DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER - WADE PARK

10701 EAST BLVD. CLEVELAND, OH. 44106

Boiler Plant Energy Upgrades

PROJECT NO. 541-11-105

Veterans Administration Medical Center

FINAL Bid Set
September 11, 2012

CODE INFORMATION:

DESIGN CODES:
2009 Life Safety Code, 2009 IBC
OCCUPANCY,USE GROUP:
Health Care, I-2
FIRE SUPPRESSION: Fully Sprinklered
TRAVEL DISTANCES: (LSC 18.2.6)
Room Remote Point to Exit: 200'
Exit Access door to Exit: 150'
TYPE OF CONSTRUCTION: (LSC A.8.2.1.2)
Type 1 - 332, 1B
STRUCTURAL COLUMNS: (LSC A.8.2.1.2)
3 Hours - Supporting more than 1 floor
2 Hours - Supporting one floor only
2 Hours - Supporting roof only
FLOOR - CEILING ASSEMBLIES: (LSC A.8.2.1.2)
2 Hours
ROOF - CEILING ASSEMBLIES: (LSC A.8.2.1.2)
1 ½ Hours
INTERIOR NONBEARING WALLS: (LSC A.8.2.1.2)
0 Hour
EXIT ENCLOSURES (LSC 7.1.3.2.1)
Existing: 1 Hour
SHAFT ENCLOSURES (LSC 8.6.5)
4 Stories or more: 2 Hours
Less than 4 stories: 1 Hour
SMOKE BARRIERS: (LSC 18.3.7.4)
1 Hour
EXIT ACCESS CORRIDORS: (LSC 8.3.6.2.2)
0 Hour, Smoke Partitions
SUITE WALLS: (18.2.5.6.1.2)
0 Hour, Smoke Partitions
HAZARDOUS AREA PROTECTION (LSC 18.3.2.1)
Storage rooms larger than 100 sf: 1 Hour

DRAWING INDEX

1-X0 COVER SHEET

ARCHITECTURAL

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STRUCTURAL

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1-H3 BOILER ROOM OPERATING FLOOR MECHANICAL PLAN
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1-H6 MECHANICAL DETAILS
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ELECTRICAL

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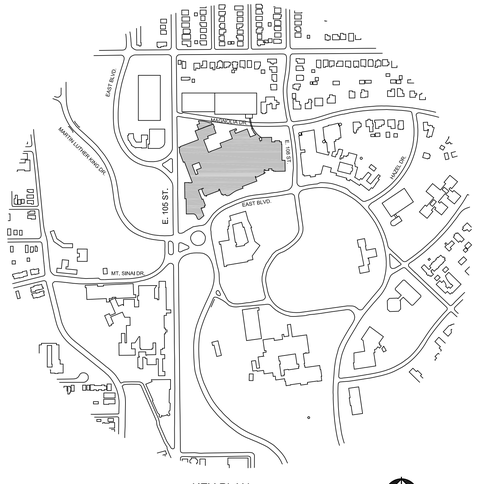
1-E2 BOILER ROOM OPERATING FLOOR ELECTRICAL PLAN
1-E3 ELECTRICAL ONE LINE DIAGRAM

STATE OF OHIO
WILLIAM C. AYARS 7259
REGISTERED ARCHITECT

William C. Ayars, License #7259
Expiration Date 12/31/2013



KEY PLAN
NTS

ARCH. JOB NO.: 11-084

NORTH

Fredrick, Fredrick & Heller Engineers, Inc.
Mechanical & Electrical Engineer 672 East Royalton Road, Broadview Heights, Ohio 44147

Perspectus Architecture LLC
Architect 13212 Shaker Square Suite 204 Cleveland, Ohio 44120

Barber & Hoffman, Inc.
Structural Engineer 1100 West 9th Street, Cleveland, Ohio 44113

APPROVALS	DATE	APPROVALS	DATE	APPROVALS	DATE
DIRECTOR 00		CHIEF Planning and Construction		FACILITY MANAGER	
ASSOCIATE DIRECTOR 00A (B)		CHIEF, Occupational Health & Safety		SHOP FOREMAN 138	
CHIEF, ENGINEERING 138		CHIEF, IRM			

Revisions

Drawing Title: COVER SHEET

Project Title: BOILER PLANT ENERGY UPGRADES

Date: 09-11-12

Project No.: 541-11-105

Approved: Division Chief

Building Number: 1

Checked: TEH

Drawn: CAL

Approved: Service Director

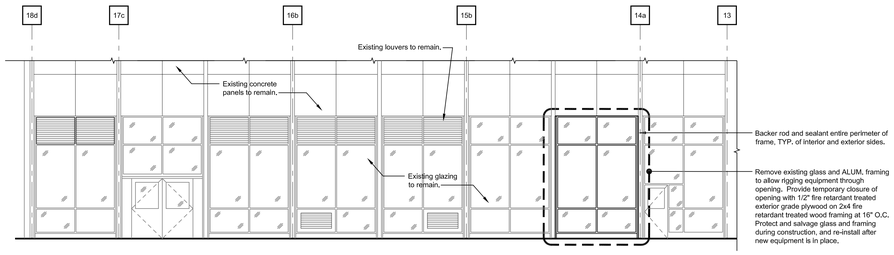
Location: 10701 EAST BLVD. CLEVELAND, OHIO

DRAWING NO. 1-X0

Dwg. Of

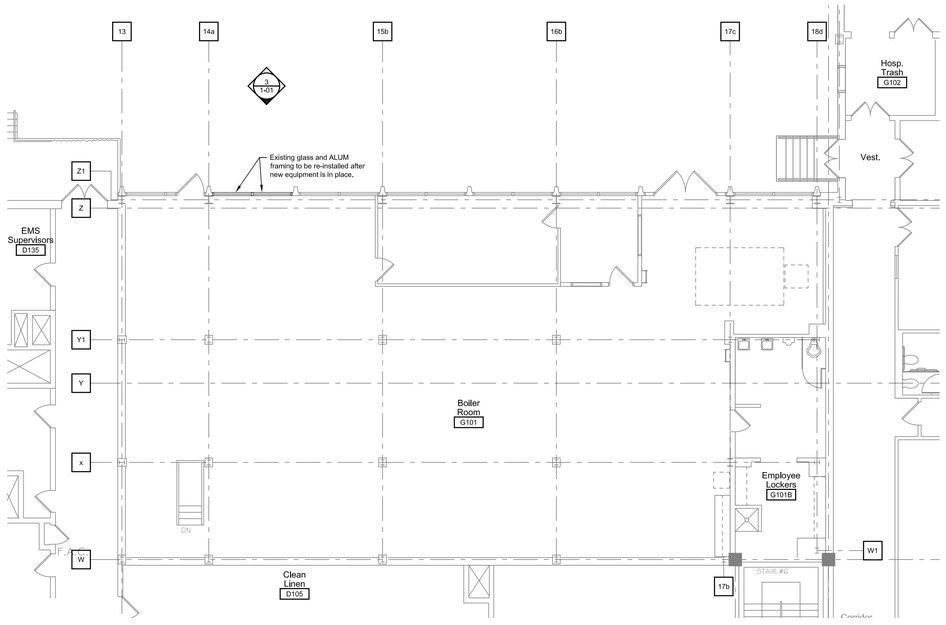
Office of Facilities Management

Department of Veterans Affairs



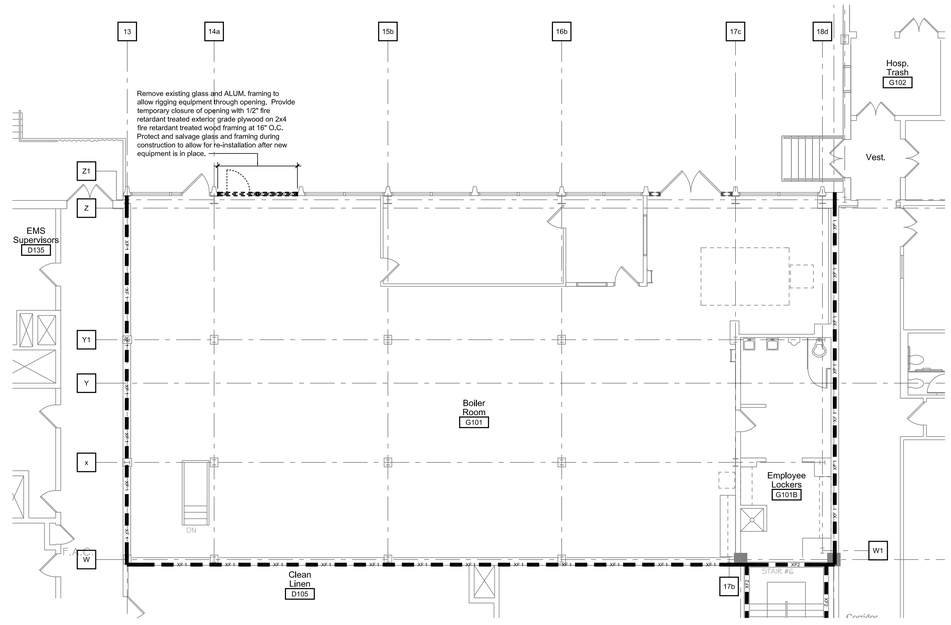
Partial North Elevation (3)

0 4' 8' 16'
Scale 1/8" = 1'-0"



Partial First Floor Plan (2)

0 4' 8' 16'
Scale 1/8" = 1'-0"



Partial First Floor Demolition Plan (1)

0 4' 8' 16'
Scale 1/8" = 1'-0"

DEMOLITION GENERAL NOTES:

A. Refer to specifications section 02 41 00 "Selective Demolition" for additional requirements and information.

B. Contractor shall coordinate all demolition with the entire set of contract documents for full scope of demolition work required for the project.

C. The contractor shall verify all existing conditions, dimensions, and materials required for the contracted work. Report all discrepancies to the architect prior to fabrication, erection, and/or installation.

D. Coordinate all new penetrations and/or openings with other associated trades.

E. The owner may select and tag items for demolition to be salvaged. Contractor shall remove selected items from the project scope area and deliver to the owner's requested location within the existing facility.

F. Contractor shall provide temporary dust proof barriers with dust removing walk off mat (tacky mat) at contractor access points to separate project scope area from occupied areas. Coordinate barrier locations with existing ceiling lights and other ceiling devices.

G. The hospital's smoke and fire suppression system shall remain in operation within the project scope area during the entire construction phase.

DEMOLITION PLAN LEGEND:

- XF 1 — Existing 1-HR fire barrier
- XF 2 — Existing 2-HR fire barrier
- A. Temporary partition
- B. Temporary door

NOTES:
1. See mechanical drawings for plumbing, hvac and fire protection demolition.
2. See electrical drawings for power, lighting and communications demolition.

ABBREVIATIONS

ab	anchor bolt
a/c	air conditioning
acous	acoustic(al)
act	acoustical ceiling tile
adj	adjacent
aff	above finish floor
alt	alternate
alum	aluminum
anod	anodized
approx	approximate
arch	architect(ural)
auto	automatic
bd	board
betw	between
bldg	building
blk	block(ing)
blkhd	bulkhead
bm	beam
bot	bottom
brdg	bridging
brg	bearing
brk	brick
bsmt	basement
bur	built-up roofing
c/c	center to center
cab't	cabinet
cad	cadmium
cb	catch basin
cem	cement
c.l. or ℄	center line
cfm	cubic feet per minute
cg	corner guard
ci	cast iron
cj	control joint
clg	ceiling
cl	closet
clr	clear
cll	contract limit line
cntr	counter
cmu	concrete masonry unit
co	cased opening/clean out
col	column
conc	concrete
conn	connection
const	construction
cont	continuous
coord	coordinate
corr	corridor
cs	course
ctr	center
d	depth
dbl	double
deg	degrees
demo	demolition
dia	diameter
dim	dimension
disp	dispenser
dn	down
dr	door
ds	down spout
det	detail
dwg	drawing
dwr	drawer
dw	drywall
ea	each
ec	electrical contractor
eifs	exterior insulation and finish system
ej	expansion joint
elec	electric
elev	elevator/elevation
emerg	emergency
eq	equal
equip	equipment
etr	existing to remain
ew	each way
ewc	electric water cooler
exh	exhaust
exist	existing
exp	expansion
exp'd	exposed
ext	exterior
fa	fire alarm
fb	face brick
fcu	fan coil unit
ff	face to face
fd	floor drain
fdn	foundation
fe	fire extinguisher
fec	fire extinguisher cabinet
fhc	fire hose cabinet
fin	finish
flr	floor
fluor	fluorescent
fr	fire resistant
frt	fire-retardant treated
frtwd	fire-retardant treated wood
ft	feet
ftg	footing
furr	furring
fvc	fire valve cabinet
ga	gauge
galv	galvanized
gc	general contractor
gl	glass
gr	grade
gyp bd	gypsum board
h	high
hb	hose bibb
hc	hollow core
hdbd	hardboard
hdcpd	handicapped
hdwr	hardware
hdwd	hardwood
hm	hollow metal
horiz	horizontal
hpdl	high pressure decorative laminate
hr	hour
ht	height
htg	heating
htr	heater
hvac	heating, ventilation air conditioning
hw	hot water
hwh	hot water heater
id	inside diameter
in	inch
incl	include (inclusive)
insul	insulation
int	interior
jan	janitor
jst	joist
kd	knock down
ko	knock out
l	length (long)
lam	laminate(d)
lav	lavatory
lb	pound
lf	linear feet (foot)
lim	limited
lt	light
ltg	lighting
lvr	louver
marb	marble
mas	masonry
mat	material
max	maximum
mech	mechanical
memb	membrane
mfr	manufacturer
mh	manhole
min	minimum
misc	miscellaneous
mo	masonry opening
mtd	mounted
mtl	metal
mull	mullion
n/a	not applicable
nic	not in contract
no	number
nom	nominal
nts	not to scale
oa	overall
oc	on center
ocaff	on center above finish floor
od	outside diameter
ohdr	overhead door
oph	opposite hand
ovrd	overflow roof drain
o/o	out to out
op'g	opening
opp	opposite
opt	optional
pbd	particle board
pcf	pounds per cubic foot
perlm	perlmeter
pg bd	peg board
pl	plate
plas	plastic
plam	plastic laminate
plbg	plumbing
pmld	premoulded
pnl	panel
plywd	plywood
pol	polished
pr	pair
prefin	prefinished
prefab	prefabricated
proj	projection
psc	pre-stress concrete
psf	pounds per square foot
psi	pounds per square inch
pt	paint
ptd	painted
ptn	partition
pvc	polyvinylchloride
pvmt	pavement
qty	quantity
r	riser
ra	return air
rad	radius
rag	return air grille
rd	roof drain
rec	receptacle
ref	refrigerator
reg	register
reinf	reinforcement (reinforcing)
req'd	required
res	resilient
ret	return
rev	revised (revision)
rm	room
ro	rough opening
rvs	reverse
sc	solid core
sched	schedule
sd	smoke detector
sdl	saddle
sect	section
sht	sheet
sim	similar
sp	stand pipe
spec	specifications
spkr	speaker
spklr	sprinkler
spr	single ply roofing
sq	square
sq in	square inch
sy	square yard
ss	stainless steel/ slop sink
std	standard
stl	steel
stor	storage
struc	structure(al)
susp	suspended
sys	systems
t	thread
t/g or t&g	tongue and groove
td	trench drain
tel	telephone
temp	temporary
temp'd	tempered
terr	terrazzo
thk	thick
thld	threshold
toc	top of concrete (top of curb)
tos	top of steel
tod	top of deck
tom	top of masonry
toj	top of joist
top	top of parapet
tow	top of wall
typ	typical
uc	undercut
ug	underground
unfin	unfinished
unlim	unlimited
uno	unless noted otherwise
ur	urinal
vert	vertical
vest	vestibule
vif	verify in field
w	width
w/	with
w/o	without
w/w	wall to wall
wc	water closet
wd	wood
wh	water heater
win	window
wg	wire glass
wt	weight
wwf	welded wire fabric
yd	yard

SYMBOLS

- Indicates section number / Indicates drawing sheet on which section is shown — Building, wall and detail section mark
- Indicates elevation number / Indicates drawing sheet on which elevation is shown / Elevation reference number — Interior/exterior elevation reference
- Indicates detail number / Indicates drawing sheet on which plan/detail is shown. — Enlarged plan or detail reference
- Column reference grids
- Wall types
- Equipment reference
- New level line, control point, or datum
- Existing level line, control point, or datum
- Door number — New door
- Existing door
- Revision reference number

FULLY SPRINKLERED

Final Bid Set	09-11-12
Revisions:	**Date**

CONSULTANTS:

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STATE OF OHIO — WILLIAM C. AYARS 7259 — REGISTERED ARCHITECT
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DESIGN AND CONSTRUCTION DOCUMENTS AS INSTRUMENTS OF SERVICE ARE GIVEN IN CONFIDENCE AND REMAIN THE PROPERTY OF PERSPECTUS ARCHITECTURE. THE USE OF THIS DESIGN AND THESE CONSTRUCTION DOCUMENTS FOR PURPOSES OTHER THAN THE SPECIFIC PROJECT NAMED HEREIN IS STRICTLY PROHIBITED WITHOUT THE EXPRESSED WRITTEN CONSENT OF PERSPECTUS ARCHITECTURE.

Drawing Title: **SYMBOLS, ABBREVIATIONS, PARTIAL PLANS, AND ELEVATION**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **TEH** | Drawn: **CAL**

Project Number: 541-11-105

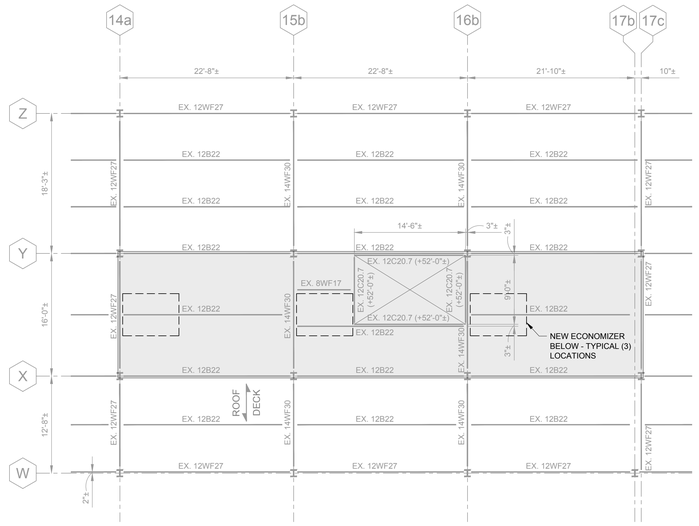
Building Number: 1

Drawing Number: **1-01**

Dwg. of

Office of Facilities Management

Department of Veterans Affairs



PARTIAL BOILER HOUSE ROOF PLAN

1/8"=1'-0"

NOTES:

1. TOP OF EXISTING STEEL FRAMING = (+51'-0" ±) FROM FIRING FLOOR UNLESS OTHERWISE NOTED.
2. EXISTING ROOF CONSTRUCTION CONSISTS OF COLD-FORMED METAL ROOF DECK.
3. SUPPORT FOR PROPOSED ECONOMIZERS AND ANY SUPPLEMENTARY FRAMING AS REQUIRED SHALL BE PROVIDED BY CONTRACTOR AND SHALL BE SUPPORTED BY EXISTING STEEL FRAMING IN SHADED AREA. SUBMIT UNIT WEIGHT, SUPPORT POINTS, AND LOADS TO ENGINEER FOR REVIEW.

CODES AND STANDARDS

1. New construction has been designed to, and shall be constructed in accordance with the following building codes and standards:
   A. 2009 International Building Code (IBC 2009)
   B. ASCE/SEI 7-05, Minimum Design Loads for Buildings and Other Structures
2. Unless explicitly modified in the Contract Drawings and Specifications, the Contractor shall comply with provisions of:
   A. ANSI/AISC 360-05 Specification for Structural Steel Buildings

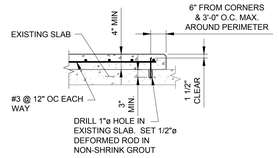
DESIGN LOADS

Roof live load ---------- 30 psf

Roof snow load ---------- 25 psf

Ground snow load (ASCE 7, 7.2) ---------- P_g = 20 psf
Flat-roof snow load (ASCE 7, 7.3) ---------- P_f = 20 psf +5 psf (1)
Snow exposure factor (ASCE 7, Table 7-2) ---------- C_e = 1.0
Snow importance factor (ASCE 7, Table 7-4) ---------- I_s = 1.2
Thermal factor (ASCE 7, Table 7-3) ---------- C_t = 1.0

(1) Rain-on-snow surcharge (ASCE 7, 7.10) applied only to balanced snow load



NOTES:

1. BASE SLAB PREPARATION: CLEAN AND ROUGHEN SLAB AND APPLY BONDING AGENT PER MANUFACTURER'S WRITTEN DIRECTIONS.
2. CONCRETE MIX: NOT LESS THAN 3,000 PSI, 4" MAXIMUM SLUMP, TYPE III CEMENT.
3. CURING - CURE FOR MINIMUM 3 DAYS BY EITHER OF THE FOLLOWING METHODS:
   A. COVER WITH BURLAP AND KEEP CONTINUOUSLY WET.
   B. COVER WITH 6 MIL PLASTIC SHEETING. TAPE TO BASE SLAB AND ALL JOINTS

MECHANICAL HOUSEKEEPING PAD DETAIL

FULLY SPRINKLERED

Revisions:	Date
Final Bid Set	09-11-12

CONSULTANTS:

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ARCHITECT:

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Drawing Title: **PARTIAL BOILER HOUSE ROOF PLAN AND GENERAL NOTES**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: JAM | Drawn: LJP

Project Number: 541-11-105

Building Number: 1

Drawing Number: 1-S1 (Dwg. of)

Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978

EQUIPMENT LIST

GENERAL INFORMATION:
STEAM HEADER SET PRESSURE: 125 PSIG NORMAL
90 PSIG LOW DEMAND PERIODS

ALTITUDE OF OPERATING FLOOR: 664'-0" ABOVE SEA LEVEL

BU 3 / BU 2 / BU 1

NEW LOW NOx BURNERS TO BE RETROFITTED TO EXISTING BOILERS B-1, B-2, AND B-3. EACH BOILER BURNER SHALL PROVIDE PERFORMANCE AS FOLLOWS:
MAXIMUM CONTINUOUS CAPACITY REQUIRED: 25,000 LBS/HR
OPERATING PRESSURE: 125 PSIG MAXIMUM AT HIGH FIRE
STEAM QUALITY: 99% MINIMUM
DESIGN PRESSURE: 200 PSIG MINIMUM
FUELS TO BE FIRED: NATURAL GAS AND NO. 2 FUEL OIL
MAXIMUM EMISSIONS OF NOx: 30 PPM NATURAL GAS
90 PPM NO. 2 FUEL OIL

DESCRIPTION: EXISTING WINDBOX ASSEMBLY, FUEL TRAINS, COMBUSTION CONTROL SYSTEM AND BURNER MANAGEMENT SYSTEM TO BE REUSED. NEW EQUIPMENT WILL INCLUDE A REGISTER ASSEMBLY, FORCED DRAFT FAN ASSEMBLY WITH MOTOR (WITH VARIABLE FREQUENCY DRIVE), SILENCER, FGR DUCTWORK, AND INLET AIR/FGR MIXING BOX. REFER TO DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

FHX 3 / FHX 2 / FHX 1

BOILER EXHAUST ECONOMIZER (NON-CONDENSING, STANDARD) TO BE PROVIDED ON EACH OF 3 EXISTING 25,000 LBS/HR BOILERS (B-1, B-2, B-3). ECONOMIZER SHALL BE INSTALLED IN EXISTING BOILER FLUE STACK DIRECTLY ABOVE THE HEIGHT OF THE BOILERS. EACH ECONOMIZER SHALL BE PIPED TO THE RESPECTIVE BOILER FEEDWATER.
DESIGN PRESSURE: 300 PSIG @ 650°F.
TEST PRESSURE: 450 PSIG
MAXIMUM FLUE INLET TEMPERATURE: 750°F
FINS: ALUMINUM, 6 FINS/INCH
TUBE: STAINLESS STEEL, 1 INCH O.D., 0.065" WALL THICKNESS

REFER TO SCHEDULE FOR PERFORMANCE CRITERIA. REFER TO DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

BHR 1

CONTINUOUS BLOWDOWN HEAT RECOVERY SYSTEM SHALL BE PROVIDED TO HANDLE CONTINUOUS SURFACE BLOWDOWN FROM ALL FOUR BOILERS. THE SYSTEM SHALL CONSIST OF A SKID-MOUNTED, PACKAGED SYSTEM, WHICH INCLUDES, BUT IS NOT LIMITED TO: FLASH RECEIVER (ASME), BRAZED PLATE HEAT EXCHANGER, TRAPS, GAGES, VALVES, THERMOMETERS, SAMPLING DEVICES. THE SYSTEM SHALL HAVE A MAKEUP CAPACITY OF 10,000 LBS/HR. HEAT RECOVERED SHALL BE USED TO HEAT SOFTENED WATER USED FOR MAKEUP TO THE DEAERATOR TANK. FLASH STEAM FROM RECEIVER SHALL BE PIPED TO DEAERATOR. APPROXIMATE SIZE OF PACKAGED EQUIPMENT IS 43"Lx18"Wx54"T. SHIPPING WEIGHT = 650 LBS.

REFER TO DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

ADDITIONAL NOTES:
1. CONTRACTOR SHALL FURNISH AND INSTALL EQUIPMENT ABOVE ALONG WITH ALL APPURTENANCES INDICATED ON THE PLANS AND LISTED IN THE SPECIFICATIONS.
2. CONTRACTOR SHALL REFERENCE FINAL, SELECTED MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS FOR INSTALLATION OF EQUIPMENT.
3. CONTRACTOR SHALL CONSIDER FIELD CONDITIONS AND EXISTING EQUIPMENT RETROFIT CAPABILITIES PRIOR TO SUBMITTING SHOP DRAWINGS OF SELECTED EQUIPMENT.
4. EACH SYSTEM SHALL BE A FULLY FUNCTIONAL, COMPLETE SYSTEM. EACH SYSTEM SHALL BE PROVIDED START-UP SERVICES, TESTS, BALANCING, AND ALL ADDITIONAL REQUIREMENTS AS OUTLINED IN SPECIFICATIONS.

GENERAL NOTES:

A. LOCATIONS AND ROUTING OF EXISTING PIPING, DUCTWORK AND EQUIPMENT IS PRESUMED FROM EXISTING DRAWINGS. MECHANICAL CONTRACTOR SHALL FIELD VERIFY ALL PRIOR TO COMMENCEMENT OF CONSTRUCTION. NOTIFY ENGINEER OF ANY CONDITIONS WHICH WILL NOT PERMIT THE WORK TO BE PERFORMED AS INDICATED ON THESE DRAWINGS.

B. COORDINATE ALL SHUT-DOWNS OF EXISTING MECHANICAL SYSTEMS WITH OWNER A MINIMUM OF TEN WORKING DAYS IN ADVANCE.

C. PRIOR TO INSTALLATION, VERIFY PRECISE LOCATION OF NEW WALL MOUNTED DEVICES WITH OWNER AND ARCHITECT. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR PRECISE LOCATION OF CEILING MOUNTED DEVICES. COORDINATE ROOF MOUNTED EQUIPMENT WITH ARCHITECT PRIOR TO INSTALLATION.

D. PROVIDE ADEQUATE SERVICE CLEARANCE FOR ALL MECHANICAL EQUIPMENT. REFER TO INSTRUCTIONS FROM THE EQUIPMENT MANUFACTURER.

E. NEW DUCTS OR PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS. REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF PANELS.

F. DAMPERS AND VALVES SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.

G. NO TEMPERATURE SENSING CONTROL DEVICES SHALL BE LOCATED OVER HEAT PRODUCING DEVICES.

H. INSTALL ALL EQUIPMENT TO BE DEAD LEVEL.

K. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING ON THE FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COTR FOR RESOLUTION.

L. ALL NEW EQUIPMENT SHALL BE INSTALLED IN COMPLIANCE WITH THE VHA BOILER PLANT SAFETY DEVICE TESTING MANUAL, THIRD EDITION. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

M. A MAXIMUM OF ONLY ONE BOILER (OF 4 TOTAL) SHALL BE SHUTDOWN AT A TIME DURING CONSTRUCTION. THE THREE REMAINING BOILERS SHALL BE CAPABLE OF OPERATING DURING THE PERIOD OF A SINGLE BOILER SHUTDOWN. NO EXCEPTIONS. INDIVIDUAL BOILER SHUTDOWNS SHALL BE ILLUSTRATED AND HIGHLIGHTED ON PROJECT CONSTRUCTION SCHEDULE. COORDINATE SCHEDULING WITH VA COTR AND BOILER PLANT MANAGER.

N. EXISTING CONCRETE DRIVEWAY/DECK IS DESIGNED FOR 300 PSF UNIFORM LOAD. CONFIRM AND COORDINATE ANY UTILIZATION OF DECK WITH VA COTR.

COMMISSIONING NOTES:

A. ALL WORK ASSOCIATED WITH THE BOILERS SHALL BE COMMISSIONED. THE MECHANICAL CONTRACTOR, CONTROLS CONTRACTOR, TAB CONTRACTOR, AND COMMISSIONING AGENT SHALL WORK TOGETHER TO FULLY COMMISSION ALL OF THE MODIFIED AND NEW EQUIPMENT AS OUTLINED IN THE PLANS.

B. THE VA COTR AND CENTRAL PLANT SUPERVISOR SHALL WITNESS COMMISSIONING FOR EACH MODIFIED AND NEW EQUIPMENT.

C. CONTRACTORS SHALL REFERENCE THE COMMISSIONING SPECIFICATIONS FOR A DETAILED DESCRIPTION OF THE SCOPE OF WORK.

D. CONTRACTORS SHALL BE RESPONSIBLE FOR CORRECTING ANY DEFICIENCIES AND RE-COMMISSIONING ANY CORRECTED WORK.

E. THE SCOPE OF THIS PROJECT INCLUDES COMMISSIONING BY AN INDEPENDENT COMMISSIONING AGENT OUTLINED IN THE SPECIFICATIONS. THE WORK, EQUIPMENT, AND SYSTEMS TO BE COMMISSIONED SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:
1. NEW BOILER BURNERS AND ASSOCIATED FANS AND ACCESSORIES
2. NEW FLUE ECONOMIZERS
3. NEW BLOWDOWN HEAT RECOVERY EQUIPMENT

MECHANICAL SYMBOLS:

CALL OUTS:

REFERENCE TO CODED NOTE

G# REFERENCE TO GENERAL NOTE

EQUIPMENT TYPE — BU 1 — UNIT NUMBER: EQUIPMENT OR FIXTURE MARK

3 / H4-1: DETAIL NO. / SECTION/DETAIL/ELEVATION MARK / DRAWING

ABBREVIATIONS:

COTR	CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE
CTE	CONNECT TO EXISTING
P.C.	PLUMBING CONTRACTOR
F.C.	FIRE SUPPRESSION CONTRACTOR
H.C.	HVAC CONTRACTOR
T.C.	TEMPERATURE CONTROL CONTRACTOR
G.C.	GENERAL TRADES CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
SA	SUPPLY AIR
RA	RETURN AIR
EA	EXHAUST AIR
AFF	ABOVE FINISHED FLOOR
AD	ACCESS DOOR
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
MOD	MOTOR OPERATED DEVICE
RD	ROOF DRAIN
FD	FLOOR DRAIN
VFD	VARIABLE FREQUENCY DRIVE FOR MOTOR
FOP	FUEL OIL PUMP
FGR	FLUE GAS RECIRCULATION
RO	ROOF OPENING
TAB	TEST AND BALANCE
VTR	VENT THROUGH ROOF

DUCTWORK SYMBOLS:

24x18	RECTANGULAR DUCT SIZE
12"ø	ROUND DUCT SIZE
	BOILER FLUE UP
	BOILER FLUE DOWN
12x12*	INDICATED TO BE ROUTED WITHIN BEAM/JOIST SPACE
SINGLE LINE	INDICATES TRANSITION

GENERAL SYMBOLS:

X	EXISTING TO REMAIN
XR	EXISTING TO BE REMOVED
XRL	EXISTING TO BE RELOCATED
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	LIMIT OF DEMOLITION

MECHANICAL PIPING:

9'-2"	HEIGHT OF BOTTOM OF PIPE ABOVE FLOOR
—FWPD—	BOILER FEED WATER PUMP DISCHARGE
—FWPS—	BOILER FEED WATER PUMP SUCTION
—HPS—	HIGH PRESSURE STEAM
—HPR—	HIGH PRESSURE CONDENSATE RETURN
—LPS—	LOW PRESSURE STEAM
—LPR—	LOW PRESSURE CONDENSATE RETURN
—A—	COMPRESSED AIR
—BD—	BOILER BLOWDOWN
—CTPD—	CONDENSATE TRANSFER PUMP DISCHARGE
—CTPS—	CONDENSATE TRANSFER PUMP SUCTION
—CW—	DOMESTIC COLD WATER
—D—	DRAIN
—PC—	PUMPED CONDENSATE
—R—	PUMPED RECIRCULATION
—SVR—	SAFETY VENT RELIEF PIPING
— G —	NATURAL GAS
— SW—	SOFTENED WATER
—SAN—	PLUMBING SANITARY WASTE PIPING
— V —	VENT
—FOS—	FUEL OIL SUPPLY
—CHEM—	CHEMICAL TREATMENT (BOILER)
	VALVE
	CHECK VALVE
	SOLENOID VALVE (TWO POSITION)
	UNION
	REDUCER
	TRIPLE DUTY VALVE (SHUTOFF, BALANCE, CHECK)
	STRAINER
	BALANCING VALVE
	FLEXIBLE PIPE CONNECTOR
	THERMOMETER IN PIPE WELL
	PIPE GUIDE
	PIPE EXPANSION ANCHOR
FT	FLOAT & THERMOSTATIC STEAM TRAP
	GAUGE PORT (PETE'S PLUG)
	PRESSURE RELIEF VALVE
	DRAIN VALVE WITH HOSE FITTING
	3-WAY CONTROL VALVE
	2-WAY CONTROL VALVE
	PRESSURE GAUGE
	PUMP SUCTION DIFFUSER WITH STRAINER
	CHARGING VALVE
HAV	HIGH CAPACITY AUTOMATIC AIR VENT
	LOCAL DRAIN, VALVED WITH 3/4" THREADED CONNECTOR
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
TF	TANK FITTING
MAV	MANUAL AIR VENT
	PRESSURE RELIEF VALVE
	PRESSURE GAUGE (WITH SYPHON ON STEAM SERVICE)
	SHUTOFF VALVE IN VERTICAL PIPE
	ECCENTRIC REDUCER
	TOP CONNECTION, 45° OR 90°
	BOTTOM CONNECTION, 45° OR 90°
	SIDE CONNECTION
	DIRECTION OF FLOW
	WATER FLOW MEASURING DEVICE

ECONOMIZER, FLUE GAS/FEEDWATER HEAT EXCHANGERS

MARK	LOCATION	SYSTEM AND/OR SERVICE	QUANTITY	HEAT RECOVERED (BTUH)	WATER FLOW (GPM)	EWT (°F)	LWT (°F)	MAX PRESSURE DROP WATERSIDE (PSIG)	FUEL GAS FLOW (SCFM)	FLUE GAS ENTERING TEMP (°F)	FLUE GAS LEAVING TEMP (°F)	MAX PRESSURE DROP GAS SIDE WC (IN)	PHYSICAL DATA	
													WET WGT (LBS)	DIMENSIONS (LxWxH)
FHX-1	BOILER PLANT	BOILER #1	1	1,113,000	50	227	274	0.09	6099	510	357	0.42	2,500	80"x66"x50.3"
FHX-2	BOILER PLANT	BOILER #2	1	1,113,000	50	227	274	0.09	6099	510	357	0.42	2,500	80"x66"x50.3"
FHX-3	BOILER PLANT	BOILER #3	1	1,113,000	50	227	274	0.09	6099	510	357	0.42	2,500	80"x66"x50.3"

NOTES:
1. SCHEDULE LISTS MINIMUM HEAT RECOVERED AT 100% BOILER LOAD.
2. PERFORMANCE LISTED IS BASED ON NATURAL GAS FUEL.

VARIABLE FREQUENCY DRIVES

MARK	VFD-1	VFD-2	VFD-3
EQUIPMENT SERVED	BOILER #1 FORCED DRAFT FAN	BOILER #2 FORCED DRAFT FAN	BOILER #3 FORCED DRAFT FAN
MOTOR HORSEPOWER	25	25	25
ELECTRICAL			
VOLTS-PHASE-HERTZ	480-3-60	480-3-60	480-3-60
MCA	-	-	-
MOCP	-	-	-
ACCESSORIES			
UL LISTED	YES	YES	YES
BYPASS	YES	YES	YES
FUSED DISCONNECT, INTERLOCKING TYPE	YES	YES	YES
HARMONICS REDUCTION	YES	YES	YES
FACTORY AUTHORIZED STARTUP	YES	YES	YES
BUILDING CONTROLS NETWORK INTERFACE CARD	YES	YES	YES

NOTES:
1. PROVIDE FACTORY START-UP FOR EACH VFD.
2. PROVIDE ALL NECESSARY CARDS, HARDWARE, AND PROGRAMMING REQUIRED TO LET THE EXISTING BOILER CONTROL SYSTEM CONTROL THE DRIVE, CHANGE SET-POINTS, AND READ OUTPUTS.
3. VFDS SHALL BE CAPABLE OF STOPPING A REVERSE SPINNING MOTOR, AND CATCHING-UP WITH A FORWARD SPINNING MOTOR.
4. WORK WITH BURNER MANUFACTURER REPRESENTATIVE TO SET MAXIMUM AND MINIMUM LIMITS FOR EACH VFD.
5. PROVIDE NEMA 12 ELECTRICAL CONTROL CABINET WITH LOUVERED VENTS AND COOLING FAN. SEPARATE 120VAC, 4 AMP ELECTRICAL SUPPLY TO THE COOLING FAN. COORDINATE POWER WITH EC.
6. DIMENSIONS: 30"W x 12"L x 30"T
7. VFDS SHALL RUN IN MANUAL MODE UPON COMPLETION OF THIS PROJECT. VARIABLE DRIVE CONTROL SHALL BE ACCOMPLISHED AS PART OF A FUTURE PROJECT.

WATER LEVEL CONTROL VALVE SCHEDULE

MARK	LOCATION	SYSTEM AND/OR SERVICE	QUA.	CAPACITY AT DIFFERENTIAL PRESSURE	FLOW RANGE (GPM)	WATER TEMP (°F)	MAX INLET PRESSURE (PSIG)	MAX DIFF. PRESSURE (PSIG)	MAIN VALVE PIPE SIZE (IN)	SHUT-OFF
LCV-1C	BOILER PLANT	SOFT WATER MAKE-UP	1	20 GPM, 20 PSI	0-25	70	70	70	1-1/2"	YES

FOR CONSTRUCTION

FULLY SPRINKLERED

Final Bid Set	09-11-12
Revisions:	**Date**

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Drawing Title: **MECHANICAL SYMBOLS, NOTES, AND EQUIPMENT LIST**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

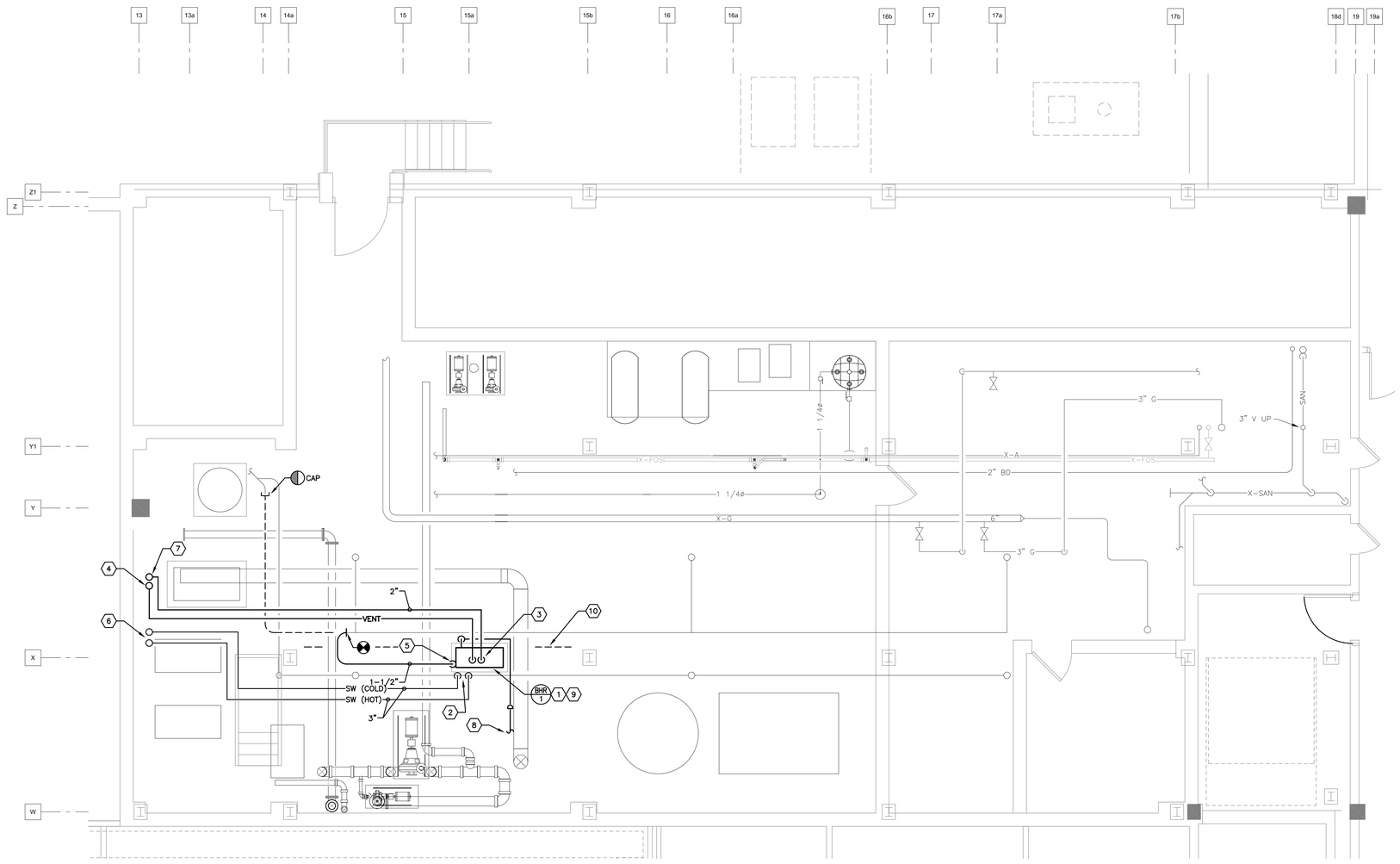
Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **BMW** | Drawn: **LDH**

Project Number: 541-11-105
Building Number: 1
Drawing Number: **1-H1**
Dwg. of

Office of Facilities Management
Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



CODED NOTES:

1. MOUNT NEW BLOWDOWN HEAT RECOVERY SYSTEM ON 4" THICK CONCRETE HOUSEKEEPING PAD. FIELD VERIFY LOCATION SO THAT EQUIPMENT ACCESS IS MAINTAINED. COORDINATE LOCATION WITH VA COTR AND BOILER PLANT SUPERVISOR.
2. PIPE 3" SW TO BLOWDOWN HEAT RECOVERY WATER INLET/OUTLET.
3. PIPE 2" FLASH STEAM AND PRESSURE RELIEF PIPE FROM BHR-1 FLASH RECEIVER. REFER TO DWG 1-H3 FOR CONTINUATION. FIELD VERIFY LOCATION OF PENETRATION.
4. PIPE 1-1/2" PRESSURE RELIEF UP TO BOILER PLANT ROOF. REFER TO DWG 1-H3 FOR CONTINUATION. FIELD VERIFY LOCATION OF PENETRATION.
5. PIPE 1-1/2" BOILER SURFACE BLOWDOWN TO FLASH RECEIVER BLOWDOWN INLET. REMOVE SURFACE BLOWDOWN PIPING BACK TO EXISTING CONDENSATE TANK HEADER AND CAP.
6. 3" SW AND SW (HEATED) UP TO OPERATING FLOOR. REFER TO DWG 1-H3 FOR CONTINUATION. FIELD VERIFY LOCATION OF PENETRATIONS.
7. PIPE 2" FLASH STEAM UP. REFER TO DWG 1-H3 FOR CONTINUATION. FIELD VERIFY EXACT ROUTING.
8. PIPE 1-1/2" BLOWDOWN DISCHARGE (110° F) TO LOCAL FLOOR DRAIN.
9. REFER TO PIPING DETAIL, DWG. 1-H6.
10. CONTRACTOR SHALL REMOVE EXISTING FENCE/CAGE LOCATED IN AREA DESIGNATED FOR BHR-1. PROVIDE 50 LINEAL FEET OF NEW FENCE/CAGE AS DIRECTED BY VA IN ORDER TO ENCLOSE AREA. FIELD VERIFY EXISTING CONDITIONS.

BOILER ROOM BASEMENT
MECHANICAL PLAN 1
SCALE: 1/4" = 1'-0"

0' 2' 4' 8' 16'

ELEVATIONS (APPROXIMATE):

ASH PIT (BASEMENT) = 653'-3"

OPERATING FLOOR (FIRST FLOOR) = 664'-0"

ROOF = 715'-0"

FOR CONSTRUCTION

FULLY SPRINKLERED

Revisions:	Date
Final Bid Set	09-11-12

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Drawing Title: **BOILER ROOM BASEMENT MECHANICAL PLAN**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **BMW** | Drawn: **LDH**

Project Number: 541-11-105

Building Number: 1

Drawing Number: **1-H2**

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Department of Veterans Affairs

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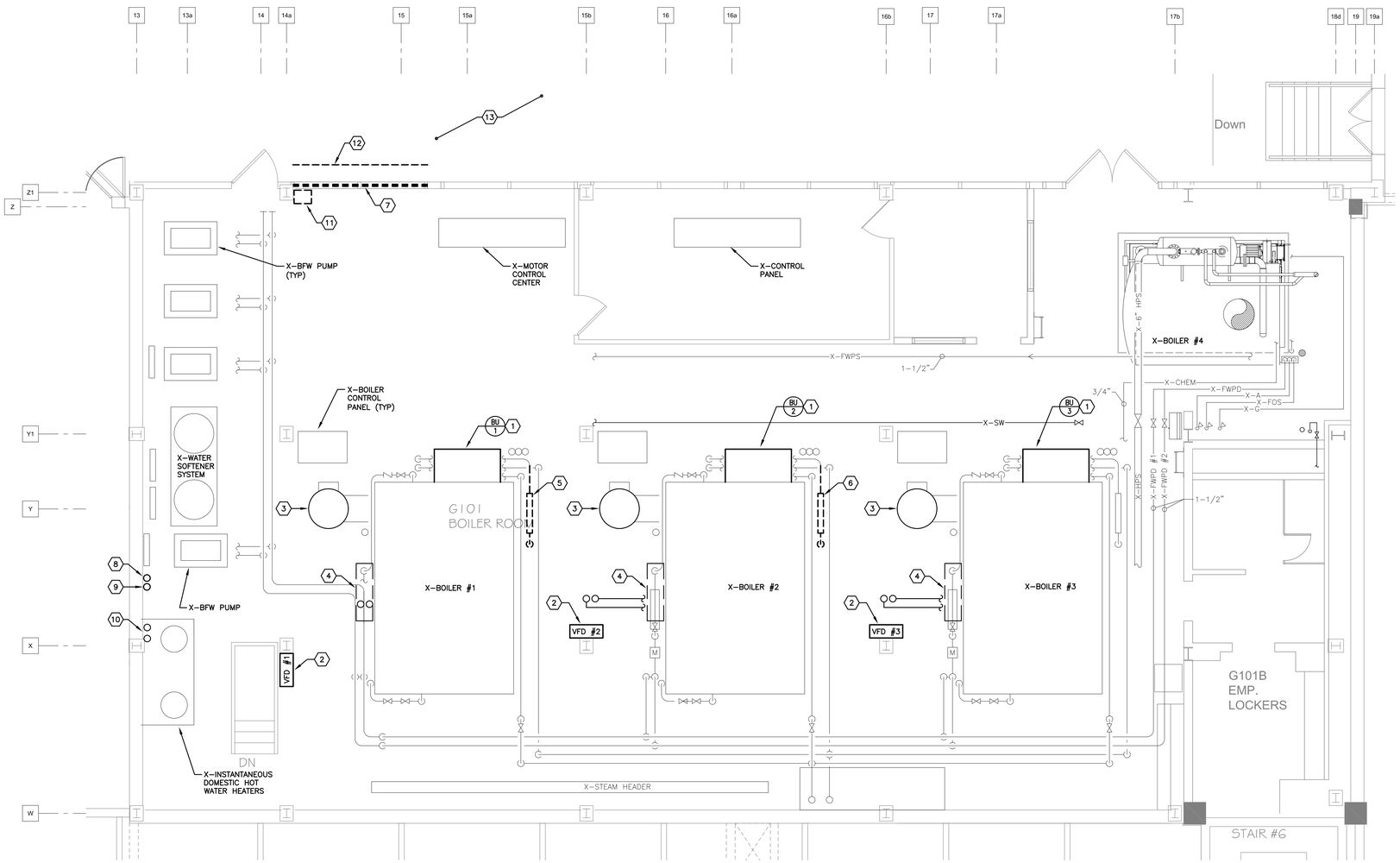

BOILER ROOM OPERATING FLOOR MECHANICAL PLAN (1)

SCALE: 1/4" = 1'-0"

0' 2' 4' 8' 16'

CODED NOTES:

1. DISCONNECT AND REMOVE EXISTING BURNER. INSTALL NEW LOW NOx BURNER AND CONNECT COMPLETE TO EXISTING GAS, FUEL OIL, VENT PIPING AS WELL AS POWER AND CONTROLS. DISCONNECT AND REMOVE EXISTING FORCED DRAFT FAN. INSTALL NEW FORCED DRAFT FAN AND ASSOCIATED FGR DUCTWORK AND ACCESSORIES PER MANUFACTURER'S RECOMMENDATIONS.
2. NEW FORCED DRAFT FAN VFD. MOUNT FROM FLOOR WITH UNISTRUT. COORDINATE WITH ELECTRICAL CONTRACTOR THE LOCATION AND ALL POWER REQUIREMENTS. COORDINATE LOCATION WITH ALL OTHER SYSTEMS.
3. EXISTING DOUBLE WALL, INSULATED BOILER FLUE STACK TO REMAIN. REFERENCE PLATFORM PLAN FOR REMOVAL OF SECTION FOR INSTALLATION OF NEW FLUE ECONOMIZER.
4. PIPE 2" BOILER FEEDWATER PIPE UP TO NEW FLUE ECONOMIZER (STANDARD, NON-CONDENSING). APPROX. ELEVATION = 20'-0" AFF. REFER TO PIPING DIAGRAM FOR ADDITIONAL INFORMATION. CONNECT PIPING TO EXISTING FEEDWATER SYSTEM PIPING IN PLACE IN APPROXIMATE AREA.
5. DURING SHUTDOWN OF BOILER #1, DISCONNECT AND RECONNECT BOILER #1 GAS TRAIN TO ALLOW STAGING OF FHX-2 IN BETWEEN BOILERS #1 AND #2. FHX-2 SHALL BE PLACED IN BETWEEN BOILERS UNTIL ACTIVATION OF BOILER #1 AND SHUTDOWN OF BOILER #2.
6. DURING SHUTDOWN OF BOILER #2, DISCONNECT AND RECONNECT BOILER #2 GAS TRAIN TO ALLOW STAGING OF FHX-3 IN BETWEEN BOILERS #2 AND #3. FHX-3 SHALL BE PLACED IN BETWEEN BOILERS UNTIL ACTIVATION OF BOILER #2 AND SHUTDOWN OF BOILER #3.
7. BOILER FLUE ECONOMIZERS SHALL BE BROUGHT IN THROUGH CURTAIN WALL SECTION INDICATED (APPROX. 11'-0" WIDE). REFER TO ARCHITECTURAL PLAN FOR ADDITIONAL INFORMATION. EXISTING PIPING AND VALVES AT FACE OF THE WALL SHALL REMAIN. FIELD VERIFY EXISTING CONDITIONS.
8. 2" BHR-1 FLASH STEAM UP AND DOWN. REFER TO DWGS 1-H2 AND 1-H4 FOR CONTINUATION. FIELD VERIFY EXACT ROUTING.
9. 1-1/2" PRESSURE RELIEF VENT PIPING UP AND DOWN. REFER TO DWGS 1-H2 AND 1-H4 FOR CONTINUATION. FIELD VERIFY EXACT ROUTING.
10. 3" SW (HOT AND COLD TO BHR-1) UP AND DOWN. REFER TO DWGS 1-H2 AND 1-H4 FOR CONTINUATION. FIELD VERIFY EXACT ROUTING.
11. CONTRACTOR SHALL REMOVE AND REPLACE FIRE PUMP TEST CONNECTION, PLUMBING LINES, AND HOSE BIBB AS REQUIRED FOR REMOVAL AND REPLACEMENT OF CURTAIN WALL AND RIGGING AND INSTALLATION OF NEW EQUIPMENT.
12. CONTRACTOR SHALL REMOVE AND REPLACE GUARD RAIL AS REQUIRED FOR RIGGING AND INSTALLATION OF NEW EQUIPMENT.
13. CONCRETE DRIVEWAY/DECK DESIGNED FOR 300 PSF UNIFORM LOAD. CONFIRM AND COORDINATE ANY UTILIZATION OF DECK WITH VA COTR.

GENERAL NOTES:

A. A MAXIMUM OF ONLY ONE BOILER (OF 4 TOTAL) SHALL BE SHUTDOWN AT A TIME DURING CONSTRUCTION. THE THREE REMAINING BOILERS SHALL BE CAPABLE OF OPERATING DURING THE PERIOD OF A SINGLE BOILER SHUTDOWN. NO EXCEPTIONS. INDIVIDUAL BOILER SHUTDOWNS SHALL BE ILLUSTRATED AND HIGHLIGHTED ON PROJECT CONSTRUCTION SCHEDULE. COORDINATE SCHEDULING WITH VA COTR AND BOILER PLANT MANAGER.

ELEVATIONS (APPROXIMATE):

ASH PIT (BASEMENT) = 653'-3"

OPERATING FLOOR (FIRST FLOOR) = 664'-0"

ROOF = 715'-0"

FOR CONSTRUCTION

FULLY SPRINKLERED

Final Bid Set	09-11-12
Revisions:	**Date**

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Drawing Title: **BOILER ROOM OPERATING FLOOR MECHANICAL PLAN**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **BMW** | Drawn: **LDH**

Project Number: 541-11-105

Building Number: 1

Drawing Number: **1-H3**

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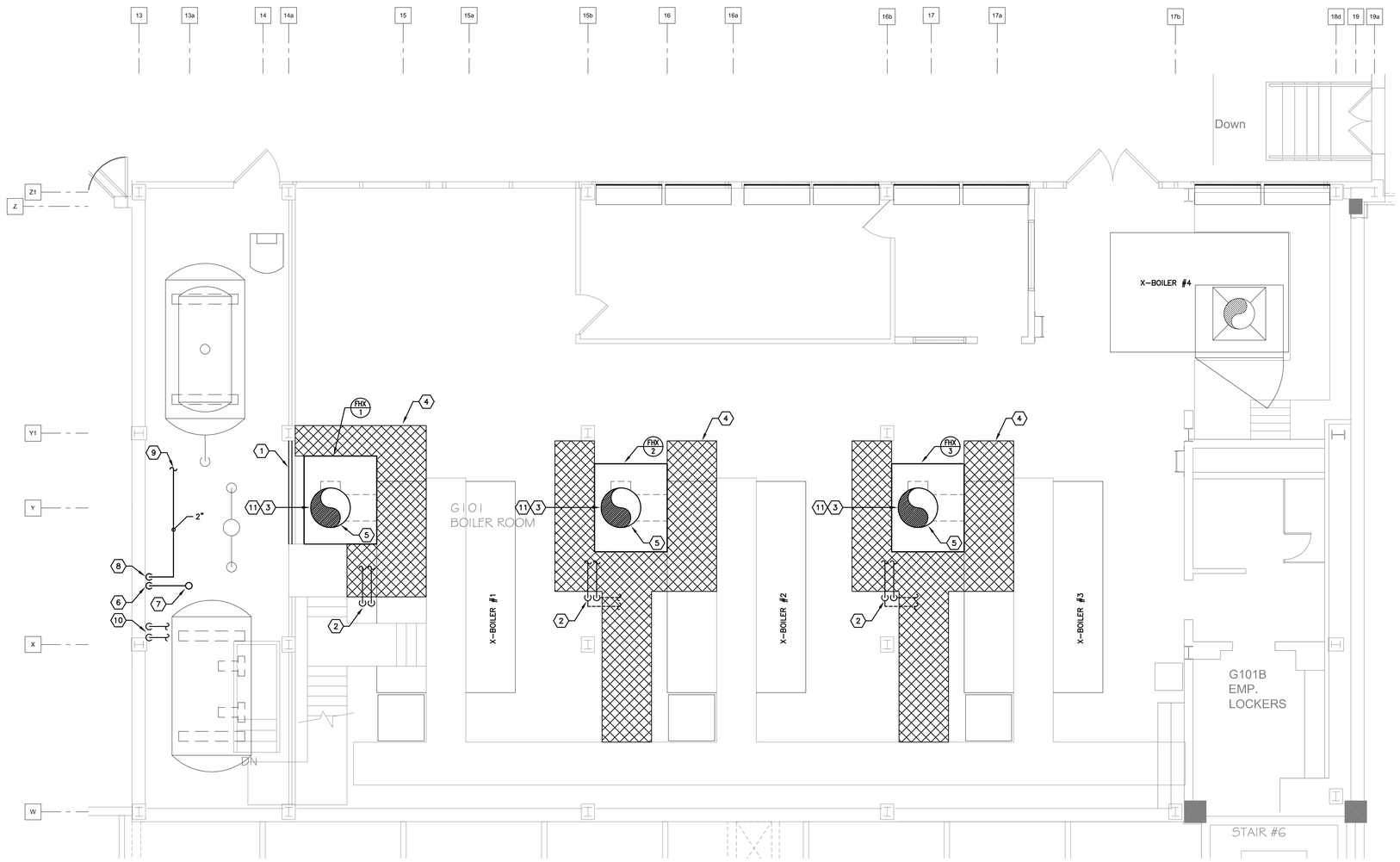
VA FORM 08-6231, OCT 1978



BOILER ROOM MAIN PLATFORM
MECHANICAL PLAN (1)

SCALE: 1/4" = 1'-0"

0' 2' 4' 8' 16'

CODED NOTES:

1. REMOVE EXISTING RAILING. RE-INSTALL RAILING APPROXIMATELY 8" WEST OF EXISTING LOCATION IN ORDER TO ACCOMMODATE NEW ECONOMIZER. MODIFY RAILING AS REQUIRED TO BE REMOVABLE IN ORDER TO ACCESS SIDE OF ECONOMIZER.
2. 2" BFW PIPING UP AND DOWN TO FLUE ECONOMIZER. REFER TO PIPING DIAGRAM FOR ADDITIONAL INFORMATION.
3. REMOVE APPROXIMATE 12'-0" SECTION OF DOUBLE WALL FLUE STACK TO ALLOW INSTALLATION OF NEW FLUE ECONOMIZER. BOTTOM OF ECONOMIZER SHALL BE LOCATED DIRECTLY ABOVE TOP ELEVATION OF BOILER SO AS TO ALLOW EXTENSION OF EXISTING PLATFORM SYSTEM FOR ECONOMIZER ACCESS. EXTEND DOUBLE WALL, INSULATED FLUE STACK TO ECONOMIZER INLET/OUTLET CONNECTIONS. PROVIDE STACK ADAPTER AS NECESSARY. ECONOMIZER SHALL BE SUPPORTED FROM STRUCTURE ABOVE VIA HANGER SYSTEM. CONTRACTOR SHALL PROVIDE STRUCTURAL STEEL AND/OR HANGERS TO FULLY AND ADEQUATELY SUPPORT ECONOMIZER. CONTRACTOR SHALL EMPLOY STRUCTURAL ENGINEER TO DESIGN STRUCTURAL SUPPORT FOR ECONOMIZER AND TO REVIEW INSTALLATION.
4. PROVIDE GRATED PLATFORM MATCHING EXISTING TYPE. ACCESS PLATFORM (AND STAIRS) SHALL BE CAPABLE OF SUPPORTING 100 LBS/SQ FT OF LOAD. EXTEND PLATFORM TO ALLOW ACCESS TO FHX ACCESS DOOR AND PIPING CONNECTIONS. PLATFORM SHALL BE FULLY SUPPORTED FROM FLOOR BELOW. COLUMNS/LEGS EXTENDING TO FLOOR BELOW SHALL NOT OBSTRUCT ACCESS OR WALKING PATH AT OPERATING FLOOR. PROVIDE STAIRS AND ELEVATION SO THAT ADEQUATE CLEARANCE IS GIVEN ABOVE THE BOILER AND THAT PIPING TO BOILER IS NOT OBSTRUCTED. ELEVATION SHALL BE ADJUSTED BASED ON FINAL EQUIPMENT SELECTION. PROVIDE SAFETY RAILING AROUND PERIMETER OF PLATFORM. CONTRACTOR SHALL EMPLOY STRUCTURAL ENGINEER TO DESIGN PLATFORM AND TO REVIEW FINAL INSTALLATION.
5. PROVIDE NEW DOUBLE CONE RAIN/WEATHER CAP AT FLUE TERMINATION (ROOF ABOVE). CAP SHALL BE DESIGNED BY MANUFACTURER OF FLUE STACK SYSTEM. CONTRACTOR SHALL INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. BHR-1 PRESSURE RELIEF DOWN TO BASEMENT. REFER TO DWGS. 1-H2 AND 1-H3 FOR CONTINUATION. FIELD VERIFY EXACT ROUTING.
7. 1-1/2" PRESSURE RELIEF VENT UP THROUGH ROOF. TERMINATE 6'-0" ABOVE ROOF.
8. 2" BHR-1 FLASH STEAM DOWN TO BASEMENT. REFER TO DWGS. 1-H2 AND 1-H3 FOR CONTINUATION. FIELD VERIFY EXACT ROUTING.
9. 2" FLASH STEAM TO DEAERATOR STEAM SUPPLY. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
10. 3" SW (HOT/COLD) ROUTED BETWEEN BHR-1 HEAT EXCHANGER AND SW SUPPLY TO SURGE TANK. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
11. REMOVE EXISTING OXYGEN ANALYZER INSTALLED IN FLUE. PROVIDE NEW OXYGEN ANALYZER. PROVIDE ALL NECESSARY WIRING, CONDUITS, CONTROLS INTEGRATION AS REQUIRED. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

GENERAL NOTES:

A. A MAXIMUM OF ONLY ONE BOILER (OF 4 TOTAL) SHALL BE SHUTDOWN AT A TIME DURING CONSTRUCTION. THE THREE REMAINING BOILERS SHALL BE CAPABLE OF OPERATING DURING THE PERIOD OF A SINGLE BOILER SHUTDOWN. NO EXCEPTIONS. INDIVIDUAL BOILER SHUTDOWNS SHALL BE ILLUSTRATED AND HIGHLIGHTED ON PROJECT CONSTRUCTION SCHEDULE. COORDINATE SCHEDULING WITH VA COTR AND BOILER PLANT MANAGER.

ELEVATIONS (APPROXIMATE):

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OPERATING FLOOR (FIRST FLOOR) = 664'-0"

ROOF = 715'-0"

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Drawing Title: **BOILER ROOM MAIN PLATFORM MECHANICAL PLAN**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **BMW** | Drawn: **LDH**

Project Number: 541-11-105

Building Number: 1

Drawing Number: **1-H4**

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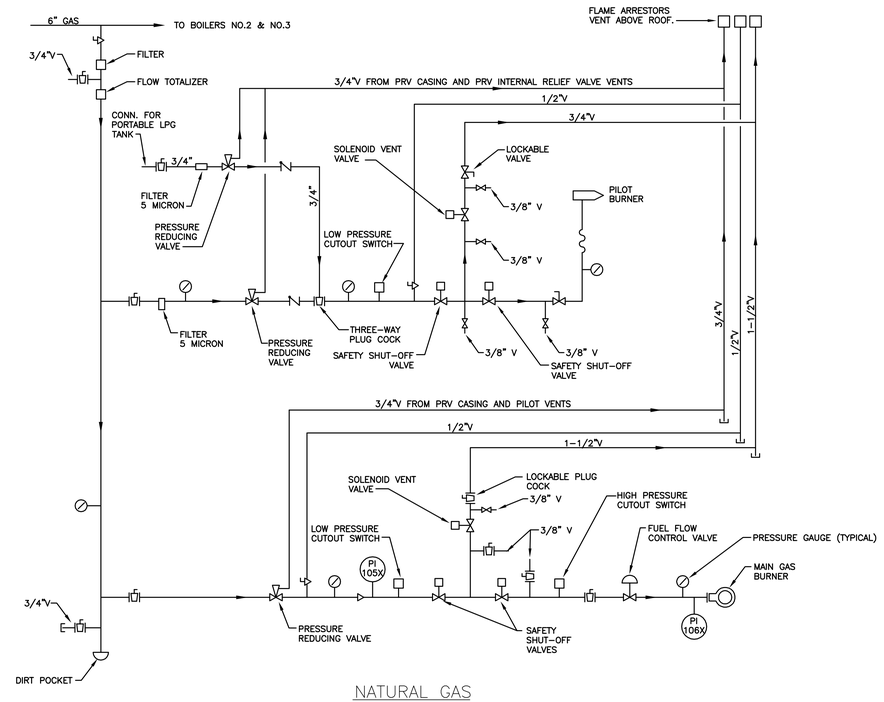
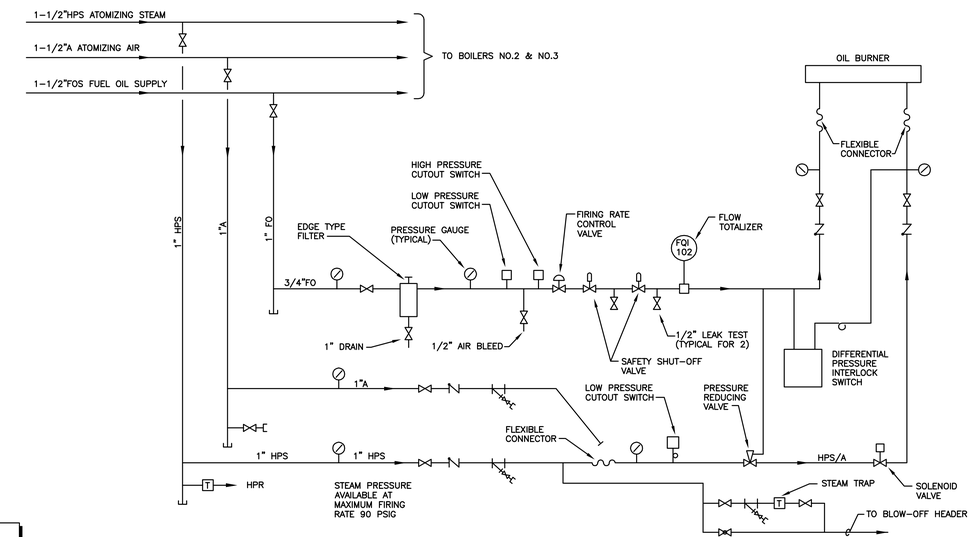
VA FORM 08-6231, OCT 1978

CONTROL DEVICES

TAG	LOCATION	DESCRIPTION	EXISTING DEVICE TO REMAIN	INSTALL NEW DEVICE	NOTES
FQI–102X	BOILER NO. 1 – GAS TRAIN	FLOW TOTALIZER	X		MAINTAIN WIRING TO CONTROL PANEL
PI–105X	BOILER NO. 1 – GAS TRAIN	PRESSURE INDICATOR	X		CONNECT TO EXISTING CONTROL PANEL
PI–106X	BOILER NO. 1 – GAS TRAIN	PRESSURE INDICATOR	X		CONNECT TO EXISTING CONTROL PANEL
FQI–102	BOILER NO. 1 – FUEL OIL	FLOW TOTALIZER	X		CONNECT TO EXISTING CONTROL PANEL
FQI–202X	BOILER NO. 2 – GAS TRAIN	FLOW TOTALIZER	X		MAINTAIN WIRING TO CONTROL PANEL
PI–205X	BOILER NO. 2 – GAS TRAIN	PRESSURE INDICATOR	X		CONNECT TO EXISTING CONTROL PANEL
PI–206X	BOILER NO. 2 – GAS TRAIN	PRESSURE INDICATOR	X		CONNECT TO EXISTING CONTROL PANEL
FQI–202	BOILER NO. 2 – FUEL OIL	FLOW TOTALIZER	X		CONNECT TO EXISTING CONTROL PANEL
FQI–302X	BOILER NO. 3 – GAS TRAIN	FLOW TOTALIZER	X		MAINTAIN WIRING TO CONTROL PANEL
PI–305X	BOILER NO. 3 – GAS TRAIN	PRESSURE INDICATOR	X		CONNECT TO EXISTING CONTROL PANEL
PI–306X	BOILER NO. 3 – GAS TRAIN	PRESSURE INDICATOR	X		CONNECT TO EXISTING CONTROL PANEL
FQI–302	BOILER NO. 3 – FUEL OIL	FLOW TOTALIZER	X		CONNECT TO EXISTING CONTROL PANEL
LC101	BOILER 1	LEVEL CONTROLLER	X		CONNECT TO EXISTING SIGNAL
LC201	BOILER 2	LEVEL CONTROLLER	X		CONNECT TO EXISTING SIGNAL
LC301	BOILER 3	LEVEL CONTROLLER	X		CONNECT TO EXISTING SIGNAL
LCV–1C	SURGE TANK	WATER LEVEL CONTROLLER		X	CONNECT TO EXISTING CONTROLS



NATURAL GAS



FUEL OIL, ATOMIZING, STEAM/AIR

BURNER PIPING SCHEMATICS – TYPICAL
NOT TO SCALE

GENERAL NOTES:

A. DRAWINGS INDICATE EXISTING GENERAL PIPING CONFIGURATIONS AT BOILER BURNERS FOR REFERENCE. CONTRACTOR SHALL DISCONNECT EXISTING BURNERS AND RECONNECT NEW BURNERS WHILE MAINTAINING EXISTING APPURTENANCES NOT PROVIDED WITH NEW BURNER.

B. EXISTING CONTROL SEQUENCES FOR BOILERS TO BE MAINTAINTED. CONTRACTOR SHALL PRESERVE EXISTING CONTROL SEQUENCES ASSOCIATED WITH EACH BOILER AND UTILIZE UPON START–UP. CONTRACTOR SHALL MAKE NECESSARY MODIFICATIONS AND ADJUSTMENTS AS NECESSARY BASED ON NEW EQUIPMENT INSTALLED.

FOR CONSTRUCTION

FULLY SPRINKLERED

Revisions:	Date
Final Bid Set	09-11-12

CONSULTANTS:

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Drawing Title: **MECHANICAL DETAILS**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **BMW** | Drawn: **LDH**

Project Number: 541-11-105

Building Number: 1

Drawing Number: **1-H5**

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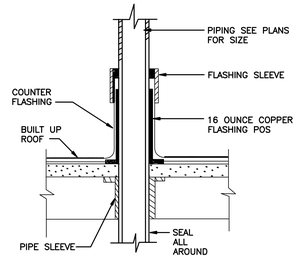
Office of Facilities Management

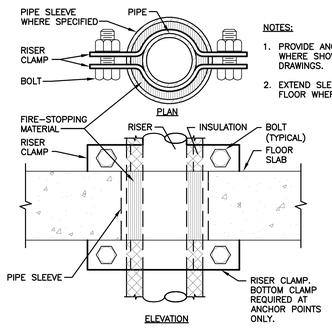
Department of Veterans Affairs

VA FORM 08–6231, OCT 1978



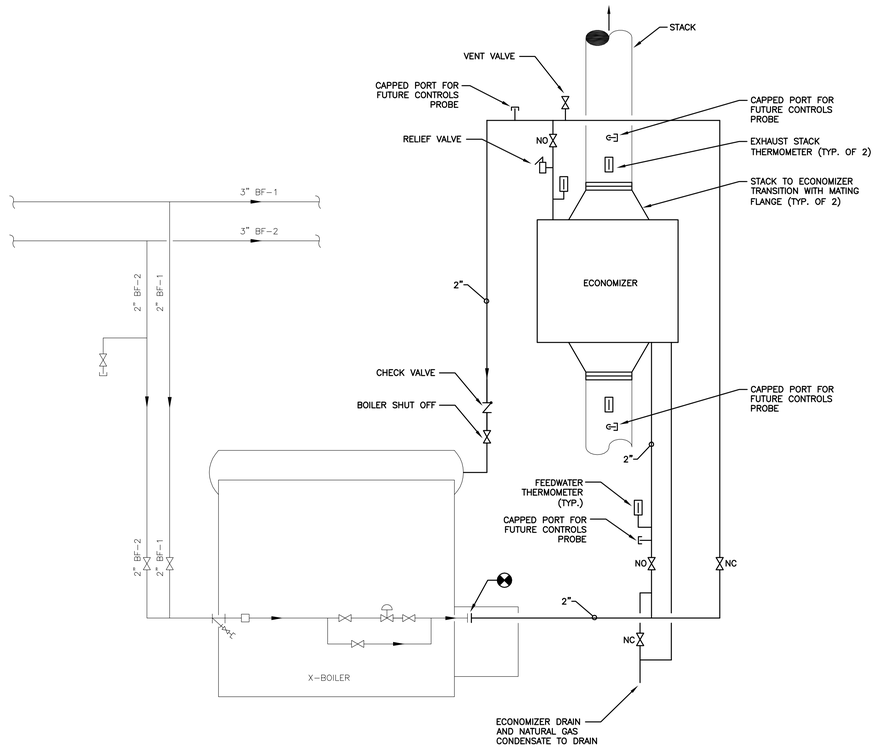
PIPE ROOF PENETRATION DETAIL

NTS



NOTES:

1. PROVIDE ANCHORS ONLY WHERE SHOWN ON DRAWINGS.
2. EXTEND SLEEVE ABOVE FLOOR WHERE SPECIFIED.

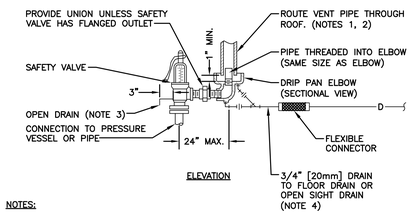


FLUE GAS ECONOMIZER PIPING DIAGRAM

NTS

NOTES:

1. NUMBER OF ELBOWS IN BOILER FEEDWATER PIPING SHALL BE KEPT TO A MINIMUM.

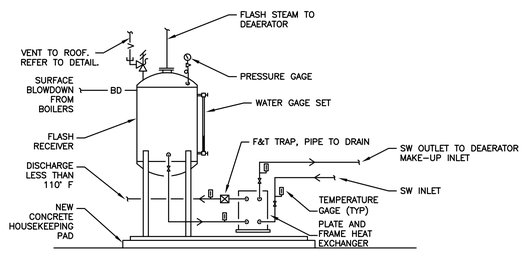


NOTES:

1. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SIZE THE VENT PIPE SO THAT STEAM IS NOT BLOWN OUT AT THE VENT PIPE ENTRANCE. UTILIZE THE CALCULATION METHOD CONTAINED IN ANSI B31.1. POWER PIPING CODE, APPENDIX II.
2. VENT PIPE SHALL TERMINATE 6' [1829mm] MIN. ABOVE FINISHED ROOF.
3. DISCHARGE OF DRAIN MUST BE DIRECTED AWAY FROM PLATFORMS OR OTHER AREAS WHICH PERSONNEL MAY OCCUPY.
4. DO NOT CONNECT ANY OTHER DRAIN TO THE DRIP PAN ELBOW DRAIN PIPE.

STEAM SAFETY VALVE

NTS



BLOWDOWN HEAT RECOVERY SYSTEM

NTS

FOR CONSTRUCTION

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Final Bid Set	09-11-12
Revisions:	**Date**

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Drawing Title: **MECHANICAL DETAILS**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **BMW** | Drawn: **LDH**

Project Number: 541-11-105

Building Number: 1

Drawing Number: **1-H6**

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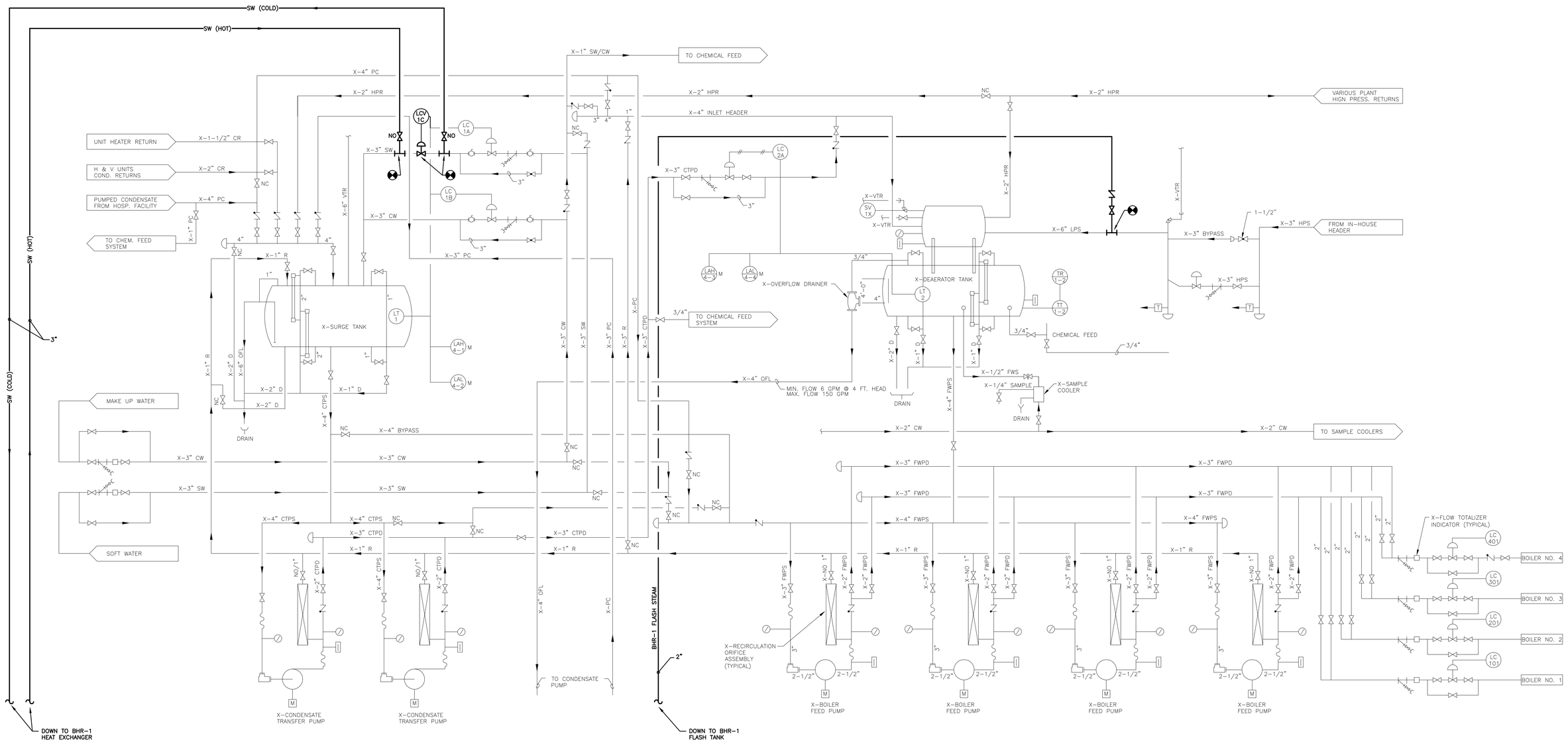

BOILER PLANT PIPING SYSTEMS DIAGRAM

NOT TO SCALE

FOR CONSTRUCTION

FULLY SPRINKLERED

Final Bid Set	09-11-12
Revisions:	**Date**

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Drawing Title: **BOILER PLANT PIPING SYSTEMS DIAGRAM**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **BMW** | Drawn: **LDH**

Project Number: 541-11-105

Building Number: 1

Drawing Number: **1-H7**

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POWER DISTRIBUTION ONE LINE

XR — — — — — — — EXISTING EQUIPMENT, FEEDER/CIRCUIT – TO BE REMOVED

X ———————— EXISTING EQUIPMENT, FEEDER/CIRCUIT – TO REMAIN

3/4"C – FEEDER — NEW EQUIPMENT, FEEDER/CIRCUIT AND FEEDER TAG. 3/4" MINIMUM SIZE CONDUIT WITH CONDUCTOR SIZE AND QUANTITIES AS INDICATED.

EQUIPMENT OUTLINE

M — MOTOR – NUMBER DENOTES HORSEPOWER

COMBINATION FUSED MAGNETIC MOTOR STARTER.

VFD — VARIABLE FREQUENCY DRIVE – FURNISHED BY MECHANICAL CONTRACTOR. INSTALL AND CONNECT LINE VOLTAGE POWER PER MANUFACTURER'S INSTRUCTIONS. TEMPERATURE CONTROL CONTRACTOR SHALL INSTALL AND CONNECT ALL CONTROL WIRING TO VFD. LINE SIDE AND LOAD SIDE FEEDERS SHALL BE INSTALLED IN SEPARATE CONDUITS.

50AT — BOLTED STATIONARY CIRCUIT BREAKER – 3-POLE UNLESS OTHERWISE NOTED.

WIRING DEVICES & TERMINATIONS

20A-125V, HOSPITAL GRADE, GROUNDED SINGLE RECEPTACLE, MOUNT AT 18" AFF UNLESS OTHERWISE NOTED. SEE NOTES NDC & MH.

20A-125V, HOSPITAL GRADE, GROUNDED DUPLEX RECEPTACLE, MOUNT AT 18" AFF UNLESS OTHERWISE NOTED. SEE NOTES NDC & MH.

DOUBLE 20A-125V, HOSPITAL GRADE, GROUNDED DUPLEX RECEPTACLE, MOUNT AT 18" AFF UNLESS OTHERWISE NOTED. SEE NOTES NDC & MH.

20A-125V, HOSPITAL GRADE, GROUND FAULT INTERRUPTER RECEPTACLE, MOUNT AT 18" AFF UNLESS OTHERWISE NOTED. SEE NOTES NDC & MH.

WP — 20A-125V, HOSPITAL GRADE, GROUND FAULT INTERRUPTER TYPE RECEPTACLE INSTALLED IN WEATHERPROOF ENCLOSURE THAT MAINTAINS WET LOCATION RATING WHILE IN-USE. CONNECT TO NORMAL CIRCUIT. MOUNT AT 18" ABOVE GRADE UNLESS OTHERWISE NOTED. SEE NOTES NDC & MH.

WP — SAME DEVICE TYPES AS INDICATED ABOVE EXCEPT CONNECTED TO EMERGENCY CRITICAL CIRCUIT – SEE NOTES EDC & MH.

SPECIAL RECEPTACLE TYPE – REFER TO DRAWINGS FOR CONFIGURATION REQUIREMENTS. MOUNT AT 18" AFF UNLESS OTHERWISE NOTED. SEE NOTES MH.

EXISTING SURFACE MOUNTED STEEL RACEWAY WITH REMOVABLE COVER – REMOVE ALL COMPONENTS (ELBOWS, COUPLINGS, ENDCAPS, ETC.) NECESSARY FOR ANY MODIFICATIONS INDICATED ON DRAWINGS.

J — JUNCTION BOX, CEILING OR WALL MOUNTED, 4" SQ. WITH GROUND LUG, UNLESS OTHERWISE NOTED. COORDINATE MOUNTING LOCATION WITH EQUIPMENT.

TCP — TEMPERATURE CONTROL PANEL FURNISHED AND INSTALLED BY OTHERS. EC SHALL PROVIDE 120V CONNECTION (HARDWIRED OR RECEPTACLE, AS REQUIRED).

$ — 20A-1P-120/277V WALL SWITCH MOUNTED AT 48" AFF UNLESS OTHERWISE NOTED. SEE NOTES EDC, NDC & MH

NOTE NDC: NORMAL DEVICE COLOR – ALL RECEPTACLES AND SWITCHES CONNECTED TO NORMAL POWER CIRCUITS SHALL BE IVORY WITH STAINLESS STEEL FACEPLATES – EACH PLATE SHALL BE MACHINE ENGRAVED WITH THE PANEL AND CIRCUIT NUMBER OF THE POWER SOURCE THAT SUPPLIES EACH DEVICE.

NOTE EDC: EMERGENCY DEVICE COLOR – ALL RECEPTACLES AND SWITCHES CONNECTED TO EMERGENCY POWER CIRCUITS SHALL BE RED WITH STAINLESS STEEL FACEPLATES. EACH EMERGENCY PLATE SHALL BE MACHINE ENGRAVED WITH THE PANEL AND CIRCUIT NUMBER OF THE POWER SOURCE THAT SUPPLIES EACH DEVICE. THE ELECTRICAL CONTRACTOR SHALL CLOSELY REVIEW ALL PLANS TO DETERMINE ALL EMERGENCY CIRCUITS AND SHALL PROVIDE ALL RED DEVICES AND AND ENGRAVED PLATES AS REQUIRED – NO EXCEPTIONS.

NOTE MH: COORDINATE ALL MOUNTING HEIGHTS WITH ARCHITECT PRIOR TO ROUGH-IN. MOUNTING HEIGHTS ARE TO THE CENTER OF DEVICES UNLESS OTHERWISE NOTED.

POWER DISTRIBUTION EQUIPMENT (FLOOR PLAN VIEW)

208/120V-3ø-4W PANELBOARD UNLESS OTHERWISE NOTED. MOUNT AT 78" AFF TO TOP OF PANEL.

480/277V-3ø-4W PANELBOARD UNLESS OTHERWISE NOTED. MOUNT AT 78" AFF TO TOP OF PANEL.

GENERAL PURPOSE, 3 PHASE DRY-TYPE TRANSFORMER – TYPE AS NOTED ON PLANS.

FUSED DISCONNECT SWITCH – SIZE AND TYPE AS NOTED. PROVIDE CLASS RK1 FUSES UNLESS OTHERWISE NOTED. NEMA 1 ENCLOSURE UNLESS OTHERWISE NOTED.

GB — GROUNDING BUSBAR

MOTOR AND MOTOR CONTROLLERS (FLOOR PLAN VIEW)

M — MOTOR – NUMBER DENOTES HORSEPOWER

COMBINATION FUSED MAGNETIC MOTOR STARTER COMPLETE WITH "HAND-OFF-AUTO" SELECTOR SWITCH AND RED "RUN" PILOT LIGHT IN COVER. NEMA SIZE 0 CONTACTS AND NEMA 1 ENCLOSURE MINIMUM UNLESS OTHERWISE NOTED.

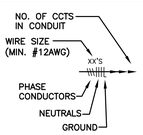
VFD — VARIABLE FREQUENCY DRIVE (VARIABLE SPEED MOTOR CONTROLLER)

$T — 120V-1ø OR 277V-1ø (AS REQUIRED) MANUAL MOTOR STARTER WITH INTEGRAL OVERLOAD PROTECTION

$THOA — 120V-1ø OR 277V-1ø (AS REQUIRED) MOTOR STARTER COMPLETE WITH INTEGRAL OVERLOAD PROTECTION AND "HAND-OFF-AUTO" SELECTOR SWITCH.

$ML — 120V-1ø OR 277V-1ø (AS REQUIRED) LOCKABLE MANUAL SWITCH (NO THERMAL OVERLOADS).

BRANCH CIRCUIT WIRING



BRANCH CIRCUIT HOME RUN TO PANEL – ARROWHEADS INDICATE CIRCUITS. WIRE INDICATED ARE GREEN GROUND, SEPARATE NEUTRALS (SHARED NEUTRALS ARE NOT PERMITTED FOR BRANCH CIRCUITS) AND THREE HOT LEGS (A DIFFERENT PHASE FOR EACH CIRCUIT) MAXIMUM THREE CIRCUITS PER CONDUIT. 3/4" MINIMUM CONDUIT WITH WIRE SIZE INDICATED ON DRAWING ("XX" INDICATES AWG SIZE). ALL POWER WIRING SHALL BE STRANDED COPPER CONDUCTORS WITH THHN/THWN INSULATION. PROVIDE SEPARATE EQUIPMENT GROUNDING CONDUCTOR (SAME SIZE AS PHASE AND NEUTRAL, UNLESS OTHERWISE NOTED) FOR EACH CONDUIT. CONDUIT WIRE FILLS SHALL BE IN ACCORDANCE WITH LATEST NATIONAL ELECTRIC CODE.

GENERAL LEGEND

1 — CODED NOTE – "1" INDICATES NOTE NUMBER.

1 / 1-E1 — DETAIL REFERENCE – "1" INDICATES DETAIL NUMBER, "1-E1" INDICATES DRAWING NUMBER.

1 / A — COLUMN GRID

1 — REVISION REFERENCE NUMBER

ABBREVIATIONS

AF	AMP FRAME
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BFC	BELOW FINISHED CEILING
CM	CEILING MOUNTED
COTR	CONTRACTING OFFICER/TECHICAL REPRESENTATIVE
EC	ELECTRICAL CONTRACTOR
EG	EQUIPMENT GROUND
EOL	END OF LINE
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
IG	ISOLATED GROUND
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
NEC	NATIONAL ELECTRICAL CODE
NF	NOT FUSED
NIC	NOT IN CONTRACT
OFE	OWNER FURNISHED EQUIPMENT
TC	TELECOMMUNICATIONS CONTRACTOR
TCC	TEMPERATURE CONTROLS CONTRACTOR
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE (SAME AS "VSD" VARIABLE SPEED MOTOR CONTROLLER)
WP	WEATHERPROOF ENCLOSURE – NEMA 4 TYPE
X	EXISTING OUTLET, DEVICE, LIGHTING FIXTURE, CONDUIT, ETC. – TO REMAIN
XB	INDICATES EXISTING OUTLET, LIGHTING FIXTURE, CONDUIT, ETC – TO BE REMOVED. PROVIDE BLANK COVER FOR OUTLET AND MAINTAIN CIRCUIT CONTINUITY.
XL	NEW LOCATION OF EXISTING OUTLET, DEVICE, LIGHTING FIXTURE, ETC.
XN	EXISTING OUTLET, DEVICE, LIGHTING FIXTURE, ETC. – TO BE REPLACED WITH NEW OF SPECIFIED TYPE
XR	EXISTING OUTLET, DEVICE, LIGHTING FIXTURE, CONDUIT, ETC. – TO BE REMOVED COMPLETE– MAINTAIN CIRCUIT CONTINUITY TO ADJACENT OUTLETS, EXTEND CONDUIT AND WIRING AS REQUIRED.
XRR	EXISTING OUTLET, DEVICE, LIGHTING FIXTURE, ETC. – TO BE REMOVED AND REINSTALLED AT NEW LOCATION – EXTEND CONDUIT AND WIRING AS REQUIRED
VAMC	VETERANS AFFAIRS MEDICAL CENTER

GENERAL ELECTRICAL INSTALLATION NOTES:

1. DEFINITION: "PROVIDE" – FURNISH, INSTALL AND CONNECT COMPLETE.
2. ALL MOUNTING HEIGHTS ARE TO CENTER OF DEVICE UNLESS OTHERWISE NOTED.
3. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF CEILINGS REQUIRED FOR ELECTRICAL WORK. CONTRACTOR SHALL REPLACE ANY DAMAGED CEILING TILES.
4. COORDINATE ALL SHUT-DOWNS OF EXISTING ELECTRICAL SYSTEMS WITH OWNER A MINIMUM OF FOURTEEN (14) WORKING DAYS IN ADVANCE. ALL SHUT-DOWNS SHALL OCCUR DURING WEEKENDS OR BETWEEN 8:00PM AND 7:00AM ON WEEKDAYS ("OFF-HOURS"). INCLUDE ALL PREMIUM TIME CHARGES IN BID.
5. CONTRACTOR SHALL CONNECT ALL MECHANICAL EQUIPMENT COMPLETE PER MANUFACTURER'S WIRING DIAGRAMS AND INSTRUCTIONS. COORDINATE WITH MECHANICAL CONTRACTOR AND VERIFY LOCATION, VOLTAGE, AMPS, NO. OF WIRES, AND PROTECTION REQUIREMENTS PRIOR TO ROUGH-IN. CONTACT ENGINEER WITH ANY DISCREPANCIES FROM DESIGN DRAWINGS.
6. PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTION TO MECHANICAL EQUIPMENT OR OTHER EQUIPMENT WHICH MAY PROPAGATE VIBRATION.
7. ALL WORK SHALL BE PERFORMED IN STRICT CONFORMANCE WITH THE PHASING REQUIREMENTS OF THE PROJECT. ALL COSTS ASSOCIATED WITH THESE REQUIREMENTS SHALL BE INCLUDED IN THE BID SUBMITTAL.
8. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY LIGHTING TO ADEQUATELY LIGHT ALL CONSTRUCTION AREAS, TEMPORARILY PARTITIONED AREAS, AND EXIT CORRIDORS MAINTAINED DURING CONSTRUCTION.

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Drawing Title: **ELECTRICAL LEGEND**	Project Title: **BOILER PLANT ENERGY UPGRADES**	Project Number: 541-11-105	**Office of Facilities Management**
Approved: Project Director	Location: **VAMC - WADE PARK**	Building Number: 1	Department of Veterans Affairs
	Date: 09-11-12 / Checked: **MPL** / Drawn: **TAG**	Drawing Number: **1-E1** Dwg. of	

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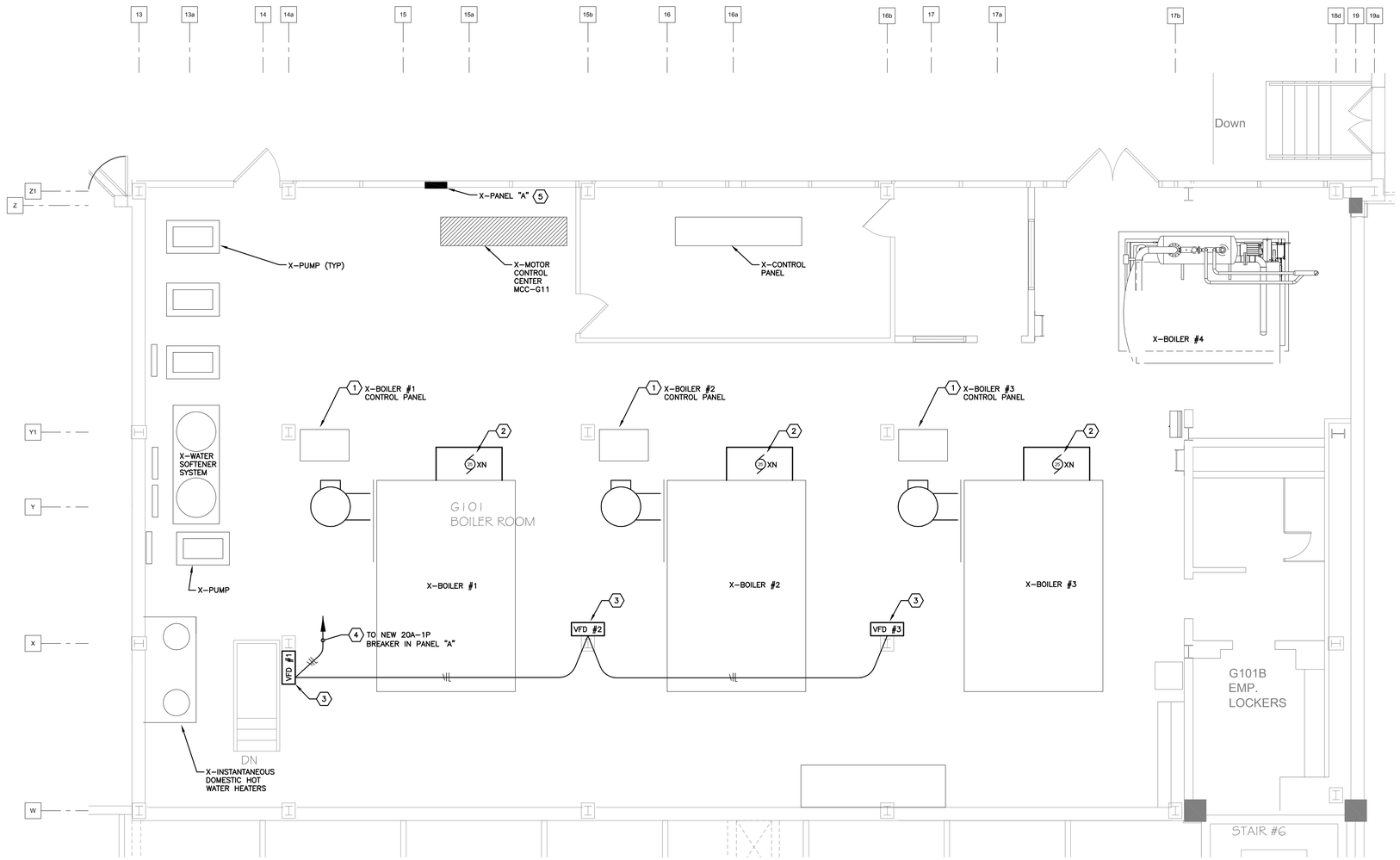

BOILER ROOM OPERATING FLOOR ELECTRICAL PLAN 1

SCALE: 1/4" = 1'-0"

0' 2' 4' 8' 16'

GENERAL MECHANICAL EQUIP. NOTES:

M1. MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR AND THE ELECTRICAL CONTRACTOR SHALL CONNECT MECHANICAL EQUIPMENT COMPLETE PER MANUFACTURER'S WIRING DIAGRAMS AND DETAILS UNLESS OTHERWISE NOTED ON DRAWINGS.

M2. PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTION TO MECHANICAL EQUIPMENT.

M3. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LOCAL DISCONNECTING MEANS FOR ALL MECHANICAL EQUIPMENT, UNLESS EQUIPMENT IS NOTED TO BE FURNISHED WITH INTEGRAL DISCONNECTS. LABEL ALL DISCONNECT SWITCHES TO INDICATE POWER SOURCE AND EQUIPMENT SERVED.

M4. COORDINATE EXACT INSTALLATION LOCATION OF ALL MECHANICAL EQUIPMENT WITH MECHANICAL PLANS PRIOR TO ROUGH-IN.

M5. PROVIDE RIGID ALUMINUM CONDUITS AT EXTERIOR LOCATIONS. SEAL ALL ROOF PENETRATIONS WATER-TIGHT AND ALL WALL PENETRATIONS TO MAINTAIN FIRE RATING.

CODED NOTES:

1. DISCONNECT EXISTING BLOWER MOTOR CONTROL CIRCUIT IN BOILER CONTROL CABINET. RECONNECT NEW VFD FEEDERS. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.
2. DISCONNECT EXISTING BOILER BLOWER MOTOR AND RECONNECT NEW MOTOR BLOWER MOTOR AT SAME LOCATION TO EXISTING CIRCUIT.
3. CONNECT NEW VFD FOR BLOWER MOTOR. REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION. COORDINATE MOUNTING LOCATION WITH MECHANICAL CONTRACTOR. THE VFD UNIT SHALL BE MOUNTED INSIDE A NEMA 12 ENCLOSURE WITH A DISCONNECT, FUSES AND A COOLING FAN.
4. CONNECT COOLING FAN (120V-4A) FOR EACH VFD ENCLOSURE.
5. PROVIDE NEW 20A-1P BREAKER FOR NEW LOAD. PROVIDE UPDATED TYPED PANELBOARD SCHEDULE.

GENERAL NOTES:

A. A MAXIMUM OF ONLY ONE BOILER (OF 4 TOTAL) SHALL BE SHUTDOWN AT A TIME DURING CONSTRUCTION. THE THREE REMAINING BOILERS SHALL BE CAPABLE OF OPERATING DURING THE PERIOD OF A SINGLE BOILER SHUTDOWN. NO EXCEPTIONS. INDIVIDUAL BOILER SHUTDOWNS SHALL BE ILLUSTRATED AND HIGHLIGHTED ON PROJECT CONSTRUCTION SCHEDULE. COORDINATE SCHEDULING WITH VA COTR AND BOILER PLANT MANAGER.

B. VFDS SHALL RUN IN MANUAL MODE UPON COMPLETION OF THIS PROJECT. VARIABLE DRIVE CONTROL SHALL BE ACCOMPLISHED AS PART OF A FUTURE PROJECT.

FOR CONSTRUCTION

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Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **MPL** | Drawn: **TAG**

Project Number: 541-11-105

Building Number: 1

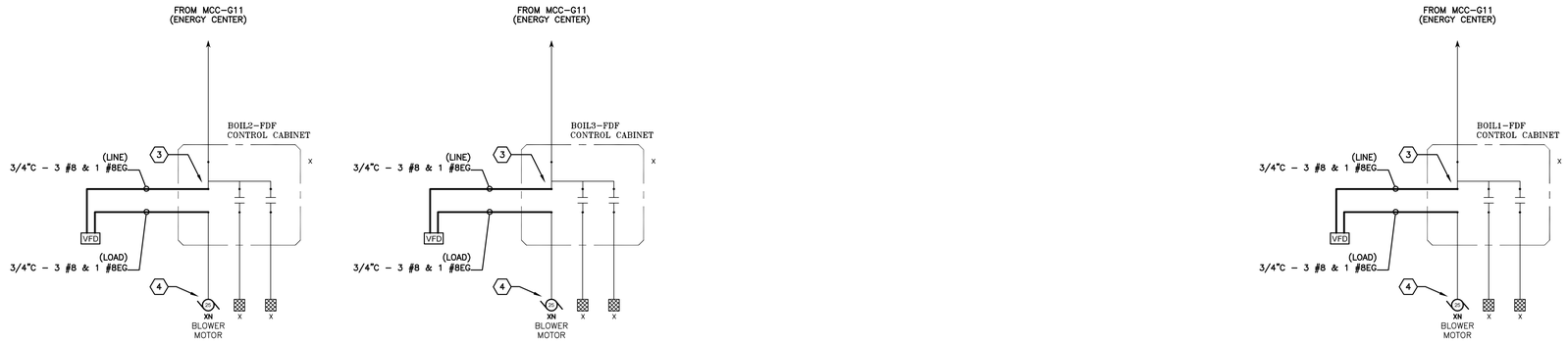
Drawing Number: **1-E2**

Dwg. of

Office of Facilities Management

Department of Veterans Affairs

VA FORM 08-6231, OCT 1978



PARTIAL ONE LINE OF BOILER EQUIPMENT (2)

NOT TO SCALE

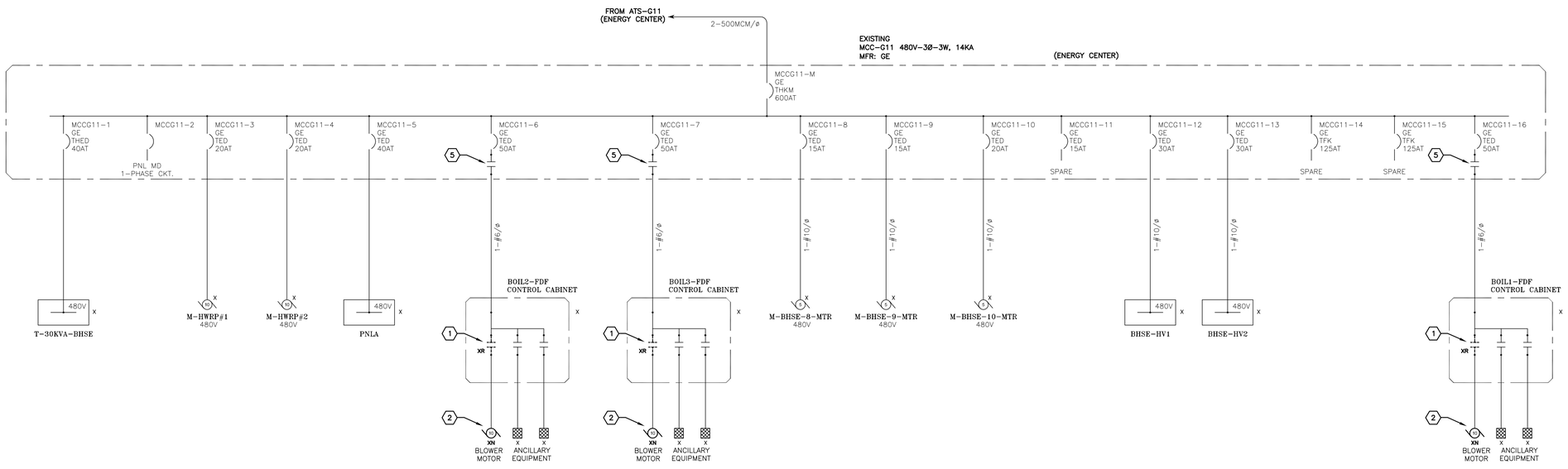
GENERAL NOTES:

A. A MAXIMUM OF ONLY ONE BOILER (OF 4 TOTAL) SHALL BE SHUTDOWN AT A TIME DURING CONSTRUCTION. THE THREE REMAINING BOILERS SHALL BE CAPABLE OF OPERATING DURING THE PERIOD OF A SINGLE BOILER SHUTDOWN. NO EXCEPTIONS. INDIVIDUAL BOILER SHUTDOWNS SHALL BE ILLUSTRATED AND HIGHLIGHTED ON PROJECT CONSTRUCTION SCHEDULE. COORDINATE SCHEDULING WITH VA COTR AND BOILER PLANT MANAGER.

B. VFDS SHALL RUN IN MANUAL MODE UPON COMPLETION OF THIS PROJECT. VARIABLE DRIVE CONTROL SHALL BE ACCOMPLISHED AS PART OF A FUTURE PROJECT.

CODED NOTES

1. REMOVE EXISTING COMBINATION STARTER/CONTACTOR IN BOILER CONTROL CABINET. SAVE LINE AND LOAD FEEDERS FOR RECONNECTION TO NEW VFD.
2. DISCONNECT POWER TO EXISTING MOTOR.
3. CONNECT NEW VFD FEEDERS TO EXISTING CIRCUIT. MAKE TERMINATIONS INSIDE EXISTING BOILER CONTROL CABINET.
4. RECONNECT EXISTING FEEDER TO NEW MOTOR.
5. CHANGE OVERLOADS IN STARTER TO MATCH NEW HORSEPOWER RATING OF BLOWER MOTOR. RETIGHTEN ALL POWER AND CONTROL WIRING CONNECTIONS, CLEAN STARTER, AND PROVIDE NEW LED PILOT LIGHTS IN STARTER. PROVIDE NEW PHENOLIC NAMEPLATE.



PARTIAL ONE LINE DEMOLITION OF BOILER EQUIPMENT (1)

NOT TO SCALE

FOR CONSTRUCTION

FULLY SPRINKLERED

Final Bid Set	09-11-12
Revisions:	**Date**

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Drawing Title: **ELECTRICAL ONE LINE DIAGRAM**

Approved: Project Director

Project Title: **BOILER PLANT ENERGY UPGRADES**

Location: **VAMC - WADE PARK**

Date: 09-11-12 | Checked: **MPL** | Drawn: **TAG**

Project Number: 541-11-105

Building Number: 1

Drawing Number: **1-E3**

Dwg. of

Office of Facilities Management

Department of Veterans Affairs

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