

ELECTRICAL ABBREVIATIONS

#		DPDT	DOUBLE POLE, DOUBLE THROW		
1P	SINGLE POLE	DPST	DOUBLE POLE, SINGLE THROW		
1PH	SINGLE PHASE	DRSW	DOOR SWITCH		
2/C	TWO-CONDUCTOR	DS	DISCONNECT SWITCH		
3/C	THREE-CONDUCTOR	DWG	DRAWING		
3PH	THREE PHASE				
4/C	FOUR-CONDUCTOR	E			
4W	FOUR WIRE	EL	ELEVATION		
		ELEC	ELECTRIC OR ELECTRICAL		
		ELEV	ELEVATOR		
A		EMCP	EMERGENCY MONITORING CONTROL PANEL		
A/C UNIT	AIR CONDITIONING UNIT	EMER	EMERGENCY		
A/E	ARCHITECT / ENGINEER	EMI	ELECTROMAGNETIC INTERFERENCE		
AAP	ALARM ANNUNCIATOR PANEL	EMT	ELECTRICAL METALLIC TUBING		
AC	ALTERNATING CURRENT OR ARMORED CABLE	ENCL	ENCLOSURE		
ACC	ACCESSIBLE	EPO	EMERGENCY POWER OFF		
ADDL	ADDITIONAL	EPRF	EXPLOSION PROOF		
ADJ	ADJACENT OR ADJOINING	ESMT	EASEMENT		
ADO	AUTOMATIC DOOR OPENER	EWC	ELECTRIC WATER COOLER		
AF	AMPERE FRAME OR AMP FUSE	EWH	ELECTRIC WATER HEATER		
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT	EXST	EXISTING		
		EC	ELECTRICAL		
AFF	ABOVE FINISHED FLOOR	F	CONTRACTOR		
AFG	ABOVE FINISHED GRADE	FA	FIRE ALARM		
AH	AMPERE-HOUR	FAAP	FIRE ALARM ANNUNCIATOR PANEL		
AHJ	AUTHORITY HAVING JURISDICTION	FABL	FIRE ALARM BELL		
AIC	AMPERE INTERRUPTING CAPACITY	FABX	FIRE ALARM BOX		
ALT	ALTERNATE	FACP	FIRE ALARM CONTROL PANEL		
AMB OR A	AMBIENT	FC	FOOTCANDLE		
AMP	AMPERE	FIXT	FIXTURE		
ARCH	ARCHITECT	FLA	FULL LOAD AMPS		
ASC	AMPS SHORT CIRCUIT	FLEX	FLEXIBLE METALLIC CONDUIT		
AT	AMPERE TRIP	FLT	FLOODLIGHT		
ATS	AUTOMATIC TRANSFER SWITCH	FLUOR	FLUORESCENT		
AUTO	AUTOMATIC	FLUOR FIXT	FLUORESCENT Fixture		
AV	AUDIO VISUAL	FOUTT	TELEPHONE FLOOR OUTLET		
		FP	FIRE PROTECTION		
		FT	FEET OR FOOT		
B		FU SW	FUSED SWITCH		
BAT	BATTERY	FVNR	FULL VOLTAGE NON-REVERSING		
BC	BARE COPPER	FVR	FULL VOLTAGE REVERSING		
BD	BOARD				
BFF	BELOW FINISHED FLOOR	G			
BIL	BASIC INSULATION LEVEL	G OR GND	ELECTRICAL GROUND		
BLDG	BUILDING	GC	GENERAL CONTRACTOR		
BPIP	BOILER PLANT INSTRUMENTATION PANEL	GEN	GENERATOR		
BRKR	BREAKER	GFCI	GROUND FAULT CIRCUIT INTERRUPTER		
BYP	BYPASS	GTB	GROUND TERMINAL BOX		
		H			
C		HID	HIGH INTENSITY DISCHARGE		
C	CONDUIT	HOA	HAND-OFF-AUTOMATIC		
CAB	CABINET	HP	HORSEPOWER		
CALC	CALCULATE	HT	HEIGHT		
CAP	CAPACITY	HZ	HERTZ		
CAT	CATALOG				
CATV	COMMUNITY ANTENNA TELEVISION	I			
CCR	CONTROL CONTACTOR	IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA		
CCTV	CLOSED CIRCUIT TELEVISION	IMC	INTERMEDIATE METAL CONDUIT		
CD	CANDELA OR CONSTRUCTION DOCUMENTS	INCAND	INCANDESCENT		
CF	CONTRACTOR FURNISHED	IR	INFRARED		
CF/CI	CONTRACTOR FURNISHED / CONTRACTOR INSTALLED	IWH	INSTANTANEOUS WATER HEATER		
CF/OI	CONTRACTOR FURNISHED / OWNER INSTALLED	J			
CFE	CONTRACTOR FURNISHED EQUIPMENT	J-BOX	JUNCTION BOX		
CHW	CHILLED WATER	K			
CHWP	CHILLED WATER PUMP	KV	KILOVOLT		
CKT	CIRCUIT	KVA	KILOVOLT-AMPERE		
CKT BRKR	CIRCUIT BREAKER	KVAH	KILOVOLT-AMPERE PER HOUR		
CLF	CURRENT LIMITING FUSE	KVAR	KILOVOLT-AMPERE REACTIVE		
CLG	CEILING	KW	KILOWATT		
CMU	CONCRETE MASONRY UNIT	KWH	KILOWATT HOUR		
CO	CONTRACTING OFFICER	KWHM	KILOWATT HOUR METER		
COAX	COAX CABLE				
COMM	COMMUNICATION	L			
COMPT	COMPARTMENT	LED	LIGHT EMITTING DIODE		
CONC	CONCRETE	LF	LINEAR FEET (FOOT)		
CONT	CONTINUE	LM	LUMEN		
CONTR	CONTRACTOR	LP	LIGHT POLE		
COORD	COORDINATE	LPS	LOW PRESSURE SODIUM		
COR	CONTRACTING OFFICER'S REPRESENTATIVE	LRA	LOCKED ROTOR AMPS		
CPT	CONTROL POWER TRANSFORMER	LT	LIGHT		
CRI	COLOR RENDERING INDEX	LTG	LIGHTING		
CT	CURRENT TRANSFORMER	LTG PNL	LIGHTING PANEL		
CTV	CABLE TELEVISION	LTNG	LIGHTNING		
CU	COPPER	LV	LOW VOLTAGE		
CU FT	CUBIC FEET				
CUR	CURRENT	M			
		MATV	MASTER ANTENNA TELEVISION SYSTEM		
D		MAX	MAXIMUM		
DB	DECIBEL	MC	METAL-CLAD		
DC	DIRECT CURRENT	MCA	MINIMUM CIRCUIT AMPS		
DCP	DIMMER CONTROL PANEL	MCB	MAIN CIRCUIT BREAKER		
DEG C	DEGREES CELSIUS	MCC	MOTOR CONTROL CENTER		
DEG F	DEGREES FAHRENHEIT	MDP	MAIN DISTRIBUTION PANEL		
DEMO	DEMOLITION	MECH	MECHANICAL		
DIAG	DIAGRAM	MG	MOTOR GENERATOR		
DISC	DISCONNECT	MH	MANHOLE		
DISTR	DISTRIBUTION				
DISTR PNL	DISTRIBUTION PANEL				
DMR SW	DIMMER SWITCH				
DN	DOWN				

MLO	MINIMUM		
MOC	MAIN LUGS ONLY		
MT	MAXIMUM OVERCURRENT PROTECTION		
MTD	MOUNT		
MTG	MOUNTED		
MTS	MOUNTING		
MV	MANUAL TRANSFER SWITCH		
MVA	MEDIUM VOLTAGE		
MW	MEGAVOLT-AMPERE		
	MEGAWATT		
N			
NA	NOT APPLICABLE		
NC	NORMALLY CLOSED		
NEC	NATIONAL ELECTRIC CODE		
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION		
NEUT OR N	NEUTRAL		
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION		
NIC	NOT IN CONTRACT		
NL	NIGHT LIGHT		
NO	NORMALLY OPEN		
NS	NO SCALE		
NTS	NOT TO SCALE		
O			
OC	ON CENTER		
OD	OUTSIDE DIAMETER		
OL	OVERLOAD		
P			
P	POLE		
PA	PUBLIC ADDRESS		
PB	PULL BOX OR PANEL BOARD		
PBP	PREFABRICATED BEDSIDE PATIENT UNIT		
PCB	POLYCHLORINATED BIPHENYL		
PEC	PHOTOELECTRIC CELL		
PED	PEDESTAL		
PEND	PENDANT		
PF	POWER FACTOR		
PH	PHASE		
PNL	PANEL		
PT	POTENTIAL TRANSFORMER		
PVC	POLYVINYL CHLORIDE (PLASTIC)		
PWR	POWER		
R			
RCP	REFLECTED CEILING PLAN		
REC	RECESSED		
RECPT	RECEPTACLE		
REQ	REQUIRED		
RGS	RIGID GALVANIZED STEEL		
RM	ROOM		
RMS	ROOT MEAN SQUARE		
S			
SCC	SHORT CIRCUIT CAPACITY		
SD	SMOKE DETECTOR		
SES	SERVICE ENTRANCE SECTION		
SF	SQUARE FOOT (FEET)		
SHT	SHEET		
SI	INTERNATIONAL SYSTEM OF UNITS		
SPEC	SPECIFICATION		
SPST	SINGLE POLE, SINGLE THROW		
SURF	SURFACE		
SW	SWITCH		
SWBD	SWITCHBOARD		
SWGR	SWITCHGEAR		
SC	SECURITY CONTRACTOR		
T			
TEL	TELEPHONE		
TP	TWISTED PAIR		
TPS	TWISTED PAIR SHIELDED		
TTB	TELEPHONE TERMINAL BOARD		
TV	TELEVISION		
TYP	TYPICAL		
U			
UFD	UNDERFLOOR DUCT		
UGND	UNDERGROUND		
UL	UNDERWRITERS LABORATORY		
UON	UNLESS OTHERWISE NOTED		
UPS	UNINTERRUPTIBLE POWER SUPPLY		
UTIL	UTILITY		
V			
V	VOLT		
VA	VOLT-AMPERE		
VAR	VOLT-AMPERE REACTIVE		
VFD	VARIABLE FREQUENCY DRIVE		
VOLT	VOLTAGE		
W			
W	WATT		
WH	WATER HEATER		
WP	WEATHERPROOF		
X			
XFER	TRANSFER		
XFMR	TRANSFORMER		

PIPING AND DUCTWORK
2015 IBC AND ASCE 7-10 NONSTRUCTURAL SEISMIC
RESTRAINT, BRACING AND ANCHORAGE NOTES:

REFERENCE SPECIFICATION: SECTION 13 05 41
SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS

SEISMIC DESIGN DATA FOR ANALYSIS AND DESIGN:

H-18-8 SEISMICITY = MODERATE-HIGH
SEISMIC RISK CATEGORY BASED UPON OCCUPANCY = III
COMPONENT IMPORTANCE FACTORS:
IP=1.0 FOR NON-ESSENTIAL COMPONENTS
IP=1.5 FOR LIFE SAFETY AND DESIGNATED SEISMIC SYSTEMS (DSS) AND PERMANENT EQUIPMENT AND COMPONENTS REQUIRING SPECIAL SEISMIC CERTIFICATION PER H-18-8

MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS:
SS=0.633G S1=0.154G

SITE CLASS C (PER GEOTECHNICAL REPORT)

DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:
SDS=0.421G SD1=0.169G
SEISMIC DESIGN CATEGORY (SDC) = C

NOTE: NONSTRUCTURAL SEISMIC EXCEPTIONS AND EXEMPTIONS SHALL BE DETERMINED IN ACCORDANCE WITH H-18-8 AND CHAPTER 13 OF ASCE 7 FOR SDC = D. REFERENCE SPECIFICATION SECTION 13 05 14.

H-18-8 SPECIAL SEISMIC CERTIFICATION (SSC) REQUIREMENT:

IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E, OR F, PERMANENT EQUIPMENT AND COMPONENTS ARE TO HAVE SPECIAL SEISMIC CERTIFICATION IN ACCORDANCE WITH REQUIREMENTS OF SECTION 13.2.2 OF ASCE 7 EXCEPT FOR EQUIPMENT AND COMPONENTS THAT ARE CONSIDERED RUGGED AS LISTED IN SECTION 2.2 OF OSHPD CODE APPLICATION NOTICE CAN NO. 2-1708A.5, AND SHALL COMPLY WITH SECTION 13.2.6 OF ASCE 7.

CLARIFICATION OF ASCE 7 "12 INCH RULE" SUSPENDED SEISMIC BRACING CODE EXCEPTION FOR PIPING AND HVAC DUCTWORK:

ALL PIPING OR DUCTWORK SUSPENDED BY INDIVIDUAL HANGER RODS 12" OR LESS AS MEASURED FROM THE TOP OF THE PIPING OR DUCTWORK TO THE BOTTOM OF THE SUPPORT WHERE THE HANGER IS ATTACHED. IF THE 12" LIMIT IS EXCEEDED BY ANY HANGER IN THE RUN, SEISMIC BRACING IS REQUIRED FOR THE RUN. NOTE: A SINGLE SUPPORT LOCATION THAT MEETS THE REQUIREMENT OF THIS EXCEPTION DOES NOT CONSTITUTE A SEISMIC SWAY BRACE LOCATION. IN ADDITION, TO MEET THE CODE REQUIREMENTS, ALL OF THE FOLLOWING CONDITIONS MUST ALSO BE SATISFIED:

- LATERAL MOTION OF PIPING OR DUCTWORK WILL NOT CAUSE DAMAGING IMPACT WITH SURROUNDING SYSTEMS (E.G. OTHER CONDUIT, TRAY, PIPE, DUCT, EQUIPMENT, SPRINKLER HEADS ETC.) OR CAUSE LOSS OF SYSTEM VERTICAL SUPPORT.
- PIPING OR DUCTWORK MUST BE MADE OF DUCTILE MATERIAL WITH DUCTILE CONNECTIONS.

ELETRICAL SEISMIC GENERAL NOTES

- GC MUST HAVE SEISMIC-FORCE-RESTRAINT SHOP DRAWINGS AND, CALCULATIONS PREPARED BY PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN THE AREA OF SEISMIC FORCE RESTRAINTS.THE PROFESSIONAL STRUCTURAL ENGINEER SHALL BE REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.
- SUBMIT DESIGN TABLES AND INFORMATION USED FOR THE DESIGN-FORCE LEVELS, STAMPED AND SIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.
- "DO NOT INSTALL" SEISMIC RESTRAINT SUBMITTALS ARE APPROVED BY THE COR. COORDINATE AND INSTALL TRAPEZE OR OTHER MULTI-PIPE HANGER SYSTEMS PRIOR TO PIPE INSTALLATION.
- IN STRUCTURES ASSIGNED TO IBC SEISMIC DESIGN CATEGORY C, D, E, OR F, PERMANENT EQUIPMENTS AND COMPONENTS ARE TO HAVE SPECIAL SEISMIC CERTIFICATION IN ACCORDANCE WITH REQUIREMENTS OF SECTION 13.2.2 OF THE ASCE 7 EXCEPT FOR EQUIPMENT THAT ARE CONSIDERED RUGGED AS LISTED IN SECTION 2.2 OSHPD CODE APPLICATION NOTICE CAN NO. 2-1708A.5 AND SHALL COMPLY WITH SECTION 13.2.6 OF ASCE 7.
- GC AND MC MUST REVIEW AND COMPLETE ALL SEISMIC RESTRAINT REQUIREMENTS PER SPECIFICATION SECTION 13 05 41.

ELECTRICAL GENERAL NOTES

- SPECIFICATIONS TAKE PRECEDENT OVER DRAWINGS.
- MULTI-GANG BACKBOXES FOR DIFFERENT VOLTAGES AND TYPES OF EMERGENCY AND NORMAL BRANCH WIRING DEVICES SHALL HAVE DIVIDERS BETWEEN DEVICES.
- CORE DRILL AND SAW CUT, AS REQUIRED, FOR FLOOR AND WALL PENETRATIONS. SEAL REMAINING ANNULUS WITH FIRE CAULK. REFER TO SPECIFICATION "FIRE STOPPING" 07-84-00.
- FURNISH ACCESS DOORS OR PANELS FOR INSTALLATION BY GENERAL CONTRACTOR IN WALLS AND CEILINGS WHERE ACCESS IS REQUIRED TO CONCEALED ELECTRICAL BOXES AND DEVICES.
- ARMORED CABLE (AC) MAY BE USED FOR LAY-IN FICTURE PIGTAILS. ARMORED CABLE (AC) SHALL NOT BE USED FOR BRANCH CIRCUIT HOMERUNS. ARMORED CABLE (AC) SHALL NOT BE USED WHERE MORE THAN THREE CONDUCTORS (PHASE/NEUTRAL/GROUND) ARE REQUIRED, WHERE EXPOSED; OR IN LENGTHS EXCEEDING 20 FEET EXCEPT FOR TEMPORARY WIRING.
- PROVIDE ALL ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE AND THE REQUIREMENTS OF THE VHA.
- COORDINATE ALL OUTAGES WITH VHA COR PER SPECS PRIOR TO WORK BEING DONE.

LIGHTING GENERAL NOTES

- ALL RECESSED LIGHTING FIXTURE IN LAY-IN CEILINGS SHALL BE INSTALLED WITH 6' LONG FLEXIBLE METAL CONDUIT.
- ALL MOUNTING HEIGHTS FOR LIGHTING FIXTURES ARE TO THE BOTTOM OF THE FIXTURES UNLESS INDICATED OTHERWISE.
- SEE ARCHITECTURAL EXTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF EXTERIOR LIGHTING FIXTURES.
- CIRCUIT WIRING IS NOT SHOWN. SWITCH AND CIRCUITING INTENT SHALL BE AS DESIGNATED AT EACH LIGHT FIXTURE.
- PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUITING AND SWITCHING SHOWN.
- CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULES). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.

COMMUNICATION GENERAL NOTES

- SECURITY CONTRACTOR (SC) TO PROVIDE SHOP DRAWINGS AND SUBMIT TO VHA FOR APPROVAL BEFORE PROJECT START.
- EXISTING SYSTEMS AND SERVICES ALREADY IN USE MAY DETERMINE A BROADER REQUIREMENT FOR A COMPLETE WORKING AND UNIFIED SYSTEM.
- FIELD COORDINATE CAMERA TYPES AND MOUNTING HARDWARE IN CONJUNCTION TO THE MOUNTING APPLICATIONS AND LOCATION - VERIFY CORRECT INTRA-CONNECT CABLING WITH DEVICE TYPES AND LOCATION FIBER OPTIC CABLING WILL BE REQUIRED BASED ON ANY DISTANCE OVER 90 METERS.

ELECTRICAL GENERAL NOTES - DEMOLITION

- SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION AND CONSTRUCTION. COORDINATE WITH GENERAL CONSTRUCTION.
- DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES AND LIGHTING FIXTURES IN DEMOLITION AREAS UNLESS NOTED OTHERWISE. DISCONNECT AND REMOVE ASSOCIATED CONDUIT AND WIRE BACK TO OVERCURRENT PROTECTIVE DEVICE. COMPLETELY CUT/CAP CONDUITS IN CONCRETE SLAB AND IN THE AREA OF WORK PERIMETER. DISCONNECT AND REMOVE ALL ABANDONED CIRCUITS AND CONDUITS. PROVIDE CONDUIT AND WIRE AS REQUIRED FOR CONTINUITY OF CIRCUITS TO ANY EXISTING DEVICES TO REMAIN. COORDINATE AND VERIFY REQUIREMENTS WITHIN NEW AREA OF WORK. REMAIN. COORDINATE AND VERIFY REQUIREMENTS WITHIN NEW AREA OF WORK.

KEYNOTES

00 KEYNOTE

NEW - EXISTING AND DEMO LINE TYPES

	NEW LINE TYPE
	EXISTING LINE TYPE
	DEMO LINE TYPE
	DEMO HATCH

		CONSULTANTS:	ARCHITECT/ENGINEERS:	STAMP:		Drawing Title ELECTRICAL ABBREVIATIONS	Phase 100% CONSTRUCTION DOCUMENTS	Project Title OUTPATIENT MENTAL HEALTH / EDUCATION ADDITION	Project Number 436-114
		HOEFER WYSOCKI 11640 TOMAHAWK CREEK PARKWAY SUITE 400 LEANWOOD, KANSAS 66041	VALHALLA ENGINEERING GROUP, LLC 750 W HAMPDEN AVE SUITE #300 ENGLEWOOD CO 80110 (720) 550-6307 WWW.VALHALLAENGINEERING.COM	 8/5/2020		Approved: Project Director		Location 3687 VETERANS DRIVE , FORT HARRISON, MT 59636	Building Number 173 & 154
		Protection Engineering CONSULTANTS	JIRSA HEDRICK Structural Engineers					Issue Date 08/05/2020	Drawing Number E001
								Checked TL	Drawn BWW
		Issued:	Date:						

A

B

C

D

E

F

A

B

C

D

E

F

ELECTRICAL SYMBOLS - DIAGRAM

	DELTA CONNECTION.
	MOTOR, SINGLE-PHASE.
	MOTOR, THREE-PHASE.
	TRANSFORMER.
	WYE CONNECTION.
	PULL BOX.
	MANHOLE.
	PRESSURE SWITCH-CLOSE ON INCREASE.
	PRESSURE SWITCH-OPEN ON INCREASE.
	SWITCH, MULTIPPOSITION.
	SWITCH, NORMALLY CLOSED FLOAT.
	SWITCH, NORMALLY CLOSED FOOT OPERATED.
	SWITCH, NORMALLY CLOSED LIMIT.
	SWITCH, NORMALLY CLOSED TEMPERATURE ACTIVATED.
	SWITCH, NORMALLY CLOSED TIME DELAY.
	SWITCH, NORMALLY OPEN FLOAT.
	SWITCH, NORMALLY OPEN LIMIT.
	SWITCH, NORMALLY OPEN TEMPERATURE ACTIVATED.
	SWITCH, NORMALLY OPEN TIME DELAY.
	SWITCH, SINGLE BREAK.
	NORMALLY CLOSED RELAY CONTACT.
	NORMALLY OPEN RELAY CONTACT.
	FUSE WITH RATING.
	MOLDED CASE CIRCUIT BREAKER.
	LOW-VOLTAGE DRAWOUT AIR CIRCUIT BREAKER.
	MEDIUM-VOLTAGE OIL CIRCUIT BREAKER.
	MEDIUM-VOLTAGE DRAWOUT AIR CIRCUIT BREAKER.
	SWITCH AND FUSE UNIT.
	FUSED DRAWOUT POTENTIAL TRANSFORMER.
	RELAY; LETTER INDICATES RELAY TYPE. 50 = INSTANTANEOUS OVERCURRENT OR RATE-OF-RISE. 51 = AC-TIME OVERCURRENT. 67 = AC-DIRECTIONAL OVERCURRENT. 86 = LOCK OUT.
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED, VAV.
	FUSIBLE LINK.
	STARTER, COMBINATION W/ DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	VARIABLE FREQUENCY DRIVE.
	GENERATOR, POWER.
	BATTERY.
	CAPACITOR.
	POTHEAD.
	STRESS CONE.
	LIGHTNING ARRESTOR.
	RECTIFIER, CATHODIC PROTECTION.
	AMMETER.
	VOLTMETER.
	WATTMETER.
	WATT-HOUR METER.
	TRANSFORMER, PLAN.
	WYE CONNECTION.
	DUCT, CELL FLOOR HEADER.
	DUCT, TROLLEY.
	DUCT, UNDERFLOOR JUNCTION BOX.
	EARTH GROUND.
	JUNCTION BOX.
	LADDER CABLE TRAY.

ELECTRICAL SYMBOLS - POWER PLAN

	BRANCH CIRCUIT HOMERUN. LINES INDICATE NUMBER OF CIRCUITS, NEUTRAL, AND SWITCH LEG CONDUCTORS. ONE SEPARATE GREEN GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH HOMERUN; NOT SHOWN.
	CABLE TRAY
	RIGID CONDUIT LINE = RC.
	DIRECT BURIAL CABLE = DB.
	POWER DUCT = P.
	UNDERGROUND ELECTRICAL SERVICE = UGE
	UNDER GROUND CIRCUITRY WIRE AND CONDUIT = UGP
	SUBSTATION.
	HI VOLTAGE SWITCH ON CONCRETE PAD.
	LOW VOLTAGE SWITCH ON CONCRETE PAD.
	DUAL POWER AND TELECOMMUNICATIONS MANHOLE.
	FLOOR OUTLET, RECEPTACLE.
	BUSWAY.
	FLOOR OUTLET, DATA COMMUNICATION.
	OUTLET, DATA COMMUNICATION.
	PUSH BUTTON.
	DISTRIBUTION PANEL.
	LIGHTING PANEL.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED.
	GROUNDING BAR.
	RECEPTACLE, CLOCK HANGER.
	RECEPTACLE, DUPLEX (MOUNT 18" AFF. UNLESS NOTED OTHERWISE).
	RECEPTACLE, DUPLEX ON EMERGENCY POWER (MOUNT 18" AFF. UNLESS NOTED OTHERWISE).
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER (MOUNT 18" AFF. UNLESS NOTED OTHERWISE), COUNTER HEIGHT.
	RECEPTACLE, DUPLEX COUNTER HEIGHT.
	RECEPTACLE, DUPLEX (MOUNT 18" AFF. UNLESS NOTED OTHERWISE).
	RECEPTACLE, QUADRAPLEX.
	RECEPTACLE, SINGLE.
	RECEPTACLE, SINGLE WITH SWITCH.
	RECEPTACLE, QUADRAPLEX ON EMERGENCY POWER (MOUNT 18" AFF. UNLESS NOTED OTHERWISE).
	RECEPTACLE, SPECIAL PURPOSE A = 120V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 5-20R. B = 120V, 20A, 1 PHASE, 2-POLE, 3W, NEMA 6-20R. C = 120V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 5-30R. D = 208V, 30A, 1 PHASE, 2-POLE, 3W, NEMA 6-30R. E = 208V, 60A, 1 PHASE, 3-POLE, 4W, NEMA 14-60R. F = 208V, 30A, 3 PHASE, 3-POLE, 4W, NEMA 15-30R. G = 208V, 50A, 3 PHASE, 3-POLE, 4W, NEMA 15-30R. H = 208V, 60A, 3 PHASE, 3-POLE, 4W, NEMA 15-30R.
	RECEPTACLE, CEILING MOUNTED
	RECEPTACLE, SWITCHED DUPLEX.
	DROP CORD, SINGLE CONVENIENCE OUTLET, 3-WIRE, GROUNDING TYPE, 20A, W/12 CONDUCTORS IN FLEXIBLE CORD (CENTER LINE OF OUTLET: 6'-6" AFF. MIN).
	ELECTRICAL STRIPE MOLD (OUTLETS ON 2'-0" CENTERS OR AS DESIGNATED ON DRAWINGS), MTD 3'-6" AFF. OR AS INDICATED.
	3-GANG COMPARTMENT BOX IN FLOOR FOR TELEPHONE, DATA & RECEPTACLE.
	TIME CLOCK.
	VENTILATOR OR FAN COIL UNIT OUTLET.
	CONDUIT TERMINATED 6" AFF. IN STANDARD BOX FOR EXTENSION TO EQUIPMENT AS DIRECTED.
	CONDUIT TERMINATED W/ COUPLING (FLUSH W/ FINISHED FLOOR) FOR EXTENSION TO EQUIPMENT AS DIRECTION.
	SWITCH F = FUSED SWITCH. K = KEY OPERATED. L = LOCK. LM = LOW VOLTAGE MASTER. M = MANUAL MOTOR STARTING. MC = MOMENTARY CONTACT. MP = MOTOR SNAP WITH PILOT LIGHT. P = WITH PILOT LIGHT (THERMAL TYPE). X = EXPLOSION PROOF.
	BLANK OUTLET BOX.
	HEADWALL.

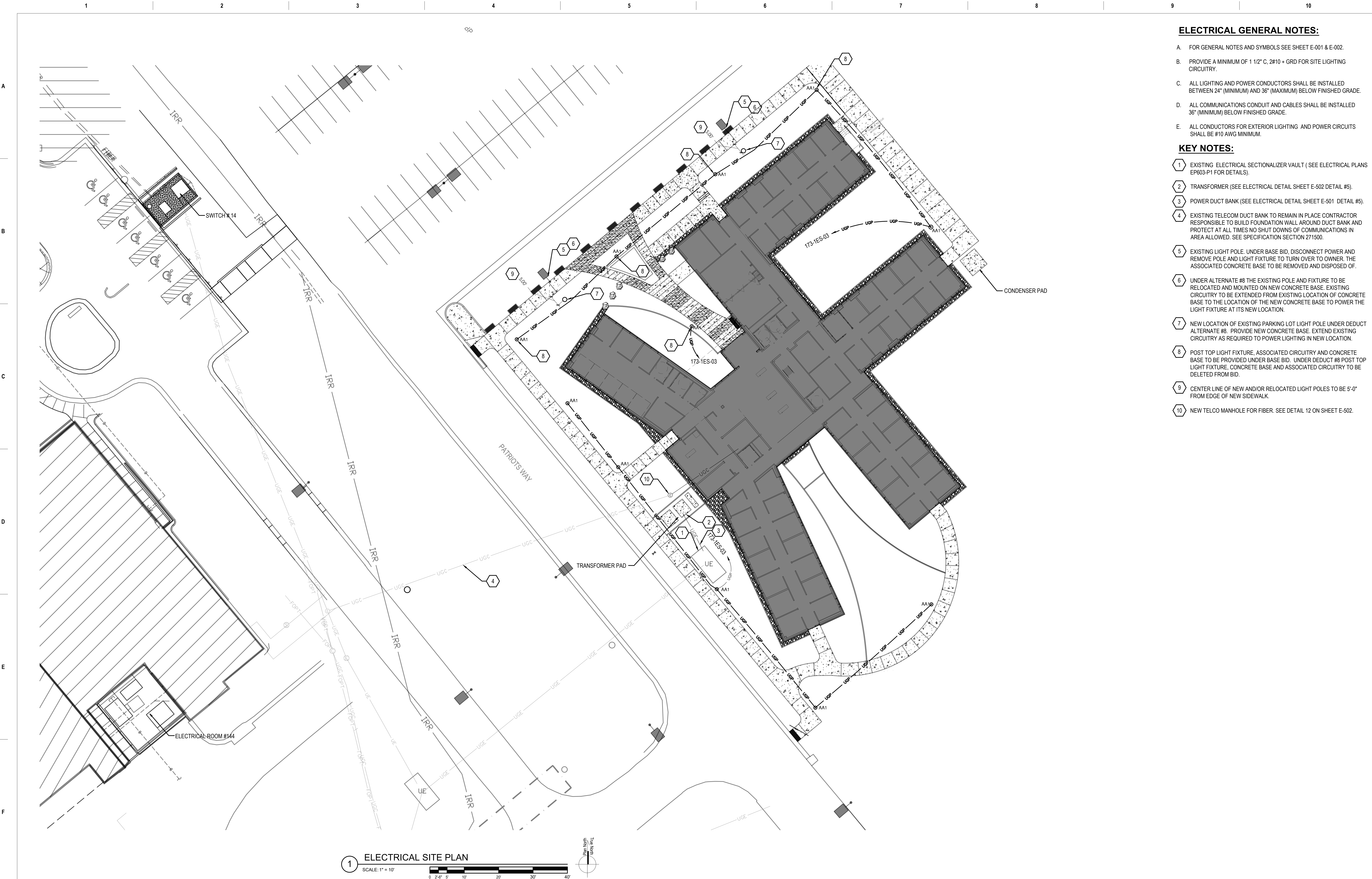
COMMUNICATION SYMBOLS:

	CARD READER
	ELECTRIC DOOR STRIKE
	MAGNETIC DOOR POSITION SWITCH
	VANDAL RESISTANT 1080P DOME IP CAMERA
	FOUR SQUARE JUNCTION BOX
	MAGNETIC LOCK
	USP HUB2SA REMOTE DOOR RELEASE BUTTON
	REQUEST TO EXIT MOTION DETECTOR
	CCTV SYSTEM WORKSTATION
	DURESS BUTTON
	CODE BLUE BUTTON INTEGRATED NURSE CALL SYSTEM
	NURSE CALL MASTER CONSOLE
	ETHERNET NETWORK SWITCH
	WIRELESS ACCESS POINT
	DATA BOX
	OUTLET, COMBINATION TELEPHONE/DATA COMMUNICATION
	CABLE TELEVISION LINE = CATV
	CLOSED CIRCUIT TELEVISION LINE = CCTV. MINIMUM 1" CONDUIT
	FIBER OPTICS LINE = FO
	TELEPHONE LINE = T
	INTERCOM & PUBLIC ADDRESS LINE = I. MIN. 3/4" CONDUIT.
	SOUND LINE = S
	NURSE CALL LINE = NC. MINIMUM 3/4" CONDUIT.
	RADIO CONDUIT RUN, MINIMUM 3/4" CONDUIT.
	TELECOMMUNICATIONS MANHOLE
	FLOOR RECEPTACLE, TELEPHONE
	OUTLET TELEPHONE; LETTER INDICATES AS FOLLOWS: J = JACK TYPE W = WALL TYPE
	OUTLET DATA ONLY ; NUMBER OF OUTLETS REPRESENTED
	OUTLET DATA AND TELECOM
	OUTLET; LETTER INDICATES AS FOLLOWS: A = AUDIO V = VIDEO I = INTERCOM
	SPEAKER, CEILING MOUNTED, "X" INDICATES THE TYPE, PROVIDE SCHEDULE ON LEGEND.
	SPEAKER, WALL MOUNTED, "X" INDICATES THE TYPE, PROVIDE SCHEDULE ON LEGEND. MTD. 7'-6" AFF UNLESS OTHERWISE NOTED.
	RADIO CHANNEL SELECTOR FACILITIES, MTD. 4'-6" AFF UNLESS OTHERWISE NOTED.
	SPEAKER PROGRAM SELECTOR SWITCH & VOLUME CONTROL MTD. 4'-6" AFF UNLESS OTHERWISE NOTED.
	OUTLET, TELEVISION BLANK= 4 11/16" MASTER ANTENNA OUTLET BOX W/BLANK COVER, MTD. 18" AFF UNLESS OTHERWISE NOTED. C = CAMERA (CCTV SYSTEM), MTD 18" AFF M = MONITOR (CCTV SYSTEM).
	NURSE'S CALL MASTER STATION MTD ON NURSE'S COUNTER TOP UNLESS OTHERWISE NOTED.
	NURSE CALL TERMINAL CABINET.
	NURSE CALL STATION. 2 = DUPLICATE FACILITIES FOR TWO BEDS (SEPARATE INDICATORS AT MASTER STATION) MTD 5'-0" AFF UNLESS OTHERWISE NOTED. D = DUTY STATION; MTD 5'-0" AFF UNLESS NOTED OTHERWISE. E = MTD 6'-0" AFF FOR SHOWER LOCATION, MTD 4'-8" AFF FOR TUBLOCATION, & MTD 3'-0" AFF FOR TOILET LOCATION. P = PSYCHIATRIC CORRIDOR STATION WITH KEY SWITCH. S = AUDIO VISUAL WALL STATION (STAFF) MTD 5'-0" AFF UNLESS OTHERWISE NOTED. U = UTILITY CALL STATION, MTD 5'-0" AFF UNLESS OTHERWISE NOTED.
	NURSE CALL STATION. 2 = NURSE'S CALL DOME LIGHT (SUFFIX INDICATES No OF LAMP) MTD 6" ABOVE DOOR. D = CORRIDOR DOME LIGHT. I = AUXILIARY INTERSECTIONAL DOME LIGHT.
	TELEPHONE TERMINAL CABINET
	TELEPHONE BACKBOARD (WALL MOUNTED)
	3-POLE TWIST-LOCK RECEPTACLE FOR MICROPHONE, MTD. 4'-6" AFF.
	REMOTE DICTATING OUTLET MTD 1'-6" AFF. UNLESS OTHERWISE NOTED.
	INTERCOM STATION (REFER TO SPECS. FOR FUNCTIONAL OPERATION OF INSTRUMENT & TYPE REQUIRED).

ELECTRICAL SYMBOLS - LIGHTING PLAN

	SWITCH (# SUBSCRIPT AS INDICATED BELOW): BLANK = SINGLE POLE LVD = LOW VOLTAGE DIMMER LV= LOW VOLTAGE SWITCH GS= GRAPHIC SCREEN CONTROL STATION PB= PUSH BUTTON STATION WP= WEATHER PROOF T = TIMER OPERATED LOS= OCCUPANCY SENSOR
	RECESSED DOWNLIGHT FIXTURE. NOMENCLATURE EXAMPLE : ('A' DESIGNATES LIGHT FIXTURE TYPE, 'b' DESIGNATES SWITCH/LEG, x DESIGNATES CIRCUIT NUMBER) REFER TO DRAWINGS AND LIGHT FIXTURE SCHEDULE FOR MORE INFORMATION.
	RECESSED TROFFER LIGHT FIXTURE. NOMENCLATURE EXAMPLE : ('A' DESIGNATES LIGHT FIXTURE TYPE, 'b' DESIGNATES SWITCH/LEG, x DESIGNATES CIRCUIT NUMBER) REFER TO DRAWINGS AND LIGHT FIXTURE SCHEDULES FOR MORE INFORMATION.
	CEILING SURFACE MOUNTED LIGHT FIXTURE. NOMENCLATURE EXAMPLE : ('A' DESIGNATES LIGHT FIXTURE TYPE, 'b' DESIGNATES SWITCH/LEG, x DESIGNATES CIRCUIT NUMBER) REFER TO DRAWINGS AND LIGHT FIXTURE SCHEDULE FOR MORE INFORMATION.
	WALL SURFACE MOUNTED LIGHT FIXTURE. NOMENCLATURE EXAMPLE : ('A' DESIGNATES LIGHT FIXTURE TYPE, 'b' DESIGNATES SWITCH/LEG, x DESIGNATES CIRCUIT NUMBER) REFER TO DRAWINGS AND LIGHT FIXTURE SCHEDULE FOR MORE INFORMATION.
	LIGHT FIXTURE POWER CONNECTION DESIGNATIONS: OPEN - NORMAL POWER CIRCUIT SHADED - LIFE SAFETY EMERGENCY POWER CIRCUIT HATCHED - CRITICAL POWER CIRCUIT
	DUAL PASSIVE INFRARED / MICROPHONIC TECHNOLOGY (ULTRASONIC NOT ALLOWED)
	EXIT SIGN, WALL MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
	EXIT SIGN, CEILING MOUNTED WITH DIRECTIONAL ARROWS AND FACES AS SHOWN
	LIGHTING, ONE HEAD EMERGENCY BATTERY POWER
	LIGHTING, TWO HEAD EMERGENCY BATTERY POWER
	LIGHTING, THREE HEAD EMERGENCY BATTERY POWER
	STREET LIGHT WITH BRACKET
	LIGHT POLE, ONE MAST ARM, ONE LUMINAIRE
	LIGHT POLE, TWO MAST ARMS, TWO LUMINAIRES
	LIGHT POLE, POST TOP MOUNT LUMINAIRE
	LIGHT EXTERIOR BUILDING MOUNTED FIXTURE
	LIGHT POLE, ONE LUMINAIRE
	LIGHT POLE, TWO LUMINAIRES
	LIGHTING, EXTERIOR BUILDING
	EXTERIOR FLOOD LIGHT
	LIGHT FIXTURE, BOLLARD
	LIGHT FIXTURE, DIRECTIONAL

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- ELECTRICAL GENERAL NOTES:**
- A. FOR GENERAL NOTES AND SYMBOLS SEE SHEET E-001 & E-002.
 - B. PROVIDE A MINIMUM OF 1 1/2" C, 2#10 + GRD FOR SITE LIGHTING CIRCUITRY.
 - C. ALL LIGHTING AND POWER CONDUCTORS SHALL BE INSTALLED BETWEEN 24" (MINIMUM) AND 36" (MAXIMUM) BELOW FINISHED GRADE.
 - D. ALL COMMUNICATIONS CONDUIT AND CABLES SHALL BE INSTALLED 36" (MINIMUM) BELOW FINISHED GRADE.
 - E. ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.

- KEY NOTES:**
- 1 EXISTING ELECTRICAL SECTIONALIZER VAULT (SEE ELECTRICAL PLANS EP603-P1 FOR DETAILS).
 - 2 TRANSFORMER (SEE ELECTRICAL DETAIL SHEET E-502 DETAIL #5).
 - 3 POWER DUCT BANK (SEE ELECTRICAL DETAIL SHEET E-501 DETAIL #5).
 - 4 EXISTING TELECOM DUCT BANK TO REMAIN IN PLACE CONTRACTOR RESPONSIBLE TO BUILD FOUNDATION WALL AROUND DUCT BANK AND PROTECT AT ALL TIMES NO SHUT DOWNS OF COMMUNICATIONS IN AREA ALLOWED. SEE SPECIFICATION SECTION 271500.
 - 5 EXISTING LIGHT POLE. UNDER BASE BID, DISCONNECT POWER AND REMOVE POLE AND LIGHT FIXTURE TO TURN OVER TO OWNER. THE ASSOCIATED CONCRETE BASE TO BE REMOVED AND DISPOSED OF.
 - 6 UNDER ALTERNATE #8 THE EXISTING POLE AND FIXTURE TO BE RELOCATED AND MOUNTED ON NEW CONCRETE BASE. EXISTING CIRCUITRY TO BE EXTENDED FROM EXISTING LOCATION OF CONCRETE BASE TO THE LOCATION OF THE NEW CONCRETE BASE TO POWER THE LIGHT FIXTURE AT ITS NEW LOCATION.
 - 7 NEW LOCATION OF EXISTING PARKING LOT LIGHT POLE UNDER DEDUCT ALTERNATE #8. PROVIDE NEW CONCRETE BASE. EXTEND EXISTING CIRCUITRY AS REQUIRED TO POWER LIGHTING IN NEW LOCATION.
 - 8 POST TOP LIGHT FIXTURE, ASSOCIATED CIRCUITRY AND CONCRETE BASE TO BE PROVIDED UNDER BASE BID. UNDER DEDUCT #8 POST TOP LIGHT FIXTURE, CONCRETE BASE AND ASSOCIATED CIRCUITRY TO BE DELETED FROM BID.
 - 9 CENTER LINE OF NEW AND/OR RELOCATED LIGHT POLES TO BE 5'-0" FROM EDGE OF NEW SIDEWALK.
 - 10 NEW TELCO MANHOLE FOR FIBER. SEE DETAIL 12 ON SHEET E-502.

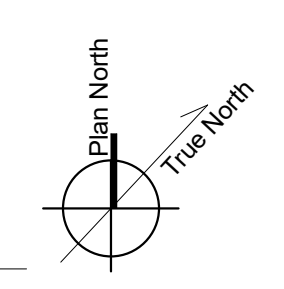
1 ELECTRICAL SITE PLAN
SCALE: 1" = 10'

CONSULTANTS:		ARCHITECT/ENGINEERS:		STAMP:		Drawing Title		Phase		Project Title		Project Number	
						POWER SITE PLAN		100% CONSTRUCTION DOCUMENTS		OUTPATIENT MENTAL HEALTH / EDUCATION ADDITION		436-114	
						Approved: Project Director				Location 3687 VETERANS DRIVE, FORT HARRISON, MT 59636		Building Number 173	
Issued:		Date:		VEG 4.11						Issue Date 08/05/2020		Checked TL	
										Drawn BWW		Drawing Number ES101-P1	



- ELECTRICAL GENERAL NOTES:**
- FOR GENERAL NOTES, ABBREVIATIONS AND SYMBOLS SEE SHEET E-001.
 - REFER TO SHEET MH101-P1 IN MECHANICAL SHEETS TO COORDINATE EXACT LOCATION OF JUNCTION BOXES FOR VAV'S AND VAV ID TAGS.
- KEY NOTES:**
- PROVIDE RECEPTACLE FOR MICROWAVE. COORDINATE EXACT LOCATION WITH CASEWORK ELEVATIONS.
 - PROVIDE RECEPTACLE FOR REFRIGERATOR. COORDINATE EXACT LOCATION WITH CASEWORK ELEVATIONS.
 - ELECTRICAL CONTRACTOR MUST PROVIDE A 50VA, 120V/24V CONTROL TRANSFORMER FOR VAVS AND A 20A, 120V CIRCUIT FROM INDICATED PANELS.
 - PROVIDE DUPLEX RECEPTACLE AND EMPTY SINGLE GANG BOX FOR TV LOCATION MOUNTED AT 60" ABOVE FINISHED FLOOR.
 - PROVIDE CONCRETE FLOOR BOX WITH A SINGLE DUPLEX 20A, 120V RECEPTACLE AND A DUPLEX DATA OUTLET SIMILAR TO LEGRAND RPB2-OG. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
 - PROVIDE SPARE 2" CONDUIT EXTENDED FROM ELECTRICAL ROOM "A112" TO THIS LOCATION FOR VAV'S CAPACITY. STUB AND CAP BOTH ENDS.
 - PROVIDE 120V/20A WEATHERPOOF DUPLEX, GFCI RECEPTACLE ON INDICATED CIRCUIT.
 - INSTALL RECEPTACLES NOT MORE THAN 16" ABOVE FINISHED FLOOR.

1 ELECTRICAL POWER FIRST FLOOR PLAN
1/8" = 1'-0"



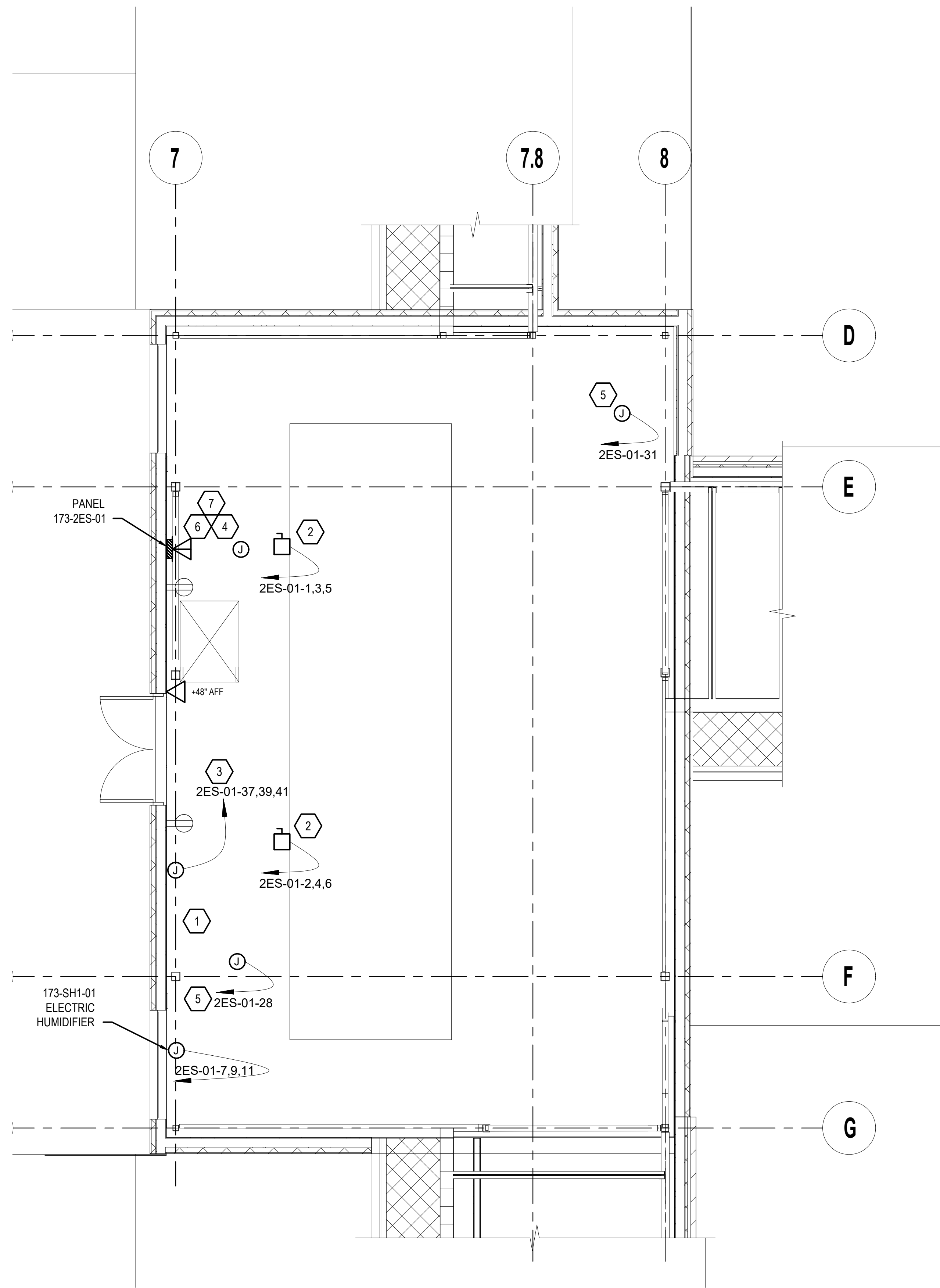
CONSULTANTS: 		ARCHITECT/ENGINEER OF RECORD: VEG 4.11		STAMP: 		Drawing Title POWER PLAN - FIRST FLOOR Approved: Project Director	Phase 95% CONSTRUCTION DOCUMENTS	Project Title OUTPATIENT MENTAL HEALTH / EDUCATION ADDITION	Project Number 436-114 Building Number 173
Issued: _____ Date: _____								Location 3687 VETERANS DRIVE, FORT HARRISON, MT 59636 Issue Date 02/20/2019 Checked TL Drawn BWW	Drawing Number EP101-P1

ELECTRICAL GENERAL NOTES:

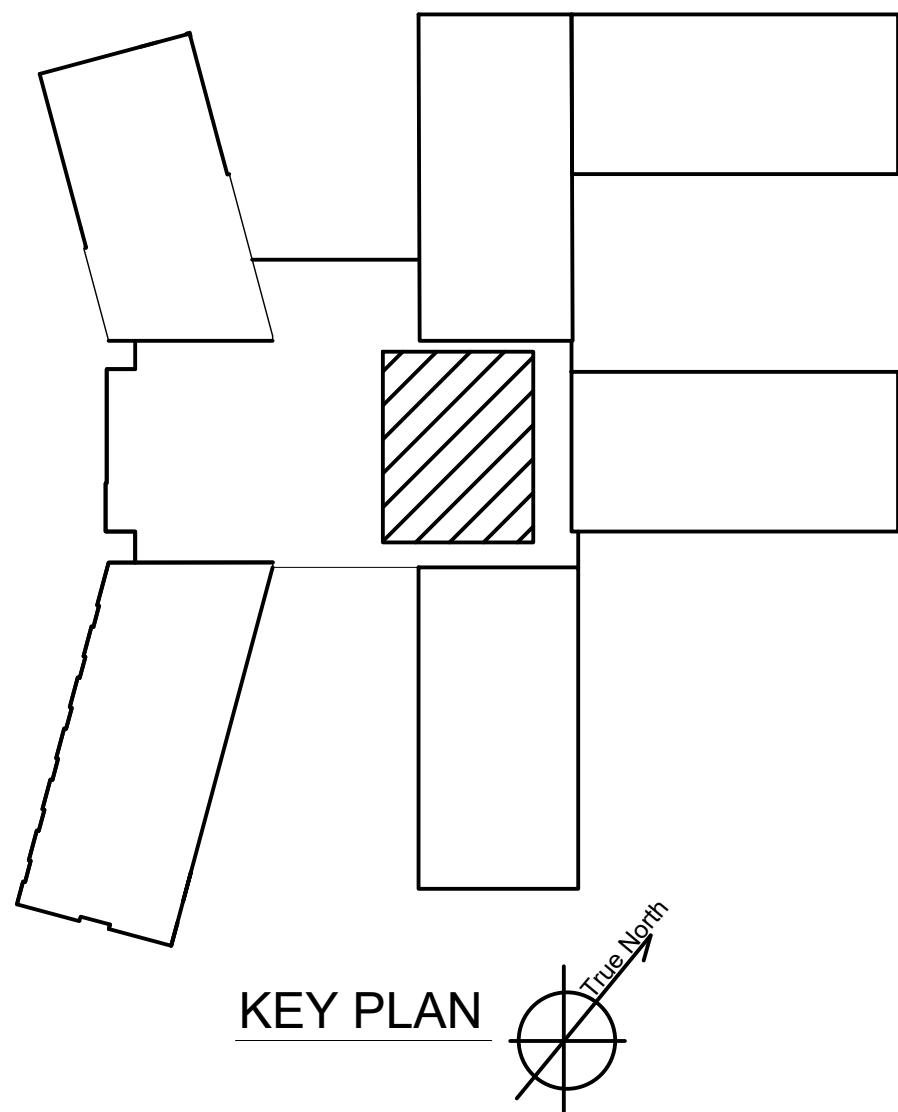
A. FOR GENERAL NOTES AND SYMBOLS SEE SHEET E-001 & E-002.

KEY NOTES:

- 1 PROVIDE JBOX FOR STEAM HUMIDIFIER.
- 2 PROVIDE POWER TO VFD. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
- 3 PROVIDE POWER CONNECTION FOR HEAT TRACE.
- 4 PROVIDE JBOX FOR VFD SIGNAL TO SMARTSTRUXURE (OR SIMILAR) BAS CONTROLS LOCATED IN IT ROOM A113 .
- 5 PROVIDE JBOX FOR MECHANICAL EQUIPMENT POWER. REFER TO MECHANICAL SHEETS FOR MORE INFORMATION.
- 6 PROVIDE SPARE (1)-2" CONDUIT FROM ELECTRICAL ROOM "A112" AND (1)-2" CONDUIT FROM IT ROOM "A113" EXTENDED TO THIS LOCATION FOR FUTURE CAPACITY. STUB AND CAP BOTH ENDS.
- 7 FIELD COORDINATE DATA LOCATION WITHIN THE CONTROL PANEL FOR NETWORK CONNECTION.



1 ELECTRICAL PLAN - PENTHOUSE
SCALE: 1/4" = 1'-0"
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ELECTRICAL GENERAL NOTES:

A. FOR SYMBOLS AND GENERAL NOTES SEE SHEET E-001 & E-002.

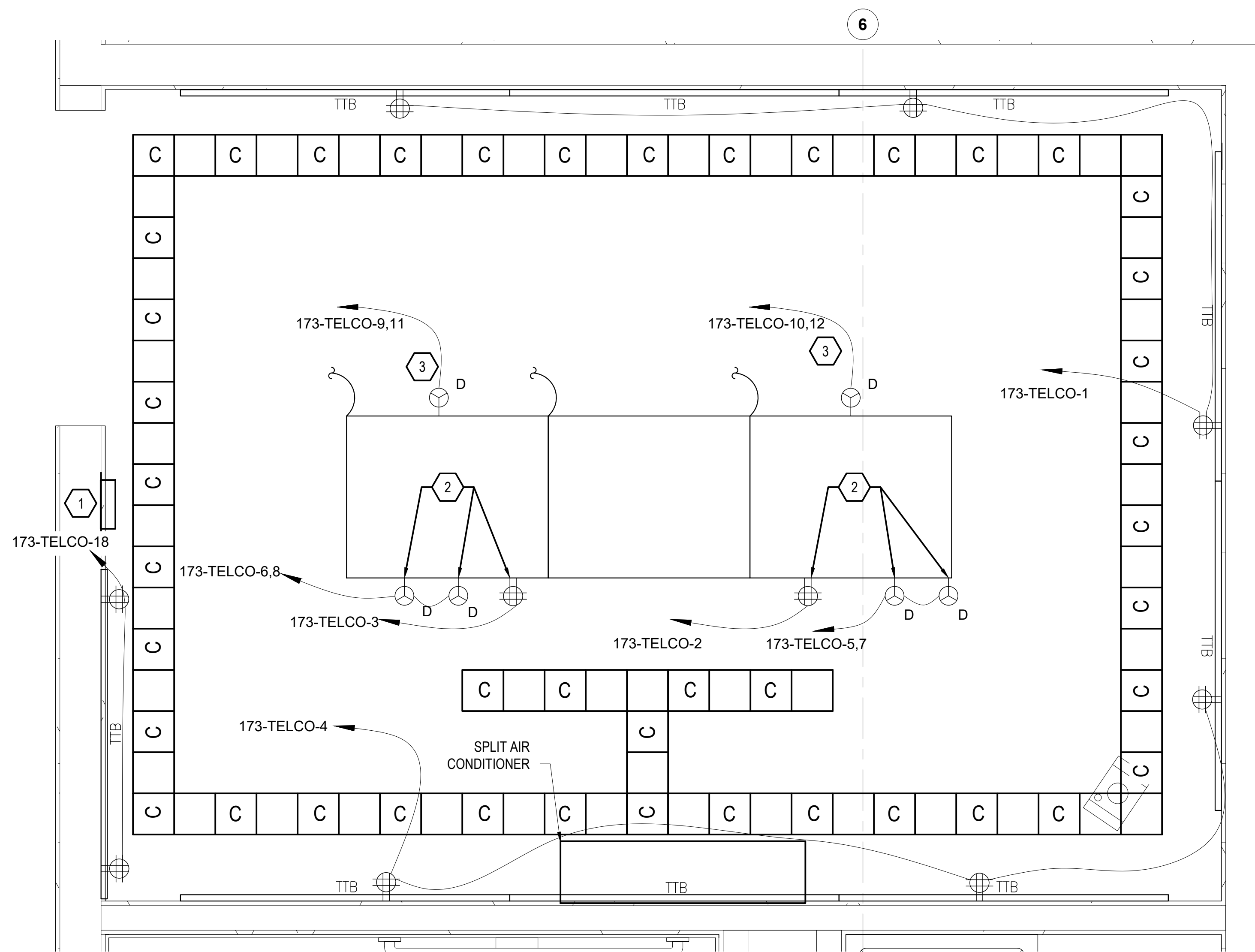
KEY NOTES:

- 1

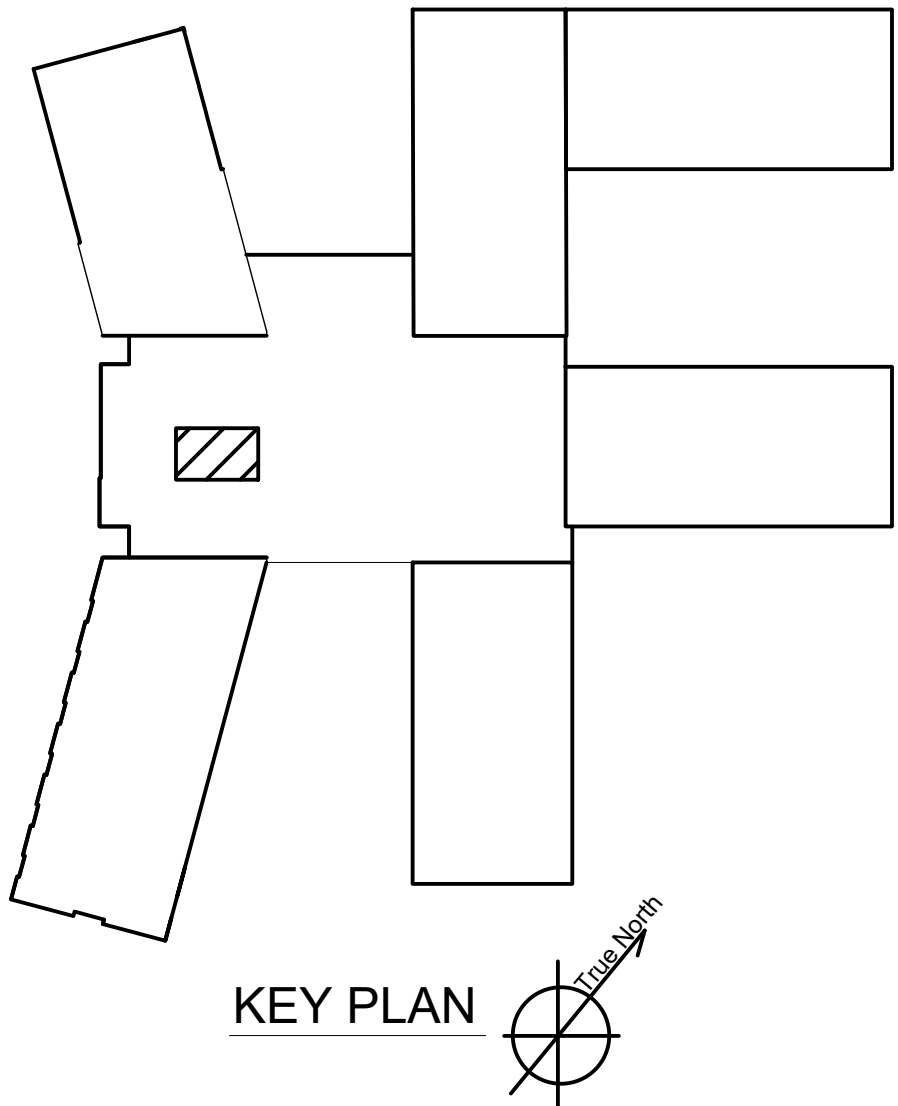
PROVIDE PANEL "TELCO" AS SCHEDULED TO BE DEDICATED FOR "A113" ROOM POWER.
- 2

PROVIDE (2) NEMA L5-30R AND (1) DOUBLE-DUPLEX RECEPTACLE ABOVE RACK. CIRCUIT AS INDICATED.
- 3

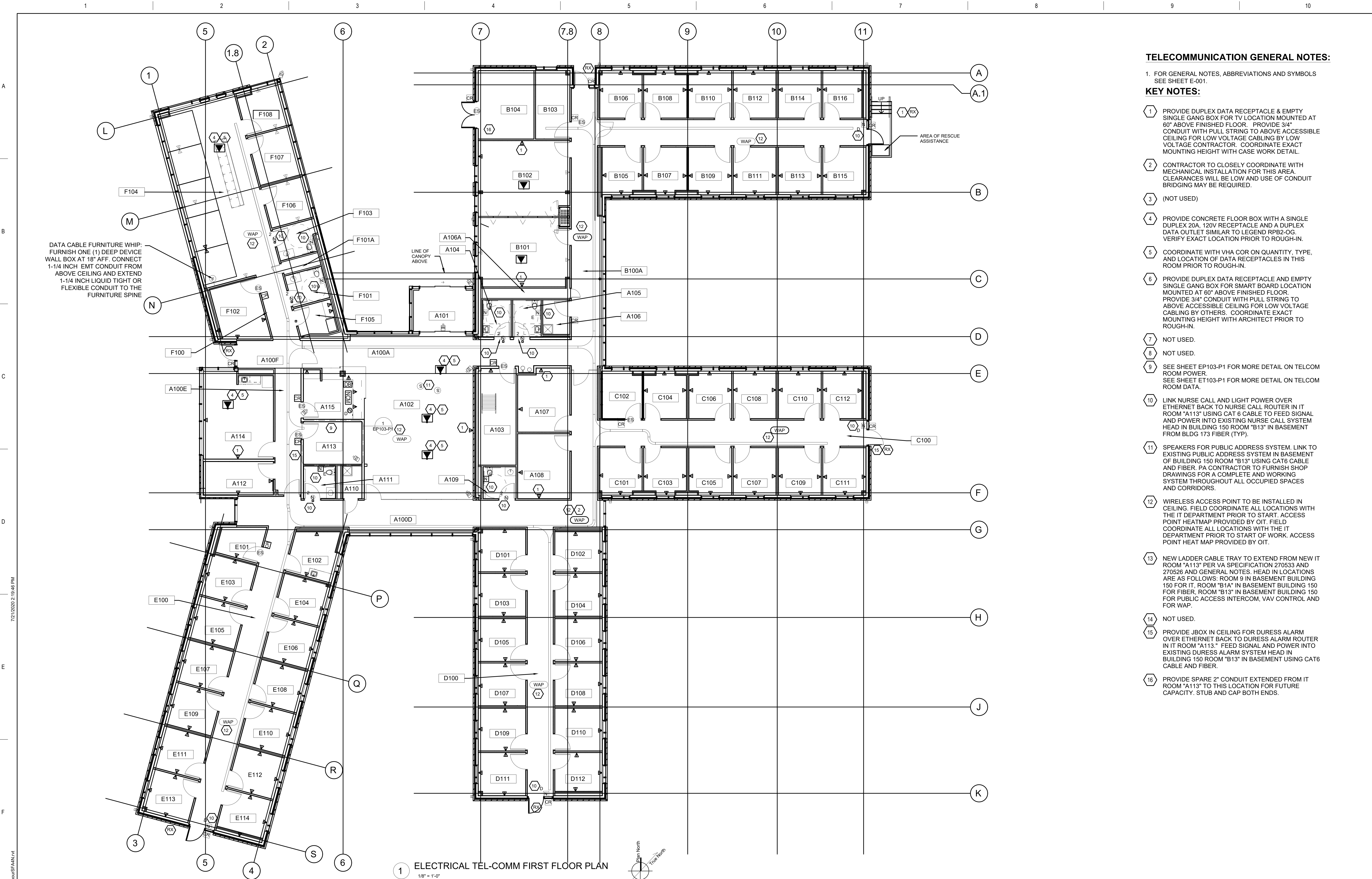
PROVIDE NEMA L5-30R RECEPTACLE ON RACK FOR UPS SIMILAR TO APC SMART-UPS 500VA RACKMOUNT/TOWER UPS. UPS SHALL BE PROVIDED WITH DRY CONTACTS AND ONE "FORM C" CONTACT FOR LOCAL COMPUTER SIGNALING AND SHALL COME WITH COMPUTER SYSTEM SHUTDOWN SOFTWARE AND HARDWARE CONNECTIVITY, AS REQUIRED. UPS SHALL BE CAPABLE OF SUPPORTING 100% OF LOAD CONSISTING OF (2) CISCO 3850 SERVERS FOR A PERIOD OF ONE HOUR MINIMUM. SEE SPECIFICATION 26-33-93 "STATIC UNINTERRUPTIBLE POWER SUPPLY" FOR DETAILS.



1 BLDG 173 TELECOM ROOM POWER PLAN
SCALE: NO SCALE



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TELECOMMUNICATION GENERAL NOTES:

1. FOR GENERAL NOTES, ABBREVIATIONS AND SYMBOLS SEE SHEET E-001.

KEY NOTES:

- 1 PROVIDE DUPLEX DATA RECEPTACLE & EMPTY SINGLE GANG BOX FOR TV LOCATION MOUNTED AT 80" ABOVE FINISHED FLOOR. PROVIDE 3/4" CONDUIT WITH PULL STRING TO ABOVE ACCESSIBLE CEILING FOR LOW VOLTAGE CABLING BY LOW VOLTAGE CONTRACTOR. COORDINATE EXACT MOUNTING HEIGHT WITH CASE WORK DETAIL.
- 2 CONTRACTOR TO CLOSELY COORDINATE WITH MECHANICAL INSTALLATION FOR THIS AREA. CLEARANCES WILL BE LOW AND USE OF CONDUIT BRIDGING MAY BE REQUIRED.
- 3 (NOT USED)
- 4 PROVIDE CONCRETE FLOOR BOX WITH A SINGLE DUPLEX 20A, 120V RECEPTACLE AND A DUPLEX DATA OUTLET SIMILAR TO LEGEND RPB2-OG. VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
- 5 COORDINATE WITH VHA COR ON QUANTITY, TYPE, AND LOCATION OF DATA RECEPTACLES IN THIS ROOM PRIOR TO ROUGH-IN.
- 6 PROVIDE DUPLEX DATA RECEPTACLE AND EMPTY SINGLE GANG BOX FOR SMART BOARD LOCATION MOUNTED AT 60" ABOVE FINISHED FLOOR. PROVIDE 3/4" CONDUIT WITH PULL STRING TO ABOVE ACCESSIBLE CEILING FOR LOW VOLTAGE CABLING BY OTHERS. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
- 7 NOT USED.
- 8 NOT USED.
- 9 SEE SHEET EP103-P1 FOR MORE DETAIL ON TELCOM ROOM POWER. SEE SHEET ET103-P1 FOR MORE DETAIL ON TELCOM ROOM DATA.
- 10 LINK NURSE CALL AND LIGHT POWER OVER ETHERNET BACK TO NURSE CALL ROUTER IN IT ROOM "A113" USING CAT 6 CABLE TO FEED SIGNAL AND POWER INTO EXISTING NURSE CALL SYSTEM HEAD IN BUILDING 150 ROOM "B13" IN BASEMENT FROM BLDG 173 FIBER (TYP).
- 11 SPEAKERS FOR PUBLIC ADDRESS SYSTEM. LINK TO EXISTING PUBLIC ADDRESS SYSTEM IN BASEMENT OF BUILDING 150 ROOM "B13" USING CAT6 CABLE AND FIBER. PA CONTRACTOR TO FURNISH SHOP DRAWINGS FOR A COMPLETE AND WORKING SYSTEM THROUGHOUT ALL OCCUPIED SPACES AND CORRIDORS.
- 12 WIRELESS ACCESS POINT TO BE INSTALLED IN CEILING. FIELD COORDINATE ALL LOCATIONS WITH THE IT DEPARTMENT PRIOR TO START. ACCESS POINT HEATMAP PROVIDED BY OIT. FIELD COORDINATE ALL LOCATIONS WITH THE IT DEPARTMENT PRIOR TO START OF WORK. ACCESS POINT HEAT MAP PROVIDED BY OIT.
- 13 NEW LADDER CABLE TRAY TO EXTEND FROM NEW IT ROOM "A113" PER VA SPECIFICATION 270533 AND 270526 AND GENERAL NOTES. HEAD IN LOCATIONS ARE AS FOLLOWS: ROOM 9 IN BASEMENT BUILDING 150 FOR IT, ROOM "B1A" IN BASEMENT BUILDING 150 FOR FIBER, ROOM "B13" IN BASEMENT BUILDING 150 FOR PUBLIC ACCESS INTERCOM, VAV CONTROL AND FOR WAP.
- 14 NOT USED.
- 15 PROVIDE JBOX IN CEILING FOR DURESS ALARM OVER ETHERNET BACK TO DURESS ALARM ROUTER IN IT ROOM "A113." FEED SIGNAL AND POWER INTO EXISTING DURESS ALARM SYSTEM HEAD IN BUILDING 150 ROOM "B13" IN BASEMENT USING CAT6 CABLE AND FIBER.
- 16 PROVIDE SPARE 2" CONDUIT EXTENDED FROM IT ROOM "A113" TO THIS LOCATION FOR FUTURE CAPACITY. STUB AND CAP BOTH ENDS.

CONSULTANTS:		ARCHITECT/ENGINEER OF RECORD:		STAMP:		Drawing Title		Phase		Project Title		Project Number	
 1860 TOHAWAY CREEK PARKWAY SUITE 400, LEANWOOD, KANSAS 66041		 750 W HAMPDEN AVE SUITE 300 ENGLEWOOD, CO 80110 (720) 550-6307 WWW.VALHALLAENGINEERING.COM		 VEG 4.11		TELCO / INSTRUMENTATION PLAN FIRST FLOOR		95% CONSTRUCTION DOCUMENTS		OUTPATIENT MENTAL HEALTH / EDUCATION ADDITION		436-114	
Protection Engineering		JIRSA HEDRICK		U.S. Department of Veterans Affairs		Approved: Project Director				Location 3687 VETERANS DRIVE, FORT HARRISON, MT 59636		Building Number 173	
Date:										Issue Date 08/05/2020		Drawing Number ET101-P1	
										Checked TL		Drawn GG	

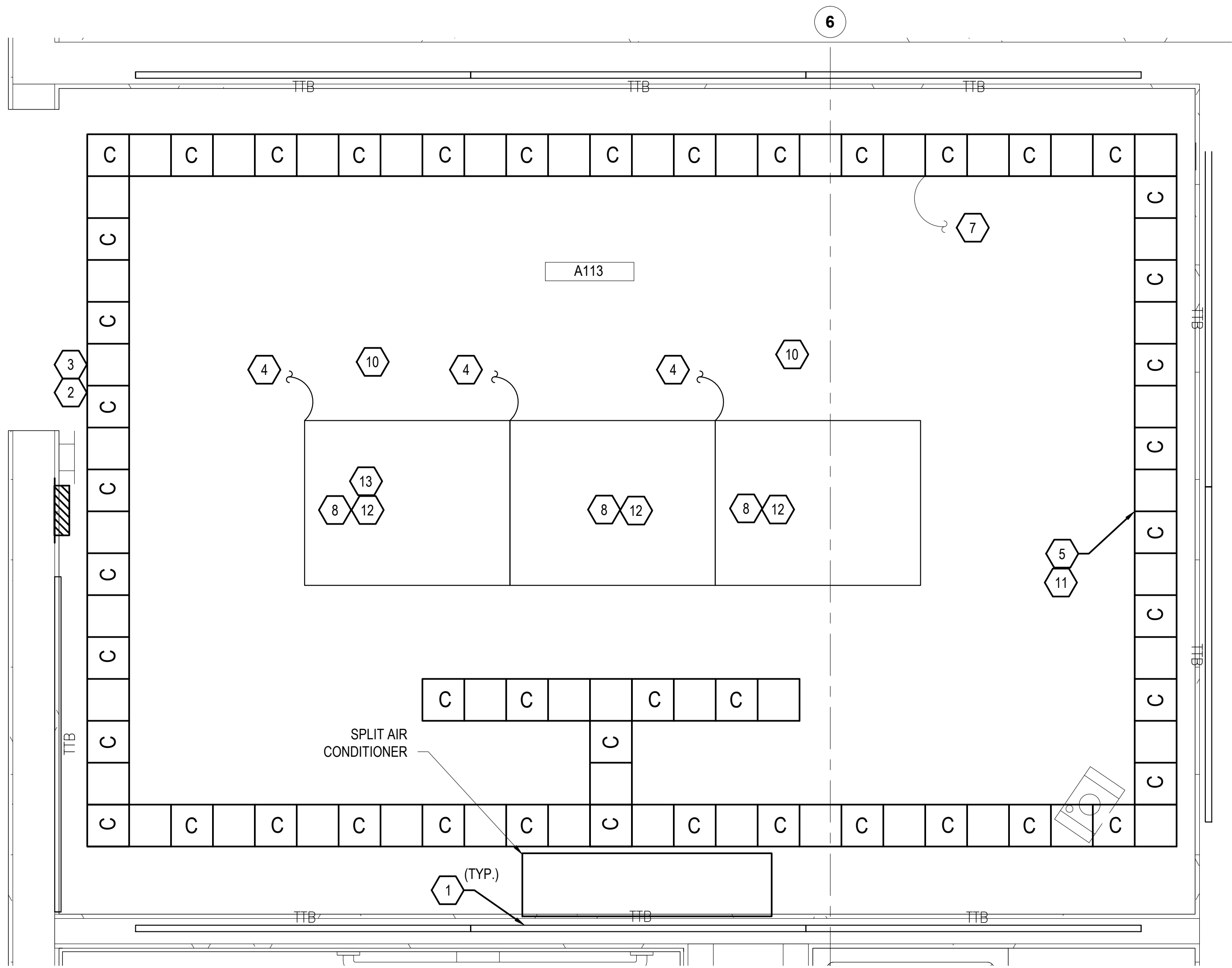
C:\Revit\2019\64091_A13_VA-FH-Elec_cdr\dwg\ET101-P1.dwg
7/21/2020 2:19:46 PM
VA FORM 08 - 6231

ELECTRICAL GENERAL NOTES:

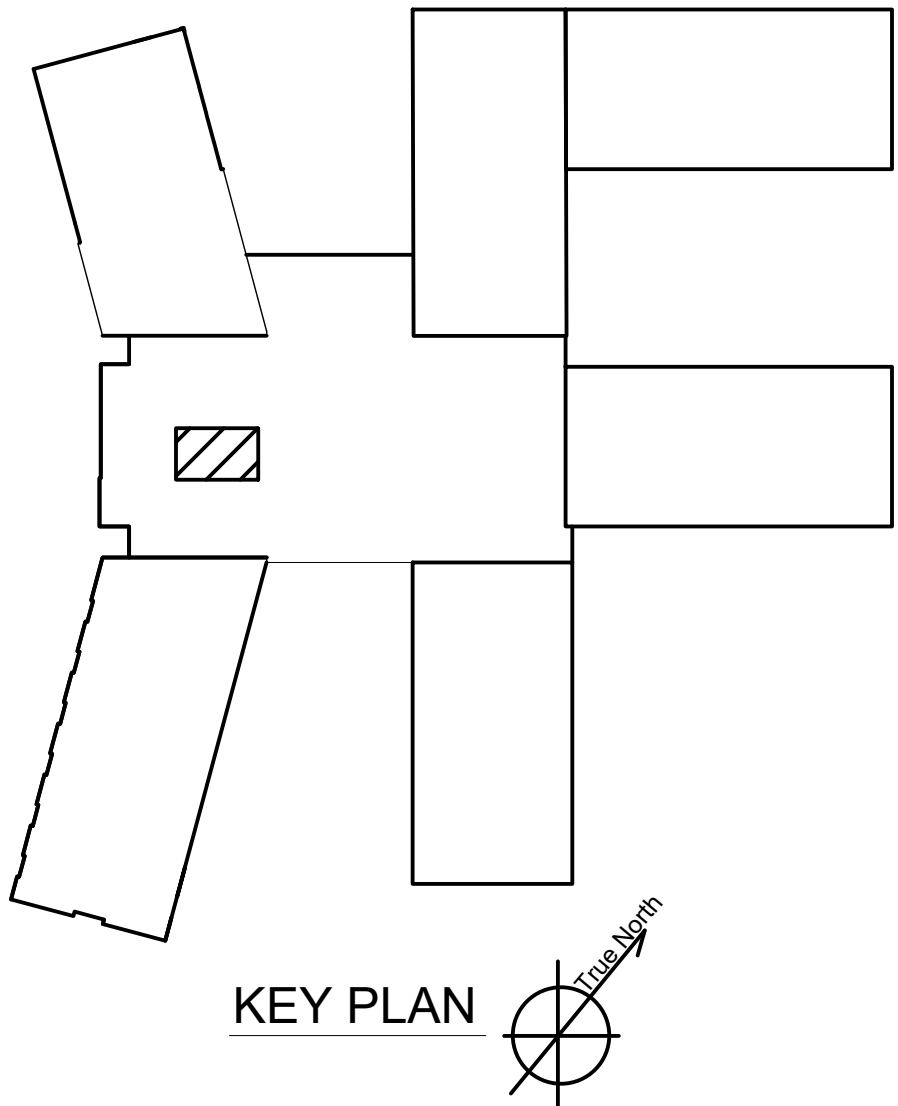
- A. FOR SYMBOLS AND GENERAL NOTES SEE SHEET E-001 & E-002.
B. ALL COMPONENTS ARE REQUIRED TO BE INSTALLED BY OEM CERTIFIED INSTALLER OF ITEMS PROVIDED FOR TELECOMMUNICATIONS CLOSET.
C. PROVIDE AND INSTALL SHEETS OF 3/4" FIRE RETARDANT PLYWOOD, PAINTED WITH WHITE FIRE RETARDANT PAINT (FIRE RETARDANT MARKINGS ON PLYWOOD MUST REMAIN VISIBLE) FROM 36" ABOVE FLOOR, UP 4" ALONG THREE WALLS INCLUDING DEMARC (LOCAL EXCHANGE CARRIER POINT OF PRESENCE) WALL OF THE IT CLOSET. SEE SPECIFICATION 07-84-00 "FIRESTOPPING" FOR ADDITIONAL INFORMATION.

KEY NOTES:

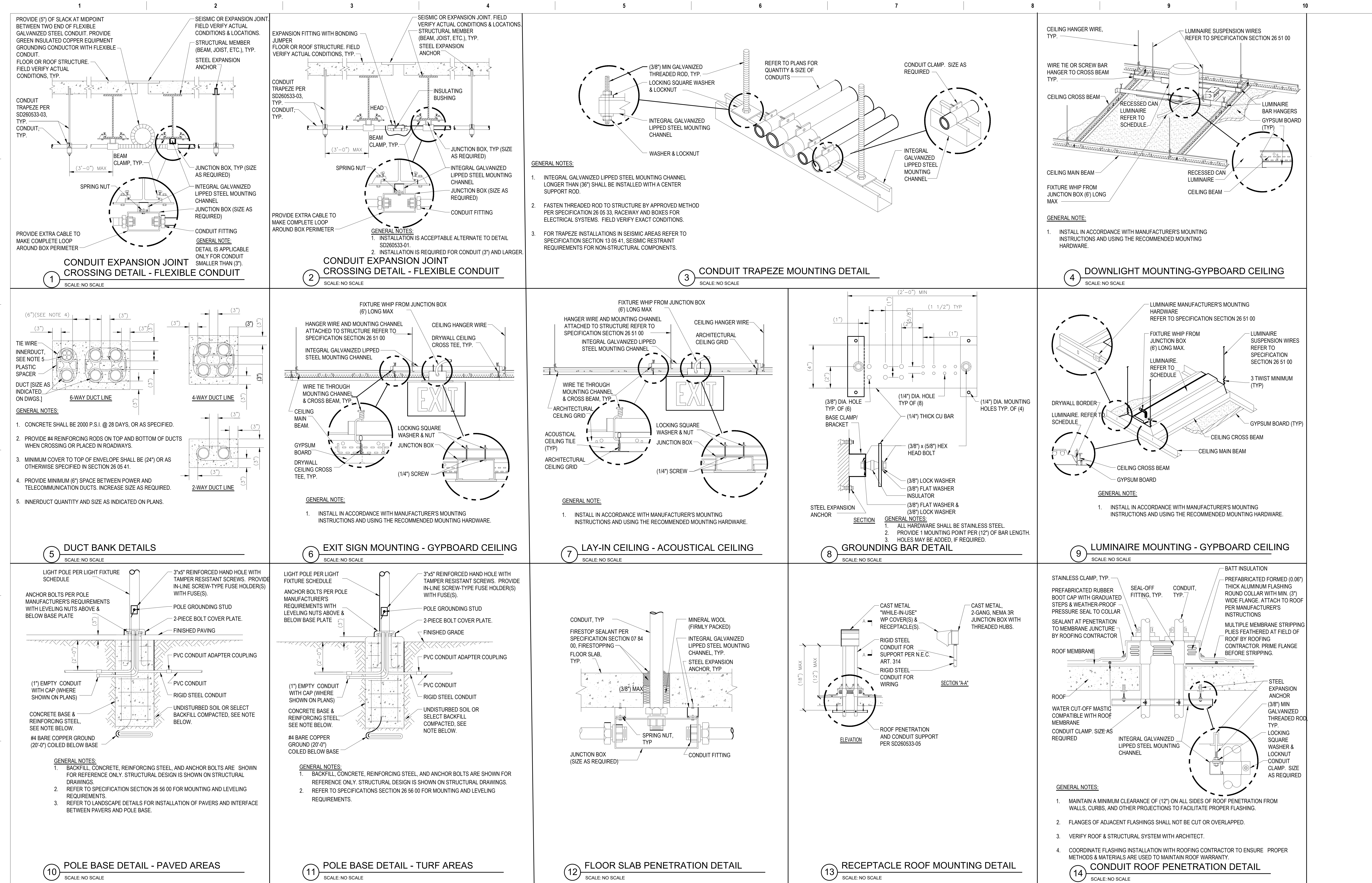
1. GENERAL CONTRACTOR SHALL PROVIDE 4'X8' FIRE TREATED BACKBOARD MOUNTED VERTICALLY WITH TOP AT 72" AFF PER SPECIFICATION 07-84-00 "FIRESTOPPING".
2. PROVIDE GROUND BAR PER DETAIL 8 ON SHEET E-501 AND PER SPECIFICATIONS 27-05-26 "GROUNDING AND BONDING FOR COMMUNICATION SYSTEMS."
3. PROVIDE #10 AWG STRANDED COPPER WIRE FROM GROUND BAR TO BUILDING STEEL WITHIN 6 FEET OF THE GROUND BAR, AND TERMINATE BOTH ENDS.
4. PROVIDE #6 AWG STRANDED COPPER WIRE INSTALLED WITH MINIMUM 2" SEPARATION FROM ALL OTHER CABLE TYPES, TO GROUND BAR IN ROOM AND TERMINATE BOTH ENDS.
5. REFERENCE TECHNICAL SPECIFICATIONS FOR THE UPS CHARACTERISTICS, SPECIFICATION No. 27-15-00 "COMMUNICATIONS STRUCTURED CABLING" AND 27- 11-00 "COMMUNICATIONS EQUIPMENT ROOM FITTINGS".
6. NOT USED.
7. PROVIDE CONTINUOUS #6 AWG STRANDED COPPER WIRE LOOP AROUND CABLE TRAY AND TERMINATE ON GROUND BAR IN ROOM. BOND CONDUCTOR TO TRAY AS REQUIRED BY SPECIFICATION 27-05-26 "GROUNDING AND BONDING FOR COMMUNICATION SYSTEMS."
8. REFERENCE TECHNICAL SPECIFICATIONS FOR THE COMPUTER RACK CHARACTERISTICS, SPECIFICATION No. 27-11-00 "COMMUNICATIONS EQUIPMENT ROOM FITTINGS".
9. NOT USED.
10. REFERENCE TECHNICAL SPECIFICATIONS FOR THE UPS CHARACTERISTICS, SPECIFICATION No. 27-15-00 "COMMUNICATIONS STRUCTURED CABLING" AND 27- 11-00 "COMMUNICATIONS EQUIPMENT ROOM FITTINGS".
11. ALL HORIZONTAL WIRE AND CABLE SHALL BE INSTALLED IN A RACEWAY SYSTEM WITHIN THE TELECOMMUNICATION CLOSET. THIS RACEWAY SHALL BE SUPPORTED FROM ABOVE THE RACK AREA WITH ENOUGH VERTICAL SPACE TO ALLOW FOR EASY ACCESS TO BOTH THE RACEWAY AND TOP OF THE RACK SYSTEM AND A GRACEFUL ENTRY FROM THE ABOVE RACEWAYS TO THE EQUIPMENT WITHIN THE RACKS BELOW. WATERFALL DEVICES PROVIDE THE SOFT TRANSITION FROM THE RACEWAY ABOVE THE RACKS TO THE DEVICES BELOW AND SHALL BE INSTALLED IN ADEQUATE NUMBERS TO FACILITATE THE NETWORK HARDWARE BEING DEPLOYED AND ADDITIONAL WATERFALL DEVICES PROVIDED TO IT FOR CURRENT AND FUTURE NEEDS. RACEWAY MUST RUN ACROSS THE TOP OF THE RACK IN FOUR DIRECTIONS, EACH POINT MEETING AT THE CENTER.
12. CONTRACTOR MUST INCLUDE IN THE PROCUREMENT THE NECESSARY PATCH CABLING TO SUPPORT EACH NETWORK JACK THAT IS INSTALLED. THESE CABLES SHALL BE GRAY 10' (STATION) AND GRAY 7'(CLOSET CABLES) SUPPORTING BOTH THE STATION SIDE AND THE TELECOMMUNICATIONS CLOSET.
13. CONTRACTOR MUST PROVIDE AND INSTALL POINT OF DEMARCATION EXTENSION FROM THE LOCAL EXCHANGE CARRIER (LEC) DEMARCATION POINT TO THE MAIN IT TELECOMMUNICATIONS ROOM. IF LEC FIBER DATA CIRCUIT HANDOFF IS AVAILABLE AT THE DEMARC, A 6 PAIR SINGLE MODE FIBER TERMINATED WITH LC BULKHEADS WILL BE PROVIDED FOR EXTENDING THE CIRCUIT.









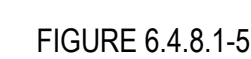
1 BLDG 173 TELECOM ROOM TELECOMM PLAN
SCALE: NO SCALE



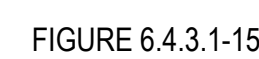
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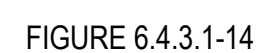
CONSULTANTS:		ARCHITECT/ENGINEERS:		STAMP:		Drawing Title		Phase		Project Title		Project Number	
 HOEFER WYSOCKI 1640 TOMAHAWK CREEK PARKWAY SUITE 400, LAMOND, MONTANA 59041		 VALHALLA ENGINEERING GROUP, LLC 750 W HAMPDEN AVE SUITE 300 ENGLEWOOD CO 80110 (720) 550-6307 WWW.VALHALLAENGINEERING.COM				ELECTRICAL DETAIL SHEET		100% CONSTRUCTION DOCUMENTS		OUTPATIENT MENTAL HEALTH / EDUCATION ADDITION		436-114	
 Protection Engineering		 JIRSA HEDRICK Structural Engineers				Approved: Project Director				Location 3687 VETERANS DRIVE, FORT HARRISON, MT 59636		Building Number 173 & 154	
Issued:		Date:		VEG 4.11						Issue Date 08/05/2020		Checked TL	
										Drawn BWW		Drawing Number E-501	



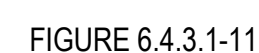
2 CABLE TRAY ON BRACED TRAPEZE
SCALE: NO SCALE



3 RIGID BRACING - TRAPEZE SUPPORTED CONDUIT
SCALE: NO SCALE



4 RIGID BRACING - SINGLE CONDUIT LONGITUDINAL
SCALE: NO SCALE

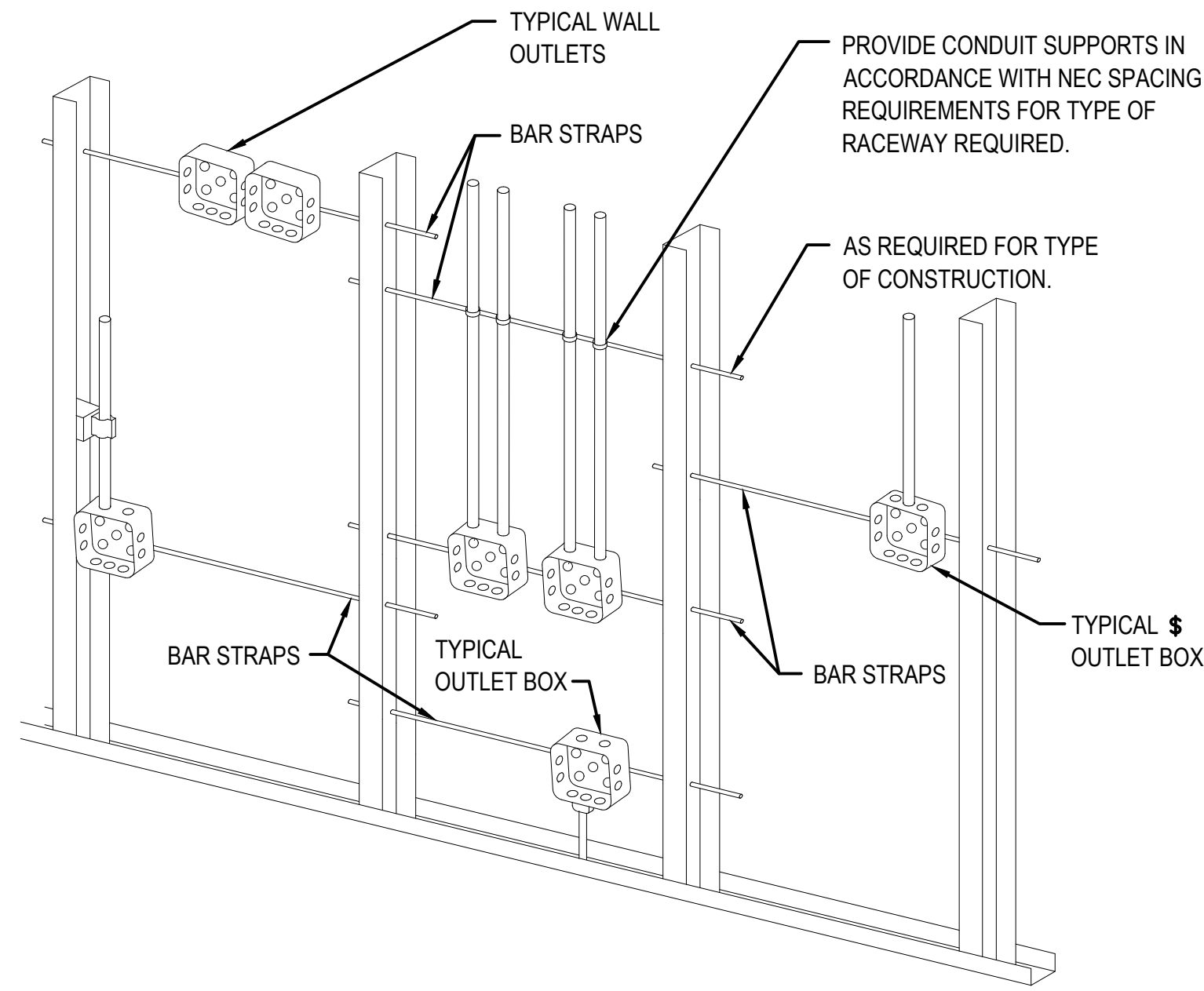


5 RIGID BRACING - SINGLE CONDUIT TRANSVERSE
SCALE: NO SCALE

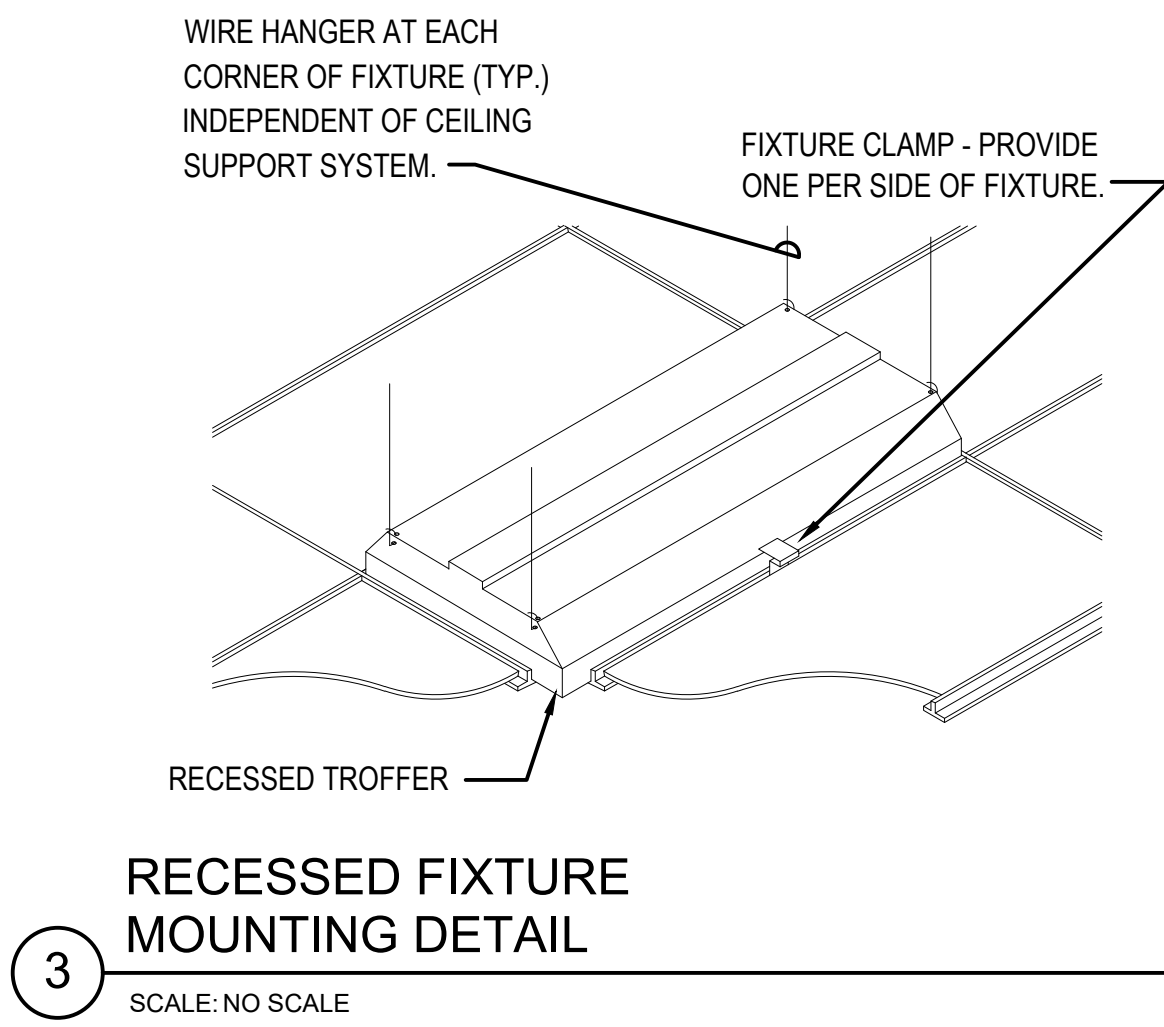


A

B



2 TYPICAL ROUGH-IN SUPPORT METHODS DETAIL
SCALE: NO SCALE

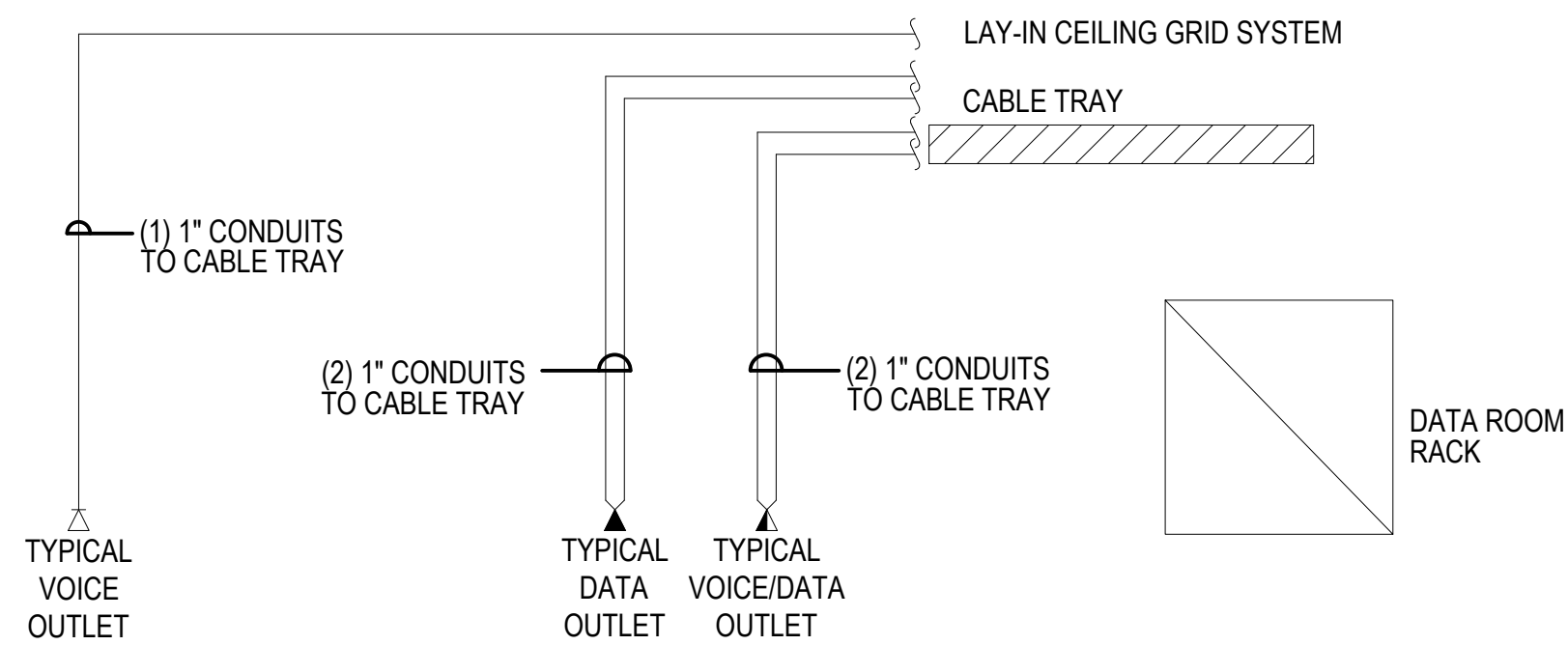


3 RECESSED FIXTURE MOUNTING DETAIL
SCALE: NO SCALE

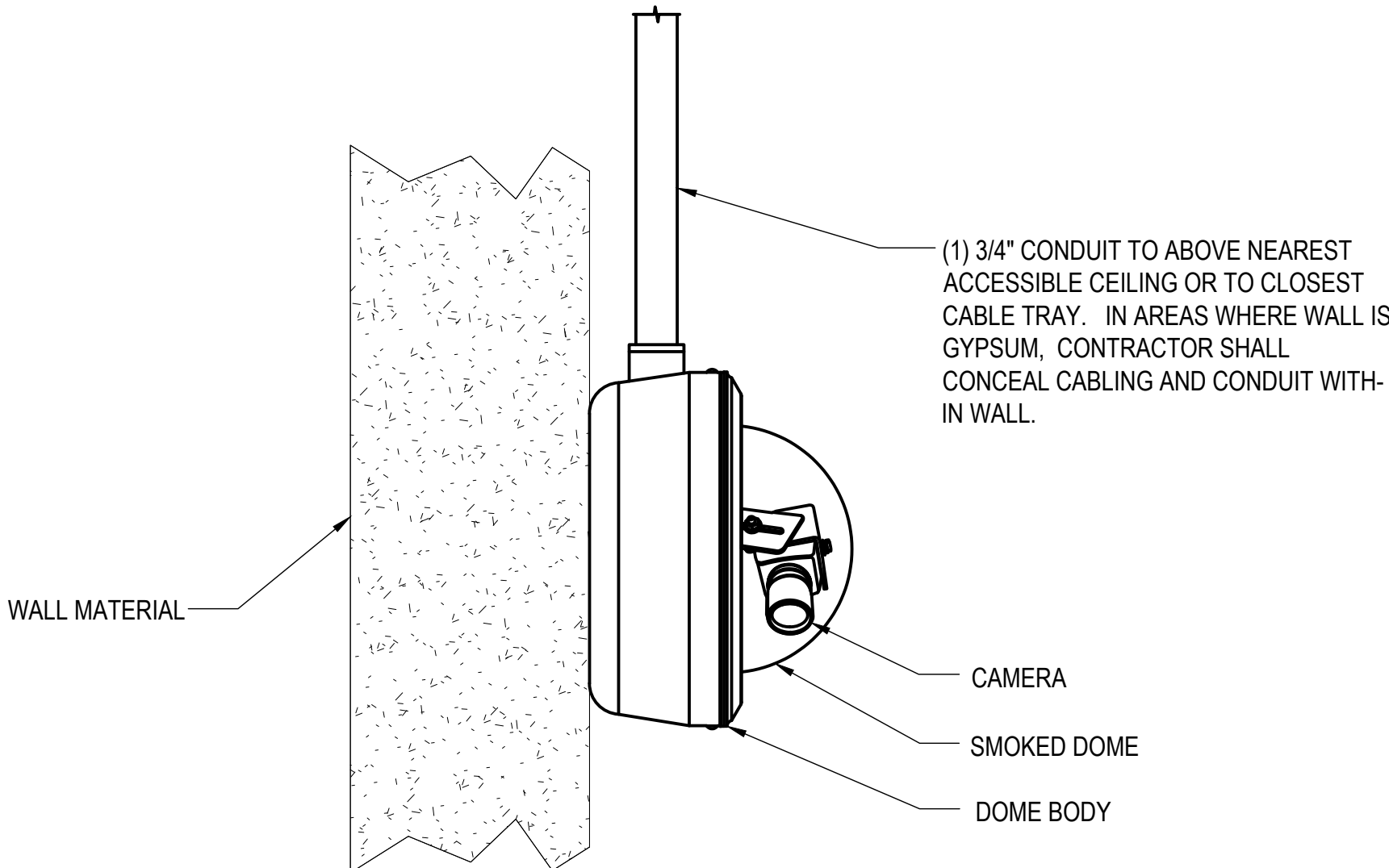
- ELECTRICAL GENERAL NOTES:**
- SEE SHEET E-001 FOR SESIMIC RESTRAINT NOTES AND FACILITY-SPECIFIC SEISMIC DESIGN BASIS PARAMETERS.
 - FIGURES ARE FROM FEMA E-74 REDUCING THE RISKS OF NONSTRUCTURAL EARTHQUAKE DAMAGE - A PRACTICAL GUIDE, DECEMBER 2012.
 - COORDINATE EXACT LOCATION OF CAMERA ON SITE WITH WORK BY OTHER TRADES TO ENSURE DESIRED VIEWING AREA AND SERVICE ACCESS AFTER COMPLETION OF PROJECT AND TO MINIMIZE ANY POSSIBLE DAMAGE TO INSTALLED CAMERA OR ASSOCIATED CABLING.
 - CONDUIT SHALL STUB TO NEAREST ACCESSIBLE CEILING AND TERMINATE ORIENTED HORIZONTALLY AT THE HEIGHT OF THE ASSOCIATED CABLE TRAY OR J-HOOK ROUTE. CONDUIT RUN SHALL NOT CONTAIN MORE THAN 180 DEGREES OF BEND BETWEEN ACCESSIBLE JUNCTION BOXES OR BETWEEN JUNCTION BOX AND END OF CONDUIT. WHERE CONDUIT STUBS THROUGH A WALL IN TO A CORRIDOR AND TERMINATES AT AN ASSOCIATED J-HOOK ROUTE, THE CONDUIT SHOULD ONLY EXTEND 2-4 INCHES IN TO THE CORRIDOR. WHERE CONDUIT STUBS TO AN ASSOCIATED CABLE TRAY, CONDUIT SHOULD EXTEND TO CABLE TRAY. ALL CONDUITS MUST BE FITTED WITH A NYLON BUSHING ON EACH END OF THE CONDUIT.
 - INSTALLING CONTRACTOR SHALL FURNISH AND INSTALL FIRESTOP MATERIALS FOR CAMERA ROUGH-INS PER PROJECT REQUIREMENTS. REFER TO SPECIFICATIONS FOR FIRESTOP REQUIREMENTS.

C

D



4 DATA ROOM RACK DETAIL
SCALE: NO SCALE

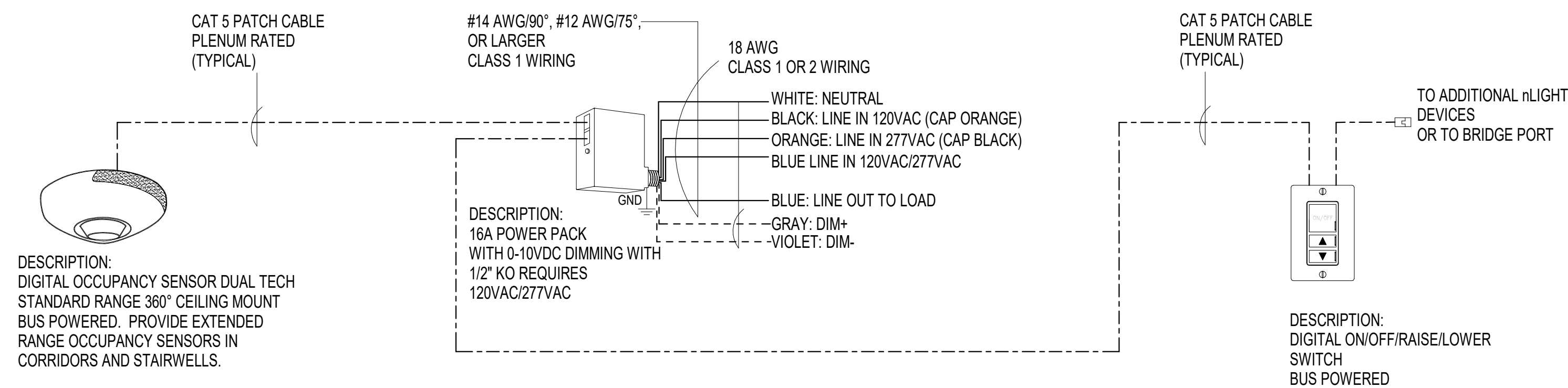


5 INTERIOR FIXED CAMERA WALL MOUNTING DETAIL
SCALE: NO SCALE

E

F

		CONSULTANTS:		ARCHITECT/ENGINEERS:		STAMP:		Drawing Title		Phase		Project Title		Project Number	
		HOEFER WYSOCKI 11660 TOMAHAWK CREEK PARKWAY SUITE 400 LEANWOOD, KANSAS 66041		VALHALLA ENGINEERING GROUP, LLC 750 W HAMPDEN AVE SUITE #300 ENGLEWOOD CO 80110 (720) 550-6307 WWW.VALHALLAENGINEERING.COM				ELECTRICAL SEISMIC DETAILS		100% CONSTRUCTION DOCUMENTS		OUTPATIENT MENTAL HEALTH / EDUCATION ADDITION		436-114	
		Protection Engineering CONSULTANTS		JIRSA HEDRICK Structural Engineers				Approved: Project Director				Location 3687 VETERANS DRIVE, FORT HARRISON, MT 59636		Building Number 173 & 154	
Issued:		Date:										Issue Date 08/05/2020		Checked TL	
												Drawn BWW		Drawing Number E-504	

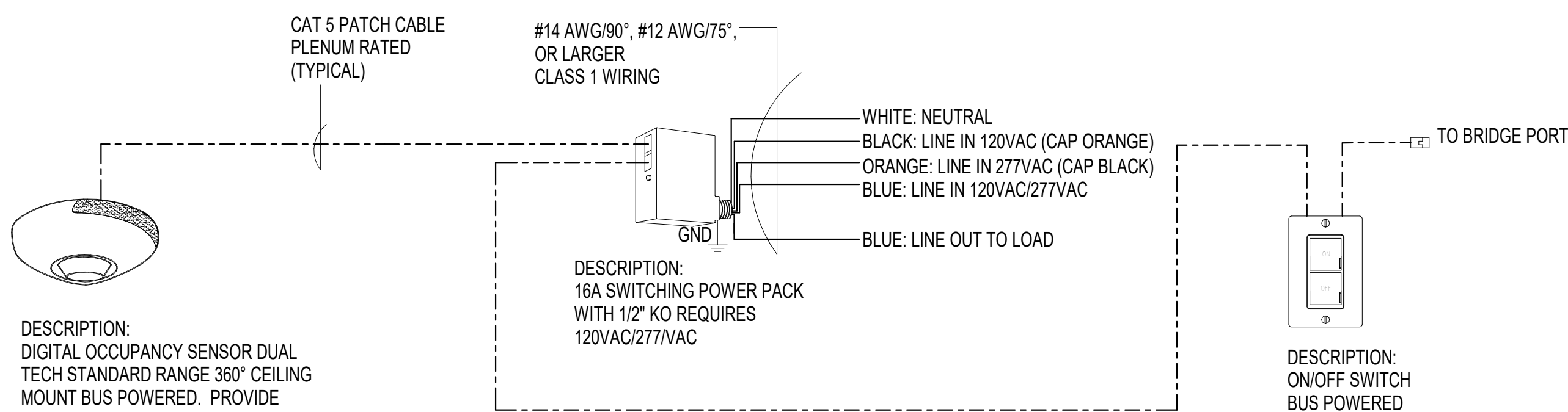


SEQUENCE OF OPERATION:

1. LIGHTS ARE MANUAL ON.
2. OCCUPANCY SENSOR PROVIDES AUTOMATIC ON/OFF OF LIGHTS BASED ON ROOM OCCUPANCY (USE DEFAULT TIME DELAY FOR OCCUPANCY SENSOR).
3. DIMMER SWITCH PROVIDES MANUAL OVERRIDE OF THE LIGHTS: ON/OFF/RAISE/LOWER.

LOW VOLTAGE LIGHTING CONTROL WITH DIMMING - PH 1

NO SCALE

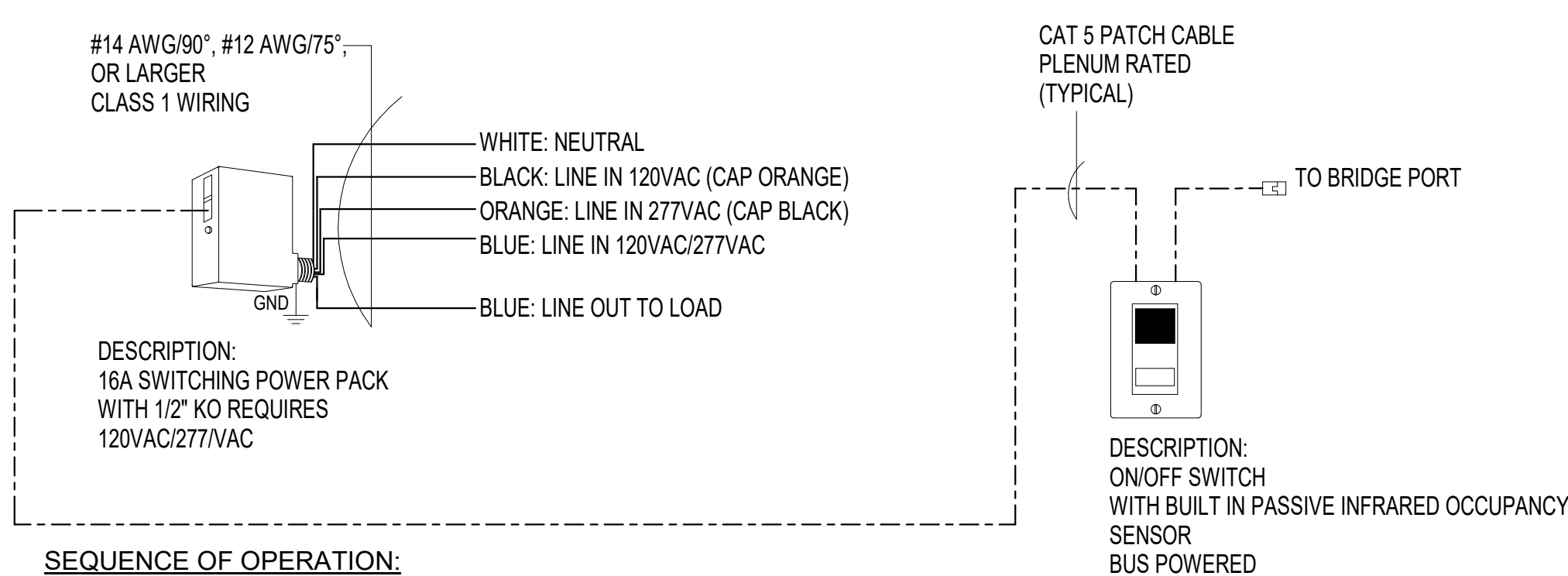


SEQUENCE OF OPERATION:

1. LIGHTS ARE MANUAL ON.
2. OCCUPANCY SENSOR PROVIDES AUTOMATIC OFF OF LIGHTS BASED ON ROOM OCCUPANCY. USE DEFAULT TIME DELAY FOR OCCUPANCY SENSOR.
3. SWITCH PROVIDES MANUAL OVERRIDE OF THE LIGHTS: ON/OFF.

LOW VOLTAGE LIGHTING CONTROL WITH SWITCHING- PH 1

NO SCALE

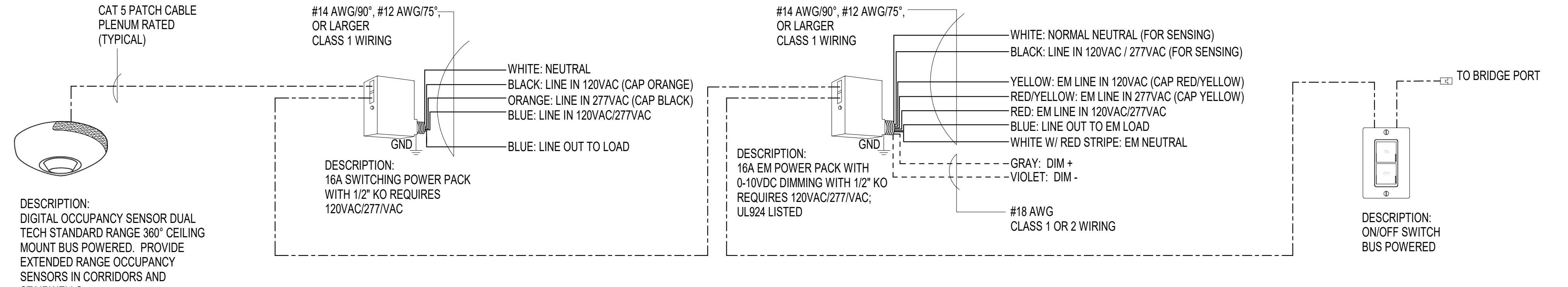


SEQUENCE OF OPERATION:

1. LIGHTS ARE MANUAL ON.
2. OCCUPANCY SENSOR PROVIDES AUTOMATIC OFF OF LIGHTS BASED ON ROOM OCCUPANCY. USE DEFAULT TIME DELAY FOR OCCUPANCY SENSOR.
3. SWITCH PROVIDES MANUAL OVERRIDE OF THE LIGHTS: ON/OFF.

LOW VOLTAGE LIGHT SWITCH WITH INTEGRAL OCCUPANCY SENSOR SWITCH - PH 1

NO SCALE

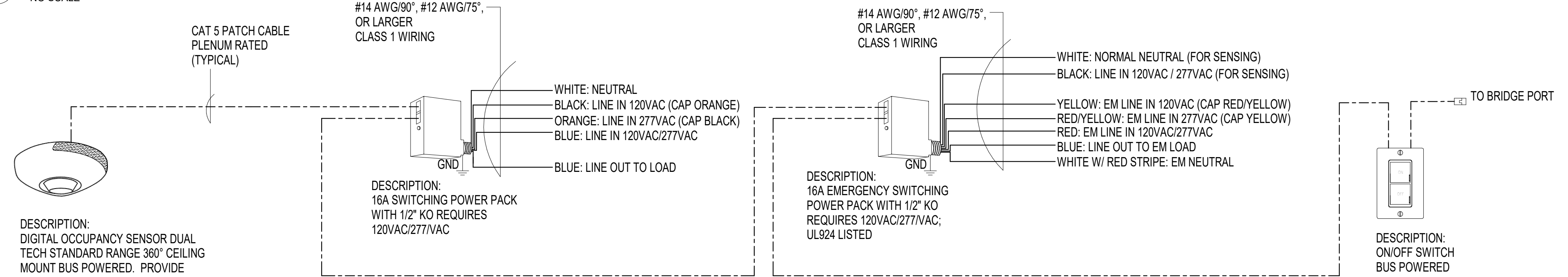


SEQUENCE OF OPERATION:

1. LIGHTS ARE MANUAL ON.
2. OCCUPANCY SENSOR PROVIDES AUTOMATIC OFF OF LIGHTS BASED ON ROOM OCCUPANCY. USE DEFAULT TIME DELAY FOR OCCUPANCY SENSOR.
3. SWITCH PROVIDES MANUAL OVERRIDE OF THE LIGHTS: ON/OFF.

LOW VOLTAGE LIGHTING CONTROL WITH 0-10VDC DIMMING W/EMER. TRANSFER
DEVICE- PH 1

NO SCALE

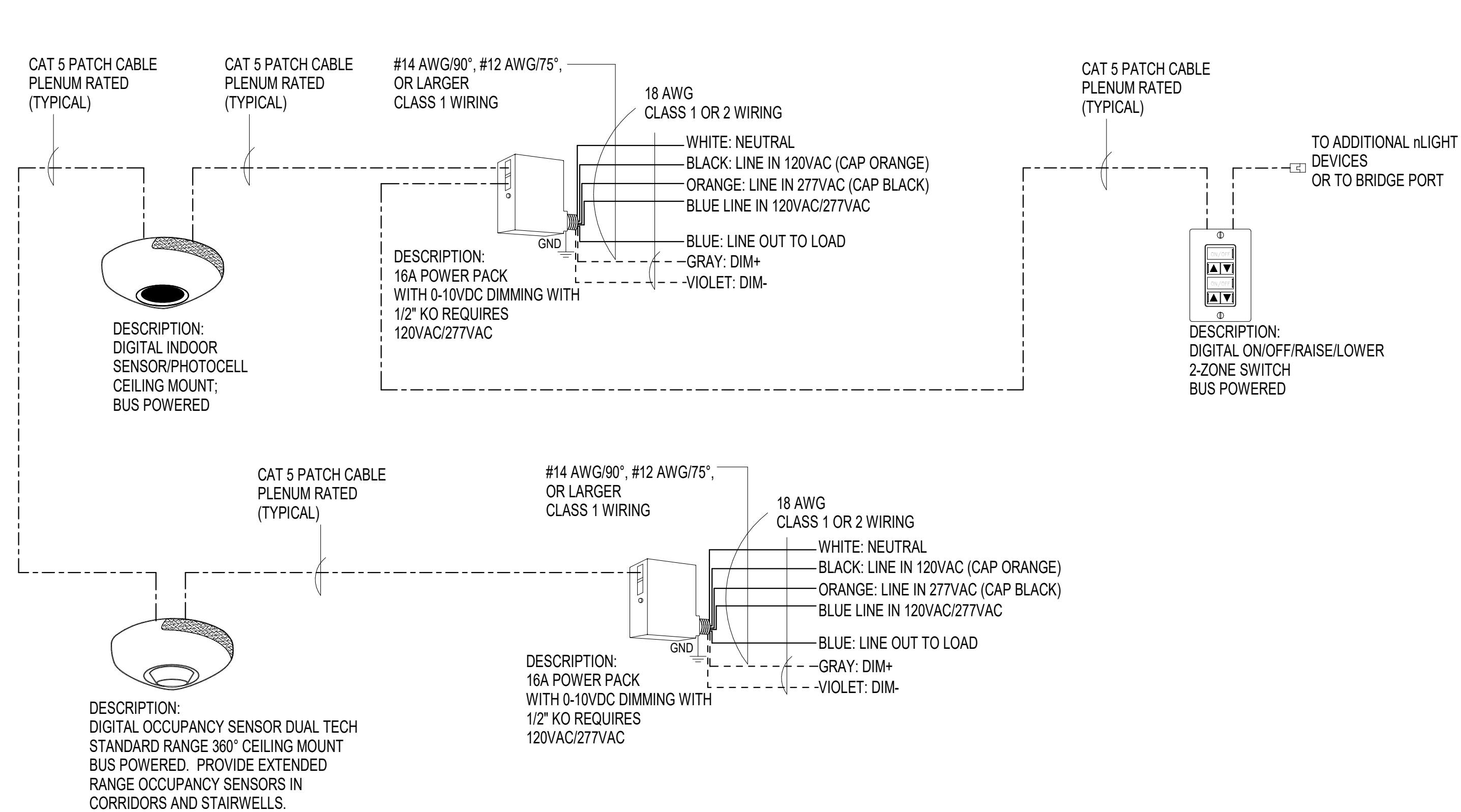


SEQUENCE OF OPERATION:

1. LIGHTS ARE MANUAL ON.
2. OCCUPANCY SENSOR PROVIDES AUTOMATIC OFF OF LIGHTS BASED ON ROOM OCCUPANCY. USE DEFAULT TIME DELAY FOR OCCUPANCY SENSOR.
3. SWITCH PROVIDES MANUAL OVERRIDE OF THE LIGHTS: ON/OFF.

LOW VOLTAGE LIGHTING CONTROL WITH SWITCHING W/EMER. TRANSFER DEVICE- PH 1

NO SCALE



SEQUENCE OF OPERATION:

1. LIGHTS ARE MANUAL ON.
2. OCCUPANCY SENSOR PROVIDES AUTOMATIC ON/OFF OF LIGHTS BASED ON ROOM OCCUPANCY (SET 20 MINUTE TIME DELAY FOR OCCUPANCY SENSOR).
3. LOW VOLTAGE SWITCH(S) PROVIDE MANUAL OVERRIDE OF THE LIGHTS: ON/OFF/RAISE/LOWER.
4. PHOTOSENSOR INTEGRAL IN DESIGNATED OCCUPANCY SENSOR PROVIDES CONTINUOUS DIMMING OF DAYLIGHT ZONE, AND WILL PROVIDE COMPLETE SHUTOFF IM AMPLE DAYLIGHT IS PRESENT. PROGRAMMING TO BE READILY ACCESSIBLE.

LOW VOLTAGE LIGHTING CONTROL WITH DIMMING W_ DAYLIGHTING - PH 1

NO SCALE

[illegible]



1

GENERAL SYSTEM NOTES:

ON DIGITAL SYSTEMS, ALL DEVICES TO BE CONNECTED IN A DASH CHAIN PATTERN SHOULD TO THE FIRST AND LAST DEVICE IN THE CHAIN HAS AN OPEN PORT. NO T-TAP CONNECTIONS EXCEPT FOR "NIGHT" "RUB" DEVICES UTILIZING THEIR INCLUDED RAS SPLITTER AND DASH PACKAGING.

ON DIGITAL SYSTEMS, CONTRACTOR SHALL NOTE AND LABEL ADDRESS AND LOCATION OF EACH DEVICE ON THE SYSTEM. ON-LINE DIAGRAMS OR SYSTEM LAYOUT DRAWINGS AT TIME OF INSTALLATION.

WIRING SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE (NEC) AND APPLICABLE LOCAL CODES, INCLUDING PROVISION OF EQUIPMENT GROUNDING AS REQUIRED BY THE NEC.

POWER CONDUCTORS SHALL BE SIZED PER THE NEC CAPACITY TABLES (ARTICLE 310), INCLUDING ADJUSTMENT FACTOR AND NEUTRAL CONDUCTOR REQUIREMENTS. FEED AND BRANCH NEUTRAL CONDUCTORS MUST BE COUNTED AS CURRENT CARRYING CONDUCTORS. RUN SEPARATE NEUTRAL CONDUCTORS FOR EACH DIMMED LOAD CIRCUIT.

FOR 0-10VDC DIMMING SYSTEMS, VIOLET AND GRAY CONDUCTORS ARE FOR 0-10VDC LOW VOLTAGE TERMINATIONS ONLY. NEVER TERMINATE LINE VOLTAGE (120/230V/7VAC) TO VIOLET AND GRAY.

CONTRACTOR IS RESPONSIBLE FOR ALL CONTROL TERMINATIONS. NO SPLICES ARE PERMITTED IN CONTROL WIRING.

POWER AND CONTROL CONDUCTORS MUST NOT SHARE THE SAME RACEWAY OR CONDUIT EXCEPT WHERE ALLOWED.

LIGHTING CONTROL EQUIPMENT MUST BE INSTALLED, MAINTAINED, AND OPERATED IN AN "OFFICE CLEAN" DRY ENVIRONMENT, INDOOR DRY LOCATIONS ONLY. 10% - 90% RELATIVE HUMIDITY. AMBIENT TEMPERATURE: 0°-40°C (32°- 104°F) - 0°-35°C (32°-95°F) RECOMMENDED.

SENSORS IN ELECTRICAL, MECHANICAL, LOCATIONS NEED TO BE VERIFIED WITH AUTHORITY HAVING JURISDICTION. REFER TO NEC 110.2(D).

VERIFY MAXIMUM CABLE LENGTHS BASED ON CONTROL SYSTEM MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLE PARAMETERS.

LOW VOLTAGE CABLE MUST BE INSTALLED AT LEAST 12 INCHES FROM ALL LINE VOLTAGE CONDUCTORS EXCEPT TO CROSS OR MAKE TERMINATIONS. CAT. 5 CABLE MUST BE KEPT AWAY FROM ALL LIFE DEVICES SUCH AS BALASTS OR TRANSFORMERS.

NETWORKED LOW VOLTAGE SYSTEM NOTES:

EVERY DIGITAL LOW VOLTAGE LIGHTING CONTROL SYSTEM ENABLED DEVICE IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DRAINAGE SLIP PROVIDED AS PART OF THE DIGITAL LOW VOLTAGE LIGHTING SYSTEM SUBMITTAL DRAWINGS. DURING INSTALLATION AND PRIOR TO FACTORY STARTUP, CONTRACTOR SHALL PLACE EACH OF THE TAGS BELOW EACH CORRESPONDING DEVICE SHOWN ON RISER DRAWING TO FACILITATE FACTORY STARTUP. FAILURE TO COMPLY MAY RESULT IN STARTUP DELAYS AND ADDITIONAL COSTS AT THE CONTRACTOR'S EXPENSE. DO NOT PLACE DEVICE ID TAGS ON FLOOR PLAN.

ONE RELAY PACK IS NEEDED PER CIRCUITRY TO BE CONTROLLED AND CAN RESIDE WITH SENSORS, WALLPODS, OR RELAY PACKS. REQUIRED POWER PACKS ARE NOT INDICATED ON DRAWINGS. REFER TO LOW VOLTAGE LIGHTING CONTROL SYSTEM RISER DRAWING PROVIDED BY SYSTEM MANUFACTURER WITH THE SUBMITTAL DRAWINGS. FINAL PLACEMENT IS UP TO DISCRETION OF CONTRACTORENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF RELAYS NEEDED TO SWITCH ALL DESIRED LOADS.

BRIDGES / RELAYS / POWER PACKS ARE NOT INDICATED ON THE DRAWINGS. THE TYPICAL LIGHTING CONTROL WIRING DIAGRAMS SHALL BE USED TO DETERMINE THE QUANTITY OF REQUIRED BRIDGES AND POWER PACKS. WALLPODS, AND SENSORS ON DRAWINGS WHEN PLACED WITH INFORMATION PROVIDED AT TIME OF DESIGN. ADDITIONAL BRIDGES AND/OR SENSORS MAY BE REQUIRED DEPENDING ON BUILDING CHANGES. FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT.

A TYPICAL LAYOUT OF THE NETWORK BRIDGES (BRIDGES AND GATEWAYS) HAS BEEN PLACED IN A SEPARATE TREE DIAGRAM AND NOT ON THE ACTUAL LAYOUT. FINAL PLACEMENT OF THE BRIDGES) AND GATEWAYS) DEVICES SHALL BE AT THE CONTRACTOR'S / ENGINEER'S DISCRETION.

ALL DEVICES HAVE RJ-45 FEMALE PORTS. MAKING NETWORK CABLES IS REQUIRED. 1568B TERMINATIONS ARE RECOMMENDED. IT IS IMPERATIVE THAT ALL NETWORK CABLES BE TESTED WITH A LAN CABLE TESTER TO VERIFY PROPER TERMINATIONS.

Daisy-chained devices should be powered up and working on default programming prior to connection to bridge or gateways.

LOW VOLTAGE NETWORK CABLE CAN (CAT5E/6) RUNS FOR LOCAL ZONES, HOMERUNS AND BACKBONE SHALL BE WHITE WITH CABLES LABELED.

CONTRACTOR TO VERIFY BUNDLING/DIAGNOSTIC CODES WHEN CONNECTING GATEWAYS-BRIDGES TO ZONES. MAXIMUM CABLE LENGTH FROM START DEVICE TO END DEVICE IS 1500' INCLUDING HOMERUN TO DEVICE, IF PRESENT. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLE PARAMETERS.

CONTRACTOR/INSTALLER TO VERIFY WITH THE MANUFACTURER TYPE AND QUANTITY OF OCCUPANCY SENSORS TO ENSURE 100% COVERAGE OF THE SPACE(S) WHERE SHOWN CONTROLLED BY OCCUPANCY SENSOR(S).

LOW VOLTAGE LIGHTING CONTROL SYSTEM SOFTWARE SHALL BE LOADED onto LAPTOP COMPUTER PROVIDED BY LOW VOLTAGE LIGHTING CONTROL SYSTEM MANUFACTURER. SYSTEM SOFTWARE IS PROHIBITED TO BE LOADED onto ANY NETWORK.

DURING NETWORK SYSTEM SET-UP, ALL NETWORK DEVICES POPULATED IN THE LOW VOLTAGE LIGHTING CONTROLS SOFTWARE SHALL BE RENAMED USING OWNER DESIGNATED ROOM NAME

A

B

C

D

E

F

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LIGHTING FIXTURE SCHEDULE										
TYPE	DESCRIPTION	LENS/LOUVER	MOUNTING	LAMP	BALLAST / DRIVER	VOLT	WATT	MFR	CATALOG SERIES	NOTE
A11	EDGE LIT FLAT PANEL 1/4 RECESSED LED LUMINAIRE SEAMLESS ALUMINUM FRAME WITH WHITE FINISH	FLUSH SATIN ACRYLIC DIFFUSER	LAY-IN GRID	3000 LUMEN / 4 FT @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	26 W	LITHONIA	EPANL 1X4 3000LM 80CRI 35K MINI EZT MVOLT 1-100% CD	1
A13	EDGE LIT FLAT PANEL 1/4 RECESSED LED LUMINAIRE SEAMLESS ALUMINUM FRAME WITH WHITE FINISH	FLUSH SATIN ACRYLIC DIFFUSER	LAY-IN GRID	1500 LUMEN / 4 FT @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	13 W	LITHONIA	EPANL 1X4 1500LM 80CRI 35K MINI EZT MVOLT 1-100% CD	1
A21	EDGE LIT FLAT PANEL 2X4 RECESSED LED LUMINAIRE SEAMLESS ALUMINUM FRAME WITH WHITE FINISH	FLUSH SATIN ACRYLIC DIFFUSER	LAY-IN GRID	6000 LUMEN @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	53 W	LITHONIA	EPANL 2X4 6000LM 80CRI 35K MINI EZT MVOLT 1-100% CD	1
A31	EDGE LIT FLAT PANEL 2X2 RECESSED LED LUMINAIRE SEAMLESS ALUMINUM FRAME WITH WHITE FINISH	FLUSH SATIN ACRYLIC DIFFUSER	LAY-IN GRID	2000 LUMEN @3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	18 W	LITHONIA	EPANL 2X2 2000LM 80CRI 35K MINI EZT MVOLT 1-100% CD	1
B1	4 INCH DIAMETER LED OPEN DOWNLIGHT, SELF FLANGED, CLEAR SEMISPECULAR REFLECTOR, MEDIUM WIDE DISTRIBUTION.	NONE	RECESSED	LED 2000 LUMEN @ 3500K	ELDO LED 0-10VDC 1-100% CD	120 V	20 W	GOTHAM	EVO4 3520 4AR MMVD LSS MVOLT EZI	
B2	4 INCH DIAMETER SELF-FLANGED RECESSED ROUND OPEN DOWNLIGHT, SEMI-SPECULAR DIFFUSER WIDE DISTRIBUTION.	NONE	RECESSED	LED 1000 LUMEN @ 3500K	ELDO LED 0-10VDC 1-100% CD	120 V	13 W	GOTHAM	EVO 3510 4AR WD LSS MVOLT EZI	
C2	2 FOOT LINEAR LUMINAIRE, 3 1/2" WIDE X 3 1/2" TALL, EXTRUDED ALUMINUM HOUSING WITH SATIN ANODIZED FINISH AND NO VISIBLE FASTENERS, FROSTED ACRYLIC WRAP LENS.	FROSTED ACRYLIC	SURFACE WALL	5760 LUMEN / 4 FT @ 3500K LED	0-10VDC 10-100% CD	120 V	16 W	LUMIUM	NB3 5MT LED M 35K 2 U 10D SC MF F	
D1	4 FOOT SURFACE MOUNT LED WRAP AROUND LUMINAIRE, NARROW HOUSING.	ACRYLIC PATTERNED #12 PRISMATIC WRAP AROUND DIFFUSER	SURFACE	3000 LUMEN @ 3500K LED	0-10VDC CD	120 V	26 W	LITHONIA	LBK 4 3000LM 80CRI 35K NODIM MVOLT	
E1	CONTEMPORARY LED SINGLE FACED EXIT SIGN WITH WHITE POWDER PAINT ALUMINUM HOUSING, WHITE STENCIL FACE, RED LETTERS, AND CHEVRON ARROWS AS SHOWN ON PLANS.	---	UNIVERSAL	LED 50000 HR	---	120 V	5 W	LITHONIA	LES W 1 R 120/277	
E2	CONTEMPORARY LED DOUBLE FACED EXIT SIGN WITH WHITE POWDER PAINT ALUMINUM HOUSING, WHITE STENCIL FACE, RED LETTERS, AND CHEVRON ARROWS AS SHOWN ON PLANS.	---	UNIVERSAL	LED 50000 HR	---	120 V	5 W	LITHONIA	LES W 2 R 120/277	
F1	4 FOOT LINEAR LED INDUSTRIAL STRIP LUMINAIRE, 2 INCH WIDE APERTURE, HOUSING TO HAVE WHITE FINISH.	FROSTED ACRYLIC	CHAIN SUSPEND SURFACE	4,390 LUMENS @ 4000K	END	120 V	41 W	LITHONIA	ZL1N L48 5000LM FST MVOLT 40K 80CRI	1
G1	8 FOOT SURFACE LINEAR LED LUMINAIRE, 2 INCH WIDE APERTURE, HOUSING TO HAVE WHITE FINISH.	ASYMMETRIC ACRYLIC	SURFACE	500 LUMEN / FT @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	26 W	PINNACLE	EX20-WHE-N-835-6-S-U-EE 1-1-0-GR-	
K4	4 FOOT SOLID FRONT TASK LIGHT, STEEL HOUSING WITH WHITE PAINTED FINISH, PRISMATIC ACRYLIC LENS.	.125 ACRYLIC PRISMATIC	UNDERCABINET	760 LUMEN / FT @ 3500K	END	120 V	30 W	FAILSAFE	4LD4 35 A12125 EDC1 UW	1
L1	4 FOOT RECESSED LED WALL WASH LUMINAIRE, 2" W X 4" DEEP, ASYMMETRIC DISTRIBUTION WHITE FRAME FINISH.	ASYMMETRIC PRISMATIC ACRYLIC	LAY-IN GRID	500 LUMEN / FT @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	17 W	PINNACLE	EV2S-WHE-835-4-(GB)(G)-EE1-1-W	
N2	6 FOOT LINEAR LUMINAIRE, DIRECT / INDIRECT DISTRIBUTION, 8" W X 2 1/2" H EXTRUDED ALUMINUM HOUSING, CLEAR ANODIZED ALUMINUM FINISH.	EXTRUDED FROSTED ACRYLIC	CABLE SUSPENDED	1315 LUMEN / 4 FT @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	56 W	PINNACLE	EX20I-BW-BW-835-835-8-M AC48G9-U-EE1-2-W	
NZE	6 FOOT LINEAR LUMINAIRE, DIRECT / INDIRECT DISTRIBUTION, 2" W X 5 1/2" H EXTRUDED ALUMINUM HOUSING, WHITE FINISH, BATWING (WIDE) DIRECT DISTRIBUTION, BATWING (WIDE) INDIRECT DISTRIBUTION, DIRECT AND INDIRECT ILLUMINATION TO BE SEPARATELY CONTROLLED, ENTIRE LENGTH OF BOTTOM TO BE ON EMERGENCY CIRCUIT.	PRISMATIC ACRYLIC FOR BOTH DIRECT TOP AND BOTTOM	FULLY ADJUSTABLE AIRCRAFT CABLE	500 LUMEN / FT @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	26 W	PINNACLE	EX20I-BW-BW-835-835-8-M AC48G9-U-EE1-2-ZE-W	
N3	8 FOOT LINEAR LUMINAIRE, DIRECT / INDIRECT DISTRIBUTION, 8" W X 2 1/2" H EXTRUDED ALUMINUM HOUSING, CLEAR ANODIZED ALUMINUM FINISH.	EXTRUDED FROSTED ACRYLIC	CABLE SUSPENDED	1315 LUMEN / 4 FT @ 3500K LED	ELDO LED 0-10VDC 1-100% CD	120 V	75 W	PINNACLE	EX20I-BW-BW-835-835-8-M AC48G9-U-EE1-2-W	
AA1	FULL CUTOFF LED ROUND MULTI-ARMED (SPIDER MOUNT) LUMINAIRE MOUNTED ON 10 FOOT ROUND ALUMINUM ANCHOR BASE POLE WITH TWO PIECE CAST ALUMINUM DECORATIVE BASE COVER. LUMINAIRE TO HAVE TYPE V DISTRIBUTION, LUMINAIRE AND POLE TO HAVE DARK BRONZE FINISH.	TEMPERED GLASS	POST TOP	LED	END	120 V	75 W	CREE LIGHTING	ARE-EDR SM-R3-06-E-UL-BZ-350-40K	
BB1	LOW PROFILE, FULL CUTOFF LED WALLPACK, DIE-CAST ALUMINUM HOUSING, 11" WIDE X 4" DEEP X 8" TALL, PRE RATED.	---	SURFACE WALL	1550 @ 4000K	0-10 VDC CD	120 V	30 W	LITHONIA	WPX LED P1 40K MOVLT DOBKD	
CC1	4 FOOT WALL EXTENSION ARM MOUNTED LOW VOLTAGE, ASYMMETRIC WALL WASH DISTRIBUTION, 12 INCH MOUNTING ARMS.	HALF FROSTED CLEAR TEMPERED GLASS	12 INCH EXTENSION ARMS	864 LUMENS/FT @ 4000K	REMOTE 0-10VDC CD	120 V	30 W	LUMENPULSE	LOGNH 2W 48V 48 40K WW HFR WAMNH12 BR2 UC TL UL	
DD1	EXTERIOR LED WALL CYLINDER	CLEAR TEMPERED GLASS	WALL	530 LUMENS @ 4000K	END	120 V	10 W	LITHONIA	OLLVD LED	

SCHEDULE NOTES:
1. CAP OFF LOW VOLTAGE WIRING TO ALLOW SWITCHING CONTROL.

DRIVER TYPES:
END ELECTRONIC NON-DIM
0-10VDC CONTINUOUS DIMMING

GENERAL NOTES:

- A. COMPLY WITH APPROPRIATE SECTIONS 260922, 265100 OF THE SPECIFICATIONS.
B. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, DRIVERS AND LIGHT SOURCES.
C. THE CATALOG NUMBERS LISTED BELOW HAVE BEEN CAREFULLY PREPARED TO ASSIST BIDDERS IN SELECTING PRODUCTS TO ACHIEVE THE DESIGN CONCEPT, HOWEVER, PRIOR TO BIDDING, EACH MANUFACTURER SHALL COMPILE THE CATALOG NUMBERS SHOWN WITH THE DESCRIPTION AND REQUIREMENTS ON THE DRAWINGS, AND SHALL NOTIFY THE COR OF ANY DISCREPANCIES.
D. SPECIFICALLY INCLUDED IN THE EVALUATION SHALL BE THE VERIFYING OF PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
E. NO ALLOWANCE OR REDRESS WILL BE ALLOWED FOR DISCREPANCIES THAT WERE NOT REPORTED TO THE COR IN TIME FOR CORRECTION OR CLARIFICATION BEFORE THE BID. THE REPORTING OF ANY AMBIGUITY IS THE RESPONSIBILITY OF THE BIDDER.
F. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPE SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER.
G. SUBMITTAL PACKAGE SHALL INCLUDE CATALOG NUMBER ON EACH FIXTURE SHEET.
H. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE DRIVER AND LED PACKAGE PROPOSED.
I. UNIVERSAL VOLTAGE (120/277) DRIVERS REQUIRED UNLESS NOTED OTHERWISE.

LIGHTING CONTROL DEVICE SCHEDULE					
TYPE	DESCRIPTION	MANUFACTURER	CATALOG NO.	VOLTS	NOTES
DT	DUAL TECHNOLOGY PASSIVE INFRARED AND ULTRASONIC OCCUPANCY SENSOR, 360° COVERAGE, MINIMUM 1000 SQUARE FEET	rLIGHT	rCM PDT 9	24 V	1
DT	DUAL TECHNOLOGY PASSIVE INFRARED AND ULTRASONIC OCCUPANCY SENSOR, WIDE ANGLE LENS, MINIMUM 1000 SQUARE FEET, INTEGRAL DAYLIGHT HARVESTING PHOTOCELL.	rLIGHT	rCM PDT 10 ACDX	24 V	1
GRS	DIGITAL LOW VOLTAGE GRAPHIC TOUCH SCREEN CONTROL SWITCH.	rLIGHT	rPOD TOUCH WH	24 V	1
LV	DIGITAL LOW VOLTAGE WALL SWITCH	rLIGHT	rPODM	24 V	1, 2
LV	DIGITAL FLAT LOW VOLTAGE DIMMER	rLIGHT	rPODM DX	24 V	1, 2
LV	DIGITAL 2 CHANNEL LOW VOLTAGE NETWORK DIMMER	rLIGHT	rPODM DX	24 V	1, 2
LV	DIGITAL 2 CHANNEL LOW VOLTAGE NETWORK DIMMER	rLIGHT	rPODM 4P DX	24 V	1, 2
LV	DIGITAL LOW VOLTAGE WALL SWITCH WITH INTEGRAL PIR OCCUPANCY SENSOR.	rLIGHT	rWSX LV	24 V	1, 2
LV	DIGITAL LOW VOLTAGE WALL DIMMER WITH INTEGRAL DUAL TECHNOLOGY OCCUPANCY SENSOR AND PHOTOCELL	rLIGHT	rWSX PDT LV DX	24 V	1, 2

SCHEDULE NOTES:
1. PROVIDE DIGITAL CONTROL MODULE DEVICE TO MATCH OPERATING VOLTAGE OF LOADS CONTROLLED.
2. PROVIDE CUSTOM ENGRAVED SWITCHES BUTTONS. FORMS TO BE PROVIDED TO OWNER FOR COMPLETION AND CUSTOM BUTTONS TO BE INSTALLED WITHIN 6 MONTHS OF OCCUPANCY.

LIGHTING CONTROL SCHEDULE				
ROOM NUMBER	ROOM NAME	CHANNEL	LIGHT CONTROL TYPE	REMARKS
A100A	CORRIDOR	ao	0-10VDC DIMMED	1
A100A	CORRIDOR	az	0-10VDC DIMMED	1
A100A	CORRIDOR	f	0-10VDC DIMMED	1, 3
A100B	CORRIDOR	ar	0-10VDC DIMMED	1
A100C	CORRIDOR	av	0-10VDC DIMMED	1
A100D	CORRIDOR	aq	0-10VDC DIMMED	1
A100D	CORRIDOR	ay	0-10VDC DIMMED	1
A100D	CORRIDOR	ta	0-10VDC DIMMED	1, 3
A100D	CORRIDOR	tb	0-10VDC DIMMED	1, 3
A100D	CORRIDOR	te	0-10VDC DIMMED	1
A100E	CORRIDOR	ap	0-10VDC DIMMED	1
A100E	CORRIDOR	th	0-10VDC DIMMED	1, 3
A100F	CORRIDOR	ax	0-10VDC DIMMED	1
A100F	CORRIDOR	f	0-10VDC DIMMED	1, 3
A101	VESTIBULE	af	0-10VDC DIMMED	1
A101	VESTIBULE	am	0-10VDC DIMMED	1
A102	WAITING	aw	0-10VDC DIMMED	1, 3
A104	RESTROOM	ak	SWITCHED	
A105	RESTROOM	a	SWITCHED	
A106	HAC	ai	SWITCHED	
A106A	CHASE	an	SWITCHED	
A106H	CHASE	f	SWITCHED	
A107	GROUP	ah	0-10VDC DIMMED	2
A108	GROUP	ag	0-10VDC DIMMED	2
A109	RESTROOM	af	SWITCHED	
A110	HAC	ae	SWITCHED	
A111	RESTROOM	ad	SWITCHED	
A114	CONFERENCE / LOUNGE	aa	0-10VDC DIMMED	2
A114	CONFERENCE / LOUNGE	ab	0-10VDC DIMMED	2
A114	CONFERENCE / LOUNGE	ac	0-10VDC DIMMED	2
A115	RECEPTION DESK	as	0-10VDC DIMMED	1
A115	RECEPTION DESK	at	0-10VDC DIMMED	1
A115	RECEPTION DESK	au	0-10VDC DIMMED	1
B100A	CORRIDOR	te	0-10VDC DIMMED	1, 3
B100B	CORRIDOR	tp	0-10VDC DIMMED	1
B100B	CORRIDOR	tf	0-10VDC DIMMED	1, 3
B101	GROUP	bp	0-10VDC DIMMED	2
B101	GROUP	bs	0-10VDC DIMMED	2, 3
B102	GROUP	bq	0-10VDC DIMMED	2
B102	GROUP	br	0-10VDC DIMMED	2, 3
B103	STORAGE	ba	SWITCHED	
B104	MECH	bn	SWITCHED	
B105	COUNSEL	ba	0-10VDC DIMMED	2
B106	COUNSEL	bb	0-10VDC DIMMED	2
B107	COUNSEL	bc	0-10VDC DIMMED	2
B108	COUNSEL	bd	0-10VDC DIMMED	2
B109	COUNSEL	be	0-10VDC DIMMED	2
B110	COUNSEL	bf	0-10VDC DIMMED	2
B111	COUNSEL	bg	0-10VDC DIMMED	2
B112	COUNSEL	bh	0-10VDC DIMMED	2
B113	COUNSEL	bi	0-10VDC DIMMED	2
B114	COUNSEL	bj	0-10VDC DIMMED	2
B115	COUNSEL	bk	0-10VDC DIMMED	2
B116	COUNSEL	bl	0-10VDC DIMMED	2
C100	CORRIDOR	cm	0-10VDC DIMMED	1
C100	CORRIDOR	tg	0-10VDC DIMMED	1, 3
C101	COUNSEL	ca	0-10VDC DIMMED	1
C102	STORAGE	cb	SWITCHED	

SCHEDULE NOTES:
1. LIGHTING CHANNEL INTENSITY TO BE CONTROLLED AT NETWORK LEVEL.
2. LIGHTING CHANNEL INTENSITY TO BE CONTROLLED USING LOCAL DEVICE.
3. PROVIDE AUTOMATIC EMERGENCY POWER TRANSFER DEVICE FOR THIS CHANNEL.
4. EXTERIOR LUMINAIRE CONTROL CHANNELS TO BE CONTROLLED VIA EXTERIOR PHOTOCELL TO TURN LIGHTS ON/OFF.

LIGHTING CONTROL SCHEDULE				
ROOM NUMBER	ROOM NAME	CHANNEL	LIGHT CONTROL TYPE	REMARKS
C103	COUNSEL	cc	0-10VDC DIMMED	2
C104	COUNSEL	cd	0-10VDC DIMMED	2
C105	COUNSEL	ce	0-10VDC DIMMED	2
C106	COUNSEL	cf	0-10VDC DIMMED	2
C107	COUNSEL	cg	0-10VDC DIMMED	2
C108	COUNSEL	ch	0-10VDC DIMMED	2
C109	COUNSEL	ci	0-10VDC DIMMED	2
C110	COUNSEL	cj	0-10VDC DIMMED	2
C111	COUNSEL	ck	0-10VDC DIMMED	2
C112	COUNSEL	cl	0-10VDC DIMMED	2
D100	CORRIDOR	cm	0-10VDC DIMMED	1
D100	CORRIDOR	td	0-10VDC DIMMED	1, 3
D101	COUNSEL	da	0-10VDC DIMMED	2
D102	COUNSEL	db	0-10VDC DIMMED	2
D103	COUNSEL	dc	0-10VDC DIMMED	2
D104	COUNSEL	dd	0-10VDC DIMMED	2
D105	COUNSEL	de	0-10VDC DIMMED	2
D106	COUNSEL	df	0-10VDC DIMMED	2
D107	COUNSEL	dg	0-10VDC DIMMED	2
D108	COUNSEL	dh	0-10VDC DIMMED	2
D109	COUNSEL	di	0-10VDC DIMMED	2
D110	COUNSEL	dj	0-10VDC DIMMED	2
D111	COUNSEL	dk	0-10VDC DIMMED	2
D112	COUNSEL	dl	0-10VDC DIMMED	2
D113	COUNSEL	dm	0-10VDC DIMMED	2
E100	CORRIDOR	co	0-10VDC DIMMED	1, 3
E101	STORAGE	ea	SWITCHED	
E102	EXAM	eb	0-10VDC DIMMED	2
E103	COUNSEL	ec	0-10VDC DIMMED	2
E104	COUNSEL	ed	0-10VDC DIMMED	2
E105	COUNSEL	ee	0-10VDC DIMMED	2
E106	COUNSEL	ef	0-10VDC DIMMED	2
E107	COUNSEL	eg	0-10VDC DIMMED	2
E108	COUNSEL	eh	0-10VDC DIMMED	2
E109	COUNSEL	ei	0-10VDC DIMMED	2
E110	COUNSEL	ej	0-10VDC DIMMED	2
E111	COUNSEL	ek	0-10VDC DIMMED	2
E112	COUNSEL	el	0-10VDC DIMMED	2
E113	COUNSEL	em	0-10VDC DIMMED	2
E114	COUNSEL	en	0-10VDC DIMMED	2
EXT	OUTDOOR	xa	0-10VDC DIMMED	1
EXT	OUTDOOR	xb	0-10VDC DIMMED	1, 3, 4
EXT	OUTDOOR	xc	0-10VDC DIMMED	1, 3, 4
EXT	OUTDOOR	xd	0-10VDC DIMMED	1, 3, 4
EXT	OUTDOOR	xe	0-10VDC DIMMED	1, 3, 4
EXT	OUTDOOR	xf	0-10VDC DIMMED	4
F100	CORRIDOR	fk	0-10VDC DIMMED	1
F101	RESTROOM	fj	SWITCHED	
F102	TELEMED	fg	0-10VDC DIMMED	2
F103	RESTROOM	fn	SWITCHED	
F104	OPEN OFFICE	fa	0-10VDC DIMMED	2
F104	OPEN OFFICE	fb	0-10VDC DIMMED	2
F104	OPEN OFFICE	fc	0-10VDC DIMMED	2
F104	OPEN OFFICE	fd	0-10VDC DIMMED	2
F105	COPY	ff	0-10VDC DIMMED	2
F106	OFFICE	fe	0-10VDC DIMMED	2
F107	OFFICE	fd	0-10VDC DIMMED	2
F108	OFFICE	fc	0-10VDC DIMMED	2

GENERAL SCHEDULE NOTES:

- A. PROVIDE A DIGITALLY CONTROLLED POWER/RELAY PACK MATCHING THE VOLTAGE AND CONTROL TYPE SCHEDULE FOR EACH CHANNEL.
B. ALL DIGITAL LOW VOLTAGE DEVICES SHALL BE CONNECTED TO LOW VOLTAGE LIGHTING CONTROL NETWORK.
C. EXTERIOR PHOTOCELL TO CONTROL EXTERIOR LIGHTING ONLY.

INVERTER SCHEDULE						
INV. NO.	MANUFACTURER	CATALOG NO.	DESCRIPTION	CAPACITY	MOUNTING	QTY. OF OUTPUT BREAKERS
INV A	MEYERS POWER PRODUCTS	LV-4-R-2-82001	SINGLE-PHASE EMERGENCY LIGHTING SYSTEM, PURE SINE WAVE OUTPUT, COMPATIBLE WITH LED LIGHT SOURCE, UL924 TESTED, FIELD SELECTED 120/277V INPUT/OUTPUT, RED HOUSING FINISH COLOR, SYSTEM STATUS INDICATORS AND MOMENTARY TEST SWITCH, YL924 SELF TESTING AND DIAGNOSTIC, INPUT FUSE AND BATTERY FUSE PROTECTION.	750 VA	WALL	120V 120V 1
INV B	MEYERS POWER PRODUCTS	LV-4-R-2-82001	SINGLE-PHASE EMERGENCY LIGHTING SYSTEM, PURE SINE WAVE OUTPUT, COMPATIBLE WITH LED LIGHT SOURCE, UL924 TESTED, FIELD SELECTED 120/277V INPUT/OUTPUT, RED HOUSING FINISH COLOR, SYSTEM STATUS INDICATORS AND MOMENTARY TEST SWITCH, YL924 SELF TESTING AND DIAGNOSTIC, INPUT FUSE AND BATTERY FUSE PROTECTION.	750 VA	WALL	120V 120V 1


Issued:	Date:

CONSULTANTS:





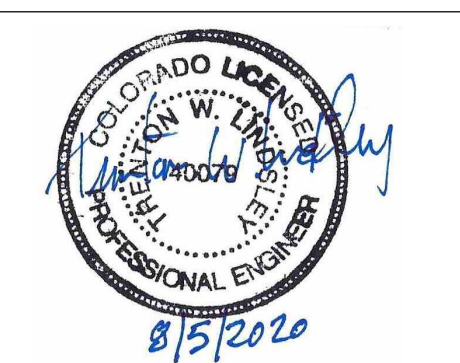
ARCHITECT/ENGINEER OF RECORD:



750 W HAMPPDEN AVE
SUITE 300
ENGLEWOOD, CO 80110
(720) 550-6307
WWW.VALHALLAENGINEERING.COM

VEG 4.11

STAMP:





Drawing Title

LIGHTING SCHEDULES

Approved: Project Director

Branch Panel:173-1ES-01											
Location: GROUP B102 Supply From: 173-1ESWB-01 Mounting: Recessed Enclosure: Type 1				Volts: 120/208 Wye Phases: 3 Wires: 4				A.I.C. Rating: 22,000 A Mains Type: Mains Rating: 225 A MCB Rating: 225 A			
Notes:											
CKT		Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1ES-01-1		B114/B116 Recepts	20 A	1	1080VA 1080VA			1	20 A	B113/B115 Recepts	1ES-01-2
1ES-01-3		A104/A105/A106 Recepts	20 A	1		1080VA 1080VA		1	20 A	B110/B112 Recepts	1ES-01-4
1ES-01-5		B109/B111 Recepts	20 A	1			1080VA 1080VA	1	20 A	B106/B108 Recepts	1ES-01-6
1ES-01-7		B105/B107 Recepts	20 A	1	1080VA 900 VA			1	20 A	B102 Recepts	1ES-01-8
1ES-01-9		B101 Recepts	20 A	1		1260 720 VA		1	20 A	B100C Corr Recepts	1ES-01-10
1ES-01-11		B103 Recepts	20 A	1			720 VA 49 VA	1	20 A	B Wing VAVs	1ES-01-12
1ES-01-13		A/B Wing VAVs	20 A	1	42 VA						1ES-01-14
1ES-01-15											1ES-01-16
1ES-01-17											1ES-01-18
1ES-01-19											1ES-01-20
1ES-01-21		LITES AREA 'B'	20 A	1		800 VA 1100VA		1	20 A	LITES AREA 'B'	1ES-01-22
1ES-01-23		LITES AREA 'B'	20 A	1			1100VA				1ES-01-24
1ES-01-25											1ES-01-26
1ES-01-27											1ES-01-28
1ES-01-29											1ES-01-30
1ES-01-31											1ES-01-32
1ES-01-33											1ES-01-34
1ES-01-35											1ES-01-36
1ES-01-37											1ES-01-38
1ES-01-39											1ES-01-40
1ES-01-41											1ES-01-42
					Total Load:	4182 VA	6140 VA	1929 VA			
					Total Amps:	15 A	20 A	10 A			
Legend:											
Load Classification			Connected Load	Demand Factor	Estimated Demand	Panel Totals					
Power			91 VA	100.00%	91 VA	Total Conn. Load:12251 VA					
Receptacle			11160 VA	94.80%	10580 VA	Total Est. Demand:14421 VA					
Lighting			3000 VA	125.00%	3750 VA	Total Conn.: 39 A					
						Total Est. Demand: 40 A					
Notes:											

Branch Panel:173-1ES-02											
Location: RR A109 Supply From: 173-1ESWB-01 Mounting: Recessed Enclosure: Type 1				Volts: 120/208 Wye Phases: 3 Wires: 4				A.I.C. Rating: 10,000 A Mains Type: Mains Rating: 225 A MCB Rating: 225 A			
Notes:											
CKT		Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1ES-02-1		C110/C112 Recepts	20 A	1	1080VA 1080VA			1	20 A	D110/D112 Recepts	1ES-02-2
1ES-02-3		D109/D111 Recepts	20 A	1		1080VA 1080VA		1	20 A	D106/D108 Recepts	1ES-02-4
1ES-02-5		D105/D107 Recepts	20 A	1			1080VA 1080VA	1	20 A	D101/D103 Recepts	1ES-02-6
1ES-02-7		D102/D104 Recepts	20 A	1	1080VA 1080VA			1	20 A	C109/C111 Recepts	1ES-02-8
1ES-02-9		C105/C107 Recepts	20 A	1		1080VA 1080VA		1	20 A	C101/C103 Recepts	1ES-02-10
1ES-02-11		C106/C108 Recepts	20 A	1			1080VA 1080VA	1	20 A	C102/C104 Recepts	1ES-02-12
1ES-02-13		A108/A109 Recepts	20 A	1	900 VA 540 VA			1	20 A	B100C Corr Recepts	1ES-02-14
1ES-02-15		C Wing VAVs	20 A	1		49 VA 35 VA		1	20 A	A/C/D Wing VAVs	1ES-02-16
1ES-02-17		D Wing VAVs	20 A	1			49 VA 720 VA	1	20 A	D100 Corr Recepts	1ES-02-18
1ES-02-19		C100 Corr Recepts	20 A	1	540 VA 1260VA			1	20 A	A103/A107 Recepts	1ES-02-20
1ES-02-21		Drinking Fountains	20 A	1		180 VA					1ES-02-22
1ES-02-23											1ES-02-24
1ES-02-25											1ES-02-26
1ES-02-27		LITES AREA 'A' & 'C'	20 A	1		1800VA 1300VA		1	20 A	EMERG. INVERTER 'A' & 'B'	1ES-02-28
1ES-02-29		LITES AREA 'D'	20 A	1			1400VA				1ES-02-30
1ES-02-31											1ES-02-32
1ES-02-33											1ES-02-34
1ES-02-35											1ES-02-36
1ES-02-37											1ES-02-38
1ES-02-39											1ES-02-40
1ES-02-41											1ES-02-42
					Total Load:	7560 VA	7684 VA	6489 VA			
					Total Amps:	25 A	66 A	57 A			
Legend:											
Load Classification			Connected Load	Demand Factor	Estimated Demand	Panel Totals					
Power			135 VA	100.00%	135 VA	Total Conn. Load:21733 VA					
Receptacle			16920 VA	79.24%	13407 VA	Total Est. Demand:19295 VA					
Lighting			4500 VA	125.00%	5625 VA	Total Conn.:60 A					
						Total Est. Demand:54 A					
Notes:											

Branch Panel:173-1ES-03											
Location: COPY F105 Supply From: 173-1ESWB-01 Mounting: Recessed Enclosure: Type 1				Volts: 120/208 Wye Phases: 3 Wires: 4				A.I.C. Rating: 10,000 A Mains Type: Mains Rating: 225 A MCB Rating: 225 A			
Notes:											
CKT		Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1ES-03-1		F107/F108 Recepts	20 A	1	1080VA 360 VA			1	20 A	A115 Reception Printer	1ES-03-2
1ES-03-3		F105 Copy Room	20 A	1		900 VA 1080VA		1	20 A	F104 Open Office Recepts	1ES-03-4
1ES-03-5		F106 Recepts	20 A	1			540 VA 540 VA	1	20 A	F101/F103 Recepts	1ES-03-6
1ES-03-7		F102 Telemed Recepts	20 A	1	900VA 720 VA			1	20 A	F104 Corr Recepts	1ES-03-8
1ES-03-9		F Wing VAVs	20 A	1		28 VA 1080VA		1	20 A	A115 Reception Recepts	1ES-03-10
1ES-03-11											1ES-03-12
1ES-03-13											1ES-03-14
1ES-03-15											1ES-03-16
1ES-03-17		LITES OFFICES AREA 'F'	20 A	1			700 VA 1200VA	1	20 A	LITES OPEN OFFICE F104	1ES-03-18
1ES-03-19		LITES AREA 'A'	20 A	1	1400VA						1ES-03-20
1ES-03-21											1ES-03-22
1ES-03-23											1ES-03-24
1ES-03-25											1ES-03-26
1ES-03-27											1ES-03-28
1ES-03-29											1ES-03-30
1ES-03-31											1ES-03-32
1ES-03-33											1ES-03-34
1ES-03-35											1ES-03-36
1ES-03-37											1ES-03-38
1ES-03-39											1ES-03-40
1ES-03-41											1ES-03-42
					Total Load:	4460 VA	3088 VA	2880 VA			
					Total Amps:	44 A	28 A	27 A			
Legend:											
Load Classification					Connected Load	Demand Factor	Estimated Demand	Panel Totals			
Power					1108 VA	100.00%	1108 VA	Total Conn. Load:10528 VA			
Receptacle					6300 VA	100.00%	6300 VA	Total Est. Demand:11583 VA			
Lighting					3340 VA	125.00%	4175 VA	Total Conn.:30 A			
								Total Est. Demand: 33 A			
Notes:											

Branch Panel:173-1ES-04												
Location: ELEC A112 Supply From: 173-1ESWB-01 Mounting: Surface Enclosure: Type 1				Volts: 120/208 Wye Phases: 3 Wires: 4				A.I.C. Rating: 10,000 A Mains Type: Mains Rating: 225 A MCB Rating: 225 A				
Notes:												
CKT	Circuit Description			Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
173-1ES-04-1	E111/E113 Recepts			20 A	1	1080VA 1080VA			1	20 A	E107/E109 Recepts	173-1ES-04-2
173-1ES-04-3	E103/E105 Recepts			20 A	1		1080VA 1080VA		1	20 A	E112/E114 Recepts	173-1ES-04-4
173-1ES-04-5	E108/110 Recepts			20 A	1			1080VA 1080VA	1	20 A	E104/E106 Recepts	173-1ES-04-6
173-1ES-04-7	E101/E102 Recepts			20 A	1	1260VA 49 VA			1	20 A	E Wing VAVs	173-1ES-04-8
173-1ES-04-9	E100 Corr Recepts			20 A	1		900 VA 180 VA		1	20 A	A112 Elec Rm Recept	173-1ES-04-10
173-1ES-04-11	A111/HAC Recepts			20 A	1			360 VA 1080VA	1	20 A	A114 Recepts	173-1ES-04-12
173-1ES-04-13	A114 Refrigerator			20 A	1	180 VA 1080VA			1	20 A	A102 Waiting Recepts	173-1ES-04-14
173-1ES-04-15	A102 Waiting Floor Recepts			20 A	1		540 VA 21 VA		1	20 A	A100E VAVs	173-1ES-04-16
173-1ES-04-17	A114 Microwave			20 A	1			180 VA				173-1ES-04-18
173-1ES-04-19												173-1ES-04-20
173-1ES-04-21												173-1ES-04-22
173-1ES-04-23	LITES AREA 'E'			20 A	1			800 VA 900 VA	1	20 A	LITES AREA 'E'	173-1ES-04-24
173-1ES-04-25	LITES CORR 'A', 'D' & 'E'			20 A	1	400 VA						173-1ES-04-26
173-1ES-04-27												173-1ES-04-28
173-1ES-04-29												173-1ES-04-30
173-1ES-04-31												173-1ES-04-32
173-1ES-04-33												173-1ES-04-34
173-1ES-04-35												173-1ES-04-36
173-1ES-04-37												173-1ES-04-38
173-1ES-04-39												173-1ES-04-40
173-1ES-04-41												173-1ES-04-42
				Total Load:		5129 VA	3801 VA	5480 VA				
				Total Amps:		44 A	32 A	47 A				
Legend:												
Load Classification				Connected Load		Demand Factor		Estimated Demand		Panel Totals		
Power				70 VA		100.00%		70 VA		Total Conn. Load:14410 VA		
Receptacle				11880 VA		90.26%		10723 VA		Total Est. Demand:13418 VA		
Lighting				2100 VA		125.00%		2625 VA		Total Conn.: 41 A		
										Total Est. Demand: 38 A		
Notes:												

F



1	2	3	4	5	6	7	8	9	10
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