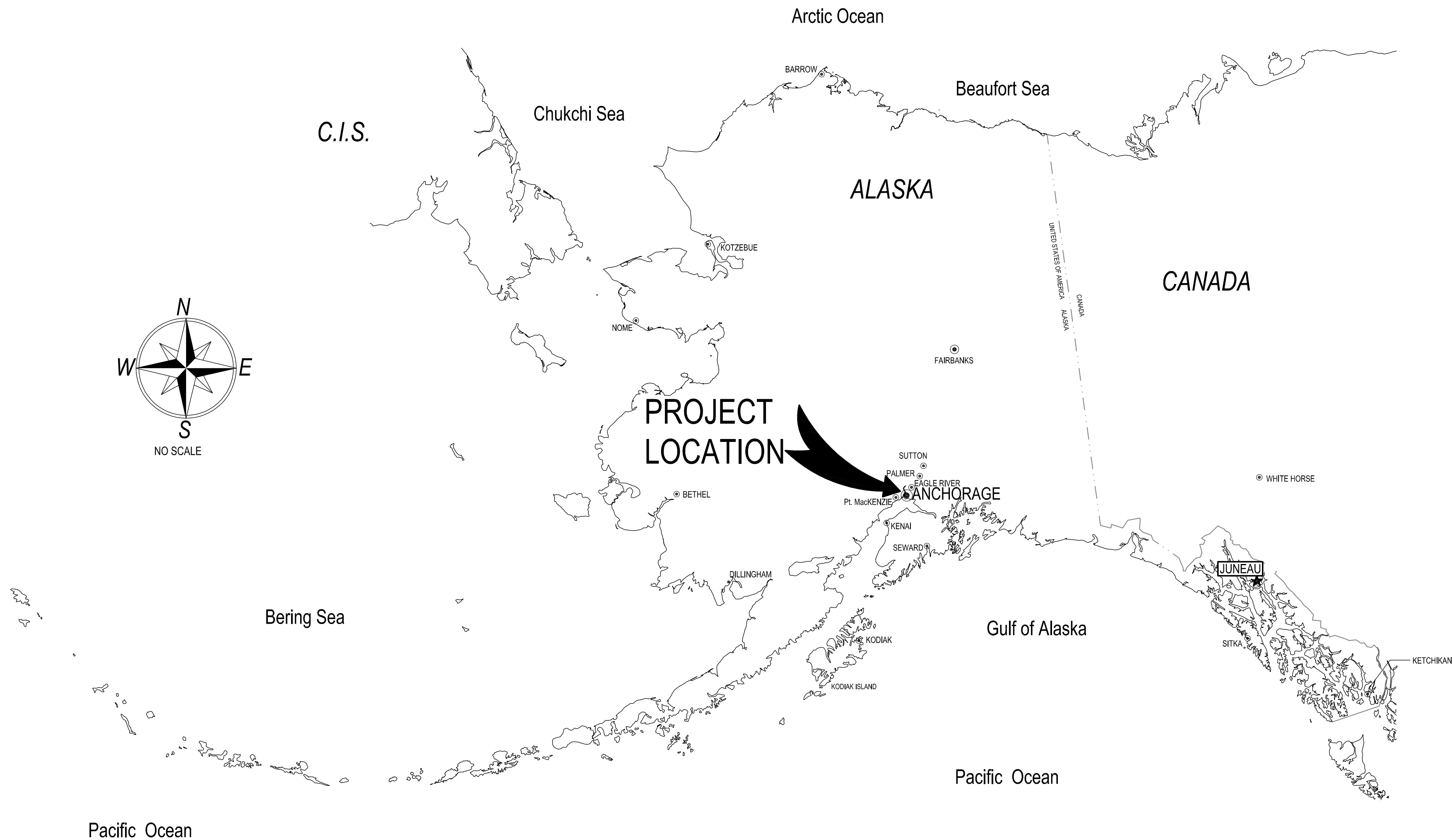


State of Alaska - Department of Corrections  
Anchorage Correctional Center - East  
Generator Reconfiguration



PREPARED BY:

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CONSTRUCTION DOCUMENTS 04-17-2017

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- E0.1 ELECTRICAL SPECIFICATIONS
- E1.1 LEGEND, ELECTRICAL DEMOLITION & REMODEL PLANS – POWER
- E2.1 PARTIAL POWER ONE-LINE DEMOLITION & REMODEL

ELECTRICAL SPECIFICATIONS

26 00 50 – COMMON WORK RESULTS FOR ELECTRICAL

- A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
- B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, AND INTERNATIONAL FIRE CODE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION.
- C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE OWNER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER’S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.
- D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.
- E. QUALIFICATIONS: FOR MODIFICATION OF EXISTING EQUIPMENT, CONTRACTOR SHALL VERIFY WITH MANUFACTURER EXACT REQUIREMENTS. PROVIDE FACTORY–TRAINED OR CERTIFIED TECHNICIANS IF REQUIRED.
- F. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER’S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.
- G. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- H. OPERATION AND MAINTENANCE MANUALS: PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF THE OWNER’S PERSONNEL. DESCRIBE THE PROCEDURES NECESSARY TO OPERATE THE SYSTEM INCLUDING START–UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN. PROVIDE INSTRUCTIONS AND A SCHEDULE OF PREVENTIVE MAINTENANCE IN TABULAR FORM FOR ALL ROUTINE CLEANING, INSPECTION AND LUBRICATION WITH RECOMMENDED LUBRICANTS. PROVIDE INSTRUCTIONS FOR MINOR REPAIR OR ADJUSTMENTS REQUIRED FOR PREVENTIVE MAINTENANCE ROUTINES. PROVIDE MANUFACTURER’S DESCRIPTIVE LITERATURE INCLUDING APPROVED SHOP DRAWINGS COVERING DEVICES USED IN ANY CONTRACTOR–PROVIDED EQUIPMENT OR SYSTEMS WITH ILLUSTRATION, EXPLODED VIEWS, ETC.
- I. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.
- J. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES.
- K. REFERENCE SYMBOLS: THE ELECTRICAL “LEGEND” ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE “LEGEND” AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.
- L. PENETRATION OF FIRE BARRIERS: ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED BARRIERS SHALL BE SEALED IN ACCORDANCE WITH NEC ARTICLE 300.21 AND THE FOLLOWING:
- ALL HOLES OR VOIDS CREATED TO EXTEND ELECTRICAL SYSTEMS THROUGH FIRE RATED FLOORS, WALLS OR CEILING SHALL BE SEALED WITH AN ASBESTOS–FREE INTUMESCENT FIRE STOPPING MATERIAL CAPABLE OF EXPANDING 8 TO 10 TIMES WHEN EXPOSED TOTEMPERATURES 250 DEGREES F OR HIGHER.
  - MATERIALS SHALL BE SUITABLE FOR THE FIRE STOPPING OF PENETRATIONS MADE BY STEEL, GLASS, PLASTIC AND SHALL BE CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM E814, UL 1479 AND THE UL FIRE RESISTANCE DIRECTORY REQUIREMENTS FOR THROUGH–PENETRATION FIRESTOP DEVICES (XHCR).
  - THE RATING OF THE FIRE STOPS SHALL BE THE SAME AS THE TIME–RATED FLOOR, WALL OR CEILING ASSEMBLY.
  - INSTALL FIRE STOPPING MATERIALS IN ACCORDANCE WITH THE MANUFACTURER’S INSTRUCTIONS.

26 05 19 – WIRE AND CABLE

- A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
- B. MATERIALS:
- ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG.
  - CONTROL CIRCUITS SHALL BE COPPER, STRANDED CONDUCTOR, 600V INSULATION, THHN/THWN, MINIMUM SIZE 18 AWG.
- C. INSTALLATION:
- COLOR CODE WIRES BY LINE OR PHASE.
  - COLOR CODE THE 120/208V CONDUCTORS BLACK, RED, BLUE, AND WHITE.
  - BROWN, ORANGE, YELLOW AND GRAY FOR 277/480V SYSTEMS.
  - DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
  - USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.
  - INSTALLATION SCHEDULE: BUILDING WIRE IN RACEWAYS AT ALL LOCATIONS UNLESS OTHERWISE NOTED. PROVIDE XHHW–2 FOR FEEDERS.

26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

- A. SUBMITTALS: SEISMIC DRAWINGS FOR PAD–MOUNTED ELECTRICAL EQUIPMENT.
- B. MATERIAL: SUPPORT CHANNEL SHALL BE GALVANIZED OR PAINTED STEEL. HARDWARE SHALL BE CORROSION RESISTANT.
- C. OBTAIN SERVICES OF A STRUCTURAL ENGINEER REGISTERED AND LICENSED IN THE STATE OF ALASKA TO DESIGN SEISMIC RESTRAINT SYSTEMS AND CONCRETE PADS FOR PAD–MOUNTED ELECTRICAL EQUIPMENT.
- D. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO THE BUILDING STRUCTURE TO RESIST LATERAL EARTHQUAKE FORCES.

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

- A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
- B. MATERIALS
- RIGID STEEL CONDUIT: ANSI C80.1. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT.
  - INTERMEDIATE METAL CONDUIT (IMC): GALVANIZED STEEL. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; USE FITTINGS AND CONDUIT BODIES SPECIFIED ABOVE FOR RIGID STEEL CONDUIT.
  - ELECTRICAL METALLIC TUBING CONDUIT (EMT): ANSI C80.3. GALVANIZED TUBING. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON, COMPRESSION TYPE OR SET SCREW FITTINGS WITH INSULATED THROAT BUSHINGS. DIE–CAST FITTINGS ARE NOT ACCEPTABLE. MAXIMUM SIZE SHALL BE 2". PROVIDE FACTORY ELBOWS ON SIZES 1–1/2" AND LARGER.
  - FLEXIBLE METAL CONDUIT: FS WW–C–566; STEEL, FULL WALL THICKNESS. REDUCED WALL FLEXIBLE METAL CONDUIT IS NOT ACCEPTABLE. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.
  - LIQUIDTIGHT FLEXIBLE CONDUIT: FLEXIBLE METAL CONDUIT WITH PVC JACKET. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.
  - RIGID NONMETALLIC CONDUIT: NEMA TC 2; SCHEDULE 40 PVC, RATED FOR 90° C CABLE.
  - PROVIDE GALVANIZED OR CADMIUM PLATED, ONE PIECE PRESSED STEEL OUTLET BOXES 4 INCH SQUARE OR OCTAGONAL, 1 1/2 INCHES DEEP MINIMUM SIZE FOR USE IN INTERIOR AREAS.
  - PROVIDE CAST ALUMINUM OR FERALLOY TYPE BOXES WITH GASKETED COVER, THREADED HUBS AND NEMA 3R RATING FOR USE IN EXTERIOR OR WET LOCATIONS.
- C. INSTALLATION:
- INSTALL CONDUIT FOR ALL SYSTEMS UNLESS OTHERWISE NOTED, 1/2 INCH MINIMUM SIZE, EXCEPT CONDUIT FOR SPECIAL SYSTEMS SHALL BE 3/4" MINIMUM. EXPOSED OUTDOOR LOCATIONS AND FEEDERS SHALL BE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT. BELOW SLAB MAY BE NON–METALLIC PVC CONDUIT.
  - EXPOSED DRY INTERIOR LOCATIONS SHALL BE RIGID STEEL CONDUIT OR INTERMEDIATE METAL CONDUIT. ELECTRICAL METALLIC TUBING MAY BE USED EXPOSED WHEN INSTALLED ON THE CEILING, A MINIMUM OF TEN FEET ABOVE THE FLOOR OR WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
  - MOTOR AND EQUIPMENT CONNECTIONS SHALL BE SHORT EXTENSIONS OF FLEXIBLE METAL CONDUIT TO ALLOW FOR VIBRATION. LIQUIDTIGHT FLEXIBLE CONDUIT AND FITTINGS SHALL BE USED FOR THESE CONNECTIONS IN DAMP OR WET LOCATIONS.
  - PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.
  - SUPPORT BOXES INDEPENDENTLY OF CONDUIT.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

- A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.
- B. MATERIALS
- NAMEPLATES: ENGRAVED THREE–LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.
  - TAPE LABELS: ADHESIVE TAPE LABELS, WITH 3/16 INCH BOLD BLACK LETTERS ON CLEAR BACKGROUND MADE USING DYMO RHINOPRO 5000 OR EQUAL LABEL PRINTER.
  - WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.
- C. INSTALLATION:
- GEAR: PROVIDE ENGRAVED THREE–LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW–VOLTAGE SYSTEM PANELS.
  - CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS WITH INDELIBLE BLACK MAGIC MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE. LABEL FEEDER CONDUITS AND SPARE CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.
  - JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. MARK ALL GENERATOR AND CONTROL JUNCTION BOXES WITH SHEET STEEL COVERS.
  - WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.
  - DEVICE PLATES: LABEL EACH RECEPTACLE DEVICE PLATE OR POINT OF CONNECTION DENOTING THE PANELBOARD NAME AND CIRCUIT NUMBER. INSTALL LABEL ON THE TOP OF EACH PLATE.

26 24 13 – SWITCHBOARDS

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B. MATERIAL:
- MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL.
  - PROVIDE FACTORY–ASSEMBLED DEAD FRONT, METAL–ENCLOSED, SELF–SUPPORTING SWITCHBOARD ASSEMBLY CONFORMING TO NEMA PB2. SWITCHBOARD ELECTRICAL RATINGS AND CONFIGURATIONS AS SHOWN ON THE ELECTRICAL PLANS. PROVIDE COPPER BUS WITH SILVER PLATING, OR ALUMINUM BUS WITH TIN PLATING. ENCLOSURE TYPE NEMA 1. DIMENSIONS AS SHOWN ON PLANS OR SMALLER.
  - MOLDED CASE CIRCUIT BREAKERS, NEMA AB 1, CONFIGURATION AS SHOWN ON DRAWINGS.
  - INTEGRAL TVSS/SURGE PROTECTIVE DEVICE: PROVIDED WITH SWITCHBOARD, UL 1449, RATED TO SWITCHBOARD.
- C. INSTALLATION:
- INSTALL SWITCHBOARD AT LOCATION ON PLANS. TIGHTEN ALL BUS CONNECTIONS AND MECHANICAL FASTENERS AFTER PLACING SWITCHBOARD.
  - INSPECT FOR PHYSICAL DAMAGE, PROPER ALIGNMENT, ANCHORAGE, AND GROUNDING.
  - PROVIDE NAMEPLATES FOR ALL CIRCUIT BREAKERS.
  - SWITCHBOARD SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM THE 3–LINE SIGNAGE SHALL STATE THE FOLLOWING: WARNING – ARC FLASH AND SHOCK HAZARD – APPROPRIATE PPE REQUIRED.

26 36 00 – AUTOMATIC TRANSFER SWITCHES

- A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
- B. MATERIALS:
- MANUFACTURERS: CUMMINS/ONAN, ASCO, KOHLER, CATERPILLAR, OR APPROVED EQUAL. NEMA ICS 2, UL 1008 LISTED AUTOMATIC TRANSFER SWITCH WITH DOUBLE THROW, ELECTRICALLY OPERATED, ELECTRICALLY AND MECHANICALLY INTERLOCKED AND MECHANICALLY HELD TRANSFER SWITCH. THE TRANSFER SWITCH SHALL BE SPECIFICALLY DESIGNED SO THAT IT CANNOT STOP IN A NEUTRAL POSITION. THE CTTS SHALL TRANSFER THE LOAD WITHOUT INTERRUPTION (CLOSED TRANSITION) BY MOMENTARILY CONNECTING BOTH SOURCES OF POWER ONLY WHEN BOTH SOURCES ARE PRESENT AND ACCEPTABLE. THE MAXIMUM INTERCONNECTION TIME IS 100 MILLISECOND. THE CTTS SHALL OPERATE AS A CONVENTIONAL BREAK–BEFORE–MAKE (OPEN TRANSITION) SWITCH WHEN THE POWER SOURCE SERVING THE LOAD FAILS. SOURCE DIFFERENTIAL SENSING SHALL BE PROVIDED FOR THE CLOSED TRANSITION OPERATING MODE. THE SENSOR SHALL ENABLE TRANSFER/RE–TRANSFER BETWEEN LIVE SOURCES IN THE CLOSED TRANSITION MODE ONLY WHEN THE TWO SOURCES HAVE A MAXIMUM VOLTAGE DIFFERENTIAL OF 5%, FREQUENCY DIFFERENTIAL OF 0.2 HZ AND ARE WITHIN 5 ELECTRICAL DEGREES.
  - OPERATING TEMPERATURE RANGE: –4°F TO 140°F.
  - VOLTAGE/PHASE/POLES: AS NOTED ON THE DRAWINGS.
  - CONTINUOUS RATING: AS NOTED ON THE DRAWINGS.
  - INTERRUPTING CAPACITY: 250 PERCENT OF CONTINUOUS RATING.
  - WITHSTAND CURRENT RATING: THE SWITCH SHALL BE RATED TO WITHSTAND 65,000 AMPS RMS SYMMETRICAL SHORT CIRCUIT CURRENT FOR 3 CYCLES. WITHSTAND RATINGS REQUIRING SPECIAL BREAKERS ARE NOT PERMITTED.
  - MICROPROCESSOR CONTROLS WITH DIGITAL DISPLAY FOR STATUS INFORMATION.
  - ENCLOSURE SHALL BE ICS 10 AND UL LISTED NEMA 1. THE ENCLOSURE SHALL PROVIDE WIRE BEND SPACE IN COMPLIANCE TO THE LATEST VERSION OF NFPA 70. THE CABINET DOOR SHALL INCLUDE PERMANENTLY MOUNTED KEY TYPE LATCHES.
  - THE TRANSFER SWITCH SHALL PROVIDE AN ISOLATED RELAY CONTACT FOR STARTING OF THE GENERATOR SET. THE RELAY SHALL BE NORMALLY HELD OPEN, AND CLOSE TO START THE GENERATOR SET. OUTPUT CONTACTS SHALL BE FORM C.
  - PROVIDE ONE SET OF FORM C AUXILIARY CONTACTS ON BOTH NORMAL AND STANDBY SIDES OPERATED BY TRANSFER SWITCH POSITION, RATED 10 AMPS, 250 VAC.
- C. INSTALLATION:
- INSTALL TRANSFER SWITCH IN ACCORDANCE WITH MANUFACTURER’S INSTRUCTIONS.
  - PROVIDE ENGRAVED PLASTIC NAMEPLATES UNDER THE PROVISIONS OF SECTION 26 05 53.
  - PROVIDE START–UP CONTROL SIGNAL WIRING BETWEEN TRANSFER SWITCHES AND EXISTING GENERATOR SYSTEM TO START GENERATOR UPON LOCAL LOSS OF POWER.
  - PROVIDE REINFORCED CONCRETE PAD(S) FOR FLOOR MOUNTED TRANSFER SWITCHES.
  - ALL TRANSFER SWITCHES SHALL HAVE SIGNAGE FOR ARC HAZARD INSTALLED. THE MARKING SHALL BE LOCATED TO BE CLEARLY VISIBLE TO QUALIFIED PERSONNEL BEFORE EXAMINATION, ADJUSTMENT, SERVICING OR MAINTENANCE OF THE EQUIPMENT. AT A MINIMUM THE SIGNAGE SHALL STATE THE FOLLOWING:  
WARNING  
ARC FLASH AND SHOCK HAZARD  
APPROPRIATE PPE REQUIRED
  - THE TRANSFER SWITCH MANUFACTURER SHALL PERFORM A COMPLETE OPERATIONAL TEST ON THE TRANSFER SWITCH PRIOR TO SHIPPING FROM THE FACTORY. A CERTIFIED TEST REPORT SHALL BE INCLUDED IN THE PACKING LIST WITH THE TRANSFER SWITCH. THE TEST PROCESS SHALL INCLUDE CALIBRATION OF VOLTAGE SENSORS.
  - COMPARE EQUIPMENT NAMEPLATE DATA WITH DRAWINGS AND SPECIFICATIONS. INSPECT PHYSICAL AND MECHANICAL CONDITION. VERIFY MANUAL TRANSFER WARNINGS ARE ATTACHED AND VISIBLE. VERIFY TIGHTNESS OF CONTROL CONNECTIONS. VERIFY TIGHTNESS OF ACCESSIBLE BOLTED ELECTRICAL CONNECTIONS BY CALIBRATED TORQUE–WRENCH METHOD IN ACCORDANCE WITH MANUFACTURER’S PUBLISHED DATA. PERFORM MANUAL TRANSFER OPERATION. VERIFY POSITIVE MECHANICAL INTERLOCKING BETWEEN NORMAL AND ALTERNATIVE SOURCES. INSPECT ANCHORAGE, ALIGNMENT, GROUNDING AND REQUIRED CLEARANCES.
  - MEASURE CONTACT–RESISTANCE. VERIFY SETTINGS AND OPERATION OF CONTROL DEVICES. CALIBRATE AND SET RELAYS AND TIMERS IN ACCORDANCE WITH MANUFACTURER’S PUBLISHED DATA. VERIFY PHASE ROTATION, PHASING AND SYNCHRONIZED OPERATION AS REQUIRED BY THE APPLICATION. PERFORM AUTOMATIC TRANSFER TESTS:  
a. SIMULATE LOSS OF NORMAL POWER.  
b. RETURN TO NORMAL POWER.  
c. SIMULATE LOSS OF STANDBY POWER.



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STATE OF ALASKA

DEPARTMENT OF CORRECTIONS  
ANCHORAGE CORRECTIONAL CENTER-EAST  
GENERATOR RECONFIGURATION

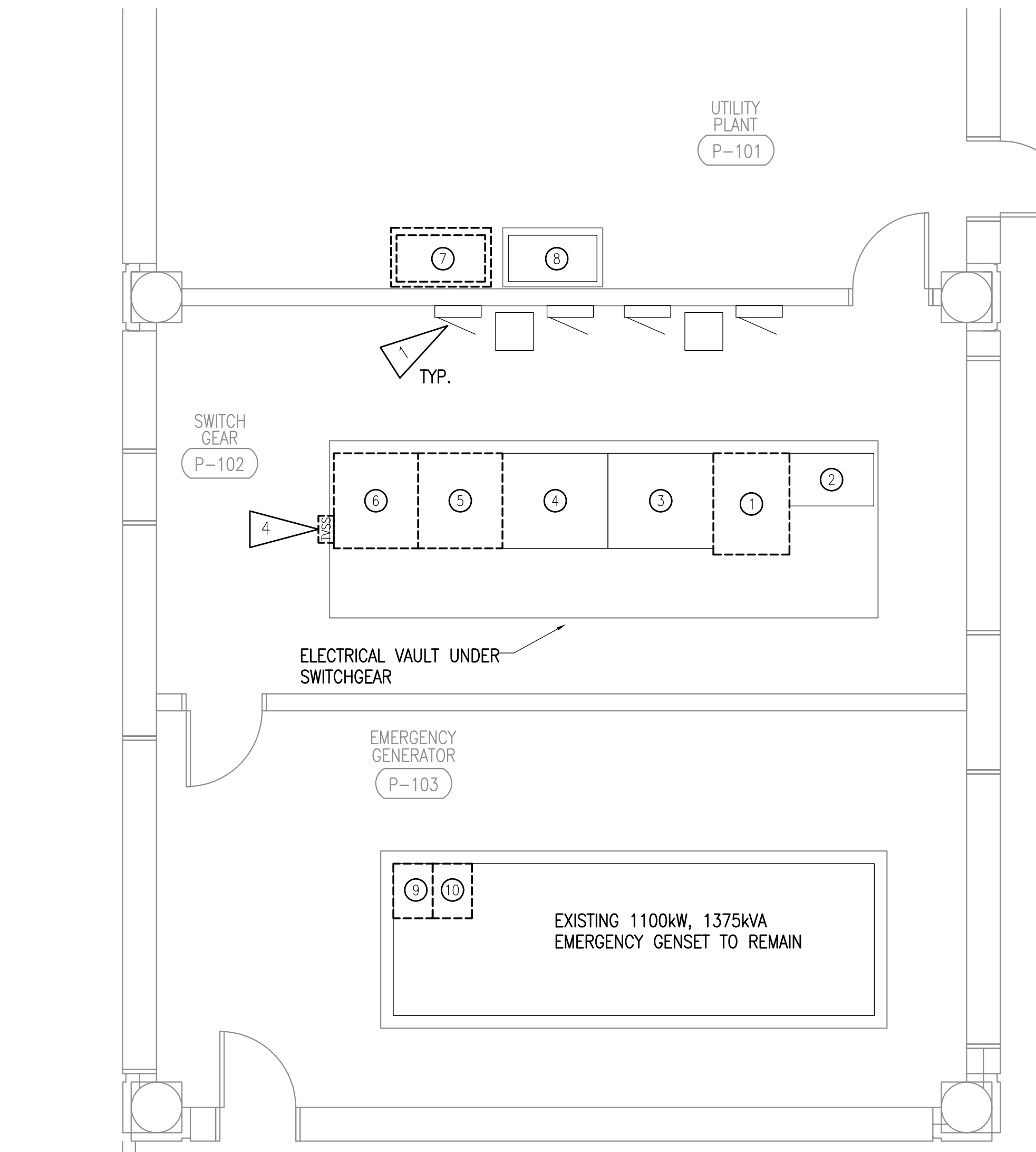
REVISIONS:

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CHECKED BY: RLW  
DATE: 04/17/2017  
JOB NUMBER: L4185  
DWG FILE: L4185\_ESERIES

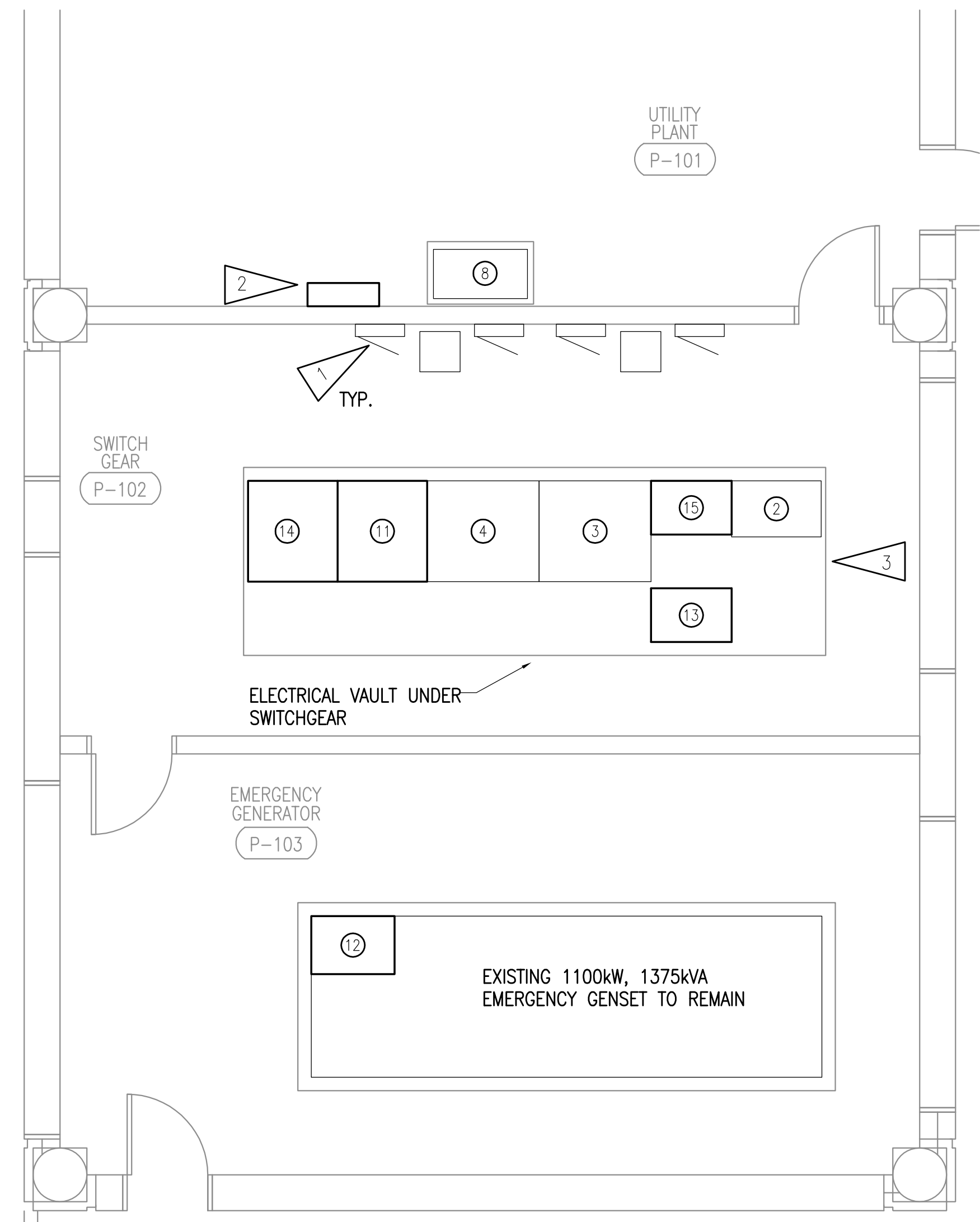
DRAWING TITLE:  
ELECTRICAL  
SPECIFICATIONS

SHEET:  
E0.1

0"  
1"  
2"  
3"



1 ELECTRICAL DEMOLITION PLAN - POWER  
1/4" = 1'-0"



2 ELECTRICAL REMODEL PLAN - POWER  
1/4" = 1'-0"

LEGEND	
	CONDUIT, CONCEALED
	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
	JUNCTION BOX
	EXISTING PANEL
	DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
	NOTE TAG (No. INDICATES NOTE)
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ATS	AUTOMATIC TRANSFER SWITCH
C	CONDUIT
CO	CONDUIT ONLY
E	DENOTES EXISTING ITEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
GRSC	GALVANIZED RIGID STEEL CONDUIT
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
R	DENOTES EXISTING ITEM THAT HAS BEEN RELOCATED
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED

### GENERAL NOTES:

- THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.
- THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.
- DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.
- EXISTING SWITCHGEAR IS A 4000A, GE "SPECTRA" SERIES ASSEMBLY. EXISTING AUTOMATIC TRANSFER SWITCHES ARE ONAN "OTPC" SERIES SWITCHES. EXISTING GENERATOR IS A 1100kVA ONAN GENSET.
- ALTERNATE ACCEPTABLE CONFIGURATION IS TO REVERSE POSITIONS OF ATS-L AND ATS-N WITH MSA IF MANUFACTURER CANNOT PROVIDE A 36" WIDE ATS. IN THIS CASE, MSA MUST BE NO MORE THAN 36" WIDE.

### SHEET NOTES:

- NO WORK IS REQUIRED FOR PANELS AND TRANSFORMERS ON THIS WALL. EQUIPMENT IS SHOWN FOR REFERENCE ONLY.
- INSTALL WIREWAY AT LOCATION OF REMOVED AUTOMATIC TRANSFER SWITCH 'ATS-E' FOR CONNECTION OF CONDUCTORS FEEDING EXISTING MOTOR CONTROL CENTER 'MCC-E'.
- NEW EQUIPMENT LOCATION. EXTEND CONDUCTORS AND RECONNECT.
- REMOVE TVSS FROM 'MSA'. NEW SWITCHBOARD SHALL HAVE INTEGRAL TVSS.

### LOAD CALCULATION

EXISTING GENERATOR RATED CAPACITY:	1100kW		
RATED POWER FACTOR = 0.8:		1375kVA	
TOTAL AVAILABLE CURRENT:			1654A
FACILITY PEAK DEMAND LOAD, PER ML&P (FEB 2017):	551kW		
0.85 POWER FACTOR ASSUMED:		648kVA	
PEAK DEMAND CURRENT:			780A
EXISTING GENERATOR HAS SUFFICIENT CAPACITY TO SUPPORT THE ENTIRE FACILITY'S EXISTING DEMAND LOAD			

### EQUIPMENT SCHEDULE

TAG	EQUIPMENT DESCRIPTION	NOTES	DIMENSIONS
①	EXISTING EMERGENCY AUTOMATIC TRANSFER SWITCH 'ATS-L'	2	36"W x 48"D
②	EXISTING EMERGENCY SWITCHBOARD 'EMS'	1	40"W x 25"D
③	EXISTING PULL SECTION	1	50"W x 45"D
④	EXISTING 4000A SERVICE DISCONNECT AND CT SECTION	1	50"W x 45"D
⑤	EXISTING NORMAL SWITCHBOARD 'MSA'	2	40"W x 45"D
⑥	EXISTING 2000A CB SECTION FEEDING 'ATS-L'	2	40"W x 45"D
⑦	EXISTING AUTOMATIC TRANSFER SWITCH 'ATS-E'	2	
⑧	EXISTING MOTOR CONTROL CENTER 'MCC-E'	1	
⑨	EXISTING 225A CB, GENERATOR TO 'ATS-E'	2	
⑩	EXISTING 2000A CB, GENERATOR TO 'ATS-L'	2	
⑪	NEW DISTRIBUTION SECTION WITH NEW 1200A CB'S	3	40"W x 45"D
⑫	NEW 1200A CB'S, GENERATOR TO 'ATS-N', 'ATS-L'	3	
⑬	NEW NORMAL AUTOMATIC TRANSFER SWITCH 'ATS-N'	3	36"W x 24"D
⑭	NEW NORMAL SWITCHBOARD 'MSA'	3	40"W x 45"D
⑮	NEW EMERGENCY AUTOMATIC TRANSFER SWITCH 'ATS-L'	3	36"W x 24"D

### SCHEDULE NOTES:

- EQUIPMENT TO REMAIN.
- EQUIPMENT TO BE REMOVED. SEE ONE-LINE DIAGRAM FOR WORK REQUIRED.
- NEW EQUIPMENT. SEE ONE-LINE DIAGRAM FOR NEW WORK REQUIRED.



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STATE OF ALASKA  
DEPARTMENT OF CORRECTIONS  
ANCHORAGE CORRECTIONAL CENTER-EAST  
GENERATOR RECONFIGURATION

REVISIONS:

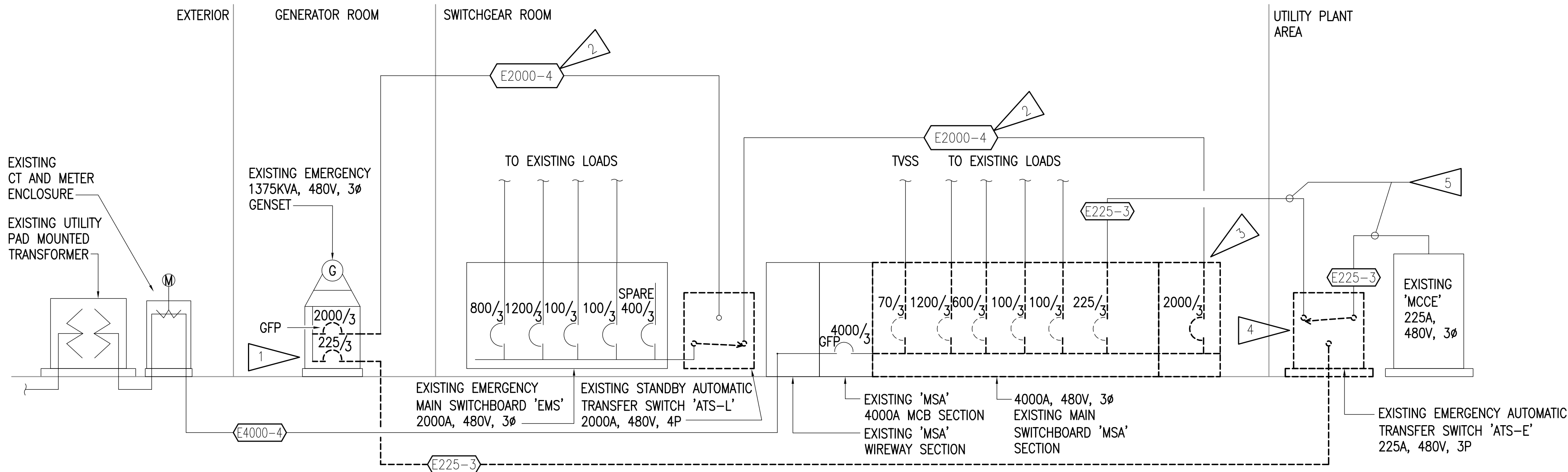
DRAWN BY: MJC, JAM  
CHECKED BY: RLW  
DATE: 04/17/2017  
JOB NUMBER: L4185  
DWG FILE: L4185\_ESERIES

DRAWING TITLE:  
LEGEND,  
ELECTRICAL DEMOLITION &  
REMODEL PLANS - POWER

SHEET:

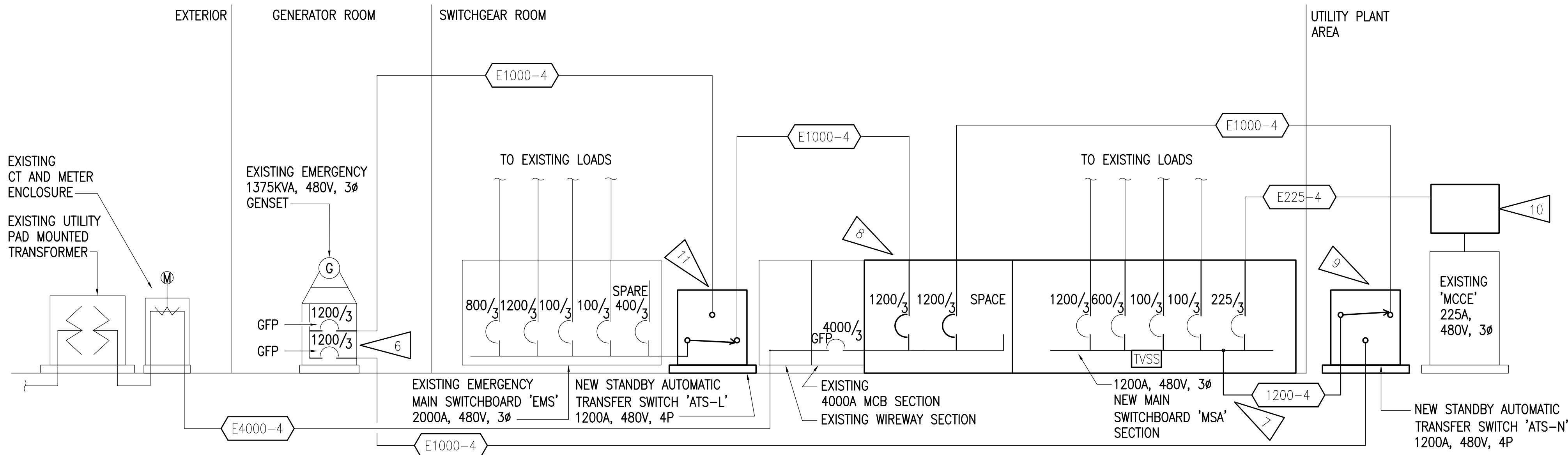
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0"  
1"  
2"  
3"



## 1 PARTIAL POWER DEMOLITION ONE-LINE DIAGRAM

NTS



## 2 PARTIAL POWER REMODEL ONE-LINE DIAGRAM

NTS

### GENERAL NOTES:

- THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.
- THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS TO A WAREHOUSE AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.
- DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.
- DUE TO EXISTING FEEDER AMPACITY, NEW 1200A CIRCUIT BREAKERS IN GENSET AND DISTRIBUTION SECTION SHALL BE PROVIDED WITH 1000A TRIP UNITS.
- PROVIDE ARC ENERGY REDUCTION SYSTEM PER NEC 240.87 FOR ALL 1200A CIRCUIT BREAKERS.

### SHEET NOTES:

- REMOVE EXISTING 225A, 3P GENERATOR CIRCUIT BREAKER FEEDING 'MCC-E' VIA 'ATS-E'. REMOVE CONDUIT AND CONDUCTORS BETWEEN GENSET AND 'ATS-E'. TURN CIRCUIT BREAKER OVER TO OWNER FOR SALVAGE.
- EXISTING 2000A FEEDER WILL BE REUSED TO CONNECT TO (2) NEW 1200A TRANSFER SWITCHES.
- REMOVE EXISTING SECTION AND 2000A CIRCUIT BREAKER. INCOMING BUS CONNECTION, AS WELL AS CONDUIT AND CONDUCTORS TO EXISTING AUTOMATIC TRANSFER SWITCH 'ATS-L' AND NEW 'ATS-N', SHALL BE RECONNECTED TO NEW SECTION.
- REMOVE EXISTING AUTOMATIC TRANSFER SWITCH 'ATS-E'. CONDUIT AND CONDUCTORS FROM GENERATOR CIRCUIT BREAKER SHALL BE REMOVED.
- CONDUIT AND CONDUCTORS BETWEEN 'MSA' AND 'MCC-E' SHALL REMAIN FOR CONNECTION AFTER REMOVAL OF TRANSFER SWITCH.
- PROVIDE (2) 1200A (1000A TRIP), 480V, 3 $\phi$ , 4W CIRCUIT BREAKERS WITH GROUND FAULT PROTECTION AT EXISTING GENSET. CIRCUIT BREAKER SHALL BE LISTED FOR USE IN GENSET AND SHALL HAVE AN AIC RATING TO MATCH THE LOWEST-RATED DEVICE IN THE GENSET. IF EXISTING HOUSING CANNOT BE MODIFIED OR EXPANDED TO SUPPORT THE CIRCUIT BREAKERS, PROVIDE CONNECTION AND MOUNT EXTERNALLY.
- CONNECT EXISTING 1000A FEEDER BETWEEN NEW 1200A (1000A TRIP) CIRCUIT BREAKER AND NEW MAIN SWITCHBOARD 'MSA'. TERMINATE FEEDER IN NEW SWITCHBOARD.
- PROVIDE NEW DISTRIBUTION SECTION. PROVIDE CONNECTION TO THE EXISTING HORIZONTAL BUS CONNECTED TO THE EXISTING 4000A MAIN CIRCUIT BREAKER. PROVIDE PREPARED SPACE FOR FUTURE 1200A/3P CIRCUIT BREAKER.
- PROVIDE NEW AUTOMATIC TRANSFER SWITCH 'ATS-N'. PROVIDE CONNECTION TO NEW SWITCHBOARD 'MSA'. PROVIDE CONNECTION TO NEW 1200A CIRCUIT BREAKERS IN GENSET AND NEW DISTRIBUTION SECTION. PROVIDE 1" C FROM ATS TO GENERATOR CONTROL PANEL AT THE GENSET. PROVIDE CONTROL CIRCUITS PER MANUFACTURER'S REQUIRED WIRING. GENERATOR SHALL SHED ATS-N LOAD PRIOR TO ATS-L IF OVERLOADED.
- PROVIDE NEW WIREWAY FOR CONNECTION OF CONDUIT AND CONDUCTORS BETWEEN EXISTING 225A CB IN MAIN SWITCHBOARD 'MSA' AND EXISTING MOTOR CONTROL CENTER 'MCC-E'.
- PROVIDE NEW AUTOMATIC TRANSFER SWITCH 'ATS-L'. PROVIDE CONNECTION TO EXISTING SWITCHBOARD 'EMS'. PROVIDE CONNECTION TO NEW 1200A CIRCUIT BREAKERS IN GENSET AND NEW DISTRIBUTION SECTION. RECONNECT TO EXISTING GENERATOR/CONTROLS. GENERATOR SHALL SHED ATS-N LOAD PRIOR TO ATS-L IF OVERLOADED.

### NEW & EXISTING FEEDER SCHEDULE

FEEDER TAG	BRKR SIZE	COND. AMPS	FEEDER SIZE FOR COPPER CONDUCTORS
E225-3	225A	230A	2.5" C, 3#4/0, 1#4 GND.
E1000-4	1000A	1020A	(3 EA) 3.5" C, 4#600kcmil AL, 1#400kcmil AL GND.
E2000-4	2000A	2040A	(6 EA) 3.5" C, 4#600kcmil AL, 1#400kcmil AL GND.
E4000-4	4000A	4200A	(10 EA) 4" C, 4#600kcmil, 1#500kcmil GND.
E1200-4	1200A	1240A	(4 EA) 4#350kcmil CU, 1#250kcmil CU GND

EXXX-X

E DESIGNATES EXISTING FEEDERS



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