REPLACE GENERATOR BUILDING 78

BATH VA MEDICAL CENTER
76 VETERANS AVENUE
BATH, NY 14810

PROJECT DIRECTORY

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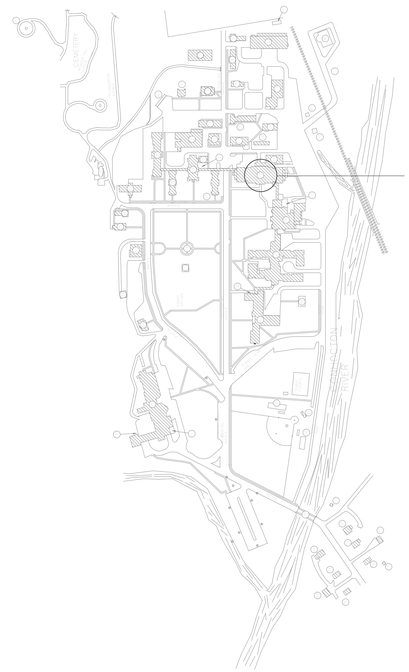
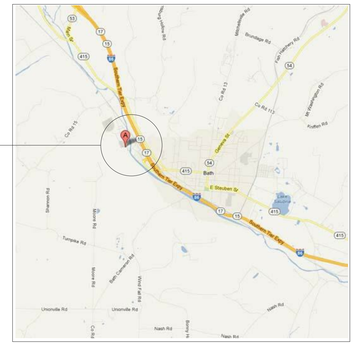


BATH VAMC CAMPUS PLAN
N.T.S.

PROJECT NORTH

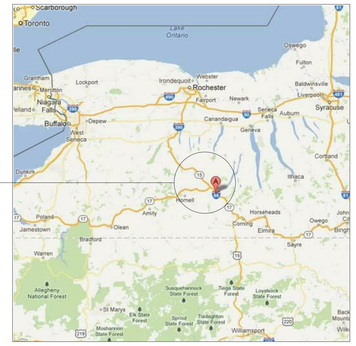
VICINITY MAP

SITE



LOCATION MAP

SITE



FULLY SPRINKLERED
100% CONSTRUCTION DOCUMENTS

#	Revision	Date

CONSULTANTS:

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ABBREVIATION LEGEND

&	AND
A	AIR (CLINICAL)
AAP	ALARM ANNUNCIATOR PANEL
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABV	ABOVE
ACC DR	ACCESS DOOR
ACFL	ACCESS
ACOUS	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICAN DISABILITIES ACT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISHED GRADE
AFMD	AIR FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT
AL	ALIGN
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APC	ARCHITECTURAL PRECAST CONCRETE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASY	ASYMMETRIC
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWT	AVERAGE WATER TEMPERATURE
BAT	BATTERY
BC	BALANCING COCK OR BARE COPPER
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISH CEILING
BFE	BOTTOM FOOTING ELEVATION
BFG	BELOW FINISHED GRADE
BG	BUMPER GUARD
BLDG	BUILDING
BLKG	BLOCKING
BLT	BORROWED LIGHT
BLW	BELOW
BM	BEAM
BO	BY OWNER
BOF	BY OWNER FUTURE
BOT	BOTTOM
BR	BRICK
BRG	BEARING
BRKR	BREAKER
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
C	CONDUIT
CAB	CABINET
CANTL	CANTILEVER
CAP	CAPACITY
CATV	CABLE TELEVISION
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CFH	CUBIC FEET / HOUR
CFM	CUBIC FEET / MINUTE
CH	CHANNEL
CHK V	CHECK VALVE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHWS&R	CHILLED WATER SUPPLY AND RETURN
CJ	CONTROL JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTERLINE
CLG	CEILING
CLG MTD	CEILING MOUNTED
CLR	CLR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE / CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET OR CONTROL POWER TRANSFORMER
CT	CERAMIC TILE
CTR	CENTER
CU	COPPER
CV	CONTROL VALVE
CW	COLD WATER
D	DEPTH OR DEEP
DB	DRY BULB
dB	DECIBEL
DCW	DOMESTIC COLD WATER
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAILS
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DIAG	DIAGONAL OR DIAGRAM
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DOWN LIGHT
DN	DOWN
DP	DISTRIBUTION PANEL
DPR	DAMPER
DR	DRAIN
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EIFS	EXTERIOR INSULATION AND FINISHING SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL

ELEC CAB	ELECTRICAL CABINET
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
EO	ELECTRICAL OUTLET
EQ	EQUAL
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXAUST AIR
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
XP	EXPLOSION PROOF
F/S	FIRE / SMOKE DAMPER
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAT	FINAL AIR TEMPERATURE
FB	FIRE BLANKET
FC	FLEXIBLE CONNECTION OR FOOTCANDLE
FD	FLOOR DRAIN OR FIRE DAMPER
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FH	FIRE HOSE
FHC	FIRE HOSE CABINET
FHP	FULL HEIGHT PARTITION
FHV	FIRE HOSE VALVE
FIN	FINISH
FIXT	FIXTURE
FL	FLOW LINE
FLA	FULL LOAD AMPERES
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG C	FLANGE CONNECTION
FLR	FLOOR
FLUOR	FLUORESCENT
FP	FIRE PROOFING
FRMG	FRAMING
FS	FLOOR SINK
FSTOP	FIRESTOPPING
FT	FOOT / FEET
FT HD	FEET OF HEAD
FTC	FOOTCANDLES
FTG	FOOTING
FUR	FURRING
G	GAS OR ELECTRICAL GROUND
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GENL	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV	GRAVITY
GRD BM	GRADE BEAM
GV	GATE VALVE
GWB	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HEATING CONTRACTOR
HDCP	HANDICAP
HDR	HEADER
HDW	HARDWARE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HPD	HIGH PRESSURE DRIP
HPF	HIGH POWER FACTOR
HR	HANDRAIL
HSKP	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VELOCITY
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HW	HOT WATER
HWD	HARD WOOD
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWS&R	HOT WATER SUPPLY AND RETURN
HZ	HERTZ
ID	INSIDE DIAMETER
IER	INVERTED ECCENTRIC REDUCER
IG	ISOLATED GROUND
IME	INSULATED METAL ENCLOSURE
IN	INCH
INCAND	INCANDESCENT
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
INTERL	INTERLOCK
INV	INVERT
ISO	ISOLATION
IVS	ISOLATED VALVE STATION
J-BOX	JUNCTION BOX
JST	JOIST
JT	JOINT
KO	KNOCK OUT
kVA	KILOVOLT AMPERE
kVAR	KILOVAR (REACTANCE)
kW	KILOWATT
kWH	KILOWATT HOUR METER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LDB	LEAVING DRY BULB
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LIN	LINEAR
LOC	LOCATION OR LOCATE
LPT	LOW POINT
LSDC	LINEAR SUPPLY DIFFUSER CEILING
LT	LIGHT

LTG	LIGHTING
LV	LOW VOLTAGE
LVR	LOUVER
LWB	LEAVING WET BULB
LWC	LINEAR WOOD CEILING
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAT	MIXED AIR TEMPERATURE
MATL	MATERIAL
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	ONE THOUSAND BTU / HOUR
MC	MECHANICAL CONTRACTOR
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MONO	MONOLITHIC
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MTL	METAL
MTLH	METAL HALIDE
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NUMBER OR NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPER	OPERATED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PG	PRESSURE GAUGE WITH COCK
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PNL	PANEL
PR	PAIR
PRD	PRESSURE DIFFERENTIAL VALVE
PRELIM	PRELIMINARY
PRT	PRESSURE TAP
PRV	PRESSURE REDUCING VALVE
PT	PAINT OR POTENTIAL TRANSFORMER
RO	ROUGH OPENING
QT	QUARRY TILE
R	RADIUS
RA	RETURN AIR / RELIEF AIR
RB	RUBBER BASE
RC	REMOVE COMPLETELY
RD	ROOF DRAIN
RE	RELOCATE EXISTING
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFL	REFLECTOR
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
RET	RETURN
REV	REVISE
REX	REMOVE EXISTING
RF	RESILIENT FLOOR
RFI	REQUEST FOR INFORMATION
RGS	RIGID GALVANIZED STEEL CONDUIT
RH	ROOF HATCH
RM	ROOM
RN	REMOVE AND REPLACE WITH NEW
RR	REMOVE AND REPLACE
RS	RAPID START
RV	RELIEF VALVE
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY SEWER ABOVE GROUND
SAN-BXR	SANITARY SEWER - BURIED EXISTING TO REMAIN
SAN-XR	SANITARY SEWER ABOVE GROUND - EXISTING TO REMAIN
SCHED	SCHEDULE
SD	SMOKE DAMPER OR SMOKE DETECTOR
SDISP	SOAP DISPENSER
SF	SQUARE FOOT
SHT	SHEET
SHT MTL	SHEET METAL
SHTG	SHEATHING
SIM	SIMILAR
SM	SURFACE MOUNTED
SNC	SANITARY NAPKIN CABINET
SND	SANITARY NAPKIN DISPOSER
SP	STANDPIPE OR STATIC PRESSURE
SPC	SPECIMEN PASS-THRU CABINET
SPEC	SPECIFICATIONS
SPS	STATIC PRESSURE SENSOR
SR	SERVICE RECEPTOR
SS	SOIL STACK
ST PR	STATIC PRESSURE
ST STL	STAINLESS STEEL
STD	STANDARD
STER	STERILIZER
STL	STEEL
STOR	STORAGE
STR	STRAINER
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH

SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL TOP
T	TOP
TA	THROWAWAY
TAN	TANGENT
TC	TELECOMMUNICATIONS CONTRACTOR
TCV	TEMPERATURE CONTROL VALVE
TDV	TRIPLE DUTY VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TER	TERRAZZO
TG	TONGUE & GROOVE
TH	THERMOMETER
THRES	THRESHOLD
TR	TEMPERATURE RISE
TRANS	TRANSITION
TRANSR	TRANSFORMER
TSTAT	THERMOSTAT
TV	TURNING VANES OR TELEVISION
TYP	TYPICAL
UC	UNDER CABINET OR UNDER CUT
UFD	UNDER FLOOR DUCT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VAL	VALVE
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFS	VENTURI FLOW STATION
VIF	VERIFY IN FIELD
VL	VENT LINE
VR	VAPOR RETARDER
VS	VENT STACK
VTR	VENT THROUGH ROOF
W	WATT
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WALL COVERING
WCL	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WFMD	WATER FLOW MEASURING DEVICE
WG	WALL GUARD OR WATER GAUGE
WHCH	WHEEL CHAIR
WIN	WINDOW
WMS	WIRE MESH SCREEN
WP	WEATHERPROOF
WPS	WALL PROTECTION SYSTEM
WSCT	WAINSCOT
WT	WINDOW TREATMENT
WTD	WATER TEMPERATURE DROP
WWF	WELDED WIRE FABRIC
X	DEMO
XN	TO BE RELOCATED / NEW LOCATION
XR	EXISTING TO REMAIN
ZVB	ZONE VALVE BOX
ZVC	ZONE VALVE CABINET

PIPELINE ABBREVIATIONS

SYMBOLS	DESCRIPTION
CD	CONDENSATE DRAIN LINE
CTD	COOLING TOWER DRAIN LINE
DTS	DUAL TEMPERATURE WATER SUPPLY
DTR	DUAL TEMPERATURE WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
HWHS	HOT WATER HEATING SUPPLY
HWHR	HOT WATER HEATING RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LPCR	LOW PRESSURE CONDENSATE RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
MPCR	MEDIUM PRESSURE CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HPCR	HIGH PRESSURE CONDENSATE RETURN
PC	PUMPED CONDENSATE
HRS	ENERGY (HEAT) RECOVERY SUPPLY
HRR	ENERGY (HEAT) RECOVERY RETURN
RL	REFRIGERANT LINE
RS	REFRIGERANT SUCTION
NAME	PIPE TO BE REMOVED
NAME	EXISTING PIPING TO REMAIN

PIPELINE SYMBOLS

SYMBOLS	DESCRIPTION
	BALL VALVE
	GATE VALVE
	BUTTERFLY VALVE
	GLOBE VALVE
	PLUG VALVE
	RELIEF VALVE
	ECCENTRIC REDUCER
	INVERTED ECCENTRIC REDUCER
	STRAINER
	UNION
	THERMOMETER
	PRESSURE GAUGE
	WATER FLOW MEASURING DEVICE (VENTURI FLOW STATION) BALANCING COCK
	PRESSURE TAP
	PRESSURE REDUCING VALVE
	TWO-WAY MODULATING CONTROL VALVE
	THREE-WAY MODULATING CONTROL VALVE
	SAFETY VALVE OR PRESSURE RELIEF
A	AUTOMATIC AIR VENT
M	MANUAL AIR VENT
	TWO-WAY CONTROL VALVE (TWO POSITION TYPE)
	MOTORIZED VALVE
	AQUASTAT
	FUNNEL DRAIN
	PIPING TURNED UP
	PIPING TURNED DOWN
	TEE - OUTLET UP
	TEE- OUTLET
	SIDE CONNECTION
	CAPPED OUTLET
	DIRECTION OF FLOW
	PIPE BREAK (SINGLE LINE)
	FLEXIBLE CONNECTION
	BACKFLOW PREVENTION DEVICE

HVAC SYMBOLS

DOUBLE LINE SHEETMETAL

SYMBOLS	DESCRIPTION
12"X12"	RECTANGULAR SUPPLY, RETURN OR RELIEF DUCT WIDTH (SHOWN)XDEPTH
12"/12"	OVAL SUPPLY, RETURN OR RELIEF DUCT WIDTH (SHOWN)XDEPTH
12"Ø	ROUND SUPPLY, RETURN OR DUCT W/TURNING VANES (DUCT WIDTH OVER 18")
	STAINLESS STEEL DUCTWORK
	DUCT W/ TURNING VANES
	DUCT W/O TURNING VANES
	RADIUS ELBOW (DUCT WIDTH 17" AND LOWER)
	LOW LOSS TAKE OFF (ARROW INDICATES DIRECTION OF AIR FLOW)
	CONICAL SPIN-IN FITTING
	BOOT CONNECTION WITH MANUAL VD (ARROW INDICATES AIR FLOW DIRECTION)
	RETURN AIR DUCT UP
	SUPPLY DUCT UP
	EXHAUST AIR DUCT UP
	RETURN AIR DUCT DN
	SUPPLY DUCT DN
	EXHAUST AIR DUCT DN
12"X12"	MANUAL VOLUME CONTROL DAMPER (VD)
24"X24" 24"X24"	RISE/DROP IN DUCTWORK (ARROW SHOWS DIRECTION OF DROP)
S	DUCT/SPACE STATIC PRESSURE SENSOR
WS	WALL SWITCH
T	DUCT/WALL TEMPERATURE SENSOR, ELECTRIC
T	DUCT/WALL TEMPERATURE SENSOR, ELECTRIC
SD	DUCT MOUNTED SMOKE DETECTOR PROVIDED BY EC, INSTALLED BY HC
M	MOTORIZED DAMPER
B	BACKDRAFT DAMPER
FD	FIRE DAMPER AT FIRE WALL (PROVIDE ACCESS PANEL IN DUCT AND CEILING)
	SMOKE DAMPER/DETECTOR DETECTOR BY E.C. DAMPER BY H.C.
F/SD	COMBINATION FIRE/SMOKE DAMPER
FD FD	FIRE DAMPER IN VERTICAL DUCT THRU FLOOR OR HORIZONTAL DUCT ABOVE CEILING (PROVIDE ACCESS PANEL IN DUCT AND WALL OR CEILING)
	ACCESS DOOR ON BOTTOM OF DUCT (HINGED & GASKETED)
AD	ACCESS DOOR ON SIDE OF DUCT (HINGED & GASKETED)
	SUPPLY AIR DIFFUSER
TF	THERMAL VAV DIFFUSER
	RETURN AIR REGISTER
	EXHAUST REGISTER
	EXHAUST/RETURN AIR REGISTER (DUCT OR WALL)
	SUPPLY AIR REGISTER (DUCT OR WALL)

SINGLE LINE - SHEET METAL

SYMBOLS	DESCRIPTION
24X12	DUCT SIZE (WIDTH X DEPTH)
24"Ø	ROUND DUCT SIZE (DIAMETER)
24"Ø	FLEXIBLE DUCT (DIAMETER SIZE)
	SUPPLY DUCT CROSS SECTION UP
	SUPPLY DUCT CROSS SECTION DN
	RETURN CROSS SECTION UP
	RETURN CROSS SECTION DN
	EXHAUST CROSS SECTION UP
	SQUARE ELBOW WITH TURNING VANES
	RADIUS TURN ELBOW
	DUCT END CAP

HVAC GENERAL NOTES

1 NOT ALL SYMBOLS ARE NECESSARILY USED.

2 COORDINATE FINAL LOCATIONS OF DIFFUSERS AND GRILLES WITH ARCHITECTURAL REFLECTED CEILING PLANS.

3 DRAWINGS ARE DIAGRAMMATIC. CONTRACTOR TO FIELD VERIFY DUCT AND PIPE ROUTING AND COORDINATE INTERFERENCE BETWEEN TRADES PRIOR TO INSTALLATION.

4 ROOF OPENINGS, FLASHING, AND COUNTER FLASHING BY GENERAL CONTRACTOR. LOCATION OF OPENINGS BY HEATING CONTRACTOR.

5 DUCTWORK TO BE INSTALLED TIGHT TO UNDERSIDE OF STRUCTURE ABOVE UNLESS NOTED OTHERWISE.

6 PROVIDE ALL MATERIALS, EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.

7 CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD SURVEY ACTUAL SITE CONDITIONS AND ACCOMODATE ACTUAL SITE CONDITIONS AS PART OF SCOPE OF WORK AT NO COST TO OWNER.

8 INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, APPLICABLE BUILDING, STATE AND LOCAL CODES, SEISMIC REQUIREMENTS, ENERGY CODES AND INSURANCE UNDERWRITER REQUIREMENTS.

9 COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL AND ELECTRICAL WORK, ETC. SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.

10 MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, SUPPORTS, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.

11 ALL TESTS SHALL BE COMPLETED AND ACCEPTED BY THE INSPECTOR BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.

12 LOCATE ALL TEMPERATURE, PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM, AS RECOMMENDED BY THE MANUFACTURER FOR ACCURACY.

13 TESTING ADJUSTING AND BALANCING (TAB) AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCING COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TAB FIRM SHALL HAVE A MINIMUM OF 5 YEARS EXPERIENCE ON SIMILAR PROJECTS. PERFORM TAB IN ACCORDANCE WITH THE REQUIREMENTS OF THE TAB PROCEDURAL STANDARD RECOMMENDED BY THE TAB TRADE ASSOCIATION THAT APPROVED THE TAB FIRM'S QUALIFICATIONS.

14 WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCTS OF A SINGLE MANUFACTURER SHALL BE USED.

15 COORDINATE ALL FINAL EQUIPMENT CONNECTIONS WITH THE MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCTWORK AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCTWORK AND PIPING DIMENSIONS BEFORE FABRICATION.

16 ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE, DIVISION 26 OF THE SPECIFICATIONS, ALL LOCAL CODES, AND OWNER'S INSURANCE UNDERWRITER REQUIREMENTS.

17 THE LOCATIONS AND SIZES OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS AND SIZES NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS SHALL BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.

18 PLAN DRAWINGS AND SECTIONS CUTS WHICH SPECIFICALLY IDENTIFY SERVICE ROUTE OFFSETS, ELEVATION CHANGES, OBSTRUCTIONS, ACCESS DOORS, BALANCING DEVICES, ETC. ARE SHOWN FOR CLARITY WHERE SPECIFIC KNOWN CONDITIONS EXIST. MECHANICAL CONTRACTOR SHALL COORDINATE EQUIPMENT, DUCTWORK, AND PIPING ROUTINGS WITH ALL OTHER TRADES. REQUIREMENTS NOT SPECIFICALLY IDENTIFIED SHALL NOT BE INTERPRETED AS EXCLUSION FROM CONTRACTOR'S SCOPE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL SITE CONDITIONS AND SHALL INCLUDE SUCH CONDITIONS IN SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.

19 ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND SUPPORT OF MECHANICAL WORK AS SHOWN IN DETAILS FOR PIPING, DUCTWORK AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

20 ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.

21 ALL OPENINGS IN FIRE RATED WALLS AND SMOKE PARTITIONS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH APPROVED FIRESTOPPING MATERIALS.

22 REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING AND EQUIPMENT INSTALLATION.

23 UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS WITH TOP AT 48" ABOVE FINISHED FLOOR IN ACCORDANCE WITH ADA REQUIREMENTS. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE ABOVE LOCATION CAN NOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION. COORDINATE FINAL LOCATIONS WITH OWNER.

24 LOCATE ALL MECHANICAL EQUIPMENT (VAV BOXES, CABINET HEATERS, UNIT HEATERS, ETC.,) FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, FILTERS, CONTROLS AND VALVING. DO NOT LOCATE FAN POWERED VAV BOXES ABOVE LIGHTING FIXTURES.

25 PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN AND EXHAUST) CONNECTED TO FANS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.

26 ALL LOUVERS SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR (UNLESS OTHERWISE NOTED). GENERAL CONTRACTOR SHALL COORDINATE SIZES, LOCATIONS, AND CONNECTIONS WITH MECHANICAL CONTRACTOR. DUCTWORK CONNECTIONS TO LOUVERS SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.

27 PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN HYDRONIC WATER PIPING SYSTEMS. ALL PIPING SHALL SLOPE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.

28 INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.

29 ALL ISOLATION VALVES SHALL BE IN LOCATION AND ELEVATION WHICH ALLOWS FOR EQUIPMENT AND BRANCH PIPING REMOVAL, WHILE MAINTAINING SERVICE UPSTREAM OF THE ISOLATION VALVE.

30 ALL BALANCING VALVES AND ISOLATION VALVES USED TO ADJUST FLOW RATES SHALL BE PROVIDED WITH POSITIONS INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).

31 ALL ISOLATION VALVES (EXCEPT CONTROL VALVES), STRAINERS, AND PIPING SPECIALTIES SHALL BE FULL LINE SIZE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.

32 MECHANICAL JOINTS SUCH AS UNIONS, FLANGES, OR THREADED FITTINGS SHALL BE INSTALLED AT EACH EQUIPMENT CONNECTION, IN BYPASSES, AT FLOOR PENETRATIONS, AT CONTROL DEVICES, AND IN LONG PIPE RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.

33 MEASURE, CUT AND INSTALL PIPE LENGTH ACCURATELY TO MINIMALIZE MISALIGNMENT. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.

34 PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION (EXCEPT WATER COILS). FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.

35 PROVIDE VIBRATION INSULATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT VIBRATION TRANSMISSION TO BUILDING STRUCTURE.

36 CONCRETE HOUSEKEEPING PADS SHALL BE FURNISHED AND INSTALLED BY THE GENERAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL PROVIDE EQUIPMENT WEIGHTS, SIZES AND LOCATION TO GENERAL CONTRACTOR. MINIMUM CONCRETE PAD THICKNESS SHALL BE IN ACCORDANCE WITH STRUCTURAL DETAILS. PAD SHALL EXTEND BEYOND THE EQUIPMENT FOOTPRINT A MINIMUM OF 6 INCHES ON EACH SIDE.

37 ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH GENERAL CONTRACTOR. ALL ATTACHEMENTS TO STEEL MEMBERS, BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE APPROVED BY STRUCTURAL ENGINEER. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED.

38 MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM ROOF OR DECK ASSEMBLY. SUPPORTS SHALL ATTACH TO STRUCTURAL MEMBERS. COORDINATE WITH STRUCTURAL DRAWINGS.

39 PROVIDE MANUFACTURER'S MATCHING ROOF CURBS FOR ALL ROOF MOUNTING EQUIPMENT. COORDINATE ACTUAL ROOF PITCH AND CONSTRUCTION DETAILS WITH GENERAL CONTRACTOR. PROVIDE SLOPED CURBS PER MANUFACTURER'S RECOMMENDATIONS. GENERAL CONTRACTOR SHALL INSTALL ROOF CURBS AND FLASHING PER ROOFING MANUFACTURER'S INSTALLATION REQUIREMENTS.

40 UNLESS OTHERWISE NOTED, ALL PIPING AND DUCTWORK IF OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION.

41 PROVIDE CHAINWHEEL OPERATORS FOR ALL EXPOSED VALVES MOUNTED GREATER THAN 8'-0" ABOVE FINISHED FLOOR LEVEL. CHAIN SHALL EXTEND UNOBSTRUCTED TO 7'-0" ABOVE FLOOR LEVEL.

42 ALL PIPING AND DUCTWORK SHALL CLEAR DOORS, WINDOWS, EQUIPMENT CLEARANCES, MAINTENANCE REQUIREMENTS, CODE SETBACKS, ETC. TO ASSURE PROPER OPERATION, INSPECTION AND MAINTENANCE.

43 ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.

44 PROVIDE ALL 90 DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED OR SPECIFIED. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS CONTAINING TURNING VANES.

45 ALL DUCTS SHALL BE BONDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.

46 ALL EQUIPMENT SUBMITTALS AND SHOP DRAWINGS REQUIRED BY THE SPECIFICATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO PURCHASE, FABRICATION AND INSTALLATION.

47 ALL HEATING DEVICES AND SURFACES WITH ELEVATED TEMPERATURES WHICH CAN BE ACCESSED OR COME IN CONTACT WITH OWNER PERSONNEL SHALL BE PROTECTED, INSULATED, OR CONTROLLED TO REMAIN BELOW 120º F.

48 PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS REQUIRED TO PROVIDE PROPER SYSTEM AIRFLOW BALANCING.

HVAC GENERAL DEMOLITION NOTES

1 THE CONTRACTOR SHALL THOROUGHLY EXAMINE THE SITE PRIOR TO SUBMITTING THEIR BID. DUE TO THE NATURE OF THIS PROJECT AND THE STATE OF THE EXISTING BUUILDING, IT IS IMPOSSIBLE TO COMPLETELY RELATE THE SCOPE OF THE DEMOLITION REQUIRED TO THE CONTRACTOR THROUGH THE CONTRACT DOCUMENTS. FAILURE TO VISIT THE SITE WILL NOT RELIEVE THE CONTRACTOR OF THEIR DEMOLITION RESPONSIBILITIES UNDER THIS CONTRACT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND COORDINATE THE EXACT EXTENT OF DEMOLITION NECESSARY TO PROVIDE A RENOVATED AND UPGRADED SPACE TO FACILITATE NEW WORK.

2 INFORMATION REGARDING THE EXISTING CONDITIONS WAS GATHERED FROM AVAILABLE EXISTING DRAWINGS, SURVEY AND CORRESPONDENCE WITH UTILITY, STAFF AND FACILIITES PERSONNEL. THERE ARE NOT GUARANTEES AS TO THE ACCURACY OF THIS INFORMATION AND IT IS OFFERED FOR INFORMATION ONLY.

3 VERIFY EXISTING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING AND SYSTEM COMPONENTS PRIOR TO THE DEMOLITION. IF EXISTING CONDITIONS ARE DIFFERENT THAT WHAT IS INDICATED ON THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE COR AND ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.

4 MINIMIZE DISTURBACNE AND / OR DAMAGE TO EXISTING FINISHED SURFACES AND FINISHES. WHERE DEMOLITION OF MECHANICAL SYSTEM COMPONENTS DAMAGES EXISTING SURFACES TO REMAIN, RESTORE THOSE SURFACES TO THE SAME CONDITION AS THE ADJACENT SURFACES. RESTORATION MUST BE PERFORMED BY WORKMEN SKILLED IN PERFORMING SUCH WORK. ALL FIRE AND SMOKE RATINGS SHALL BE RETAINED AS PART OF THE REPAIRS. PATCH / SEAL HOLES WATERTIGHT. ALL PATCHES AND REPAIRS ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE ARCHITECT.

5 ALL AREAS OF EGRESS SHALL BE KEPT OPEN AND FREE FROM DEBRIS AT ALL TIMES.

6 DO NOT REMOVE ITEMS SUPPORTING OTHER ITEMS WITHOUT PROVIDING TEMPORARY OR PERMANENT SUPPORT. PROPERLY SUPPORT ALL EXISTING ITEMS TO REMAIN. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SUPPORTS FOR AFFECTED ITEMS.

7 VERIFY EXTENT OF PIPING, EQUIPMENT, COMPONENTS AND CONTROLS TO BE RETAINED OR REUSED PRIOR TO THE DEMOLITION OF SPECIFIC SYSTEM. PROTECT ITEMS WHICH ARE REUSED ON SITE TO MINIMIZE POST-CONSTRUCTION REPAIRS. ALL ITEMS WHICH ARE DAMAGED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED OR REPLACED AT NO COST TO THE CONTRACT.

8 REFER TO PLANS FOR EXISTING PIPING, DUCTWORK, EQUIPMENT AND SYSTEM COMPONENTS TO BE REUSED.

9 THE OWNER RETAINS FIRST RIGHT OF REFUSAL TO ALL EQUIPMENT AND SYSTEM COMPONENTS DEMOLISHED FROM THE PROJECT PRIOR TO DISPOSAL. ALL ITEMS NOT RETAINED BY THE OWNER SHALL BE PROMPTLY AND PROPERLY DISPOSED OF OR REMOVED FROM SITE.

10 VERIFY ALL EXISTING STRUCTURAL CONDITIONS AND NOTIFY THE STRUCTURAL ENGINEER FOR APPROVAL TO PENETRATING EXISTING BUILDING STRUCTURAL SYSTEMS.

11 NO DEMOLITION SHALL OCCUR WHICH LEAVES THE BUILDING INTERIOR WITHOUT WEATHER PROTECTION. ALL DEMOLITION OF EXTERIOR OR EXTERIOR SURFACES SHALL BE FOLLOWED IMMEDIATELY BY PROTECTIVE CONSTRUCTION. CONTRACTOR SHALL PROVIDE AND INSTALL TEMPORARY PROTECTION IN ALL OPENINGS WHERE LOUVERS, WINDOWS, OR EXTERIOR DOORS HAVE BEEN REMOVED.

12 THE DEMOLITION OF THE MECHANICAL SYSTEMS MUST BE PERFORMED TO CORRESPOND TO THE PHASED NATURE OF THE PROJECT. REFER TO ARCHITECTURAL PHASING PLANS FOR PROJECT PHASING. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORK AND EQUIPMENT NECESSARY TO KEEP REQUIRED SYSTEMS OPERATIONAL UNTIL THEY ARE NO LONGER NEEDED. THIS MAY INCLUDE BUT IS NOT LIMITED TO: RELOCATION OF EQUIPMENT AND ALL APPURTENANCES AND CONTROLS, RE-PIPING OF EQUIPMENT AND RE-DUCTING OF EQUIPMENT.

HVAC PHASING NOTES

1 THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL CONNECTIONS TO EXISTING AND NEW SYSTEMS AS REQUIRED TO FACILITATE PROPER CONTINUAL OPERATION OF ALL SYSTEMS AND EQUIPMENT, EXISTING OR NEW, EXCEPT WHERE IN THE CURRENT PHASE OF CONSTRUCTION.

2 THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY WORK AND EQUIPMENT NECESSARY TO KEEP REQUIRED SYSTEMS OPERATIONAL UNTIL THEY ARE FULLY RENOVATED AND OPERATING OR UNTIL THEY ARE NOT LONGER NEEDED AND DEMOLITED. THE MAY INCLUDE BUT IS NOT LIMITED TO: RELOCATION OF EQUIPMENT AND ALL APPURTENANCES AND CONTROLS, RE-PIPING OF EQUIPMENT, AND RE-DUCTING OF EQUIPMENT.

3 IF THE NEED FOR TEMPORARY SERVICE(S) OR CONNECTIONS DICTATES WORK BE DONE OUT OF PHASE, THIS WORK SHALL BE APPOVED BY THE ARCHITECT AND THE OWNER. WORK SHALL TAKE PLACE IN SUCH A MANNER SO AS NOT TO INTERFERE WITH THE DAY-TO-DAY OPERATIONS OF THE FACILITY AS DETERMINED BY THE OWNER.

4 REFER TO THE PROJECT SPECIFICATIONS AND ARCHITECTURAL PHASING PLANS TO DETERMINE THE PHASING OF DEMOLITION AND INSTALLATION OF MECHANICAL SYSTEM COMPONENTS. ALTHOUGH PORTIONS OF A MECHANICAL SYSTEM MAY LIE OUTSIDE A PHASED ARE ON PLAN, THOSE COMPONENTS ARE CONSIDERED TO BE "IN PHASE" IF THEIR INSTALLATION AND OPERATION IS REQUIRED FOR THE OCCUPANCY AND USE OF THE PHASED AREA. ALL "IN PHASE" MECHANICAL COMPONENTS SHALL BE INSTALLED AND MADE OPERATIONAL PRIOR TO THE COMPLETION OF THAT PHASE. COORDINATE ALL PHASING REQUIREMENTS WITH THE GENERAL CONTRACTOR'S SCHEDULE TO ENSURE CONTINUITY OF SYSTEM OPERATION.

5 THE CONTRACTOR SHALL BE AWARE THAT THE EXISTING BUILDING(S) AND ADJACENT SITE WILL BE OCCUPIED AND IN USE 24 HOURS PER DAY, 7 DAYS A WEEK. THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS SO THAT THERE WILL BE MINIMAL INTERFERENCE WITH THE CONTINUED OPERATION OF THE EXISTING BUILDING(S) AND STAFF. ANY INTERFERENCE OR INCONVENIENCE TO BUILDING OPERATIONS SHALL BE REVIEWED WITH THE COR AND ARCHITECT PRIOR TO COMMENCEMENT.

6 CONTRACTOR SHALL MINIMIZE SHUTDOWN TIMES DURING MECHANICAL SYSTEM SWITCHOVERS. ALL SHUTDOWN TIMES AND THEIR DURATIONS SHALL BE COORDINATED WITH THE COR.

EQUIPMENT TAG ABBREVIATIONS

ACC	AIR COOLED CHILLER	GIV	GRAVITY INTAKE VENTILATOR
ACCU	AIR COOLED CONDENSING UNIT	GRV	GRAVITY ROOF VENTILATOR
ACCUM	ACCUMULATOR		
AHU	AIR HANDLING UNIT	H	HUMIDIFIER
ASHP	AIR SOURCE HEAT PUMP	HC	HOT WATER HEATING COIL
		HUH	HORIZONTAL UNIT HEATER
B	BOILER		
BB	BASEBOARD HEATER	P	PUMP
BD	BAROMETRIC DAMPER	PTAC	PACKAGED TERMINAL AIR CONDITIONING UNIT
BDD	BACK DRAFT DAMPER		
		RG	RETURN GRILLE
CC	CHILLED WATER COOLING COIL	RR	RETURN REGISTER
CD	CONDENSATE DRAIN	RAG	RETURN AIR GRILLE
CIRC	CIRCULATOR	RCP	RADIANT CEILING PANEL
CMPR	COMPRESSOR	RTU	ROOF TOP UNIT
CONV	CONVECTOR		
CP	CONDENSATE PUMP	SF	SUPPLY FAN
CUH	CABINET UNIT HEATER	SSAC	SPLIT SYSTEM AIR CONDITIONING UNIT
		SSDC	SECURITY SUPPLY DIFFUSER CEILING
DC	DRY COOLER	SSEF	SECURITY SMOKE EXHAUST FAN
		SSGW	SECURITY SUPPLY SUPPLY GRILLE WALL
EF	EXHAUST FANS	SLSD	SUPPLY LINEAR SLOT DIFFUSER
ER	EXHAUST REGISTER		
ERW	EXHAUST REGISTER WALL	UH	UNIT HEATER
ET	EXPANSION TANK	UV	UNIT VENTILATOR
ECUH	ELECTRIC CABINET UNIT HEATER	UCD	UNDER CUT DOOR
EUH	ELECTRIC UNIT HEATER		
EWH	ELECTRIC WALL HEATER	VAV	VARIABLE AIR VOLUME
EVAP	EVAPORATOR		
FT	FINNED TUBE RADIATION		
FCU	FAN COIL UNIT		
FPB	FAN POWERED BOX		
FU	FURNACE		

DRAWING SYMBOLS

SYMBOL	DESCRIPTION
AHU / 1	POWERED EQUIPMENT / EQUIPMENT NUMBER
RHC / 1	NON-POWERED EQUIPMENT / EQUIPMENT NUMBER
1 / H100	DETAIL NUMBER / DRAWING NUMBER WHERE DRAWN
1 / H200	SECTION LETTER / DRAWING NUMBER WHERE DRAWN
	CONNECT TO EXISTING AT THIS POINT
	DEMO/REMOVE TO THIS POINT
CD-# / #	DIFFUSER/REGISTER/GRILLE TYPE / AIRFLOW QUANTITY
1	DRAWING KEYNOTE - DEMOLITION
1	DRAWING KEYNOTE - PLAN / ELEVATION NEW WORK

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#	Revision	Date

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Location: VAMC, BATH, NEW YORK

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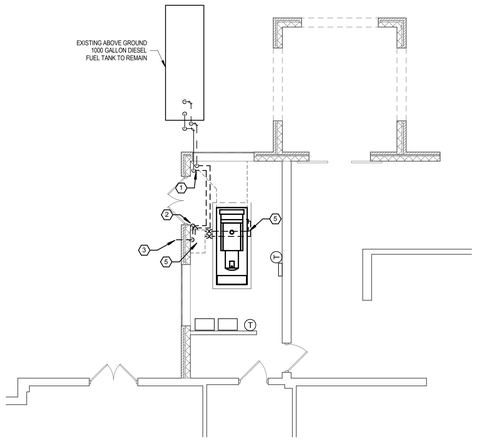
Building Number: 78

Drawing Number: H001

Office of Construction and Facilities Management

Department of Veterans Affairs

three inches = one foot; one and one half inch = one foot; one inch = one foot; three quarters inch = one foot; one half inch = one foot; three eighths inch = one foot; one quarter inch = one foot; one eighth inch = one foot



4 FIRST FLOOR - GENERATOR ROOM - FUEL OIL DEMOLITION
1/8" = 1'-0"

GENERAL DEMOLITION NOTES

A. UNLESS SPECIFICALLY INDICATED TO BE DEMOLISHED, ALL HVAC EQUIPMENT, DUCTING, PIPING AND CONTROLS TO REMAIN.

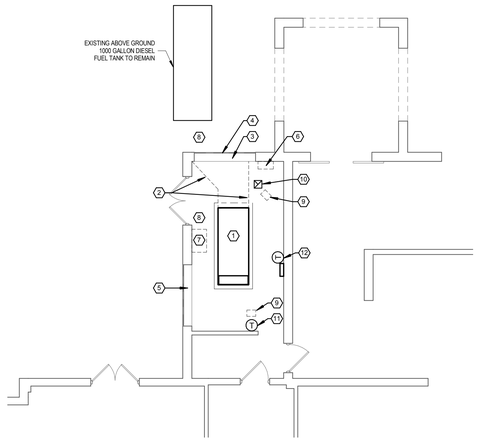
B. UNLESS SPECIFICALLY INDICATED TO BE DEMOLISHED, ALL PLUMBING FIXTURES AND PIPING TO REMAIN.

C. ALL SPRINKLER HEADS AND SPRINKLER PIPING TO REMAIN AS IS.

D. DEMOLITION OF THE DAY TANK, GENERATOR, AND ALL FUEL CONTAINING PIPING SHALL FOLLOW NFPA 30 AND ALL FEDERAL, STATE, AND LOCAL REGULATIONS FOR THE COLLECTION, REMOVAL, AND DISPOSAL OF FUEL OIL AND FUEL CONTAINING APPLIANCES.

DEMOLITION KEYNOTES

1. DISCONNECT EXISTING SUPPLY AND OVERFILL PIPING AT EXISTING FITTINGS AS INDICATED.
2. REMOVE ALL FUEL OIL PIPING AND ASSOCIATED FILTER EQUIPMENT TO DAY TANK COMPLETE TO POSITION INDICATED.
3. REMOVED EXISTING VENT PIPING SERVING DAY TANK AND PATCH PENETRATION IN WALL TO MAINTAIN CURRENT RATING OF WALL.
4. REMOVE EXISTING 1" FUEL OIL SUPPLY AND FUEL OIL RETURN PIPING FROM DAY TANK TO GENERATOR CONNECTION COMPLETE INCLUDING ALL PIPE CLAMPS AND SUPPORTS.
5. DEMOLISH THE EXISTING DAY TANK, DAY TANK PUMPS AND APPURTENANCES AND INTERCONNECTING FUEL OIL LINES BETWEEN THE DAY TANK AND GENERATOR.



1 FIRST FLOOR - GENERATOR ROOM - HVAC DEMOLITION
1/8" = 1'-0"

GENERAL DEMOLITION NOTES

A. UNLESS SPECIFICALLY INDICATED TO BE DEMOLISHED, ALL HVAC EQUIPMENT, DUCTING, PIPING AND CONTROLS TO REMAIN.

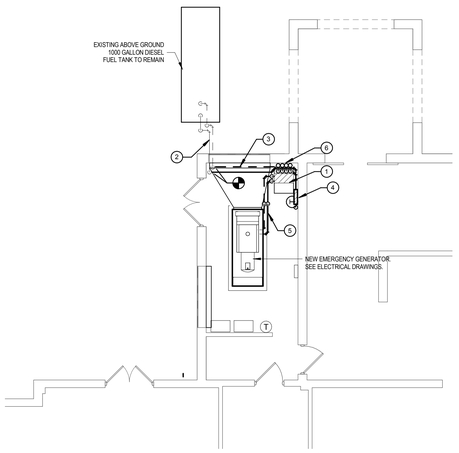
B. UNLESS SPECIFICALLY INDICATED TO BE DEMOLISHED, ALL PLUMBING FIXTURES AND PIPING TO REMAIN.

C. ALL SPRINKLER HEADS AND SPRINKLER PIPING TO REMAIN AS IS.

D. DEMOLITION OF THE DAY TANK, GENERATOR, AND ALL FUEL CONTAINING PIPING SHALL FOLLOW NFPA 30 AND ALL FEDERAL, STATE, AND LOCAL REGULATIONS FOR THE COLLECTION, REMOVAL, AND DISPOSAL OF FUEL OIL AND FUEL CONTAINING APPLIANCES.

DEMOLITION KEYNOTES

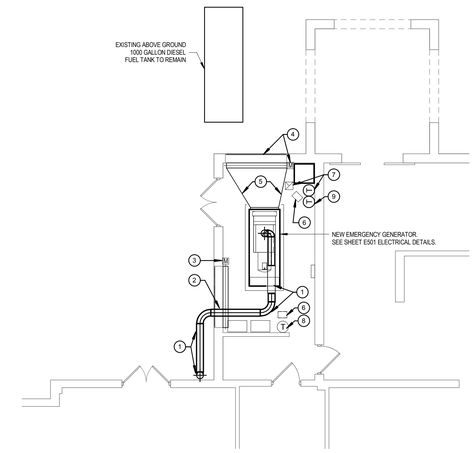
1. DEMOLISH EXISTING GENERATOR ENGINE EXHAUST FROM THE GENERATOR UP THROUGH ROOF. PATCH ROOF TO MATCH EXISTING.
2. DEMOLISH ALL GENERATOR RADIATOR EXHAUST DUCTING.
3. DEMOLISH EXISTING MOTORIZED DAMPER AT RADIATOR LOUVER.
4. REMOVE EXISTING RADIATOR LOUVER TO ALLOW FOR GENERATOR REMOVAL AND REPLACEMENT. RETAIN LOUVER FOR RE-INSTALLATION.
5. DEMOLISH EXISTING MOTORIZED DAMPER AT INTAKE LOUVER. EXISTING LOUVER TO REMAIN.
6. DEMOLISH EXISTING ROOM TEMPERATURE CONTROLS AND CONTROL PANEL.
7. EXISTING DAY TANK TO BE DEMOLISHED: SEE FUEL OIL DEMOLITION THIS PAGE FOR INFORMATION.
8. EXISTING FUEL OIL PIPING TO BE DEMOLISHED: SEE FUEL OIL DEMOLITION THIS PAGE FOR INFORMATION.
9. TEMPORARILY REMOVE THE EXISTING STEAM AND ELECTRIC UNIT HEATERS IF NEEDED TO ALLOW FOR THE INSTALLATION OF THE NEW GENERATOR.
10. EXISTING EXHAUST FAN AND ASSOCIATED DUCTING TO REMAIN.
11. EXISTING THERMOSTAT FOR EXISTING ELECTRIC UNIT HEATER TO REMAIN.
12. REMOVE EXISTING THERMOSTAT FOR STEAM UNIT HEATER AND RELOCATE TO LOCATION SHOWN ON NEW WORK PLAN BELOW.



3 FIRST FLOOR - GENERATOR ROOM - FUEL OIL
1/8" = 1'-0"

KEYNOTES

1. INSTALL NEW 100 GALLON DAY TANK AND PUMP SET WITH CONTROL PANEL MOUNTED TO NEW 4" THICK CONCRETE HOUSEKEEPING PAD. INSTALL EXTENSION PIPING TO NORMAL AND EMERGENCY VENT CONNECTIONS FROM PRIMARY AND SECONDARY TANK AND EXTEND THRU ROOF. VERIFY EMERGENCY VENT SIZING IN ACCORDANCE WITH APPLICABLE CODES AND LOCAL REQUIREMENTS. PROVIDE APPROVED STANDARD AND EMERGENCY VENT CAPS.
2. INDICATES EXISTING 3/4" SUPPLY AND 3/4" OVERFILL PIPING FROM MAIN STORAGE TANK TO REMAIN.
3. INSTALL NEW 3/4" SUPPLY AND 3/4" OVERFILL PIPING FROM POINT OF DISCONNECTION ROUTED TO NEW DAY TANK INCLUDING PIPE CLAMPS AND SUPPORTS.
4. INSTALL NEW FUEL OIL SUPPLY FILTRATION SYSTEM CONSISTING OF DUPLEX PARALLEL FILTERS AND ASSOCIATED FITTINGS. REFER TO DETAILS FOR REQUIREMENTS.
5. INSTALL NEW 1" SUPPLY AND 1" RETURN PIPING TO/FROM GENERATOR. PROVIDE FLEXIBLE CONNECTION AT GENERATOR CONNECTIONS. PIPING SHALL INCLUDE REQUIRED PIPE CLAMPS AND SUPPORTS.
6. INSTALL NEW 2" NORMAL VENT AND 3" EMERGENCY VENT PIPING THRU ROOF. REFER TO DETAIL FOR REQUIREMENTS. INSTALL 2" ATMOSPHERIC VENT CAP FOR PRIMARY/SECONDARY NORMAL VENT, AND 3" UL APPROVED EMERGENCY PRESSURE RELIEF VENT CAP FOR PRIMARY/SECONDARY EMERGENCY VENT.



2 FIRST FLOOR - GENERATOR ROOM - HVAC
1/8" = 1'-0"

KEYNOTES

1. INSTALL 10" DIAM. ENGINE EXHAUST PIPING FROM THE GENERATOR MUFFLER THROUGH EXISTING LOUVER. ROUTE GENERATOR EXHAUST ALONG EXTERIOR WALL AS INDICATED. GENERATOR EXHAUST SHALL BE EXTENDED UP ALONG THE EXTERIOR OF BUILDING 78 AND TERMINATED A MINIMUM OF 3' ABOVE THE BUILDING ROOF LINE. ALL EXHAUST PIPING SHALL BE SCHEDULE 80 WELDED STEEL. THE MUFFLER AND ALL PORTIONS OF THE GENERATOR EXHAUST SHALL BE INSULATED WITH 3" OF CALCIUM SILICATE INSULATION AND JACKETED WITH ALUMINUM JACKET. PROVIDE WITH GOOSENECK TO PREVENT RAIN FROM ENTERING. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. MODIFY EXISTING EXTERIOR LOUVER TO ALLOW GENERATOR ENGINE EXHAUST TO PASS. MODIFICATIONS SHALL BE COMPRISED OF FIELD CUTTING THE LOUVER BLADES. THE LOUVER BLADES SHALL BE CUT ONLY AS MUCH AS NEEDED TO ACCOMMODATE THE RADIUS OF THE INSULATED AND JACKETED EXHAUST PIPE.
3. INSTALL NEW MOTORIZED DAMPER AT THE INTAKE LOUVER. DAMPER SHALL BE FULL SIZE OF LOUVER, EXCEPT FOR THAT AREA NEEDED TO ALLOW FOR THE INSTALLATION OF THE GENERATOR ENGINE EXHAUST. MOTORIZED DAMPER SHALL BE POWERED AND HELD CLOSED ON NORMAL POWER AND SHALL FAIL OPEN UPON THE LOSS OF POWER. INSTALL NEW BIRDSCREEN AT DAMPER / LOUVER.
4. AFTER INSTALLATION OF NEW GENERATOR, REINSTALL RADIATOR LOUVER. PROVIDE NEW MOTORIZED DAMPER. DAMPER SHALL BE FULL SIZE OF LOUVER. MOTORIZED DAMPER SHALL BE POWERED AND HELD CLOSED ON NORMAL POWER AND SHALL FAIL OPEN UPON THE LOSS OF POWER.
5. DUCT BETWEEN THE OUTLET OF THE RADIATOR AND THE LOUVER USING SMOOTH DUCT TRANSITIONS. ALL DUCTING SHALL BE SCHEDULE 90 GALVANIZED STEEL INSTALLED PER SMACNA STANDARDS.
6. REINSTALL EXISTING UNIT HEATER.
7. PROVIDE NEW LINE VOLTAGE THERMOSTAT FOR EXISTING EXHAUST FAN. SET THERMOSTAT TO START FAN AT ROOM TEMPERATURES ABOVE 80 DEGREES.
8. EXISTING ELECTRIC UNIT HEATER THERMOSTAT.
9. RELOCATE STEAM UNIT HEATER THERMOSTAT TO THIS VICINITY.

NORTH

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#	Revision	Date

CONSULTANTS:

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AE Works Project Number: 16036

Drawing Title
FIRST FLOOR HVAC DEMOLITION AND NEW WORK PLAN

Approved: Project Director

Project Title:
REPLACE GENERATOR, BUILDING 78

Location:
VAMC, BATH, NEW YORK

Date:	Checked:	Drawn:
03-29-17	JKG	JKG

Project Number 528A6-16-614EM

Building Number 78

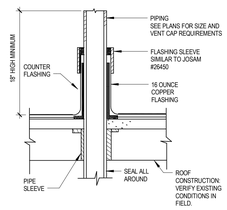
Drawing Number H101

Office of Construction and Facilities Management

Department of Veterans Affairs

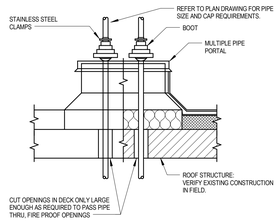
VA FORM 08-6231

3/27/2017 10:32:52 AM



NOTE:
PIPE PENETRATION MAY BE EITHER PIPE CURB OR INDIVIDUAL PIPE PENETRATION BASED ON EXISTING STRUCTURAL CONDITIONS.

6 PIPE THROUGH ROOF
NOT TO SCALE



NOTE:
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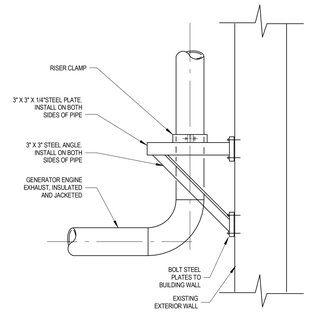
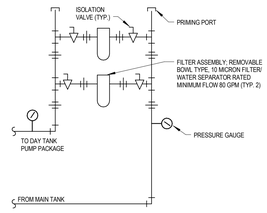
5 ROOF PIPE CURB
NOT TO SCALE



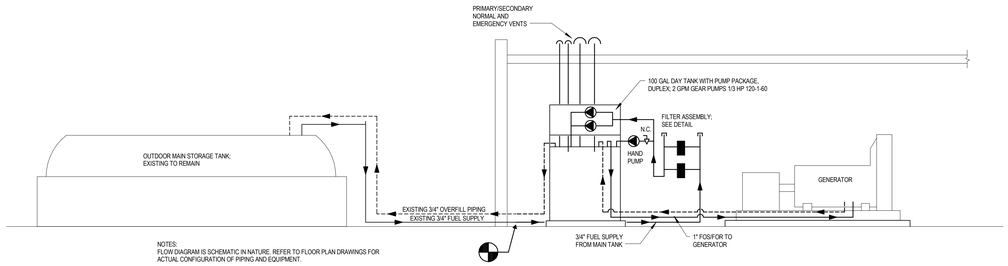
PROVIDE RISER SUPPORT AT EVERY STORY ALONG EXTERIOR OF BUILDING.
PROVIDE RISER SUPPORT AT / NEAR ROOF EAVE.

4 PIPE RISER SUPPORT DETAIL
NOT TO SCALE



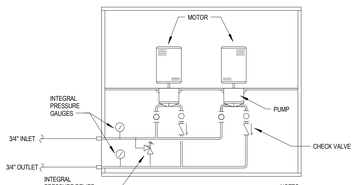
NOTES:
1. INSTALL FILTER ASSEMBLY MOUNTED TO FABRICATED FRAME.
2. PROVIDE ISOLATION VALVES IN THE NORMALLY OPEN CONFIGURATION FOR FILTER MAINTENANCE.
3. COORDINATE MOUNTING POSITION WITH INSTALLATION OF DAY TANK.
4. PROVIDE PRESSURE GAUGE ON INLET AND OUTLET OF FILTER ASSEMBLY FOR FILTER PERFORMANCE MONITORING.

1 FUEL OIL FILTER DETAIL
NOT TO SCALE



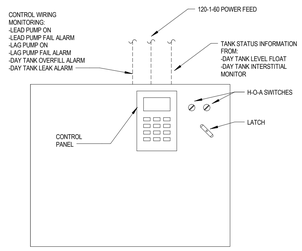
NOTES:
FLOW DIAGRAM IS SCHEMATIC IN NATURE. REFER TO FLOOR PLAN DRAWINGS FOR ACTUAL CONFIGURATION OF PIPING AND EQUIPMENT.

2 FUEL SYSTEM FLOW DIAGRAM
NOT TO SCALE



TYPICAL ENCLOSURE
LESS DOOR

NOTES:
1. PROVIDE PUMPS WITH H-O-A SWITCH TO ALLOW AUTOMATIC AND MANUAL OPERATION.
2. PROVIDE AUTOMATIC LEAD/LAG SEQUENCE OF OPERATION
3. WIRE CONTROL WIRING TO GENERATOR OPERATOR CONTROL CUBICAL.



FRONT VIEW

3 DUPLEX FUEL OIL PUMP DETAIL
NOT TO SCALE

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AE Works Project Number: 16036

Drawing Title	HVAC SCHEDULES AND DETAILS
Approved: Project Director	
Project Title:	REPLACE GENERATOR, BUILDING 78
Location:	VAMC, BATH, NEW YORK
Date:	03-29-17
Checked:	JKG
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Project Number	528A6-16-614EM
Building Number	78
Drawing Number	H700

Office of Construction and Facilities Management

Department of Veterans Affairs

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ABBREVIATION LEGEND

&	AND
A	AIR (CLINICAL)
AAP	ALARM ANNUNCIATOR PANEL
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABV	ABOVE
ACC DR	ACCESS DOOR
ACFL	ACCESS
ACOUS	ACOUSTICAL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICAN DISABILITIES ACT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADMIN	ADMINISTRATION
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISHED GRADE
AFMD	AIR FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT
AL	ALIGN
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APC	ARCHITECTURAL PRECAST CONCRETE
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ASY	ASYMMETRIC
ATC	AUTOMATIC TEMPERATURE CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWT	AVERAGE WATER TEMPERATURE
BAT	BATTERY
BC	BALANCING COCK OR BARE COPPER
BDD	BACKDRAFT DAMPER
BFC	BELOW FINISH CEILING
BFE	BOTTOM FOOTING ELEVATION
BFG	BELOW FINISHED GRADE
BG	BUMPER GUARD
BLDG	BUILDING
BLKG	BLOCKING
BLT	BORROWED LIGHT
BLW	BELOW
BM	BEAM
BO	BY OWNER
BOF	BY OWNER FUTURE
BOT	BOTTOM
BR	BRICK
BRG	BEARING
BRKR	BREAKER
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
C	CONDUIT
CAB	CABINET
CANTL	CANTILEVER
CAP	CAPACITY
CATV	CABLE TELEVISION
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CFH	CUBIC FEET / HOUR
CFM	CUBIC FEET / MINUTE
CH	CHANNEL
CHK V	CHECK VALVE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHWS&R	CHILLED WATER SUPPLY AND RETURN
CJ	CONTROL JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTERLINE
CLG	CEILING
CLG MTD	CEILING MOUNTED
CLR	CLR
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
COMM	COMMUNICATION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUE / CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET OR CONTROL POWER TRANSFORMER
CT	CERAMIC TILE
CTR	CENTER
CU	COPPER
CV	CONTROL VALVE
CW	COLD WATER
D	DEPTH OR DEEP
DB	DRY BULB
dB	DECIBEL
DCW	DOMESTIC COLD WATER
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAILS
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DIA	DIAMETER
DIAG	DIAGONAL OR DIAGRAM
DIFF	DIFFUSER
DIM	DIMENSION
DISC	DISCONNECT
DISCH	DISCHARGE
DISP	DISPENSER
DIST	DISTRIBUTION
DIV	DIVISION
DL	DOWN LIGHT
DN	DOWN
DP	DISTRIBUTION PANEL
DPR	DAMPER
DR	DRAIN
DS	DOWNSPOUT
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
EIFS	EXTERIOR INSULATION AND FINISHING SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEC CAB	ELECTRICAL CABINET
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENTR	ENTRANCE
EO	ELECTRICAL OUTLET
EQ	EQUAL
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXAUST AIR
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
XP	EXPLOSION PROOF
F/S	FIRE / SMOKE DAMPER
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAT	FINAL AIR TEMPERATURE
FB	FIRE BLANKET
FC	FLEXIBLE CONNECTION OR FOOTCANDLE
FD	FLOOR DRAIN OR FIRE DAMPER
FDN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FH	FIRE HOSE
FHC	FIRE HOSE CABINET
FHP	FULL HEIGHT PARTITION
FHV	FIRE HOSE VALVE
FIN	FINISH
FIXT	FIXTURE
FL	FLOW LINE
FLA	FULL LOAD AMPERES
FLASH	FLASHING
FLEX	FLEXIBLE
FLG	FLANGE
FLG C	FLANGE CONNECTION
FLR	FLOOR
FLUOR	FLUORESCENT
FP	FIRE PROOFING
FRMG	FRAMING
FS	FLOOR SINK
FSTOP	FIRESTOPPING
FT	FOOT / FEET
FT HD	FEET OF HEAD
FTC	FOOTCANDLES
FTG	FOOTING
FUR	FURRING
G	GAS OR ELECTRICAL GROUND
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GENL	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTOR
GL	GLASS
GLV	GLOBE VALVE
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE
GRAV	GRAVITY
GRD BM	GRADE BEAM
GV	GATE VALVE
GWB	GYPSUM BOARD
H	HIGH
HB	HOSE BIB
HC	HEATING CONTRACTOR
HDCP	HANDICAP
HDR	HEADER
HDW	HARDWARE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HPD	HIGH PRESSURE DRIP
HPF	HIGH POWER FACTOR
HR	HANDRAIL
HSKP	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VELOCITY
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HW	HOT WATER
HWD	HARD WOOD
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HWS&R	HOT WATER SUPPLY AND RETURN
HZ	HERTZ
ID	INSIDE DIAMETER
IER	INVERTED ECCENTRIC REDUCER
IG	ISOLATED GROUND
IME	INSULATED METAL ENCLOSURE
IN	INCH
INCAND	INCANDESCENT
INCL	INCLUDED
INSUL	INSULATION
INT	INTERIOR
INTERL	INTERLOCK
INV	INVERT
ISO	ISOLATION
IVS	ISOLATED VALVE STATION
J-BOX	JUNCTION BOX
JST	JOIST
JT	JOINT
KO	KNOCK OUT
kVA	KILOVOLT AMPERE
kVAR	KILOVAR (REACTANCE)
kW	KILOWATT
kWH	KILOWATT HOUR METER
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LDB	LEAVING DRY BULB
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LIN	LINEAR
LOC	LOCATION OR LOCATE
LPT	LOW POINT
LSDC	LINEAR SUPPLY DIFFUSER CEILING
LT	LIGHT
LTG	LIGHTING
LV	LOW VOLTAGE
LVR	LOUVER
LWB	LEAVING WET BULB
LWC	LINEAR WOOD CEILING
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAT	MIXED AIR TEMPERATURE
MATL	MATERIAL
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MBH	ONE THOUSAND BTU / HOUR
MC	MECHANICAL CONTRACTOR
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MONO	MONOLITHIC
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MTL	METAL
MTLH	METAL HALIDE
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NUMBER OR NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
O	OXYGEN
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPER	OPERATED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PB	PULL BOX
PC	PLUMBING CONTRACTOR
PD	PUMP DISCHARGE
PG	PRESSURE GAUGE WITH COCK
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PNL	PANEL
PR	PAIR
PRD	PRESSURE DIFFERENTIAL VALVE
PRELIM	PRELIMINARY
PRT	PRESSURE TAP
PRV	PRESSURE REDUCING VALVE
PT	PAINT OR POTENTIAL TRANSFORMER
RO	ROUGH OPENING
QT	QUARRY TILE
R	RADIUS
RA	RETURN AIR / RELIEF AIR
RB	RUBBER BASE
RC	REMOVE COMPLETELY
RD	ROOF DRAIN
RE	RELOCATE EXISTING
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REFL	REFLECTOR
REG	REGISTER
REINF	REINFORCING
REM	REMOVE
REQD	REQUIRED
RET	RETURN
REV	REVISE
REX	REMOVE EXISTING
RF	RESILIENT FLOOR
RFI	REQUEST FOR INFORMATION
RGS	RIGID GALVANIZED STEEL CONDUIT
RH	ROOF HATCH
RM	ROOM
RN	REMOVE AND REPLACE WITH NEW
RR	REMOVE AND REPLACE
RS	RAPID START
RV	RELIEF VALVE
RWC	RAIN WATER CONDUCTOR
SA	SUPPLY AIR
SAN	SANITARY SEWER ABOVE GROUND
SAN-BXR	SANITARY SEWER - BURIED EXISTING TO REMAIN
SAN-XR	SANITARY SEWER ABOVE GROUND - EXISTING TO REMAIN
SCHED	SCHEDULE
SD	SMOKE DAMPER OR SMOKE DETECTOR
SDISP	SOAP DISPENSER
SF	SQUARE FOOT
SHT	SHEET
SHT MTL	SHEET METAL
SHTG	SHEATHING
SIM	SIMILAR
SM	SURFACE MOUNTED
SNC	SANITARY NAPKIN CABINET
SND	SANITARY NAPKIN DISPOSER
SP	STANDPIPE OR STATIC PRESSURE
SPC	SPECIMEN PASS-THRU CABINET
SPEC	SPECIFICATIONS
SPS	STATIC PRESSURE SENSOR
SR	SERVICE RECEPTOR
SS	SOIL STACK
ST PR	STATIC PRESSURE
ST STL	STAINLESS STEEL
STD	STANDARD
STER	STERILIZER
STL	STEEL
STOR	STORAGE
STR	STRAINER
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL TOP
T	TOP
TA	THROWAWAY
TAN	TANGENT
TC	TELECOMMUNICATIONS CONTRACTOR
TCV	TEMPERATURE CONTROL VALVE
TDV	TRIPLE DUTY VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TER	TERRAZZO
TG	TONGUE & GROOVE
TH	THERMOMETER
THRES	THRESHOLD
TR	TEMPERATURE RISE
TRANS	TRANSITION
TRANSR	TRANSFORMER
TSTAT	THERMOSTAT
TV	TURNING VANES OR TELEVISION
TYP	TYPICAL
UC	UNDER CABINET OR UNDER CUT
UFD	UNDER FLOOR DUCT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VAL	VALVE
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFS	VENTURI FLOW STATION
VIF	VERIFY IN FIELD
VL	VENT LINE
VR	VAPOR RETARDER
VS	VENT STACK
VTR	VENT THROUGH ROOF
W	WATT
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WALL COVERING
WCL	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WFMD	WATER FLOW MEASURING DEVICE
WG	WALL GUARD OR WATER GAUGE
WHCH	WHEEL CHAIR
WIN	WINDOW
WMS	WIRE MESH SCREEN
WP	WEATHERPROOF
WPS	WALL PROTECTION SYSTEM
WSCT	WAINSCOT
WT	WINDOW TREATMENT
WTD	WATER TEMPERATURE DROP
WWF	WELDED WIRE FABRIC
X	DEMO
XN	TO BE RELOCATED / NEW LOCATION
XR	EXISTING TO REMAIN
ZVB	ZONE VALVE BOX
ZVC	ZONE VALVE CABINET

ELECTRICAL SYMBOLS LEGEND

THIS IS A STANDARD SYMBOL LIST. ALL SYMBOLS MAY NOT APPEAR ON THIS PROJECT.

LIGHTING SYMBOLS

- RECESSED MOUNTED TROFFER, (1X4, 2X2, 2X4) FX = FIXTURE TYPE (REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS)
- RECESSED DOWNLIGHT, SURFACE MOUNTED, OR DECORATIVE PENDANT MOUNT FX = FIXTURE TYPE (REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS)
- PENDANT MOUNTED LINEAR DIRECT/INDIRECT FX = FIXTURE TYPE, Y = FIXTURE LENGTH (REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS)
- STRIP FIXTURE FX = FIXTURE TYPE, Y = FIXTURE LENGTH (REFER TO LIGHTING FIXTURE SCHEDULE FOR DETAILS)
- POLE MOUNTED LIGHT FIXTURE
- LED EXIT SIGN, AND BATTERY BACKUP.
- LED EXIT SIGN, WITH EMERGENCY HEADS, AND BATTERY BACKUP.
- BATTERY PACK EMERGENCY LIGHT
- DENOTES FIXTURE IS CONNECTED TO EMERGENCY POWER
- DENOTES AIMING DIRECTION OF LIGHT FIXTURE
- DENOTES WALL MOUNT ARM OF LIGHT FIXTURE

POWER SYMBOLS

- DUPLEX RECEPTACLE IN A 4" SQUARE BOX WITH PLASTER RING (IN DRYWALL) SINGLE GANG BOX IN MASONRY. XX: WP=WEATHERPROOF, SS=SURGE SUPPRESSOR, GFI= GROUND FAULT INTERRUPTER, TR=TAMPER RESISTANT, S=SURFACE MTD
- DOUBLE DUPLEX RECEPTACLE IN A 4" SQUARE BOX XX: WP=WEATHERPROOF, SS=SURGE SUPPRESSOR, GFI= GROUND FAULT INTERRUPTER, TR=TAMPER RESISTANT, S=SURFACE MTD
- SINGLE RECEPTACLE IN A 4" SQUARE BOX WITH PLASTER RING (IN DRYWALL) SINGLE GANG. BOX IN MASONRY.
- SPECIAL RECEPTACLE IN A 4" SQUARE BOX WITH NEMA CONFIGURATION INDICATED.
- STANCHION MOUNTED DEVICE
- COMBINATION POKE THRU DEVICE W/ (2) DUPLEX RECEPTACLES (REFER TO ET SERIES DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)
- MULTI-SERVICE FLOOR BOX W/ (2) DUPLEX RECEPTACLES (REFER TO ET SERIES DRAWINGS FOR LOW VOLTAGE REQUIREMENTS)
- DOUBLE GANG BACKBOX W/ SINGLE GANG DEVICE RING. 1 1/4" EMT CONDUIT W/ PULL STRING TO ABOVE ACCESSIBLE CEILING
- NON-FUSED DISCONNECT SWITCH
- XX/YY/Z FUSED DISCONNECT SWITCH (XX=SWITCH SIZE, YY=FUSE SIZE, Z=# OF POLES)
- COMBINATION MOTOR STARTER
- VFD VARIABLE FREQUENCY DRIVE
- SINGLE PHASE MOTOR CONNECTION XX=HORSE POWER
- THREE PHASE MOTOR CONNECTION XX=HORSE POWER
- PUSHBUTTON: E=EMERGENCY STOP, A=AUTO DOOR PUSH BUTTON
- EXISTING / NEW SURFACE MOUNTED ELECTRICAL PANELBOARD
- EXISTING / NEW RECESSED MOUNTED ELECTRICAL PANELBOARD
- JUNCTION BOX - WALL MOUNTED
- JUNCTION BOX - CEILING OR EQUIPMENT MOUNTED
- GROUND PER NATIONAL ELECTRIC CODE
- WALL MOUNTED GROUND BUS BAR (COPPER)

ANNOTATION SYMBOLS

- DRAWING KEYNOTE - DEMOLITION
- DRAWING KEYNOTE - PLAN / ELEVATION NEW WORK
- EQUIPMENT TAG
- REVISION TRIANGLE WITH REVISION CLOUD
- INDICATED MOUNTED ABOVE COUNTERTOP (REFER TO STANDARD MOUNTING HEIGHTS DETAIL ON THIS SHEET)
- X - Y RECEPTACLE TAG: X= PANEL NAME Y= CIRCUIT NUMBER

RISER DIAGRAM / SINGLE LINE SYMBOLS

- AUTOMATIC TRANSFER SWITCH REFER TO DRAWINGS FOR AMPACITY, POLES, BYPASS, ETC.
- ELECTRICAL PANELBOARD (PANEL VOLTAGE AMPACITY MCB OR MLO) REFER TO DRAWINGS FOR VOLTAGE, AMPACITY, CIRCUIT QUANTITY, RATINGS, AND SPECIAL FEATURES
- STEP-DOWN TRANSFORMER REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- FUSED SAFETY SWITCH (TAG AMPACITY FSS NEMA)
- NON-FUSED SAFETY SWITCH (TAG AMPACITY NFSS NEMA)
- ENCLOSED CIRCUIT BREAKER (TAG AMPACITY CB NEMA)
- THREE PHASE MOTOR REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- SINGLE PHASE MOTOR REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- UTILITY METER (CT CABINET) REFER TO DRAWINGS FOR VOLTAGE, SIZE, TYPE AND SPECIAL REQUIREMENTS
- FUSED SWITCH (XXXA)
- NON-FUSED SWITCH
- FUSED SWITCH W/ AUXILIARY CONTACTS (XXXA)
- NON-FUSED SWITCH W/ AUXILIARY CONTACTS
- MOLDED CASE CIRCUIT BREAKER (XXXA/3P)
- MOLDED CASE CIRCUIT BREAKER W/ SHUNT TRIP (XXXA/3P, ST)
- MOLDED CASE CIRCUIT BREAKER W/ SHUNT TRIP & AUXILIARY CONTACT (XXXA/3P, ST)
- FUSED DOUBLE THROW SWITCH (XXXA)
- DRAW-OUT MEDIUM VOLTAGE CIRCUIT BREAKER (XXXA, 52)
- DRAW-OUT LOW VOLTAGE CIRCUIT BREAKER (XXXA/3P XXXAF LSIG)
- COMBINATION MOTOR STARTER (X, SIZE 1 FVNR)

UTILITY SHUTDOWNS

1. THIS PROJECT MAY REQUIRE SHUT-DOWNS TO THE NORMAL POWER SYSTEM OF THE BUILDING, WHICH WILL REQUIRE SECOND OR THIRD SHIFT WORK, AS WELL AS WEEKEND WORK. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE COR, AND PLAN HIS WORK ACCORDINGLY.
2. THE CONTRACTOR SHALL UTILIZE THE EXISTING TEMPORARY GENERATOR THAT IS IN PLACE AT THIS TIME FOR ANY LOSS OF UTILITY POWER AND / OR SCHEDULED POWER OUTAGES.

MINIMUM PHASING REQUIREMENTS

PROVIDE DETAILED M.O.P. (METHOD OF PROCEDURE) TO THE COR (CONTRACTING OFFICER'S REPRESENTATIVE).

PROVIDE TENTATIVE SCHEDULE OF OUTAGES AND DURATIONS - MINIMUM OF 48 HOURS IN ADVANCE TO THE COR.

THE CONTRACTOR SHALL UTILIZE THE EXISTING TEMPORARY GENERATOR THAT IS IN PLACE AT THIS TIME FOR ANY LOSS OF UTILITY POWER AND / OR SCHEDULED POWER OUTAGES.

REMOVE EXISTING GENERATOR EXHAUST, DAY TANK, DUCT WORK AND OTHER ASSOCIATED ACCESSORIES.

REMOVE EXISTING EMERGENCY ONLY DISTRIBUTION PANEL, CONTROLLER AND FEEDERS TO EXISTING AUTOMATIC TRANSFER SWITCHES.

INSTALL NEW WIREWAY, DISTRIBUTION CIRCUIT BREAKERS, DAY TANK, ANNUNCIATOR PANEL AND OTHER GENERATOR RELATED ACCESSORIES.

INSTALL NEW GENERATOR, CONTROLLER, DUCT WORK, FUEL LINES, CONDUITS AND CONDUCTORS TO WIREWAY AND MAKE FINAL CONNECTION FOR ACCESSORIES.

COORDINATE POWER OUTAGE WITH UTILITY COMPANY. SEE NOTE BELOW.

NOTE:

THIS IS MINIMUM PHASING REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE A DETAILED STEP BY STEP PHASING ARRANGEMENT AS PART OF THE M.O.P AND PROVIDE TO THE COR.

WIRING CONVENTION

THE COMPLETE BRANCH WIRING SYSTEM IS NOT SHOWN ON THE DRAWINGS. AN ABBREVIATED FORMAT IS USED TO INDICATE WHICH FIXTURES/DEVICES ARE CONNECTED TO A COMMON CIRCUIT OR SWITCH. THIS IS PROVIDED AS A GUIDE TO THE CONTRACTOR TO ILLUSTRATE CIRCUITS AND CONTROL INTENT. ACTUAL WIRING MAY BE DIFFER DUE TO FIELD CONDITIONS.

ALL CIRCUITS SHALL CONTAIN AN INDIVIDUAL NEUTRAL WIRE. SHARING OF NEUTRALS IS PROHIBITED. ALL CIRCUITS SHALL CONTAIN AN INDIVIDUAL GROUND WIRE. USE OF THE CONDUIT SYSTEM FOR THE GROUND PATH IS PROHIBITED.

ALL CIRCUITS IN PATIENT AREAS SHALL HAVE A REDUNDANT GREEN GROUND CONDUCTOR. CONDUCTOR SHALL BE BONDED TO THE GROUND BUS IN THE PANELBOARD AND THE METAL BOX AT THE DEVICE PER NEC 517.

IF THE CONTRACTOR CHOOSES TO RUN MULTIPLE CURRENT CARRYING CONDUCTORS IN A COMMON CONDUIT, THE NEC DERATING RULES SHALL BE FOLLOWED, AND CONDUCTORS / CONDUIT SHALL BE UPSIZED ACCORDINGLY, INCLUDING THE GROUND WIRE.

CONDUCTORS INSTALLED ON ROOFTOPS SHALL HAVE THEIR SIZES INCREASED PER NEC SECTION 310.15 DERATING FACTORS. UPSIZE CONDUCTORS AND CONDUIT ACCORDINGLY, INCLUDING THE GROUND WIRE.

CONDUCTOR SIZES ARE BASED ON NEC SECTION 310.16, 75 DEGREE C TEMPERATURE RATING, AND 90 DEGREE C LUGS.

COLOR CODING OF CONDUCTORS SHALL BE AS FOLLOWS (AS APPLICABLE):

120/208 VOLT SYSTEM	277/480 VOLT SYSTEM
PHASE A = BLACK	PHASE A = BROWN
PHASE B = RED	PHASE B = ORANGE
PHASE C = BLUE	PHASE C = YELLOW
NEUTRAL = WHITE	NEUTRAL = GREY
GROUND = GREEN	GROUND = GREEN

WIRING SYMBOLOGY

- SINGLE PHASE HOMERUN TO PANELBOARD
- THREE PHASE HOMERUN TO PANELBOARD
- BRANCH CIRCUIT WIRING - INDICATES #12 CONDUCTORS UNLESS NOTED OTHERWISE
- BRANCH CIRCUIT WIRING - INDICATES #10 CONDUCTORS
- BRANCH CIRCUIT WIRING - INDICATES #8 CONDUCTORS
- BRANCH CIRCUIT WIRING - INDICATES LV CONDUCTORS IN CONDUIT
- BRANCH CIRCUIT WIRING - INDICATES N/E CONDUCTORS IN CONDUIT
- BRANCH CIRCUIT WIRING - INDICATES UNDERGROUND WIRING

METHOD OF PROCEDURE (M.O.P.) REQUIRED

M.O.P SHALL INCLUDE THE FOLLOWING:

- OUTAGES AND DURATIONS. PROVIDE TENTATIVE SCHEDULE OF AND DURATIONS. MINIMUM 48 HOUR ADVANCE NOTIC BEFORE AN OUTAGE.
- STEP BY STEP METHOD OF EQUIPMENT REPLACEMENT.
- SEQUENCE OF STEPS TO COMPLETE WORK.
- GENERATOR / POWER REQUIRED AND AREAS AFFECTED.
- FOR ALL ADDITIONAL M.O.P. DIRECTIONS, REFER TO SPECIFICATIONS.
- NOTIFICATION AND APPROVAL BY VA PERSONNEL.

NOTE: NO WORK SHALL BE PERMITTED ON ANY ENERGIZED EQUIPMENT.

ELECTRICAL GENERAL NOTES

THE CONTRACTOR SHALL REVIEW THE WORK REQUIRED WITH THE APPLICABLE UTILITY COMPANIES SERVING THE PROJECT. ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE INDIVIDUAL UTILITY COMPANIES.

THE CONTRACTOR SHALL CONTACT THE NATIONAL "811-CALL BEFORE YOU DIG" SYSTEM PRIOR TO PERFORMING ANY UNDERGROUND INSTALLATION WORK. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED IN AND AROUND THE EXCAVATION AREA.

CONTRACTOR SHALL PROVIDE A PORTABLE GENERATOR FOR EMERGENCY POWER REQUIREMENTS DURING THE REPLACEMENT OF THE EXISTING GENERATOR.

1 THE CONTRACTOR SHALL GENERATE A DETAILED METHOD OF PROCEDURE (MOP) DOCUMENT INDICATING HOW HE/SHE INTENDS TO PERFORM EACH STEP IN THE PROJECT. THIS MOP SHALL BE PRESENTED TO THE OWNER AND ENGINEER PRIOR TO STARTING THE PROJECT, FOR SIGN OFF. THE MOP MAY BE REVISED BASED ON CHANGES IN THE PROJECT CONSTRUCTION, ETC. AT ALL POINTS IN THE PROJECT THE OWNER SHALL BE MADE AWARE OF CHANGES TO THE MOP, AND A REVISED MOP SHALL BE PRESENTED TO THE OWNER AND ENGINEER FOR SIGN OFF.

2 THE CONTRACTOR IS RESPONSIBLE FOR THE ENTIRE DOCUMENT SET I.E. IF WORK SHOWN I.E. IF WORK IS SHOWN ON OTHER DRAWINGS AS "BY CONTRACTOR" THE CONTRACTOR IS RESPONSIBLE FOR THAT WORK.

3 DRAWINGS FOR THIS WORK ARE DIAGRAMMATIC AND INTENDED TO CONVEY THE EXTENT, GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK. BECAUSE OF THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS ACCESS PANELS, CONDUITS, CABINET SIZES, PENETRATION SLEEVES, PULL BOXES, BACKBOXES AND JUNCTION BOXES MAY NOT BE SHOWN. INCLUDE ALL ITEMS WHERE REQUIRED BY CODE, MANUFACTURER AND RELATED SPECIFICATION SECTIONS FOR THE PROPER INSTALLATION OF ALL WORK.

4 DUE TO SCALE OF THE DRAWINGS, ALL ELECTRICAL DEVICE SYMBOLS ARE SHOWN ON DRAWINGS AS CLOSE AS POSSIBLE TO THEIR INTENDED LOCATION. CONTRACTOR SHALL COORDINATE IN THE FIELD THE PROPER INSTALLATION OF ALL EQUIPMENT, DEVICES, CONTROLS AND CONDUITS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL REQUIREMENTS.

5 COORDINATE WITH ALL TRADES AND SYSTEM INTEGRATORS ANY CONDITIONS RELATED TO THE INSTALLATION OF ALL SYSTEMS. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE TRADE ALL INSTALLATION REQUIREMENTS IMPACTING THE PLACEMENT OF ALL SYSTEM COMPONENTS TO THE SATISFACTION OF ALL CONCERNED TRADES.

6 COORDINATE EXACT LOCATION(S) OF ALL DATA AND TELEPHONE OUTLETS, ELECTRICAL RECEPTACLES WITH THE COR. PRIOR TO INSTALLATION.

7 ALL CONDUITS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NFPA 70 AND PROJECT SPECIFICATIONS. ALL CONDUITS SHALL BE A MINIMUM OF 3/4" UNLESS OTHERWISE NOTED.

8 PROVIDE ALL EQUIPMENT CLEARANCES IN ACCORDANCE WITH NEC REQUIREMENTS. ARRANGE EQUIPMENT TO FACILITATE UNRESTRICTED ACCESS FOR MAINTENANCE AND SERVICE AROUND ALL EQUIPMENT, COMPONENTS AND/OR CABLE TERMINATIONS.

9 WHERE EQUIPMENT AND/OR JUNCTION BOXES ARE INSTALLED ABOVE FINISHED CEILINGS, THE CONTRACTOR SHALL PROVIDE ACCESS HATCHES LISTED FOR THE INTENDED APPLICATION. ACCESS HATCHES SHALL BE LOCATED SO THAT SERVICE ACCESS TO THE EQUIPMENT AND/OR JUNCTION BOXES IS UNIMPEDED. COORDINATE WITH SPECIFICATIONS

10 ALL PENETRATIONS OF WALLS AND/OR FLOORS SHALL BE FIRE STOPPED IN ACCORDANCE WITH THE ASTM AND NFPA REQUIREMENTS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION. INSTALLATION OF FIRE-STOPS SHALL BE PERFORMED BY APPLICATOR/INSTALLER QUALIFIED AND TRAINED BY THE MANUFACTURER. INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILED INSTALLATION PROCEDURES.

11 ALL EQUIPMENT ENCLOSURES LOCATED OUTSIDE OR IN ALL AREAS WITH HIGH MOISTURE OR A RELATIVE HUMIDITY OF 75% OR GREATER SHALL BE NEMA 4X STAINLESS STEEL AND RATED FOR THAT APPLICATION.

12 ALL DEVICES, COMPONENTS OR EQUIPMENT INSTALLED ON THE EXTERIOR OF THE FACILITY SHALL BE PROVIDED IN ACCORDANCE WITH ALL MANUFACTURERS' REQUIREMENTS TO ENSURE THE PROPER OPERATION WHEN EXPOSED TO THE ENVIRONMENTAL CONDITIONS AND/OR AVERAGE ANNUAL LOWEST TEMPERATURE THAT CAN BE ANTICIPATED FOR THE GEOGRAPHIC REGION OF THE FACILITY.

13 ALL INTERIOR AND/OR EXTERIOR COMPONENTS, DEVICES OR SYSTEMS EQUIPMENT EXPOSED TO THE GENERAL POPULATION SHALL BE INSTALLED IN SECURED EQUIPMENT ENCLOSURES WITH TAMPER SWITCHES AND INSTALLED IN SUCH A MANNER THAT RESISTS TAMPERING AND/OR REMOVAL WITHOUT THE USE OF SPECIALIZED TOOLS.

14 FOR EQUIPMENT INSTALLATIONS REQUIRING COORDINATION WITH OTHER TRADES THE CONTRACTOR SHALL PROVIDE ALL TEMPLATES, BACKBOXES AND EQUIPMENT ANCHOR BOLTS FOR MOUNTING OR FLUSH MOUNTING PREPARATION, (E.G. PEDESTALS OR OTHER DEVICES REQUIRING MOUNTING ON WALLS, CONCRETE PADS OR OTHER MATERIALS). COORDINATE DELIVERY OF TEMPLATES AND EQUIPMENT WITH ALL AFFECTED CONTRACTORS.

15 ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (LATEST VERSION BEING ENFORCED), AND ALL OTHER APPLICABLE CODES AND STANDARDS BEING ENFORCED BY THE AUTHORITY HAVING JURISDICTION.

16 THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS OR INSTRUCTIONS FOR CONSTRUCTION SAFETY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR ANY WORKMAN'S OR TRANSIENT'S SAFETY, OR FOR THE ADEQUACY OF EQUIPMENT, BUILDING COMPONENTS, WORK AIDS, OR ANY NECESSITY TO WORK ON ENERGIZED ELECTRICAL COMPONENTS. FURTHER, NO SUPERINTENDENCE IS INCLUDED OR IMPLIED.

17 ALL SYSTEMS AND EQUIPMENT SHALL BE INSTALLED AND WIRED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

18 ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE TESTED AND LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY.

19 THE CONTRACTOR SHALL COORDINATE CONDUIT ROUTING (PLAN AND ELEVATION) WITH THE LIGHTING (NEW AND EXISTING), CEILING ELEVATION, STRUCTURE, DUCTWORK, PIPING, ETC. REQUIRED FOR THE COMPLETION OF THE PROJECT, PRIOR TO INSTALLATION.

20 THE CONTRACTOR SHALL SECURE AND PROTECT THE BUILDING AND/OR WORK AREA WITH FIRE RETARDANT TEMPORARY PLYWOOD PARTITIONS (WITH LOCKING DOORS), ETC. CLOSE ALL EXISTING OPENINGS AS REQUIRED. COORDINATE THIS WORK WITH THE OWNERS REPRESENTATIVE PRIOR TO STARTING. IF TEMPORARY PARTITIONS IMPEDE THE FLOW OF EGRESS TO REQUIRED EGRESS DOORS AND STAIRS, THE CONTRACTOR SHALL PROVIDE EXIT SIGNS, AND SIGNAGE INDICATING SUCH.

21 THE CONTRACTOR SHALL CAULK ALL JOINTS BETWEEN METAL FRAMES AND EXISTING CONDITIONS. THIS APPLIES TO BOTH INTERIOR AND EXTERIOR INSTALLATIONS.

22 THE DIMENSIONS SHOWN ON THE DRAWINGS ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO PERFORMING ANY WORK.

23 THE CONTRACTOR SHALL INSTALL ALL CONDUITS CONCEALED UNLESS NOTED OTHERWISE. EXPOSED CONDUIT SHALL ONLY BE INSTALLED IN CHASES, EXPOSED CEILING AREAS, JANITOR CLOSETS, AND MECHANICAL / ELECTRICAL ROOMS.

24 ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED AND/OR BONDED PER THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE. PROVIDE ALL GROUNDING AND/OR BONDING COMPONENTS NOT EXPLICITLY SHOWN ON THE DOCUMENTS.

25 THE CONTRACTOR SHALL PROVIDE TYPEWRITTEN PANELBOARD DIRECTORIES, INDICATING THE LOADS SERVED BY THE RESPECTIVE PANELS. AMEND AS REQUIRED FOR AS-BUILT CONDITIONS. PROVIDE ELECTRONIC VERSIONS OF THE PANELBOARD SCHEDULES FOR FUTURE USE BY THE OWNER.

26 THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER PRIOR TO STARTING ALL PHASES OF THE PROJECT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER WHAT WORK, IF ANY, HAS TO BE COMPLETED DURING SECOND OR THIRD SHIFT. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOUR ADVANCE NOTICE BEFORE ANY SHUTDOWNS. COORDINATE WITH M.O.P. NOTES AND UTILITY.

27 THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY POWER CONNECTIONS TO KEEP AREAS UP AND OPERATIONAL DURING THE CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THESE REQUIREMENTS WITH THE OWNER.

28 THE VERBIAGE ON THE DRAWINGS INDICATING TYPES OF MATERIALS TO BE ENCOUNTERED IS INTENDED TO AID THE ELECTRICAL CONTRACTOR IN UNDERSTANDING THE VARIOUS CONDITIONS LIKELY TO BE ENCOUNTERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING QUANTITIES OF MATERIALS REQUIRED TO COMPLETE THE PROJECT.

29 THE LOCATIONS OF EXISTING UTILITIES, STRUCTURE AND OTHER CONDITIONS SHOWN ON THE PLANS ARE APPROXIMATE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO BEGINNING ANY WORK.

30 THE CONTRACTOR SHALL PROVIDE ALL NEW OPENINGS IN EXISTING PARTITIONS, EXTERIOR WALLS, FLOORS, AND ROOFS FOR THE INSTALLATION OF ANY NEW ELECTRICAL WORK. FURNISH AND INSTALL ALL REQUIRED LINTELS AND SLEEVES FOR THIS NEW WORK. ALL CONDUITS SHALL HAVE SLEEVES INSTALLED. ALL SLEEVES INSTALLED THROUGH EXTERIOR WALLS SHALL HAVE LINK SEALS INSTALLED.

31 THE CONTRACTOR SHALL PROTECT ALL EXISTING MATERIALS THAT ARE TO REMAIN IN PLACE FROM DAMAGE. ANY DAMAGE TO EXISTING FINISHES, MATERIALS, ETC., SHALL BE REPLACED BY THE CONTRACTOR TO MATCH THE ADJACENT FINISH.

32 THE CONTRACTOR SHALL MAINTAIN THE BUILDING IN WEATHERTIGHT AND WATERPROOF CONDITION THROUGHOUT THE DURATION OF THEIR WORK. DO NOT LEAVE HOLES THROUGH WALLS AND/OR ROOFS OPEN TO THE ELEMENTS WHEN NO WORK IS OCCURRING IN THOSE AREAS.

33 PROVIDE ALL JUNCTION BOXES, PULL BOXES AND OTHER PULL POINTS AS REQUIRED TO MEET THE MAXIMUM NUMBER OF BENDS PER NEC REQUIREMENTS. NOT ALL CONDUITS, PULL BOXES AND OTHER RACEWAY ITEMS ARE INDICATED ON THE DOCUMENTS. THE CONTRACTOR SHALL PROVIDE A COMPLETE RACEWAY SYSTEM MEETING THE REQUIREMENTS OUTLINED IN THE DRAWINGS AND SPECIFICATIONS.

34 DISTRIBUTION EQUIPMENT SHALL BE AIC RATED, AND ANY CIRCUIT BREAKERS SELECTED AND SET BASED ON THE OUTCOME OF THE CONTRACTORS OVERCURRENT PROTECTIVE DEVICE COODINATION STUDY. STUDY SHALL INCLUDE ALL ELEMENTS OF THE EXISTING AND NEW DISTRIBUTION SYSTEM REQUIRED TO ACCURATLY SIZE AND RATE THE NEW EQUIPMENT ADDED AS PART OF THIS PROJECT.

35 ARC FLASH LABELS SHALL BE PROVIDED TO ALL NEW EQUIPMENT BASED ON THE OUTCOME OF THE CONTRACTORS ARC FLASH STUDY (SEE SPECIFICATIONS FOR ADDITIONAL STUDY REQUIREMENTS). ANY EQUIPMENT MODIFIED AS PART OF THIS PROJECT SHALL ALSO BE INCLUDED IN THE ARC FLASH STUDY, AND RE LABELLED AS REQUIRED.

36 THESE DRAWINGS DO NOT INDICATED ALL CONDUITS INTERCONNECTING EQUIPMENT, AND WHERE CONDUITS ARE INDICATED, THE ROUTING IS APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR THE ROUTING AND INSTALLATION OF ALL CONDUIT IN COORDINATION WITH OTHER TRADES AND EXISTING CONDITIONS.

37 PROVIDE ALL JUNCTION BOXES AND OTHER PULL POINTS AS REQUIRED FOR EASE OF PULLING AND A CODE COMPLIANT INSTALLATION. ALL JUNCTION BOXES AND OTHER PULL POINTS SHALL BE ACCESSIBLE

38 MULTIWIRE BRANCH CIRCUITS ARE NOT PERMITTED, ALL SINGLE POLE BRANCH CIRCUITS SHALL HAVE A DEDICATED NEUTRAL.

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100% CONSTRUCTION DOCUMENTS

#	Revision	Date

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AE Works Project Number: 16036

Drawing Title: ELECTRICAL SYMBOLS, ABBREVIATIONS AND NOTES

Approved: Project Director

Project Title: REPLACE GENERATOR, BUILDING 78

Location: VAMC, BATH, NEW YORK

Date: 03-29-17 | **Checked:** GG | **Drawn:** TA

Project Number: 528A6-16-614EM

Building Number: 78

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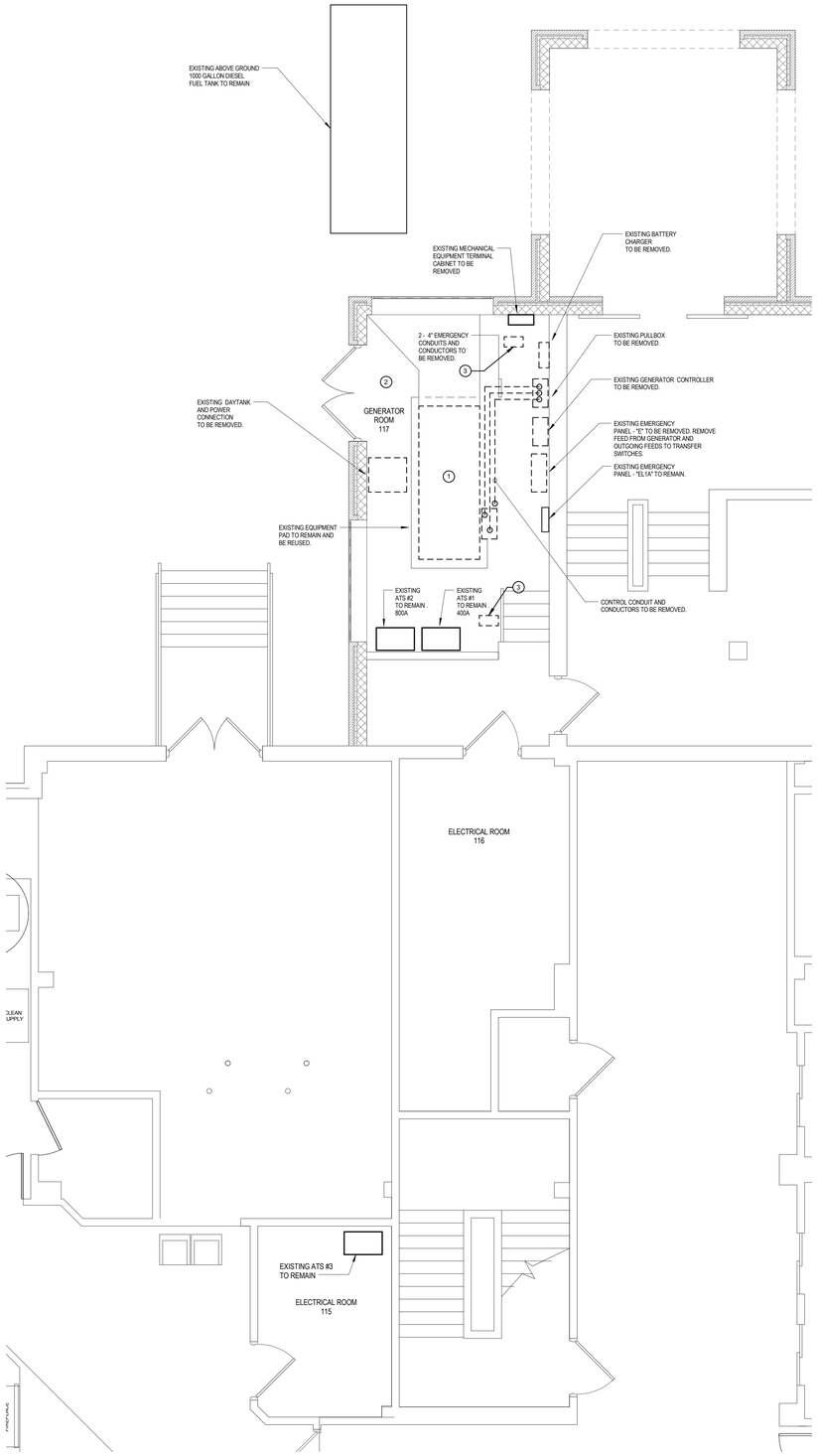

1 PARTIAL FIRST FLOOR ELECTRICAL DEMOLITION PLAN
1/4" = 1'-0"

KEY NOTES:

1. REMOVE EXISTING GENERATOR IN ITS ENTIRETY, INCLUDING EXHAUST MUFFLER, PIPING, TERMINAL BOX CONDUITS, CONDUCTORS, CONTROL CABLES AND CONDUITS, BATTERIES, AND ALL ASSOCIATED ACCESSORIES.
2. EXISTING ELECTRICAL ITEMS SUCH AS LIGHTING FIXTURES, RECEPTACLES, FIRE ALARM, AND SECURITY EQUIPMENT NOT ASSOCIATED WITH THE GENERATOR SHALL REMAIN UNLESS NOTED OTHERWISE.
3. DISCONNECT EXISTING UNIT HEATER AS REQUIRED FOR DEMOLITION AND/OR NEW WORK AND RECONNECT WHEN REINSTALLED.

GENERAL NOTE:

IN THE EVENT THAT EXISTING ITEMS ARE DAMAGED OR DESTROYED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPLACE WITH EXACT MATCH.

NORTH

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CONSULTANTS:

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PARTIAL FIRST FLOOR ELECTRICAL DEMOLITION PLAN

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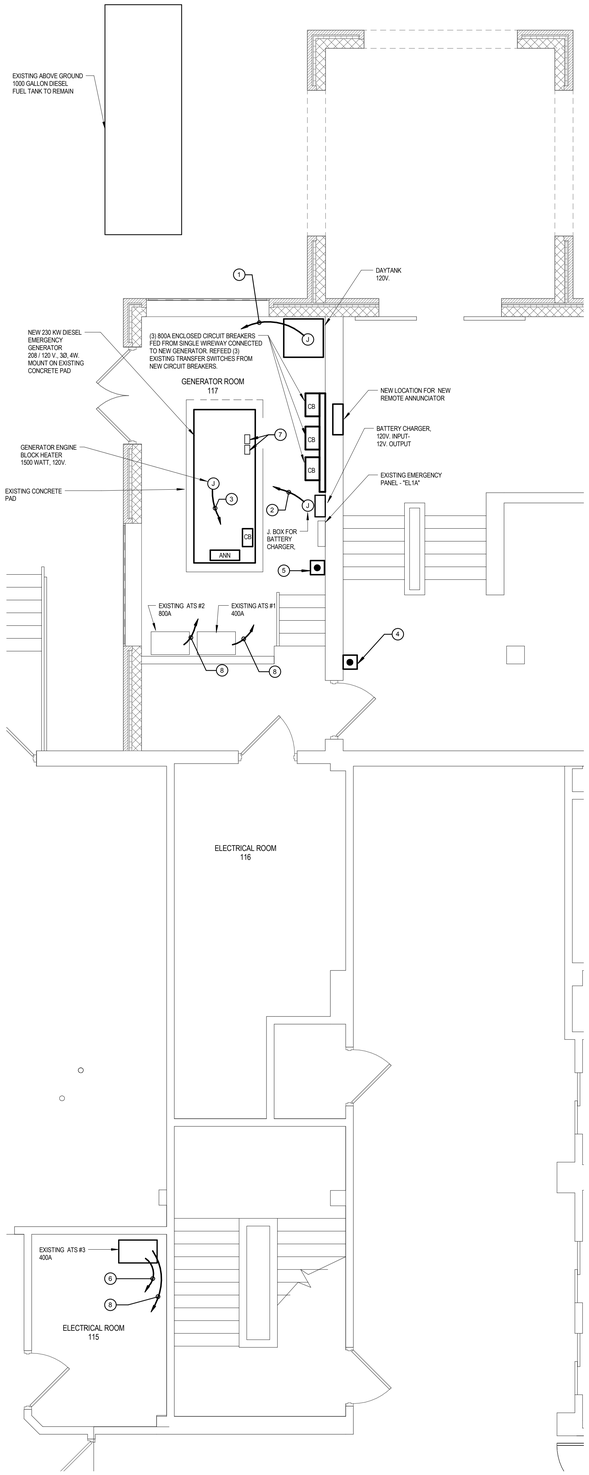

1 PARTIAL FIRST FLOOR POWER PLAN
1/4" = 1'-0"

KEY NOTES:

1. BRANCH CIRCUIT HOMERUN TO EXISTING 20A, 1P CIRCUIT BREAKER IN PANEL EL1A LABELED DAY TANK.
2. BRANCH CIRCUIT HOMERUN TO EXISTING 20A, 1P CIRCUIT BREAKER IN PANEL EL1A LABELED BATTERY CHARGER.
3. BRANCH CIRCUIT HOMERUN TO NEW 20A, 1P CIRCUIT BREAKER IN PANEL EL1A. REMOVE EXISTING 30A, 1P BREAKER LABELED ENGINE BLOCK HEATER AND REPLACE WITH NEW 20A, 1P.
4. GENERATOR EMERGENCY SHUTOFF SWITCH.
5. ATS #3 REMOTE START / TOP PANEL. PROVIDE ATS CONTROL WITH GENERATOR START AND STOP CONTROL. PROVIDE STATUS OF ATS SOURCE AVAILABILITY AND SOURE CONNECTED VIA INDICATOR LAMPS. PROVIDE START / STOP CONTROL WITH KEY SWITCHES. PANEL ENCLOSURE SHALL BE NEMA 1. START / STOP CONTROL PANEL SHALL BE PROVIDED BY THE SAME MANUFACTURE AS ATS #3.
6. PROVIDE 10 #12 AWG FROM EXISTING ATS #3 TO NEW REMOTE START / STOP PANEL.
7. APPROXIMATE LOCATION OF NEW GENERATOR BATTERIES.
8. NEW GENERATOR START SIGNAL CONDUCTORS AND CONDUIT TO GENERATOR.

NORTH

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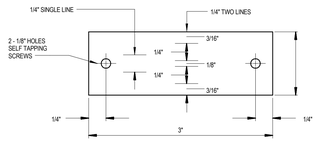


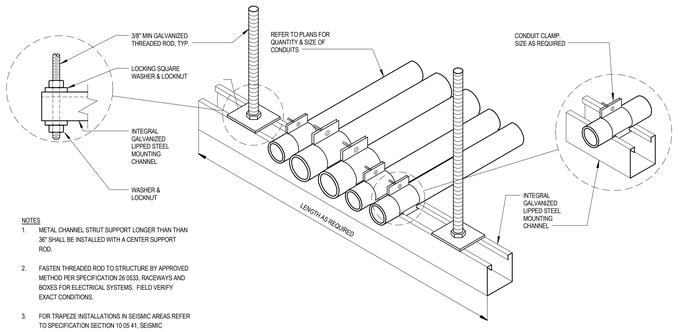
NOTES:

1. BLACK MICARTA WITH WHITE ENGRAVED LETTERS, 3/8" HIGH
2. FASTEN TO EQUIPMENT WITH SELF TAPPING SCREWS.
3. PROVIDE NAMEPLATES FOR THE FOLLOWING:

A. PANELS, MDP POSITIONS, OVENS, COOLERS
B. FUSED SAFETY SWITCHES, STARTERS, CONTROL PANELS
C. CONTROL DEVICES OUT OF SIGHT OF CONTROLLED EQUIPMENT
D. ALL CONTROL DEVICES, SWITCH AND PILOT LIGHTS, REMOTE SWITCHES, ETC.

1 NAME PLATE DETAIL

NOT TO SCALE

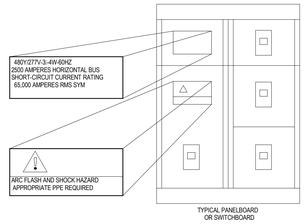


NOTES

1. METAL CHANNEL STRUT SUPPORT LONGER THAN THAN 36" SHALL BE INSTALLED WITH A CENTER SUPPORT ROD.
2. FASTEN THREADED ROD TO STRUCTURE BY APPROVED METHOD PER SPECIFICATION 26 0529. RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS. FIELD VERIFY EXACT CONDITIONS.
3. FOR TRAPEZE INSTALLATIONS IN SEISMIC AREAS REFER TO SPECIFICATION SECTION 10 05 41, SEISMIC RESTRAINT REQUIREMENTS FOR NON-STRUCTURAL COMPONENTS.

2 CONDUIT TRAPEZE MOUNTING DETAIL

NOT TO SCALE

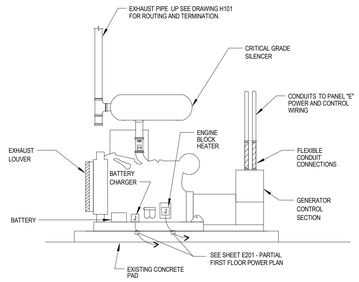


NOTE:

THE PROSPECTIVE SYMMETRICAL FAULT CURRENT AT A NOMINAL VOLTAGE TO WHICH AN APPARATUS OR SYSTEM IS ABLE TO BE CONNECTED WITHOUT SUSTAINING DAMAGE EXCEEDING ACCEPTANCE CRITERIA, SHALL BE DISPLAYED ON THE EXTERIOR OF THE STRUCTURE, OR ON THE INSIDE COVER OF A PANELBOARD.

3 EQUIPMENT LABELING REQUIREMENTS

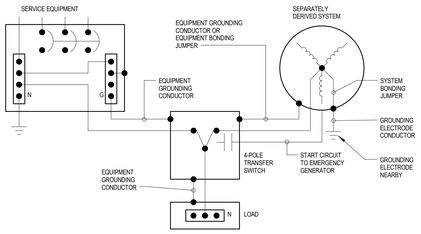
NOT TO SCALE



4 EMERGENCY GENERATOR REQUIREMENTS

NOT TO SCALE

208Y/120V-3 Ø - 4 WIRE SYSTEM



5 EMERGENCY GENERATOR GROUNDING 4-POLE TRANSFER SWITCH DETAIL

NOT TO SCALE

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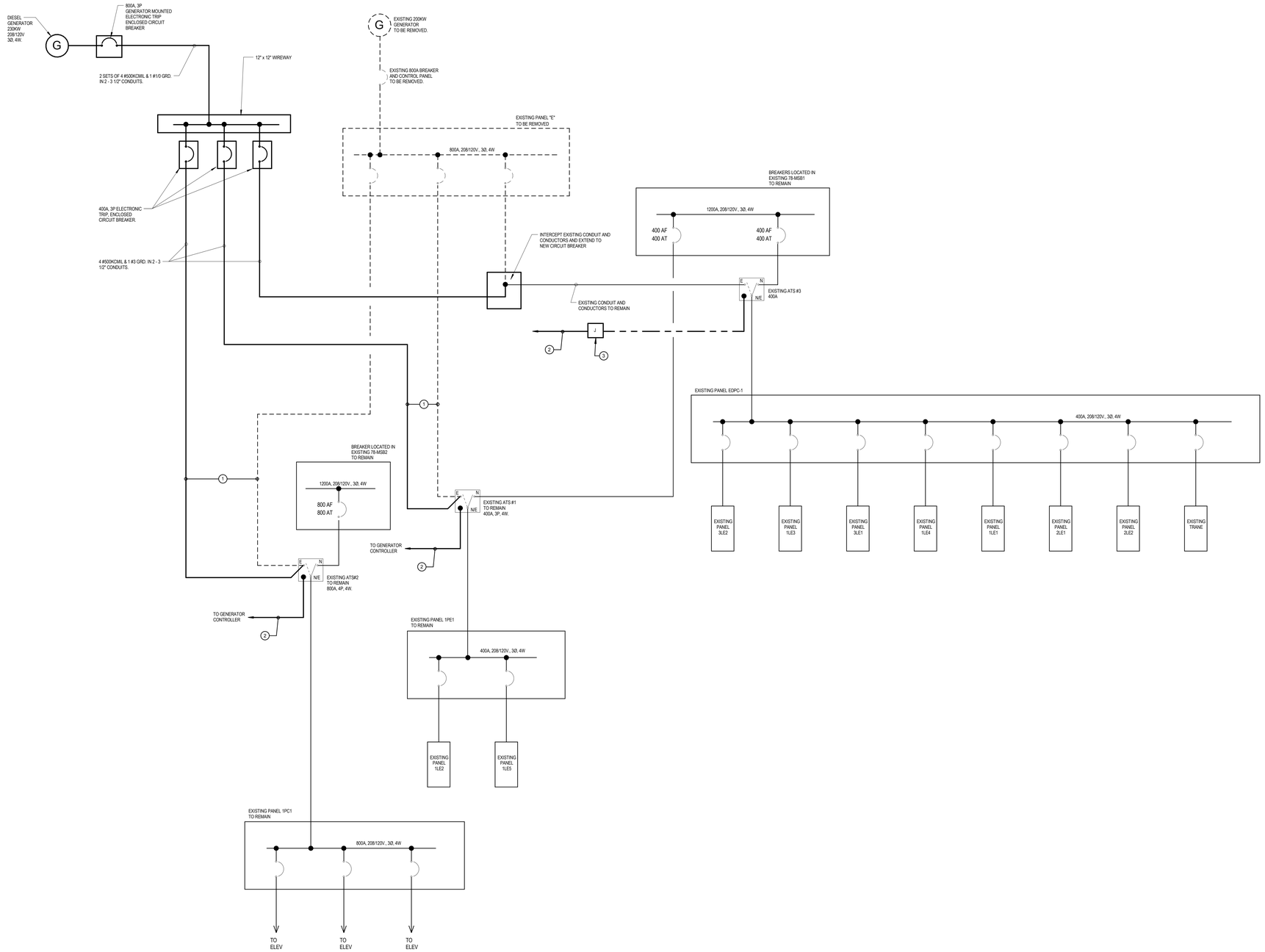

1 PARTIAL SINGLE LINE DIAGRAM
NOT TO SCALE

KEY NOTES:

1. DISCONNECT AND REMOVE EXISTING EMERGENCY CONDUCTORS AND LAND NEW CONDUCTORS. PROVIDE LUGS AS REQUIRED.
2. NEW GENERATOR START SIGNAL CONDUIT AND CONDUCTORS
3. INTERCEPT EXISTING START SIGNAL CONDUIT IN GENERATOR ROOM. PROVIDE NEW CONDUCTORS, SIZE AND QUANTITY TO MATCH EXISTING TO NEW GENERATOR CONTROLLER.

FULLY SPRINKLERED
100% CONSTRUCTION DOCUMENTS

#	Revision	Date

CONSULTANTS:

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AE Works Project Number: 16036

Drawing Title: PARTIAL SINGLE LINE DIAGRAM

Approved: Project Director

Project Title: REPLACE GENERATOR, BUILDING 78

Location: VAMC, BATH, NEW YORK

Date: 03-29-17 | Checked: GG | Drawn: TA

Project Number: 528A6-16-614EM

Building Number: 78

Drawing Number: E701

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08-6231

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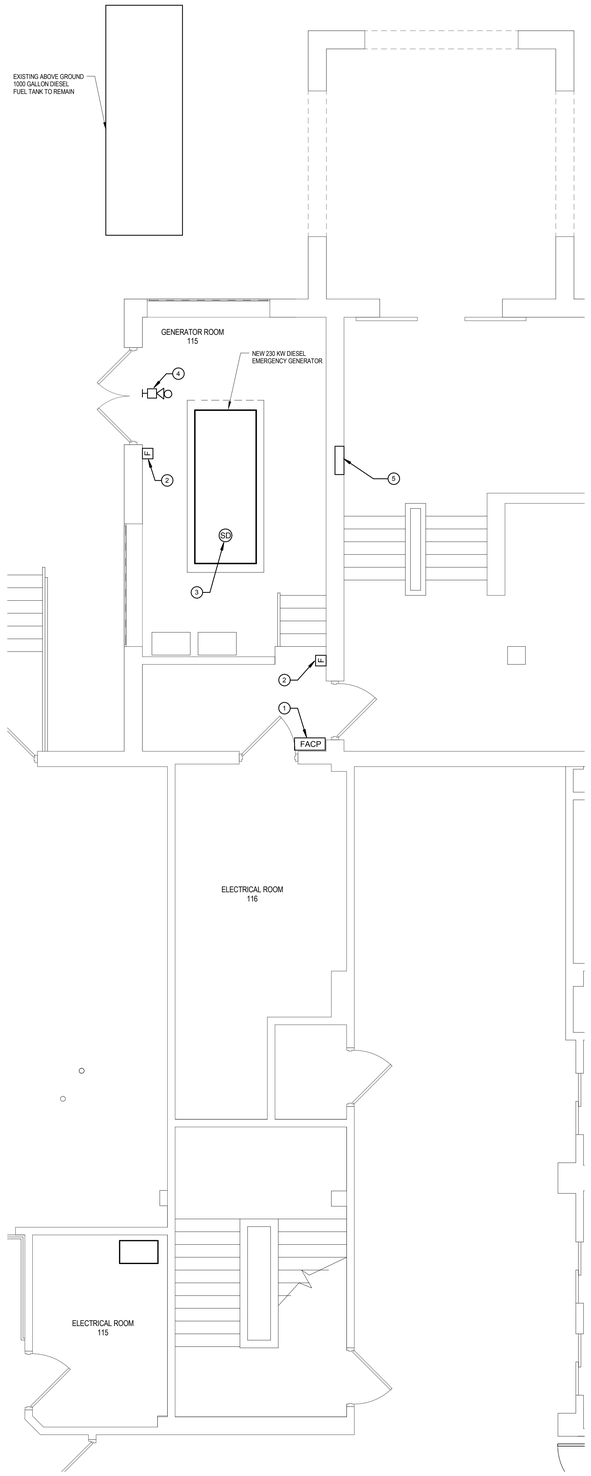

1 PARTIAL FIRST FLOOR FIRE DETECTION PLAN
1/4" = 1'-0"

KEY NOTES:

1. EXISTING FIRE ALARM CONTROL PANEL TO REMAIN.
2. EXISTING FIRE ALARM ALARM MANUAL PULL STATION TO REMAIN.
3. EXISTING SMOKE DETECTOR TO REMAIN.
4. EXISTING FIRE ALARM COMBINATION HORN / STROBE / BELL TO REMAIN.
5. EXISTING FIRE ALARM ANNUNCIATOR PANEL TO REMAIN.

NORTH

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Drawing Title
PARTIAL FIRST FLOOR FIRE DETECTION PLAN

Approved: Project Director

Project Title:
REPLACE GENERATOR,
BUILDING 78

Location:
VAMC, BATH, NEW YORK

Date: 03-29-17
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Project Number 528A6-16-614EM
Building Number 78
Drawing Number EF201

Office of Construction and Facilities Management
Department of Veterans Affairs

VA FORM 08-6231

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