INCLUDING CIRCUIT BREAKERS AND ALL ASSOCIATED ACCESSORIES. INFORMATION SHALL INCLUDE EQUIPMENT MANUFACTURE, MODEL NUMBERS AND APPLICABLE SHOP DRAWINGS.

C. GENERAL:

- PANELBOARDS SHALL BE LABELED WITH PHENOLIC NAMEPLATES INSCRIBED AS INDICATED ON THE DRAWINGS. PROVIDE ARC FLASH ANALYSIS WITH WARNING LABELS AFFIXED TO PANELBOARDS AS REQUIRED BY NFPA 70E.
- PANELBOARDS SHALL BE ENCLOSED DEAD FRONT SAFETY TYPE WITH FEATURES AND RATINGS AS SCHEDULED ON THE DRAWINGS.
- PANELBOARDS SHALL HAVE COPPER BUS WITH BOLTED BREAKERS, FULLY RATED NEUTRAL BUS AND FULLY RATED INTERRUPTING CAPACITY; NO SERIES RATED SYSTEM PERMITTED. PROVIDE WITH BLANK END WALLS (NO PRE-PUNCHED BOXES), DOOR-IN-DOOR OR HINGED TRIM, INTERRUPTING RATING AS CALLED FOR, 24 CIRCUIT MINIMUM PANEL SIZE, FLUSH OR SURFACE MOUNTED AS INDICATED.
- ALL BUS BARS SHALL BE RECTANGULAR SOLID COPPER.
- SPACES, AS IDENTIFIED IN PANEL SCHEDULES, FOR FUTURE PROTECTIVE DEVICES SHALL INCLUDE BUS AND SUPPORT.
- INSTALL CABINETS SO THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE THE FINISHED FLOOR. APARTMENT UNIT LOAD CENTERS SHALL BE INSTALLED AT HEIGHTS TO MEET ADA REQUIREMENTS.
- MOLDED CASE CIRCUIT BREAKERS SHALL BE AS SCHEDULED ON THE DRAWINGS AND SPECIFIED IN THIS DIVISION.
- ALL BREAKERS SHALL BE BOLT-ON TYPE. PUSH-ON TYPE ARE ONLY ACCEPTABLE FOR USE IN "LOAD CENTERS".
- ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS.
- 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.
- GFCI CIRCUIT BREAKERS: SINGLE-POLE AND TWO-POLE CONFIGURATIONS WITH CLASS A GROUND-FAULT PROTECTION (6-MA TRIP).
- GROUND-FAULT EQUIPMENT PROTECTION (GFEPP) CIRCUIT BREAKERS: CLASS B GROUND-FAULT PROTECTION (30-MA TRIP).
- PROVIDE (3) SPARE 1" CONDUITS INTO ACCESSIBLE CEILING SPACE WHERE PANELS ARE FLUSH-MOUNTED. PROVIDE REMOVABLE CAP OR PLUG AT CONDUIT AND ABOVE CEILING.
- ENTRIES ON DIRECTORY CARDS SHALL BE TYPED, COMPLETE AND ACCURATE.
- FOR EXISTING PANELBOARDS, RELABEL EXISTING PANELBOARD DIRECTORIES TO REFLECT ALL BRANCH CIRCUIT REVISIONS; PROVIDE TYPEWRITTEN WITH ROOM NUMBERS, FUNCTION, ETC. TO POSITIVELY IDENTIFY EACH BRANCH CIRCUIT.
- FOR EXISTING PANELBOARDS, PROVIDE NEW QUICK MAKE, QUICK BREAK, THERMAL MAGNETIC, TOGGLE MECHANISM, MOLDED CASE, CIRCUIT BREAKERS AS RECOMMENDED BY EQUIPMENT MANUFACTURER. PROVIDE AMPACITY AND POLES AS INDICATED ON PLANS WITH APPROPRIATE AMPERE INTERRUPTING RATING TO MATCH EXISTING EQUIPMENT. MULTIPOLE BREAKERS SHALL HAVE COMMON TRIP. MAKE TO MATCH EXISTING PANELBOARDS.

FIRE ALARM SYSTEM SPECIFICATION

A. GENERAL:

- THE FIRE ALARM SYSTEM IS EXISTING.

B. COMPLIANCE:

- SYSTEM AND INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE STANDARDS AND REQUIREMENTS OF THE NFPA INCLUDING:
 - NFPA 72 – INCLUDING ARTICLE 760 (NEC)
 - NFPA 72 – COMPLETE
 - NFPA 101
 - APPLICABLE REQUIREMENTS OF THE TOWN OF AMHERST
- ALL EQUIPMENT SHALL BE "UL" LISTED UNDER THE FIRE PROTECTION DIRECTORY AND SUPPLEMENTS.

C. INSTALLATION:

- STEEL OUTLET OR METAL BACK BOXES SHALL BE PROVIDED FOR ALL COMPONENTS OF THE SYSTEM.
- ALL WIRING FOR THIS SYSTEM SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE AND FINISHES.
- "UL" LISTED AND APPROVED FIRE ALARM CABLE MAY BE EMPLOYED FOR THE COMPLETE SYSTEM AND SHALL BE FULLY CONCEALED. FIRE ALARM CABLE SHALL BE "PLENUM" RATED CONSISTING OF #14 (MINIMUM SIZE) COPPER CONDUCTORS WITH HYPALON OR TEFLON INSULATION AND JACKET. THE OUTER JACKET SHALL BE RED IN COLOR. WHERE EXPOSED, FIRE ALARM CABLE SHALL BE INSTALLED IN EMT.
- FIRE ALARM WIRING SYSTEM SHALL BE CONFIGURED AS CLASS "B".
- PROVIDE GALVANIZED CHASE NIPPLE (OR SIMILAR PLASTIC FITTING) WHERE CABLES ENTER OUTLET BOXES, BACKBOXES, PANELS ETC.

D. CONTROL PANEL

- EXISTING FIRE-LITE MODEL MS-10UD MANUFACTURED BY HONEYWELL.

E. DEVICES:

- PULLSTATIONS SHALL BE DUAL ACTION, RED IN COLOR LABELED "FIRE".
- HORN/STROBE (AUDIO/VISUAL) SHALL BE RED IN COLOR LABELED "FIRE".
- STROBE DEVICES (VISUAL) SHALL BE RED IN COLOR LABELED "FIRE".
- WEATHER-PROOF HORN/STROBE (AUDIO/VISUAL) SHALL BE RED IN COLOR LABELED "FIRE".
- HEAT DETECTORS SHALL BE 190° FIXED TEMPERATURE WITH STANDARD BASE UNLESS OTHERWISE INDICATED.
- CO DETECTORS SHALL HAVE AN AN AUDIBLE BASE PROVIDING A TEMPORAL 4 NOTIFICATION TONE.
- SEE "FIRE ALARM SYSTEM SCHEDULE" ON SHEET E-1 FOR FURTHER INFORMATION ON SYSTEM DEVICES.

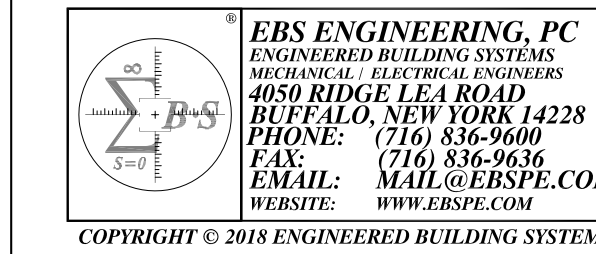
F. COMMISSIONING

- THE COMPLETED FIRE ALARM SYSTEM SHALL BE FULLY TESTED IN THE PRESENCE OF: THE OWNER'S REPRESENTATIVE, CITY REPRESENTATIVE, THE ARCHITECT/ENGINEER, THE CONTRACTOR AND THE FACTORY AUTHORIZED REPRESENTATIVE OF THE MANUFACTURER. UPON COMPLETION OF A SUCCESSFUL TEST, THE CONTRACTOR SHALL SO CERTIFY, IN WRITING, TO THE JURISDICTION HAVING AUTHORITY: OWNER, ARCHITECT AND THE ENGINEER.
- THE CONTRACTOR SHALL WARRANTY THE COMPLETED FIRE ALARM SYSTEM EQUIPMENT, WIRING AND INSTALLATION, TO BE FREE FROM INHERENT DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE CERTIFIED TEST.

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JAFFAR
CENTRO
KITCHEN
ADDITION
 10300 Transit Road,
 Amherst, NY

ISSUE:

01

SA PROJECT TEAM:

PRINCIPAL: P. Silvestri
 ARCHITECT: G. Amisic
 DRAFTER: _____
 INTERIORS: K. Bentley

SEAL:

PA

TITLE:

ELECTRICAL
SPECIFICATIONS

PA



SAJOB #:

07129.03

DATE:

DRAWING #:

E-8