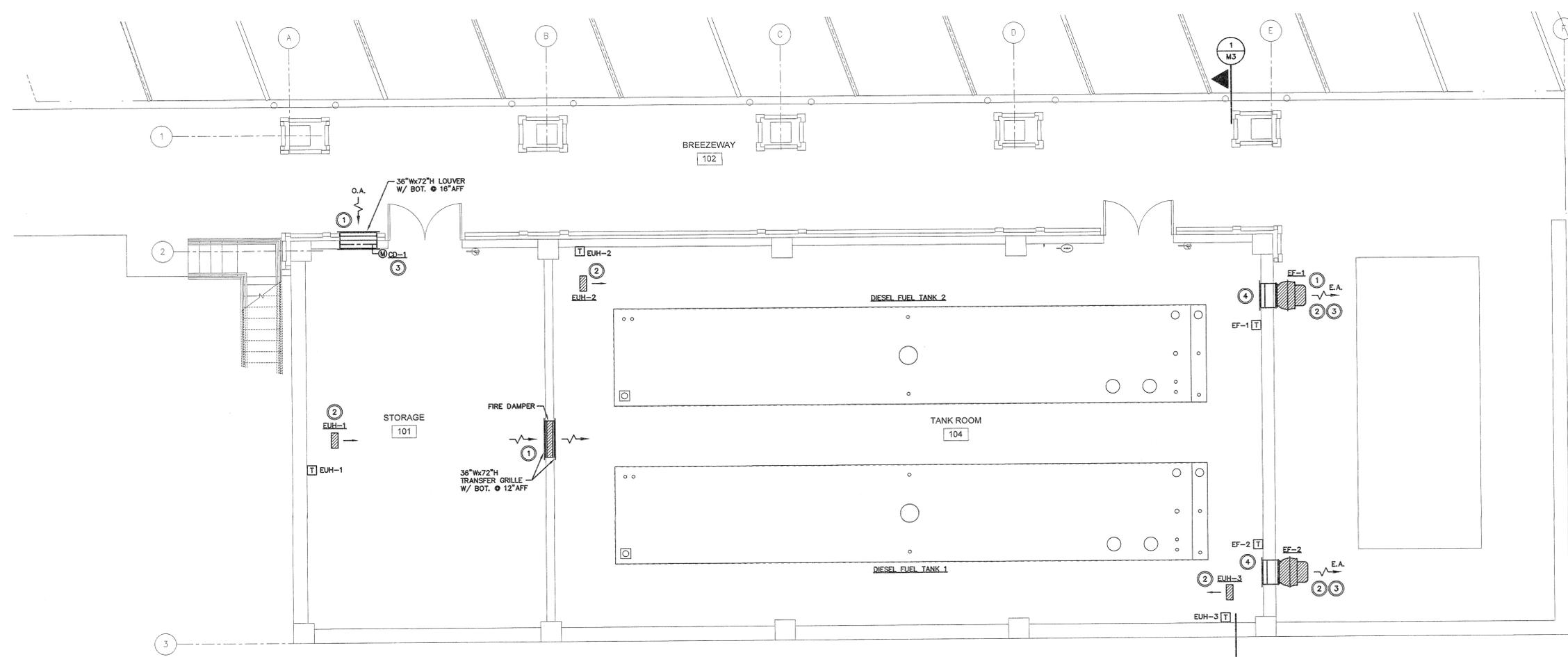
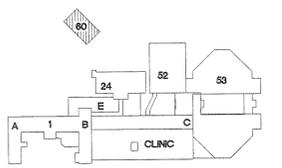


NOTE: CONTRACTOR IS ADVISED TO VISIT THE SITE TO OBSERVE EXISTING CONDITIONS PRIOR TO BID. ALL CONTRACTOR PERSONNEL ARE REQUIRED TO ATTEND OSHA TRAINING TO MEET OWNER REQUIREMENTS. ALL CONTRACTOR PERSONNEL ARE ALSO REQUIRED TO COMPLETE SECURITY CLEARANCE REQUIREMENTS AND TRAINING.

- NOTES:
- 1 NEW MECHANICAL WORK SHOWN BOLD (TYPICAL).
  - 2 COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR. MOUNT UNIT AS HIGH AS POSSIBLE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL.
  - 3 INTERLOCK INTAKE DAMPER WITH EACH VENTILATION FAN (EF-1 AND EF-2). EACH FAN SHALL START AFTER DAMPER END SWITCH MAKES CONTACT. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.
  - 4 COVER WALL OPENING WITH 1/2" X 1/2" EXPANDED ALUMINUM WIRE MESH.



1 FIRST FLOOR - MECHANICAL PLAN



KEY PLAN  
SCALE: NO SCALE  
PROJECT NORTH

CAD#25119 JUN-26-13 L&B PROJ. #6100

SUBMISSION	DATE
100% Construction Documents	6-28-13
100% Construction Documents (For Owner Review)	6-24-13
99% Construction Documents	2-28-13
68% Design Development	11-21-12
33% Schematic Design	8-3-12
Revisions:	

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APPROVED:	APPROVED: Infection Control Nurse	APPROVED: Chief of Staff
APPROVED:	APPROVED: Industrial Hygienist	APPROVED: Chief of Engineering Service

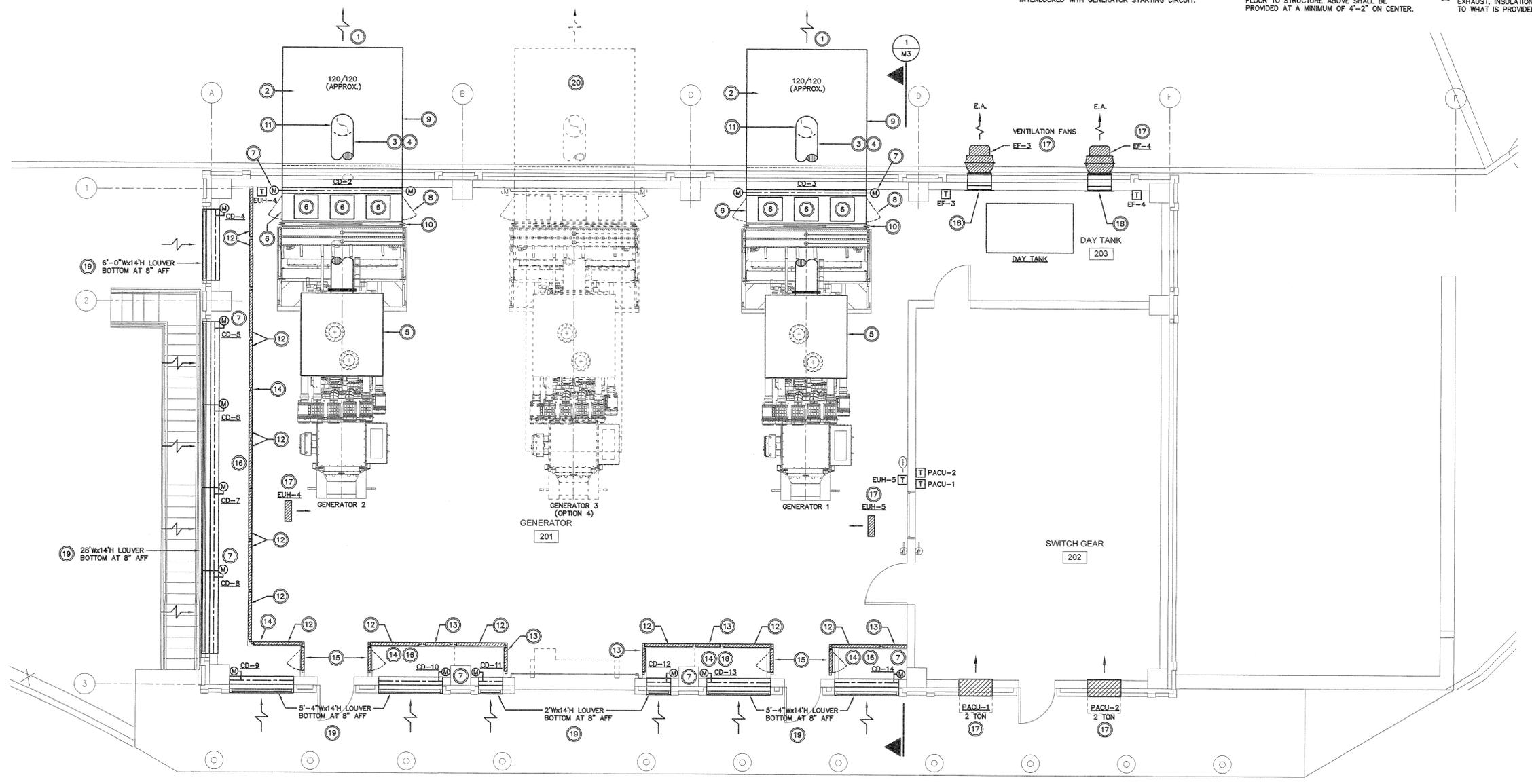
PROJECT NUMBER 623-12-109	CONTRACT NO.:	Designed By MRB	Drawn By WMK	Checked By MRB
BUILDING NUMBER 60	AUTOCAD FILE NAME:	Location		

DRAWING TITLE: <b>FIRST FLOOR - MECHANICAL PLAN</b>	
PROJECT TITLE: <b>FULL FACILITY GENSET</b>	

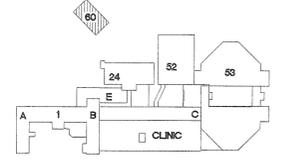
Date 6-28-2013	DRAWING NO.:
Scale	<b>M1</b>

Department of Veterans Affairs

- NOTES:**
- MECHANICAL WORK SHOWN BOLD (TYPICAL).
  - 1/2" x 1/2" EXPANDED ALUMINUM MESH OVER DUCT OPENING. PROVIDE 1-1/2" x 1-1/2" x 1/8" ALUMINUM ANGLE STIFFENERS TO SUPPORT WIRE MESH ON 24" CENTERS EACH WAY.
  - 18" WELDED 304 STAINLESS STEEL EXHAUST TUBE.
  - 2" THICK SCHULLER (OR APPROVED EQUAL) THERMO-12 CALCIUM SILICATE INSULATION WITH ALUMINUM JACKET OVER EXHAUST PIPE AND MUFFLER.
  - MUFFLER WITH MOUNTING BRACKET SUPPORTS AND CLAMPS. SUPPORT MUFFLER AND EXHAUST PIPE WITH SPRING ISOLATORS, WMC MODEL RSH-30A-97. COORDINATE WITH ELECTRICAL CONTRACTOR TO OBTAIN MUFFLER FROM GENERATOR MANUFACTURER.
  - (S) 18" x 18" RUSKIN (OR APPROVED EQUAL) MODEL PRD18 PRESSURE RELIEF DOORS, SET AT 3" W.G. PRESSURE RELIEF. 3 RELIEF DOORS ACROSS TOP AND 1 RELIEF DOOR ON EACH SIDE.
  - SPRING OPEN CONTROL DAMPER WITH ELECTRIC OPERATOR (TYPICAL). DAMPER SHALL BE INTERLOCKED WITH GENERATOR STARTING CIRCUIT.
  - 24" x 72" DOUBLE WALL INSULATED ACCESS DOORS (EACH SIDE).
  - ACOUSTICAL PERFORATED PANELS.
  - VENTFABRICS (OR APPROVED EQUAL) MODEL VENTSL HIGH TEMPERATURE FLEXIBLE DUCT CONNECTOR.
  - 45' SLANT CUT ON EXHAUST TUBE DISCHARGE. PROVIDE 1/2" ALUMINUM MESH OVER OPENING.
  - 4" W x 18" H FILTER SECTION WITH (18) 24" x 24" x 2" PLEATED FARR 30/30 FILTERS IN HOLDING FRAME.
  - 2" W x 16" H FILTER SECTION WITH (8) 24" x 24" x 2" PLEATED FARR 30/30 FILTERS IN HOLDING FRAME.
  - FIELD FABRICATE SHEET METAL PLENUM WITH UNISTRUT FRAME TO HOLD FILTER SECTIONS. EXTEND PLENUM FROM FLOOR TO BOTTOM OF CEILING STRUCTURE AND SEAL AIR TIGHT AT ALL JOINTS AND CONNECTIONS AT WALLS, FLOOR, AND STRUCTURE. UNISTRUT FROM FLOOR TO STRUCTURE ABOVE SHALL BE PROVIDED AT A MINIMUM OF 4'-2" ON CENTER.
  - RUSKIN (OR APPROVED EQUAL) 24" W x 72" H MODEL GPAD ACCESS DOOR IN SHEET METAL PLENUM. TYPICAL ONE DOOR FOR EACH FILTER "ROOM". INSTALL UNISTRUT BRACING ABOVE DOOR. INSTALL 2" W x 8" H FILTER SECTION IN REMAINING PLENUM SPACE ABOVE EACH DOOR (4 - 24" x 24" x 2" FILTERS).
  - ALL FILTERS ARE TO BE ACCESSED FOR MAINTENANCE AND REPLACEMENT FROM INSIDE EACH FILTER "ROOM". FILTER HOLDING FRAME SHALL BE FARR (OR APPROVED EQUAL) FAST FRAME WITH COMPRESSION TABS TO HOLD FILTER WITHOUT USE OF CLIPS OR FASTENERS. PROVIDE ALL REQUIRED STIFFENERS, SCREWS, AND NUTS TO CONNECT HOLDING FRAMES TOGETHER.
  - COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR. MOUNT UNIT AS HIGH AS POSSIBLE. COORDINATE EXACT LOCATION WITH ARCHITECTURAL.
  - COVER WALL OPENING WITH 1/2" x 1/2" EXPANDED ALUMINUM WIRE MESH.
  - COORDINATE INSTALLATION OF INTAKE AIR WALL LOUVER WITH GENERAL CONTRACTOR.
  - AS PART OF OPTION 4 FOR GENERATOR 3, PROVIDE EXHAUST, INSULATION, ACCESS DOORS, ETC. SIMILAR TO WHAT IS PROVIDED FOR GENERATORS 1 & 2.



**1 SECOND FLOOR - MECHANICAL PLAN**



**KEY PLAN**  
SCALE: NO SCALE  
PROJECT NORTH

CAD#25112 JUN-26-13 L&B PROJ. #6100

SUBMISSION	DATE
100% Construction Documents	6-28-13
100% Construction Documents (For Owner Review)	6-24-13
99% Construction Documents	2-28-13
66% Design Development	11-21-12
33% Schematic Design	8-3-12

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APPROVED:	APPROVED: Infection Control Nurse	APPROVED: Chief of Staff
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<b>DRAWING TITLE:</b> SECOND FLOOR - MECHANICAL PLAN	
<b>PROJECT NUMBER:</b> 623-12-109	<b>CONTRACT NO.:</b>
<b>BUILDING NUMBER:</b> 60	<b>AUTOCAD FILE NAME:</b>

<b>PROJECT TITLE:</b> FULL FACILITY GENSET			Date 6-28-2013
Designed By MRB			Scale
Drawn By WMK	Checked By MRB	DRAWING NO: M2	

**Department of Veterans Affairs**

**MECHANICAL LEGEND**

CC	CANVAS CONNECTION	EAT	ENTERING AIR TEMPERATURE
◇	DIFFUSER OR GRILLE NOTATION	TEMP	TEMPERATURE
CFM	CUBIC FEET PER MINUTE OF AIR	UH	UNIT HEATER
⊖	THERMOSTAT	BTUH	BTU PER HOUR
⊕	HUMIDISTAT	MBTUH	THOUSANDS OF BTU PER HOUR
⊞	TEMPERATURE SENSOR	GPM	GALLONS PER MINUTE
⊞	HUMIDITY SENSOR	RPM	REVOLUTIONS PER MINUTE
BDD	BACKDRAFT DAMPER	TDH	TOTAL DYNAMIC HEAD
VD	VOLUME DAMPER	DIA	DIAMETER
FD	FIRE DAMPER	CENT	CENTRIFUGAL
	DUCTWORK WITH TURNING VANES (DOUBLE WALL). SIZE INDICATED IS CLEAR INSIDE DIMENSION.	PSI	POUNDS PER SQUARE INCH
	VOLUME DAMPER IN DUCTWORK	ΔP	PRESSURE DIFFERENCE
	SUPPLY AIR DUCT UP/DOWN	HP	HORSEPOWER
	RETURN OR EXHAUST AIR DUCT UP/DOWN	KW	KILOWATTS
	45° TAKE-OFF PER SMACNA FIG. 2-6	PH	PHASE
OA	OUTSIDE AIR	W.G.	WATER GAUGE
RA	RETURN AIR	S.P.	STATIC PRESSURE
SA	SUPPLY AIR	N.O.	NORMALLY OPEN
BOT	BOTTOM ELEVATION	N.C.	NORMALLY CLOSED
AFF	ABOVE FINISHED FLOOR	B.S.	BIRDSCREEN
DN	DOWN	ALUM	ALUMINUM
CONN	CONNECTION OR CONNECTED	CS	CONDENSER WATER SUPPLY
	CONNECTION POINT TO EXISTING	CR	CONDENSER WATER RETURN
AHU	AIR HANDLING UNIT	CWS	CHILLED WATER SUPPLY
EF	EXHAUST FAN	CWR	CHILLED WATER RETURN
EWT	ENTERING WATER TEMPERATURE	HWS	HEATING WATER SUPPLY
LWT	LEAVING WATER TEMPERATURE	HWR	HEATING WATER RETURN
		BAS	BUILDING AUTOMATION SYSTEM

PIPING LEGEND		NOTE: ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THIS JOB	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
—HWS—	HEATING WATER SUPPLY	—FC—	FLEXIBLE CONNECTION
—HWR—	HEATING WATER RETURN	—PR—	PIPE REDUCER
—CWS—	CHILLED WATER SUPPLY	—V—	VENTURI WATER FLOW MEASURING DEVICE
—CWR—	CHILLED WATER RETURN	—T—	TRAP (F&T, INVERTED BUCKET, THERMOSTATIC)
—HCWS—	COMBINATION HOT & CHILLED WATER SUPPLY	—U—	UNION
—HCWR—	COMBINATION HOT & CHILLED WATER RETURN	—TW—	TRAP WASTE (BELOW FLOOR OR GRADE)
—CS—	CONDENSER WATER SUPPLY	—T—	THERMOMETER
—CR—	CONDENSER WATER RETURN	—AF—	AIR FILTER (ABOVE FLOOR)
—LPS—	LOW PRESSURE STEAM (5#-15#)	—SV—	SANITARY VENT (V)
—LPC—	LOW PRESSURE CONDENSATE	—SW—	SANITARY WASTE (BELOW FLOOR OR GRADE)
—MPS+—	MEDIUM PRESSURE STEAM (20#-100#)	—SS—	SANITARY SEWER
—MPC+—	MEDIUM PRESSURE CONDENSATE	—CO	CLEAN OUT
—HPS+—	HIGH PRESSURE STEAM (ABOVE 100#)	—AV—	ACID VENT
—HPC+—	HIGH PRESSURE CONDENSATE	—AW—	ACID WASTE
—DWS—	CHILLED DRINKING WATER SUPPLY	—SD—	STORM DRAIN
—DWR—	CHILLED DRINKING WATER RETURN	—D—	DRAIN
—THWS—	TEMPERED HEATING WATER SUPPLY	—FD—	FOOTING DRAIN
—THWR—	TEMPERED HEATING WATER RETURN	—BD—	BOILER BLOW DOWN
—SCW—	SOFT COLD WATER	—RD—	ROOF DRAIN
—SHW—	SOFT HOT WATER	—VIR—	VENT THRU ROOF
—180°	SANITIZING HOT WATER RETURN 180° F	—ATV—	ATMOSPHERIC VENT (STEAM OR HOT VAPOR)
—180°	SANITIZING HOT WATER SUPPLY 180° F	—FOS—	FUEL OIL SUPPLY
—C—	COLD WATER	—FOR—	FUEL OIL RETURN
—H—	HOT WATER SUPPLY 140° F	—WSP—	WET STAND PIPE
—HR—	HOT WATER RETURN 140° F	—MG—	MEDIUM PRESSURE GAS
—RL—	REFRIGERANT LIQUID	—G—	GAS (LOW PRESSURE)
—RS—	REFRIGERANT SUCTION	—FP—	FIRE PROTECTION
—RHG—	REFRIGERANT HOT GAS	—A—	COMPRESSED AIR
—G—	GATE VALVE	—MA—	MEDICAL AIR
—BV—	BUTTERFLY VALVE	—VAC—	VACUUM (SUCTION)
—GV—	GLOBE VALVE	—OX—	OXYGEN
—CV—	CHECK VALVE (WITH FLOW ARROW)	—A—	AIR OUTLET
—BV—	BALANCING VALVE (CIRCUIT SETTER)	—V—	VACUUM OUTLET
—GC—	GAS COCK	—O—	OXYGEN OUTLET
—2—	2-WAY VALVE (PNEU. OR ELEC.)	—FD—	FLOOR DRAIN
—3—	3-WAY VALVE (PNEU. OR ELEC.)	—SD—	SHOWER DRAIN
—BV—	BALL VALVE	—AD—	AREA DRAIN
—SV—	SOLENOID VALVE	—RD—	ROOF DRAIN
—PV—	PLUG VALVE	—HB—	HOSE BIBB
—RV—	RELIEF VALVE	—WH—	WALL HYDRANT
—PRV—	PRESSURE REDUCING VALVE (PRV)	—YH—	YARD HYDRANT IN 1"x1/2" CONC. PAD
—S—	STRAINER	—CPE—	CONNECTION POINT TO EXISTING

CONTROL DAMPER SCHEDULE						NOTE: PROVIDE MANUFACTURER LISTED, OR APPROVED EQUAL
DAMPER DESIGNATION	DAMPER SIZE	SECTION QUANTITY	SECTION SIZE	DAMPER OPERATORS, QUANTITY	MANUFACTURER & REMARKS	
CD-1	36"x72"	2	36"x36"	2	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-2	120"x120"	4	60"x60"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-3	120"x120"	4	60"x60"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-4	6'-6"x14'	4	78"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-5	7'x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-6	7'x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-7	7'x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-8	7'x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-9	5'-4"x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-10	5'-4"x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-11	2'x14'	2	24"x84"	2	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-12	2'x14'	2	24"x84"	2	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-13	5'-4"x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	
CD-14	5'-4"x14'	4	84"x42"	4	RUSKIN CD-50, ELECTRIC, N.O., O.B.	

FAN SCHEDULE											NOTE: PROVIDE MANUFACTURER LISTED, OR APPROVED EQUAL
MARK	MANUFACTURER AND MODEL	SERVICE OR PURPOSE	TYPE	CFM	S.P. IN. W.G.	FAN/MOTOR RPM	HP	POWER SUPPLY V/PH/Hz	SONES	REMARKS	
EF-1, 2, 3, 4	COOK ACW-D 135W15D	VENTILATION	CENTRIF.	2,000	0.6	1499/1550	1/2	115/1/60	17.3	1,2,3,4,5,6	

REMARKS:  
 1. WALL MOUNTED, DIRECT DRIVE UNIT.  
 2. FACTORY WIRE DISCONNECT SWITCH.  
 3. BACKDRAFT DAMPER.  
 4. ALUMINUM BIRDSCREEN.  
 5. FAN SPEED CONTROLLER.  
 6. WALL INTAKE GRILLE.

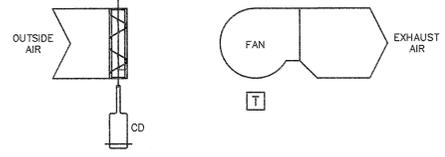
ELECTRIC UNIT HEATER SCHEDULE							NOTE: PROVIDE MANUFACTURER LISTED, OR APPROVED EQUAL
UNIT HEATER DESIGNATION	HEATER CAPACITY KW	TYPE UNIT	ENT. AIR TEMP. °F	POWER SUPPLY VOLTS/PH/Hz	AMPS	MOP	MANUFACTURER MODEL
EUH-1,2,3	3.3	HORIZONTAL	60	460/3/60	4.0	15	TRANE UHEC-033
EUH-4,5	20	HORIZONTAL	60	460/3/60	24.1	35	TRANE UHEC-073

DUCTLESS UNITARY SCHEDULE											NOTE: PROVIDE MANUFACTURER LISTED, OR APPROVED EQUAL
TAG	AREA SERVED	NOM. TONS	COOLING BTU/HR	HEATING BTU/HR	EER	REF.	POWER SUPPLY V/PH/Hz	RATED LOAD AMPS	MOP	MANUFACTURER MODEL	REMARKS
PACU-1,2	CONTROL ROOM	2	22,500	15,359	9	R410A	208/3/60	8.1	25	BARD W24A	1,2,3,4

REMARKS:  
 1. COOLING BTU/HR AT 105° AMBIENT OUTSIDE AIR TEMPERATURE AND INDOOR TEMPERATURE OF 80° D.B. AND 67° W.B.  
 2. OPTIONAL FACTORY INSTALLED ELECTRIC HEATING COIL (6 KW NOMINAL), 208/3/60, 4.50 KW, 12.5 AMPS.  
 3. OPTIONAL FACTORY INSTALLED LOW AMBIENT COOLING CONTROL (DOWN TO 0°F), HIGH AND LOW PRESSURE CONTROL ALARMS.  
 4. ANALOG DISCHARGE AIR TEMPERATURE SENSOR, DIGITAL FAN AIRFLOW SENSOR, DIGITAL COMPRESSOR CURRENT STATUS, AND DIGITAL FILTER STATUS.  
 5. OPTIONAL FACTORY INSTALLED 2" PLEATED FILTER (MERV 8) AND RACK.

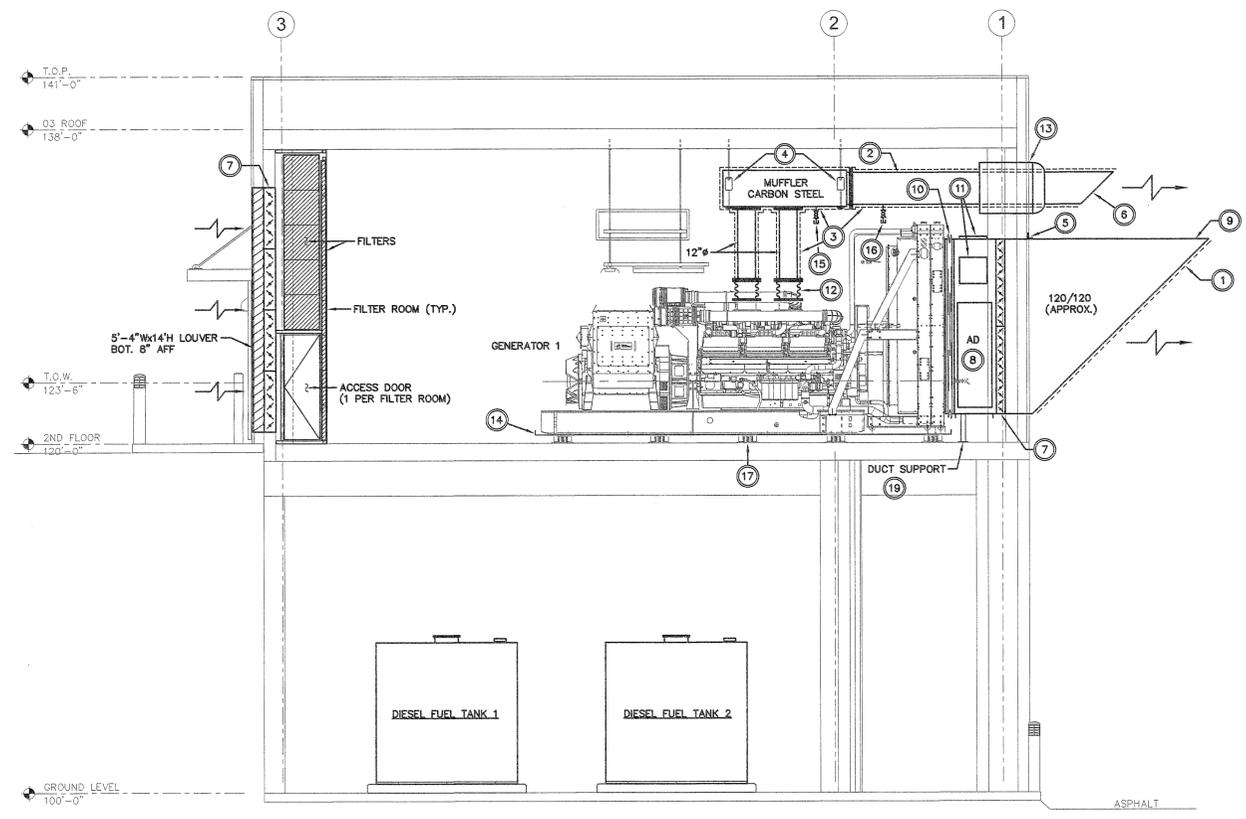
LOAD: MISC.	DEVICE NO.	POINT SCHEDULE																												
		ANALOG	DIGITAL STATUS	ALARMS	DIRECT DIGITAL CONTROL (DDC)				PROGRAMS																					
PACKAGED UNITS	PACU-1&2	TEMPERATURE (7)	HUMIDITY (3)	STATIC PRESSURE (IN. W.G.)	ON-OFF/OPEN-CLOSE	CURRENT RELAY	FILTER STATUS	SMOKE OR TROUBLE	HIGH TEMPERATURE	LOW TEMPERATURE	HIGH/LOW PRESSURE	DISCH. AIR TEMP	DISCHARGE AIR TEMP. RESET	ROOM TEMPERATURE	OPEN-CLOSE	START-STOP	STATIC PRESS.	DEMAND CONTROL	OPTIMUM START & STOP	MORNING WARM-UP	PREHEAT TEMP.	FEED WATER TEMPERATURE	SPEED CONTROL	OUTSIDE AIR FLOW	NIGHT SETBACK	TREND LOG	HISTORICAL DATA	COLOR GRAPHICS	Voice COMMUNICATION	
UNIT HEATER	EUH																													
VENTILATION FANS	EF-1,2,3,4																													

- PACKAGED AIR CONDITIONING UNIT SEQUENCE OF OPERATION**
- GENERAL
  - PACKAGED UNIT SHALL BE STARTED AND STOPPED FROM BAS. UNIT SHALL OPERATE BASED ON UNIT CONTROLS. UNIT SHALL BE CONNECTED TO BAS TO PROVIDE STATUS AND ALARM FUNCTIONS. LOCAL TEMPERATURE SENSOR SHALL PROVIDE STATUS, HIGH SPACE TEMPERATURE 80° (ADJUSTABLE), AND LOW SPACE TEMPERATURE 60° (ADJUSTABLE) ALARM FUNCTIONS.
- UNIT HEATER SEQUENCE OF OPERATION**
- GENERAL
  - UNIT HEATER SHALL BE STARTED AND STOPPED FROM BAS USING LOCAL TEMPERATURE SENSOR. UNIT HEATER SHALL START AT 55° (ADJUSTABLE) AND STOP AT 60° (ADJUSTABLE).
- VENTILATION FAN SEQUENCE OF OPERATION**
- GENERAL
  - VENTILATION FAN SHALL BE STARTED AND STOPPED FROM BAS USING LOCAL TEMPERATURE SENSOR. FAN SHALL START AT 85° (ADJUSTABLE) AND STOP AT 80° (ADJUSTABLE).
  - VENTILATION FAN SHALL BE INTERLOCKED WITH ASSOCIATED ELECTRIC MOTORIZED DAMPER. FAN SHALL START AFTER DAMPER END SWITCH MAKES CONTACT. EF-1 AND EF-2 SHALL BE INTERLOCKED WITH CD-1. EF-3 AND EF-4 SHALL BE INTERLOCKED WITH CD-4 THROUGH CD-14.



NOTE: CONTROLS CONTRACTOR SHALL PROVIDE ALL LOW VOLTAGE WIRING AND CONNECTIONS FOR A COMPLETE AND FUNCTIONING SYSTEM. PROVIDE ALL REQUIRED LINE AND LOW VOLTAGE RELAYS AND CONTACTORS. COORDINATE ALL LINE VOLTAGE CONNECTIONS WITH ELECTRICAL CONTRACTOR.

2 PACU/UNIT HEATER/VENTILATION FAN CONTROL  
NO SCALE



1 MECHANICAL ELEVATION - LOOKING SOUTH  
0' 4' 8' 16'

- ELEVATION NOTES:**
- 1/2" EXPANDED ALUMINUM MESH OVER DUCT OPENING. PROVIDE 1-1/2" x 1-1/2" x 1/8" ALUMINUM ANGLE STIFFENERS TO SUPPORT WIRE MESH ON 24" CENTERS EACH WAY.
  - 18" WELDED 304 STAINLESS STEEL EXHAUST TUBE.
  - 2" THICK SCHULLER (OR APPROVED EQUAL) THERMO-12 CALCIUM SILICATE INSULATION WITH ALUMINUM JACKET OVER EXHAUST PIPE AND MUFFLER.
  - MUFFLER WITH MOUNTING BRACKET SUPPORTS AND CLAMPS. SUPPORT MUFFLER AND EXHAUST PIPE WITH SPRING ISOLATORS, VMC MODEL RSH-30A-97.
  - FLASHING WITH SILICONE CAULK ACROSS TOP OF PANEL.
  - 45° SLANT CUT ON EXHAUST TUBE DISCHARGE. PROVIDE 1/2" ALUMINUM WIRE MESH OVER OPENING.
  - SPRING OPEN CONTROL DAMPER WITH ELECTRIC OPERATOR. DAMPER SHALL BE INTERLOCKED WITH GENERATOR STARTING CIRCUIT.
  - 24" x 72" DOUBLE WALL INSULATED ACCESS DOOR (EACH SIDE).
  - ACOUSTICAL PERFORATED PANELS.
  - VENTILATORS (OR APPROVED EQUAL) MODEL VENTSIL HIGH TEMPERATURE FLEXIBLE DUCT CONNECTOR.
  - (5) 18" x 18" RUSKIN (OR APPROVED EQUAL) MODEL PRD18 PRESSURE RELIEF DOORS, SET AT 3" W.G. PRESSURE RELIEF.
  - STAINLESS STEEL FLEXIBLE EXHAUST CONNECTOR TO CONNECT TO ENGINE GENERATOR.
  - INSTALL STAINLESS STEEL ENGINE EXHAUST WALL THIMBLE. COORDINATE WITH ELECTRICAL CONTRACTOR.
  - PROVIDE GALVANIZED STEEL DRIP PAN WITH 1" EDGES AND WELDED CORNERS. BUILD CUSTOM SIZE TO CATCH ANY POSSIBLE FLUID LEAK.
  - PROVIDE BALL VALVE AND CAP ON MUFFLER DRAIN BUNG. LOCATE OUTSIDE OF INSULATION/JACKET MATERIAL.
  - PROVIDE 1" BALL DRAIN VALVE WITH PLUG ON THREAD-0-LET.
  - INSTALL ISOLATION SPRINGS AND ANCHOR TO CONCRETE.
  - LOCATION BASED ON MANUFACTURER'S RECOMMENDATION.
  - PROVIDE TUBE STEEL WITH 1/8" PLATE STEEL FOOT WELDED TO BOTTOM OF TUBE STEEL ANCHORED TO FLOOR TO SUPPORT EXHAUST DUCT.

CAD#25111 JUN-26-13 L&B PROJ. #6100

SUBMISSION	DATE
100% Construction Documents	6-28-13
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 CA #252 Exp.: 6/14

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APPROVED: President A.F.G. & Z250	APPROVED: Energy Engineer	APPROVED: Medical Center Director
APPROVED:	APPROVED: Safety Manager	APPROVED: Associate Director
APPROVED:	APPROVED: Infection Control Nurse	APPROVED: Chief of Staff
APPROVED:	APPROVED: Industrial Hygienist	APPROVED: Chief of Engineering Service

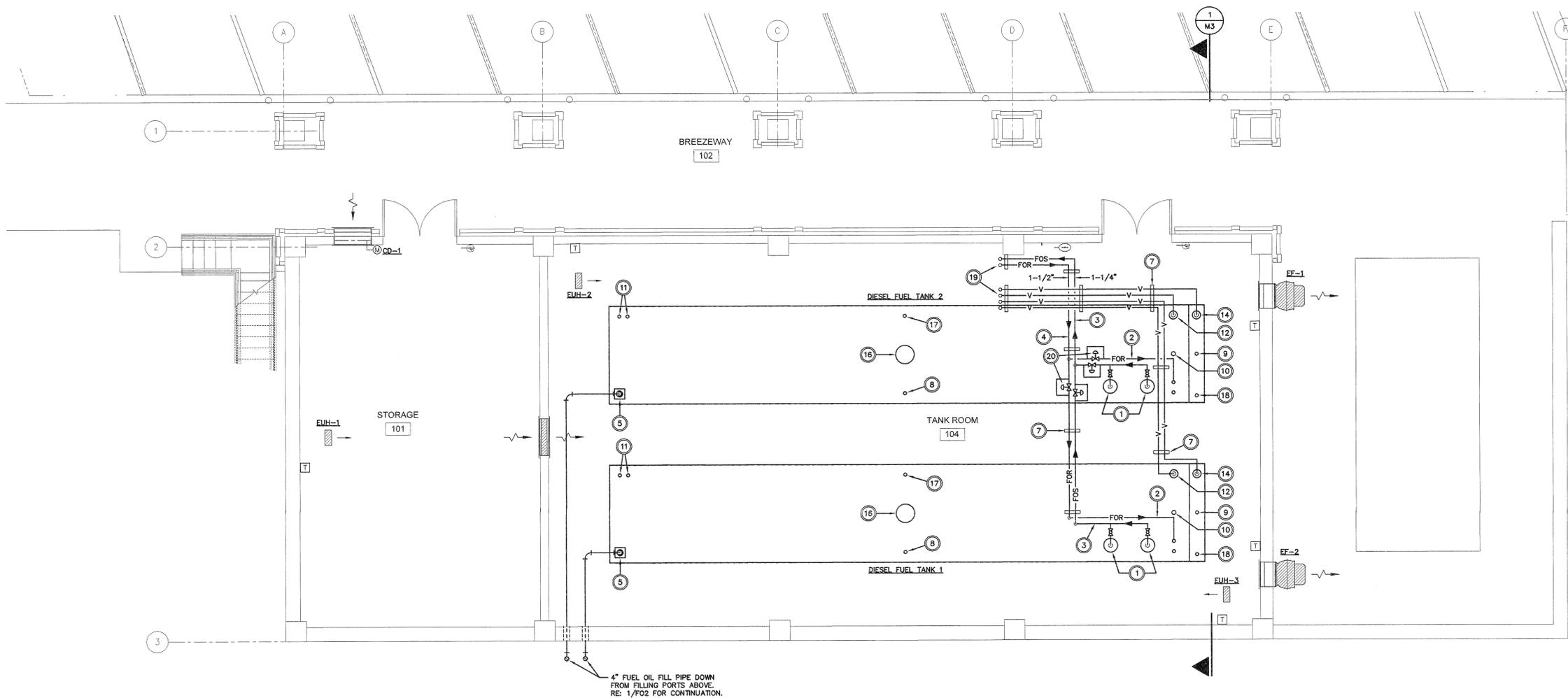
DRAWING TITLE: <b>MECHANICAL ELEVATION, DETAILS, AND SCHEDULES</b>		PROJECT TITLE: <b>FULL FACILITY GENSET</b>		Date 6-28-2013
PROJECT NUMBER 623-12-109	CONTRACT NO.	Designed By MRB	Drawn By VMK	Checked By MRB
BUILDING NUMBER 60	AUTOCAD FILE NAME:	DRAWING NO. <b>M3</b>		Location

Department of Veterans Affairs

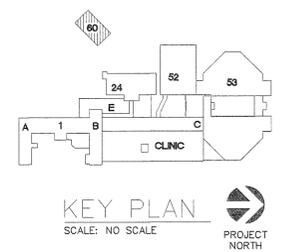
NOTE: CONTRACTOR IS ADVISED TO VISIT THE SITE TO OBSERVE EXISTING CONDITIONS PRIOR TO BID. ALL CONTRACTOR PERSONNEL ARE REQUIRED TO ATTEND OSHA TRAINING TO MEET OWNER REQUIREMENTS. ALL CONTRACTOR PERSONNEL ARE ALSO REQUIRED TO COMPLETE SECURITY CLEARANCE REQUIREMENTS AND TRAINING.

NOTES:

- 1 PROVIDE SUBMERSIBLE FUEL PUMPS WITH FUEL TANKS. REFER TO SPECIFICATION SECTION 283214 FOR REQUIREMENTS.
- 2 FUEL OVERFILL RETURN LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
- 3 FUEL SUPPLY LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
- 4 FUEL RETURN LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
- 5 6" OPENING WITH 3" GUILLOTINE ANTI-OVERFILL VALVE WITH DROP TUBE.
- 6 PIPING WALL SUPPORT (TYPICAL). REFER TO DETAIL 2/FO-3.
- 7 PIPE HANGER (TYPICAL). SEE DETAIL 5/FO-3.
- 8 CLOCK GAUGE-MORRISON #818 WITHOUT ALARM.
- 9 INTERSTITIAL LEAK SENSOR.
- 10 4" SPARE OPENING WITH SCREW PLUG.
- 11 2" SPARE OPENING WITH SCREW PLUG.
- 12 PRIMARY EMERGENCY VENT WITH OPW 23 VENT CAP 12'-0" (MIN.) ABOVE FINISHED GRADE. SIZE PER MANUFACTURER'S RECOMMENDATION (6" MINIMUM).
- 13 18" MANWAY WITH LONG BOLTS AND PRIMARY EMERGENCY VENT.
- 14 SECONDARY EMERGENCY VENT WITH OPW 23 VENT CAP 12'-0" (MIN.) ABOVE FINISHED GRADE. SIZE PER MANUFACTURER'S RECOMMENDATION (6" MINIMUM).
- 15 18" MANWAY WITH LONG BOLTS AND SECONDARY EMERGENCY VENT.
- 16 36" TIGHT BOLT HINGED MANHOLE.
- 17 PRIMARY WORKING TANK VENT.
- 18 SECONDARY WORKING TANK VENT.
- 19 REFER TO DRAWING 1/FO2 FOR CONTINUATION OF PIPING UP TO SECOND FLOOR.
- 20 CONTROL VALVES PROVIDED WITH FUEL TANK TO CONTROL WHICH FUEL TANK IS BEING USED. SWITCH AND CONTROL WIRING PROVIDED BY ELECTRICIAN. REFER TO DRAWING 1/FO3 FOR PIPING DETAIL AT CONTROL VALVE WITH BYPASS.



1 FIRST FLOOR - FUEL OIL PLAN  
 0' 4' 8' 16'  
 TRUE NORTH

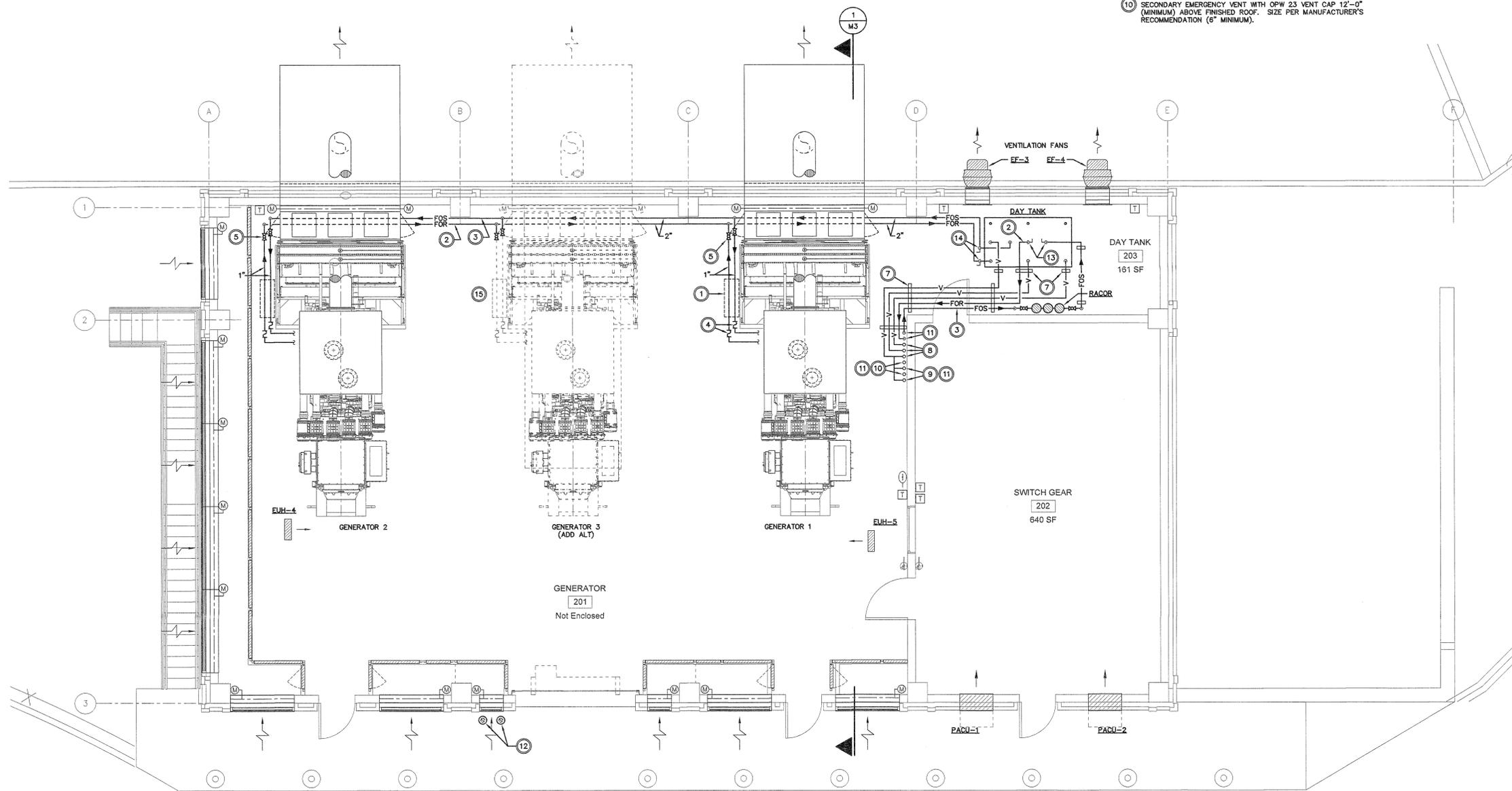


CAD#25120 JUN-26-13 L&B PROJ. #6100

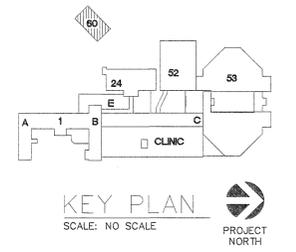
<b>SUBMISSION</b> 100% Construction Documents 6-28-13 100% Construction Documents (For Owner Review) 6-24-13 99% Construction Documents 2-28-13 68% Design Development 11-21-12 33% Schematic Design 8-3-12 Revisions:	<b>DATE</b> 6-28-13 6-24-13 2-28-13 11-21-12 8-3-12	Department of Veterans Affairs Jack C. Montgomery Medical Center 1011 Honor Height Drive Muskogee, Oklahoma 74401	<b>CONSULTANTS:</b> Lee & Browne Consulting Engineers, Inc. 1307 South Sheridan Road Tulsa, Oklahoma 74112-5405 (918) 836-0271 CA #252 Exp.: 6/14	<b>SEAL:</b> MICHAEL RAY BASE 15311 6/25/13 OKLAHOMA	<b>ARCHITECT / ENGINEERS</b> SPUR DESIGN 7700 NORTH HUDSON AVENUE, SUITE 9 OKLAHOMA CITY, OKLAHOMA 73116 WWW.SPUR-DESIGN.COM PHONE: 405.542.6100 OK CERTIFICATE OF AUTHORITY NO: 52295	APPROVED: President A.F.G.E 2250	APPROVED: Energy Engineer	APPROVED: Medical Center Director	DRAWING TITLE: FIRST FLOOR - FUEL OIL PLAN	PROJECT TITLE: FULL FACILITY GENSET	Date 6-28-2013	Scale	DRAWING NO. FO1	Department of Veterans Affairs
						APPROVED:	APPROVED: Safety Manager	APPROVED: Associate Director						

NOTES:

- 1 FUEL CELL PACKAGE BY MECHANICAL CONTRACTOR.
- 2 FUEL RETURN LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
- 3 FUEL SUPPLY LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
- 4 FLEXIBLE PIPING CONNECTIONS FOR CONNECTION TO ENGINE GENERATOR.
- 5 BALL VALVE SIZED TO FUEL LINE. CLEARLY AND PERMANENTLY MARK VALVE POSITIONS AND SUPPLY OR RETURN TYPES WITH FLOW DIRECTIONS (TYPICAL).
- 6 WALL MOUNTED PIPE SUPPORT (TYPICAL). REFER TO DETAIL 2/FO-3.
- 7 PIPE HANGER (TYPICAL). SEE DETAIL 5/FO-3.
- 8 VENT UP THROUGH ROOF WITH OPW 23 FLAME ARRESTOR CAP.
- 9 PRIMARY EMERGENCY VENT WITH OPW 23 VENT CAP 12'-0" (MINIMUM) ABOVE FINISHED ROOF. SIZE PER MANUFACTURER'S RECOMMENDATION (6" MINIMUM).
- 10 SECONDARY EMERGENCY VENT WITH OPW 23 VENT CAP 12'-0" (MINIMUM) ABOVE FINISHED ROOF. SIZE PER MANUFACTURER'S RECOMMENDATION (6" MINIMUM).
- 11 REFER TO DRAWING 1/FO1 FOR CONTINUATION OF PIPING UP FROM FIRST FLOOR.
- 12 FUEL OIL FILLING PORTS. MANHOLE TYPE FLUSH WITH TOP OF PAVEMENT. REFER TO DRAWING 1/FO1 FOR CONTINUATION.
- 13 BALL SHUTOFF VALVE AND NEEDLE TYPE MANUAL FLOW CONTROL VALVE IN RISER.
- 14 BALL SHUTOFF VALVE IN RISER.
- 15 AS PART OF OPTION 4 FOR GENERATOR 3, PROVIDE FUEL PACKAGE, FLEXIBLE CONNECTIONS, ETC., SIMILAR TO WHAT IS PROVIDED FOR GENERATORS 1 & 2.



1 SECOND FLOOR - FUEL OIL PLAN  
 0' 4' 8' 16'  
 TRUE NORTH



CAD#25114 JUN-26-13 L&B PROJ. #6100

SUBMISSION	DATE
100% Construction Documents	6-28-13
100% Construction Documents (For Owner Review)	6-24-13
99% Construction Documents	2-28-13
66% Design Development	11-21-12
33% Schematic Design	8-3-12

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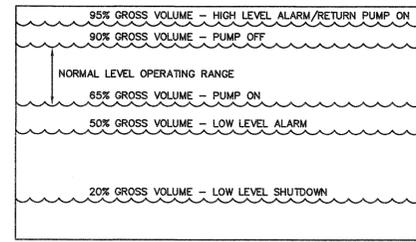
APPROVED: President A.F.G.E 2250	APPROVED: Energy Engineer	APPROVED: Medical Center Director
APPROVED:	APPROVED: Safety Manager	APPROVED: Associate Director
APPROVED:	APPROVED: Infection Control Nurse	APPROVED: Chief of Staff
APPROVED:	APPROVED: Industrial Hygienist	APPROVED: Chief of Engineering Service

DRAWING TITLE: <b>SECOND FLOOR - FUEL OIL PLAN</b>		PROJECT TITLE: <b>FULL FACILITY GENSET</b>	
PROJECT NUMBER: 623-12-109	CONTRACT NO.:	Designed By: MRB	Drawn By: WMK
BUILDING NUMBER: 60	AUTOCAD FILE NAME:	Checked By: MRB	Location:

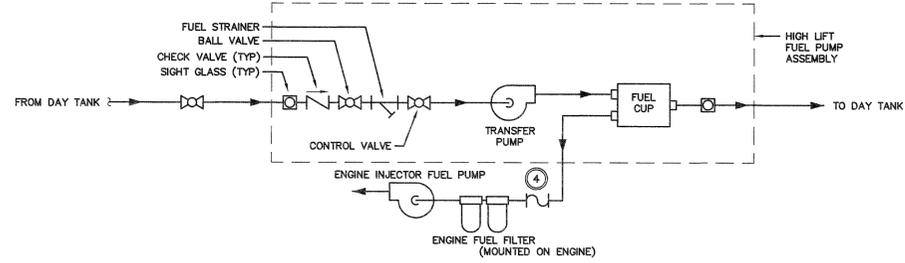
Date: 6-28-2013
Scale:
DRAWING NO: <b>FO2</b>

Date: 6-28-2013		Scale:	
Designed By: MRB	Drawn By: WMK	Checked By: MRB	DRAWING NO: <b>FO2</b>
BUILDING NUMBER: 60		AUTOCAD FILE NAME:	

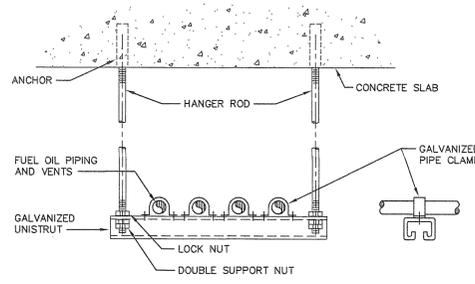
Department of Veterans Affairs



4 DAY TANK LEVEL CONTROL DIAGRAM  
NO SCALE

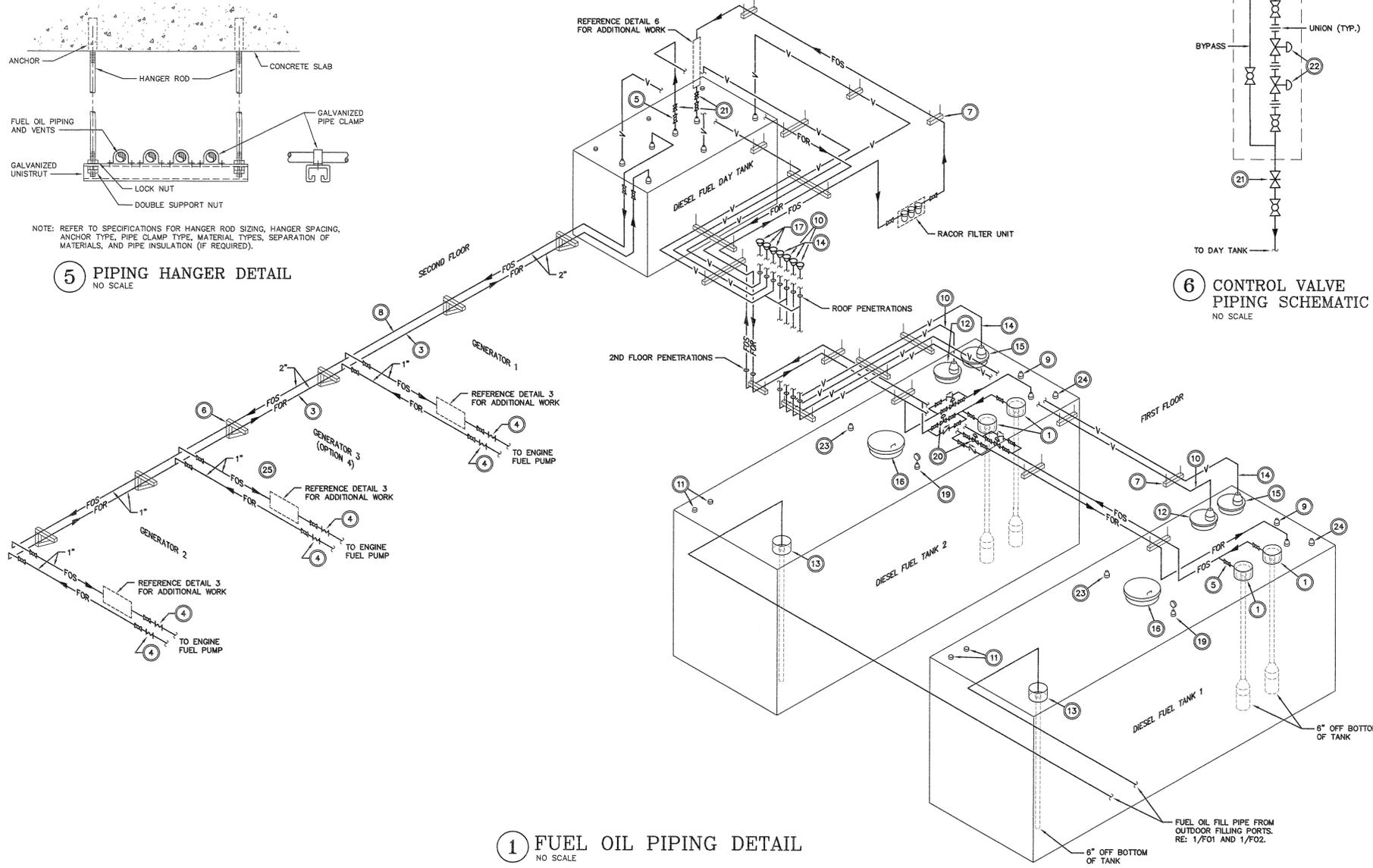


3 FUEL TRANSFER PUMP SCHEMATIC  
NO SCALE

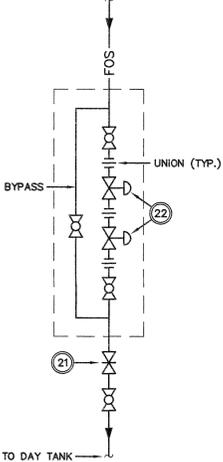


NOTE: REFER TO SPECIFICATIONS FOR HANGER ROD SIZING, HANGER SPACING, ANCHOR TYPE, PIPE CLAMP TYPE, MATERIAL TYPES, SEPARATION OF MATERIALS, AND PIPE INSULATION (IF REQUIRED).

5 PIPING HANGER DETAIL  
NO SCALE

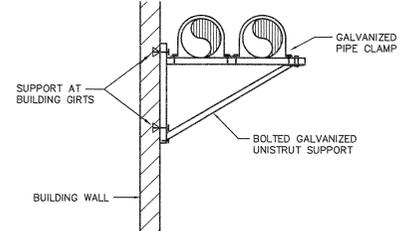


1 FUEL OIL PIPING DETAIL  
NO SCALE



6 CONTROL VALVE PIPING SCHEMATIC  
NO SCALE

- NOTES:
- SUBMERSIBLE FUEL PUMP PROVIDED BY MECHANICAL WITH FUEL TANK. REFER TO SPECIFICATION SECTION 263214 FOR REQUIREMENTS.
  - FUEL OVERFILL RETURN LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
  - FUEL SUPPLY LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
  - FLEXIBLE PIPING CONNECTIONS FOR CONNECTION TO ENGINE GENERATOR.
  - BALL VALVE SIZED TO FUEL LINE. CLEARLY AND PERMANENTLY MARK VALVE POSITIONS AND SUPPLY OR RETURN TYPES WITH FLOW DIRECTIONS (TYPICAL).
  - BUILD WALL MOUNTED PIPE SUPPORT. SEE DETAIL 2/FO3 (TYPICAL).
  - PIPE HANGER (TYPICAL). SEE DETAIL 5/FO3.
  - FUEL RETURN LINE SHALL BE SCHEDULE 80 BLACK STEEL WELDED PIPING AND FITTINGS.
  - INTERSTITIAL LEAK SENSOR.
  - PRIMARY EMERGENCY VENT WITH OPW 23 VENT CAP 12'-0" (MINIMUM) ABOVE FINISHED ROOF. SIZE PER MANUFACTURER'S RECOMMENDATION (6" MINIMUM).
  - 2" SPARE OPENING WITH SCREW PLUG.
  - 18" MANWAY WITH LONG BOLTS AND PRIMARY EMERGENCY VENT.
  - 6" OPENING WITH 3" GUILLOTINE ANTI-OVERFILL VALVE WITH DROP TUBE.
  - SECONDARY EMERGENCY VENT WITH OPW 23 VENT CAP 12'-0" (MINIMUM) ABOVE FINISHED ROOF. SIZE PER MANUFACTURER'S RECOMMENDATION (6" MINIMUM).
  - 18" MANWAY WITH LONG BOLTS AND SECONDARY EMERGENCY VENT.
  - 36" TIGHT BOLT HINGED MANHOLE.
  - DAY TANK VENT UP THROUGH ROOF WITH OPW 23 FLAME ARRESTOR VENT CAP 12'-0" (MINIMUM) ABOVE FINISHED ROOF. SIZE PER MANUFACTURER'S RECOMMENDATIONS (2" MINIMUM).
  - VALVED AND CAPPED PIPING FOR FUTURE CONNECTION.
  - CLOCK GAUGE-MORRISON #818 WITHOUT ALARM.
  - CONTROL VALVES PROVIDED WITH FUEL TANK TO CONTROL WHICH FUEL TANK IS BEING USED. SWITCH AND CONTROL WIRING PROVIDED BY ELECTRICIAN. BYPASS PIPING AT EACH CONTROL VALVE (TYPICAL 4 PLACES).
  - NEEDLE TYPE MANUAL FLOW CONTROL VALVE IN RISE.
  - CONTROL VALVES PROVIDED WITH DAY TANK TO CONTROL FLOW INTO TANK. SWITCH AND CONTROL WIRING PROVIDED BY ELECTRICAL. PROVIDE BYPASS PIPING.
  - PRIMARY WORKING TANK VENT.
  - SECONDARY WORKING TANK VENT.
  - ALL RUNOUT PIPING AND DEVICES TO GENERATOR 3 ARE PART OF OPTION 4.



2 PIPING WALL SUPPORT BRACKET  
NO SCALE

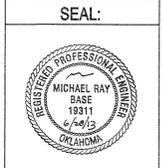
CAD#25220 JUN-26-13 L&B PROJ. #6100

SUBMISSION	DATE
100% Construction Documents	6-28-13
100% Construction Documents (For Owner Review)	6-24-13
99% Construction Documents	2-28-13
68% Design Development	11-21-12
33% Schematic Design	8-3-12



Department of Veterans Affairs  
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APPROVED: President A.F.G.E 2289  
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APPROVED: Medical Center Director  
APPROVED: Associate Director  
APPROVED: Chief of Staff  
APPROVED: Chief of Engineering Service

APPROVED: Safety Manager  
APPROVED: Infection Control Nurse  
APPROVED: Industrial Hygienist

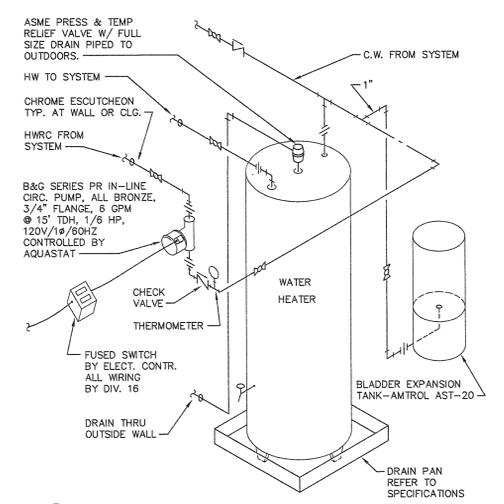
APPROVED: Safety Manager  
APPROVED: Infection Control Nurse  
APPROVED: Industrial Hygienist

DRAWING TITLE:  
**FUEL OIL DETAILS**  
PROJECT NUMBER:  
623-12-109  
BUILDING NUMBER:  
60

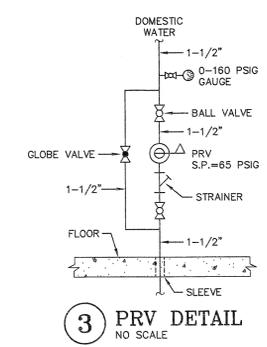
PROJECT TITLE:  
**FULL FACILITY GENSET**  
Designed By: MRB  
Drawn By: WMK  
Checked By: MRB

Date:  
6-28-2013  
Scale:  
DRAWING NO:  
**FO3**

Department of Veterans Affairs

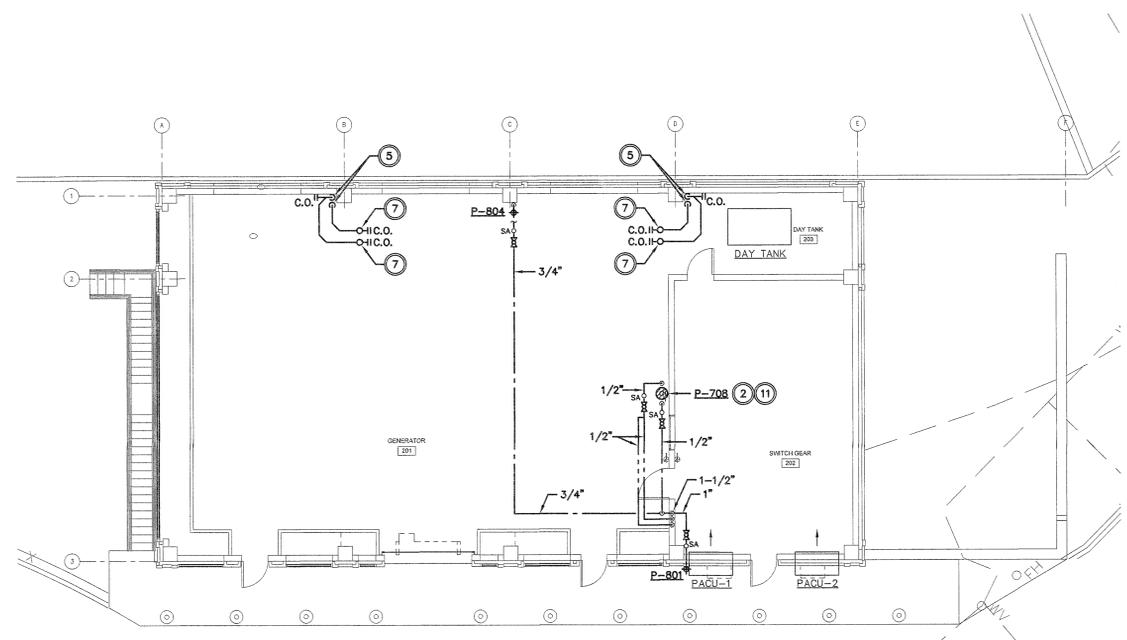


**4** ELECTRIC WATER HEATER PLUMBING ISOMETRIC WITH PUMP  
NO SCALE

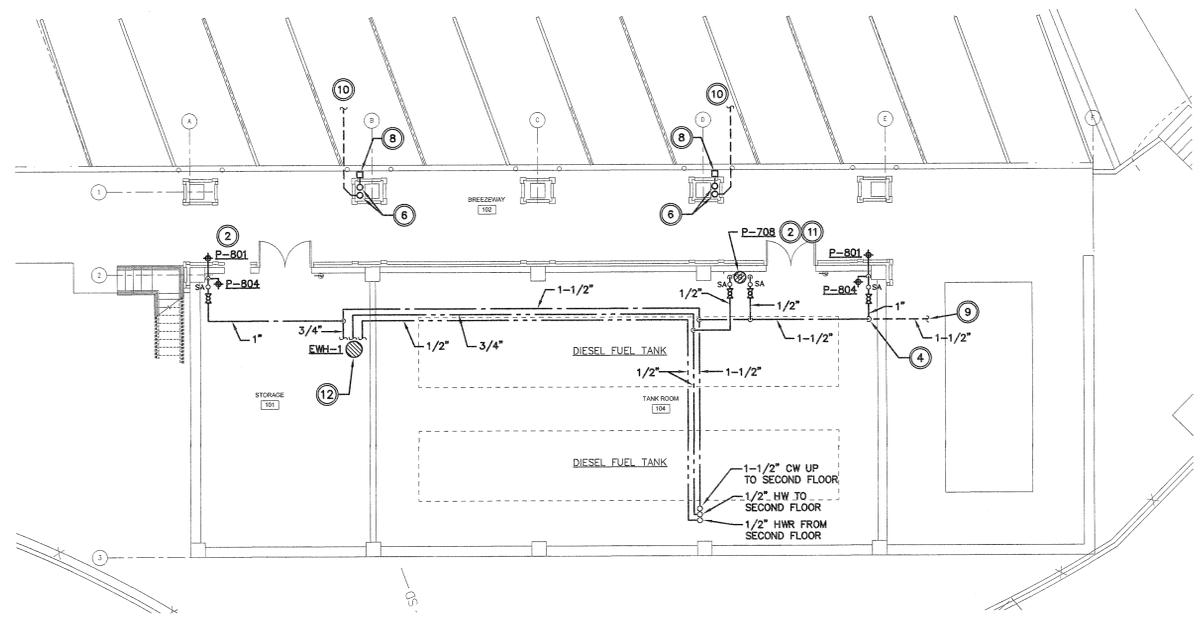


**3** PRV DETAIL  
NO SCALE

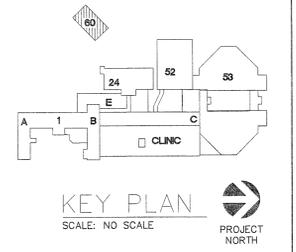
- NOTES:**
- 1 NEW WORK SHOWN BOLD (TYPICAL).
  - 2 REFER TO PLUMBING FIXTURE SPECIFICATIONS SECTION 224000 FOR FIXTURE DESCRIPTION.
  - 3 REFER TO STORM DRAINAGE SPECIFICATIONS SECTION 221400 FOR ROOF DRAIN AND DOWNSPOUT NOZZLE DESCRIPTION.
  - 4 PROVIDE PRESSURE REDUCING VALVE ASSEMBLY. REFER TO DETAIL 3/P1 FOR COMPONENTS AND CONFIGURATION.
  - 5 4" ROOF DRAIN (PRIMARY AND SECONDARY OVERFLOW) DOWN TO FIRST FLOOR. OFFSET 4" PIPING IN VERTICAL (AS REQUIRED). COORDINATE WITH GENERAL CONTRACTOR FOR SECOND FLOOR SLAB PENETRATION. REFER TO 1/P1 FOR CONTINUATION.
  - 6 4" ROOF DRAIN (PRIMARY AND SECONDARY OVERFLOW) DOWN FROM SECOND FLOOR. OFFSET PIPING IN VERTICAL (AS REQUIRED). REFER TO 2/P1 FOR CONTINUATION.
  - 7 UP TO 4" PRIMARY AND SECONDARY OVERFLOW ROOF DRAINS. REFER TO ARCHITECTURAL FOR EXACT LOCATION. COORDINATE WITH GENERAL CONTRACTOR FOR ROOF PENETRATION AND ALL REQUIRED ROOF FRAMING AROUND ROOF DRAIN.
  - 8 PROVIDE 4" SECONDARY OVERFLOW ROOF DRAIN DOWNSPOUT NOZZLE AT 24" ABOVE FINISHED GRADE. REFER TO ARCHITECTURAL FOR EXACT LOCATION.
  - 9 REFER TO CIVIL DRAWINGS FOR CONTINUATION.
  - 10 REFER TO CIVIL DRAWINGS FOR CONTINUATION OF 4" UNDERGROUND PRIMARY ROOF DRAIN. PROVIDE CLEANOUT AT BASE OF RISER PRIOR TO ROUTING UNDERGROUND.
  - 11 PROVIDE PORTABLE ON-SITE WASTE CART WITH WHEELS TO COLLECT WASTE WATER FROM EMERGENCY EYE/FACE WASH. CART SHALL HOLD A MINIMUM OF 50 GALLONS OF WATER.
  - 12 PROVIDE 66 GALLON (MINIMUM) ELECTRIC HOT WATER HEATER WITH (2) 3,000 WATT NON-SIMULTANEOUS ELECTRIC HEATING ELEMENTS RATED FOR 480 VOLT 3 PHASE POWER. REFER TO SPECIFICATION SECTION 223300 FOR DESCRIPTION. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR. REFER TO DETAIL 4/P1 FOR COMPONENTS AND CONFIGURATION.



**2** SECOND FLOOR - PLUMBING PLAN  
0' 8' 16' 32'



**1** FIRST FLOOR - PLUMBING PLAN  
0' 8' 16' 32'



L&B PROJ. #6100  
CAD#25248 JUN-26-13

SUBMISSION	DATE
100% Construction Documents	6-28-13
100% Construction Documents (For Owner Review)	6-24-13
99% Construction Documents	2-28-13
66% Design Development	11-21-12
33% Schematic Design	8-3-12

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 CA #252 Exp: 6/14

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 OK CERTIFICATE OF AUTHORITY NO: 02295

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APPROVED:	APPROVED: Safety Manager	APPROVED: Associate Director
APPROVED:	APPROVED: Infection Control Nurse	APPROVED: Chief of Staff
APPROVED:	APPROVED: Industrial Hygienist	APPROVED: Chief of Engineering Service

APPROVED: President A.F.G.E. 2250	APPROVED: Energy Engineer	APPROVED: Medical Center Director
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APPROVED:	APPROVED: Infection Control Nurse	APPROVED: Chief of Staff
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APPROVED:	APPROVED: Infection Control Nurse	APPROVED: Chief of Staff
APPROVED:	APPROVED: Industrial Hygienist	APPROVED: Chief of Engineering Service

DRAWING TITLE: <b>FIRST AND SECOND FLOOR - PLUMBING PLANS</b>	
PROJECT NUMBER 623-12-109	CONTRACT NO.
BUILDING NUMBER 60	AUTOCAD FILE NAME:

PROJECT TITLE: <b>FULL FACILITY GENSET</b>	
Designed By MRB	Drawn By WMK
Checked By MRB	Location

Date 6-28-2013	DRAWING NO. <b>P1</b>
Scale	

Department of Veterans Affairs

