

ELECTRICAL GENERAL NOTES

- GENERAL NOTES
1.

THE ELECTRICAL SYSTEMS DEFINED BY THESE PLANS AND THE SPECIFICATIONS ARE TO BE CONSTRUCTED AS COMPLETE AND OPERABLE SYSTEMS AND SHALL BE BID WITH THIS INTENT. THE CONTRACTOR SHALL VISIT THE SITE, READ ALL THE RELEVANT DOCUMENTS, AND BECOME FAMILIAR WITH THE TYPE OF CONSTRUCTION AND WORK TO BE ACCOMPLISHED. SHOULD ANY ERROR, OMISSION, OR CONFLICT EXIST IN EITHER THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE SUBMITTING THEIR BID PRICE SO A CHANGE CAN BE ISSUED IN A PRE-BID ADDENDUM. OTHERWISE, THE CONTRACTOR AND/OR SUBCONTRACTOR SHALL BE RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR CONFLICTS. THE CONTRACTOR SHALL OPERATE THE SYSTEMS IN ACCORDANCE WITH THE ORIGINAL BID, THEN EACH ELECTRICAL SYSTEM SHALL BE COMPLETE AND OPERABLE PRIOR TO PROJECT CLOSEOUT.

2.

THE ARCHITECTURAL AND MECHANICAL PLANS ARE CONSIDERED A PART OF THE ELECTRICAL DOCUMENTS SO FAR AS ANY ELECTRICAL ITEMS THEY MAY CONTAIN. THE ELECTRICAL CONTRACTOR SHALL REFER TO AND COORDINATE WITH THEM. NO EXTRA COST SHALL BE ALLOWED FOR FAILURE TO COORDINATE THE CONTRACT DIMENSIONS ON THE PLANS.

3.

THE ELECTRICAL CONTRACTOR SHALL PROVIDE EQUIPMENT, MATERIALS, AND LABOR FOR THE CONNECTIONS OF ALL EQUIPMENT SHOWN ON THE PLANS - ARCHITECTURAL, MECHANICAL, ETC.

4.

THIS PROJECT IS TO BE INSTALLED IN STRICT ACCORDANCE WITH THE MOST RECENT LOCAL, STATE, AND NATIONAL CODES. IF AT ANY TIME DURING OR AFTER CONSTRUCTION SOMETHING IS FOUND TO BE INSTALLED IN VIOLATION OF THESE CODES LISTED ABOVE, IT SHALL BE CORRECTED BY THE CONTRACTOR.

5.

ALL EQUIPMENT PROVIDED BY THE EC SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING AGENCY, ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, AND BE PROPERLY INSTALLED FOR THE CONDITIONS AND SPACE THAT EQUIPMENT IS BEING INSTALLED WITHIN.

6.

THE EC SHALL INSTALL A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT RUN. CONDUIT SHALL NOT BE USED AS AN EQUIPMENT GROUNDING CONDUCTOR. THE EC SHALL GROUND THE ELECTRICAL SYSTEM IN ACCORDANCE WITH LOCAL AND NATIONAL CODES.

7.

CONDUIT LAYOUTS SHOWN ON THE PLANS ARE DIAGRAMMATIC, NOT INDICATING THE ROUTING REQUIRED. THE EC SHALL ROUTE THE CONDUITS AS REQUIRED BY THE CONDITIONS OF THE INSTALLATION AND SHALL COORDINATE WITH DUCTWORK, PIPING, EQUIPMENT, BUILDING STRUCTURE, AND OTHER POTENTIAL OBSTRUCTIONS.

8.

THE CONTRACTOR SHALL ALLOW THE MOVEMENT, BEFORE ROUGH-IN, OF ANY ELECTRICAL PANEL, DEVICE, LUMINAIRE, ETC. A DISTANCE OF 10 FEET WITHOUT REQUIRING ADDITIONAL COST TO THE PROJECT.

9.

THE EC SHALL SECURE ALL CONDUIT TO THE STRUCTURE AS IT IS SET IN PLACE USING INDUSTRY STANDARD METHODS AND PRACTICES. SECURING DEVICES ARE NOT TO BE USED TO SET THE ELECTRICAL CONTRACTOR SHALL SECURE ALL DEVICE BOXES WITH BRACKETS, HANGERS, ETC. DESIGNED FOR THE APPLICATION.

10.

MINIMUM SIZE CONDUIT SHALL BE 3/4" UNO. CONDUIT INSTALLED WITHIN THE BUILDING IN DRY LOCATIONS WITHIN WALL, CEILINGS, OR EXPOSED NOT SUBJECT TO PHYSICAL DAMAGE SHALL BE EMT WITH STEEL SET SCREW FITTINGS. IN EXTERIOR LOCATIONS (EXCEPT FOR THE SERVICE ENTRANCE) THE CONDUIT SHALL BE EMT WITH COMPRESSION GLAND TYPE FITTINGS. UNDERGROUND CONDUIT SHALL BE PVC (SCH. 40) WITH GRC ELBOWS AND RISERS WRAPPED IN CORROSION RESISTANT MATERIALS WHERE IN DIRECT CONTACT WITH THE SOIL.

11.

FLEXIBLE CONDUIT SHALL BE LIMITED TO CONNECTIONS TO LIGHT FIXTURES AND FINAL CONNECTIONS TO MOTORS OR OTHER EQUIPMENT SUBJECT TO VIBRATION. LENGTHS OF FLEXIBLE OR SEAL-TITE CONDUIT SHALL NOT BE GREATER THAN 72 INCHES.

12.

ELECTRICAL CONTRACTOR SHALL PROVIDE ALL EMPTY CONDUITS WITH 200LB RATED NYLON PULL CORD.

13.

BEFORE ANY ELECTRICAL CONDUIT, BOXES, ETC. ARE COVERED (FLOOR, CEILINGS, WALLS, ETC.), THEY SHALL BE APPROVED BY THE INSPECTING OFFICER (INSPECTOR).

14.

WHERE WIRE SIZE IS NOT SHOWN ON THE DRAWINGS FOR 20A, 120VAC BRANCH CIRCUITS, THE CIRCUIT SHALL CONSIST OF #12 (CU THHN) + #12 (CU THHN) GND IN 3/4" EMT CONDUIT. THIS WIRE SIZE SHALL BE INCREASED TO #10 (CU THHN) FOR BRANCH CIRCUITS WITH OVERALL LENGTHS EXCEEDING 125' TO ACCOMMODATE FOR VOLTAGE DROP. REFER TO EQUIPMENT SCHEDULES, FEEDER SCHEDULES, AND NOTES ON DRAWINGS FOR ALL OTHER BRANCH CIRCUIT AND FEEDER WIRE/CONDUIT SIZING.

15.

CONDUCTORS SHALL BE COPPER, 800VAC RATED, TYPE THHN/THWN-2 UNO. CONDUCTORS UP TO #10AWG SHALL BE SOLID AND #10AWG AND LARGER SHALL BE STRANDED.

16.

METAL CLAD CABLING MAY BE USED BETWEEN DEVICES SUCH AS LIGHTING, RECEPTACLES, SWITCHES, ETC. UNLESS OTHERWISE REQUIRED BY THE NEC. HOME RUNS SHALL BE INSTALLED IN CONDUIT. MC CABLE SHALL NOT BE INSTALLED EXPOSED.

17.

EC SHALL CLEAN THE ENTIRE ELECTRICAL SYSTEM AFTER COMPLETION OF THE INSTALLATION. REMOVE ALL FINGER PRINTS, FOREIGN MATTER, PAINT, DIRT, GREASE, AND UNNEEDED LABELS OR STICKERS FROM FIXTURES AND EQUIPMENT. REMOVE ALL RUBBISH AND DEBRIS ACCUMULATED DURING INSTALLATION FROM THE PREMISES.

18.

IT IS THE INTENT OF THE CONSTRUCTION DOCUMENTS FOR ALL DEVICES TO BE FLUSH MOUNTED AND CONDUIT/CABLING INSTALLED CONCEALED WITHIN WALLS/CEILINGS. IN AREAS WHERE CONDUIT MUST BE INSTALLED EXPOSED IT SHALL BE COORDINATED WITH THE ARCHITECT AND/OR ENGINEER. ALL EFFORTS SHALL BE MADE TO CONCEAL WIRING METHODS.
19.

ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES SHALL BE SEALED WITH FIRE STOPPING, IE. 3M BRAND CAULK, PUTTY, STRIP, AND SHEET FORMS. DON CORNING 3-6646 SILICONE RTV FOAM.
20.

COORDINATE LOCATION OF WALL MOUNTED DEVICES WITH CABINETRY AND OTHER WALL OBSTRUCTIONS. COORDINATE CEILING MOUNTED DEVICES WITH CEILING OBSTRUCTIONS. ANY DEVICES THAT NEED TO BE RELOCATED MUST BE BROUGHT TO THE ATTENTION OF THE ELECTRICAL ENGINEER PRIOR TO ROUGH-IN FOR NEW LOCATION.
21.

IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE PLACEMENT OF ALL DEVICES AND EQUIPMENT WITH THE ARCHITECT. IF SPACES ARE SHORT, THE CONTRACTOR SHALL ADVISE THE ARCHITECT OF ANY EXISTING DEVICES THAT NEED TO BE RELOCATED PRIOR TO ORDERING EQUIPMENT. THE CONTRACTOR SHALL CONSTRUCT/REMODEL MUST BE BROUGHT TO THE ATTENTION OF THE ELECTRICAL ENGINEER PRIOR TO ROUGH-IN FOR RESOLUTION AND FURTHER DIRECTION.
- REMODEL NOTES:

22.

THE EC SHALL COORDINATE AND CONFIRM THE EXACT LOCATION OF THE EXISTING POWER PANELS FROM WHICH NEW CIRCUITS ARE BEING FED. VERIFY EXISTING BRANCH CIRCUIT BREAKERS AND PROVIDE NEW BRANCH CIRCUIT BREAKERS AS NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM.
23.

THE EC SHALL COORDINATE AND CONFIRM THE EXACT LOCATION OF THE TELECOM ROOM FROM WHICH NEW TELE/DATA OUTLETS WILL BE FED. VERIFY EXISTING PATCH PANEL SPACES AND PROVIDE NEW PATCH PANELS AS NECESSARY TO LANDTERMINATE NEW TELECOM CABLING.
- LIGHTING NOTES:

24.

ALL LIGHT BATTERY POWERED OR CONTINUOUS BURN LUMINAIRES SHOWN ON THE PLANS, SUCH AS EXIT LIGHTS, NIGHT FEEDING THAT AREA.
25.

ALL LUMINAIRES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND NOT THE CEILING GRID OR OTHER NONSTRUCTURAL MEMBERS.
26.

TO MAINTAIN CONSISTENT LIGHT QUALITY, FOR ANY ONE LAMP TYPE SUPPLIED, LAMPS SHALL BE OF THE SAME MANUFACTURER, SURFACE TEMPERATURE, COLOR RENDERING INDEX, LAMP EFFICACY, LUMEN OUTPUT, AND STARTING CHARACTERISTICS FOR ALL INSTALLED.
27.

LIGHT FIXTURES INSTALLED IN DAMP OR WET LOCATIONS SHALL BE UL LISTED FOR INSTALLATION IN THE PROPER ENVIRONMENT. CARE SHOULD BE TAKEN TO ENSURE THAT DIFFUSERS AND LENSES ARE APPROPRIATE FOR THEIR INSTALLED USE AND PREMATURE DISCOLORATION WILL NOT RESULT DUE TO EXPOSURE TO UV LIGHT, CHEMICALS, OR OTHER CONDITIONS.
- POWER NOTES:

28.

ELECTRICAL CONTRACTOR SHALL CONFIRM MINIMUM CODE (NEC) WORKING CLEARANCE BEFORE INSTALLING ANY ELECTRICAL PANELS OR CONDUITS. SHALL MOVE THE PANELS IF REQUIRED BY AN INSPECTOR. IF CLEARANCE IS NOT POSSIBLE, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY IN WRITING.
29.

WIRING DEVICES SHALL BE WHITE IN COLOR WITH NYLON COVER PLATES. EXTERIOR OUTLETS SHALL HAVE CAST COVERS WITH FLIP TYPE LIDS UNO.
30.

EC SHALL COORDINATE WITH EQUIPMENT SUPPLIERS ON THE EXACT LOCATIONS OF ALL EQUIPMENT AND ELECTRICAL CONNECTIONS PRIOR TO ROUGH-IN. THE EC SHALL MAKE THE FINAL CONNECTION TO ALL EQUIPMENT PRIOR TO ROUGH-IN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER CONNECTION OF ALL DEVICES FOR EQUIPMENT PRIOR TO ANY ROUGH-IN. TO ASSURE THAT PROPER CHARACTERISTICS ARE PROVIDED, ANY INCORRECT WIRING OR DEVICES INSTALLED BY THE EC WITHOUT THE WIRING DIAGRAM SHALL BE CORRECTED AT THE EC'S EXPENSE. PROVIDE COPIES OF WIRING DIAGRAMS WITHIN EACH PIECE OF EQUIPMENT AND ADDITIONAL COPIES WITH THE OPERATION AND MAINTENANCE MANUALS.
31.

EC SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR TO PROVIDE CONDUIT AND DEVICE MOUNTING BOXES FOR ALL TELEPHONES, JACKS, AND OTHER MECHANICAL CONTROLS. REFER TO MECHANICAL DRAWINGS FOR THE LOCATION OF THERMOSTATS.
32.

EC SHALL PROVIDE A 20AMP, 120VAC RECEPTACLE INSTALLED AT AN ACCESSIBLE LOCATION FOR THE SERVICING OF HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT PER NEC 210.63. RECEPTACLE SHALL BE OF THE GROUND FAULT CIRCUIT INTERRUPTING TYPE, INSTALLED WITHIN A CAST METAL BOX, AND WITHIN 25' OF ALL REQUIRED EQUIPMENT.
- DATA/TELECOM NOTES:

33.

THE ELECTRICAL CONTRACTOR SHALL PROVIDE ROUGH-IN ONLY FOR THE TELECOM/CAVITY SYSTEMS. THIS SHALL CONSIST OF A FOUR SQUARE DEVICE MOUNTING BOX WITH CONDUIT TO ABOVE ACCESSIBLE CEILING SPACE OR TO THE CEILING SPACE ABOVE IF OPEN. CABLING, JACKS, FACEPLATES, TESTING AND TERMINATIONS SHALL BE PROVIDED AND INSTALLED BY OTHERS.
- ROOF NOTES:

34.

ELECTRICAL CONTRACTOR TO INSTALL A ROOF JACK (BOOT) FOR ALL CONDUIT PENETRATIONS THROUGH THE ROOF. THE JACK SHALL BE INSTALLED AND THE ROOF SHALL BE COMPLETELY SEALED WITH ROOF ADHESIVE. UTILIZE PROPER CLAMPING METHODS TO SEAL BOOT AROUND CONDUIT.

ELECTRICAL SYMBOL SCHEDULE

SYMBOL	DESCRIPTION	MOUNTING	NOTES
	LIGHT FIXTURE - SURFACE OR RECESSED	SEE DRAWINGS	1
	EMERGENCY LIGHT FIXTURE - SURFACE OR RECESSED	SEE DRAWINGS	1, 2
	LIGHT FIXTURE - OPEN STRIP	SEE DRAWINGS	1
	EMERGENCY LIGHT FIXTURE - OPEN STRIP	SEE DRAWINGS	1, 2
	LIGHT FIXTURE - WALL MOUNTED	WALL	1
	EMERGENCY LIGHT FIXTURE - WALL MOUNTED	WALL	1, 2
	LIGHT FIXTURE - DOWNLIGHT	CEILING	1
	EMERGENCY LIGHT FIXTURE - DOWNLIGHT	CEILING	1, 2
	LIGHT FIXTURE - WALL WASH DOWNLIGHT	CEILING	1
	LIGHT FIXTURE - PENDANT/CHANDELER	CEILING	1
	LIGHT FIXTURE - WALL BRACKET	WALL	1
	EMERGENCY LIGHT FIXTURE - WALL BRACKET	WALL	1, 2
	LIGHT TRACK WITH FIXTURES	SURFACE	1
	EXIT FIXTURE - WALL MOUNT	WALL	1, 2, 3
	EXIT FIXTURE - CEILING MOUNT	CEILING	1, 2, 3
	EXIT FIXTURE W/ EMERGENCY HEADS - CEILING MOUNT	WALL	1, 2, 3
	DUAL HEAD EMERGENCY LIGHT FIXTURE	WALL	1, 2
	AREA LIGHT FIXTURE - POLE MOUNTED	POLE	1
	OCCUPANCY SENSOR - CEILING MOUNT	CEILING	1
	PHOTO-ELECTRIC CELL WITH RELAY	SURFACE	1
	LIGHTING RELAY POWER PACK	SURFACE	1
	TIME CLOCK - 7 DAY	5'-0"	
	SINGLE POLE SWITCH	4'-0"	
	DOUBLE POLE SWITCH	4'-0"	
	THREE WAY SWITCH	4'-0"	
	FOUR WAY SWITCH	4'-0"	
	DIMMER SWITCH	4'-0"	
	LOW VOLTAGE SWITCH	4'-0"	
	THERMAL OVERLOAD SWITCH	4'-0" UNO	
	PILOT LIGHT SWITCH	4'-0"	
	DUPLEX OUTLET 20A, 120VAC	1'-6" UNO	
	DUPLEX OUTLET 20A, 120VAC - GFCI	4'-0" UNO	
	DUPLEX OUTLET - SPLIT WIRED	4'-0" UNO	
	DUPLEX OUTLET - ISOLATED GROUND	4'-0" UNO	
	DUPLEX OUTLET WITH USB PORTS	4'-0" UNO	
	DUPLEX OUTLET - OCCUPANCY SENSOR CONTROLLED	4'-0" UNO	
	DUPLEX OUTLET 20A, 120VAC - CEILING	CEILING	
	DUPLEX OUTLET 20A, 120VAC - FLOOR	FLOOR	
	FOURPLEX OUTLET 20A, 120VAC	4'-0" UNO	
	FOURPLEX OUTLET 20A, 120VAC - GFCI	4'-0" UNO	
	FOURPLEX OUTLET - ISOLATED GROUND	4'-0" UNO	
	FOURPLEX OUTLET 20A, 120VAC - CEILING	CEILING	
	FOURPLEX OUTLET 20A, 120VAC - FLOOR	FLOOR	
	APPLIANCE OUTLET - 208/240V SINGLE PHASE	18" OR 48"	
	APPLIANCE OUTLET - 208/480V 3-PHASE	18" OR 48"	
	DATA OUTLET	4'-0" UNO	
	DUAL TELEPHONE/DATA OUTLET	4'-0" UNO	
	DATA OUTLET - FLOOR	FLOOR	
	DUAL TELEPHONE/DATA OUTLET - FLOOR	FLOOR	
	CEILING DATA OUTLET/WIRELESS ACCESS POINT	CEILING	
	CABLE TELEVISION OUTLET	4'-0" UNO	

Ø	JUNCTION BOX	SURFACE
	WALL JUNCTION BOX	1'-6" UNO
	FLOOR JUNCTION BOX	FLOOR
	DISCONNECT SWITCH - NON-FUSED	5'-0" UNO
	DISCONNECT SWITCH - FUSED	5'-0" UNO
	DISCONNECT SWITCH - SHUNT TRIP	5'-0" UNO
	COMBINATION MAGNETIC STARTER/DISCONNECT	5'-0" UNO
	MOTOR STARTER	5'-0" UNO
	MOTOR	5'-0" UNO
	METER - PLAN VIEW	WALL
	PUSH BUTTON SWITCH	4'-0"
	EMERGENCY POWER SHUTOFF SWITCH	4'-0"
	PANELBOARD - SURFACE MOUNTED	6'-6" TO TOP
	PANELBOARD - RECESSED	6'-6" TO TOP
	TRANSFORMER - PLAN VIEW	PAD/FLOOR
	TELEPHONE TERMINAL BOARD	WALL
	KEYED NOTE TAG	
	MECHANICAL/ELECTRICAL EQUIPMENT TAG	
	OTHER EQUIPMENT TAG	
	WIRING / CONDUIT	UNDERGROUND/FLOOR WIRING
	CONDUIT TURNED UP	CONDUIT TURNED DOWN
	CIRCUIT HOME RUN TO PANEL. # OF ARROWHEADS INDICATE # OF CIRCUITS (SEPARATE NEUTRAL PER CIRCUIT). BOTH EX. INCLUDE AN EQUIP. GROUND.	
	NOTES	
	SEE LIGHTING FIXTURE SCHEDULE FOR TYPE, MOUNTING, AND OTHER SPECIFICS.	
	LIGHTING BRANCH CIRCUIT	
	ARROW DENOTES EXIT DIRECTION	
	USE HEAVY DUTY FOR 480 VOLT.	
	MOUNT SWITCH AT DOOR JAM PER MANUFACTURER'S INSTRUCTIONS.	
	PROVIDE UL LISTED DEVICE TO BE USED WITH THE FIRE ALARM PANEL/SYSTEM OR FIRE ALARM CONTROL UNIT.	
	PROVIDE RACEWAY WITH OUTLETS 12' ON CENTER UNO.	
	ABBREVIATIONS	
	AFCI - ARC FAULT CKT INTERRUPTER	MCB - MAIN CIRCUIT BREAKER
	AFF - ABOVE FINISHED FLOOR	MCC - MOTOR CONTROL CENTER
	AGF - ABOVE FINISHED GRADE	MDF - MAIN DISTRIBUTION PANEL
	AL - ALUMINUM	NI - NEW
	ATS - AUTOMATIC TRANSFER SWITCH	NIC - NOT IN CONTRACT
	BFC - BARE COPPER	NEC - NATIONAL ELECTRICAL CODE
	BFG - BELOW FINISHED GRADE	NFA - NATIONAL FIRE PROT. ASSN.
	BGL - BELOW GROUND LEVEL	NL - NIGHT LIGHT
	CAG - CONDUIT AS SHOWN	NLS - NOT LISTED SCHEDULE
	CLG - CONDUIT INSTALLED IN CEILING	NTS - NOT TO SCALE
	C.R. - CORD REEL	PC - PLUMBING CONTRACTOR
	CT - CURRENT TRANSDUCER	PNL - PANEL
	CU - COPPER	POS - POINT OF SALE
	E1 - EXISTING TO REMAIN	RF - RECEPTACLES
	EM - EMERGENCY	RMC - RIGID METAL CONDUIT
	F - FUTURE	SCA - SHORT CIRCUIT AMPERES
	FACP - FIRE ALARM CONTROL PANEL	SES - SERVICE ENTRANCE SWITCHGEAR
	FLA - FULL LOAD AMPS	SPD - SURGE PROTECTIVE DEVICE
	FVR - FULL VOLTAGE NON-REVERSING	TIB - TELEPHONE TERMINAL BOARD
	GFI - GROUND FAULT INT. INTERRUPTER	TR - TRANSFORMER
	GND - GROUND	UNO - UNLESS NOTED OTHERWISE
	IG - ISOLATED GROUND	VA - VOLT/AMPS
	LCP - LIGHTING CONTROL PANEL	VF - VERIFY IN FIELD
	LTG - LIGHTING	VR - VANDAL RESISTANT
	LUL - LOW VOLTAGE LIGHTING	W - WITH
	MC - MECHANICAL CONTRACTOR	WU - WITH UNIT
	MCA - MINIMUM CIRCUIT AMPS	XTMR - TRANSFORMER

ELECTRICAL SHEET INDEX		
E0.1	ELECTRICAL GENERAL SHEET	
E1.1	LIGHTING PLAN	
E2.1	POWER PLAN	