

PLUMBING ABBREVIATIONS

AE ARCHITECT / ENGINEER
AD AREA DRAIN
AFF ABOVE FINISH FLOOR
AFG ABOVE FINISH GRADE
AG AIR GAP
AP ACCESS PANEL
AS AUTOMATIC SPRINKLER
ASD ADJUSTABLE SPEED DRIVES
ASD AUTOMATIC SPRINKLER DRAIN
ASHRAE AMERICAN SOCIETY HEATING,
REFRIGERATION, AIR CONDITIONING
ENGINEERS
ASME AMERICAN SOCIETY MECHANICAL
ENGINEERS
ASPE AMERICAN SOCIETY PLUMBING
ENGINEERS
ASR AUTOMATIC SPRINKLER RISER
AV ACID VENT
AW ACID WASTE

BFP REDUCED PRESSURE BACKFLOW
PREVENTER
BHP BREAK HORSEPOWER
BSP BLACK STEEL PIPE
BT BATHTUB
BTU BRITISH THERMAL UNIT
BTUH BRITISH THERMAL UNIT PER HOUR

C CELSIUS
CGA COMPRESSED GAS ASSOCIATION
CI CAST IRON
CO CLEANOUT
CS CLINICAL SINK
CV CONTROL VALVE

CDW DOMESTIC COLD WATER
DHW DOMESTIC HOT WATER
DHW-R DOMESTIC HOT WATER RETURN
DHW-R DOMESTIC WATER RETURN
DHW-S DOMESTIC HOT WATER SUPPLY
DI DEIONIZED WATER
DN DOWN
DOE DEPARTMENT OF ENERGY
DS DOWNSPOUT
DW DISHWASHER
DWG DRAWING
DWH DOMESTIC WATER HEATER
DWR DRINKING WATER RETURN
DWS DRINKING WATER SUPPLY
DWV DRAIN WASTE VENT

EL ELEVATION
EMCS ENERGY MONSERRAT
AND CENTRAL SYSTEM
EPA ENVIRONMENTAL PROTECTION
AGENCY
EPACT ENERGY POLICY ACT
ESC ESCUTCHEON
ESH EMERGENCY SHOWER
ET EXPANSION TANK
EWC ELECTRIC WATER COOLER
EWC ELECTRIC WATER COOLER
EWH ELECTRIC WATER HEATER
EWS EYE WASH STATION
EX EXISTING

F FAHRENHEIT
FCO FLOOR CLEANOUT
FD FILTERED COLD WATER
FD FLOOR DRAIN
FDC FIRE DEPARTMENT
(HOSE) CONNECTION
FM FLOW METER
FOP FUEL OIL PUMP
FOR FUEL OIL RETURN
FOS FUEL OIL SUPPLY
FOW FUEL OIL VENT
FS FLOOR SINK
FS FLOW SWITCH
FU FIXTURE UNITS

GAL GALLON
GCO GRADE CLEANOUTS
GPD GALLONS PER DAY
GPH GALLONS PER HOUR
GPM GALLONS PER MINUTE
GPR GAS PRESSURE REGULATOR
GRS GAS REGULATOR STATION
GT GREASE TRAP
GVTR GAS VENT THROUGH ROOF
GWH GAS FRED WATER HEATER

H&OW HOT AND COLD WATER
HB HOSE BIBB
HD HUB DRAIN
HEX HEAT EXCHANGER
HP HORSEPOWER
HS HAND SINK
HST HOT WATER STORAGE TANK
(DOMESTIC)
HWB HOT WATER BOILER
HWCP HOT WATER CIRCULATING PUMP
HWP HOT WATER PUMP
HYD HYDRANT

ICW INDUSTRIAL COLD WATER
INV INVERT
IPC INTERNATIONAL PLUMBING CODE
IRW IRRIGATION WATER
IW INDIRECT WASTE
IWH INSTANTANEOUS WATER HEATER
IWR INDUSTRIAL WATER RETURN
IWS INDUSTRIAL WATER SUPPLY

KW KILOWATT
KWHR KILOWATT-HOUR

L/S LITER PER SECOND
LA LABORATORY AIR
LAV LAVATORY
LBSHR POUNDS PER HOUR
LCW LABORATORY COLD WATER
LHW LABORATORY HOT WATER
LNG LIQUID NATURAL GAS
LOX LIQUID OXYGEN
LV LABORATORY VACUUM
LW LOW WATER

M METER
MA MEDICAL AIR
MAV MANUAL AIR VENT
MBH 1000 BTUH
MED MEDICAL
MER MECHANICAL EQUIPMENT
ROOM
MH MANHOLE
MOU MEMORANDUM OF
UNDERSTANDING
MSB MOP SERVICE BASIN
MV MEDICAL VACUUM

NZ NITROGEN
N2O NITROUS OXIDE
NC NORMALLY CLOSED
NG NATURAL GAS
NIC NOT IN CONTRACT
NO NORMALLY OPEN
NOM NOMINAL
NFW NON POTABLE WATER
NTC NOT TO SCALE

O2 OXYGEN
OC ON CENTER
OD OUTSIDE DIAMETER
OFD OVERFLOW DRAIN
OR OPERATING ROOM
OVFL OVERFLOW

PA PASCAL
PD PRESSURE DROP OR DIFFERENCE
PDI PLUMBING AND DRAINAGE
INSTITUTE
PG PRESSURE GAGE
PP PLUMBING PUMP
PPM PARTS PER MILLION
PRS PRESSURE REDUCING STATION
PRV PRESSURE REDUCING VALVE
PSI POUNDS PER SQUARE INCH
PSIA POUNDS PER SQUARE INCH
ATMOSPHERE
PSIG POUNDS PER SQUARE INCH
GAUGE
PTRV PRESSURE TEMPERATURE RELIEF
VALVE
PW POTABLE WATER

RD ROOF DRAIN
RL ROOF DRAIN LEADER
RL ROOF LEADER
RO REVERSE OSMOSIS WATER
RWL RAIN WATER LEADER

SAN SANITARY SEWER
SMACNA SHEET METAL AND AIR
CONDITIONING CONTRACTORS
NATIONAL ASSOCIATION
SCFM STANDARD CUBIC FOOTMINUTE
SCW SOFTENED COLD WATER
SDMH STORM DRAIN MANHOLE
SP SUMP PUMP
SPR SPRINKLER LINE
SQFT SQUARE FEET
SS STAINLESS STEEL
ST STORAGE TANK
SW STORM WATER

TCV TEMPERATURE CONTROL VALVE
TD TEMPERATURE DIFFERENCE
TD TRENCH DRAIN
TDH TOTAL DYNAMIC HEAD
TEMP TEMPERATURE
TMV THERMOSTATIC MIXING VALVE
TP TRAP PRIMER
TSTAT THERMOSTAT
TWR TEMPERED WATER RETURN
TWS TEMPERED WATER SUPPLY
TYP TYPICAL

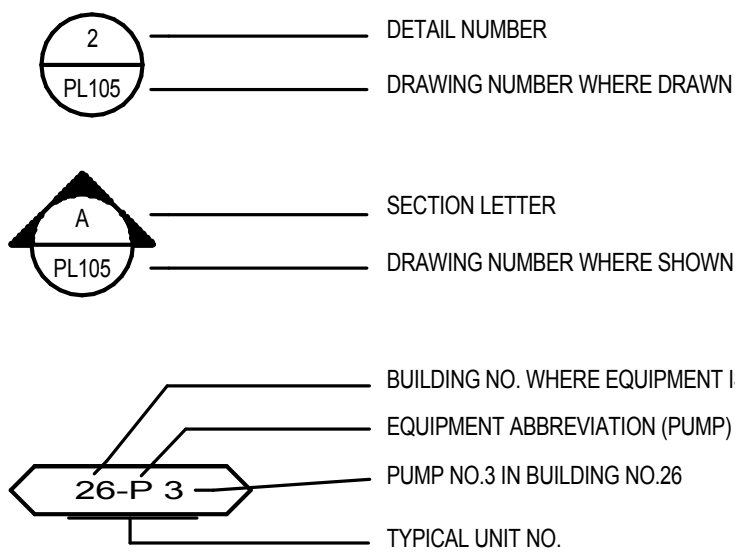
UPC UNIFORM PLUMBING CODE

V VENT
VAC VACUUM
VB VACUUM BREAKER
VCO VACUUM CLEANER OUTLET
VP VACUUM PUMP
VS VENT STACK
VTR VENT THROUGH ROOF

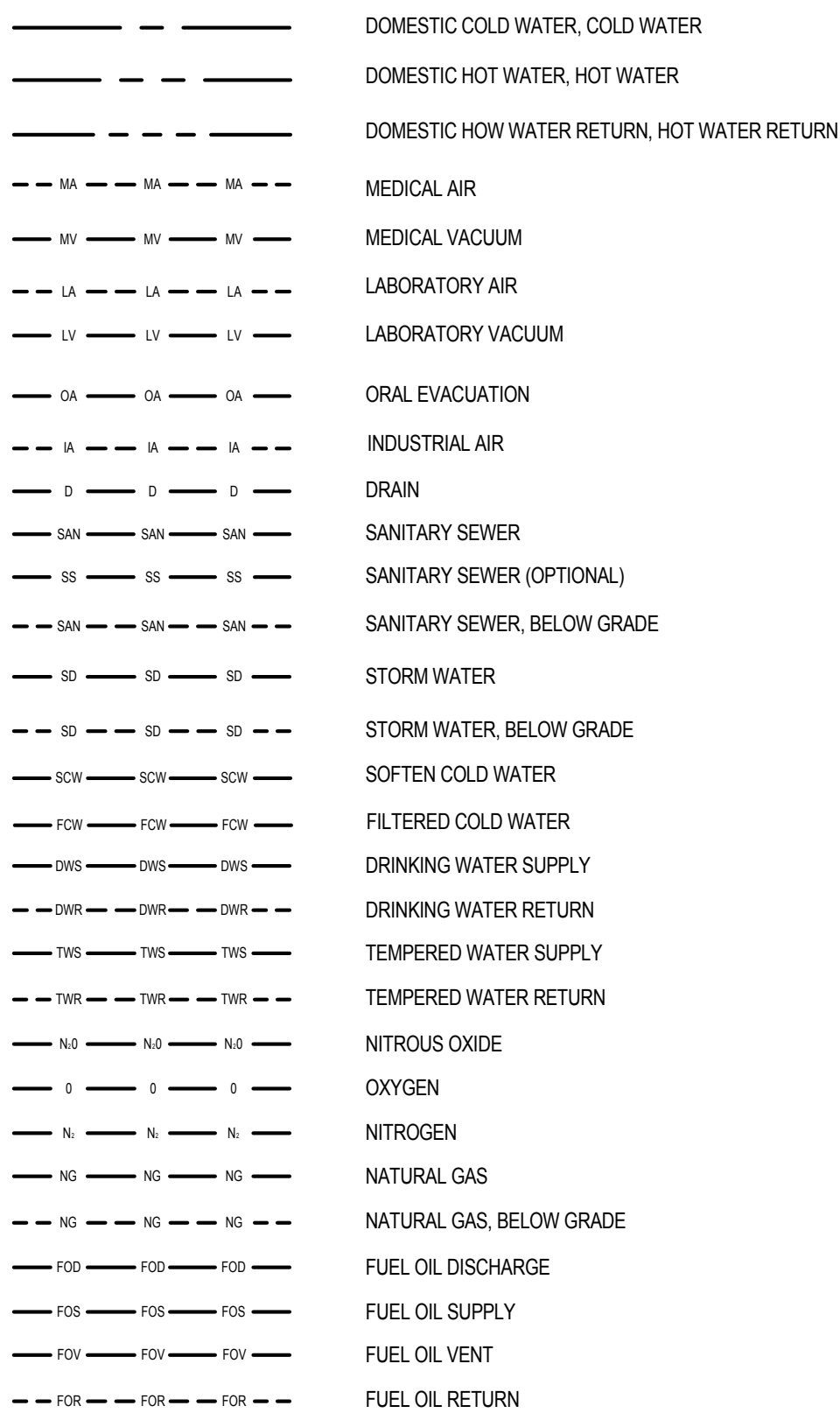
W WASTE
WC WATER CLOSET
WCO WALL CLEANOUT
WG WATER GAGE
WH WALL HYDRANT
WH WATER HEATER
WHA WATER HAMMER ARRESTER
WL WATER LINE
WM WATER METER
WPD WATER PRESSURE DROP
WS WASTE STACK

YCO YARD CLEANOUT
YH YARD HYDRANT

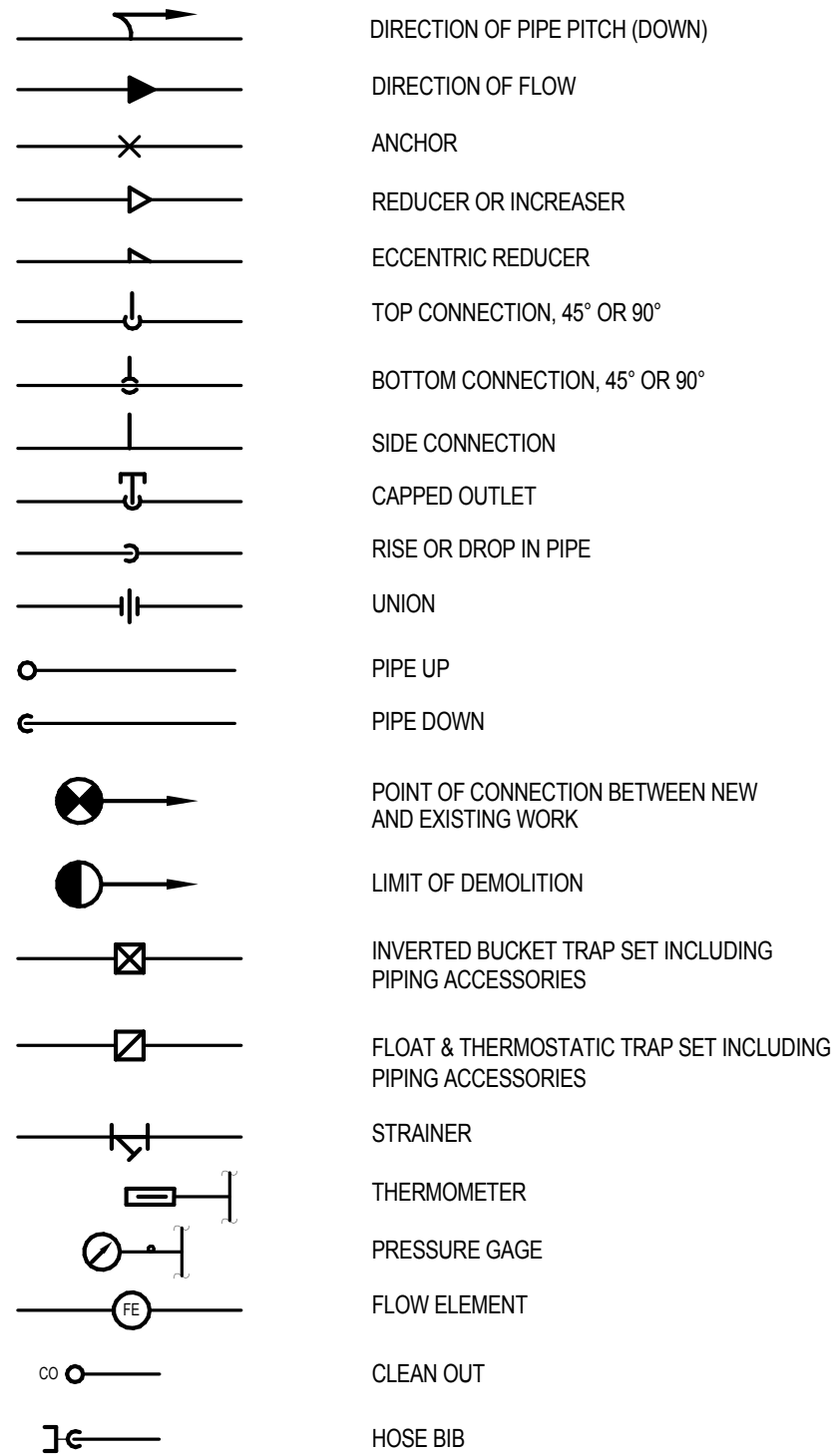
DRAWING SYMBOLS



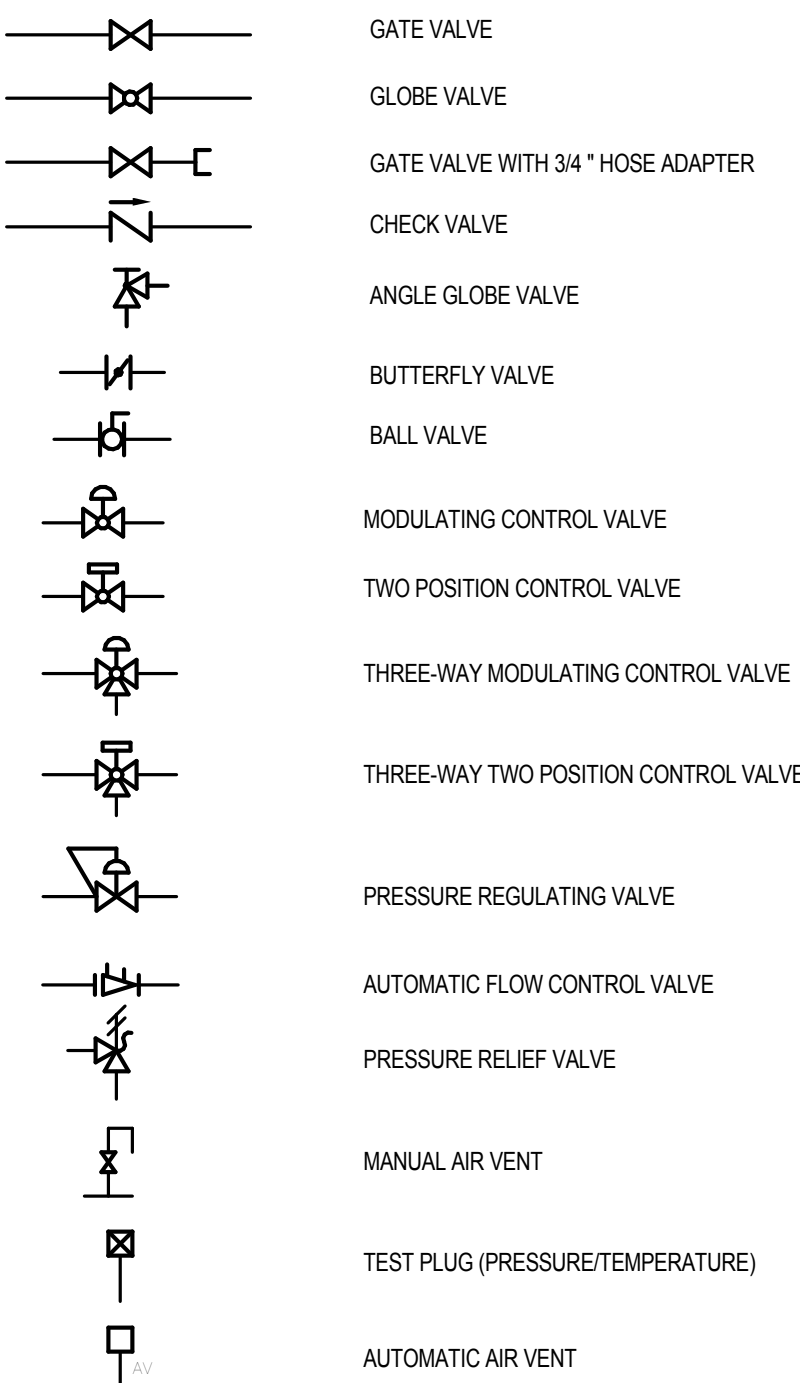
PLUMBING PIPING SYMBOLS



GENERAL PLUMBING SYMBOLS



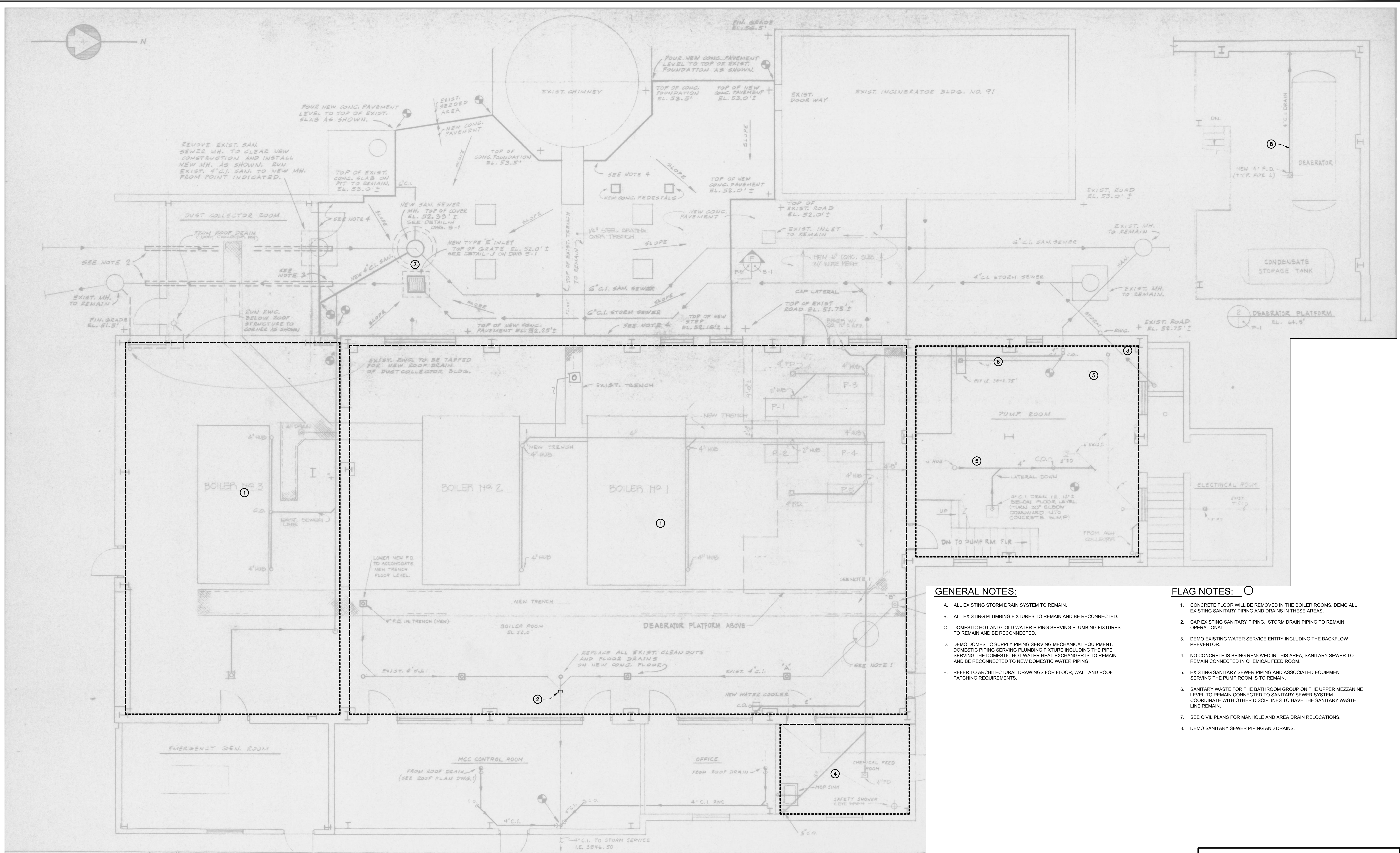
PLUMBING VALVE SYMBOLS



CONSTRUCTION DOCUMENTATION SUBMISSION - BIDDING AND CONSTRUCTION

CONSULTANTS:				ARCHITECT/ENGINEERS:		Drawing Title ABBREVIATIONS AND SYMBOLS		Project Title -BOILER PLANT -REPLACEMENT -		Project Number - 666-10-811		Office of Construction and Facilities Management				
MKK Consulting Engineers, Inc. 7600 East Orchard Road Suite 250S Greenwood Village, CO 80111 Phone: 303.796.6000 Fax: 303.796.6099				GREENFIELD ARCHITECTS 3650 S YOSEMITE ST., STE 402 DENVER, CO 80237 PHONE: 303-770-1020 FAX: 303-770-0922		Approved: Project Director JASON BROWN		Location - SHERIDAN, WY		Building Number - 90						
Revisions:			Date		GA Project Number 666-10-811		Date 12/15/2011 BIDDING & CNSTN		Checked PAD		Drawn KJB		Drawing Number P001		Dwg. of --	

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
one quarter inch = one foot
one eighth inch = one foot
one sixteenth inch = one foot



GENERAL NOTES:

- A. ALL EXISTING STORM DRAIN SYSTEM TO REMAIN.
- B. ALL EXISTING PLUMBING FIXTURES TO REMAIN AND BE RECONNECTED.
- C. DOMESTIC HOT AND COLD WATER PIPING SERVING PLUMBING FIXTURES TO REMAIN AND BE RECONNECTED.
- D. DEMO DOMESTIC SUPPLY PIPING SERVING MECHANICAL EQUIPMENT. DOMESTIC PIPING SERVING PLUMBING FIXTURE INCLUDING THE PIPE SERVING THE DOMESTIC HOT WATER HEAT EXCHANGER IS TO REMAIN AND BE RECONNECTED TO NEW DOMESTIC WATER PIPING.
- E. REFER TO ARCHITECTURAL DRAWINGS FOR FLOOR, WALL AND ROOF PATCHING REQUIREMENTS.

FLAG NOTES:

- 1. CONCRETE FLOOR WILL BE REMOVED IN THE BOILER ROOMS. DEMO ALL EXISTING SANITARY PIPING AND DRAINS IN THESE AREAS.
- 2. CAP EXISTING SANITARY PIPING. STORM DRAIN PIPING TO REMAIN OPERATIONAL.
- 3. DEMO EXISTING WATER SERVICE ENTRY INCLUDING THE BACKFLOW PREVENTOR.
- 4. NO CONCRETE IS BEING REMOVED IN THIS AREA. SANITARY SEWER TO REMAIN CONNECTED IN CHEMICAL FEED ROOM.
- 5. EXISTING SANITARY SEWER PIPING AND ASSOCIATED EQUIPMENT SERVING THE PUMP ROOM IS TO REMAIN.
- 6. SANITARY WASTE FOR THE BATHROOM GROUP ON THE UPPER MEZZANINE LEVEL TO REMAIN CONNECTED TO SANITARY SEWER SYSTEM. COORDINATE WITH OTHER DISCIPLINES TO HAVE THE SANITARY WASTE LINE REMAIN.
- 7. SEE CIVIL PLANS FOR MANHOLE AND AREA DRAIN RELOCATIONS.
- 8. DEMO SANITARY SEWER PIPING AND DRAINS.

THESE DRAWINGS ARE AS-BUILT DRAWINGS AND ARE PROVIDED TO INDICATE THE EXTENT OF DEMOLITION AND FOR REFERENCE ONLY.

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MKK Consulting Engineers, Inc. 7600 East Orchard Road Suite 250S Greenwood Village, CO 80111 Phone: 303.796.6000 Fax: 303.796.6099		Calibre 9090 S Ridgeline Blvd. Suite 105 Highlands Ranch, CO 80129 Phone: 303.730.0434 Fax: 303.730.1130		Structural Consultants Inc. 3400 E Bayaud Ave # 300 Denver, CO 80209-2929 Phone: 303.399.5154 Fax: 303.333.9501		GREENFIELD ARCHITECTS 3650 S YOSEMITE ST., STE 402 DENVER, CO 80237 PHONE: 303-770-1020 FAX: 303-770-0922		BOILER PLANT REPLACEMENT				666-11-101	
								Building Number				90	
Revisions:						Approved: Project Director		Location		Drawing Number			
						JASON BROWN		SHERIDAN, WY		PD101			
								Date		Checked			
								12/15/2011		PAD			
								BIDDING & CNSTN		Drawn			
										KJB			

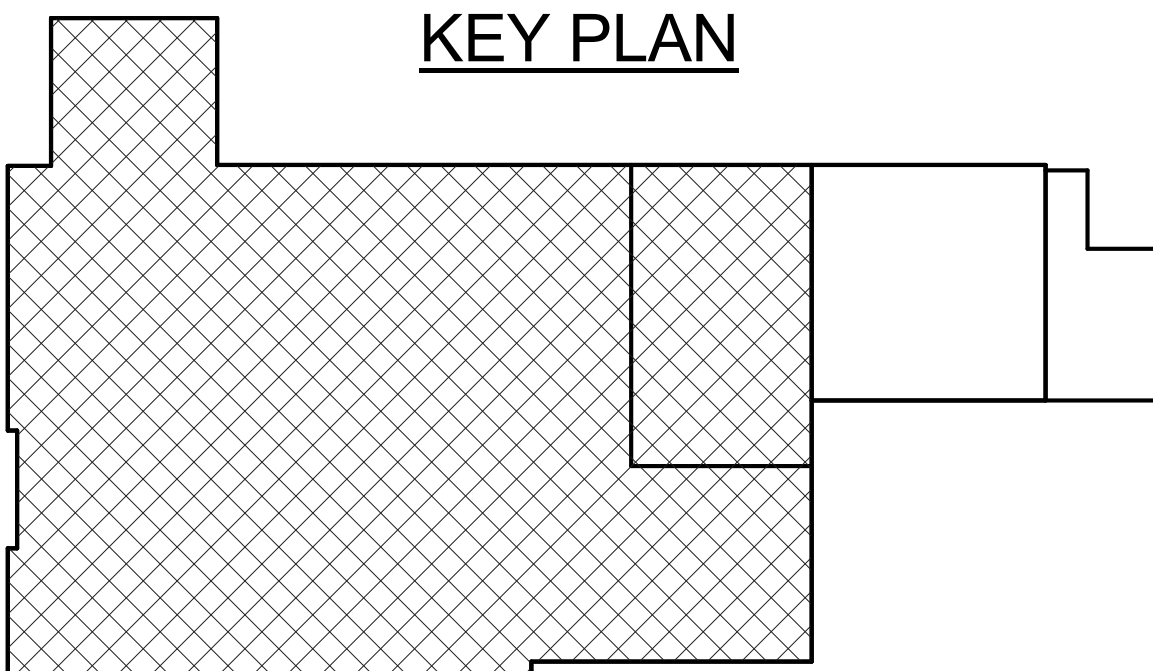
GENERAL NOTES

- A. XX-# REFERS TO EQUIPMENT DESIGNATION. SEE CORRESPONDING SPECIFICATION FOR FURTHER INFORMATION.
- B. ALL WASTE SMALLER THAN 4" HAS A MINIMUM SLOPE OF 1/4" PER FOOT. 4" WASTE AND ABOVE 1/8" PER FOOT.
- C. VENT TERMINATIONS ON FLAT ROOF SHALL TERMINATE EVEN WITH THE TOP OF THE PARAPET WALL.
- D. SEAL ALL PIPE PENETRATIONS THROUGH RATED WALLS WITH FIRE STOPPING. INSTALL FIRE STOPPING PER MANUFACTURER'S RECOMMENDATIONS. REFER TO ARCH CODE SHEET FOR RATED WALLS.
- E. COORDINATE PIPING SYSTEMS IN CEILING SPACES WITH OTHER MECHANICAL AND ELECTRICAL DISCIPLINES. PROVIDE ADDITIONAL OFFSETS AS NECESSARY TO ALLOW ALL SERVICES AND SYSTEMS TO BE INSTALLED AT THE CEILING HEIGHT INDICATED BY ARCHITECT.
- F. WHERE POSSIBLE, LOCATE VALVES ABOVE ACCESSIBLE CEILINGS. PROVIDE 24"X24" ACCESS DOORS IN HARD CEILINGS WHERE NECESSARY TO ACCESS ALL VALVES INSTALLED ABOVE HARD CEILINGS. COORDINATE FINAL LOCATIONS WITH REFLECTED CEILING PLAN AND ARCHITECT PRIOR TO INSTALLATION.

FLAG NOTES

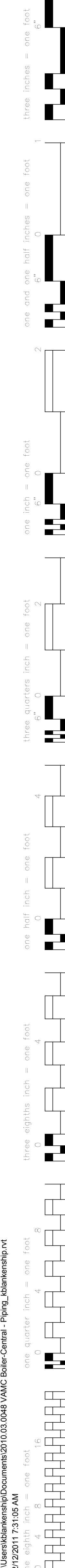
1. CONNECT EXISTING SANITARY SEWER PIPE SERVING THE CHEMICAL FEED ROOM INTO NEW SANITARY SEWER PIPE.
2. PROVIDE 3" VTR AND WALL CLEAN OUT FOR VENT.
3. RECONNECT EXISTING FIXTURES IN THE CHEMICAL FEED ROOM TO NEW HOT AND COLD PIPING.
4. PROVIDE 3/4" HOT AND COLD HEADER PIPE TO SERVE THE FIVE CHEMICAL POT FEEDERS. SEE CHEMICAL POT FEEDER DETAIL.
5. FLOOR DRAIN LOCATED FLUSH WITH BOTTOM OF PIT.
6. RECONNECT EXISTING EMERGENCY FIXTURE TO NEW HOT AND COLD PIPING.
7. SANITARY SEWER PIPING LOCATED UNDER BOILER ROOM MEZZANINE.

KEY PLAN

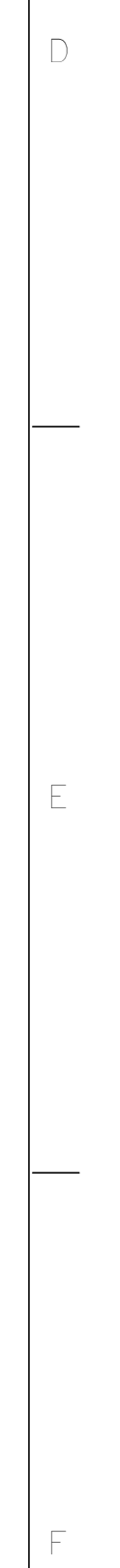
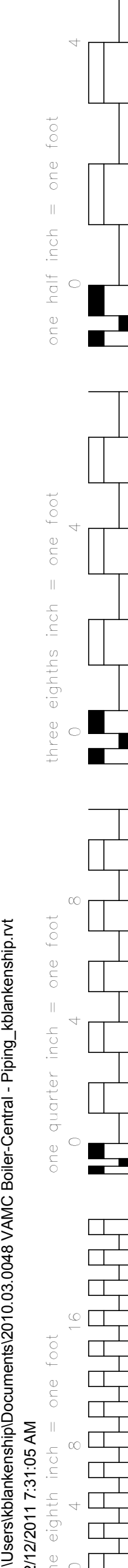


CONSTRUCTION DOCUMENTATION SUBMISSION - BIDDING AND CONSTRUCTION

<div>Revisions:</div> <div>Date</div>		<div>CONSULTANTS:</div> <div>MKK Consulting Engineers, Inc. 7600 East Orchard Road Suite 250S Greenwood Village, CO 80111 Phone: 303.796.6000 Fax: 303.796.6099</div> <div>Calibre 9090 S Ridgeline Blvd. Suite 105 Highlands Ranch, CO 80129 Phone: 303.399.5154 Fax: 303.730.1130</div> <div>Structural Consultants Inc. 3400 E Bayaud Ave # 300 Denver, CO 80209-2929 Phone: 303.399.5154 Fax: 303.333.9501</div>		<div></div>	<div>ARCHITECT/ENGINEERS:</div> <div>GREENFIELD ARCHITECTS 3650 S YOSEMITE ST., STE 402 DENVER, CO 80237 PHONE: 303-770-1020 FAX: 303-770-0922</div> <div>GA Project Number 666-10-811</div>		<div>Drawing Title</div> <div>PLUMBING PLAN</div> <div>Approved: Project Director JASON BROWN</div>		<div>Project Title</div> <div>-BOILER PLANT -REPLACEMENT -</div> <div>Location</div> <div>- SHERIDAN, WY</div> <div>Date</div> <div>12/15/2011 BIDDING & CNSTN</div> <div>Checked</div> <div>PAD</div> <div>Drawn</div> <div>KJB</div>		<div>Project Number</div> <div>- 666-10-811</div> <div>Building Number</div> <div>- 90</div> <div>Drawing Number</div> <div>PL101</div> <div>Dwg. of</div> <div>--</div>	<div>Office of Construction and Facilities Management</div> <div> Department of Veterans Affairs</div>
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1. SEE WATER ENTRY DETAIL.
2. SEE CIVIL PLANS FOR CONTINUATION.
3. NO WORK IN THIS AREA.
4. ROUTE DOMESTIC COLD WATER TO EXISTING BATHROOM GROUP AND RECONNECT TO EXISTING FIXTURES.
5. RECONNECT EXISTING FIXTURES IN BATHROOM GROUP TO NEW HOT AND COLD DOMESTIC WATER SUPPLY FROM PUMP ROOM.
6. SEE MECHANICAL PIPING SCHEMATIC FOR NON-POTABLE WATER ROUTING TO EQUIPMENT.
7. PROVIDE SIDE WALL VENT TERMINATION PER CODE.
8. CONNECT NEW SANITARY SEWER TO EXISTING SANITARY SEWER SYSTEM.
9. DAYLIGHT BACKFLOW PREVENTER DRAINS THROUGH EXTERIOR WALL. PROVIDE BACKWATER VALVE, DOWNSPOUT NOZZLE AND SPLASHBLOCK AT EXTERIOR TO DIVERT FLOW AWAY FROM THE BUILDING.
10. SAWCUT CONCRETE FLOOR FOR INSTALLATION OF NEW SANITARY WASTE PIPING AND FIXTURES.
11. SEE REDUCED PRESSURE BACKFLOW PREVENTER DETAIL.

VA FORM 08-6231

CONSULTANTS:

ARCHITECT/ENGINEERS:

GA Project Number 666-10-811

Department of
Veterans Affairs