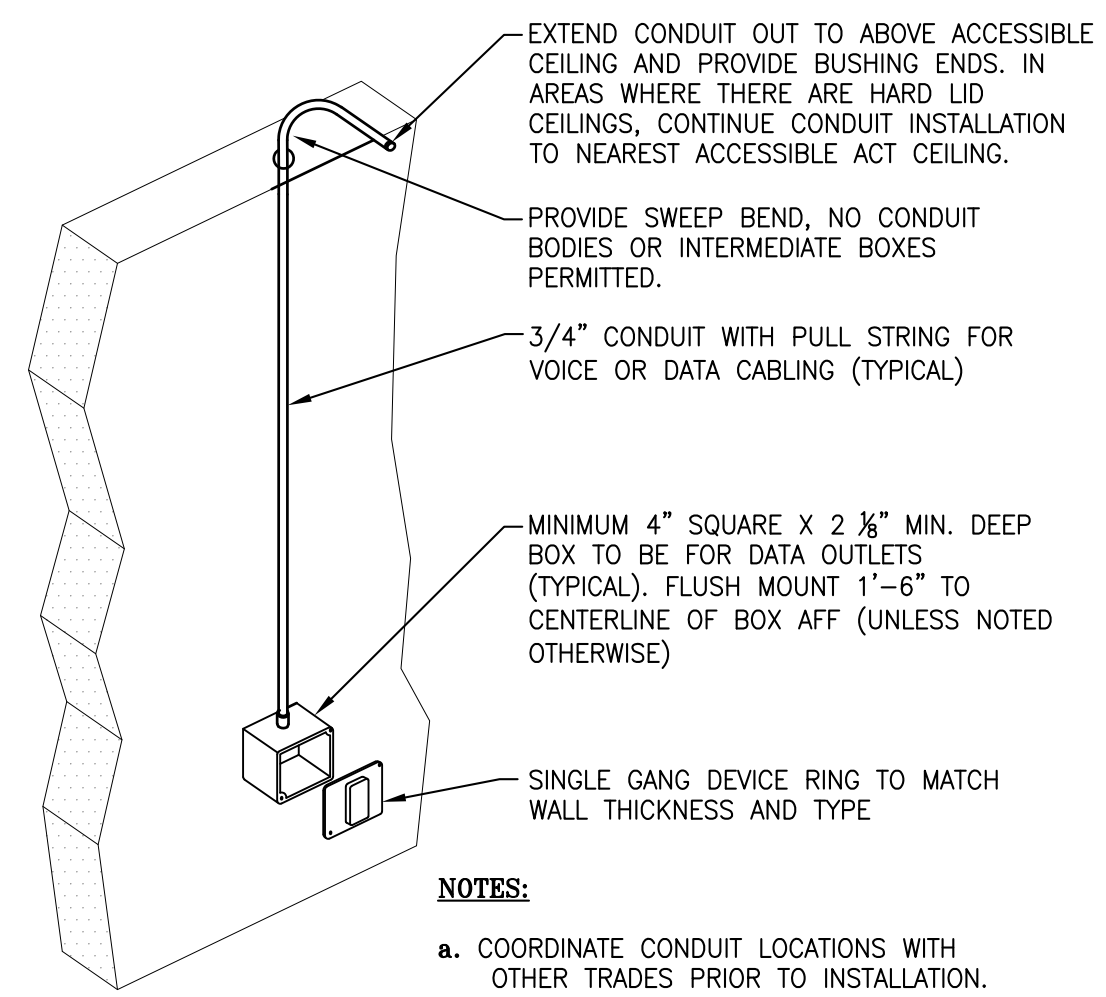


NOTES:
 a. ELECTRICAL CONTRACTOR SHALL PROVIDE NECESSARY PENETRATIONS FOR CONDUIT SLEEVES AND FIRESTOP AS INDICATED ABOVE. THIS DETAIL IS TYPICAL TO ALL FLOOR TO FLOOR AND FIREWALL PENETRATIONS.

1 RACEWAY PENETRATION THRU FIRE RATED WALL/CEILING

SCALE: N.T.S. Electrical Detail



NOTES:
 a. COORDINATE CONDUIT LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION.

2 COMMUNICATIONS (DATA/TELEPHONE) BOX AND CONDUIT INSTALLATION DETAIL

SCALE: N.T.S. Electrical Detail

EXISTING PANEL '4P' NEW BRANCH CIRCUIT FEEDER CHART:

CKT.	C.B.	DESCRIPTION
'A'	1P/20A	CAFE 404 COUNTER / FRIDGE RECEP.TS.
'B'	1P/20A	CAFE 404 COUNTER RECEP.TS.
'C'	1P/20A	CAFE 404 RECEP.TS.
'D'	1P/20A	CAFE 404 RECEP.TS.
'E'	1P/20A	MEN'S 401 RECEP.T.
'F'	1P/20A	MINERVA RM. 402 RECEP.TS.
'G'	1P/20A	CAFE, MINERVA, & MEN'S RM. LIGHTING
'H'	1P/20A	CAFE 404 DISHWASHER

4P-A (SURFACE MOUNT)		208Y/120 Volt (TBD) Amp Mains	Three Phase Four Wire (TBD) KVA (Fully Rated) 42Ckt.			MAIL LUGS ONLY (MAN BREAKER)		
DESCRIPTION		BREAKER	L1	L2	L3	BREAKER	DESCRIPTION	
1	Office 405, Front Porch 406 Recept.	20A-1P	9.00	7.30		20A-1P	Corridor, Waiting, Star Lights	
2	Office 407, Front Porch 408 Recept.	20A-1P		9.00	11.90	20A-1P	Front Porch Ceiling / Accent Lights	
3	Waiting 411, Stor. 414 Recept.	20A-1P			4.50	20A-1P	Office Recept., Women's Rm. Lights	
4	Office 417, Front Porch 418 Recept.	20A-1P	7.50	7.75		20A-1P	Welcome, Conf. Rm. Office Lights	
5	Women's 419 Recept.	20A-1P		6.00	7.58	20A-1P	4th Fl. Stor. & 5th Fl. Lights	
6	Office 410, Front Porch 409 Recept.	20A-1P		7.50	0.00	20A-1P	SPARE	
7	Office 412, Front Porch 411 Recept.	20A-1P	0.00	7.50		20A-1P	Utility 502, Open Office 501 Recept.	
8	Secretary 416 Recept.	20A-1P		6.00	7.50	20A-1P	Open Office 501 Recept.	
9	Secretary 416 Recept.	20A-1P		6.00	7.50	20A-1P	Open Office 501 Recept.	
10	Office 421, Front Porch 420 Recept.	20A-1P	9.00	7.50		20A-1P	Open Office 501 Recept.	
11	Office 423, Front Porch 422 Recept.	20A-1P		9.00	6.00	20A-1P	Open Office 501 Recept.	
12	Corridor 415 Recept.	20A-1P			10.50	0.00	20A-1P	SPARE
13	Welcome Rm. 424 Recept.	20A-1P	3.00	0.00		20A-1P	SPARE	
14	Welcome Rm. 424 Recept.	20A-1P		6.00	0.00	20A-1P	SPARE	
15	Conf. Rm. 426 Recept.	20A-1P			7.50	0.00	20A-1P	SPARE
16	Office 430 Recept.	20A-1P	6.00	0.00		20A-1P	SPARE	
17	Office 429, Cor. 427 Recept.	20A-1P		7.50	4.21	20A-2P	Fan Coil Unit (FCU-1, 2, 3, 4, 5)	
18	Office 426 Recept.	20A-1P			7.50	4.21	20A-1P	SPARE
19	SPARE	20A-1P	0.00	39.00			38	
20	SPARE	20A-1P		0.00	39.00		39	
21	SPARE	20A-1P		0.00	39.00		40	
22	SPARE	20A-1P		0.00	39.00		41	
TOTAL CONNECTED AMP-LEG			103.55	119.69	104.83		TOTAL CONNECTED KVA	
							TOTAL CONNECTED AMPERES	

NOTE: EXISTING PANEL BEING REPLACED WITH NEW DOES NOT HAVE A MANUFACTURE NAMEPLATE. CONTRACTOR MUST FIELD VERIFY THE FOLLOWING PRIOR TO ORDERING PANEL:
 a. PANEL AMPERE RATING. NEW PANEL MUST HAVE AMPERE RATING THAT MEETS OR EXCEEDS EXISTING PANEL.
 b. AVAILABLE FAULT CURRENT AT PANEL. NEW PANEL MUST HAVE KVA RATING THAT MEETS OR EXCEEDS AVAILABLE FAULT CURRENT AT PANEL.

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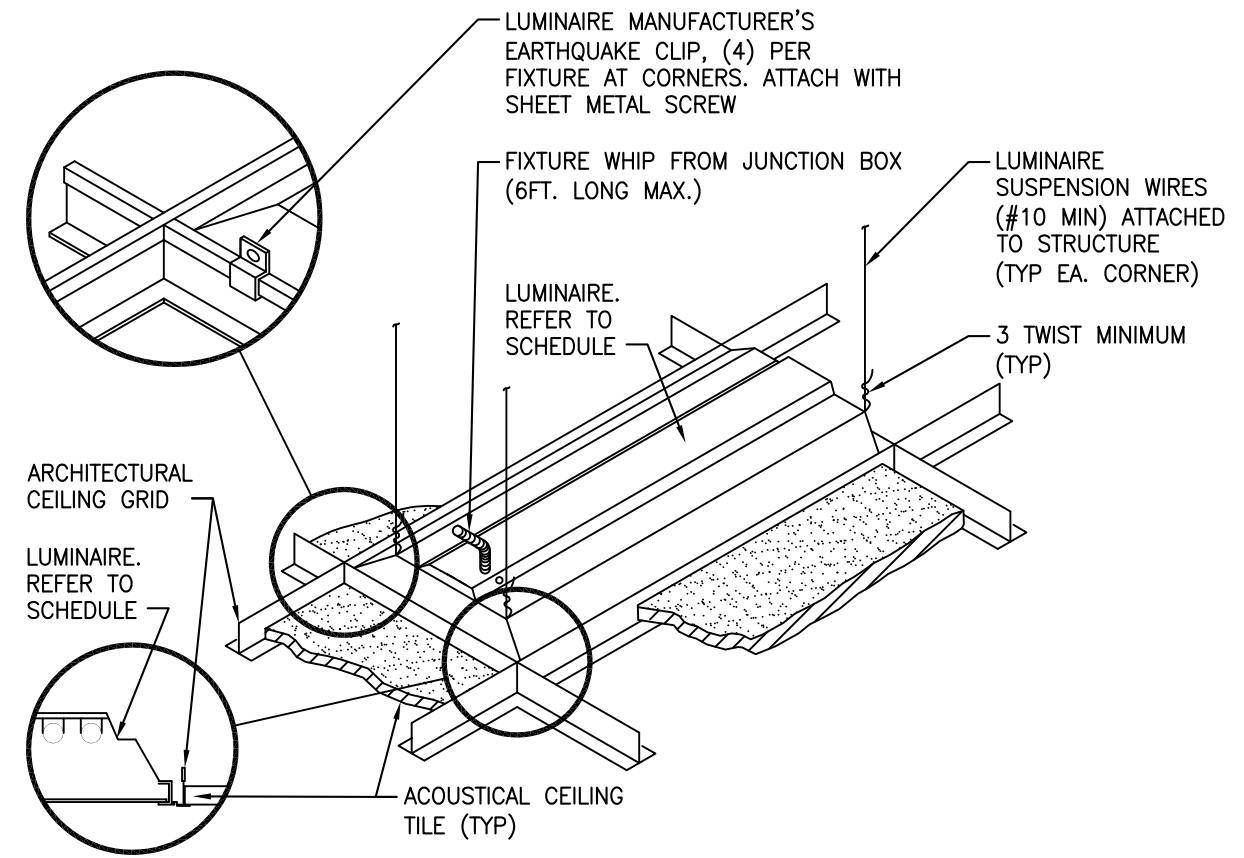
SEAL:

TITLE:
ELECTRICAL ONE-LINE, PANEL SCHEDULES & DETAILS



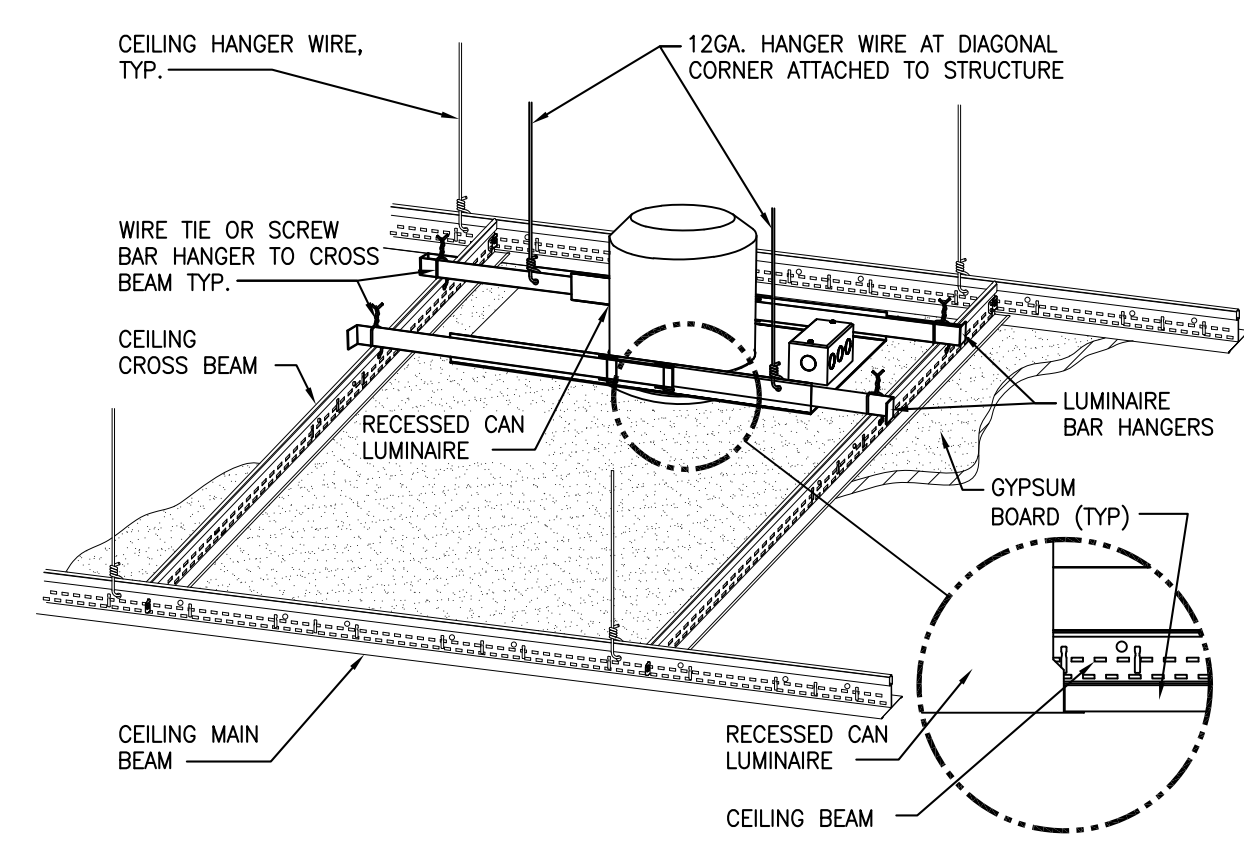
SA JOB #: 19092.01 DATE: 02-18-20

DRAWING #: E-2



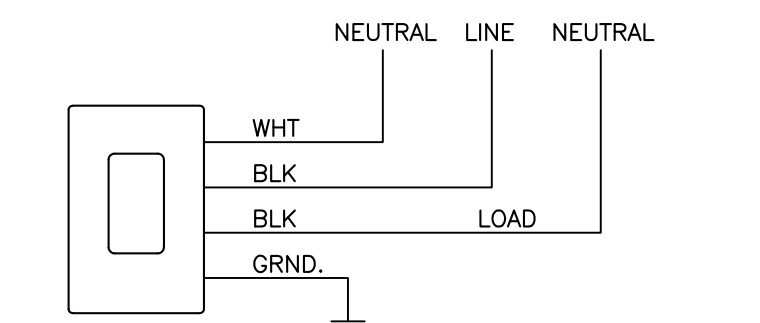
3 LUMINAIRE MOUNTING - LAY-IN CEILING

SCALE: N.T.S. Electrical Detail



4 DOWNLIGHT MOUNTING - GYP. CEILING

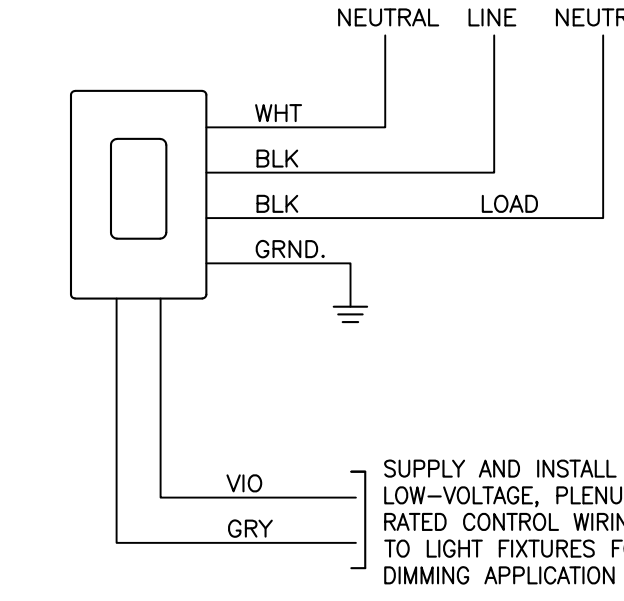
SCALE: N.T.S. Electrical Detail



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
 -ON MODE = SET FOR MANUAL ON CONTROL (OFFICES, JANITOR CLOSETS, STORAGE RMS, ETC. PER IECC)
 -ON MODE = SET FOR AUTO ON CONTROL (PUBLIC SPACES, i.e. RESTROOMS, CONFERENCE ROOMS, ETC. PER IECC)

5 TYPICAL 1-POLE WALL SWITCH / OCCUPANY SENSOR

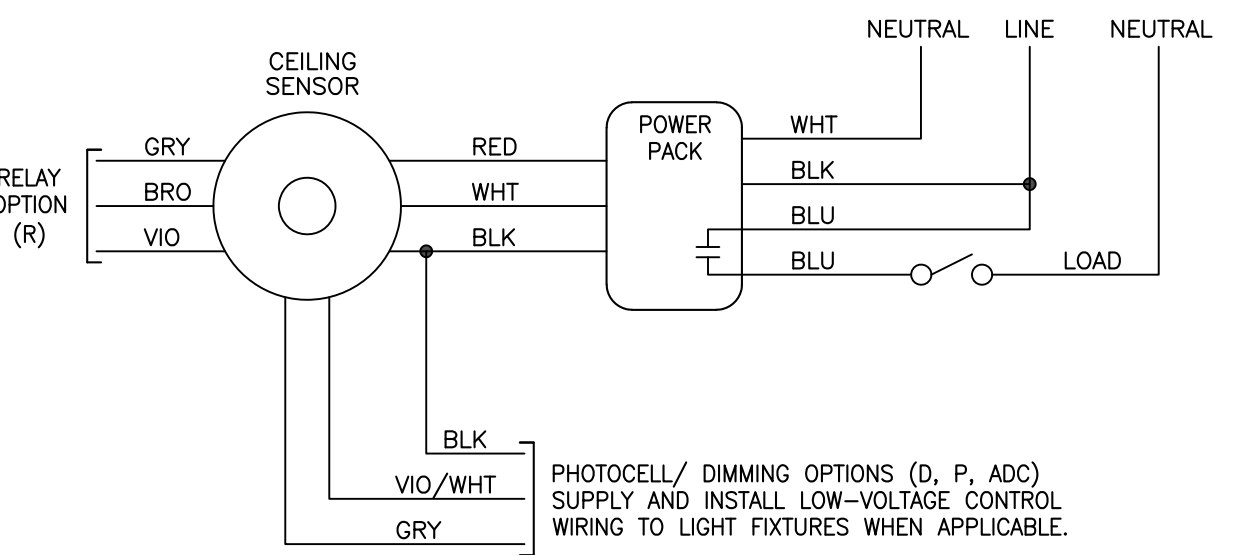
SCALE: N.T.S. Electrical Detail



GENERAL 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
 -ON MODE = SET FOR MANUAL ON CONTROL (OFFICES)
 -ON MODE = SET FOR AUTO ON CONTROL (PUBLIC SPACES, i.e. CORRIDORS, CONFERENCE ROOMS, ETC. PER IECC)
 -ACTIVATE DAYLIGHT HARVESTING CONTROLS FOR ROOMS / AREAS WITH EXTERIOR WINDOWS.

6 TYPICAL 0-10V DIMMING SWITCH

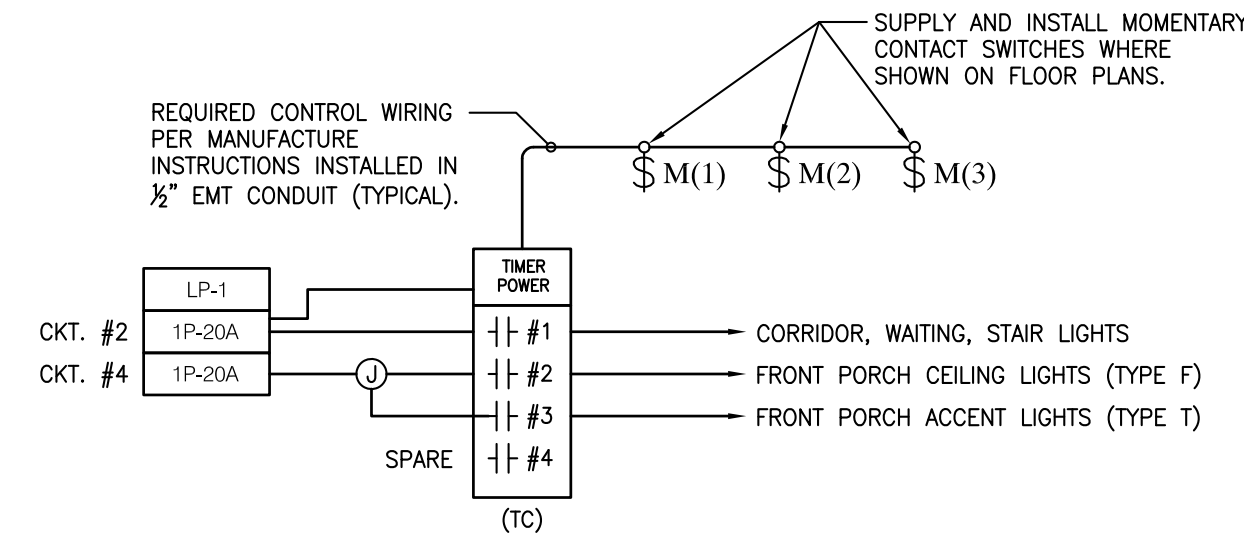
SCALE: N.T.S. Electrical Detail



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 = 30 MINUTES
 -PHOTOCCELL MODE = DIM ONLY, NO OFF
 -DIMMING RANGE = 10V HIGH, 3V LOW

7 TYPICAL LOW-VOLTAGE CEILING MOUNT OCCUPANY SENSOR

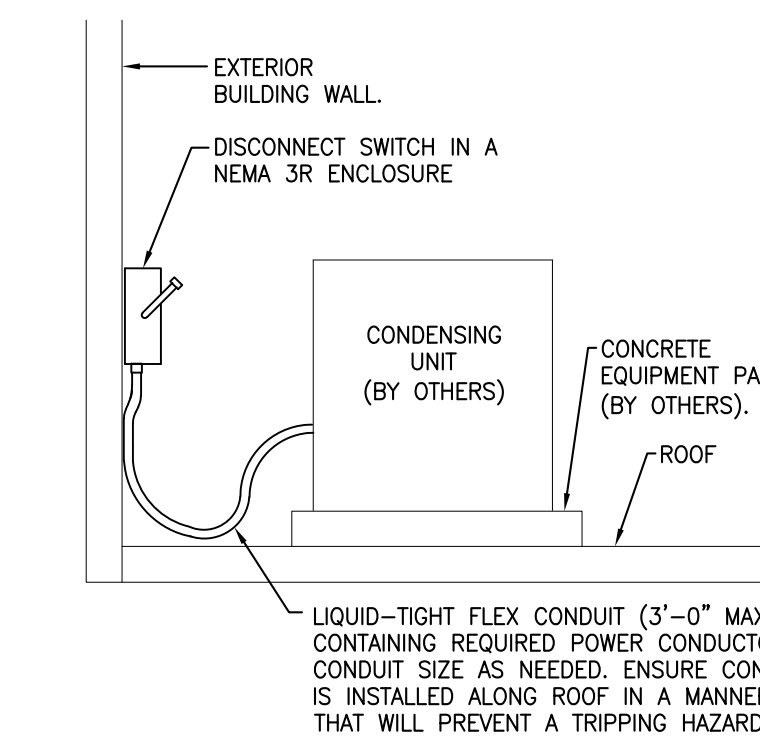
SCALE: N.T.S. Electrical Detail



GENERAL NOTES:
 a. PROVIDE 365-DAY ASTRONOMIC TIME CLOCK WITH (4) RELAYS, DIGITAL TIME DISPLAY, INTEGRAL BATTERY BACK UP AND KEYPAD IN A NEMA 3R ENCLOSURE (STANDARD), CAPABLE OF INDIVIDUAL CIRCUIT CONTROL AND PROGRAMMING INCLUDING DAY-LIGHT SAVING TIME. INTERMATIC MODEL #ET9041SCR (OR EQUAL)
 b. PROGRAM TIME CLOCK TO TURN LIGHTING ON 1-HOUR BEFORE AND 1-HOUR AFTER NORMAL BUSINESS HOURS. CONFIRM BUSINESS HOURS WITH OWNER. MOMENTARY CONTACT SWITCHES SHALL BE SUPPLIED, INSTALLED, WIRED AND PROGRAMMED TO OVERRIDE TENANT LIGHTING SUPPLYING 1-HOUR OF ADDITIONAL LIGHTING AFTER NORMAL BUSINESS HOURS AS NEEDED. SUPPLY LABELS FOR SWITCH COVERPLATES STATING "LIGHTING OVERRIDE". ENSURE OWNER/TENANT IS FULLY TRAINED ON TIME CLOCK OPERATION AND CONTROL BY END OF CONSTRUCTION.

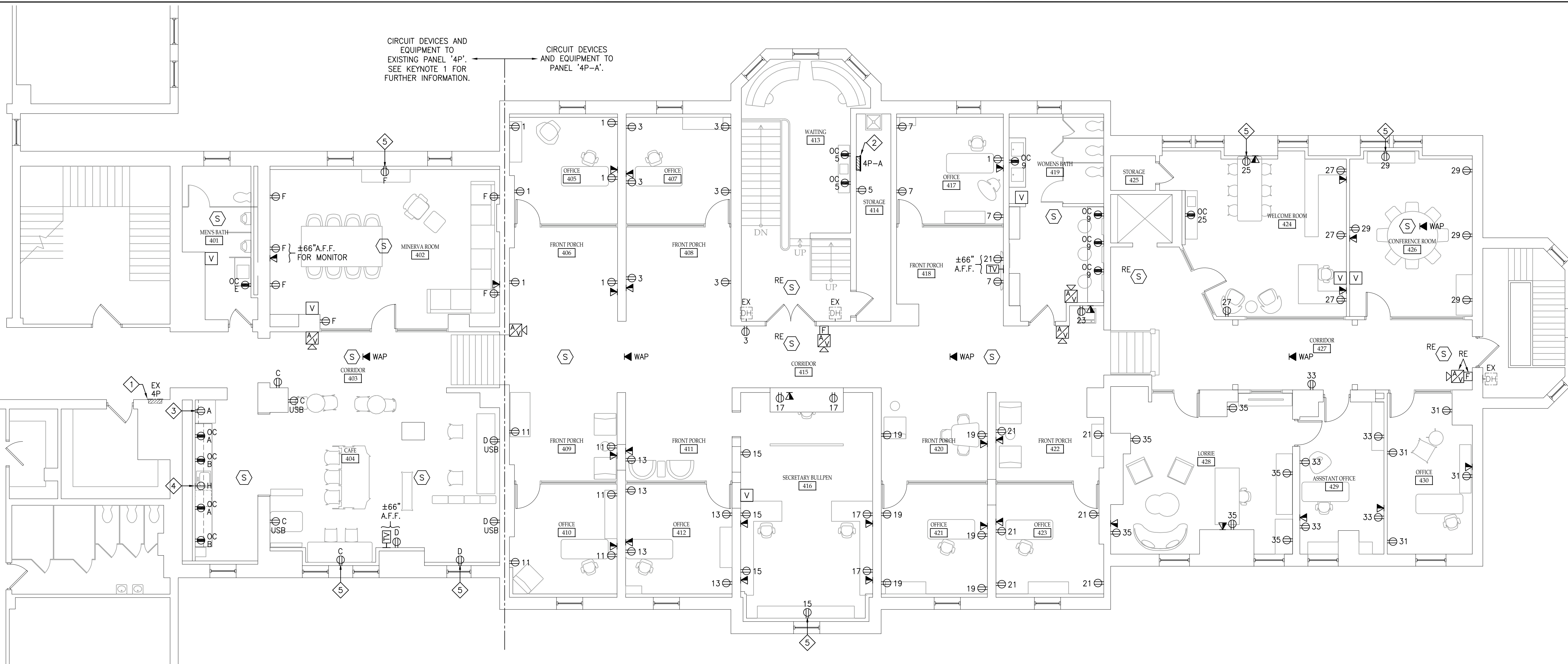
8 DIGITAL TIME CLOCK WIRING DIAGRAM (TC)

SCALE: N.T.S. Electrical Detail



9 TYPICAL GROUND MOUNT CONDENSING UNIT

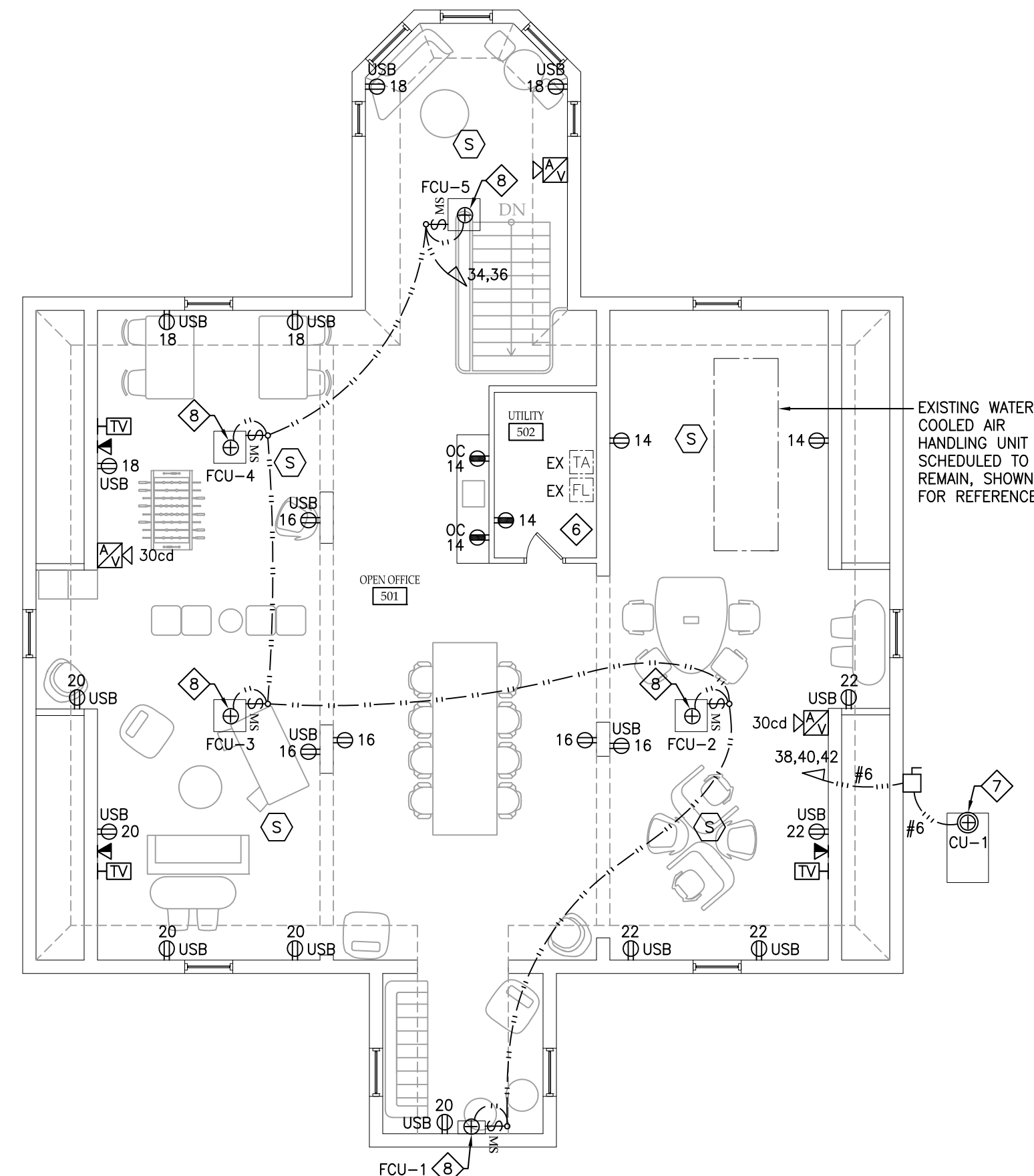
SCALE: N.T.S. Electrical Detail



1
E-3 POWER, COMMUNICATIONS, FIRE ALARM - PARTIAL 4TH FL. PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- WIRING SHALL BE PROVIDED TO DEVICES SHOWN, UNLESS OTHERWISE INDICATED. MINIMUM WIRING SIZE SHALL BE #12 AWG. AMPACITY, DERATING AND CONDUIT FILL SHALL BE AS REQUIRED BY THE NEC.
- CIRCUIT DEVICES AND EQUIPMENT TO PANEL '4P-A' UNLESS OTHERWISE DESIGNATED.
- RECEPTACLES, DATA, TELEPHONE AND FIRE ALARM DEVICES LOCATED ON EXISTING WALLS SHALL BE FLUSH MOUNTED. SAW-CUT AND PATCH EXISTING WALL TO FACILITATE DEVICE AND ASSOCIATED WIRING INSTALLATION. SURFACE MOUNTED ELECTRICAL BOXES AND RACEWAYS ARE NOT PERMITTED UNLESS OTHERWISE NOTED OR ABSOLUTELY NECESSARY TO FACILITATE THE INSTALLATION. COORDINATE ALL NECESSARY WORK WITH G.C. PRIOR TO ELECTRICAL ROUGH-IN.
- ENSURE ALL SMOKE DETECTORS ARE PLACED A MINIMAL DISTANCE OF 3'-0" FROM HVAC SUPPLY / RETURN AIR GRILLS - TO BE COORDINATE IN FIELD.
- VISUAL (STROBE) DEVICES SHALL HAVE CANDELA RATING SET A 15cd UNLESS OTHERWISE NOTED.
- MAINTAIN CIRCUIT CONTINUITY TO DEVICES AND EQUIPMENT SCHEDULED TO REMAIN OR IN AREAS WHERE NO WORK IS BEING PERFORMED. FIELD VERIFY EXISTING CIRCUIT WIRING AS NEEDED. REPAIR WIRING AS REQUIRED IF DAMAGED AS A RESULT OF DEMOLITION AND/OR NEW CONSTRUCTION.



2
E-3 POWER, COMMUNICATIONS, FIRE ALARM - 5TH FL. PLAN
SCALE: 1/8" = 1'-0"

DRAWING KEYNOTES:

- EXISTING PANEL '4P' IS SCHEDULED TO REMAIN AND BE REUSED. CIRCUITS FED FROM THIS PANEL ARE IDENTIFIED BY CAPITAL LETTERS (IE: A, B, C, ETC.). EACH CAPITAL LETTER DENOTES A 120V POWER CIRCUIT EMANATING FROM A SINGLE-POLE, 20A C.B. WITHIN PANEL. UTILIZE "SPARE" AND/OR PROVIDE NEW CIRCUIT BREAKERS AS NEEDED TO FACILITATE CIRCUITING SCHEME IDENTIFIED ON DRAWING. FIELD VERIFY EXISTING SPARE AND UNUSED CIRCUIT BREAKERS AFTER DEMOLITION HAS BEEN COMPLETED. EXISTING CIRCUITS EMANATING FROM THIS PANEL SERVING AREAS NOT INCLUDED IN SCOPE OF WORK SHALL REMAIN AS-IS.
- REPLACE EXISTING PANEL WITH A NEW 208Y/120V, 42CKT PANEL. SEE PANEL SCHEDULE ON SHEET E-2 FOR FURTHER INFORMATION.
- WIRE FROM PROTECTED SIDE OF GFCI COUNTERTOP RECEPTACLE FED FROM SAME CIRCUIT.
- SINGLE RECEPTACLE FOR DISHWASHER. INSTALL IN CABINET BELOW SINK IN AN ACCESSIBLE LOCATION. SUPPLY UL LISTED, 4' (MAX.), APPLIANCE POWER CORD WITH PLUG AND WIRE INTO DISHWASHER ELECTRICAL BOX. SIZE AND WIRE CORD PER MANUFACTURE INSTRUCTIONS. CORD SHALL PLUG INTO RECEPTACLE FOR POWER CONNECTION AND DISCONNECTING MEANS. SUPPLY REQUIRED HARDWARE, MATERIALS AND DEVICES NECESSARY TO OBTAIN A 100% COMPLETE ELECTRICAL INSTALLATION. COORDINATE ENTIRE INSTALLATION WITH G.C. & P.C.
- SURFACE MOUNT RECEPTACLE HORIZONTALLY BELOW RADIATOR. INSTALL SURFACE RACEWAY INSTALLED FROM NEAREST FULL HEIGHT WALL TO SURFACE MOUNTED BOX FOR CONDUCTOR INSTALLATION. INTALL OVERALL SYSTEM IN A MANNER THAT MINIMIZES THE EXPOSED RACEWAY SYSTEM.
- RETAIN POWER AND FIRE ALARM CONNECTION TO EXISTING COMPRESSOR FOR DRY SPRINKLER SYSTEM. NOTED FOR REFERENCE.
- FEED CONDENSING UNIT WITH A 3ø, 208V POWER CONNECTION. SUPPLY A NEMA 3R, 3-POLE, 60A RATED NON-FUSED DISCONNECT SWITCH AND MOUNT ON EXTERIOR WALL ADJACENT TO CONDENSING UNIT. COORDINATE INSTALLATION WITH G.C. AND M.C.
- FEED FAN COIL UNIT WITH A 1ø, 120V POWER CONNECTION. SUPPLY A 30A MANUAL MOTOR CONTROLLER AND MOUNT ON UNIT HOUSING FOR DISCONNECTING MEANS. COORDINATE INSTALLATION WITH G.C. AND M.C.

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SA PROJECT TEAM: PRINCIPAL P.Silvestri
PROJ. ARCH. _____ DRAFTER M.Velocci
JOB CAPT. M.Velocci INTERIORS N.Catuzza

SEAL:

TITLE:
POWER, COMM., FIRE ALARM - PARTIAL 4TH & 5H FLOOR PLANS

SILVESTRI ARCHITECTS · PC
1321 MILLERSPORT HWY PH. 716.691.0900
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SA JOB #: 19092.01 DATE: 02-18-20

DRAWING #: E-3

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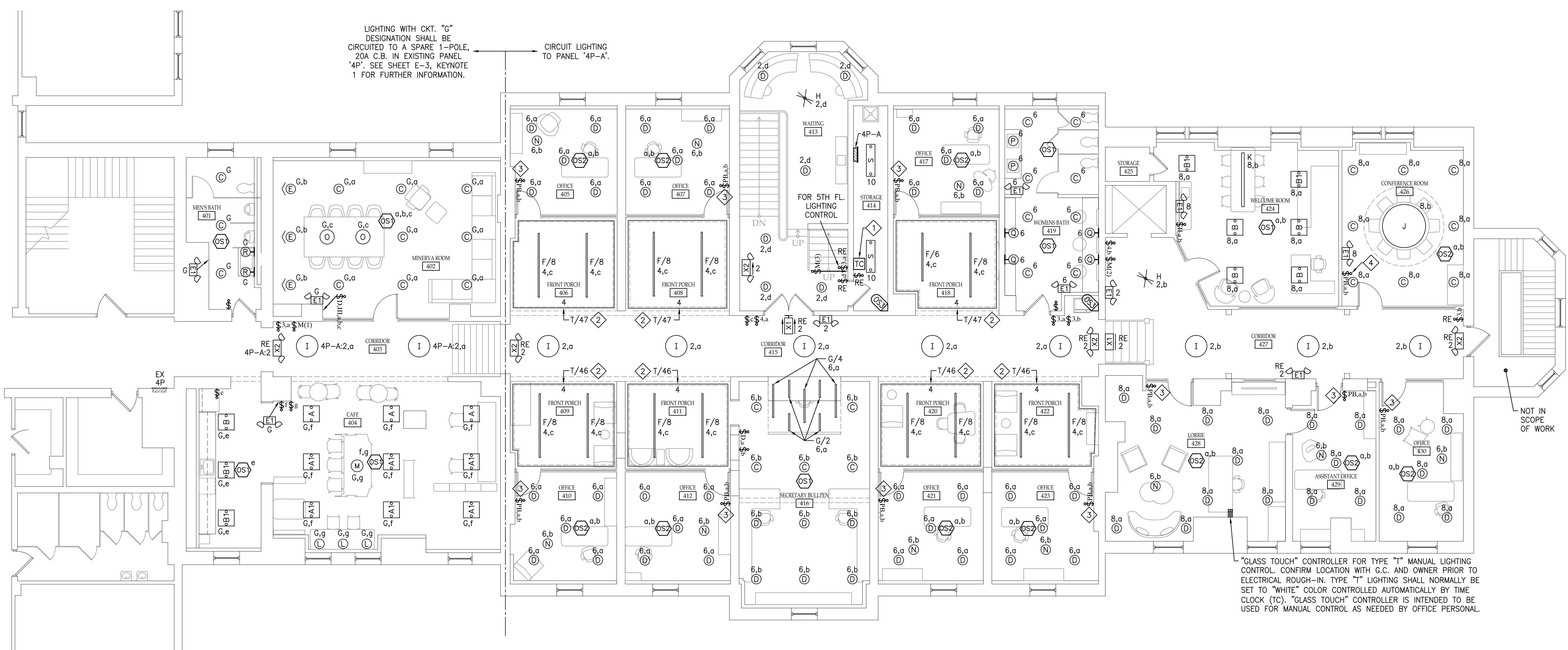
SEAL:

TITLE:
LIGHTING - PARTIAL 4TH & 5H FLOOR PLANS

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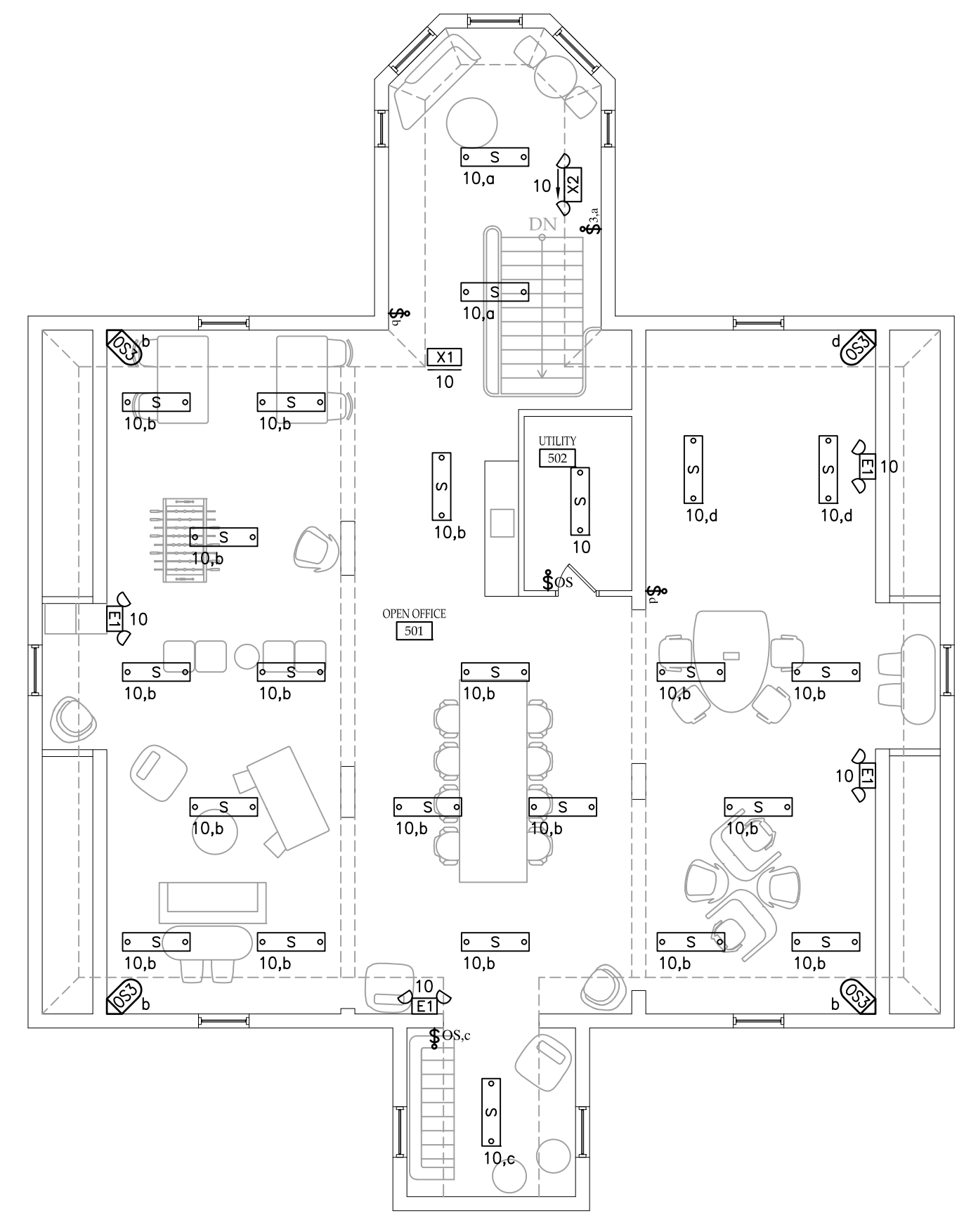
1 LIGHTING - PARTIAL 4TH FL. PLAN
 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- a. WIRING SHALL BE PROVIDED TO DEVICES SHOWN, UNLESS OTHERWISE INDICATED. MINIMUM WIRING SIZE SHALL BE #12 AWG. AMPACITY, DERATING AND CONDUIT FILL SHALL BE AS REQUIRED BY THE NEC.
- b. CIRCUIT DEVICES AND EQUIPMENT TO PANEL '4P-A' UNLESS OTHERWISE DESIGNATED.
- c. LIGHTING CONTROLS LOCATED ON EXISTING WALLS SHALL BE FLUSH MOUNTED. SAW-CUT AND PATCH EXISTING WALL TO FACILITATE DEVICE AND ASSOCIATED WIRING INSTALLATION. SURFACE MOUNTED ELECTRICAL BOXES AND RACEWAYS ARE NOT PERMITTED UNLESS OTHERWISE NOTED OR ABSOLUTELY NECESSARY TO FACILITATE THE INSTALLATION. COORDINATE ALL NECESSARY WORK WITH G.C. PRIOR TO ELECTRICAL ROUGH-IN.
- d. SUPPLY DIMMER CONTROLS THAT ARE COMPATIBLE WITH LIGHT FIXTURES PURCHASED FOR PROJECT.
- e. ALL STANDARD TOGGLE SWITCHES SHALL BE DECORA "ROCKER" STYLE.

DRAWING KEYNOTES:

1. DIGITAL TIME CLOCK (TC) FOR INTERIOR LIGHTING CONTROL THAT IS NOT CONTROLLED BY LOCAL AREA OCCUPANCY SENSORS. SEE DETAIL 8/E-2 FOR FURTHER INFORMATION.
2. INSTALL TYPE "T" LED LIGHTING ALONG EXTERIOR PERIMETER OF "CLOUD" CEILING. MOUNT LED LIGHTING TO SIDE OF CEILING CHANNEL FACING PERIMETER WALL / SOFFIT. ALL TYPE "T" LED LIGHTING SHALL BE WIRED FOR CONTROL BY A SINGLE "GLASS TOUCH" WALL CONTROLLER, ORDERED WITH SYSTEM, LOCATED IN OFFICE 428. CONTROLLER SHALL BE PROGRAMMED TO PROVIDE ON/OFF AND DIMMING CONTROL FOR WHITE AND RED COLORS ONLY. MULTI-COLOR OPERATION IS NOT REQUIRED. UNDER NORMAL CONDITIONS LED LIGHTING IS INTENDED TO PROVIDE A WHITE LIGHT "GLOW" AROUND PERIMETER OF "CLOUD" CEILING WITH THE ABILITY TO CHANGE TO RED AS NEEDED BY OFFICE PERSONAL. PROVIDE REQUIRED POWER SUPPLY PACKS, LED DRIVERS, HARDWARE, ACCESSORIES ETC. NECESSARY FOR A COMPLETE SYSTEM INSTALLATION FOLLOWING MANUFACTURE INSTRUCTIONS. COORDINATE ENTIRE INSTALLATION WITH G.C. PRIOR TO ANY WORK.
3. PUSH-BUTTON CONTROLLER SHALL BE WIRED AND PROGRAMMED AS FOLLOWS:
 - CIRCUIT "a" SHALL BE WIRED TO PROVIDE ON/OFF AND DIMMING CONTROL FOR DESIGNATED ROOM LIGHT FIXTURES. SUPPLY AND INSTALL LOW-VOLTAGE CONTROL WIRING FOR DIMMING OPERATION.
 - CIRCUIT "b" SHALL BE WIRED TO PROVIDE ON/OFF CONTROL FOR DESIGNATED ROOM LIGHT FIXTURES.
 - CONTROLLER SHALL COMMUNICATE WIRELESSLY WITH ROOM CEILING MOUNTED WIRELESS SMART SENSOR. PROGRAM SENSOR AND CONTROLLER FOR MANUAL 'ON' AUTOMATIC 'OFF' CONTROL, AFTER 15 MINUTES OF INACTIVITY, WITH NO DAYLIGHT SENSING.
4. PUSH-BUTTON CONTROLLER SHALL BE WIRED AND PROGRAMMED AS FOLLOWS:
 - CIRCUIT "a" SHALL BE WIRED TO PROVIDE ON/OFF AND DIMMING CONTROL FOR DESIGNATED ROOM LIGHT FIXTURES. SUPPLY AND INSTALL LOW-VOLTAGE CONTROL WIRING FOR DIMMING OPERATION.
 - CIRCUIT "b" SHALL BE WIRED TO PROVIDE ON/OFF AND DIMMING CONTROL FOR DESIGNATED ROOM LIGHT FIXTURES. SUPPLY AND INSTALL LOW-VOLTAGE CONTROL WIRING FOR DIMMING OPERATION.
 - CONTROLLER SHALL COMMUNICATE WIRELESSLY WITH ROOM CEILING MOUNTED WIRELESS SMART SENSOR. PROGRAM SENSOR AND CONTROLLER FOR MANUAL 'ON' AUTOMATIC 'OFF' CONTROL, AFTER 15 MINUTES OF INACTIVITY, WITH NO DAYLIGHT SENSING.



2 LIGHTING - 5TH FL. PLAN
 SCALE: 1/8" = 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. DRAWINGS AND ALL THEIR REVISIONS UP TO THE BID SUBMITTAL DATE BECOME A BINDING PART OF THE CONTRACT, ALONG WITH THESE SPECIFICATIONS AS THOUGH THEY WERE ONE, AND ANYTHING IMPLIED BY THE SPECIFICATIONS SHALL BE AS ALSO IMPLIED BY THE DRAWINGS AND VICE VERSA. PROVIDE NECESSARY ITEMS FOR A COMPLETE INSTALLATION OF ALL 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 SCALING DIMENSIONS. THE CONTRACTOR SHALL VERIFY 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 FIELD CONDITIONS.
 - 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 ORDERING.
 - 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 EQUIPMENT PACKAGE.
 - 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 ARCHITECT, PRIOR TO BIDDING THE JOB, WHO WILL MAKE CLARIFICATIONS IN WRITING.
- B. VISIT TO THE SITE:
 - 1. THIS 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 REQUIREMENTS.
 - 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 BE LISTED TO A NATIONALLY RECOGNIZED TESTING LABORATORY, SUCH AS UL, CSA, ETL OR APPROVED EQUIVALENT.
- 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. THESE WILL BE THE BASIC RECORD DRAWINGS TO BE DELIVERED TO THE ARCHITECT WITH TWO SETS OF PRINTS, UPON COMPLETION OF THE PROJECT, PRIOR TO REQUEST FOR FINAL PAYMENT. DURING THE PROGRESS OF THE JOB, THE RECORD DRAWINGS SHALL BE CORRECTED FROM MONTH-TO-MONTH TO SHOW THE WORK AS ACTUALLY INSTALLED.
- 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 DENOTATION. 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 TRADES INVOLVED.
 - 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 AN 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.
- 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. 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 AND / OR ENGINEER SHALL DETERMINE WHICH EQUIPMENT WILL BE RELOCATED, REGARDLESS OF WHICH WAS INSTALLED FIRST. THEIR DECISION WILL BE FINAL.
- I. QUALITY ASSURANCE:
 - 1. 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.

J. 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 AND WHEN THE SYSTEM IS PUT INTO OPERATION. USE ONLY COMPETENT LABOR AND PERFORM IN A FIRST-CLASS MANNER.
- K. 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. ALL SUCH DAMAGE SHALL BE REPAIRED OR THE ITEMS REPLACED, TO THE SATISFACTION OF THE ARCHITECT.
- L. 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. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED ON ACCOUNT OF THE DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND THE MEASUREMENTS INDICATED ON THE DRAWINGS. ANY DIFFERENCE WHICH MAY BE FOUND, SHALL BE SUBMITTED TO THE ARCHITECT FOR CONSIDERATION, BEFORE PROCEEDING WITH THE WORK.
- M. MAINTENANCE AND OPERATION MANUALS:
- 1. UPON COMPLETION OF THE WORK AND BEFORE REQUEST FOR FINAL PAYMENT, THE CONTRACTOR SHALL DELIVER TO THE ARCHITECT'S ENGINEER, FOUR (4) SETS OF FULL AND COMPLETE DIRECTIONS PERTAINING TO THE OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND SYSTEMS INSTALLED UNDER THIS CONTRACT. THESE DIRECTIONS SHALL BE NEATLY TYPEWRITTEN ON 8 1/2" X 11" SHEETS WITH INDEX TABS, AND SHALL BE ACCOMPANIED BY PRINTS OF THE WORK AS INSTALLED, PARTS LIST DIAGRAMS, ETC., NECESSARY FOR THE GUIDANCE OF THE OWNER.

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.
- 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 COMPLETED 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" PAINTED 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 CONTRACT DOCUMENTS.
- 3. EQUIPMENT CONNECTIONS: STARTERS, DISCONNECT SWITCHES, CONTROL TRANSFORMERS AND PUSH-BUTTON 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. PROVIDE WATER TIGHT SEALS FOR ALL OPENINGS CREATED THROUGH FOUNDATION WALLS OR EXTERIOR WALLS.
- 5. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL REQUIRED ACCESS PANELS NECESSARY FOR HIS WORK, COORDINATE WITH ARCHITECT PRIOR TO INSTALLATION.

D. OPENINGS AND CHASES:

- 1. DETERMINE AND BE RESPONSIBLE FOR PROPER SIZE AND LOCATION OF OPENINGS AND CHASES REQUIRED. INSTALL ALL SLEEVES NECESSARY FOR THE WORK, WHEREVER ANY PIPING PASSES THROUGH ANY WALL, THE OPENING SHALL BE SEALED TIGHT AGAINST THE PIPING BY THIS CONTRACTOR. PIPING THROUGH FOUNDATION WALLS AND ROOFS SHALL BE SEALED WATERTIGHT BY THIS CONTRACTOR.

E. MATERIALS AND WORKMANSHIP:

- 1. ALL WORK SHALL BE INSTALLED IN A PRACTICAL AND WORKMANLIKE MANNER, BY MECHANICS SKILLED IN THEIR TRADES.
- 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 CLEAN.
- 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.

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." THE SYSTEM SHALL MEET THE REQUIREMENTS OF "FIRE TESTS OF THROUGH-PENETRATION FIRE-STOPS" DESIGNATED ASTM E814.
- 2. ACCEPTABLE MANUFACTURERS:
 - a. DOW CORNING FIRE-STOP SYSTEM FOAMS AND SEALANTS
 - b. NELSON ELECTRIC FIRE-STOP SYSTEM PUTTY, CLK AND WRP
 - c. THOMAS BETTS - S-100 F5500/600
 - d. CARBORUNDUM Fyre PUTTY
 - e. HILTI FIRESTOP SYSTEMS
- 3. INSTALLATION OF FIRE-STOPPING FOR OPENINGS THROUGH FIRE AND SMOKE RATED WALLS AND FLOOR ASSEMBLIES SHALL BE AS FOLLOWS:
 - a. PROVIDE FIRE-STOP SYSTEM SEALS AT ALL LOCATIONS WHERE PIPING, TUBING, CONDUIT, ELECTRICAL BUSWAYS/CABLES/WIRES, DUCTWORK AND SIMILAR UTILITIES PASS THROUGH OR PENETRATE FIRE RATED WALL OR FLOOR ASSEMBLY. PROVIDE FIRESTOP SEAL BETWEEN SLEEVE AND WALL FOR DRY WALL CONSTRUCTION
 - b. PROVIDE INTUMESCENT INSERT (SPECIFIED TECHNOLOGIES, INC. SERIES EP POWERSHIELD FIRESTOP INSERT, OR APPROVED EQUIVALENT) IN ALL ELECTRICAL SWITCH, OUTLET AND JUNCTION BOXES INSTALLED IN A FIRE RATED WALL ASSEMBLY.
 - c. THE MINIMUM REQUIRED FIRE RESISTANCE RATINGS OF THE WALL OR FLOOR ASSEMBLY SHALL BE MAINTAINED BY THE FIRE-STOP SYSTEM. THE INSTALLATION SHALL PROVIDE AN AIR AND WATER-TIGHT SEAL.
 - d. THE METHODS USED SHALL INCORPORATE QUALITIES THAT PERMIT THE EASY REMOVAL OR ADDITION OF ELECTRICAL CONDUITS OR CABLES WITHOUT DRILLING OR USE OF SPECIAL TOOLS. THE PRODUCT SHALL ADHERE TO ITSELF TO ALLOW REPAIRS TO BE MADE WITH THE SAME MATERIAL AND PERMIT THE VIBRATION, EXPANSION AND/OR CONTRACTION OF ANY ITEMS PASSING THROUGH THE PENETRATION WITHOUT CRACKING, CRUMBLING AND RESULTING REDUCTION IN FIRE RATING.
 - e. PROVIDE RIGID STEEL SLEEVES WHERE NON-ARMORED CABLES PASS THROUGH FIRE RATED WALLS AND BARRIERS.

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. FIRE ALARM SYSTEM.
 - i. GROUNDING OF THE ELECTRICAL SYSTEM.
 - j. TESTING OF ALL CABLES AND CIRCUIT WIRING AFTER INSTALLATION.
 - k. TELEPHONE AND DATA CONDUIT SYSTEM.
 - l. a. IDENTIFY RACEWAYS AND CABLES WITH COLOR BANDING AS FOLLOWS:
 - a. FIRE ALARM SYSTEM: RED
 - b. 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. THIS CONTRACTOR SHALL PROVIDE A MINIMUM OF TWENTY (20) FOOTCANDLES OF ILLUMINATION FOR TEMPORARY LIGHTING. ANY ADDITIONAL LIGHTING REQUIRED BY INDIVIDUAL TRADES SHALL BE PROVIDED BY THE INDIVIDUAL TRADES INCLUDING POWER FOR THE LIGHTING. THE ELECTRICAL WORK FOR CONSTRUCTION PURPOSES SHALL CONFORM TO ALL FEDERAL (OSHA), STATE, SPECIFIC SAFETY REQUIREMENTS, AS WELL AS THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE AND NATIONAL ELECTRICAL SAFETY CODE. THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED APPLICATIONS, PERMITS AND INSPECTIONS PERTAINING TO THIS WORK. THIS COST SHALL BE INCLUDED IN THE CONTRACTOR'S PRICE.
- 2. NEW LIGHT FIXTURES SHALL NOT BE USED FOR TEMPORARY LIGHTING.

ELECTRIC SERVICE:

- 1. EXISTING TO REMAIN.

WIRE AND CABLE:

- 1. UNLESS OTHERWISE SPECIFIED, MC CABLE MAY BE UTILIZED FOR BRANCH WIRING WHEN CONCEALED WITHIN WALLS OR ABOVE FINISHED CEILINGS. EXPOSED INSTALLATIONS ARE NOT PERMITTED.
- 2. CONDUCTORS SHALL BE ANNEALED COPPER, STRANDED 98% CONDUCTIVITY, 600 V RATED FOR FEEDERS AND BRANCH CIRCUITS, TYPE THHN/THWN INSULATION, MINIMUM #12 AWG SIZE FOR BRANCH CIRCUITS. PROVIDE #10 AWG MINIMUM SIZE FOR BRANCH CIRCUIT RUNS EXCEEDING 100 FEET. ALUMINUM CONDUCTORS SHALL NOT BE USED FOR BRANCH CIRCUITS. ANACONDA, GENERAL CABLE, ROME CABLE OR ACCEPTED EQUAL.
- 3. COLOR CODE CONDUCTORS (EXCEPT CONTROL AND INSTRUMENTATION CONDUCTORS) AS FOLLOWS:
 - a. 240/120v 1ø SYSTEM PHASE A-BLACK; PHASE B-RED; NEUTRAL-WHITE; GROUND-GREEN
 - b. 208/120v 3ø SYSTEM PHASE A-BLACK; PHASE B-RED; PHASE C-BLUE; NEUTRAL-WHITE; GROUND-GREEN
 - c. 480/277v 3ø SYSTEM PHASE A-BROWN; PHASE B-ORANGE; PHASE C-YELLOW; NEUTRAL-GRAY; GROUND-GREEN
- 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. COLOR TAPE SHALL BE THE EQUIVAL OF 3M PRODUCTS SCOTCH #35.
- 6. FLEXIBLE CORD SHALL BE HEAVY DUTY TYPE SO WITH AN EQUIPMENT GROUND CONDUCTOR IN ADDITION TO THE CURRENT CARRYING CONDUCTORS.
- 7. CONTROL CONDUCTORS SHALL BE #14 MINIMUM FOR NEC CLASS I AND #16 FOR NEC CLASS II.
- 8. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.
- 9. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID.
- 10. INSTALL SEPARATE NEUTRALS FOR EACH SINGLE PHASE BRANCH CIRCUIT.
- 11. CONNECT #10 AND SMALLER WIRES WITH CONSTANT PRESSURE EXPANDABLE SPRING TYPE CONNECTORS, "SCOTCHLOK" BY 3M OR B-CAP BY BUCHANAN.
- 12. CONNECT #8 AND LARGER WIRES WITH COMPRESSION CONNECTORS OR SPLICES AS MANUFACTURED BY BURNDY OR T&B.
- 13. INSULATE SPLICING CONNECTORS TO AT LEAST 200% OF THE WIRE INSULATION. USE PRE-STRETCHED TUBING CONNECTOR INSULATORS, 3M PST FOR #2 AND LARGER CONDUCTORS.
- 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 WIRENUT JOINTS OR SPLICES MADE INSIDE SWITCHBOARDS/PANELBOARDS.
- 19. MAKE ALL CONNECTIONS TO DISCONNECT SWITCHES, MOTOR CONTROLLERS, MOTORS AND OTHER EQUIPMENT SHOWN ON THE PLANS. EXIT LIGHTS, FIRE ALARM AND EMERGENCY CIRCUITS SHALL BE INSTALLED IN SEPARATE CONDUIT SYSTEMS. INSTALL A MAXIMUM OF 3 SINGLE PHASE CIRCUITS IN A SINGLE RACEWAY, UNLESS OTHERWISE SPECIFICALLY CALLED FOR (SIX (6) CURRENT CARRYING CONDUCTORS MAXIMUM PLUS GROUND).
- 20. INSTALL MULTIWIRE BRANCH CIRCUITS PER ALL REQUIREMENTS OF N.E.C. ARTICLE 210.4. HANDLE TIRES 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. 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. PVC SCHEDULE 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.
 - 2. CONDUIT SIZE SHALL BE 1/2" 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 WATER TIGHT JOINTS WITH BURIED AND CONCRETE ENCASED CONDUIT. ALL BURIED CONDUITS OUTSIDE OF BUILDINGS SHALL HAVE A MINIMUM OF 24" OF COVER UNLESS SHOWN OTHERWISE. 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 DIRECTION.
 - 9. IF 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 ACCEPTED.
 - 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.

B. SURFACE RACEWAYS:

- 1. IN FINISHED AREAS WHERE BRANCH CIRCUITS CANNOT BE CONCEALED DUE TO EXISTING CONDITIONS, THE USE OF SURFACE MOUNTED RACEWAYS MAY BE PERMITTED. E.C. SHALL CONTACT ENGINEER/ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. USE SURFACE METAL RACEWAY, CONSTRUCTED OF ENAMELED, SHEET METAL CHANNEL WITH FITTED COVER, COLOR & FINISH BY ARCHITECT. FURNISH STANDARD COUPLINGS, FITTINGS, BOXES, CONNECTORS, ELBOWS AND OTHER ACCESSORIES FOR A 100% COMPLETE INSTALLATION. EQUAL TO WIREMOLD OR APPROVED.

C. PULL & JUNCTION BOXES:

- 1. INSTALL PULL AND JUNCTION BOXES WHERE SHOWN ON THE DRAWINGS, AND WHERE REQUIRED FOR CONDUIT PULLING 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.
- 5. PROVIDE SIZE AS REQUIRED FOR NUMBER AND SIZE OF CONDUIT AND CONDUCTORS. COORDINATE DEPTH TO SUIT WALL DEPTH AND CONSTRUCTION. MAXIMUM NUMBER OF CONDUCTORS PERMITTED IN STANDARD BOXES SHALL BE AS LISTED IN N.E.C. INSTALL FLUSH RECESSED WHEREVER POSSIBLE AND SECURELY SUPPORTED FROM BUILDING CONSTRUCTION. O.Z./GEDNEY, CROUSE HINDS, T&B, STEEL CITY, RACO OR ACCEPTED EQUAL.

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 INCLUDES 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. PROVIDE A GREEN GROUNDING CONDUCTOR IN ALL CIRCUITS. CONDUIT SYSTEM SHALL NOT BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR CONDUCTOR SIZE SHALL BE AS REQUIRED BY NEC, ARTICLE 250. ALL EQUIPMENT GROUND BUS, GROUND PADS, FRAMES, ENCLOSURES, ETC SHALL HAVE SURFACES AT THE POINT OF CONNECTION THOROUGHLY CLEANED AND BRIGHTENED JUST PRIOR TO ACTUALLY MAKING THE CONNECTION. TOUCH-UP DAMAGED PAINTED SURFACES. SPLICES IN WIRE OR CABLE GROUNDING CONDUCTORS ARE PROHIBITED. SOLDER PROHIBITED FOR CONNECTIONS.
- 2. ALL CONDUITS SHALL CONTAIN A CODE-SIZED GROUND WIRE SIZE 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.
- 3. ALL GROUNDING SYSTEMS SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. ALL METHODS OF CONSTRUCTION THAT ARE NOT SPECIFICALLY DESCRIBED OR INDICATED IN THE CONTRACT DOCUMENTS SHALL BE SUBJECT TO THE CONTROL AND APPROVAL OF THE OWNER'S REPRESENTATIVE.
- 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. SIZES #10 AWG AND SMALLER SHALL BE GREEN IN COLOR. CONDUCTOR SIZES #8 AWG AND LARGER MAY HAVE GREEN TAPED BANDS AT EACH END AND IN ALL PULLBOXES.

C. CONNECTORS, CLAMPS, TERMINALS:

- 1. PROVIDE BRONZE MECHANICAL CONNECTORS AND CLAMPS. SOLDERLESS COMPRESSION TERMINALS SHALL BE COPPER, LONG BARREL, NEMA TWO BOLT.

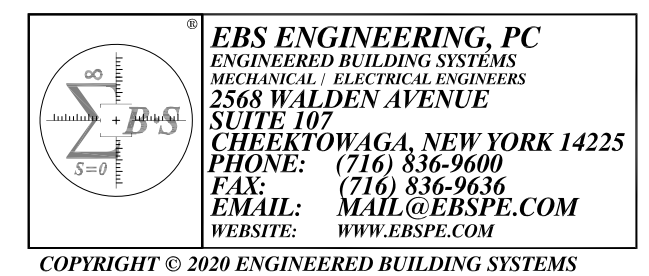
D. TESTS:

- 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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 320 Porter Ave
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ISSUE: 02-18-2020 BID SET - NOT FOR CONSTRUCTION

SA PROJECT TEAM: PRINCIPAL P.Silvestri
 PROJ. ARCH. _____ DRAFTER M.Velocci
 JOB CAPT. M.Velocci INTERIORS N.Catuzza

SEAL:

TITLE: ELECTRICAL SPECIFICATIONS



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SA JOB #: 19092.01 DATE: 02-18-20

DRAWING #: E-5

WIRING DEVICES

A. GENERAL:

1. 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.
2. WIRING DEVICE COLOR SHALL BE SELECTED BY ARCHITECT, UNLESS OTHERWISE INDICATED.
3. PROVIDE COVER OR DEVICE PLATES FOR OUTLET BOXES AS FOLLOWS UNLESS OTHERWISE NOTED:
 - a. FINISHED AREAS: THERMOPLASTIC – COLOR TO MATCH DEVICE.
 - b. UNFINISHED AREAS: ZINC COATED SHEET METAL, ALUMINUM, OR CAST METAL, AS APPROPRIATE FOR THE TYPE OF BOX.
 - c. EXTERIOR AREAS: COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKET, WEATHERPROOF, CROUSE-HINDS "WLRO" FOR DUPLEX RECEPTACLES AND "WLRS" FOR SINGLE RECEPTACLES OR EQUAL.
 - d. 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.
 - e. WHERE DEVICES ARE GANGED, THEY SHALL BE INSTALLED UNDER A COMMON COVERPLATE.
3. 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.
4. 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.
5. ALL WIRING DEVICES SHALL BE INSTALLED NEATLY AND PARALLEL WITH BUILDING LINES.

B. SUBMITTALS:

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

C. RECEPTACLES:

1. PROVIDE NEMA CONFIGURATION 5-20R DUPLEX 125 VOLT GROUNDING TYPE RECEPTACLES RATED FOR 20 AMPERES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
2. STANDARD RECEPTACLES SHALL BE SPECIFICATION GRADE.
3. GFI RECEPTACLES SHALL BE SPECIFICATION GRADE.
4. 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.
5. CONNECT WIRING DEVICE GROUNDING TERMINAL TO BRANCH CIRCUIT EQUIPMENT GROUNDING CONDUCTOR.
7. PROVIDE OTHER RECEPTACLES OF A QUALITY, MATERIAL AND WORKMANSHIP EQUAL TO THAT OF ABOVE DESCRIPTIONS.
8. ACCEPTABLE MANUFACTURES INCLUDED EATON/ARROW HART, LEGRAND (P&S), LUTRON, LEVITON OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURER.

D. WALL SWITCHES:

1. 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.
2. ACCEPTABLE MANUFACTURES INCLUDE EATON/ARROW HART, LUTRON, LEVITON, LEGRAND OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURER.

E. WALL DIMMER / SWITCHES:

1. PROVIDE SINGLE-POLE, THREE-WAY 120/277 VOLT SPECIFICATION GRADE 0-10V LED DIMMER DEVICES WITH THERMOPLASTIC POLYCARBONATE CONSTRUCTION, SEPERATE ON/OFF CONTROL AND SLIDE ADJUSTER FOR DIMMING. FOR USE WHEN SERVING LED FIXTURES WITH 0-10V DIMMING DRIVERS. INCLUDE LOW-VOLTAGE CONTROL WIRING INSTALLED FROM SENSOR TO DESIGNATED LIGHT FIXTURES FOR DIMMING OPERATION.
2. PROVIDE SINGLE-POLE, THREE-WAY 120/277 VOLT SPECIFICATION GRADE ELECTRONIC LOW-VOLTAGE (ELV) AND/OR CFL-LED COMPATIBLE DIMMER DEVICES WITH THERMOPLASTIC POLYCARBONATE CONSTRUCTION, TOGGLE/ROCKER ON/OFF CONTROL AND SLIDE ADJUSTER FOR DIMMING. FOR USE WHEN SERVING LINE-VOLTAGE LED FIXTURES.
3. ACCEPTABLE MANUFACTURERS INCLUDE EATON/ARROW HART, LUTRON, LEVITON, LEGRAND OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURER.

F. AUTOMATIC LIGHTING CONTROL DEVICES:

1. 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.
2. PROVIDE SINGLE RELAY, DUAL TECHNOLOGY, 120/277 VOLT, OCCUPANCY SENSOR WALL 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 IN OFFICES, JANITOR CLOSETS, STORAGE RMS ETC. PER IECC. ALTERNATE PROGRAMMING SHALL INCLUDE AUTOMATIC ON, AUTOMATIC OFF WITH THE OCCUPANCY SENSOR TIME DELAY SET FOR 15 MINUTES IN RESTROOMS, CONFERENCE ROOMS, ETC. PER IECC. REMAINING PROGRAMMING OPTIONS SHALL BE FACTORY DEFAULT UNLESS OTHERWISE INDICATED OR REQUIRED.
3. PROVIDE SINGLE RELAY, DUAL TECHNOLOGY, 120/277 VOLT, OCCUPANCY SENSOR DIMMING WALL SWITCH WITH OPTION FOR DAYLIGHT HARVESTING. INCLUDE LOW-VOLTAGE CONTROL WIRING INSTALLED FROM SENSOR TO DESIGNATED LIGHT FIXTURES FOR DIMMING OPERATION. BASIC PROGRAMMING SHALL INCLUDE MANUAL ON, AUTOMATIC OFF WITH THE OCCUPANCY SENSOR TIME DELAY SET FOR 15 MINUTES. DAYLIGHT HARVESTING SHALL BE ACTIVATED IN ROOMS WITH EXTERIOR WINDOWS WHERE COMBINED LIGHTING LOAD IS IN EXCESS OF 150 WATTS FOR THAT ROOM. REMAINING PROGRAMMING OPTIONS SHALL BE FACTORY DEFAULT UNLESS OTHERWISE INDICATED OR REQUIRED.
4. 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.
5. ACCEPTABLE MANUFACTURERS INCLUDE SENSOR SWITCH, WATTSTOPPER, EATON/ARROW HART, LUTRON, LEVITON, LEGRAND OR APPROVED EQUAL. ALL DEVICES SELECTED FOR PROJECT SHALL BE SUPPLIED BY THE SAME MANUFACTURER.

LIGHTING

A. GENERAL:

1. SEE SHEET E-1 FOR PROJECT LIGHT FIXTURE SPECIFICATIONS.
2. ALL LIGHTING FIXTURES SHALL BE UL LISTED AND BARE THE UL LABEL OF APPROVAL
3. LIGHT FIXTURE HOUSINGS RECESSED WITHIN FIRE RATED CEILINGS MUST BE SUPPLIED WITH FIRE RATED COVERS. UTILIZE TENMAT PRODUCTS OR EQUAL. CONFIRM FIRE RATED CEILING LOCATIONS AND TYPES WITH ARCHITECTURAL DRAWINGS.
4. SET LEVEL, PLUMB, AND SQUARE WITH CEILINGS AND WALLS UNLESS OTHERWISE INDICATED.
5. INSTALL LAMPS IN EACH LUMINAIRE AS NEEDED.
6. FIXTURES SHALL BE SUPPORTED FROM BUILDING STRUCTURE.
7. WHERE FIXTURES ARE INSTALLED ON DRYWALL CEILINGS, THEY SHALL BE SUPPORTED FROM THE CEILING FRAMING SYSTEM OR THE BUILDING STRUCTURE. SUPPORT FROM DRYWALL IS NOT ACCEPTABLE.
8. NFPA 70 REQUIRES MINIMUM SUPPORT FOR FIXTURES. REFER TO "LAY-IN CEILING LIGHTING FIXTURES SUPPORTS" PARAGRAPH BELOW FOR MORE SPECIFIC SUPPORT REQUIREMENTS AND FOR REQUIREMENTS EXCEEDING CODE MINIMUMS. FOR PROJECTS REQUIRING SEISMIC DESIGN, ADDITIONAL SUPPORTS, AND RESTRAINING DEVICES BEYOND THOSE SPECIFIED HERE MAY BE REQUIRED.

B. SUBMITTALS:

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

C. LAY-IN CEILING LIGHTING FIXTURES SUPPORTS:

1. USE GRID AS A SUPPORT ELEMENT.
2. INSTALL CEILING SUPPORT SYSTEM RODS OR WIRES FOR EACH FIXTURE. LOCATE NOT MORE THAN 6 INCHES FROM LIGHTING FIXTURE CORNERS.
3. 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.
4. 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.

D. SUSPENDED LIGHTING FIXTURE SUPPORT:

1. PENDANTS AND RODS: WHERE LONGER THAN 48 INCHES (1200 MM), BRACE TO LIMIT SWINGING.
2. STEM-MOUNTED, SINGLE-UNIT FIXTURES: SUSPEND WITH TWIN-STEM HANGERS.
3. CONTINUOUS ROWS: USE TUBING OR STEM FOR WIRING AT ONE POINT AND TUBING OR ROD FOR SUSPENSION FOR EACH UNIT LENGTH OF FIXTURE CHASSIS, INCLUDING ONE AT EACH END.
4. DO NOT USE GRID AS SUPPORT FOR PENDANT LUMINAIRES. CONNECT SUPPORT WIRES OR RODS TO BUILDING STRUCTURE.

E. GYPSUM CEILING LIGHTING FIXTURE SUPPORT

1. USE CEILING BEAMS AS SUPPORT ELEMENT.
2. INSTALL CEILING SUPPORT SYSTEM WIRES FOR EACH FIXTURE. LOCATE NOT MORE THAN 6 INCHES FROM LIGHTING FIXTURE CORN
3. SUPPORT SCREWS / WIRE TIES: FASTEN TO LIGHTING FIXTURES AND TO CEILING BEAMS AT OR NEAR FIXTURE CORNER

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

SAFETY SWITCHES & FUSES

A. SWITCHES:

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

B. FUSES:

1. 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:
 - a. FUSES 601 TO 6000 AMPS SHALL BE UL CLASS. TRADE TYPE SHALL BE KRP-C AS MANUFACTURED BY THE BUSSMANN COMPANY.
 - b. 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.
 - c. ALL OTHER FUSES SHALL BE DUAL-ELEMENT CURRENT-LIMITING TYPE WITH 200,000 AMPERES SYMMETRICAL INTERRUPTING CAPACITY.
 - d. FUSES SHALL BE MANUFACTURED BY BUSSMANN, GOULD-SHAUMUTT, OR RELIANCE.
 - e. 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.
 - f. THIS CONTRACTOR SHALL REPLACE ALL FUSES BLOWN DURING CONSTRUCTION.

C. MOTOR CONTROLLERS:

1. TYPE A (FULL VOLTAGE, NON-MAGNETIC, SINGLE PHASE): TOGGLE SWITCH, STAINLESS STEEL ENCLOSURE, THERMOPLASTIC COVERPLATE; SIEMENS CLASS SMF SERIES, OR ACCEPTED EQUAL.
2. 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.
3. TYPE B (FULL VOLTAGE MAGNETIC): NEMA 1 ENCLOSURE WITH PILOT LIGHT; SIEMENS CLASS 14 SERIES WITH AUXILIARY CONTACTS, OR ACCEPTED EQUAL.
4. 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:

1. ALL NEW EQUIPMENT IDENTIFIED IN THIS SECTION, AND THROUGHOUT DESIGN DOCUMENTS, IS BASED ON THE MANUFACTURER OF EATON CUTLER-HAMMER.
2. CONTRACTOR MUST FIELD VERIFY EXISTING EQUIPMENT MANUFACTURER AND MODELS NUMBERS AS NEEDED.

B. SUBMITTALS:

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

C. GENERAL:

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 DRAWINGS. PROVIDE ARC FLASH ANALYSIS WITH WARNING 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. 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.
5. PANELS KNOWN AS "LOAD CENTERS" ARE UNACCEPTABLE.
6. SPACES, AS IDENTIFIED IN PANEL SCHEDULES, FOR FUTURE PROTECTIVE DEVICES SHALL INCLUDE BUS AND SUPPORT.
7. INSTALL CABINETS SO THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'-6" ABOVE THE FINISHED FLOOR.
8. MOLDED CASE CIRCUIT BREAKERS SHALL BE AS SCHEDULED ON THE DRAWINGS AND SPECIFIED IN THIS DIVISION.
9. ALL BREAKERS SHALL BE BOLT-ON TYPE. PUSH-ON TYPE ARE ONLY ACCEPTABLE FOR USE IN "LOAD CENTERS".
10. ALL BOLTED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS.
11. 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.
12. GFI CIRCUIT BREAKERS: SINGLE-POLE AND TWO-POLE CONFIGURATIONS WITH CLASS A GROUND-FAULT PROTECTION (6-MA TRIP).
13. GROUND-FAULT EQUIPMENT PROTECTION (GFEF) CIRCUIT BREAKERS: CLASS B GROUND-FAULT PROTECTION (30-MA TRIP).
14. ABC-FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKERS: COMPLY WITH UL 1699; 120/240-V, SINGLE-POLE CONFIGURATION.
15. PROVIDE (3) SPARE 1" CONDUITS INTO ACCESSIBLE CEILING SPACE WHERE PANELS ARE FLUSH-MOUNTED, PROVIDE REMOVABLE CAP OR PLUG AT CONDUIT AND ABOVE CEILING.
16. ENTRIES ON DIRECTORY CARDS SHALL BE TYPED, COMPLETE AND ACCURATE.

D. EXISTING PANELBOARDS:

1. 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 TO BE FIELD VERIFIED BY E.C.
2. PROVIDE NEW PANELBOARD DIRECTORY TO IDENTIFY EXISTING AND NEW BRANCH CIRCUITS; PROVIDE TYPEWRITTEN WITH ROOM NUMBERS, FUNCTION, ETC. TO POSITIVELY IDENTIFY EACH BRANCH CIRCUIT.

FIRE ALARM SYSTEM SPECIFICATION

A. GENERAL:

1. THE FIRE ALARM SYSTEM IS AN EXISTING EDWARDS ADDRESSABLE TYPE. FIELD VERIFY MODEL AS REQUIRED. NEW DEVICES IDENTIFIED IN DESIGN DOCUMENTS MUST BE COMPATIBLE WITH EXISTING SYSTEM.

B. SUBMITTALS:

1. INCLUDE THE FOLLOWING ITEMS FOR REVIEW BY THE ENGINEER OF RECORD AND LOCAL BUILDING DEPARTMENT:
 - a. DEVICE DATA SHEETS, INFORMATION SHALL INCLUDE EQUIPMENT MANUFACTURE AND MODEL NUMBERS.
 - b. BATTERY CALCULATIONS.
 - c. RISER DIAGRAM IDENTIFYING DEVICES, CONDUCTOR TYPES / SIZES, CANDELA RATINGS AND REQUIRED POWER SUPPLIES TO FACILITATE ENTIRE SYSTEM INSTALLATION.
 - d. SHOP DRAWINGS INDICATING THE USE OF ALL ROOMS WITH LOCATIONS OF ALARM AND INITIATING DEVICES IN COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS.
- NOTE: CAD FILES OF THE FIRE ALARM DESIGN DOCUMENTS WILL BE PROVIDED UPON REQUEST.

C. COMPLIANCE:

1. SYSTEM AND INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE STANDARDS AND REQUIREMENTS OF THE NFPA INCLUDING:
 - a. NFPA 70 – INCLUDING ARTICLE 760 (NEC)
 - b. NFPA 72 – COMPLETE
 - c. NFPA 101
 - d. APPLICABLE REQUIREMENTS OF THE LOCAL TOWN
2. ALL EQUIPMENT SHALL BE "UL" LISTED UNDER THE FIRE PROTECTION DIRECTORY AND SUPPLEMENTS.

D. INSTALLATION:

1. STEEL OUTLET OR METAL BACK BOXES SHALL BE PROVIDED FOR ALL COMPONENTS OF THE SYSTEM.
2. ALL WIRING FOR THIS SYSTEM SHALL BE CONCEALED WITHIN THE BUILDING STRUCTURE AND FINISHES.
3. "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 HYFALON OR TEFLON INSULATION AND JACKET. THE OUTER JACKET SHALL BE RED IN COLOR. WHERE EXPOSED, FIRE ALARM CABLE SHALL BE INSTALLED IN EMT CONDUIT, SIZE AS REQUIRED.
4. FIRE ALARM WIRING SYSTEM SHALL BE CONFIGURED AS CLASS "B".
5. PROVIDE GALVANIZED CHASE NIPPLE (OR SIMILAR PLASTIC FITTING) WHERE CABLES ENTER OUTLET BOXES, BACKBOXES, PANELS ETC.

E. CONTROL PANEL

1. EXISTING ADDRESSABLE TYPE.

F. DEVICES:

1. PULLSTATIONS SHALL BE DUAL ACTION, RED IN COLOR LABELED "FIRE".
2. AUDIO/VISUAL (HORN/STROBE) SHALL BE RED IN COLOR LABELED "FIRE" WITH FIELD SELECTABLE CANDELA RATINGS (15, 30, 75, 95, 110) AS REQUIRED FOR SPACES COVERED.
3. VISUAL (STROBE) DEVICES SHALL BE RED IN COLOR LABELED "FIRE". WITH FIELD SELECTABLE CANDELA RATINGS (15, 30, 75, 95, 110) AS REQUIRED FOR SPACES COVERED.
4. SMOKE DETECTORS SHALL BE PHOTOELECTRIC TYPE WITH STANDARD BASE UNLESS OTHERWISE INDICATED.
5. HEAT DETECTORS SHALL BE 190° FIXED TEMPERATURE WITH STANDARD BASE UNLESS OTHERWISE INDICATED.
6. CO DETECTORS SHALL HAVE AN AN AUDIBLE BASE PROVIDING A TEMPORAL 4 NOTIFICATION TONE.
7. SEE "FIRE ALARM SYSTEM SCHEDULE" ON SHEET E-1 FOR FURTHER INFORMATION ON SYSTEM DEVICES.

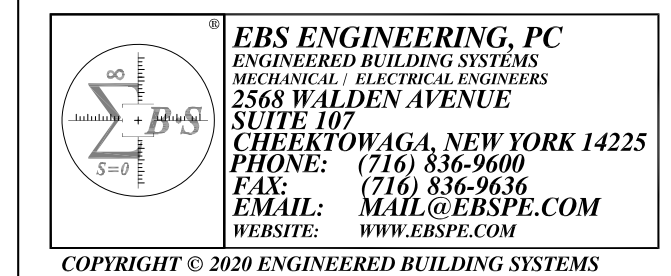
G. COMMISSIONING

1. 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.
2. 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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**D'Youville
College -
Koessler
Administration
Building
320 Porter Ave
Buffalo, NY**

ISSUE:

02-18-2020 BID SET - NOT FOR CONSTRUCTION

SA PROJECT TEAM:

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PROJ. ARCH. _____ DRAFTER M.Velocci
JOB CAPT. M.Velocci INTERIORS N.Catuzza

SEAL:

TITLE:

**ELECTRICAL
SPECIFICATIONS**



SA JOB #:

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DATE:

02-18-20

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E-6