HAFB B309 SWEG	System Responsibility Matrix			
	Designed	Furnished	Installed	Notes
Power				
Emergency/Standby Generator	NIC	NIC	NIC	
Network UPS	NIC	NIC	NIC	
Networked Metering System	NIC	NIC	NIC	
Systems Furniture Power Connections	Design Team	Contractor	Tenant	Connections to be in ceiling.
Telecomm				
Raceways/Cabletrays/J-Hooks	Design Team	Contractor	Contractor	
Exterior Fiber	Design Team	Contractor	Contractor	
Fiber Termination Shelves (FPP's)	Design Team	Contractor	Contractor	
Cat 6A Horizontal Cable	NIC	NIC	NIC	
Horizontal Wire Manager (2RU)	NIC	NIC	NIC	
Vertical Wire Manager	NIC	NIC	NIC	
Building TDR Racks	NIC	NIC	NIC	
Building TDR Ladder Rack	NIC	NIC	NIC	
Security & Misc.				
Power Connections	Design Team	Contractor	Contractor	
Access Controls System Pathways	Design Team	Contractor	Contractor	
Access Controls System	Design Team	Contractor	Contractor	

ELECTRICAL SHEET INDEX

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE
1PH	SINGLE-PHASE
1WAY	ONE-WAY
2/C	TWO-CONDUCTOR
2WAY	TWO-WAY
3/C	THREE-CONDUCTOR
3WAY	THREE-WAY
4OUT	QUADRUPLE RECEPTACLE OUTLET
4PDT	FOUR-POLE DOUBLE THROW
4PST	FOUR-POLE SINGLE THROW
4W	FOUR-WIRE
4WAY	FOUR-WAY
A	ABOVE COUNTER
AC	ARMORED CABLE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
ALUM	ALUMINUM
AMP	AMPERE
ANN	ANNUNCIATOR
AP	ACCESS POINT (WIRELESS DATA)
AR	AS REQUIRED
ASC	AMPS SHORT CIRCUIT
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAGE
BB XFMR	BUCK-BOOST TRANSFORMER
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
C	CEILING MOUNTED
CATV	COMMUNITY ANTENNA TELEVISION
CB	CIRCUIT BREAKER
CCBA	CUSTOM COLOR AS SELECTED BY ARCHITECT
CCTV	CLOSED CIRCUIT TELEVISION
CF/CI	CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/ OWNER INSTALLED
CFBA	CUSTOM FINISH AS SELECTED BY ARCHITECT
CKT	CIRCUIT
CM	CONSTRUCTION MANAGER
CND	CONDUIT
CO	CONVENIENCE OUTLET
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
dBA	UNIT OF SOUND LEVEL
DPDT	DOUBLE POLE, DOUBLE THROW
DS	DISCONNECT SWITCH
EA	EACH
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENT	ELECTRIC NONMETALLIC TUBING
EPO	EMERGENCY POWER OFF
EQUIP	EQUIPMENT
EX	EXISTING
F	FURNITURE MOUNTED
FA	FIRE ALARM
FCP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METAL CONDUIT
FOB	FREIGHT ON BOARD
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GEN	GENERATOR
GFCI	GROUND FAULT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GND	GROUND
HD	HEAVY DUTY
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
HPF	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
HZ	HERTZ
I/O	INPUT/ OUTPUT
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
IN/IS	INSULATED/ ISOLATED
IR	INFRARED
J-BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWh	KILOWATT HOUR
LED	LIGHT EMITTING DIODE
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTION
MDP	MAIN DISTRIBUTION PANEL
MG	MOTOR GENERATOR
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTS	MANUAL TRANSFER SWITCH
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFC	NATIONAL FIRE CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OCP	OVER CURRENT PROTECTION
OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
OF/OI	OWNER FURNISHED/ OWNER INSTALLED
OFP	OBTAIN FROM PLANS
OH DR	OVERHEAD (COILING) DOOR
OL	OVERLOAD
PB	PUSHBUTTON
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PTZ	PAN/TILT/ZOOM
QTY	QUANTITY
R	REMOVE
RCP	REFLECTED CEILING PLAN
RMC	RIGID METAL CONDUIT
RNC	RIGID NONMETAL CONDUIT
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE AND RELOCATE
S/S	START/STOP
SCA	SHORT CIRCUIT AMPS
SCBA	STANDARD COLOR AS SELECTED BY ARCHITECT
SF	SQUARE FOOT (FEET)
SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
SPD	SURGE PROTECTIVE DEVICE
SPDT	SINGLE POLE, DOUBLE THROW
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
ST	SINGLE THROW
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TL	TWIST LOCK
TP	TELEPHONE POLE
TP	TWISTED PAIR
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UF	UNDERFLOOR
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPERE
VFC/VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER

GENERAL ELECTRICAL NOTES

1. CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.

   A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.

   B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.

   C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE.THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.

3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.

4. SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.

5. REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.

6. ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS, ETC...

75th AIR BASE WING

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARVEY 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG		
CAPITAL PROJECT NO. 1043925	SITE CODE: 1		
PROGRAM/PROJECT NO. 75962/3	ISSUE DATE: 05/10/2022		
BASE PROJECT MANAGER KRSM20806	PROJECT MANAGER SCOTT ARNOLD		

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

ELECTRICAL SHEET INDEX

E-001

SHEET 97 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:48:37 AM

100% DESIGN

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
A5 / E-501	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
A5 / E-201	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
ROOM NAME / 100	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.
1	KEYNOTE INDICATOR.
1	REVISION INDICATOR.
CU-1	EQUIPMENT INDICATOR.
X-X / XMDP	MECHANICAL EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "XMDP" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
	NEW LINE: MEDIUM LINE.
	HIDDEN FEATURES LINE: HIDDEN, THIN LINE
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE
X-X / 1LA-3	EQUIPMENT INDICATOR. "X-X" INDICATES EQUIPMENT MARK SHOWN ON EQUIPMENT SCHEDULE. "1LA-3" IDENTIFIES PANEL EQUIPMENT IS CIRCUITED TO. REFER TO EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
WIRING DEVICES	
	RECEPTACLE, SINGLE: NEMA 5-20R.
	RECEPTACLE, DUPLEX: NEMA 5-20R.
A	RECEPTACLE, DUPLEX, ABOVE COUNTER: NEMA 5-20R.
C	RECEPTACLE, DUPLEX, CEILING: NEMA 5-20R.
DF	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, DRINKING FOUNTAIN: CONCEAL WATER COOLER RECEPTACLE BEHIND WATER COOLER. SEE MECHANICAL/PLUMBING SHOP DRAWINGS FOR INSTALLATION REQUIREMENTS.
W	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, "WEATHERPROOF IN USE": NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
WP	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.
D	RECEPTACLE, DRYER: NEMA 14-30R.
R	RECEPTACLE, RANGE: NEMA 14-50R.
	MULTI-OUTLET ASSEMBLY: NEMA 5-20R.
D	DROP CORD. SEE DETAIL.
T	THERMOSTAT.
FB#	FLUSH FLOOR BOX. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
PP#	POWER POLE. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
PT#	FLUSH FIRE RATED POKE THRU. "#" SHOWN ON DRAWINGS. REFER TO WIRING DEVICE SCHEDULE IN THE ELECTRICAL SPECIFICATIONS FOR CONFIGURATION AND DEVICES.
	SWITCH, DIMMER.
X $	SWITCH, SINGLE POLE ("x" INDICATES FIXTURES CONTROLLED).
X $2	SWITCH, DOUBLE POLE ("x" INDICATES FIXTURES CONTROLLED).
$K	SWITCH, KEY OPERATED.
$WP	SWITCH, WEATHERPROOF.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
WIRING METHODS	
	WIRING.
A-1,3,5	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
1	CONDUCTOR & CONDUIT ("CC") SCHEDULE INDICATOR. REFER TO ONE-LINE DIAGRAM.
EQ	CONDUCTOR & CONDUIT ("CC") INDICATOR, EQUIPMENT. REFER TO EQUIPMENT SCHEDULE.
HC	ADA ACCESS PUSH PLATE
J	JUNCTION BOX.
J C	JUNCTION BOX, CEILING.
J SC	JUNCTION BOX, SYSTEMS FURNITURE COMMUNICATION CONNECTION.
J SP	JUNCTION BOX, SYSTEMS FURNITURE POWER CONNECTION.
PB	PULL BOX.
	MECHANICAL EQUIPMENT CONNECTION. REFER TO EQUIPMENT SCHEDULE FOR REQUIREMENTS.
	GROUND BUSBAR. REFER TO GROUNDING RISER DIAGRAM FOR ADDITIONAL INFORMATION.
ELECTRICAL POWER AND DISTRIBUTION	
	FUSE WITH RATING (ONE-LINE DIAGRAM).
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).
	DISCONNECT, NONFUSED (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE WITH SHUNT TRIP (ONE-LINE DIAGRAM).
#AF / #AT	CIRCUIT BREAKER, ADJUSTABLE TRIP. "225AF" REPRESENTS THE RATING AND "150AT" REPRESENTS THE TRIP SETTING. (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE-LINE DIAGRAM).
GFP	CIRCUIT BREAKER, SOLID STATE WITH GROUND FAULT PROTECTION (ONE-LINE DIAGRAM).
	MOTOR.
	TRANSFORMER (ONE-LINE DIAGRAM).
	TRANSFORMER, CURRENT (ONE-LINE DIAGRAM).
"1DPHA"	DISTRIBUTION PANELBOARD, MOTOR CONTROL CENTER, PLUG-IN BUSWAY, MEDIUM VOLTAGE SWITCHBOARD (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
225/3 "1H" 60/3	PANELBOARD WITH MAIN AND SUB FEED CIRCUIT BREAKER (ONE-LINE DIAGRAM).

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
ELECTRICAL POWER AND DISTRIBUTION	
225/3 "1H" 25/3	PANELBOARD WITH MAIN LUGS ONLY AND SURGE PROTECTION WITH CIRCUIT BREAKER (ONE-LINE DIAGRAM).
225/3 "1H" 225/3 "1H"	PANELBOARD WITH SUB FEED LUGS (ONE-LINE DIAGRAM).
225/3 "1H" "1H"	PANELBOARD WITH CIRCUIT BREAKER AND SUB FEED LUGS (ONE-LINE DIAGRAM).
	CT CABINET PER UTILITY'S REQUIREMENTS (ONE-LINE DIAGRAM).
	CT CABINET PER UTILITY'S REQUIREMENTS (ONE-LINE DIAGRAM).
	TRANSFER SWITCH (ONE-LINE DIAGRAM).
DMM	DIGITAL MULTIMETER (ONE-LINE DIAGRAM).
	EARTH GROUND (ONE-LINE DIAGRAM).
	SERVICE ENTRANCE SURGE PROTECTION (ONE-LINE DIAGRAM).
G	GENERATOR, ANNUNCIATOR (ONE-LINE DIAGRAM).
EPO	PUSH BUTTON, REMOTE EMERGENCY STOP.
G	GENERATOR, POWER (ONE-LINE DIAGRAM).
K	KIRK-KEY MECHANICAL INTERLOCK (ONE-LINE DIAGRAM)
M	METER.
VFC VFD	VARIABLE FREQUENCY MOTOR CONTROLLER (ONE-LINE DIAGRAM).
	DISCONNECT SWITCH, FUSED.
	DISCONNECT SWITCH, UNFUSED.
	STARTER, COMBINATION WITH DISCONNECT SWITCH.
	STARTER OR MOTOR CONTROLLER.
	PUSHBUTTON.
	PUSHBUTTONS, MOTOR CONTROL.
	PANELBOARD CABINET, FLUSH MOUNTED.
	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#	DISTRIBUTION PANEL OR SWITCHBOARD.
LP	LIGHTING RELAY, CONTACTOR PANEL, OR DIMMING ENCLOSURE.
$ST	SWITCH, TOGGLE MOTOR STARTER WITH OVERLOAD PROTECTION.
	TRANSFORMER (SEE ONE-LINE FOR SIZE)
	CIRCUIT BREAKER, DRAW OUT (ONE-LINE DIAGRAM).
ESM	GENERATOR ENGINE START MONITORING SYSTEM ATS MODULE (ONE-LINE DIAGRAM).

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
LIGHTING	
(W-3)	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
(W-3)	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
EM	EMERGENCY.
NL	NIGHT LIGHT: DO NOT SWITCH.
	EGRESS DIRECTION ARROW (EXIT SIGNS).
	EXIT SIGN: SINGLE FACE; CEILING MOUNTED
	EXIT SIGN: SINGLE FACE; WALL MOUNTED
	EXIT SIGN: DOUBLE FACE; CEILING MOUNTED
	EXIT SIGN: DOUBLE FACE; WALL MOUNTED
LIGHTING CONTROL	
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
	OCCUPANCY SENSOR, DUAL TECHNOLOGY, WALL.
P	PHOTOCELL.
P	PHOTOCELL, WALL MOUNTED.
	VACANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
	VACANCY SENSOR, DUAL TECHNOLOGY, WALL.
	SWITCH/OCCUPANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
	SWITCH/VACANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
	DIMMER SWITCH/OCCUPANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
	DIMMER SWITCH/VACANCY SENSOR COMBO, DUAL TECHNOLOGY, WALL.
a,b	LOW VOLTAGE DIGITAL LIGHTING CONTROL SWITCH: LETTER "a,b" INDICATES ZONING WHERE SHOWN (REFER TO PLANS, SCHEDULES, AND DETAILS FOR EXACT BUTTON CONFIGURATION AND PROGRAMMING REQUIREMENTS)
RC	DIGITAL LIGHTING ROOM CONTROLLER
DC	DIGITAL LIGHTING DIMMING CONTROLLER
LC	DIGITAL PLUG LOAD CONTROLLER
ET	LIGHTING EMERGENCY TRANSFER DEVICE
L X	LIGHTING SPACE CONTROL TYPE. X INDICATES TYPE. SEE SCHEDULE / DIAGRAM.
SECURITY	
X	SECURITY CABLE. SEE EQUIPMENT SCHEDULE FOR CABLE TYPE.
ACC	ACCESS CONTROL HEADEND EQUIPMENT.
CTR	SECURITY CONTROL PANEL.
SEC	INTRUSION DETECTION HEADEND EQUIPMENT.
#1	CARD ACCESS DOOR TYPE #1 OR AS NOTED. SEE SCHEDULE.
CR	CARD READER.
KCR	KEYPAD/CARD READER COMBINATION.
	DOOR SWITCH, BALANCED MAGNETIC CONTROL.
ER	EXIT REQUEST.
RL	REMOTE DOOR RELEASE BUTTON.
	SENSOR, GLASS BREAK.
	SENSOR, VOLUMETRIC.
CA	CONTROLLED ACCESS POINT.
IC	INTERCOM STATION.
IRU	DUAL TECHNOLOGY PASSIVE INFRARED SENSOR AND ULTRASONIC MOTION DETECTOR.
IR	PASSIVE INFRARED SENSOR.
P	PANIC DURESS SWITCH.
U	ULTRASONIC MOTION DETECTOR.
AP	ANNUNCIATOR PANEL.
MSI	MASTER STATION, INTERCOM.

SYMBOLS LEGEND

SYMBOL	DESCRIPTION
FIRE ALARM	
FAA	FIRE ALARM ANNUNCIATOR PANEL.
FACP	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
MNS	MASS NOTIFICATION SYSTEM PANEL.
MON	MONACO TRANSCEIVER PANEL.
LOC	LOCAL OPERATING CONSOLE.
TXT	LED-TYPE TEXT SIGN, UL STANDARD 48.
CM	CONTROL MODULE.
MM	MONITOR MODULE.
F	FIRE ALARM MANUAL PULL STATION.
R	SHUT DOWN RELAY: INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
FS	WATER FLOW SWITCH. FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED BY FIRE SPRINKLER CONTRACTOR AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
VS	VALVE SUPERVISORY SWITCH, TAMPER SWITCH. TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED BY FIRE SPRINKLER CONTRACTOR AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
PS	PRESSURE SUPERVISORY SWITCH. PRESSURE SWITCHES SHALL BE PROVIDED AND INSTALLED BY FIRE SPRINKLER CONTRACTOR AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
	DETECTOR, SMOKE.
	DETECTOR, SMOKE, WALL MOUNTED.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
SD	SMOKE DAMPER. 120V POWER FROM ELECTRICAL SYSTEM.
FSD	COMBINATION FIRE/SMOKE DAMPER. 120V POWER FROM ELECTRICAL SYSTEM.
	DETECTOR, HEAT.
CO	DETECTOR, CARBON MONOXIDE.
	STROBE, WALL MOUNTED.
75	STROBE, WALL MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
	SPEAKER, WALL MOUNTED, EVACUATION.
	SPEAKER, WALL MOUNTED, EVACUATION, COMBINATION STROBE.
75	SPEAKER, WALL MOUNTED, EVACUATION, COMBINATION STROBE. SUBSCRIPT INDICATES CANDELLA RATING.
75	SPEAKER/STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
	SPEAKER, CEILING MOUNTED.
75	ALARM, STROBE, CEILING MOUNTED. SUBSCRIPT INDICATES CANDELA RATING.
	BELL, ELECTRIC, 120V FROM ELECTRICAL SYSTEM OR 24V FROM FIRE ALARM SYSTEM

75th AIR BASE WING

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARFIELD 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG
CAPITAL PROJECT NO. 1043925	SITE CODE: 1
PROJECT NO. 2198233 KRSM200806	ISSUE DATE: 05/10/2022
BASE PROJECT MANAGER	PROJECT MANAGER SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

SYMBOLS LEGEND

E-002

SHEET 98 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:48:38 AM

100% DESIGN

GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:

   1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).

   2 - EQUIPMENT SHOP DRAWINGS.

   3 - FIELD INSTRUCTIONS.

2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.

3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.

4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.

5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.

6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.

7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.

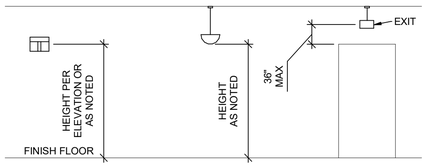
8. LOCATE WIRING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.

9. WHERE DEVICES ARE LOCATED IN CLOSE PROXIMITY OF THE SAME VERTICAL PLANE, ALIGN DEVICES VERTICALLY PER THE TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL, UNLESS OTHERWISE INDICATED.

SHEET KEYNOTES

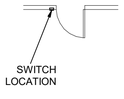
1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE DETECTOR ANYWHERE IN SHADED AREA BUT NOT IN TOP 4" OF PEAK.
5. LOCATE AT BOTTOM OF BEAMS IF D/H < .1 OR W/H < .4; OTHERWISE, LOCATE IN BEAM POCKET. FOR D > 4 REDUCE SPACING .33 PERPENDICULAR TO BEAMS.

SHEET KEYNOTES INTENDED FOR SHEETS E-701 AND E-702. REFER TO OTHER SHEET FOR UNREFERENCED KEYNOTES.

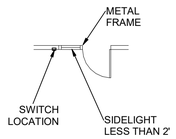


WALL MOUNTED LIGHT FIXTURE | PENDANT LIGHT FIXTURE | PENDANT EXIT SIGNS

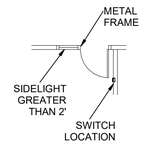
SWITCHES



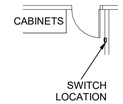
STANDARD DOOR



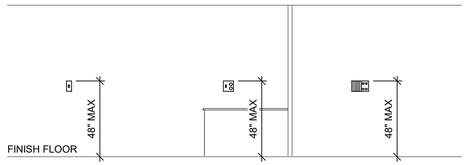
DOOR WITH SIDELIGHT LESS THAN 2'



DOOR WITH SIDELIGHT GREATER THAN 2'



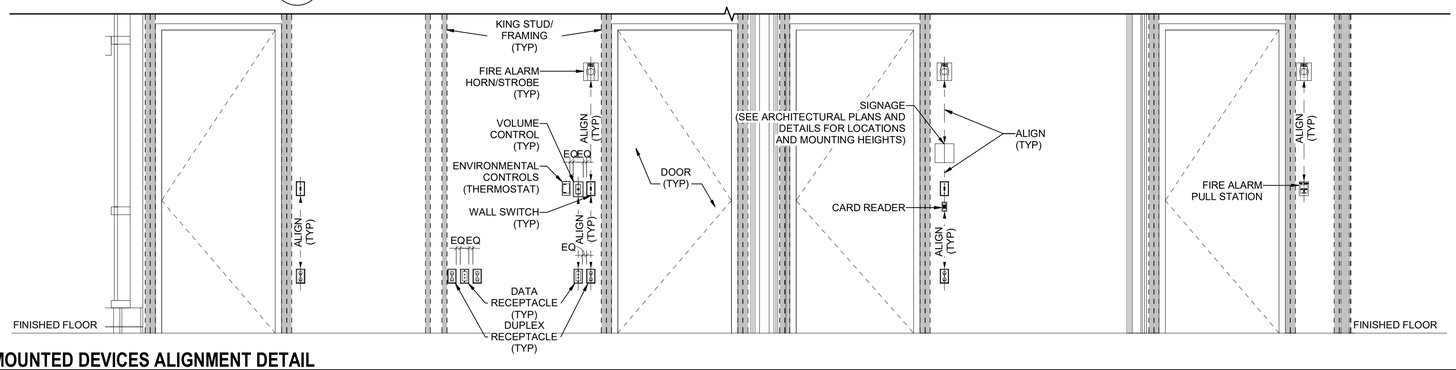
DOOR WITH NO PLACE FOR SWITCH AT LATCH SIDE



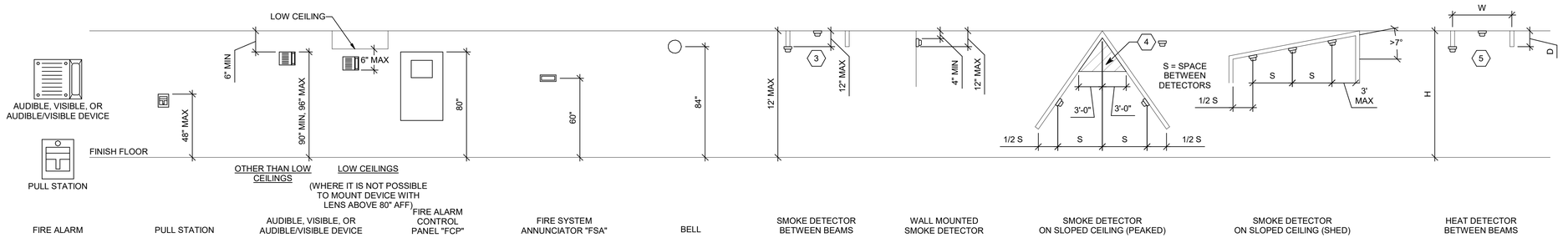
GENERAL USE: ADA | COMBINATION 48" MAX PLATE FOR SWITCH AND RECEPTACLE IN RESIDENTIAL BATHROOM | LIGHTING CONTROL STATION

C1 LIGHTING MOUNTING DETAILS
E-701 SCALE: NTS

C2 SWITCH MOUNTING DETAILS
E-701 SCALE: NTS



B1 TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL
E-701 SCALE: NTS



FIRE ALARM | PULL STATION | AUDIBLE, VISIBLE, OR AUDIBLE/VISIBLE DEVICE | FIRE ALARM CONTROL PANEL "FCP" | FIRE SYSTEM ANNUNCIATOR "FSA" | BELL | SMOKE DETECTOR BETWEEN BEAMS | WALL MOUNTED SMOKE DETECTOR | SMOKE DETECTOR ON SLOPED CEILING (PEAKED) | SMOKE DETECTOR ON SLOPED CEILING (SHED) | HEAT DETECTOR BETWEEN BEAMS | SMOKE DETECTOR ADJACENT TO SUPPLY AIR

A1 FIRE ALARM MOUNTING DETAILS
E-701 SCALE: NTS

75TH AIR BASE WING

PATRICK GARVEY
STATE OF UTAH REGISTERED
5263908-2202
05/10/2022
PROFESSIONAL ENGINEER

MARK	APPR	DATE	DESCRIPTION

DESIGNED BY:	EJB
CAPITAL PROJECT NO.	1043925
DRAWN BY:	PJG
PROJECT NO.	259233
CHECKED BY:	PJG
SITE CODE:	1
ISSUE DATE:	05/10/2022
PROJECT MANAGER	KRSM220806
BASE PROJECT MANAGER	SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

TYPICAL MOUNTING HEIGHT DETAILS

E-701

SHEET 99 OF 123

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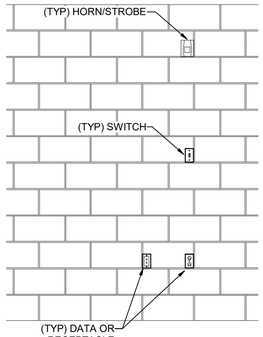
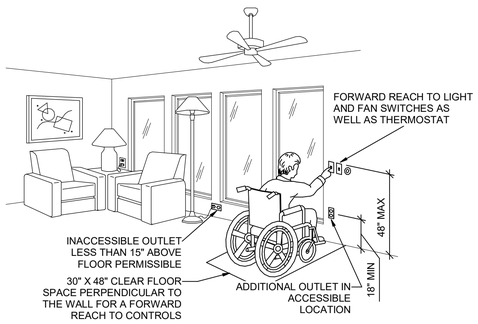
100% DESIGN

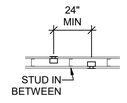


NOTE: ALL DEVICES SHALL BE INSTALLED AND LOCATED IN THE BLOCK CONSISTENTLY THROUGH OUT THE BUILDING.

C1 CMU DEVICE MOUNTING ALIGNMENT DETAIL
E-702 SCALE: NTS

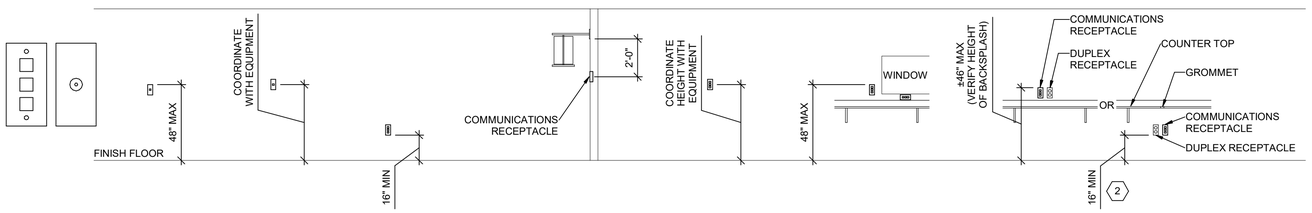


C2 ADA DETAIL
E-702 SCALE: NTS



FOR LESS THAN 24" SEPARATION, PROVIDE LISTED SOUND AND FIRE PUTTY PADS

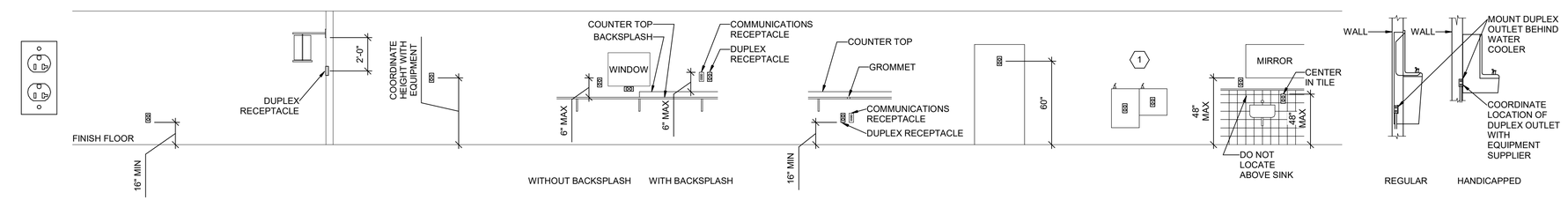
BOXES ON OPPOSITE SIDES OF WALL



COMMUNICATION RECEPTACLES | WALL PHONE | PAY PHONE | GENERAL USE: NO SPECIAL REQUIREMENTS | WALL BRACKET TV | DEDICATED RECEPTACLE FOR SPECIAL EQUIPMENT | ABOVE COUNTER - TYPICAL | RECEPTACLES ABOVE OR BELOW COUNTER

B1 BOX MOUNTING DETAILS
E-702 SCALE: NTS

B2 COMMUNICATIONS MOUNTING DETAILS
E-702 SCALE: NTS



DUPLEX RECEPTACLES | GENERAL USE: NO SPECIAL REQUIREMENTS | WALL BRACKET TV | DEDICATED RECEPTACLE FOR SPECIAL EQUIPMENT | WITHOUT BACKSPLASH | WITH BACKSPLASH | RECEPTACLES ABOVE COUNTER | RECEPTACLES BELOW COUNTER | FULL HEIGHT REFRIGERATORS AND VENDING MACHINES | DRINKING FOUNTAIN | TILE WALLS | REGULAR | HANDICAPPED | DRINKING FOUNTAIN - SIDE ELEVATIONS

REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.

A1 RECEPTACLE MOUNTING DETAILS
E-702 SCALE: NTS

GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:

   1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).

   2 - EQUIPMENT SHOP DRAWINGS.

   3 - FIELD INSTRUCTIONS.

2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING, AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.
6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIRING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.
9. WHERE DEVICES ARE LOCATED IN CLOSE PROXIMITY OF THE SAME VERTICAL PLANE, ALIGN DEVICES VERTICALLY PER THE TYPICAL WALL MOUNTED DEVICES ALIGNMENT DETAIL, UNLESS OTHERWISE INDICATED.

SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE DETECTOR ANYWHERE IN SHADED AREA BUT NOT IN TOP 4" OF PEAK.
5. LOCATE AT BOTTOM OF BEAMS IF D/H < .1 OR W/H < .4; OTHERWISE, LOCATE IN BEAM POCKET. FOR D > 4 REDUCE SPACING .33 PERPENDICULAR TO BEAMS.

SHEET KEYNOTES INTENDED FOR SHEETS E-701 AND E-702. REFER TO OTHER SHEET FOR UNREFERENCED KEYNOTES.

75th AIR BASE WING

MARK	DATE	APPR	DESCRIPTION

STATE OF UTAH REGISTERED PATRICK GARVEY 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG
CAPITAL PROJECT NO.: 1043925	SITE CODE: 1
PROJECT PROJECT NO.: 75962333	ISSUE DATE: 05/10/2022
BASE PROJECT MANAGER: KRSM20806	95% SUBMITTAL
DEPARTMENT OF THE AIR FORCE 75TH AIR BASE WING 75TH CIVIL ENGINEER GROUP	SCOTT ARNOLD

HAFB 309th SOFTWARE ENGINEERING FACILITY

TYPICAL MOUNTING HEIGHT DETAILS

E-702

SHEET 100 OF 123

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Plot Date: 5/9/2022 11:48:43 AM

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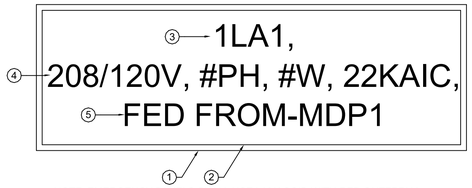
1. LABEL TO BE PROVIDED AT EACH SWITCHBOARD, PANELBOARD, DISCONNECT/STARTER. LABEL IS TO BE 3" X REQUIRED LENGTH X 1/16" LAMINATED 2-PLY PLASTIC LAMACOID. LETTERS SHALL BE FORMED BY ENGRAVING OUTER WHITE PLY, EXPOSING BLACK PLY BENEATH.
2. LABEL IS TO BE MOUNTED USING DOUBLE SIDED ADHESIVE TAPE COVERING THE BACK OF THE LABEL.
3. FIRST LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. REPLACE THE LETTER/NUMBER WITH THOSE FOUND ON THE ONE-LINE DIAGRAM.
4. SECOND LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. THE FOLLOWING SHALL BE PROVIDED, VOLTAGE, PHASE, NUMBER OF WIRES, AND AIC RATING OF DEVICE.
5. THIRD LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. PROVIDE "FED FROM-" AND REPLACE MDP1 WITH THE DEVICES NAME THAT FEEDS THE PANELBOARD.



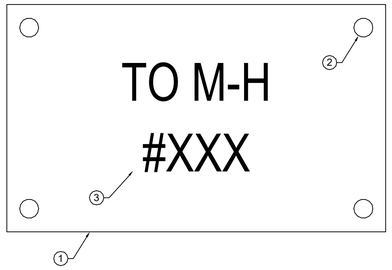
NOTE: EMERGENCY PANELS SHALL USE LAMACOID WITH RED OUTERPLY, EXPOSING WHITE LETTERING BENEATH. CONTRACTOR TO USE SAME LABEL SCHEME EXCEPT FIRST 'X' IS REPLACED WITH 'E' FOR EMERGENCY. SECOND 'X' TO BE 'L' FOR LOW OR 'H' FOR HIGH VOLTAGE (480/277V). LAST '#' TO BE REPLACED WITH LETTER INDICATING LOCATION OF PANEL.

D1 TYPICAL PANELBOARD/SWITCHBOARD LABEL
E-703 SCALE: NTS

1. LABEL TO BE PROVIDED THAT IS TO BE 4" X REQUIRED LENGTH X 1/16" LAMINATED 2-PLY PLASTIC LAMACOID. LETTERS SHALL BE FORMED BY ENGRAVING OUTER WHITE PLY, EXPOSING BLACK PLY BENEATH.
2. LABEL IS TO BE MOUNTED USING DOUBLE SIDED ADHESIVE TAPE COVERING THE BACK OF THE LABEL.
3. FIRST LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, WITH THE EQUIPMENT ID MATCHING PLANS.
4. SECOND LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. THE FOLLOWING SHALL BE PROVIDED, VOLTAGE, PHASE, NUMBER OF WIRES, AND AIC RATING OF GEAR.
5. THIRD & FOURTH LINE: LETTERING IS TO BE 3/8" HIGH, CENTERED, AND FORMATTED AS SHOWN. LABEL WITH ACTUAL AVAILABLE FAULT CURRENT AND ASSOCIATED CLEARING TIME.

D3 TYPICAL MAIN SERVICE EQUIPMENT/GEAR LABEL
E-703 SCALE: NTS

1. DUCTBANK LABEL TO BE PROVIDED AT EACH DUCTBANK START AND END LOCATIONS AS WELL AS AT EACH MANHOLE ENTRANCE AND EXIT THAT WORK IS HAPPENING AT IN PROJECT. LABEL IS TO BE 3" X 5" X 1/16" LAMINATED 2-PLY PLASTIC LAMACOID. LETTERS SHALL BE FORMED BY ENGRAVING OUTER YELLOW PLY, EXPOSING BLACK PLY BENEATH.
2. LABEL IS TO BE MOUNTED USING 1/4" PLASTIC ANCHORS. LABEL IS TO BE LOCATED DIRECTLY ADJACENT TO THE DUCTBANK IN A WAY TO CLEARLY INDICTE WHITCH DUCTBANK THE LABLE IS DEFINING.
3. LETTERING IS TO BE 1/2" HIGH, CENTERED, AND FORMATTED AS SHOWN. "TO M-H #XXX" IS TO BE REPLACE WITH THE DESTINATION OF THE DUCTBANK, SUCH AS THE NEXT MANHOLE, A VAULT, OR A PAD. CONFIRM NAME WITH OWNER PRIOR TO ORDERING.

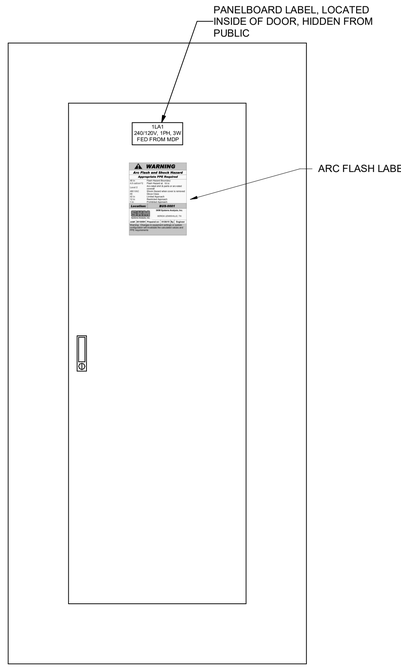


C1 DUCTBANK LABEL
E-703 SCALE: NTS

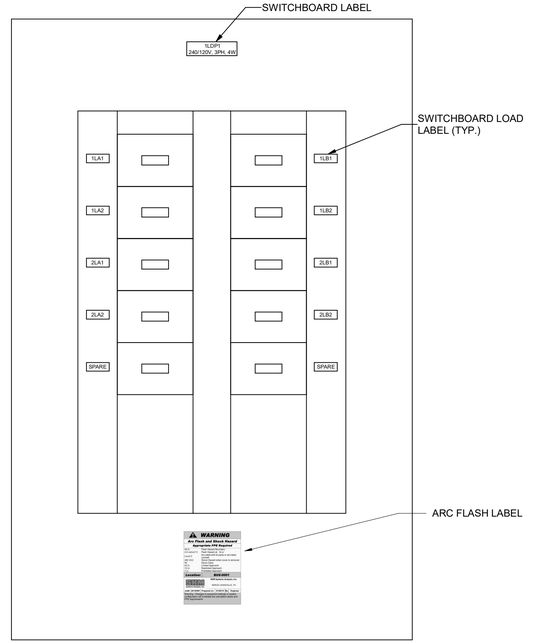
*LABEL TO BE CENTERED IN EQUIPMENT, PREFERABLE ON FACE OF EQUIPMENT AND TOWARDS THE TOP.

**REFER TO TYPICAL SWITCH/RECEPTACLE LABELING DETAIL FOR LABEL REQUIRMENTS.

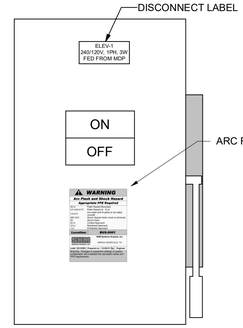
***DISPOSE OF AN EXISTING PANELBOARD NAME PLATES WHEN INSTALLING NEW NAME PLATES.



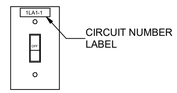
TYPICAL LABELING FOR PANELBOARDS IN NON-PUBLIC LOCATIONS



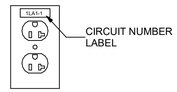
TYPICAL LABELING FOR SWITCHBOARDS



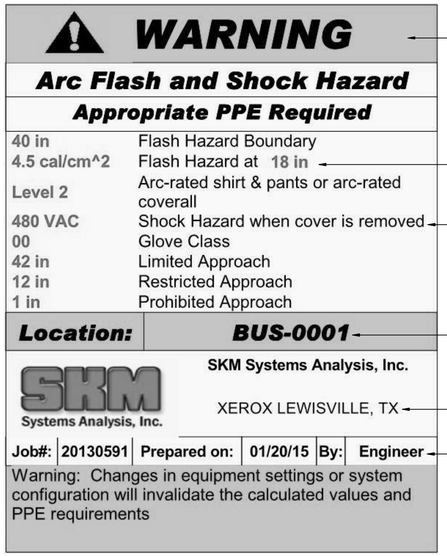
TYPICAL LABELING FOR DISCONNECTS



TYPICAL SWITCH LABEL LOCATION



TYPICAL RECEPTACLE LABEL LOCATION



SHADED AREAS TO BE ORANGE ALL OTHER TO BE WHITE BACKGROUND

(TYP) DISTANCES IN INCHES

COORDINATE VOLTAGE VALUES WITH ONE-LINE

MATCH NAME OF EQUIPMENT WITH NAMES ON ONE-LINE

PROVIDE ADDRESS WHERE SKM ANALYIS IS PERFORMED

PROVIDE JOB NUMBER "########", DATE OF ANALYSIS AND ENGINEER WHO PERFORMED STUDY

*PROVIDE ARC FLASH LABEL FOR ALL ELECTRICAL EQUIPMENT PER SPECIFICATIONS AND REQUIRED BY NEC

A1 TYPICAL ARC FLASH LABEL
E-703 SCALE: NTS

A3 TYPICAL SWITCH, RECEPTACLE AND PANELBOARD LABELING LOCATION DETAIL
E-703 SCALE: NTS

DESCRIPTION	DATE	APPR.	MARK

STATE OF UTAH REGISTERED PATRICK GARVEY 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG
CAPITAL PROJECT NO. 1043925	SITE CODE: 1
PROJECT NO. 759233 KRSM200806	ISSUE DATE: 05/10/2022
BASE PROJECT MANAGER SCOTT ARNOLD	6. DANGER HOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

TYPICAL LABELING DETAILS

E-703

SHEET 101 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:48:44 AM

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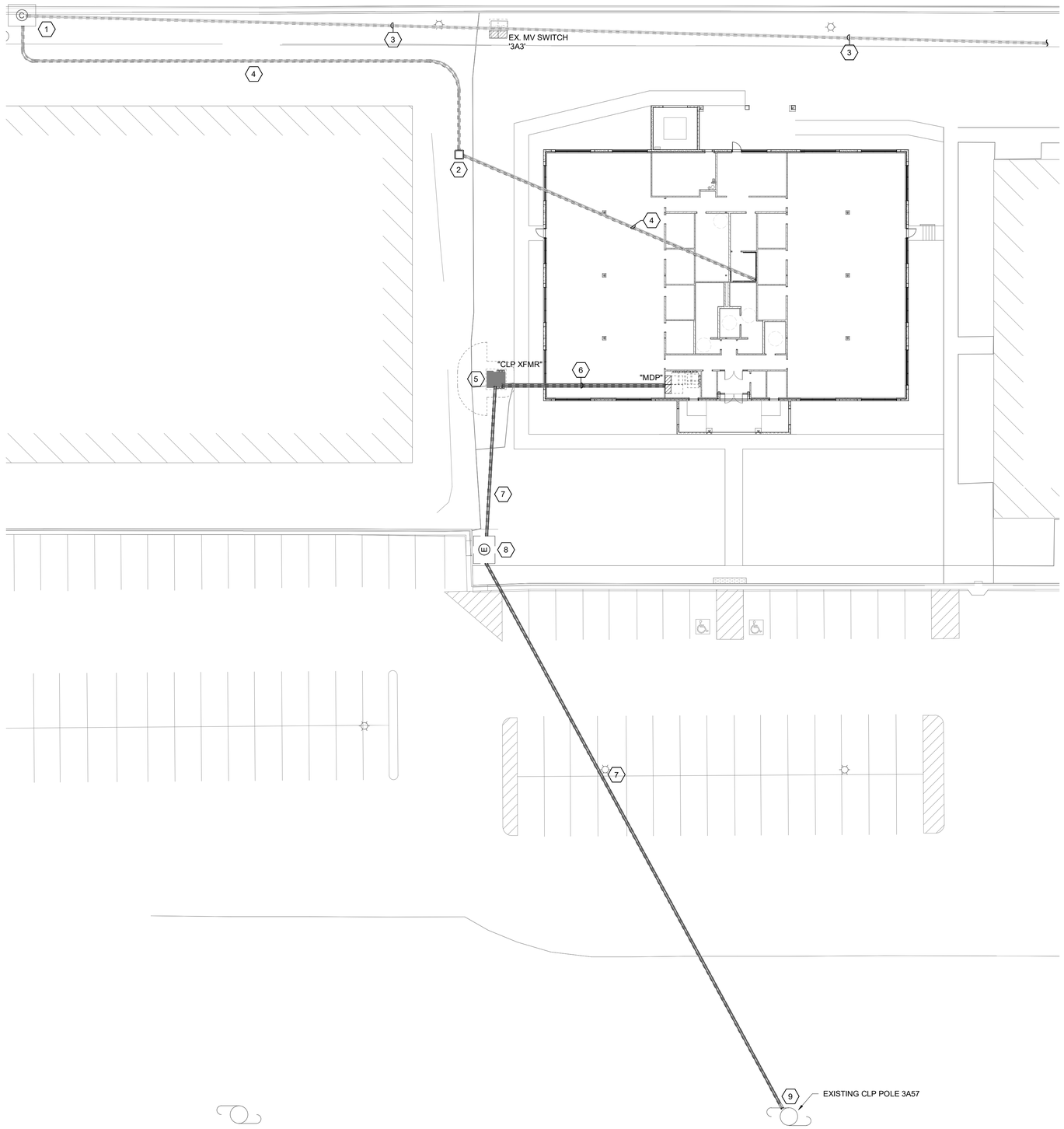


A2 / ES101 SITE ELECTRICAL PLAN
SCALE: 1" = 20'-0"

GENERAL SHEET NOTES

1 THE ELECTRICAL CONTRACTOR SHALL MEET WITH AND COORDINATE WITH ALL SERVICE PROVIDERS (POWER, COMMUNICATION, CABLE/SATELLITE, ETC.)TO THE FACILITY ON SITE PRIOR TO ANY WORK BEING PREFORMED. CONFIRM WITH EACH SERVICE PROVIDER EXACT LOCATIONS EQUIPMENT AND ROUTING. COMPLY WITH ALL SERVICE PROVIDER'S CURRENT STANDARDS AND REQUIREMENTS. PROVIDE THE REQUIRED EQUIPMENT, RACEWAYS, BOXES, CABLE, ETC. AS REQUIRED BY THE SERVICE PROVIDER WEATHER SHOWN ON THE DRAWINGS OR NOT.

2 FOR ALL LIGHT FIXTURES, POLE LIGHTS, AND ALL OTHER ELECTRICAL DEVICES THE CONTRACTOR SHALL COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS WITH ARCHITECT, OWNER, ENGINEER, AND ALL OF THE CONTRACT DOCUMENTS PRIOR TO ROUGH IN AND TRENCHING.

3 CONTRACTOR IS RESPONSIBLE FOR ALL TRENCHING, BACKFILL, AND COMPACTION ASSOCIATED TO ALL ELECTRICAL UNDERGROUND RACEWAYS AND CABLES. COORDINATE WITH ARCHITECTURAL AND CIVIL DRAWINGS. SEE UNDERGROUND RACEWAY DETAILS FOR REQUIREMENTS FOR EACH TRENCH.

4 CONTRACTOR SHALL INSTALL POLE MOUNTED LIGHTS IN STRAIGHT LINES, SQUARE, AND PLUMB. COORDINATE WITH ARCHITECT AND CIVIL DRAWINGS. CONTRACTOR SHALL INSTALL POLE MOUNTED LIGHTS IN STRAIGHT LINES, SQUARE, AND PLUMB. COORDINATE WITH ARCHITECT AND CIVIL DRAWINGS.

5 THE ELECTRICAL CONTRACTOR SHALL HAVE ANY AND ALL CONCRETE POLE BASES AND SLABS REVIEWED BY A STRUCTURAL ENGINEER AND SHALL MODIFY DESIGN PER STRUCTURAL ENGINEER'S AND OR AHJ'S RECOMMENDATIONS.

6 PROVIDE BATTERY PACKS IN ALL EXTERIOR FIXTURES ADJACENT TO EGRESS DOORS.

7 PROVIDE PHOTOCELL ON NORTH SIDE OF FACILITY TO CONTROL EXTERIOR LIGHTS.

8 ALL EXTERIOR RECEPTACLES SHOWN SHALL BE NEMA 5-20R GFCI "WEATHER RESISTANT" RECEPTACLE WITH "WEATHER PROOF IN-USE COVER."

9 THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CONCRETE/ASPHALT CUTTING AND REPLACEMENT OF CONCRETE/ASPHALT TO MATCH EXISTING ASSOCIATED WITH UNDERGROUND RACEWAYS PROVIDED AS PART OF THIS PROJECT.

10 REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.

11 PROVIDE SERVICE RATED EQUIPMENT AT EACH SERVICE ENTRANCE.

12 SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. VERIFY OR RE-CALCULATE THE AVAILABLE FAULT CURRENT AT THE SERVICE WHERE MODIFICATIONS TO THE ELECTRICAL INSTALLATION OCCUR. PLEASE INCLUDE NOTES IN THE ELECTRICAL DRAWINGS OR SUPPLY CALCULATIONS WHERE APPLICABLE. SEE NEC 110.24. (B)

SHEET KEYNOTES

1 EXISTING COMMUNICATIONS MANHOLE 'MH-18011-02'.

2 NEW COMMUNICATIONS HAND-HOLE 'HH-#1'. 4'X4'X4', REFER TO HAFB TAB K DOCUMENT SECTION 5.4.4.

3 EXISTING COMMUNICATIONS CONDUIT.

4 NEW COMMUNICATIONS CONDUIT. (2) EA 4" CONDUIT. PROVIDE (3) 1-1/4" INNERDUCT IN ONE OF THE CONDUITS. REFER TO DETAILS A3, B3 ON SHEET ES501.

5 NEW TRANSFORMER PROVIDED AND INSTALLED BY CITY LIGHT AND POWER.

6 NEW SECONDARY DUCT FROM TRANSFORMER TO 'MDP' IN ELECTRICAL ROOM. REFER TO DETAIL C5 ON SHEET ES501.

7 NEW PRIMARY DUCT BANK. REFER TO DETAIL C4 ON SHEET ES501.

8 NEW ELECTRICAL MANHOLE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.

9 NEW 4" RISER WITH 200A CUTOUT SWITCHES PER CLP STANDARDS AT EXISTING POLE 3A57.

75th AIR BASE WING

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARFIELD 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG		
CAPITAL PROJECT NO: 1043925	SITE CODE: 1		
PROJECT NO: 75R6233	ISSUE DATE: 05/10/2022		
KRSM20806	BASE PROJECT MANAGER: SCOTT ARNOLD		

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

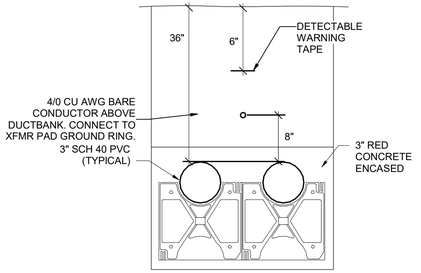
ELECTRICAL SITE PLAN

ES101

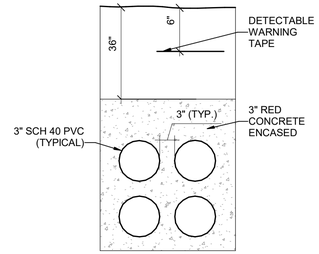
SHEET 102 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:49:22 AM

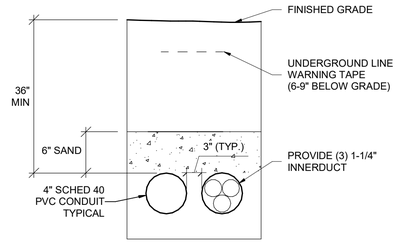
100% DESIGN



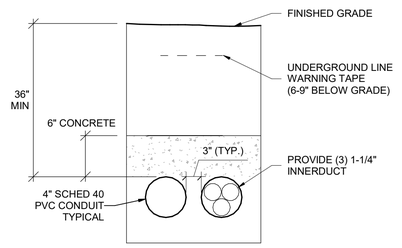
C4 UNDERGROUND PRIMARY POWER DUCT BANK
ES501 SCALE: NTS



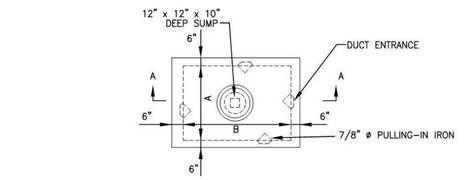
C5 UNDERGROUND SECONDARY POWER DUCT BANK
ES501 SCALE: NTS



B3 UNDERGROUND COMM. DUCT BANK
ES501 SCALE: NTS



A3 UNDERGROUND COMM. DUCT BANK WITH CONCRETE
ES501 SCALE: NTS



MANHOLE DIMENSIONS			
TYPE	A	B	C (AT HIGH PT.)
1	6'-0"	6'-0"	6'-6"
2	6'-0"	8'-0"	6'-6"

NOTES:

1. FOR DETAILS OF CABLE RACKS, DUCT ENTRANCE AND PULLING-IN IRONS, SEE PLATE UG-7.
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI.

A4 ELEC MANHOLE
ES501 SCALE: NTS

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARVEY 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB | CHECKED BY: PJG
CAPITAL PROJECT NO: 1043925 | SITE CODE: 1
PROJECT NO: 75R6233 KRSM2010806 | ISSUE DATE: 05/10/2022
BASE PROJECT MANAGER: SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

SITE ELECTRICAL DETAILS

ES501

SHEET 103 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
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100% DESIGN

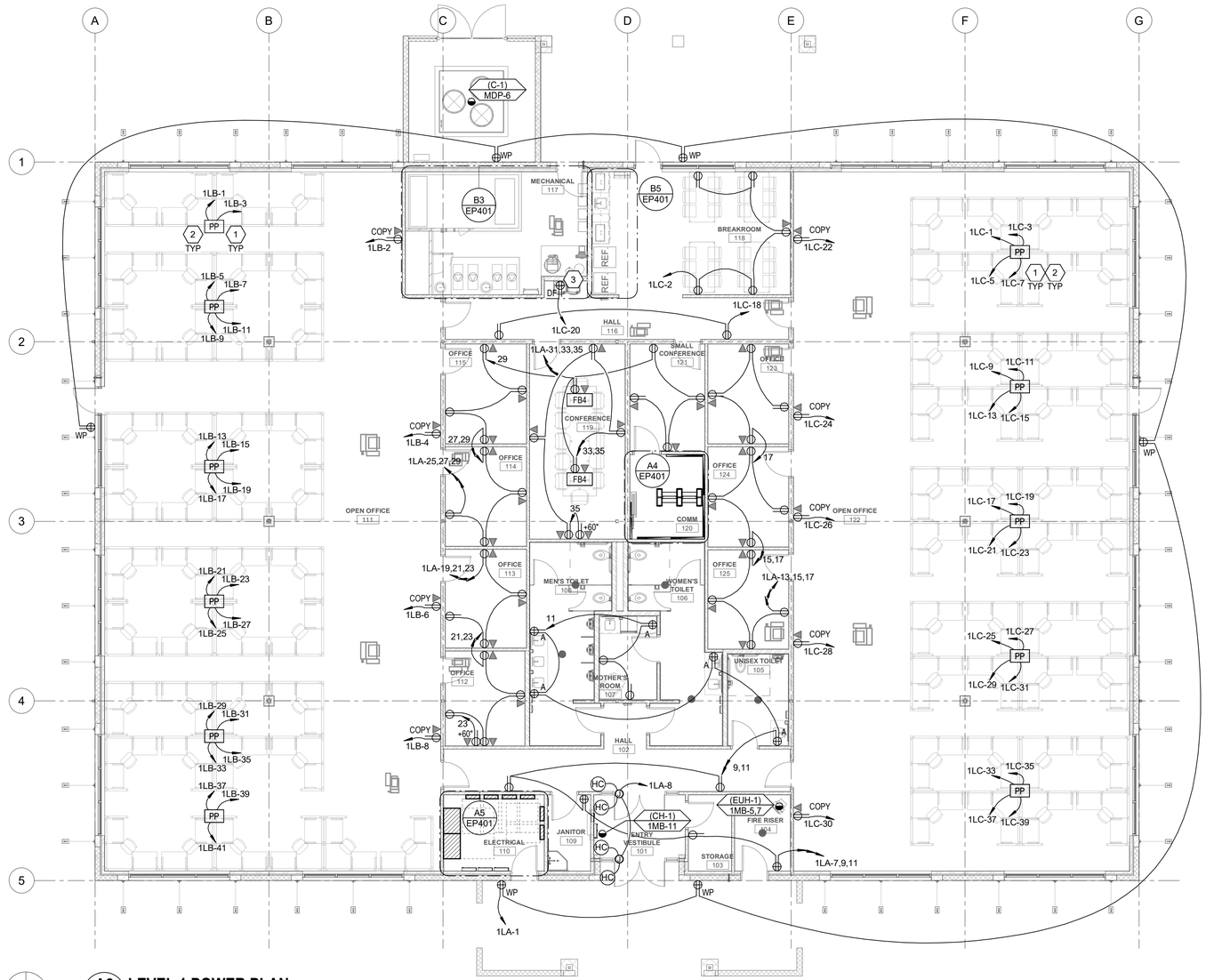
GENERAL SHEET NOTES

SHEET KEYNOTES

1 PROVIDE POWER CONNECTIONS TO SYSTEM FURNITURE. VERIFY EXACT LOCATIONS WITH FURNITURE INSTALLER AND FINAL APPROVED FURNITURE LAYOUT. POWER CONNECTIONS ARE BASED ON A 4-CIRCUIT / 8-WIRE SYSTEM. COORDINATE CONNECTION POINTS WITH FURNITURE INSTALLER PRIOR TO INSTALLATION. ENSURE THAT OUTLETS ARE EVENLY DISTRIBUTED BETWEEN CIRCUITS AND THAT A SINGLE CIRCUIT SERVES NO MORE THAN TWO WORKSTATIONS.

2 POWER POLE PROVIDED AND INSTALLED BY OWNER.

3 COMPRESSOR FOR FIRE PROTECTION DRY PIPE SYSTEM.



NORTH

A2 LEVEL 1 POWER PLAN
EP101 SCALE: 1/8" = 1'-0"

75th AIR BASE WING

MARK	APPR	DATE	DESCRIPTION

STATE OF UTAH REGISTERED
PATRICK GARVEY
5263908-2202
05/10/2022
PROFESSIONAL ENGINEER

DESIGNED BY: EJB
CHECKED BY: PJG
CAPITAL PROJECT NO.: 1043925
SITE CODE: 1
PROJECT NO.: 2598233 KRSM200806
ISSUE DATE: 05/10/2022
BASE PROJECT MANAGER: SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

LEVEL 1 POWER PLAN

EP101

SHEET 104 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:49:01 AM

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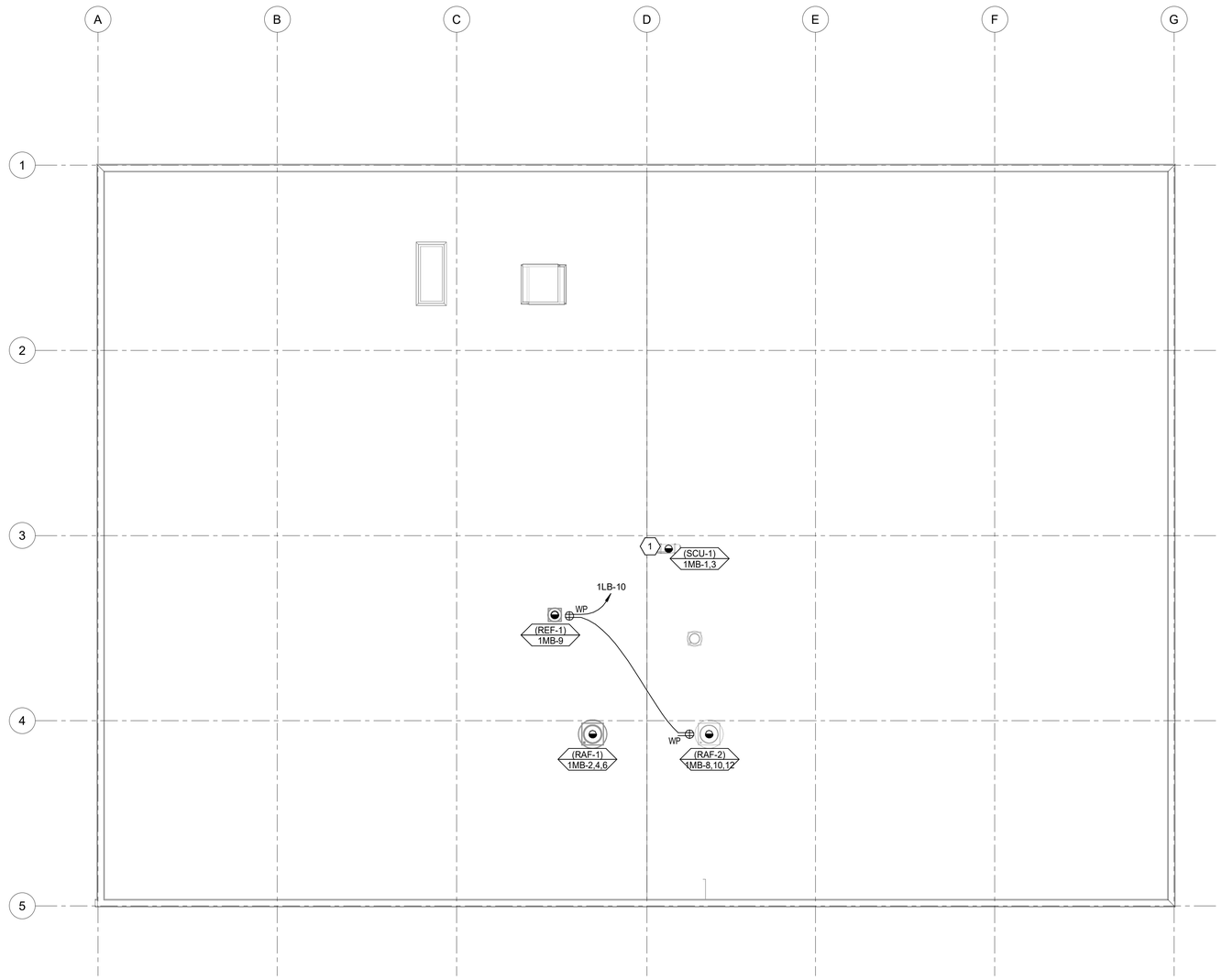
GENERAL SHEET NOTES

SHEET KEYNOTES

1 COORDINATE FINAL LOCATION WITH MECHANICAL.



NORTH

A2 / EP102 **ROOF POWER PLAN**

SCALE: 1/8" = 1'-0"

75th AIR BASE WING

MARK	APPR	DATE	DESCRIPTION

STATE OF UTAH REGISTERED
PATRICK GARVEY
5263908-2202
05/10/2022
PROFESSIONAL ENGINEER

DESIGNED BY:	EJB
CAPITAL PROJECT NO:	1043925
CHECKED BY:	PJG
SITE CODE:	1
PROJECT NO:	75R6233
BASE PROJECT NO:	KRSM200806
ISSUE DATE:	05/10/2022
BASE PROJECT MANAGER	SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

ROOF POWER PLAN

EP102

SHEET 105 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:49:03 AM

100% DESIGN

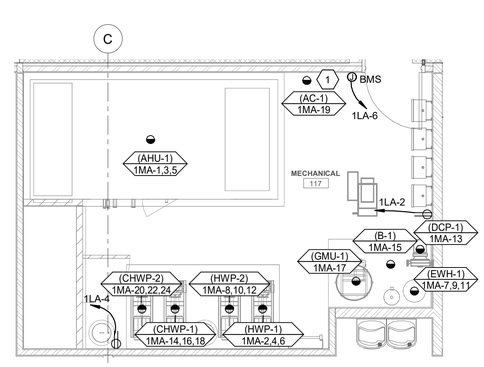
GENERAL SHEET NOTES

SHEET KEYNOTES

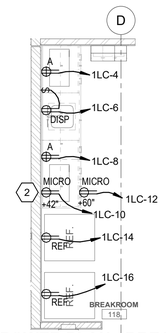
1 COMPRESSOR FOR FIRE PROTECTION DRY PIPE SYSTEM.

2 REFER TO ARCHITECTURAL ELEVATION FOR MOUNTING HEIGHTS OF MICROWAVES.

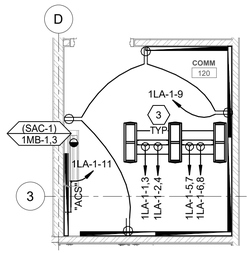
3 COORDINATE NEMA RECEPTACLE TYPE WITH OWNER.



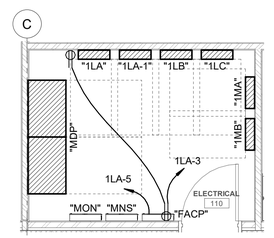
B3 EP401 **ENLARGED POWER PLAN - MECHANICAL ROOM 117**
SCALE: 1/4" = 1'-0"



B5 EP401 **ENLARGED POWER PLAN - BREAK ROOM 118**
SCALE: 1/4" = 1'-0"



A4 EP401 **ENLARGED POWER PLAN - COMM. 120**
SCALE: 1/4" = 1'-0"



A5 EP401 **ENLARGED POWER PLAN - ELECTRICAL 110**
SCALE: 1/4" = 1'-0"

DESCRIPTION	DATE	APPR	MARK

75th AIR BASE WING

STATE OF UTAH REGISTERED
PATRICK GARVEY
5263908-2202
05/10/2022
PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG
CAPITAL PROJECT NO. 1043925	SITE CODE: 1
PROJECT NO. 7598233	ISSUE DATE: 05/10/2022
KRSM200806 BASE PROJECT MANAGER	SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

ENLARGED POWER PLANS

EP401

SHEET 106 OF 123

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COPPER CONDUCTOR AND CONDUIT SCHEDULE

SCHEDULE NUMBER
SUBSCRIPT (NOTE 5) (E.G. 5 IG)

SYM	AMP	HH AMPS	CONDUIT SIZE	CONDUCTOR (NOTE 1) QTY	SIZE	G	IG/HH	SE	NOTES
1	20	-	.75	2	12	12	12	8	2
2	20	-	.75	3	12	12	12	8	2,3
3	20	24	.75	4	12	12	12	8	2,3
4	30	-	.75	2	10	10	10	8	2
5	30	-	.75	3	10	10	10	8	2
6	30	32	.75	4	10	10	10	8	2
7	40	-	1	2	8	10	8	6	2
8	40	-	1	3	8	10	8	6	2
9	40	44	1	4	8	10	8	6	2
10	55	-	1	2	6	10	8	4	2
11	55	-	1	3	6	10	8	4	2
12	55	60	1.25	4	6	10	8	4	2
13	70	-	1	2	4	8	4	2	2
14	70	-	1.25	3	4	8	4	2	2
15	70	76	1.25	4	4	8	4	2	2
16	85	-	1.25	2	3	8	3	2	2
17	85	-	1.25	3	3	8	3	2	2
18	85	92	1.25	4	3	8	3	2	2
19	95	-	1.25	3	2	8	2	2	2
20	95	104	1.50	4	2	8	2	2	2
21	130	-	1.50	3	1	6	2	2	2
22	130	116	1.50	4	1	6	2	2	2
23	150	-	2	3	1/0	6	2	1/0	2
24	150	136	2	4	1/0	6	2	1/0	2
25	175	-	2	3	2/0	6	2	2/0	2
26	175	156	2	4	2/0	6	2	2/0	2
27	200	-	2	3	3/0	6	2	2/0	2
28	200	180	2.50	4	3/0	6	2	2/0	2
29	230	-	2.50	3	4/0	4	2	2/0	2
30	230	208	2.50	4	4/0	4	2	2/0	2
31	255	-	2.50	3	250	4	1	2/0	2
32	255	232	2.50	4	250	4	1	2/0	2
33	310	-	3	3	350	3	1/0	3/0	2
34	310	280	3	4	350	3	1/0	3/0	2
35	380	-	3.50	3	500	3	3/0	3/0	2
36	380	344	4	4	500	3	3/0	3/0	2
37	400	-	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	360	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	-	2 EA 2.50	3	250	1	4/0	3/0	2
40	510	464	2 EA 3	4	250	1	4/0	3/0	2
41	620	-	2 EA 3	3	350	1/0	4/0	3/0	2,4
42	620	560	2 EA 3	4	350	1/0	4/0	3/0	2,4
43	760	-	2 EA 3.50	3	500	1/0	4/0	3/0	2,4
44	760	688	2 EA 4	4	500	1/0	4/0	3/0	2,4
45	855	-	3 EA 3	3	300	2/0	4/0	3/0	2,4
46	855	768	3 EA 3	4	300	2/0	4/0	3/0	2,4
47	1000	-	3 EA 3.50	3	400	2/0	4/0	3/0	4
48	1000	912	3 EA 3.50	4	400	2/0	4/0	3/0	4
49	1140	-	3 EA 4	3	500	3/0	4/0	3/0	4
50	1140	1032	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	-	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	1120	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	1520	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	1824	6 EA 4	4	400	250	250	250	4
55	2660	2408	7 EA 4	4	500	350	350	350	4
56	3040	2752	8 EA 4	4	500	500	500	500	4
57	4180	3784	11 EA 4	4	500	500	500	500	4
58	-	-	5 EA 4	-	-	-	-	-	6
59	-	-	5	-	-	-	-	-	6
60	-	-	10 EA 4	-	-	-	-	-	6

CONDUIT AND CONDUCTOR SCHEDULE NOTES

1. CONDUCTORS SHOWN ARE SHOWN FOR EACH CONDUIT WITH MODIFICATIONS AS NOTED IN NOTE 5. ALL CONDUCTORS SHOWN ARE THWN UNLESS OTHERWISE NOTED.
2. PROVIDE EQUIPMENT GROUND CONDUCTORS PER TABLE 250-122 WHEN CIRCUIT BREAKERS ARE SIZED GREATER THAN AMPERE RATING SHOWN IN TABLE.
3. PROVIDE #10 NEUTRALS FOR MULTIWIRE BRANCH CIRCUITS SERVING COMPUTERS.
4. GROUND (G) CONDUCTOR MAY BE DELETED ON SERVICE ENTRANCE CONDUCTORS.
5. SYMBOL SUBSCRIPTS:
   - "2N": INCLUDE TWO NEUTRAL CONDUCTORS SIZED AS SCHEDULED FOR PHASE AND NEUTRAL CONDUCTORS WHERE THE CONDUCTOR IS #1/0 OR LARGER. INCLUDE A SINGLE 200% RATED CONDUCTOR THAT IS TWICE THE AMPACITY OF THE SCHEDULED PHASE AND NEUTRAL CONDUCTOR WHERE THE CONDCUTOR IS BELOW #1/0 IN SIZE.
   - "FG": FULL SIZE GROUND, SIZE EQUIPMENT GROUNDING CONDUCTOR TO BE SAME SIZE AS THE PHASE CONDUCTORS.
   - "HH": NEUTRAL CURRENTS EXIST DUE TO HIGH HARMONIC "NONLINEAR" LOADS. CURRENT CARRYING CONDUCTORS DERATED ACCORDINGLY. PROVIDE THE IG/HH SIZE FOR THE EQUIPMENT GROUNDING CONDUCTOR.
   - "IG": INCLUDE IG (INSULATED/ISOLATED GROUND CONDUCTOR) SCHEDULED ALONG WITH THE GROUND OF EQUIPMENT GROUND CONDUCTOR.
   - "SE": SUBSTITUTE "SE" CONDUCTOR FOR "G" CONDUCTOR SHOWN, WHICH IS SIZED FOR THE GROUNDING OF THE SECONDARY OF THE SEPARATELY DERIVED SYSTEM.
6. RACEWAY ONLY. CONDUCTORS PROVIDED BY UTILITY.

BRANCH CIRCUIT CONDUCTOR AND CONDUIT SIZING TABLE

CIRCUIT AMPACITY/VOLTAGE	CIRCUIT LENGTH	CONDUCTOR SIZE (PHASE, NEUTRAL AND GR)	CONDUIT SIZE
20A/120V	0' - 60'	#12 AWG	0.75" Ø
20A/120V	60' - 95'	#10 AWG	0.75" Ø
20A/120V	95' - 150'	#8 AWG	1" Ø
20A/120V	150' - 240'	#6 AWG	1.25" Ø
20A/277V	0' - 140'	#12 AWG	0.75" Ø
20A/277V	140' - 220'	#10 AWG	0.75" Ø
20A/277V	220' - 350'	#8 AWG	1" Ø
20A/277V	350' - 550'	#6 AWG	1.25" Ø

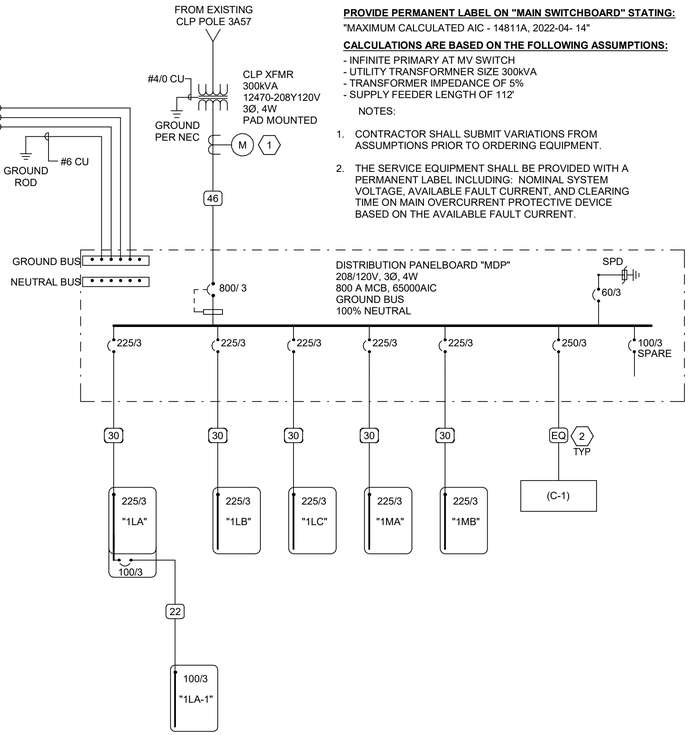
NOTES:

1. WIRE SIZING IS BASED ON COPPER CONDUCTORS SUPPLYING A 20A, 120V CIRCUIT AT THE INDICATED VOLTAGE, ASSUMED TO BE 80% LOADED (16A), WITH MAXIMUM VOLTAGE DROP OF 3% AT THE LOAD.
2. DOWN-SIZED WIRE AT DEVICE/LOAD AS REQUIRED AND TERMINATE CONDUCTORS IN A SAFE AND CODE COMPLIANT MANNER.
3. CONDUIT SIZE IS BASED ON A MAXIMUM OF 3 CIRCUITS PER CONDUIT, EACH WITH A SEPARATE NEUTRAL CONDUCTOR.

FAULT CURRENT TABLE

PROVIDE FULLY RATED CIRCUIT BREAKERS IN PANELBOARDS FOR THE FAULT CURRENT SHOWN. SERIES RATINGS WITH NEXT LEVEL UPSTREAM OVERCURRENT PROTECTIVE DEVICES ARE PERMITTED SUBJECT TO FACTORY UL DOCUMENTATION OF SERIES RATING SUBMITTED TO ENGINEER. IF DEVICE OR EQUIPMENT FAULT CURRENT RATING IS NOT SHOWN, ASSUME 100,000 AIC.

BUS	FAULT CURRENT
1LA	13865
1LA-1	9148
1LB	13865
1LC	13865
1MA	13865
1MB	13865
MDP	14811



PROVIDE PERMANENT LABEL ON "MAIN SWITCHBOARD" STATING:

"MAXIMUM CALCULATED AIC - 14811A, 2022-04- 14"

CALCULATIONS ARE BASED ON THE FOLLOWING ASSUMPTIONS:

- INFINITE PRIMARY AT MV SWITCH
- UTILITY TRANSFORMNER SIZE 300kVA
- TRANSFORMER IMPEDANCE OF 5%
- SUPPLY FEEDER LENGTH OF 112'

NOTES:

1. CONTRACTOR SHALL SUBMIT VARIATIONS FROM ASSUMPTIONS PRIOR TO ORDERING EQUIPMENT.
2. THE SERVICE EQUIPMENT SHALL BE PROVIDED WITH A PERMANENT LABEL INCLUDING: NOMINAL SYSTEM VOLTAGE, AVAILABLE FAULT CURRENT, AND CLEARING TIME ON MAIN OVERCURRENT PROTECTIVE DEVICE BASED ON THE AVAILABLE FAULT CURRENT.

EQUIPMENT NAMEPLATE SCHEDULE

EQUIPMENT ID SCHEME	FIRST DIGIT - BUILDING LEVEL (0, 1, 2, ETC) SECOND DIGIT - PANEL TYPE M - MECHANICAL H - (277/480) L - (120/208) E - EMERGENCY S - STANDBY Q - EQUIPMENT U - UPS K - KITCHEN (120/208) THIRD DIGIT - BUILDING AREA (A, B, C, ETC) FOURTH DIGIT - SEQUENCE # (1,2,3,...)
LABEL FORMAT	[NAME] [SYSTEM] [VOLTAGE] [FED FROM] [SOURSE(S)]
LABEL EXAMPLE	PANEL "4LA1" STANDBY POWER 120/208V FED FROM BUS-A / XFMR 4TA
BUSWAY	LABEL BUSWAY EVERY 6' WHERE EXPOSED TO VIEW AND EVERY 15' WHERE NOT EXPOSED TO VIEW
OTHER	

COLOR SCHEME

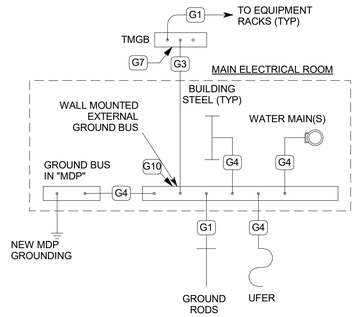
SYSTEM	EQUIPMENT	NAMEPLATE COLOR TEXT	BACKGROUND
NORMAL POWER	ALL GEAR NOT INCLUDED BELOW	WHITE	BLACK
STANDBY POWER	MDPS1 AND ALL DOWNSTREAM GEAR, EXCEPT UPS GEAR AS NOTED	WHITE	ORANGE
EMERGENCY POWER	GDP1, GDP2, ATS-E AND ALL DOWNSTREAM GEAR	WHITE	RED
LEGALLY-REQUIRED STANDBY POWER	ATS-S AND ALL DOWNSTREAM GEAR	RED	WHITE
UPS "A" POWER	UPSA AND ALL DOWNSTREAM GEAR	WHITE	BLUE
UPS "B" POWER	UPSB AND ALL DOWNSTREAM GEAR	BLACK	YELLOW

GENERAL SHEET NOTES

1. PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.
2. REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.
3. ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO ELECTRICAL SPECIFICATIONS FOR REQUIREMENTS.
4. PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER NEC 230.95(C).

SHEET KEYNOTES

1. ELECTRICAL METER PER HILL AFB STANDARDS.
2. REFER TO EQUIPMENT SCHEDULE ON SHEET EP602 FOR CONDUCTOR AND CONDUIT SIZING FOR EQUIPMENT CONNECTIONS.



GROUNDING SCHEDULE

ALL CONDUCTORS ARE INSULATED UNLESS INDICATED OTHERWISE

SYM	SIZE
G1	#6 CU
G3	#4/0 CU IN EMT CONDUIT. PROVIDE 1" INSULATORS.
G4	#4/0 CU IN EMT CONDUIT
G7	24"X4"X1/4" COPPER BUS WITH PRE-DRILLED HOLES MOUNTED ON INSULATORS, WITH LEXAN COVER, IN MAIN TELECOMM. ROOM (TMGB).
G10	48"x4"X1/4" COPPER BUS WITH PRE-DRILLED HOLES MOUNTED ON INSULATORS IN MAIN ELECTRICAL ROOM

A2 ONE-LINE DIAGRAM
EP601 SCALE: NTS

A4 GROUNDING RISER DIAGRAM
EP601 SCALE: NTS

75th AIR BASE WING

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARFIELD 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG		
CAPITAL PROJECT NO. 1043925	SITE CODE: 1		
PROJECT NO. 259623	ISSUE DATE: 05/10/2022		
BASE PROJECT NO. KRSM200806	BASE PROJECT MANAGER SCOTT ARNOLD		

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

ONE-LINE DIAGRAM

EP601

SHEET 107 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:49:13 AM

100% DESIGN

EQUIPMENT SCHEDULE

EQUIPMENT SCHEDULE KEY
E - DIVISION 26
Q - FURNISHED WITH EQUIPMENT
* - COORDINATE WITH THE DIVISION 23 TEMPERATURE CONTROL INSTALLER
** - AUTOMATIC CONTROL WIRING BY DIVISION 23

NOTES:
1. NEMA 3R
2. TOGGLE SWITCH W/ THERMAL OVERLOAD.
3. PROVIDE FUSED DISCONNECT ELEVATOR POWER MODULE WITH SHUNT TRIP.
4. CONTRACTOR TO PERFORM FINAL CONNECTION TO LINE VOLTAGE THERMOSTATS.
5. TOGGLE SWITCH W/BACNET INTERFACE.
6. INDOOR UNITS FED FROM OUTDOOR UNIT. PROVIDE DISCONNECTS FOR BOTH.
7. PROVIDE LABEL ON DISCONNECT "DISCONNECT OUTDOOR UNIT PRIOR TO INDOOR."
8. VFDS PROVIDED BY DIVISION 23. COORDINATE ELECTRICAL CONNECTIONS WITH DIVISION 23.

GENERAL NOTES:
1. WHERE DISCONNECTS, STARTERS, OR VFCs ARE BEING PROVIDED BY ELECTRICAL CONTRACTOR, LOCATE EQUIPMENT IN ACCESSIBLE LOCATION, SUCH THAT IT IS WITHIN SITE OF THE MECHANICAL EQUIPMENT IT IS SERVING, AND COMPLIES WITH N.E.C. REQUIRED CLEARANCES.

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER										
MARK	QTY	ITEM DESCRIPTION	HP	kW	MCA	FLA	VOLT	PH	Hz	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
(AC-1)	1	DRY SYSTEM COMPRESSOR	1/6	-	-	4.4	120	1	60	2 #12, #12 GR, 0.75" CND	E	20/1 CB	1MA	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(AC-1)
(AHU-1)	1	AIR HANDLING UNIT	20	-	-	59.4	208	3	60	3 #4, #8 GR 1.25" CND	E	80/3 CB	1MA	E	100A/3P FRS-70	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	8	(AHU-1)
(B-1)	1	BOILER	-	0.32	-	4.8	120	1	60	2 #12, #12 GR, 0.75" CND	E	20/1 CB	1MA	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(B-1)
(C-1)	1	CHILLER	-	66.20	-	184	208	3	60	3 #250, #4 GR, 2.5" CND	E	250/3 CB	MDP	E	400A/3P FRS-250	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(C-1)
(CH-1)	1	CABINET HEATER	-	0.1	-	1	120	1	60	2 #12, #12 GR, 0.75" CND	E	20/1 CB	1MB	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(CH-1)
(CHWP-1)	1	CHILLED WATER PUMP	-	6.0	-	16.7	208	3	60	3 #10, #10 GR, 0.75" CND	E	25/3 CB	1MA	E	30A/2P FRS-20	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	8	(CHWP-1)
(CHWP-2)	1	CHILLED WATER PUMP	-	6.0	-	16.7	208	3	60	3 #10, #10 GR, 0.75" CND	E	25/3 CB	1MA	E	30A/2P FRS-20	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	8	(CHWP-2)
(DCP-1)	1	DOMESTIC RECIRCULATION PUMP	-	0.5	-	4.4	120	1	60	2 #12, #12 GR, 0.75" CND	E	20/1 CB	1MA	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(DCP-1)
(EUH-1)	1	ELECTRIC UNIT HEATER	-	3.3	-	15.9	208	1	60	2 #12, #12 GR, 0.75" CND	E	20/2 CB	1MB	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(EUH-1)
(EWH-1)	1	ELECTRIC WATER HEATER	-	4.49	-	12.5	208	3	60	3 #12, #12 GR, 0.75" CND	E	20/3 CB	1MA	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(EWH-1)
(GMU-1)	1	GLYCOL MAKE-UP UNIT	-	0.48	-	7.2	120	1	60	2 #12, #12 GR, 0.75" CND	E	20/1 CB	1MA	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(GMU-1)
(HWP-1)	1	HEATING WATER PUMP	-	2.7	-	7.5	208	3	60	3 #12, #12 GR, 0.75" CND	E	20/3 CB	1MA	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	8	(HWP-1)
(HWP-2)	1	HEATING WATER PUMP	-	2.7	-	7.5	208	3	60	3 #12, #12 GR, 0.75" CND	E	20/3 CB	1MA	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	8	(HWP-2)
(RAF-1)	1	EXHAUST FAN	3	3.80	-	10.6	208	3	60	3 #12, #12 GR, 0.75" CND	E	20/3 CB	1MB	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	1	(RAF-1)
(RAF-2)	1	EXHAUST FAN	3	3.80	-	10.6	208	3	60	3 #12, #12 GR, 0.75" CND	E	20/3 CB	1MB	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	1	(RAF-2)
(REF-1)	1	EXHAUST FAN	1/2	0.69	-	9.8	120	1	60	2 #12, #12 GR, 0.75" CND	E	20/1 CB	1MB	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-		(REF-1)
(SAC-1)	1	SPLIT SYSTEM AIR CONDITIONER	-	-	-	0.3	208	1	60	2 #12, #12 GR, 0.75" CND	E	-	1MB	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	6,7	(SAC-1)
(SCU-1)	1	SPLIT SYSTEM CONDENSING UNIT	-	2.2	-	10.4	208	1	60	2 #12, #12 GR, 0.75" CND	E	20/2 CB	1MB	E	THERMAL SWITCH	ADJ TO EQUIP	Q	-	-	-	-	-	-	-	6,7	(SCU-1)

75th AIR BASE WING

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARVEY 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: EJB	CHECKED BY: PJG		
CAPITAL PROJECT NO: 1043925	SITE CODE: 1	ISSUE DATE: 05/10/2022	
PROJECT NO: 75R6233	PROJECT NO: KRSM200806	BASE PROJECT MANAGER: SCOTT ARNOLD	

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

EQUIPMENT SCHEDULE

EP602

SHEET 108 OF 123

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100% DESIGN

DISTRIBUTION PANEL "MDP"

VOLTS/PHASE/WIRE:	MAIN SIZE & TYPE:	LOCATION:	NOTES:
120/208V ,3 PH, 4 WIRE	800 AMPERE MAIN	ELECTRICAL 110	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 65000

CKT	OCP		LOAD (kVA)				PHASE LOAD (kVA)		
NO	AMP	POLE	LTG	PWR	CO	PANEL / EQUIPMENT	A	B	C
1	225	3	2.9	10.8	11.9	1LA	9.6	7.9	7.9
2	225	3	2.0	0.0	32.6	1LB	11.9	10.9	11.7
3	225	3	2.0	3.1	33.9	1LC	14.3	13.5	11.3
4	225	3	0.0	45.1	0.0	1MA	15.4	14.8	14.9
5	225	3	0.0	13.9	0.0	1MB	5.3	4.3	4.3
6	250	3	0.0	66.2	0.0	C-1	22.1	22.1	22.1
7	100	3	--	--	--	SPARE	0.0	0.0	0.0
8	60	3	--	--	--	SPD	0.0	0.0	0.0
TOTALS:						CONNECTED kVA PER PHASE	**78.6**	**73.5**	**72.2**
						CONNECTED AMPS PER PHASE	**656**	**614**	**602**
						TOTAL CONNECTED kVA =	**222.4**		
						AVERAGE CONNECTED AMPS PER PHASE =	**617**		

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **6.8 kVA @ 125% = 8.5 kVA**
RECEPTACLES: **78.4 kVA @ 56% = 44.2 kVA**
ALL OTHER LOADS @ 100%: **137.2 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER...

TOTAL DIVERSIFIED kVA = **206.5**
AVERAGE AMPS PER PHASE = **573**

PANEL: "1LA-1"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	100 AMPERE MAIN LUGS	ELECTRICAL 110	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 10000

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	2	0.0	2.1	0.0	POWER COMM 120	1.0	1.0					POWER COMM 120	0.0	2.1	0.0	2	20	2
3	--	--	--	--	--	--			1.0	1.0			--	--	--	--	--	--	4
5	20	2	0.0	2.1	0.0	POWER COMM 120					1.0	1.0	POWER COMM 120	0.0	2.1	0.0	2	20	6
7	--	--	--	--	--	--	1.0	1.0					--	--	--	--	--	--	8
9	20	1	0.0	0.0	0.7	CO COMM 120			0.7	0.0			SPARE	--	--	--	2	20	10
11	20	1	0.0	1.0	0.0	ACS					1.0	0.0	--	--	--	--	--	--	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	2	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			--	--	--	--	--	--	16
17	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	22
23	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**4**		**3**		**3**		CONNECTED TOTAL kVA =	**9**					
						CONNECTED AMPS PER PHASE	**35**		**23**		**26**		AVERAGE CONNECTED AMPS PER PHASE =	**25**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS:
RECEPTACLES: **0.7 kVA @ 100% = 0.7 kVA**
ALL OTHER LOADS @ 100% : **8.3 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **9**
AVERAGE AMPS PER PHASE = **25**

PANEL: "1LA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 110	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 22000

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	1.1	CO EXTERIOR	1.1	0.2					CO MECHANICAL 117	0.2	0.0	0.0	1	20	2
3	20	1	0.0	0.0	0.4	CO ELECTRICAL 110			0.4	0.2			CO MECHANICAL 117	0.2	0.0	0.0	1	20	4
5	20	1	0.0	0.8	0.0	FACP					0.8	0.2	PWR BMS MECHANICAL 117	0.0	0.2	0.0	1	20	6
7	20	1	0.0	0.0	0.9	CO ROOM 104, 103, 102, 109	0.9	0.5					HC DOOR PWR ROOM 101	0.0	0.5	0.0	1	20	8
9	20	1	0.0	0.0	0.7	CO ROOM 108, 106, 105			0.7	1.0			LTG: MECHANICAL 16	0.0	0.0	1.0	1	20	10
11	20	1	0.0	0.0	0.5	CO MOTHER'S ROOM 107					0.5	1.6	LTG: FIRE RISER 21	0.0	0.0	1.6	1	20	12
13	20	1	0.0	0.0	0.7	CO OFFICE 125	0.7	0.3					LTG: EXTERIOR	0.0	0.0	0.3	1	20	14
15	20	1	0.0	0.0	0.7	CO OFFICE 124			0.7	0.0			SPARE	--	--	--	1	20	16
17	20	1	0.0	0.0	0.7	CO OFFICE 123					0.7	0.0	SPARE	--	--	--	1	20	18
19	20	1	0.0	0.0	0.7	CO OFFICE 113	0.7	0.0					SPARE	--	--	--	1	20	20
21	20	1	0.0	0.0	0.7	CO SMALL CONFERENCE 112			0.7	0.0			SPARE	--	--	--	1	20	22
23	20	1	0.0	0.0	0.2	CO SMALL CONFERENCE 112					0.2	0.0	SPARE	--	--	--	1	20	24
25	20	1	0.0	0.0	0.7	CO OFFICE 114	0.7	0.0					SPARE	--	--	--	1	20	26
27	20	1	0.0	0.0	0.7	CO OFFICE 115			0.7	0.0			SPARE	--	--	--	1	20	28
29	20	1	0.0	0.0	0.7	CO OFFICE 121					0.7	0.0	SPARE	--	--	--	1	20	30
31	20	1	0.0	0.0	0.4	CO CONFERENCE 119	0.4	0.0					SPARE	--	--	--	1	20	32
33	20	1	0.0	0.0	0.7	CO CONFERENCE 119			0.7	0.0			SPARE	--	--	--	1	20	34
35	20	1	0.0	0.0	0.2	CO CONFERENCE 119					0.2	0.0	SPARE	--	--	--	1	20	36
37	100	3	0.0	9.3	0.7	1LA-1	4.2	0.0					SPARE	--	--	--	1	20	38
39	--	--	--	--	--	--			2.8	0.0			SPARE	--	--	--	1	20	40
41	--	--	--	--	--	--					3.1	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**10**		**8**		**8**		CONNECTED TOTAL kVA =	**24**					
						CONNECTED AMPS PER PHASE	**80**		**66**		**66**		AVERAGE CONNECTED AMPS PER PHASE =	**66**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **2.9 kVA @ 125% = 3.6 kVA**
RECEPTACLES: **11.9 kVA @ 92% = 10.9 kVA**
ALL OTHER LOADS @ 100% : **9.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **23**
AVERAGE AMPS PER PHASE = **65**

PANEL: "1LB"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 110	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 22000

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111	1.4	0.5					CO OPEN OFFICE 111	0.5	0.0	0.0	1	20	2
3	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111			1.4	0.5			CO OPEN OFFICE 111	0.5	0.0	0.0	1	20	4
5	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111					1.4	0.5	CO OPEN OFFICE 111	0.5	0.0	0.0	1	20	6
7	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111	1.4	0.5					CO OPEN OFFICE 111	0.5	0.0	0.0	1	20	8
9	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111			1.4	0.4			CO ROOFTOP	0.4	0.0	0.0	1	20	10
11	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111					1.4	1.2	LTG: OPEN OFFICE 23	0.0	0.0	1.2	1	20	12
13	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111	1.4	0.8					LTG: OPEN OFFICE 23	0.0	0.0	0.8	1	20	14
15	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111			1.4	0.0			SPARE	--	--	--	1	20	16
17	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111					1.4	0.0	SPARE	--	--	--	1	20	18
19	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111	1.4	0.0					SPARE	--	--	--	1	20	20
21	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111			1.4	0.0			SPARE	--	--	--	1	20	22
23	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111					1.4	0.0	SPARE	--	--	--	1	20	24
25	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111	1.4	0.0					SPARE	--	--	--	1	20	26
27	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111			1.4	0.0			SPARE	--	--	--	1	20	28
29	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111					1.4	0.0	SPARE	--	--	--	1	20	30
31	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111	1.4	0.0					SPARE	--	--	--	1	20	32
33	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111			1.4	0.0			SPARE	--	--	--	1	20	34
35	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111					1.4	0.0	SPARE	--	--	--	1	20	36
37	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111	1.4	0.0					SPARE	--	--	--	1	20	38
39	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111			1.4	0.0			SPARE	--	--	--	1	20	40
41	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 111					1.4	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**12**		**11**		**12**		CONNECTED TOTAL kVA =	**35**					
						CONNECTED AMPS PER PHASE	**100**		**91**		**99**		AVERAGE CONNECTED AMPS PER PHASE =	**96**					

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **2.0 kVA @ 125% = 2.4 kVA**
RECEPTACLES: **32.6 kVA @ 65% = 21.3 kVA**
ALL OTHER LOADS @ 100% : **0.0 kVA**

- 100% CONNECTED LOAD PLUS 25%
- FIRST 10kVA @ 100%, REMAINDER @ 50%
- MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

DIVERSIFIED TOTAL kVA = **24**
AVERAGE AMPS PER PHASE = **66**

75th AIR BASE WING

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARRETT 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

CHECKED BY: PJG	SITE CODE: 1	ISSUE DATE: 05/10/2022	
DESIGNED BY: EJB	CAPITAL PROJECT NO.: 1043925	PROJECT NO.: 75682333	BASE PROJECT MANAGER: SCOTT ARNOLD
		KRSM200806	

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

PANEL SCHEDULES

EP603

SHEET 109 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:49:17 AM

100% DESIGN

PANEL: "1LC"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 110	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 22000

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122	1.4	0.9					CO BREAKROOM 118	0.9	0.0	0.0	1	20	2
3	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122			1.4	0.2			CO BREAKROOM 118	0.2	0.0	0.0	1	20	4
5	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122					1.4	0.8	DISP BREAKROOM 118	0.0	0.8	0.0	1	20	6
7	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122	1.4	0.2					CO BREAKROOM 118	0.2	0.0	0.0	1	20	8
9	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122			1.4	0.5			CO BREAKROOM 118	0.5	0.0	0.0	1	20	10
11	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122					1.4	0.5	CO BREAKROOM 118	0.5	0.0	0.0	1	20	12
13	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122	1.4	0.8					REF BREAKROOM 118	0.0	0.8	0.0	1	20	14
15	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122			1.4	0.8			REF BREAKROOM 118	0.0	0.8	0.0	1	20	16
17	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122					1.4	0.4	CO ROOM 116, 117	0.4	0.0	0.0	1	20	18
19	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122	1.4	0.7					POWER HALL 116	0.0	0.7	0.0	1	20	20
21	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122			1.4	0.5			CO OPEN OFFICE 122	0.5	0.0	0.0	1	20	22
23	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122					1.4	0.5	CO OPEN OFFICE 122	0.5	0.0	0.0	1	20	24
25	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122	1.4	0.5					CO OPEN OFFICE 122	0.5	0.0	0.0	1	20	26
27	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122			1.4	0.5			CO OPEN OFFICE 122	0.5	0.0	0.0	1	20	28
29	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122					1.4	0.5	CO OPEN OFFICE 122	0.5	0.0	0.0	1	20	30
31	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122	1.4	1.1					LTG: OPEN OFFICE 24	0.0	0.0	1.1	1	20	32
33	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122			1.4	0.9			LTG: OPEN OFFICE 24	0.0	0.0	0.9	1	20	34
35	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122					1.4	0.0	SPARE	--	--	--	1	20	36
37	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122	1.4	0.0					SPARE	--	--	--	1	20	38
39	20	1	0.0	0.0	1.4	PWR POLE OPEN OFFICE 122			1.4	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**14**		**13**		**11**		CONNECTED TOTAL kVA = **39**						
						CONNECTED AMPS PER PHASE	**122**		**115**		**94**		AVERAGE CONNECTED AMPS PER PHASE = **108**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: **2.0 kVA @ 125% = 2.5 kVA** - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **28**

RECEPTACLES: **33.9 kVA @ 65% = 22.0 kVA** - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **77**

ALL OTHER LOADS @ 100% : **3.1 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1MA"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 110	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 22000

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	80	3	0.0	21.4	0.0	(AHU-1) MECHANICAL 117	7.1	0.9					(HWP-1) MECHANICAL 117	0.0	2.7	0.0	3	20	2
3	--	--	--	--	--	--			7.1	0.9			--	--	--	--	--	--	4
5	--	--	--	--	--	--					7.1	0.9	--	--	--	--	--	--	6
7	20	3	0.0	4.5	0.0	(EWH-1) MECHANICAL 117	1.5	0.9					(HWP-2) MECHANICAL 117	0.0	2.7	0.0	3	20	8
9	--	--	--	--	--	--			1.5	0.9			--	--	--	--	--	--	10
11	--	--	--	--	--	--					1.5	0.9	--	--	--	--	--	--	12
13	20	1	0.0	0.5	0.0	(DCP-1) MECHANICAL 117	0.5	2.0					(CHWP-1) MECHANICAL 117	0.0	6.0	0.0	3	25	14
15	20	1	0.0	0.3	0.0	(B-1) MECHANICAL 117			0.3	2.0			--	--	--	--	--	--	16
17	20	1	0.0	0.5	0.0	(GMU-1) MECHANICAL 117					0.5	2.0	--	--	--	--	--	--	18
19	20	1	0.0	0.5	0.0	(AC-1) MECHANICAL 117	0.5	2.0					(CHWP-2) MECHANICAL 117	0.0	6.0	0.0	3	25	20
21	20	1	--	--	--	SPARE			0.0	2.0			--	--	--	--	--	--	22
23	20	1	--	--	--	SPARE					0.0	2.0	--	--	--	--	--	--	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	3	25	26
27	20	1	--	--	--	SPARE			0.0	0.0			--	--	--	--	--	--	28
29	20	1	--	--	--	SPARE					0.0	0.0	--	--	--	--	--	--	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**15**		**15**		**15**		CONNECTED TOTAL kVA = **45**						
						CONNECTED AMPS PER PHASE	**129**		**123**		**124**		AVERAGE CONNECTED AMPS PER PHASE = **125**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **50**

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **140**

ALL OTHER LOADS @ 100% : **50.4 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

PANEL: "1MB"

VOLTS/PHASE/WIRE:	PANEL SIZE & TYPE:	MAIN SIZE AND TYPE:	LOCATION:	CABINET:	NOTES:
120/208V, 3 PH 4 WIRE	22" W x 6" D, BOLT-ON	225 AMPERE MAIN LUGS	ELECTRICAL 110	SURFACE	

ACCESSORIES: PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR **AIC RATING:** 22000

CKT	OCP		LOAD (kVA)				PHASE LOAD							LOAD (kVA)			OCP		CKT
NO	AMP	POLE	LTG	PWR	CO	DESCRIPTION	A		B		C		DESCRIPTION	CO	PWR	LTG	POLE	AMP	NO
1	30	2	0.0	2.2	0.0	(SCU-1)/(SAC-1) COMM 120	1.1	1.3					(RAF-1) ROOF	0.0	3.8	0.0	3	20	2
3	--	--	--	--	--	--			1.1	1.3			--	--	--	--	--	--	4
5	20	2	0.0	3.3	0.0	(EUH-1) FIRE RISER 104					1.7	1.3	--	--	--	--	--	--	6
7	--	--	--	--	--	--	1.7	1.3					(RAF-2) ROOF	0.0	3.8	0.0	3	20	8
9	20	1	0.0	0.7	0.0	(REF-1) ROOF			0.7	1.3			--	--	--	--	--	--	10
11	20	1	0.0	0.1	0.0	(CH-1) ENTRY VESTIBULE 101					0.1	1.3	--	--	--	--	--	--	12
13	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	3	20	14
15	20	1	--	--	--	SPARE			0.0	0.0			--	--	--	--	--	--	16
17	20	1	--	--	--	SPARE					0.0	0.0	--	--	--	--	--	--	18
19	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	3	20	20
21	20	1	--	--	--	SPARE			0.0	0.0			--	--	--	--	--	--	22
23	20	1	--	--	--	SPARE					0.0	0.0	--	--	--	--	--	--	24
25	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	26
27	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	28
29	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	30
31	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	32
33	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	34
35	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	36
37	20	1	--	--	--	SPARE	0.0	0.0					SPARE	--	--	--	1	20	38
39	20	1	--	--	--	SPARE			0.0	0.0			SPARE	--	--	--	1	20	40
41	20	1	--	--	--	SPARE					0.0	0.0	SPARE	--	--	--	1	20	42
TOTALS:						CONNECTED kVA PER PHASE	**5**		**4**		**4**		CONNECTED TOTAL kVA = **14**						
						CONNECTED AMPS PER PHASE	**44**		**36**		**36**		AVERAGE CONNECTED AMPS PER PHASE = **38**						

NEC DIVERSIFIED LOAD CALCULATIONS

LIGHTING & CONTINUOUS LOADS: - 100% CONNECTED LOAD PLUS 25% — DIVERSIFIED TOTAL kVA = **15**

RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% — AVERAGE AMPS PER PHASE = **41**

ALL OTHER LOADS @ 100% : **14.8 kVA** - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC

75TH AIR BASE WING

MARK	APPR	DATE	DESCRIPTION

STATE OF UTAH REGISTERED PATRICK GARDNER 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY:	EJB
CHECKED BY:	PJG
CAPITAL PROJECT NO.	1043925
SITE CODE:	T
PROJECT NO.	75R233
ISSUE DATE:	05/10/2022
BASE PROJECT MANAGER	KRSM200806
	SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

PANEL SCHEDULES

EP604

SHEET 110 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:49:19 AM

100% DESIGN

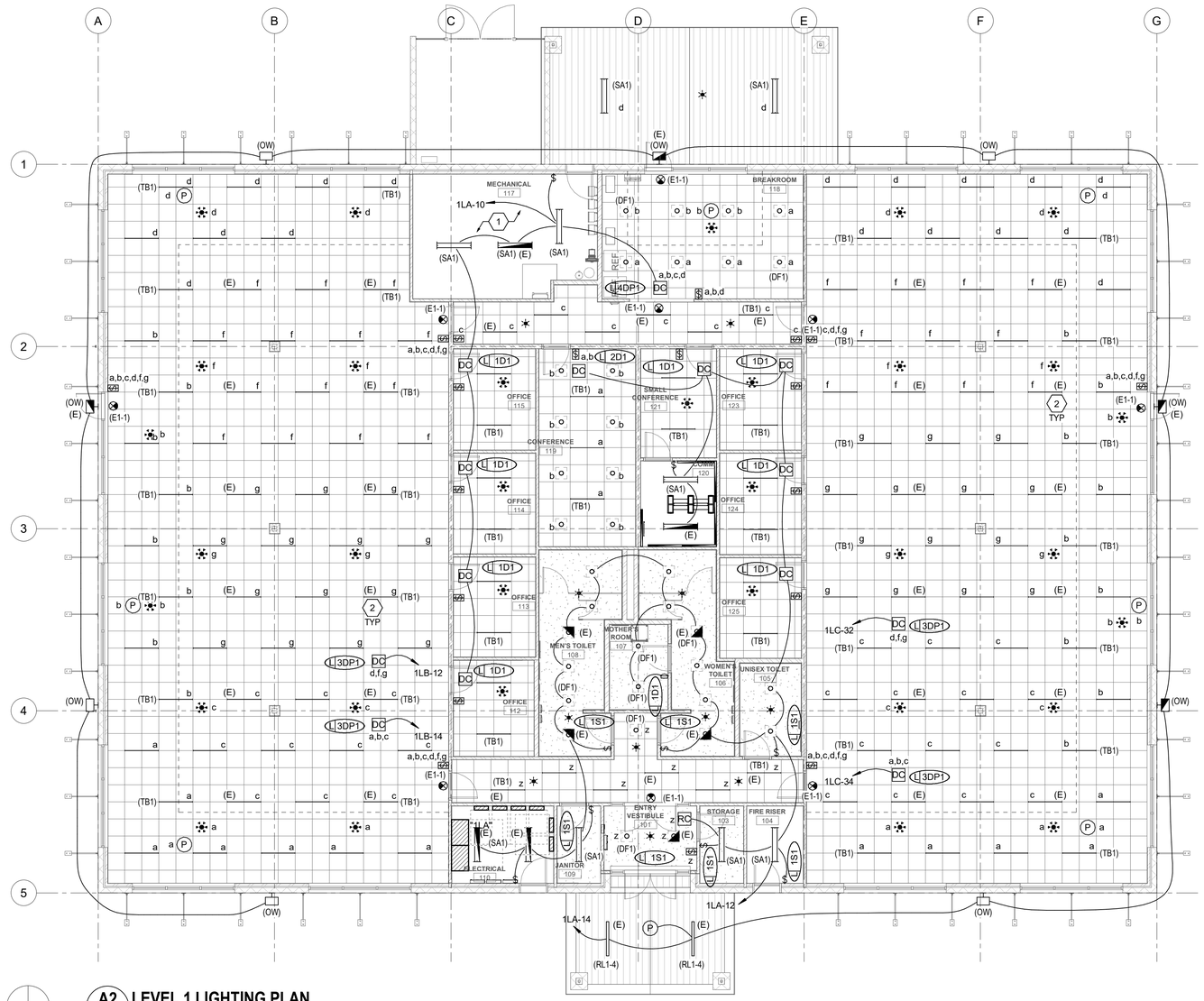
GENERAL SHEET NOTES

1 (E) DENOTES EMERGENCY FIXTURE. PROVIDE FIXTURES WITH BATTERY BACK-UP. REFER TO LIGHTING FIXTURE SCHEDULE ON EL601.

SHEET KEYNOTES

1 COORDINATE LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHT FIXTURES IN THIS AREA WITH MECHANICAL EQUIPMENT, DUCT, PIPE, PLUMBING, ETC. PRIOR TO ROUGH-IN.

2 LIGHT FIXTURES WITH A SUBSCRIPT (E) ARE EGRESS FIXTURES.



A2 LEVEL 1 LIGHTING PLAN
EL101 SCALE: 1/8" = 1'-0"

75TH AIR BASE WING

MARK	APPR	DATE	DESCRIPTION

STATE OF UTAH REGISTERED
PATRICK GARVEY
5263908-2202
05/10/2022
PROFESSIONAL ENGINEER

DESIGNED BY: DKM
CHECKED BY: PJG
CAPITAL PROJECT NO. 1043925
SITE CODE: 1
PROJECT NO. 75962333
ISSUE DATE: 05/10/2022
KRSM2200806
BASE PROJECT MANAGER SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

LEVEL 1 LIGHTING PLAN

EL101

SHEET 111 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:48:49 AM

100% DESIGN

INTERIOR LIGHTING FIXTURE SCHEDULE

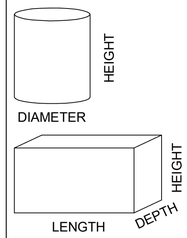
ABBREVIATIONS

MOUNTING

- B - BASE
- C - CEILING
- F - FLANGE
- G - GRID
- P - PENDANT
- PL - POLE
- R - RECESSED
- S - SURFACE
- W - WALL

LUMINAIRE OPTIONS

- ARHR - AIR RETURN AND HEAT REJECTION
- DL - DAMP LOCATION
- EQC - EARTHQUAKE CLIPS
- F - FUSING
- HLD - HINGED AND LATCHED DOOR
- HS - HOUSE SIDE SHIELD
- PS - PHOTOCELL SWITCH
- QRS - QUARTZ RESTRIKE
- ST - STATIC
- WG - WIRE GUARD
- WL - WET LOCATION



FINISH

- MW - MATTE WHITE
- BL - BLACK
- SL - SILVER
- GL - GOLD
- CL - CLEAR
- PW - PAINTED WHITE
- EA - EXTRUDED ALUMINUM
- S - STEEL
- GS - GALVANIZED STEEL
- C - CAST
- CBA - COLOR BY ARCHITECT
- SCBA - STANDARD COLOR BY ARCHITECT
- CCA - CUSTOM COLOR BY ARCHITECT
- FS 209D - MEETS FEDERAL STANDARD 209D
- TP - THERMALLY PROTECTED
- FL - FLUSH
- R - REGRESS
- M - MITERED

DIFFUSER/LENS

- #A - ACRYLIC #THICK
- #OA - ACRYLIC #THICK (OPAL)
- GC - GLASS (CLEAR)
- GO - GLASS (OPAL)
- GF - GLASS (FROSTED)
- SGL - SOFT GLOW LENS
- HPL - HIGH PERFORMANCE LENS
- DO - DROP OPAL
- CGL - CONVEX GLASS LENS
- S - SATIN LENS

REFLECTOR

- OP - NONE/OPEN
- SP - SPECULAR
- SS - SEMI-SPECULAR
- D - DIFFUSE (WHITE ENAMEL)
- SC - SPECULAR (COLORED)
- PR - PRISMATIC
- FDR - FULL DEPTH REFLECTOR
- DS - DIFFUSE (SEMI SPECULAR) SILVER
- LI - LOW IRIDESCENT
- IR - IRIDESCENT
- SL - SILVER
- GL - GOLD
- CA - CLEAR ALZAK

NOTES

GENERAL NOTES

1. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES 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.
2. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES.
3. SUBSTITUTIONS AND/OR EQUAL FIXTURES MUST RECEIVE APPROVAL PRIOR TO BIDDING, THEY MUST BE SUBMITTED TO THE ENGINEER NO LESS THAN 2 WEEKS PRIOR TO BID OPENING.
4. SAMPLES MUST BE PROVIDED FOR ANY AND ALL FIXTURES UPON A/E REQUEST PRIOR TO RELEASING FIXTURES.
5. ALL FIXTURES SHALL BE LISTED AND APPROVED FOR THEIR INTENDED USE AND LOCATION.
6. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
7. COMPLY WITH THE "INTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.
8. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, DRIVERS, AND LAMPS.
9. ALL LIGHT FIXTURES TO BE EITHER "DLC" OR "LIGHTING FACTS" LISTED OR TO BE APPROVED BY ARCHITECT/ENGINEER AND OWNER.

ID	DESCRIPTION	NOMINAL SIZE LENGTH	NOMINAL SIZE DEPTH	NOMINAL SIZE HEIGHT	NOMINAL SIZE DIAMETER/ APERTURE	MOUNTING	TYPE	COLOR TEMP	DRIVER CONFIGURATION	VOLTAGE	WATTS	FINISH	FIXTURE LUMENS	DIFFUSER/LENS	OPTIONS	NOTES	MANUFACTURER (CATALOG SERIES) OPTION 1	OPTION 2	OPTION 3	OPTION 4
(DF1)	6" OPEN ROUND RECESSED DOWN LIGHT, (E) DENOTES EMERGENCY FIXTURE, PROVIDE BATTERY PACK.				6"	CR	LED	3500K	LED DRIVER	120/277	15		2400				HALO (HC615D010 DM612835 61MDH) Q	LITHONIA LIGHTING (LDN6 35/15 LO6AR LSS MVOLT GZ10)	LIGHTOLIER (6RN Z6RDL15835WOCDZ10U)	LITON LIGHTING (CH618UE-D10/CR 6L22SW-T35)
(E1-1)	UNIVERSAL MOUNT SINGLE PHOTOLUMINESCENT EXIT SIGN	12"	8"	2"		C	LED	GREEN	LED DRIVER	120/277	3	SCBA	100				EVENLITE (LUCX-XX-XX-CBA-U-XX) Q	EMERGENSEE (SEEDLX50-P1-W-G-UB) S	MULE LIGHTING (7220-ACR-B) R	
(RL1-4)	3" WIDE EXTERIOR RECESSED LINEAR, LED, FLANGED, BLK, (E) DENOTES EMERGENCY FIXTURE, PROVIDE BATTERY PACK.	4'	2"	4"	-	CR	LED	4000K	LED DRIVER	120/277	20		1300	FLUSH LENS			PINNACLE (EV3-WET-840-4-FL(F)-U-OL1-1) S	LUMENWERX (VIAWETR-TMG-HLO-LED-80-500-40-XFT-UNV-D1-1-TRM-BLK) R	MARK (SL2L LOP 4FT FLP FL 80CRI 35K 400LMF MIN10 277 ZT WL) J	NULITE (RXT-F-FF-03L40-1C-U-D-SCBA-4') Q
(SA1)	4' LED STRIP LIGHT, LENSED, SURFACE MOUNT OR CHAIN HUNG. (E) DENOTES EMERGENCY FIXTURE, PROVIDE BATTERY PACK.	48"					LED	4000K	LED DRIVER	120/277	30		5000				LITHONIA (ZL1D L48 3000LM FST MVOLT 40K 80CRI WH) J	ILP (VS4-25WLED-U-40-FRAL) R	METALUX (4SNLED-LD5-52SL-SLW-UNV-L-840-CD1-U AYC-CHAIN/SET)	EATON (4SNLED-LD5-30-LW-UNV-L-84-0-CD1) Q
(TB1)	4' LED T GRID LIGHT, INTEGRATED, NOT CLIP-ON TYPE. PROVIDE BATTERY PACK WITH EMERGENCY FIXTURES, MARKED WITH AN (E).	48"					LED	3500K	LED DRIVER	120/277	32		2300				JLC TECH (TBSL-MW-4-24-D-U-W) J	TRULY GREEN SOLUTIONS (TSPEC-4-35K-U-D) Q	SUNLITE (88792-SU / 88798-SU) R	SSCO (TLC#GL-4-20W-35 K-WH/GL-PSXXW (POWER SUPPLY))

EXTERIOR LIGHTING FIXTURE SCHEDULE

ABBREVIATIONS

LUMINAIRE

- ARHR - AIR RETURN AND HEAT REJECTION
- DL - DAMP LOCATION
- EQC - EARTHQUAKE CLIPS
- F - FUSING
- HLD - HINGED AND LATCHED DOOR
- HS - HOUSE SIDE SHIELD
- PS - PHOTOCELL SWITCH
- QRS - QUARTZ RESTRIKE
- ST - STATIC
- WG - WIRE GUARD
- WL - WET LOCATION

MOUNTING

- B - BASE
- C - CEILING
- F - FLANGE
- G - GRID
- P - PENDANT
- PL - POLE
- R - RECESSED
- S - SURFACE
- W - WALL

CONFIGURATION

- BA - BANNER ARMS
- BH - BULL HORN
- DL - 2 "L" SHAPE
- DS - 2 @ 180
- PT - INLINE POST TOP
- Q - QUAD
- SH - SHEPHERDS HOOK
- SL - SINGLE
- T - 3 "T" SHAPE

POLE

- RS - ROUND STRAIGHT
- RT - ROUND TAPERED
- SS - SQUARE STRAIGHT
- ST - SQUARE TAPERED

EMERGENCY

- NE - NORMAL AND EMERGENCY CONNECTIONS
- EB - EMERGENCY BATTERY PACK
- ET - EMERGENCY TRANSFER DEVICE

BALLAST

- IS - INSTANT START
- RS - RAPID START
- PS - PROGRAM START, PARALLEL LAMP OPERATION
- PSMH - PULSE START METAL HALLIDE (CWA OR ELECTRONIC)
- PPLF - PROVIDE POWER LINE FILTER
- LVTM - LOW VOLTAGE TRANSFORMER (MAGNETIC)
- LVTE - LOW VOLTAGE TRANSFORMER (ELECTRONIC)

DIMMING BALLAST

- D2 - 2 WIRE DIMMER
- D3 - 3 WIRE DIMMER
- D4 - 4 WIRE DIMMER
- DD - DIGITAL DIMMER
- SDP - STEP DIMMER BALLAST

FINISH

- MW - MATTE WHITE
- BL - BLACK
- SL - SILVER
- GL - GOLD
- CL - CLEAR
- PW - PAINTED WHITE
- EA - EXTRUDED ALUMINUM
- S - STEEL
- GS - GALVANIZED STEEL
- C - CAST
- CBA - COLOR BY ARCHITECT
- SCBA - STANDARD COLOR BY ARCHITECT
- CCA - CUSTOM COLOR BY ARCHITECT
- FS 209D - MEETS FEDERAL STANDARD 209D
- TP - THERMALLY PROTECTED
- FL - FLUSH
- R - REGRESS
- M - MITERED

LENS

- #A - ACRYLIC #THICK
- #OA - ACRYLIC #THICK (OPAL)
- GC - GLASS (CLEAR)
- GO - GLASS (OPAL)
- GF - GLASS (FROSTED)
- SGL - SOFT GLOW LENS
- HPL - HIGH PERFORMANCE LENS
- DO - DROP OPAL
- CGL - CONVEX GLASS LENS
- S - SATIN LENS

REFLECTOR AND DISTRIBUTION

- I - TYPE I
- II - TYPE II
- III - TYPE III
- IV - TYPE IV
- V - TYPE V
- VSQ - TYPE V SQUARE
- SA - SPUN ALLUMINUM
- SR - SEGMENTED REFLECTOR
- BW# - NEMA BEAM WIDTH 1 THRU 7

CUTOFF CLASSIFICATION

- FC - FULL CUTOFF
- CO - CUTTOFF
- SC - SEMI CUTOFF
- NC - NONCUTOFF

NOTES

1. VERIFY THE PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS.
2. COMPLY WITH THE "EXTERIOR LIGHTING" SECTION OF THE SPECIFICATIONS.
3. REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS.
4. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED.

GENERAL NOTES

1. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES 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.
2. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES.

ID	TYPE	LUMINAIRE BUG RATING BACK	BUG RATING UP	BUG RATING GLARE	SIZE (NOMINAL) LENGTH	SIZE (NOMINAL) WIDTH	SIZE (NOMINAL) DEPTH	SIZE (NOMINAL) DIAMETER/ APERTURE	LUMINAIRE OPTIONS	LAMP COLOR	LAMP TYPE	LAMP INITIAL LUMENS @ 1.0BF	LAMP QUANTITY	DRIVER INPUT VOLTS	DRIVER ANSI WATTS	FINISH HOUSING	FINISH TRIM	LENS TYPE	REFLECTOR DISTRIBUTION TYPE	MOUNTING TYPE	MOUNTING CONFIGURATION	MOUNTING POLE BASE HEIGHT	MOUNTING POLE HEIGHT	MOUNTING WIND RATING	MOUNTING OPTIONS	MANUFACTURER (CATALOG SERIES) OPTION 1	OPTION_2	OPTION 3	OPTION 4	ALLOWANCE
(OW)	LED WALL PACK - DECORATIVE, TYPE III DISTRIBUTION, INTEGRAL PHOTO-CELL, (E) DENOTES EMERGENCY FIXTURE, PROVIDE BATTERY PACK. MOUNT AT 8'-0" AFF.									4000K	LED	2000	1	120	30											LITHONIA (WST LED P2 40K VW MVOLT)	VISIONAIRE (VSC-1-T3-16LC-3-4K-UNV-WM-CBA)	MCGRAW EDISON (IST-F01-LED-E1-BL3-CBA)	HUBBELL (TRP1-12L-20-4K7-3-U-SCBA)	

75TH AIR BASE WING

DESIGNED BY: DKM
CHECKED BY: PJG
CAPITAL PROJECT NO.: 1043925
SITE CODE: 1
PROJECT NO.: 75RK233 KRSM200806
ISSUE DATE: 05/10/2022
BASE PROJECT MANAGER: SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARFIELD 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

HAFB 309th SOFTWARE ENGINEERING FACILITY

LIGHTING FIXTURE SCHEDULES

EL601

SHEET 112 OF 123

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Plot Date: 5/9/2022 11:48:56 AM

100% DESIGN

COMcheck Software Version 4.1.5.2
Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: HAFB New Building 309 SWEG 22-004
Project Type: New Construction

Construction Site:

Owner/Agent:
US AIR FORCE

Designer/Contractor:
Doug Mabey
Spectrum Engineers
324 S State St
Suite 400
Salt Lake City, UT 84111
801-328-5151
dkm@spectrum-engineers.com

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
Reduced Lighting Power, 1.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-Office	10157	0.71	7222
		Total Allowed Watts =	7222

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
1-Office				
LED 1: DF1: Down light: Other:	1	39	15	585
LED 2: SA1: Strip: Other:	1	10	30	300
LED 3: TB1: T-bar light: Other:	1	155	32	4960
		Total Proposed Watts =		5845

Interior Lighting PASSES: Design 19% better than code

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in *COMcheck* Version 4.1.5.2 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Doug Mabey - Lighting Designer (Name - Title) Doug Mabey (Signature) 4/12/22 (Date)

COMcheck Software Version 4.1.5.2
Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: HAFB New Building 309 SWEG 22-004
Project Type: New Construction
Exterior Lighting Zone: 2 (Light industrial area with limited nighttime use (LZ2))

Construction Site:

Owner/Agent:
US AIR FORCE

Designer/Contractor:
Doug Mabey
Spectrum Engineers
324 S State St
Suite 400
Salt Lake City, UT 84111
801-328-5151
dkm@spectrum-engineers.com

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Main Entry (Entry canopy)	475 ft2	0.25	Yes	119
Outdoor break area (Dining area)	538 ft2	0.65	Yes	350
Pedestrian doors (Pedestrian and vehicular entrances and exits)	9 ft of door	14	Yes	126
Walkways (Walkway < 10 feet wide)	350 ft of	0.5	Yes	175
		Total Tradable Watts (a) =		769
		Total Allowed Watts =		769
		Total Allowed Supplemental Watts (b) =		400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Main Entry (Entry canopy 475 ft2): Tradable Wattage				
LED 1: RL1-4: Recessed linear: Other:	1	4	16	64
Outdoor break area (Dining area 538 ft2): Tradable Wattage				
LED 2: SA1: Strip: Other:	1	2	30	60
Pedestrian doors (Pedestrian and vehicular entrances and exits 9 ft of door width): Tradable Wattage				
LED 3: OW: Wall Pack: Other:	1	3	25	75
Walkways (Walkway < 10 feet wide 350 ft of walkway length): Tradable Wattage				
LED 4: OW: Wall Pack: Other:	1	5	25	125
		Total Tradable Proposed Watts =		324

Exterior Lighting PASSES: Design 72% better than code

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in *COMcheck* Version 4.1.5.2 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Doug Mabey - Lighting Designer (Name - Title) Doug Mabey (Signature) 4/12/22 (Date)

COMcheck Software Version 4.1.5.2
Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the *COMcheck* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C103.2 [PR8][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22][1]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1, C405.2.1.1 [EL18][1]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.2 [EL19][1]	Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.1.3 [EL20][1]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.2.1; C405.2.2.2 [EL21][2]	Each area not served by occupancy sensors (per C405.2.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3, C405.2.3.1; C405.2.3.2 [EL23][2]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL26][1]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.4 [EL27][1]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.2.5 [EL28][full]	Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.3 [EL6][1]	Exit signs do not exceed 5 watts per face.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [FI17][1]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C405.4.1 [FI18][1]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Interior Lighting fixture schedule for values.*
C405.5.1 [FI19][1]	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Exterior Lighting fixture schedule for values.*
C408.2.5.1 [FI16][1]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.3 [FI33][1]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

EL602

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Plot Date: 5/9/2022 11:48:57 AM

100% DESIGN

LIGHTING/SPACE CONTROL TYPE SCHEDULE

WIRING LEGEND

- LINE VOLTAGE WIRING
- 0-10V WIRING
- CAT5E CABLING
- WIRING BY OTHERS
- TMP SEGMENT NETWORK CABLING

APPROVED MANUFACTURERS

1. WATTSTOPPER (BASIS OF DESIGN)
2. NLIGHT
3. HUBBELL BUILDING AUTOMATION
4. GREENGATE

LIGHTING CONTROL ID

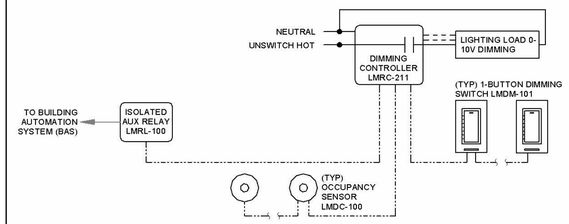
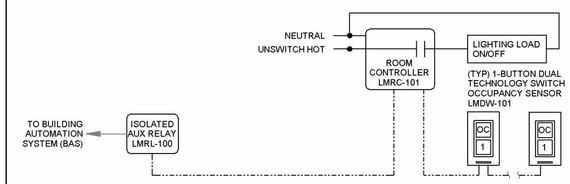
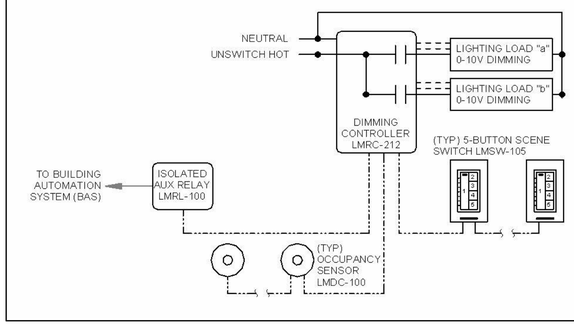
1. # = NUMBER OF ZONES
2. D = DIMMING, S = SWITCHING
3. P = DAYLIGHT PHOTOCELL
4. L = PLUG LOAD CONTROLLER
5. # = INSTANCE

GENERAL NOTES

1. COORDINATE INITIAL PROGRAMMING WITH OWNER AND MODIFY CONTROL TIMES AND OPERATION AS REQUESTED BY OWNER.
2. PROVIDE FINE TUNING PROGRAMMING AND ADJUSTMENTS UPON REQUEST BY OWNER WITHIN FIRST 6 MONTHS AFTER SUBSTANTIAL COMPLETION.
3. PROVIDE CUSTOMIZED ENGRAVED PERMANENT BUTTON LABELS ON EACH SWITCH, LABEL TO MATCH BUTTON LABEL ID OR AS DIRECTED BY OWNER.
4. PART NUMBERS SHOWN ARE BASED ON WATTSTOPPER AS THE BASIS OF DESIGN. ALL APPROVED MANUFACTURERS ARE SUBJECT TO MEETING ALL FUNCTIONS AND CAPABILITIES OF THE BASIS OF DESIGN SYSTEM AND PRODUCTS. FAILURE TO MEET THESE SHALL REQUIRE THE CONTRACTOR TO PROVIDE A SYSTEM THAT DOES AT NOT ADDITIONAL COST.

GENERAL NOTES

5. REFER TO PLANS FOR LOCATIONS AND QUANTITIES OF DEVICES.
6. INSTALL ONE OF EACH CONTROL TYPE WITH PROGRAMMING, ADJUST, AND OBTAIN OWNERS APPROVAL PRIOR TO PROGRAMMING THE REMAINING CONTROLS.
7. WIRING MAY VARY BETWEEN MANUFACTURERS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED WIRING THAT WILL BOTH MEET THE MANUFACTURERS REQUIREMENTS AND MATCH WITH THE SHOWN SYSTEM.
8. PROVIDE COMPLETE SHOP DRAWING SUBMITTALS INCLUDING OCCUPANCY SENSOR LAYOUT AND COVERAGE PATTERNS. PROVIDE ADDITIONAL SENSORS AS REQUIRED FOR 100% COVERAGE OF SPACES WITH OCCUPANCY SENSOR CONTROL.

ID	DETAIL	LIGHTS ON CONTROL	LIGHTS OFF CONTROL	LIGHTING CONTROL TYPE	DAYLIGHT SENSOR SETTING (FC)	TIME DELAY TO OFF (MIN.)	BAS AUX RELAY SIGNAL	PLUG LOAD CONTROLLER	NETWORKED CONTROLS	BUTTON_1	BUTTON_2	BUTTON_3	BUTTON_4	BUTTON_5	BUTTON_6	BUTTON_7	BUTTON_8	BUTTON_9	NOTES
1D1		MANUAL & OCCUPANCY	MANUAL OR OCCUPANCY	DIMMING 0-10V	-	15	RELAY CLOSED ON OCCUPANCY	-	-	FUNCTION: PRESS TOP-ON, HOLD TOP-RAISE LABEL ID: TOP-"ON/RAISE" BOTTOM-"OFF/ LOWER"	-	-	-	-	-	-	-	-	-	
1S1		MANUAL & OCCUPANCY	MANUAL OR OCCUPANCY	ON/OFF	-	15	RELAY CLOSED ON OCCUPANCY	-	-	FUNTION: PRESS-ON PRESS-OFF LABEL ID:"ON/OFF"	-	-	-	-	-	-	-	-	
2D1		MANUAL & OCCUPANCY	MANUAL OR OCCUPANCY	DIMMING 0-10V	-	15	RELAY CLOSED ON OCCUPANCY	-	-	TOGGLE PRESS TOP-ON, PRESS BOTTOM-OFF, HOLD TOP-RAISE, HOLD BOTTOM-"OFF/ LOWER"	FUNCTION: PRESS-PRESET SCENE #01 ZONE "a" 75% ZONE "b" 75% LABEL ID: "PRE #1"	FUNCTION: PRESS-PRESET SCENE #02 ZONE "a" 0% ZONE "b" 50% LABEL ID: "PRE #2"	FUNCTION: PRESS-SELECT ZONE "a" FOR DIMMING LABEL ID: "ZONE a"	FUNCTION: PRESS-SELECT ZONE "b" FOR DIMMING LABEL ID: "ZONE b"	-	-	-	-	

75th AIR BASE WING

MARK	DATE	APPR	DESCRIPTION

STATE OF UTAH REGISTERED PATRICK GARRETT 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY: DKM
CHECKED BY: PJG
CAPITAL PROJECT NO.: 1043925
SITE CODE: 1
PROJECT NO.: 76233
BASE PROJECT MANAGER: KRSM200806
ISSUE DATE: 05/10/2022
PROJECT MANAGER: SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

LIGHTING CONTROL SCHEDULES

EL603

SHEET 114 OF 123

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Plot Date: 5/9/2022 11:48:58 AM

100% DESIGN

LIGHTING/SPACE CONTROL TYPE SCHEDULE

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- 0-10V WIRING
- CAT5E CABLING
- WIRING BY OTHERS
- TMP SEGMENT NETWORK CABLING

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1. COORDINATE INITIAL PROGRAMMING WITH OWNER AND MODIFY CONTROL TIMES AND OPERATION AS REQUESTED BY OWNER.
2. PROVIDE FINE TUNING PROGRAMMING AND ADJUSTMENTS UPON REQUEST BY OWNER WITHIN FIRST 6 MONTHS AFTER SUBSTANTIAL COMPLETION.
3. PROVIDE CUSTOMIZED ENGRAVED PERMANENT BUTTON LABELS ON EACH SWITCH, LABEL TO MATCH BUTTON LABEL ID OR AS DIRECTED BY OWNER.
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GENERAL NOTES

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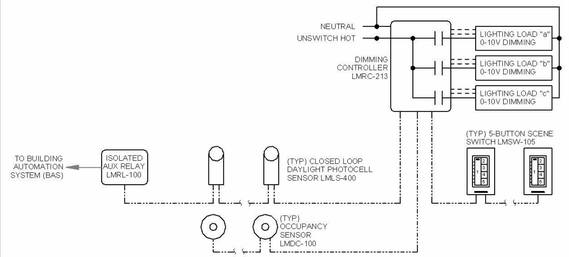
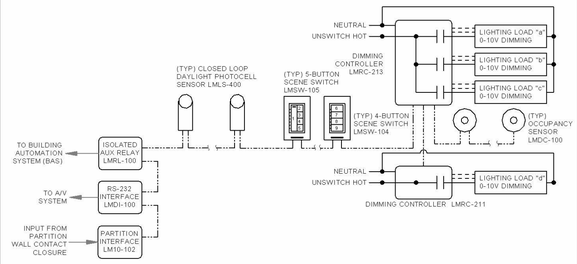
6. INSTALL ONE OF EACH CONTROL TYPE WITH PROGRAMMING, ADJUST, AND OBTAIN OWNERS APPROVAL PRIOR TO PROGRAMMING THE REMAINING CONTROLS.
7. WIRING MAY VARY BETWEEN MANUFACTURERS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE REQUIRED WIRING THAT WILL BOTH MEET THE MANUFACTURERS REQUIREMENTS AND MATCH WITH THE SHOWN SYSTEM.
8. PROVIDE COMPLETE SHOP DRAWING SUBMITTALS INCLUDING OCCUPANCY SENSOR LAYOUT AND COVERAGE PATTERNS. PROVIDE ADDITIONAL SENSORS AS REQUIRED FOR 100% COVERAGE OF SPACES WITH OCCUPANCY SENSOR CONTROL.

ID	DETAIL	LIGHTS ON CONTROL	LIGHTS OFF CONTROL	LIGHTING CONTROL TYPE	DAYLIGHT SENSOR SETTING (FC)	TIME DELAY TO OFF (MIN.)	BAS AUX RELAY SIGNAL	PLUG LOAD CONTROLLER	NETWORKED CONTROLS	BUTTON_1	BUTTON_2	BUTTON_3	BUTTON_4	BUTTON_5	BUTTON_6	BUTTON_7	BUTTON_8	BUTTON_9	NOTES
3DP1		MANUAL & OCCUPANCY	MANUAL OR OCCUPANCY	DIMMING 0-10V	30	15	RELAY CLOSED ON OCCUPANCY	-	-	TOGGLE PRESS TOP-ON, PRESS BOTTOM-OFF, HOLD TOP-RAISE, HOLD BOTTOM-LOWER	PRESET SCENE #01 - ZONE "a" 0%, ZONE "b" 50%, ZONE "c" 100%	SELECT ZONE "a"	SELECT ZONE "b"	SELECT ZONE "c"	-	-	-	-		
4DP1		MANUAL & OCCUPANCY	MANUAL OR OCCUPANCY	DIMMING 0-10V	30	15	RELAY CLOSED ON OCCUPANCY	-	-	FUNCTION: PRESS TOP-ON, HOLD TOP-RAISE PRESS BOTTOM-OFF, HOLD BOTTOM-LOWER LABEL ID: TOP-"ON/RAISE" BOTTOM"OFF/LOWER"	FUNCTION: PRESS-SELECT ZONE "a" FOR DIMMING LABEL ID: "ZONE a"	FUNCTION: PRESS-SELECT ZONE "b" FOR DIMMING LABEL ID: "ZONE b"	FUNCTION: PRESS-SELECT ZONE "c" FOR DIMMING LABEL ID: "ZONE c"	FUNCTION: PRESS-SELECT ZONE "d" FOR DIMMING LABEL ID: "ZONE d"	FUNCTION: PRESS-PRESET SCENE #01 ZONE "a" 75% ZONE "b" 75% ZONE "c" 75% ZONE "d" 75% LABEL ID: "PRE #1"	FUNCTION: PRESS-PRESET SCENE #02 ZONE "a" 50% ZONE "b" 50% ZONE "c" 50% ZONE "d" 50% LABEL ID: "PRE #2"	FUNCTION: PRESS-PRESET SCENE #03 ZONE "a" 0% ZONE "b" 100% ZONE "c" 100% ZONE "d" 0% LABEL ID: "PRE #3"	FUNCTION: PRESS-PRESET SCENE #04 ZONE "a" 0% ZONE "b" 50% ZONE "c" 50% ZONE "d" 100% LABEL ID: "PRE #4"	MODE 1-ROOM OPERATE INDIVIDUALLY MODE 2-ROOMS OPERATE COMBINED, AV INTEGRATION REQUIRED, PARTITION SENSING REQUIRED

75th AIR BASE WING

DESCRIPTION	DATE	APPR	MARK

STATE OF UTAH REGISTERED PATRICK GARRETT 5263908-2202 05/10/2022 PROFESSIONAL ENGINEER

DESIGNED BY:	DKM
CAPITAL PROJECT NO.	1043925
TYPE OF PROJECT NO.	75962233
BASE PROJECT NO.	KRSM200806
CHECKED BY:	PJG
SITE CODE:	1
ISSUE DATE:	05/10/2022
BASE PROJECT MANAGER	SCOTT ARNOLD

DEPARTMENT OF THE AIR FORCE
75TH AIR BASE WING
75TH CIVIL ENGINEER GROUP

HAFB 309th SOFTWARE ENGINEERING FACILITY

LIGHTING CONTROL SCHEDULES

EL604

SHEET 115 OF 123

File Path: C:\Users\ejb\Documents\220057 Elec Central R21_ejbB3D29.rvt
Plot Date: 5/9/2022 11:48:59 AM

100% DESIGN