

# GENERAL NOTES

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) & THE AMERICANS WITH DISABILITIES ACT (ADA).
- REFER TO RELATED ARCHITECTURAL, MECHANICAL, STRUCTURAL, AND CIVIL DRAWINGS FOR RELATED INFORMATION.
- REFER TO THE SPECIFICATIONS FOR DATA NOT ON THE DRAWINGS.
- E.C. SHALL REFER TO MECHANICAL DRAWINGS AND SPECIFICATIONS FOR THE REQUIREMENTS ASSOCIATED WITH WIRING AND CONNECTION OF INTERLOCKING AND CONTROLS OF MECHANICAL UNITS AND THERMOSTAT LOCATIONS.
- COORDINATE OUTLET BOX LOCATIONS WITH MASONRY TO MINIMIZE CUTTING OF BRICK OR BLOCK.
- ALL MOUNTING HEIGHTS TO CENTERLINE OF ITEM UNLESS OTHERWISE NOTED. VERIFY ALL OUTLET LOCATIONS ON THE JOB PRIOR TO ROUGH-IN.
- CONDUIT RUN W/CONDUCTORS AS INDICATED & GROUND WIRE SIZED PER N.E.C. 250.122. CONDUIT SIZE AS REQUIRED.
- WHEN INCREASED CONDUCTOR SIZES ARE SHOWN ON THE PLANS, THE LARGER CONDUCTOR SIZE SHALL BE USED THROUGHOUT THE LENGTH OF THE CIRCUIT, INCLUDING NEUTRAL AND GROUND.
- "CT" INDICATED ADJACENT TO DEVICE INDICATES DEVICE MOUNTED ABOVE BACKSPLASH OF COUNTER TOP. VERIFY EXACT HEIGHT WITH ARCHITECTURAL PLANS AND ELEVATIONS.
- BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.
- JUNCTION BOX OR RECEPTACLE FOR DRINKING FOUNTAINS SHALL BE LOCATED BEHIND THE EQUIPMENT SKIRT UNLESS OTHERWISE NOTED. COORDINATE CONNECTION TYPE AND LOCATION WITH EQUIPMENT PROVIDED.
- LABEL THE FRONT OF EACH RECEPTACLE COVERPLATE WITH PANEL DESIGNATION AND CIRCUIT NUMBER USING CLEAR THERMAL TRANSFER (ELECTRONIC DYMO) LABELS WITH 1/8" HIGH BLACK LETTERS (OR CONTRASTING COLOR IF COVERPLATES ARE BLACK OR BROWN). LABELS SHALL BE SUITABLE FOR INDOOR/OUTDOOR USE. LABEL THE BACK OF EACH LIGHT SWITCH COVERPLATE WITH PANEL DESIGNATION AND CIRCUIT NUMBER USING A FINE BLACK PERMANENT MARKER.
- PROVIDE 18" LONG (MIN.) CONDUIT SLEEVES THRU ALL WALLS WHERE CABLES ARE INDICATED OR REQUIRED TO PASS THRU WALLS. PROVIDE BUSHINGS ON BOTH ENDS. SIZE CONDUIT FOR CABLES INSTALLED. AT CABLE TRAYS, PROVIDE ONE 4" CONDUIT SLEEVE FOR EACH 4" WIDTH OF CABLE TRAY. MAXIMUMS SHALL BE:  
1" C. = 10 CABLES  
2 1/2" C. = 20 CABLES  
3" C. = 30 CABLES  
4" C. = 50 CABLES
- PROVIDE DIMMER PER THE SPECIFICATIONS. COORDINATE DIMMER TYPE AND WIRING WITH ASSOCIATED LIGHT FIXTURE DIMMING REQUIREMENTS (I.E. 3-WIRE, 0-10V, ELECTRONIC OR MAGNETIC LOW VOLTAGE, ETC.) OR WITH LIGHTING CONTROL SYSTEM PROPRIETARY REQUIREMENTS (I.E. LUTRON, nLIGHT, DALI, ETC.) AS NECESSARY. 3-WIRE DIMMERS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL FOR EACH CONTROL ZONE. 0-10V DIMMERS SHALL BE PROVIDED WITH DIM ON/OFF CONTROL. COORDINATE PHASE CONTROL OF LED DRIVERS (I.E. REVERSE PHASE, FORWARD PHASE, ETC.) WITH LIGHT FIXTURE MANUFACTURER'S RECOMMENDATIONS. LOW VOLTAGE CONTROL WIRING IS NOT SHOWN ON PLANS FOR CLARITY, BUT SHALL BE PROVIDED AS REQUIRED.

## COMMUNICATION / DATA

- EACH DATA, TELEPHONE, VIDEO, OR OTHER SYSTEMS OUTLET REQUIRES 1" C. WITH PULL ROPE STUBBED 6" ABOVE NEAREST ACCESSIBLE CEILING UNLESS OTHERWISE NOTED ON PLANS. CONDUITS STUBBED UP ABOVE CEILINGS SHALL BE TURNED OUT 90 DEGREES. PROVIDE INSULATED BUSHINGS ON ALL CONDUITS. LABEL CONDUIT TO IDENTIFY ITS INTENDED USE (I.E. TELEPHONE, DATA, ETC.).
- RUN CABLES CONTINUOUS FROM JACK TO ASSOCIATED SYSTEM PATCH PANEL IN CONDUIT, CABLE TRAY, OR J-HOOKS PER THE PLANS AND SPECIFICATIONS. NUMBER BESIDE CABLE SYMBOL INDICATES QUANTITY OF CABLES REQUIRED PER HOME RUN.
- PROVIDE QUANTITY AND TYPE OF JACKS PER THE DRAWINGS, SPECIFICATIONS AND DETAILS. PROVIDE JACK AND CABLE LABELING PER THE SPECIFICATIONS.

## FIRE ALARM

- THE FIRE ALARM SYSTEM SHOWN HAS BEEN DESIGNED PER THE REQUIREMENTS OF NFPA 72, 2013 EDITION. DEVICES SHOWN INDICATE DESIGN INTENT AND SHALL BE THE MINIMUM PROVIDED. SYSTEM SUPPLIER SHALL PROVIDE ANY ADDITIONAL CODE REQUIRED DEVICES OR DEVICES REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
- FIELD VERIFY LOCATIONS OF AREA SMOKE DETECTORS AND HEAT DETECTORS. DO NOT LOCATE WITHIN 36" OF A HVAC DIFFUSER (SUPPLY OR RETURN), IN A DIRECT AIR FLOW, WITHIN 36" OF A SPRINKLER HEAD, OR WITHIN 36" OF THE TIP OF A CEILING FAN BLADE. SMOKE DETECTORS FOR DOOR RELEASE SHALL BE LOCATED ON THE CENTER LINE OF THE DOOR AND A MAXIMUM OF 5 FEET FROM THE DOOR. THE MINIMUM DISTANCE FROM THE DOOR IS THE DEPTH OF THE WALL SECTION ABOVE THE DOOR, BUT NOT LESS THAN 12".
- FAN SHUTDOWN RELAY WIRING SHALL BE LOCATED WITHIN 3 FEET OF THE FAN CONTROLS AND THE WIRING TO THE RELAY SHALL BE MONITORED.
- LABEL REMOTE ALARM INDICATOR FOR DUCT MOUNTED SMOKE DETECTORS (I.E. RTU=1 SUPPLY, RTU-2 RETURN, FIRE/SMOKE DAMPER, ETC.). DUCT DETECTORS SHOULD BE LOCATED IN THE AREA BETWEEN 6 AND 10 DUCT EQUIVALENT DIAMETERS OF STRAIGHT, UNINTERRUPTED DUCTWORK. DUCT DETECTORS FOR FIRE/SMOKE DAMPERS SHOULD BE LOCATED BETWEEN THE LAST INLET OR OUTLET UPSTREAM OF THE DAMPER AND THE FIRST INLET OR OUTLET DOWNSTREAM OF THE DAMPER.
- PROVIDE 120V POWER AND FUSTAT FOR EACH FIRE/SMOKE DAMPER. INTERLOCK WITH FIRE ALARM CONTROL PANEL TO CLOSE THE FIRE/SMOKE DAMPER UPON ANY ALARM AT THE FIRE ALARM CONTROL PANEL AND TO SHUTDOWN THE ASSOCIATED MECHANICAL UNIT.

# SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
<b>POWER</b>					
	SINGLE GROUNDED RECEPTACLE	18" AFF		BRANCH CIRCUIT PANEL AND PANEL DESIGNATION	72" TO TOP
	DUPLEX GROUNDED RECEPTACLE	18" AFF		ELECTRICAL DISTRIBUTION EQUIP	
	DUPLEX GROUNDED RECEPTACLE	CEILING		EQUIPMENT - SEE EQUIPMENT CONNECTION SCHEDULE	
	DOUBLE DUPLEX GROUNDED REC	18" AFF		CONDUIT SLEEVE (GEN NOTE 13)	
	GROUND FAULT DUPLEX REC	18" AFF		CABLE TRAY (GEN NOTE 14)	
	GRD FAULT DOUBLE DUPLEX REC	18" AFF		MOTOR	
	DUPLEX GRD REC BOTTOM SWITCHD	18" AFF		DISCONNECT SWITCH	
	TAMPER-PROOF DUPLEX REC	18" AFF		MANUAL STARTER	
	TAMPER-PROOF GFCI DUPLEX REC	18" AFF		CIRCUIT BREAKER	
	SPECIAL OUTLET (SEE SCHEDULE OR AS NOTED)	FLOOR/WALL		STARTER OR ATS (AS NOTED)	
	SPECIAL DEVICE (AS NOTED)			COMBINATION STARTER/DISC	
	FEEDER DESIGNATION			RELAY	
	JUNCTION BOX - 1-GANG			PUSHBUTTON (1-BUTTON, 2-BUTTON)	46" AFF
	JUNCTION BOX - 2-GANG			BOX MOUNTED TRANSFORMER	
	FUSTAT BUSS #SSY			CONTACTOR	
	THERMOSTAT/TEMP SENSOR	46" AFF		METER	
	PLUG LOAD SENSOR	CEILING		PLUGMOLD SURFACE RACEWAY	WALL
	HANDICAP DOOR PUSHBUTTON	36" AFF		BUSDUCT PLUG	
<b>COMMUNICATION / DATA</b>					
	1-DATA OUTLET & JACK (GEN NOTES T1 & T3)	18" AFF		2-DATA OUTLETS & JACKS (GEN NOTES T1 & T3)	18" AFF
	1-VOICE OUTLET & JACK (GEN NOTES T1 & T3)	18" AFF		3-DATA OUTLETS & JACKS (GEN NOTES T1 & T3)	18" AFF
	1-VOICE/1-DATA OUTLET & JACKS (GEN NOTES T1 & T3)	18" AFF		4-DATA OUTLETS & JACKS (GEN NOTES T1 & T3)	18" AFF
	1-VOICE/2-DATA OUTLETS & JACKS (GEN NOTES T1 & T3)	18" AFF		2-VOICE/2-DATA OUTLETS & JACKS (GEN NOTES T1 & T3)	18" AFF
	CABLE TV OR VIDEO OUTLET & CONNECTOR (GEN NOTES T1 & T3)	18" AFF		1-VOICE/3-DATA OUTLETS & JACKS (GEN NOTES T1 & T3)	18" AFF
	VOICE UTP CABLE HOME RUN	GEN NOTE T2		### = TERMINATION ROOM	SEE HOR. CABLE SCHEDULE
	DATA UTP CABLE HOME RUN	GEN NOTE T2		XX = CABLE CONFIGURATION	
	VIDEO COAX CABLE HOME RUN	GEN NOTE T2		FIBER OPTIC CABLE HOME RUN (SINGLE MODE)	GEN NOTE T2
	FIBER OPTIC CABLE HOME RUN (MULTI MODE)	GEN NOTE T2			
<b>FIRE ALARM</b>					
	FIRE ALARM CONTROL PANEL	WALL		FIRE ALARM REMOTE ANNUNCIATOR	WALL
	FIRE ALARM MANUAL STATION	46" AFF		FIRE ALARM SPEAKER	WALL
	FIRE ALARM HORN	BOTTOM 80"		COMB FA SPEAKER & VISUAL SIGNAL	BOTTOM 80"
	FIRE ALARM VISUAL SIGNAL	BOTTOM 80"		COMB FA HORN & VISUAL SIGNAL	CEILING
	COMB. F.A. HORN & VISUAL SIGNAL	BOTTOM 80"		FIRE ALARM VISUAL SIGNAL	CEILING
	CHIME	WALL		FIRE ALARM CONTROL MODULE	
	FIRE SPRINKLER ALARM BELL	WALL		FIRE ALARM MONITOR MODULE	
	F.A. RELAY (GEN NOTE F3)			FIRE SPRINKLER PRESSURE SWITCH	
	IONIZATION AREA SMOKE DETECTOR (GEN NOTE F2)			FIRE ALARM SPEAKER	CEILING
	PHOTO ELECTRIC AREA SMOKE DETECTOR (GEN NOTE F2)			FIRE ALARM SPEAKER	WALL
	DUCT SMOKE DETECTOR (GEN NOTE F4)	DUCTWORK		HEAT DETECTOR (GEN NOTE F2)	
	DUCT SMOKE DETECTOR & FIRE/SMOKE DAMPER (GEN NOTES F4 & F5)	DUCTWORK		FIRE SPRINKLER TAMPER SWITCH	SPRKL RSR
				FIRE SPRINKLER WATER FLOW SW	SPRKL RSR
				ELECTROMAGNETIC DOOR HOLDER	WALL
<b>PEN WEIGHT LEGEND</b>					
ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN DARK SOLID LINES ARE NEW TO BE INSTALLED			ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN DARK DASHED LINES ARE EXISTING TO BE REMOVED		
	NEW DUPLEX GROUNDED RECEPTACLE			DUPLEX GROUNDED REC TO BE REMOVED	
	NEW LIGHT FIXTURE			LIGHT FIXTURE TO BE REMOVED	
ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN LIGHT SOLID LINES ARE EXISTING TO REMAIN			ALL DEVICES, LIGHT FIXTURES, ETC., DRAWN IN LIGHT DASHED LINES ARE EXISTING TO BE RELOCATED		
	EXISTING DUPLEX GROUNDED REC TO REMAIN			DUPLEX GROUNDED REC TO BE RELOCATED	
	EXISTING LIGHT FIXTURE TO REMAIN			LIGHT FIXTURE TO BE RELOCATED	
<b>--- SYMBOL LIST IS FOR REFERENCE ONLY. ALL SYMBOLS MAY NOT BE USED ON THIS PROJECT. ---</b>					

# SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING	SYMBOL	DESCRIPTION	MOUNTING
<b>ABBREVIATIONS</b>					
NL	NIGHT LIGHT - WIRE AHEAD OF CONTROLS		AF	ABOVE FINISHED FLOOR	
EM	ON EMERGENCY POWER		AFG	ABOVE FINISHED GRADE	
WP	WEATHERPROOF		DF	DRINKING FOUNTAIN - SEE GENERAL NOTE 11	
CT	COUNTERTOP (SEE GEN. NOTE 9)				
UON	UNLESS OTHERWISE NOTED				
W	WALL				
<b>CONDUIT AND WIRING</b>					
	EMERGENCY CIRCUIT	CLG/WALL		CONDUIT HOME RUN, 1 CIRCUIT. 2#12 & 1#12 GRD. - 1/2" C.	CLG/WALL
	MASTER/SLAVE FIXTURE WHIP	CEILING		CONDUIT HOME RUN, 2 CIRCUITS. 4#12 & 1#12 GRD. - 1/2" C.	CLG/WALL
	LOW VOLTAGE WIRING	CLG/WALL		CONDUIT HOME RUN, 3 CIRCUITS. 6#12 & 1#12 GRD. - 1/2" C.	CLG/WALL
	CDT RUN 2#12 & 1#12 GRD. - 1/2" C. OR CDT RUN AS NOTED ON PLAN	CLG/WALL		CONDUIT HOME RUN, 2 CIRCUITS. 2#10 & 1#10 GRD.	CLG/WALL
	CDT RUN 2#12 & 1#12 GRD. - 3/4" C. OR CDT RUN AS NOTED ON PLAN	EARTH/ FLOOR		PHASE CONDUCTORS/ NEUTRAL CONDUCTOR (#12 UON) SWITCH LEGS (#12 UON) GROUND CONDUCTOR (#12 UON)	
	CONDUIT SEAL OFF				
<b>LIGHTING, SWITCHES AND SENSORS</b>					
	LIGHT FIXTURE & FIXTURE LETTER	CEILING		SWITCHES (1-POLE, 2-POLE, 3-WAY, 4-WAY)	46" AFF
	STRIP LIGHT FIXTURE & FIXT LETTER	CEILING		SWITCHES (KEYED, PILOT, TIMER)	46" AFF
	LIGHT FIXTURE & FIXTURE LETTER	CEILING		INDICATES SWITCHING SCHEME	
	LIGHT FIXTURE & FIXTURE LETTER	WALL		LOW VOLTAGE SWITCH	46" AFF
	EXIT SIGN (SHADING DENOTES EXIT FACE SIDE)	CEIL/WALL		ON/OFF SWITCH	46" AFF
	LIGHT FIXTURE & FIXTURE LETTER	WALL		ON/OFF/0-10V DIMMING SWITCH	46" AFF
	FIXTURE WITH SHADED LAMP(S) ON EMERGENCY POWER	CEILING		DUAL TECH ON/OFF SENSOR	46" AFF
	EMERGENCY BATTERY LIGHT FIXT	CEIL/WALL		16-SCENE WALL CONTROLLER	46" AFF
	COMB EXIT SIGN/EM BATTERY LIGHT	WALL		DUAL TECH ON/OFF/0-10V DIM SW	46" AFF
	LIGHT FIXTURE & FIXTURE LETTER	POLE		PIR SENSOR	CLG/WALL
	1 RELAY PIR SENSOR	46" AFF		DUAL TECHNOLOGY SENSOR	CLG/WALL
	2 RELAY PIR SENSOR	46" AFF		SWITCHING POWER PACK	
	1 RELAY DUAL TECH SENSOR	46" AFF		UL924 SWITCHING POWER PACK	
	2 RELAY DUAL TECH SENSOR	46" AFF		DIMMING POWER PACK	
	DIMMER (SEE GENERAL NOTE 14)	46" AFF		UL924 DIMMING POWER PACK	
	PHOTOCCELL			AV SYSTEM/LIGHTING INTERFACE	
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# ELECTRICAL SHEET INDEX

SHEET NO.	SHEET TITLE
E0.1	ELECTRICAL LEAD SHEET
E0.2	ELECTRICAL ONE-LINE DIAGRAM AND SCHEDULES
E0.3	LIGHT FIXTURE SCHEDULE
E1.1	ELECTRICAL DETAILS
E1.2	ELECTRICAL DETAILS
E3.1	ELECTRICAL SITE PLAN
E4.1	ELECTRICAL POWER PLANS
E4.2	ELECTRICAL POWER ROOF PLAN
E5.1	ELECTRICAL LIGHTING PLANS

# SPECIAL OUTLETS

MARK	DESCRIPTION
P	PROJECTOR: CEILING MOUNTED RECEPTACLE AND DATA FOR CONNECTION TO PROJECTOR. VERIFY LOCATION PRIOR TO INSTALLATION.
R	RANGE OUTLET: 50A, 125/250V, 3P, 4W SINGLE GROUNDED RECEPTACLE (NEMA 14-50R) WITH MATCHING STAINLESS STEEL COVERPLATE. VERIFY RANGE PLUG CONFIGURATION TO MATCH RECEPTACLE. RECEPTACLE TO BE MOUNTED SUCH THAT IT IS ACCESSIBLE VIA REMOVAL OF RANGE DRAWER, IF POSSIBLE.