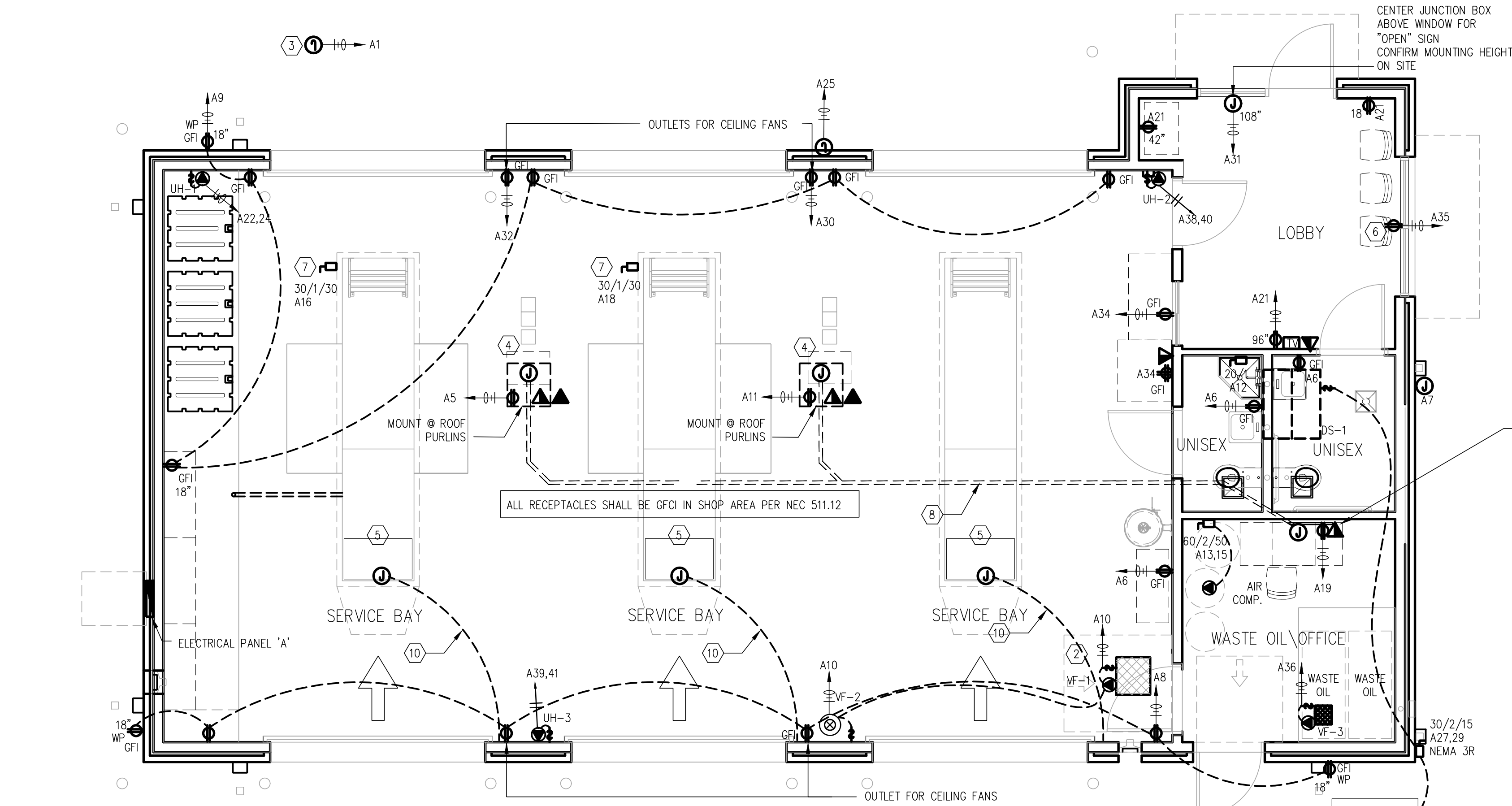


LIGHTING PLAN

1/4" = 1'0"



POWER PLAN

1/4" = 1'0"

ELECTRICAL NOTES FOR SERVICE BAYS

BUILDING IS CONSIDERED A "MINOR REPAIR GARAGE PER NEC ARTICLE 511.2 FLAMMABLE LIQUIDS HAVING A FLASH POINT BELOW 100°F SUCH AS GASOLINE, OR GASEOUS FUELS SUCH AS NATURAL GAS OR HYDROGEN, WILL NOT BE DISPENSED OR TRANSFERRED. ACCORDING TO NEC ARTICLE 511.3(D) THE FOLLOWING LOCATIONS IN THE SERVICE AREAS SHALL BE CONSIDERED CLASS 1 DIVISION 2 LOCATIONS:

1. FLOOR AREAS UP TO A LEVEL OF 18" ABOVE THE PITS & EXTENDING A DISTANCE 3' HORIZONTALLY FROM THE EDGE OF ANY PIT.
2. PIT AREAS UP TO THE FLOOR LEVEL.

NOTE: CEILING AREAS ARE UNCLASSIFIED SINCE LIGHTER THAN AIR GASES (SUCH AS NATURAL GAS & HYDROGEN) WILL NOT BE TRANSFERRED.

ALL ELECTRICAL WORK IN THESE CLASSIFIED AREAS SHALL CONFORM TO ARTICLE 511 FOR CLASS 1 DIVISION 2 LOCATIONS. PROVIDE SEALS IN CONDUIT & CABLE SYSTEMS PER ARTICLE 501 IN CLASSIFIED AREAS.

NOTE: OFFICE, WASTE OIL AND RESTROOM AREAS ARE UNCLASSIFIED SINCE WALLS ARE USED TO EFFECTIVELY CUT OFF / SEPARATE THESE ROOMS FROM AREAS WHERE FLAMMABLE VAPORS ARE LIKELY TO BE RELEASED AND THESE AREAS ARE TYPICALLY OUTSIDE THE 3' HORIZONTAL DISTANCE FROM PIT EDGE.

NOTE:
ALL SWITCHES ARE MOUNTED AT 48" A.F.F
UNLESS NOTED OTHERWISE

GENERAL LIGHTING LEGEND

A	LED STRIPLIGHT FIXTURE LITHONIA LIGHTING:ZLIN - 48" 5000LM 40K LITHONIA LIGHTING:ZLIN - 96" 10000LM 40K
B	LED FLAT PANEL LIGHT EELP VLFPG-B-24-50L-QT-40K
C	EMERGENCY EXIT LIGHT, INDOOR/OUTDOOR -2.78W HUBBELL - SERIES PG FINISH WHITE 120VAC WALL MOUNTED LIGHTING & BATTERY BACKUP. CONFIRM MOUNTING HEIGHT ON SITE.
D	BATHROOM EXHAUST - 30-110 CFM GREENHECK - SP-110
E	EXIT SIGN - 3.8W LITHONIA - EOCB LED M6 WITH BATTERY BACKUP. CONFIRM MOUNTING HEIGHT ON SITE. CENTER ABOVE OPENING U.N.O.
F	OUTDOOR LED WALLPACK WET SAFETY RATED - 9.78W - 3000K WLS LIGHTING: WLS-LMWC-1-N-8-13-C MOUNTING HEIGHT 12'-0" A.F.F.
G	EELP VLFPG-B-24-50L-QT-40K
H	WALL MOUNTED LED LINEAR LIGHT FIXTURE SPI LIGHTING SEW 12146 8FT-L115W
J	LED LINEAR VAPOR LIGHT FIXTURE LITHONIA XVM L48 5000LM 40K
X	LITHONIA: ELM2-LED-W
XR	LITHONIA: ELMRW REMOTE EMERGENCY EGRESS LIGHT FIXTURE

2'-0" x 4'-0" TELEPHONE BOARD ANCHORED THROUGH TO STUD FRAMING. LOCATION AND MOUNTING HEIGHT TO BE CONFIRMED ON SITE. INSTALL CONDUIT IN WALL & TERMINATE IN NEAT WORKMAN-LIKE MANNER. SEE TELEPHONE RISER DIAGRAM E2.0 FOR DETAIL.

EQUIPMENT SCHEDULE

CALLOUT	SYMBOL	NEMA	VOLTS	AMPS	KVA	HP	CIRCUIT
AIR COMPRESSOR			208V 2P 2W	37.5	7.8		A-13,15
DCU-1			208V 2P 2W	6.88	1.43		A-27,29
DS-1			208V 2P 2W	0.22	0.05		
EF-1			120V 1P 2W	0.13	0.02		A-4
EF-2			120V 1P 2W	0.13	0.02		A-4
LIFT			120V 1P 2W	20	2.4	1.5 HP	A-16
LIFT			120V 1P 2W	20	2.4	1.5 HP	A-18
MONUMENT SIGN			120V 1P 2W	10	1.2		A-1
UH-1			240V 1P 2W	42	10		A-22,24
VF-1			120V 1P 2W	4.4	0.53	1/6 HP	A-10
VF-2			120V 1P 2W	0.51	0.06		A-10
WH-1			120V 1P 2W	13.75	1.65		A-12
UH-2			240V 1P 2W	42	10		A-38,40
UH-3			240V 1P 2W	42	10		A-39,41

ELECTRICAL NOTES

1. THE CONTRACTOR SHALL PROVIDE THE WORK IN ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES, APPLICABLE REGULATIONS AND ORDINANCES.
2. ALL WORK SHALL BE DONE IN A NEAT, PROFESSIONAL MANNER, BY COMPETENT, LICENSED TRADESMEN.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR PAYING FOR ALL PERMITS AND OBTAINING ALL APPROVALS FROM THE AUTHORITY HAVING JURISDICTION.
4. CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM, AS DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS AND ANY OTHER MEANS BY THE OWNER'S REPRESENTATIVE.
5. ALL MATERIALS USED UNDER THIS CONTRACT TO BE NEW. UL APPROVED AND IN GOOD WORKING ORDER.
6. ALL BUILDING WIRING REQUIRED FOR THIS PROJECT TO BE BASED ON SOFT DRAWN COPPER, CONDUCTIVITY OF NOT LESS THAN THAT OF 98% PURE COPPER, THW, 600 VOLT INSULATION, #12 MINIMUM. #12 WIRE MAY BE SOLID AND COLOR CODED AS REQUIRED BY NATIONAL ELECTRICAL CODE. ALL WIRING #10 OR LARGER SHALL BE STRANDED TYPE WITH COLORED TAPE USED AT ALL BOXES TO IDENTIFY EACH PHASE AND CIRCUIT.
7. ALL CONDUIT INSTALLED INDOORS SHALL BE EMT, 1/2" MINIMUM UNLESS WITHIN CLASSIFIED LOCATIONS. ALL CONDUIT INSTALLED UNDERGROUND AND IN SLAB SHALL BE HOT DIPPED RIGID GALVANIZED STEEL. ALL CONDUIT INSTALLED TO EXPOSURE OUTDOORS SHALL BE UNDERGROUND AND IN SLAB SHALL BE HOT DIPPED RIGID GALVANIZED STEEL.
8. CONTRACTOR SHALL PROVIDE FEEDER SERVICE FROM THE TENANT'S POWER LOAD CENTER TO THE MAIN DISCONNECT, METER AND EXISTING WIREWAY OR WEATHERHEAD. VERIFY EXISTING CONDITIONS ON SITE. REFER TO ONE LINE DIAGRAM.
9. CONTRACTOR SHALL PROVIDE A NEAT TYPE WRITTEN SCHEDULE OF EQUIPMENT LOADED ON EACH CIRCUIT. ALL LIGHTS SHALL BE LOCALLY SWITCHED WITH WALL TOGGLE SWITCHES, UNLESS NOTED OTHERWISE.
10. PROVIDE COPPER EQUIPMENT GROUND WIRE TO ALL RECEPTACLES AND ALL DIRECT CONNECTED EQUIPMENT. PROVIDE AN EQUIPMENT GROUND WIRE IN ALL BRANCH CIRCUIT FEEDERS AND SUB-FEEDERS AS SHOWN, BUT IN NO CASE IT BE SMALLER THAN REQUIRED BY CODE.
11. COORDINATE ALL POWER, DATA AND TELEPHONE SERVICE REQUIREMENTS WITH THE LOCAL POWER AND TELEPHONE COMPANIES.
12. PROVIDE 3/4" EMPTY CONDUIT WITH PULL WIRE FOR ALL TELEPHONE, COMPUTER AND DATA LINES AS INDICATED ON THE DRAWINGS. PROVIDE OUTLET BOXES FOR ALL TELEPHONE OUTLETS COMPLETE WITH CONDUIT AND PULL WIRES TO AN ACCESSIBLE LOCATION.
13. MOUNT ALL RECEPTACLES AND POWER OUTLETS AT 18" ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED IN COUNTERS AND PONY WALLS.
14. MOUNT ALL TELEPHONE, DATA AND MODEM OUTLETS AT 18" ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE. PROVIDE CONDUIT AND WALL BOX WITH PULL WIRE AT AN ACCESSIBLE LOCATION ABOVE CEILINGS THAT ARE NOT ACCESSIBLE.
15. PROVIDE A GROUND FAULT PROTECTED, WEATHERPROOF DUPLEX RECEPTACLE AS REQUIRED BY THE LOCAL, STATE OR NATIONAL CODES, ADJACENT TO EACH AIR COOLED CONDENSER AND/OR ROOF TOP UNIT.
16. ALL ELECTRICAL HOME RUNS SHALL BE INSTALLED AS TIGHT TO THE UNDERSIDE OF STRUCTURE AS POSSIBLE AND THROUGH THE STRUCTURAL ROOF BEAMS AND JOISTS.
17. ALL BORING, SLAB SAW CUTTING OR INTERRUPTION OF ELECTRICAL SERVICE TO THE BUILDING SHALL BE DONE AFTER HOURS, WITH PRIOR ARRANGEMENT OF THE LANDLORD.
18. CONTRACTOR SHALL PROVIDE TEMPORARY POWER TO OR USE OUTLETS LOCATED IN THE TENANT SPACE. NO TAMPERING IS PERMITTED WITH ANY ADJACENT TENANT SPACES.
19. ALL BREAKERS IN PANEL BOARDS SHALL BE 20A SPARES, UNLESS NOTED OTHERWISE.

NOTE:
ALL EXTERIOR LIGHTS TO BE CONTROL BY TIME CLOCK AND PHOTOCELL.

PROVIDE JUNCTION BOX BEHIND FASCIA FOR BUILDING SIGN. FIELD COORDINATE FINAL SIGN LOCATION WITH ARCHITECTURAL ELEVATIONS & SIGN VENDOR. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO BUILDING SIGN. (TYPICAL 3 PLACES)

PROVIDE JUNCTION BOX UNDER SINK FOR INSTANTANEOUS WATER HEATER.

KEYED NOTES:

- 1 LUMINAIRE SHALL BE CONNECTED TO UNSWITCHED LEG OF CIRCUIT FOR NIGHT LIGHT OPERATION
- 2 PROVIDE 2-CIRCUIT, 7-DAY ASTRONOMICAL DIGITAL PHOTOCELL (INTERMATIC ET8000 SERIES) FOR CONTROL OF VF-1/3, MONUMENTAL SIGN, AND ALL EXTERIOR LIGHT FIXTURES "T" & "H". PROGRAM ONE CIRCUIT TO TURN OFF WHEN BUILDING IS OCCUPIED UNTIL ONE HOUR AFTER BUILDING IS UNOCCUPIED. PROGRAM OTHER CIRCUIT TO CONTROL MONUMENTAL SIGN PER OWNER'S DIRECTION.
- 3 COORDINATE CONNECTION REQUIREMENTS FOR MONUMENT LIGHT AND LOCATION WITH EQUIPMENT PROVIDED. COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS.
- 4 FOR COMPUTER PEDESTAL EQUIPMENT, CENTERED BETWEEN PITS. PROVIDE (2) FS BOXES ON 3/4" GRC CONDUITS STUBBED UP 6" ABOVE FLOOR. PROVIDE GFCI QUAD RECEPTACLE IN ONE BOX AND COVERPLATE WITH GROMMETED OPENING FOR DATA WIRING IN THE OTHER BOX. COORDINATE LOCATION AND EXACT REQUIREMENTS WITH OWNER AND WITH THE EQUIPMENT PROVIDED.
- 5 PIT IS MECHANICALLY VENTILATED BY FAN VF-2 PER NEC 511.3(C), RESULTING IN UNCLASSIFIED DESIGNATION.
- 6 PROVIDE CEILING-MOUNTED SHOW WINDOW RECEPTACLE.
- 7 EC SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS AND CONNECTIONS FOR THE LIFTS WITH LIFT INSTALLER.
- 8 GC TO PROVIDE UNDER SLAB CONDUITS FOR CAT6 LOW VOLTAGE CABLING. COORDINATE EXACT LOCATION OF JUNCTION BOXES WITH OWNER PRIOR TO ROUGH-IN.
- 9 EC TO INSTALL 3/4" CONDUIT & PULL STRING TO EACH SIDE OF PITS FOR INSTALLATION OF WELL LIGHTING. LOCATION & CONFIGURATION TO BE CONFIRMED PRIOR TO CONSTRUCTION.
- 10 EC TO INSTALL 3/4" CONDUIT & PULL STRING FOR CAT6 CABLE FOR CAMERAS IN EACH PIT. CONFIRM LOCATION & CONFIGURATION PRIOR TO CONSTRUCTION.

ELECTRICAL LEGEND

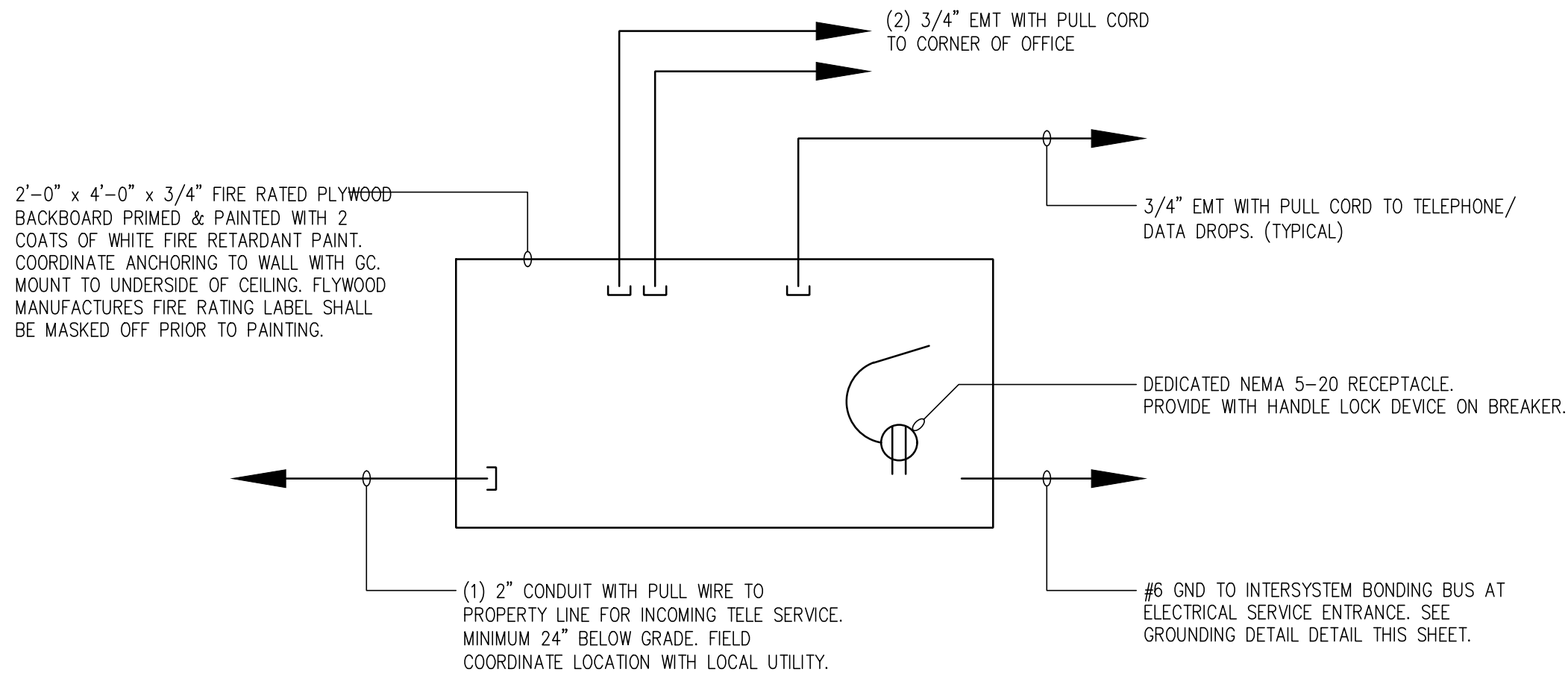
- ⌀ ELECTRICAL DUPLEX OUTLET
HEIGHT AS NOTED
- ⌀GFI ELECTRICAL DUPLEX OUTLET - GFI
HEIGHT AS NOTED
- ⊕ ELECTRICAL QUAD OUTLET - FLOOR
LOCATION AS DIMENSIONED
- ⓵ JUNCTION BOX
HEIGHT AS NOTED
- Ⓣ THERMOSTAT
HEIGHT AS NOTED
- ▼ DATA LINE/COMM OUTLET
HEIGHT AS NOTED
- ▼ TELEPHONE OUTLET
HEIGHT AS NOTED
- ⓐ ALARM PANEL
HEIGHT AS NOTED
- ⓉV TELEVISION CABLE OUTLET
HEIGHT AS NOTED
- ⓐ CENTRAL LIGHTING CONTROL PANEL
HEIGHT AS NOTED
- ⓐ CEILING FAN LOCATION AS
DIMENSIONED
- ⓐ CEILING MOUNTED SMOKE DETECTOR
HARD WIRED & INTERCONNECTED
WITH BATTERY BACKUP
- ⓐ CEILING MOUNTED LIGHT FIXTURE - FLUSH
LOCATION AS DIMENSIONED
- DEC SUSPENDED DECORATIVE LIGHT FIXTURE
OWNER SUPPLIED - CONTRACTOR INSTALLED
- ⊕ WALL MOUNTED DECORATIVE FIXTURE
LOCATION AS DIMENSIONED
- ⓐ CEILING MOUNTED WALL WASH - FLUSH
LOCATION AS DIMENSIONED
- Ⓢ WALL MOUNTED LIGHT SWITCH
HEIGHT AS NOTED
- Ⓢ WALL MOUNTED LIGHT DIMMER
HEIGHT AS NOTED
- HB HOSE BIB HEIGHT
AS NOTED
- GL GAS LINE SHUTOFF VALVE LOCATION TO
BE COORDINATED ON SITE. HEIGHT AS
NOTED
- ⓐ SWITCH MTD. OCCUPANCY MOTION SENSOR
WITH AUTOMATIC SHUTOFF TO TURN LIGHTS
OFF WITHIN 30 MINUTES OF OCCUPANTS
LEAVING SPACE.
- ⓐ CEILING MTD. OCCUPANCY MOTION SENSOR
WITH AUTOMATIC SHUTOFF TO TURN LIGHTS
OFF WITHIN 30 MINUTES OF OCCUPANTS
LEAVING SPACE.
- Ⓢ CIRCUIT NUMBER
(2)#12 THWN-CU IN 1" CONDUIT
(1)HOT, (1)NEUTRAL, (1)UNSWITCHED
- Ⓢ FUSED DISCONNECT SWITCH w/
30A SIZE, 2POLE, 25A FUSES

PANEL A SCHEDULE																															
SYSTEM VOLTAGE 240/120V 1ø-3W														MAINS 400A MCB										MOUNTING SURFACE							
LOAD DESCRIPTION	COND. SIZE	GND SIZE	WIRE SIZE	POLE	LOAD (KVA)								CKT.	BKR.	BKR.	CKT.	LOAD (KVA)								POLE	WIRE SIZE	GND SIZE	COND. SIZE	LOAD DESCRIPTION		
					LTG	REC	MTR	A/C	HTG	KIT	MISC	PHASE					PHASE	MISC	KIT	HTG	A/C	MTR	REC	LTG							
PLYON SIGN (TC)	1/2"	12	12	1								1.2	1	20A	20A	2										0.7	1	12	12	1/2"	LIGHTING - SERVICE BAYS
LIGHTING - SERVICE PITS	1/2"	12	12	1		0.3							3	20A	20A	4										0.5	1	12	12	1/2"	LIGHTING - SUPPORT
REC. - IG WORK #3 (GF)	1/2"	12	12	1		0.4							5	20A	20A	6									0.5	1	12	12	1/2"	REC. - SERVICE/RR (GF)	
IRRIGATION CONTROL	1/2"	12	12	1								1.2	7	20A	20A	8									0.8	1	12	12	1/2"	REC. - SERVICE/RR (GF)	
REC. - SERVICE (GF)	1/2"	12	12	1		1.0							9	20A	20A	10									0.6	1	12	12	1/2"	VF-1, VF-2	
REC. - WORK #1 (GF)	1/2"	12	12	1		1.2							11	20A	20A	12					1.65					1	12	12	1/2"	WH-1	
AIR COMPRESSOR	1/2"	10	8	2									13	50A	20A	14										1	12	12	1/2"	SPARE	
SPARE				1									15	30A	30A	16					2.4					1	10	10	3/4"	LIFT	
TELE BOARD (LO) (GF)	1/2"	12	12	1		0.4							17	20A	30A	18					2.4					1	10	12	3/4"	LIFT	
LOBBY REC	1/2"	12	12	1		0.7							19	20A	20A	20										1	20A				SPARE
LIGHTING - EXTERIOR (TC)	1/2"	12	12	1	0.2								21	20A	60A	22					5.04					2	6	10	3/4"	UH-1	
BLDG SIGNAGE (TC)	1/2"	12	12	1								1.7	23	20A	24					5.04						1					SPARE
DCU-1 / DS-1	1/2"	12	12	2									25	20A	20A	26										1					SPARE
REC. - "OPEN" SIGN (TC)	1/2"	12	12	1		0.4							27	15A	20A	28									0.2	1					RECEPTACLE (GF)
SPARE				1									29	20A	30										0.2	1	12	12	1/2"	RECEPTACLE (GF)	
LIGHTING - SHOW WINDOW	1/2"	12	12	1	0.2								31	20A	20A	32									0.2	1	12	12	1/2"	RECEPTACLE (GF)	
SPARE				1									33	20A	34										0.2	1	12	12	1/2"	RECEPTACLE (GF)	
UH-3	3/4"	10	6	2									35	20A	20A	36										1	12	12	1/2"	VF-3	
				1									37	20A	60A	38					5.04					2	6	10	3/4"	UH-2	
				1									39	60A	40					5.04											SPARE
				1									41	20A	42											1					SPARE
LIGHTING (KVA)					1.4	0.2	4.6	9.8												6.45		20.16		0.9	1.9	1.2	CONNECTED LOAD (KVA)			59.39	
RECEPTACLES (KVA)					6.5																					DEMAND LOAD (KVA)			59.74		
MOTORS (KVA)					10.7																										
A/C (KVA)					0.0																						CONNECTED LOAD (AMPS)			247.5	
HEATING (KVA)					30.24																										
KITCHEN (KVA)					0.0																										
MISCELLANEOUS (KVA)					10.55																										

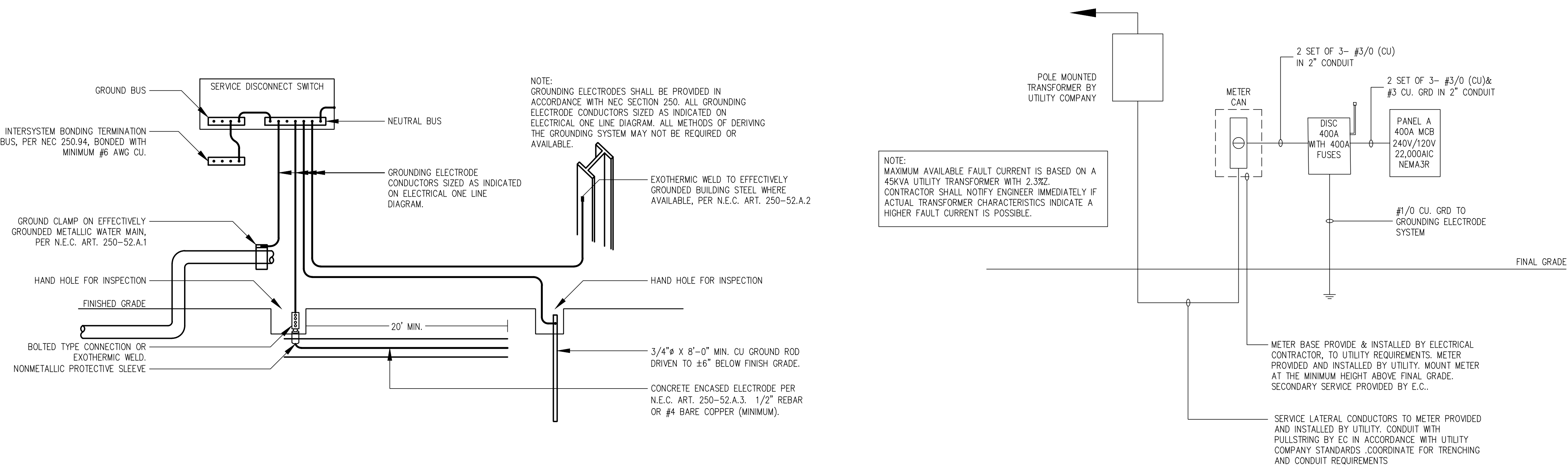
NOTE: 1. SUBSCRIPTS: TC/PC - CONTROL VIA TIME CLOCK AND PHOTOCCELL BY E.C., GF - PROVIDE GFI TYPE CIRCUIT BREAKER, I.G. - PROVIDE ISOLATED GROUND

A DEMAND CALCULATION									
SINGLE PHASE POWER									
1. LIGHTING	1.4	KVA	x	125	%	=	1.75	KVA	
2. RECEPTACLE	6.5	KVA	x	100	%	=	6.5	KVA	
1ST	0	KVA	x	50	%	=	0	KVA	
REMAIN	10.7	KVA	x	100	%	=	10.7	KVA	
3. MOTORS	0	KVA	x	100	%	=	0	KVA	
4. A/C	30.24	KVA	x	100	%	=	30.24	KVA	
5. HEATING	-	KVA	x	100	%	=	-	KVA	
6. FUTURE	-	KVA	x	100	%	=	-	KVA	
7. MISCELLANEOUS	10.55	KVA	x	100	%	=	10.55	KVA	
TOTAL	248.9	AMPS					59.74	KVA	

ELECTRICAL PANEL SCHEDULE



TELEPHONE RISER DIAGRAM



GROUNDING DETAIL

ELECTRICAL ONE LINE DIAGRAM

ELECTRICAL SPECIFICATIONS

GENERAL:

PROVIDE NEMA 1 ENCLOSURES FOR INTERIOR LOCATIONS AND NEMA 3R ENCLOSURES FOR EXTERIOR LOCATIONS UNLESS NOTED OTHERWISE.

CONDUITS:

CONDUITS WITHIN CLASSIFIED AREAS SHALL BE IN ACCORDANCE WITH NEC REQUIREMENTS.

ALL CONDUIT SHALL BE 1/2" MINIMUM SIZE AND ZINC-COATED EMT, EXCEPT IN WET, DAMP, OR WASHDOWN AREAS WHERE ZINC-COATED RIGID STEEL (GRC) OR INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED. EMT FITTINGS SHALL BE HEXAGONAL, GALVANIZED, STEEL GLAND, COMPRESSION TYPES.

EMT CONNECTORS SHALL HAVE INSULATED THROATS. INSULATING THROATS SHALL BE MANUFACTURED WITH THE CONNECTORS; USE OF INSULATING SLEEVES IS NOT ALLOWED. ALL GRC OR IMC CONDUITS ENTERING ENCLOSURES SHALL BE TERMINATED WITH DOUBLE LOCKNUTS AND A FIBER BUSHING OR BOND BUSHING (WHERE NEC REQUIRED).

FLEXIBLE CONDUIT CONNECTORS SHALL BE T & B NYLON INSULATED "TITE-BITE."

LIQUID-TIGHT FLEXIBLE CONDUIT SHALL BE USED FOR FINAL EQUIPMENT CONNECTIONS, AND IN DAMP LOCATIONS.

SECURE CONDUITS USING MANUFACTURED STRAPS. TIE WIRE IS NOT ALLOWED.

EXCEPT FOR MECHANICAL AREAS, ALL CONDUIT SHALL BE INSTALLED CONCEALED WHEREVER POSSIBLE. CONDUITS SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS AND SHALL BE INSTALLED IN GROUPS. WHERE INSTALLED AT THE ROOF OR CEILING, GROUPINGS SHALL BE SINGLE DEPTH AND INSTALLED TIGHT AGAINST THE STRUCTURE. FOR MULTIPLE DEPTH GROUPINGS AND OTHER SITUATIONS, A TRAPEZE ARRANGEMENT USING APPROPRIATE CHANNELS SUSPENDED FROM THE STRUCTURE USING THREADED RODS OF SUFFICIENT SUPPORTING STRENGTH WILL BE PERMITTED. ALL CONDUITS SHALL BE KEPT A MINIMUM OF (SIX) 6 INCHES AWAY FROM PARALLEL RUNS OF STEAM OR HOT WATER PIPES AND FLUES.

THE CONTRACTOR MAY, AT HIS OPTION, USE TYPE MC CABLE ONLY IN CONCEALED LOCATIONS AS PERMITTED BY OWNER AND THE AUTHORITY HAVING JURISDICTION. TYPE MC CABLE SHALL NOT BE USED IN ANY EXPOSED LOCATIONS.

THE CONTRACTOR SHALL PROVIDE ACCESS DOORS IN WALLS AND CEILINGS FOR ACCESS TO PULL BOXES, ACCESSORIES, ETC., UNDER THE ELECTRICAL CONTRACT WHERE REQUIRED. DOORS SHALL BE SIZED AS REQUIRED (MINIMUM 16" X 16") WITH A FINISH TO MATCH THAT OF THE ROOM IN WHICH IT IS INSTALLED. THE ARCHITECT SHALL APPROVE FINISH OF THE ACCESS DOORS.

ALL UNDERGROUND METALLIC CONDUITS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM OR BITUMASTIC PAINT. CONDUITS INSTALLED UNDERGROUND ON THE EXTERIOR OF THE BUILDING SHALL BE BURIED 3'-6" MINIMUM UNDER ROADWAYS AND PARKING AREAS, AND BURIED 2'-6" IN OTHER AREAS.

THE CONTRACTOR MAY, AT HIS OPTION, USE RIGID NONMETALLIC CONDUIT ONLY FOR THE SECONDARY UNDERGROUND SERVICE, THE UNDERGROUND TELEPHONE SERVICE CONDUIT, AND BRANCH CIRCUITS AND TELEPHONE SYSTEM CONDUITS LOCATED BELOW THE CONCRETE FLOOR SLAB ON GRADE OR BURIED ON THE EXTERIOR OF THE BUILDING. ALL PVC SHALL BE SCHEDULE 40 (UNLESS NOTED OTHERWISE) POLYVINYL CHLORIDE U.L. LISTED FOR USE WITH 75 DEGREE C CONDUCTORS. INSTALLATION SHALL BE IN ACCORDANCE WITH NEC ARTICLE 352, ALL CODES, THE UTILITY COMPANY REGULATIONS, AND THE MANUFACTURER'S INSTRUCTIONS.

ALL PVC COMPONENTS OF THE PVC CONDUIT SYSTEM SHALL BE FURNISHED FROM THE SAME MANUFACTURER AND USED SPECIFICALLY FOR THEIR INTENDED PURPOSE. ALL FIELD BENDS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND ACCREDITED TESTING LABORATORY REQUIREMENTS. PVC THAT HAS BEEN HEATED WITH A TORCH SHALL BE REPLACED. USE SCHEDULE 80 PVC 90 DEGREE ELBOWS IN LIEU OF ALL SCHEDULE 40 PVC 90 DEGREE ELBOWS EXCEPT FOR CONDUITS 1" AND SMALLER. PVC SHALL NOT PENETRATE SLAB ON GRADE FOR ANY REASON; USE GRC CONDUIT FOR ALL PENETRATIONS.

PROVIDE 100-POUND TEST, NYLON PULL CORDS IN ALL EMPTY CONDUITS.

ALL OUTLET BOXES SHALL BE GALVANIZED STEEL EXCEPT THAT CAST BOXES WITH GASKETED COVERS SHALL BE REQUIRED IN ALL INTERIOR WET AREAS AND ON THE EXTERIOR OF THE BUILDING. OUTLET BOXES SHALL BE NO LESS THAN 4" SQUARE BY 1-1/2" DEEP. MULTIGANG BOXES SHALL BE OF SINGLE PIECE CONSTRUCTION.

PULL BOXES SHALL BE CONSTRUCTED OF THE CODE GAUGE GALVANIZED SHEET METAL AND SHALL COMPLY WITH NEC ARTICLE 314. SEAMS SHALL HAVE A CONTINUOUS WELD.

WIRING:

CONDUCTORS SHALL BE COPPER, THW OR THHN/THWN, SOLID FOR #10 AWG OR #12 AWG, AND STRANDED FOR ALL LARGER SIZES. CONTROL CIRCUIT CONDUCTORS MAY BE #14 AWG, SOLID, TYPE THW. ALL 208/120 VAC CONDUCTORS SHALL BE COLOR-CODED: BLACK, RED, BLUE, WHITE, AND GREEN FOR PHASES A, B, C, NEUTRAL, AND GROUND RESPECTIVELY.

ALL CONDUCTORS AND CABLES SHALL BE INSTALLED IN RACEWAYS EXCEPT AS OTHERWISE SPECIFIED HEREIN.

THE CONTRACTOR MAY, AT HIS OPTION, USE TYPE MC CABLE ONLY IN CONCEALED LOCATIONS AS PERMITTED BY CODE. TYPE MC CABLE SHALL NOT BE USED IN ANY EXPOSED LOCATIONS.

ELECTRICAL CONDUCTORS SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. ALL FAULTY CONDUCTORS SHALL BE REPLACED. SERVICE ENTRANCE CONDUCTORS SHALL BE MEGGER TESTED AND THE RESULTS SUBMITTED TO THE ARCHITECT FOR APPROVAL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULLY COORDINATING WITH THE OTHER TRADES TO DETERMINE THE POWER REQUIREMENTS AND CONNECTION POINTS FOR EQUIPMENT FURNISHED BY OTHERS. HE SHALL PROVIDE ELECTRICAL POWER TO EACH PIECE OF EQUIPMENT BASED UPON THE MANUFACTURER'S WIRING DIAGRAMS AND UNIT MOUNTED NAMEPLATES.

THE CONDUIT AND NEUTRAL CONDUCTORS OF THE ELECTRICAL SYSTEM AND ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR WITH EVERY CIRCUIT AND IN EVERY CONDUIT. THE CONDUIT SYSTEM AND NEUTRAL CONDUCTORS SHALL BE BONDED TOGETHER ONLY AT THE SERVICE ENTRANCE EQUIPMENT. GROUNDING AT THE SERVICE ENTRANCE SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250. NO CONDUIT SHALL CONTAIN MORE THAN THREE PHASE CONDUCTORS. DERATING OF CONDUCTORS WILL NOT BE ALLOWED.

DEVICES:

ALL WIRING DEVICES SHALL BE SPECIFICATION GRADE, GRAY IN COLOR. SWITCHES SHALL BE QUIET OPERATING TYPES RATED 20A-120/277 VAC.

RECEPTACLES SHALL BE NEMA 5-20R TYPES UNLESS OTHERWISE NOTED. SPECIAL PURPOSE RECEPTACLES SHALL BE HEAVY DUTY, SPECIFICATION GRADE TYPES. THE CONTRACTOR SHALL COORDINATE EACH DEVICE FOR THE CIRCUIT AND EQUIPMENT TO WHICH IT WILL BE CONNECTED. PROVIDE THE PROPER DEVICE BASED UPON THE ACTUAL EQUIPMENT SUPPLIED TO THE PROJECT.

PROVIDE A SINGLE MULTI-GANG OUTLET BOX AND DEVICE PLATE FOR ALL GROUP MOUNTED WIRING DEVICES. PROVIDE FULL HEIGHT AND DEPTH BARRIERS IN OUTLET BOXES WHERE POWER AND COMMUNICATION CONDUCTORS WOULD BE MIXED.

ALL COVERPLATES IN AREAS WHICH ARE FINISHED SHALL BE NYLON AND SHALL MATCH THE COLOR OF THE WIRING DEVICES. COVERPLATES IN UNFINISHED MECHANICAL AND ELECTRICAL AREAS MAY BE GALVANIZED STEEL TYPES WITH BEVELED EDGES.

POWER EQUIPMENT:

PANELBOARDS SHALL BE LIGHTING AND APPLIANCE TYPE. DEAD-FRONT SAFETY TYPE. ALL CIRCUIT BREAKERS SHALL BE MOLDED CASE, BOLT-ON, AUTOMATIC THERMAL MAGNETIC TYPE, CALIBRATED FOR 40°C OR AMBIENT COMPENSATING. CABINETS SHALL BE A NOMINAL 22 INCHES WIDE. PANELBOARD SHALL HAVE FULL HEIGHT, COPPER BUSSING. PANELBOARD DIRECTORIES SHALL BE TYPED.

SAFETY SWITCHES SHALL BE HEAVY DUTY, QUICK-MAKE, QUICK-BREAK, TYPES OF THE SIZE AND FUSE AMPACITY AS DENOTED ON THE DRAWINGS. PROVIDE GROUND BUS, SOLID NEUTRAL (WHEN REQUIRED), CLASS RK-5 DUAL ELEMENT, TIME DELAY FUSES, AND NEMA RATED ENCLOSURE.

MANUAL MOTOR STARTERS SHALL BE MOTOR SENTINEL TYPE WITH PROPERLY SIZED OVERLOAD HEATERS AND DISCONNECT SWITCH (TOGGLE TYPE) MOUNTED IN A NEMA RATED ENCLOSURE.

LUMINAIRES

ALL LUMINAIRES SHALL BE PROVIDED COMPLETE WITH LAMPS, ALL NECESSARY ACCESSORIES, AND AS SCHEDULED ON THE DRAWING. LUMINAIRES AS SCHEDULED ESTABLISH A STANDARD OF QUALITY AND APPEARANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING CONSTRUCTION DETAILS SUCH AS LUMINAIRE TRIM AND CEILING CONSTRUCTION.

CEILING MOUNTED OR SUSPENDED LUMINAIRES SHALL BE SUPPORTED BY A METHOD RATED AT LEAST FIVE TIMES THE LUMINAIRE WEIGHT. THE METHOD SHALL ALSO COMPLY WITH ARTICLES 314.27, 410.15, AND 410.16, AS APPROPRIATE, OF THE NEC.

OTHER REQUIREMENTS:

PROVIDE ENGRAVED, PHENOLIC NAMEPLATES, WHITE LETTERS ON BLACK BACKGROUND (208/120 VAC) FOR EACH PANELBOARD AND DISCONNECT SWITCH. NAMEPLATES SHALL BE PERMANENTLY ATTACHED TO THE EQUIPMENT USING RIVETS.

PROVIDE FUSES FOR ALL EQUIPMENT REQUIRING FUSES AND LAMPS FOR EVERY LUMINAIRE.

PROVIDE A SYSTEM OF EMPTY CONDUIT, OUTLETS, POWER SOURCES, AND PHYSICAL SPACE TO ALLOW THE INSTALLATION OF A PRIVATE "INTERCONNECT" TELEPHONE/DATA SYSTEM. PROVISION OF THE TELEPHONE EQUIPMENT AND CABLE IS NOT PART OF THIS CONTRACT; HOWEVER, THE INSTALLATION OF CABLING AND INSTRUMENTS WILL COINCIDE WITH THIS WORK. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE SYSTEM INSTALLER TO INSURE THE SYSTEM'S INSTALLATION IS NOT HINDERED OR DEGRADED.

THE CONTRACTOR SHALL FURNISH AND INSTALL ANY MISCELLANEOUS METAL OR WOOD SUPPORTS, FASTENERS, MOUNTS, HANGERS, SIDE BRACES, ETC., WHICH MAY BE REQUIRED TO SECURELY ANCHOR AND SUPPORT ELECTRICAL EQUIPMENT FURNISHED UNDER HIS CONTRACT.

ALL POWER EQUIPMENT SHALL BE EATON,ABB, SIEMENS, OR SQUARE D. ALL LUMINAIRES SHALL BE AS SPECIFIED. ALL WIRING DEVICES SHALL BE EATON, HUBBELL, OR LEGRAND. ALL WIRE SHALL BE ANACONDA, CAROL, SOUTHWIRE, OR EQUAL. ALL NEW CONDUIT SHALL BE REPUBLIC OR EQUAL.

THE MANUFACTURER OF POWER EQUIPMENT SHALL PROVIDE ARC FLASH VALUES FOR EACH PANELBOARD.

PANELBOARDS SHALL BE LABELED TO IDENTIFY THE AVAILABLE FAULT CURRENT AT THE PANEL AND THE ARC FLASH HAZARD AT THE PANEL IN ACCORDANCE WITH NEC REQUIREMENTS.