PLUMBING SYMBOLS

Symbol	Description
	DOMESTIC COLD WATER PIPING (CW)
	DOMESTIC HOT WATER PIPING (HW)
	DOMESTIC HOT WATER RECIRCULATING PIPING (HWR)
SS	SANITARY SEWER PIPING
	VENT PIPING
SD	STORM DRAIN PIPING
OD	OVERFLOW DRAIN PIPING
D	DRAIN PIPING
G	NATURAL GAS PIPING
LP	LIQUIFIED PETROLEUM GAS PIPING
FP	FIRE PROTECTION PIPING
MU	MAKEUP WATER
CF	CHEMICAL FEED PIPING
C	CONDENSATE RETURN PIPING
CD	CONDENSATE DRAIN
PC	PUMPED CONDENSATE PIPING
BF	BOILER FEED PIPING
FOS	FUEL OIL SUPPLY PIPING
FOR	FUEL OIL RETURN PIPING
LPS	LOW PRESSURE STEAM PIPING (25 PSIG)
MPS	MEDIUM PRESSURE STEAM PIPING (60 PSIG)
HPS	HIGH PRESSURE STEAM PIPING (PSIG)
A	COMPRESSED AIR PIPING
N	NITROGEN PIPING
NO	NITROUS OXIDE
O	OXYGEN PIPING
VAC	VACUUM PIPING
LV	LAB VACUUM PIPING
AW	ACID WASTE
RO	REVERSE OSMOSIS
SV	SURGICAL VACUUM PIPING
ICW	INDUSTRIAL COLD WATER PIPING
IHW	INDUSTRIAL HOT WATER PIPING
TW	TEMPERED WATER PIPING
	PIPE TURNING DOWN
	PIPE TURNING UP
	PIPING BRANCH OFF OF BOTTOM OF MAIN
	PIPING BRANCH OFF OF TOP OF MAIN
	CAPPED PIPE
	PIPE CONTINUATION
	DIRECTION OF FLOW
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
CO	CLEANOUT
FCO	FLOOR CLEANOUT
WCO	WALL CLEANOUT
HB WH	HOSE BIBB, WALL HYDRANT
	UNION
	FLANGE
	ANCHOR
	PIPE GUIDE
	SIAMESE PIPE CONNECTION
	WATER GONG (ALARM BELL)
	PIPE DROP W/VALVE IN VERTICAL
	PIPE RISE W/VALVE IN VERTICAL
	GATE VALVE
	ANGLED GATE VALVE
	GLOBE VALVE
	ANGLED GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
M	MOTORIZED CONTROL VALVE
S	SOLENOID VALVE
	MIXING VALVE
	CHECK VALVE
	DOUBLE CHECK VALVE
	MULTIPURPOSE VALVE
	PRESSURE REDUCING VALVE
	OS & Y VALVE
FCV	FLOW CONTROL VALVE (BALANCING VALVE)
	P&T VALVE
	RELIEF VALVE, SAFETY VALVE
	MANUAL AIR VENT
	GAS PRESSURE REGULATOR
	PLUG VALVE
	PLUG COCK
	PETCOCK
	STRAINER
	STRAINER W/BLOWOFF
T	CONDENSATE TRAP
F	FLOWMETER
	P&T TAP
PSD	PUMP SUCTION DIFFUSER
	IN-LINE PUMP
	FLEXIBLE PIPE CONNECTION
	PRESSURE GAGE
	STEAM PRESSURE GAGE
	THERMOMETER
	THERMOMETER WELL
S	AIR SEPARATOR
	WATER HAMMER ARRESTER
V	VACUUM BREAKER
OR	FLOOR DRAIN
	FLOOR SINK
1	RISER DESIGNATION NUMBER
	POINT OF CONNECTION CONNECT TO EXISTING
	POINT OF DISCONNECT
	EXISTING PIPING, EQUIPMENT, ETC. TO REMAIN
	EXISTING PIPING, EQUIPMENT, ETC. TO BE REMOVED
	NEW PIPING, EQUIPMENT, ETC.

PLUMBING ABBREVIATIONS

ABV	ABOVE
ACCUM	ACCUMULATE
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
AS	AIR SEPARATOR
ASME	AMERICAN SOCIETY MECHANICAL ENGINEERS
ATM	ATMOSPHERE
AVG	AVERAGE
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BLW	BELOW
BO	BLOW-OFF
BP	BOILING POINT
BTU	BRITISH THERMAL UNIT
BWV	BACK WATER VALVE
°C	CELSIUS
C TO C	CENTER TO CENTER
C_v	COEFFICIENT, VALVE FLOW
CAB.	CABINET
CF	CHEMICAL FEED
CLG	CEILING
CMPR	COMPRESSOR
CO	CLEANOUT
CONC	CONCRETE
COND	CONDENS(-ER, -ATE, -ING, -ATION)
CTRL	CONTROL
CU FT	CUBIC FEET
CU IN	CUBIC INCH
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
CWP	CONDENSER WATER PUMP
DEG	DEGREE
DIA	DIAMETER
DN	DOWN
DP	DEPTH, DEEP, DIFFERENTIAL PRESSURE
DWG	DRAWING
EA	EACH
ECC	ECCENTRIC
EFF	EFFICIENCY
EL	ELEVATION
ELEC	ELECTRICAL
ENT	ENTERING
EVAP	EVAPORAT(-E, -ING, -ED, -OR)
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERNAL
EXTER	EXTERIOR
°F	DEGREES FAHRENHEIT
F TO F	FACE TO FACE
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FL	FLOOR
FLEX	FLEXIBLE
FT	FOOT, FEET
FT LB	FOOT-POUND
FP	FREEZING POINT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
F&T	FLOAT & THERMOSTATIC
FR	FROM
FS	FLOOR SINK
GA	GAGE OR GAUGE
GAL	GALLONS
GC	GENERAL CONTRACTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRV	GRAVITY ROOF VENT
GTD	GREATEST TEMPERATURE DIFFERENCE
HB	HOSE BIBB
HD	HEAD
HGT	HEIGHT
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
HPS	HIGH PRESSURE STEAM
HR	HOUR
HTR	HEATER
HW	DOMESTIC HOT WATER
HWR	RECIRCULATING HOT WATER
IB	INVERTED BUCKET
KW	KILOWATT
KWH	KILOWATT HOUR
LBS	POUNDS
LG	LENGTH
LIQ	LIQUID
LPS	LOW PRESSURE STEAM
LVG	LEAVING
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MECH	MECHANICAL
MFG	MANUFACTURER
MIN	MINIMUM
MPS	MEDIUM PRESSURE STEAM
MTD	MOUNTED
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NIC	NOT IN CONTRACT
NO.	NUMBER
N.O.	NORMALLY OPEN
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
OC	ON CENTER
OZ	OUNCE
P&T	PRESSURE AND TEMPERATURE
PC	PUMPED CONDENSATE
PD	PRESSURE DROP
PH	PHASE
PHSE	PENTHOUSE
PRESS	PRESSURE
PRI	PRIMARY
PRV	PRESSURE REDUCING VALVE
PSF	POUNDS PER SQUARE FOOT
PSFA	POUNDS PER SQUARE FOOT ABSOLUTE
PSFG	POUNDS PER SQUARE FOOT GAGE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PT	PRESSURE TRANSDUCER, PRESSURE TRANSMITTER
RCVR	RECEIVER
RD	ROOF DRAIN
RECIRC	RECIRCULATE
REFRIG	REFRIGERANT
REQ'D	REQUIRED
RES	RESIST(-ANCE, -IVITY, -OR)
RL	ROOF LEADER
RM	ROOM
SF	SAFETY FACTOR
SP VOL	SPECIFIC VOLUME
SPEC	SPECIFICATION
SPLY	SUPPLY
SQ	SQUARE
S/S	STAINLESS STEEL
STD	STANDARD
STM	STEAM
SUCT	SUCTION
TEMP	TEMPERATURE
THERM	THERMOMETER
TK	THICK, THICKNESS
TRANS	TRANSFER
TS	TEMPERATURE SENSOR
TYP	TYPICAL
UF	UNDER FLOOR
URF	UNDER RAISED FLOOR
V	VALVE, VOLT
VAC	VACUUM
VAP PRF	VAPOR PROOF
VAR	VARIABLE
VERT	VERTICAL
VOL	VOLUME
VTR	VENT THRU ROOF
W	WASTE, WATT
WCO	WALL CLEANOUT
WG	WATER GAGE
WH	WATER HEATER, WALL HYDRANT
W/	WITH
WMS	WIRE MESH SCREEN
WP	WEATHER PROOF
WT	WEIGHT
YCO	YARD CLEANOUT
YD	YARD
YR	YEAR

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL STATE AND LOCAL BUILDING CODES.
2. ALL EXCAVATION AND BACKFILL FOR PLUMBING WORK SHALL BE BY THE CONTRACTOR.
3. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR DIMENSIONS. DO NOT SCALE THESE DRAWINGS.
4. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ITEMS TO BE FURNISHED UNDER THIS CONTRACT WILL FIT THE SPACE AVAILABLE. HE SHALL MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS, AND SHALL FURNISH AND INSTALL SUCH SIZES AND SHAPES OF EQUIPMENT THAT ARE THE TRUE INTENT AND MEANING OF THE DRAWINGS AND SPECIFICATIONS.
5. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF THE OTHER TRADES PRIOR TO THE INSTALLATION OF ANY OF HIS PIPING EQUIPMENT.
6. PROVIDE DI-ELECTRIC UNIONS OR FLANGES TO ISOLATE DISSIMILAR METALS.
7. ESCUTCHEONS AND COVER PLATES ARE REQUIRED FOR FINISH WALL PENETRATIONS.
8. ALL PLUMBING FIXTURES SHALL BE NEATLY CAULKED WITH SILICONE CAULKING COMPOUND WHERE THE FIXTURE MEETS THE WALL.
9. LAYOUT ALL UNDERGROUND PLUMBING AND SET GRADES TO AVOID FOOTING CONFLICTS.
10. THE CONTRACTOR SHALL PROVIDE AND INSTALL HIS OWN SUPPORT DEVICES. ALL LOCATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND OTHER PRIME CONTRACTORS PRIOR TO INSTALLATION.
11. THE CONTRACTOR SHALL USE FIRE RATED SLEEVES IN ALL LOCATIONS WHERE PENETRATIONS OF RATED WALLS AND FLOORS ARE MADE. ALL OPENINGS WILL BE MADE FIREPROOF.
12. SUPPLY WATER PIPING IS SIZED WITH 60 PSI AS A MINIMUM PRESSURE AVAILABLE. CONTRACTOR SHALL NOTIFY ENGINEER IF A PRESSURE DIFFERENCE EXISTS.
13. ALL NEW UNDERGROUND WATER PIPING SHALL BE INSTALLED BELOW THE FROST LINE BUT NOT LESS THAN 24" BELOW FINISHED GRADE TO PIPE CROWN.
14. ALL VENT LINES SHALL SLOPE UP TO VENT THRU ROOF. VENT THRU ROOF SHALL BE 10'-0" MINIMUM FROM ANY FRESH AIR INTAKES.
15. WATER LINES BELOW GRADE SHALL BE TYPE K COPPER. WATER LINES ABOVE GRADE SHALL BE TYPE L COPPER AND INSULATED WITH 1/2" CLOSED CELL RUBBER.
16. WASTE, VENT AND STORM WATER PIPING AND FITTINGS 1 1/2" AND LARGER SHALL BE SERVICE-WEIGHT CAST IRON PIPE CONFORMING TO CS-188-66 OR NO-HUB CAST IRON PIPE AND FITTINGS CONFORMING TO CISP STANDARD 301-68T.
17. THE CONTRACTOR SHALL PROVIDE 18" AIR CHAMBERS AT EACH FIXTURE OR SHALL SIZE AND LOCATE SHOCK ABSORBERS IN ACCORDANCE WITH ANSI A112.26.1.
18. ALL FLOOR DRAINS SHALL BE FED FROM A TRAP PRIMER.
19. HORIZONTAL DRAINAGE AND WASTE PIPING SHALL HAVE A MINIMUM SLOPE OR FALL OF 1/8" PER FOOT FOR SIZES GREATER THAN OR EQUAL TO 3" AND A MINIMUM SLOPE OR FALL OF 1/4" PER FOOT FOR SIZES LESS THAN 3".
20. ALL WATER PIPING SHALL BE PRESSURE TESTED AT 150 PSI FOR A PERIOD OF FOUR HOURS.
21. PROVIDE MANUAL SHUT-OFF VALVES AT EACH BRANCH LINE OF ALL WATER PIPING.
22. PROVIDE ISOLATION VALVES AT ALL FIXTURES.
23. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS OF PLUMBING FIXTURES.
24. ALL WALL MOUNTED LAVATORIES TO HAVE INSULATION ON ANY EXPOSED PIPES PER A.D.A. REQUIREMENTS.
25. ALL EXTERIOR (YARD) CLEANOUTS TO BE MOUNTED IN AN 18"x18"x12" THICK CONCRETE PAD.
26. NATURAL GAS PIPING IS DESIGNED AND SIZED FOR 2 PSIG GAS PRESSURE. PROVIDE REGULATOR TO REDUCE PRESSURE TO 0.5 PSIG AT EACH PIECE OF EQUIPMENT. VENT REGULATOR TO ATMOSPHERE.

FIXTURE SCHEDULE

MARK	FIXTURE TYPE	MINIMUM PIPE SIZE (INCHES) HW	CW	WASTE	VENT
P-1	WATER CLOSET – WALL HUNG FLOOR MOUNTED, SIPHON JET, WHITE VITREOUS CHINA WATER CLOSET WITH ELONGATED RIM, CHINA BOLT CAPS, 1.6 GPF, SOLID WHITE PLASTIC SEAT WITH OPEN FRONT, EXTENDED BACK, SELF-SUSTAINING HINGE, BRASS BOLTS, WITHOUT COVER. PROVIDE SLOAN REGAL 111 FLUSHOMETER OR EQUAL, EXPOSED CHROME PLATED, DIAPHRAM TYPE, 1.6 GPF, NON-HOLD OPEN HANDLE.	–	2"	4"	2"
P-1A	WATER CLOSET – WALL MOUNTED – HANDICAP ACCESSIBLE FLOOR MOUNTED, SIPHON JET, WHITE VITREOUS CHINA WATER CLOSET WITH ELONGATED RIM, CHINA BOLT CAPS, 1.6 GPF, SOLID WHITE PLASTIC SEAT WITH OPEN FRONT, EXTENDED BACK, SELF-SUSTAINING HINGE, BRASS BOLTS, WITHOUT COVER. PROVIDE SLOAN REGAL 111 FLUSHOMETER OR EQUAL, EXPOSED CHROME PLATED, DIAPHRAM TYPE, 1.6 GPF, NON-HOLD OPEN HANDLE.	–	2"	4"	2"
P-2	URINAL – WALL HUNG WALL-HUNG, FLUSH VALVE OPERATED, WHITE VITREOUS CHINA URINAL, TAILPIECE AND MOUNTING FLANGE, WALL HANGER BRACKETS. 1.0 GPF.	–	1"	2"	2"
P-3	HANDWASH FOUNTAIN BRADLEY MODEL TERRON DEEP BOWL WASHFOUNTAIN OR EQUAL, 54" SEMI-CIRCULAR WITH 8-1/2" DEEP BOWL. PROVIDE WITH THERMAL MIXING VALVE, SOAP DISPENSERS AND BATTERY POWERED ACTIVATION SENSORS.	1"	1"	2"	2"
DF-1	ELECTRIC WATER COOLER – HANDICAP ACCESSIBLE BI-LEVEL, 8 GPM, SURFACE MOUNTED, LEAD-FREE, BARRIER FREE ELECTRIC WATER COOLER WITH STAINLESS STEEL BASIN, STAINLESS STEEL BODY, FLEXI-GUARD SAFETY BUBBLER, SELF-CLOSING EASY-TOUCH CONTROLS ON FRONT AND BOTH SIDES, MOUNTING BRACKET, REFRIGERATED WITH INTEGRAL AIR COOLED CONDENSER. ELKAY MODEL LZSTL8C OR EQUAL. PROVIDE SOLID BRASS STRAIGHT THROUGH STOP WITH HANDWHEEL. MOUNT AT HANDICAP ACCESSIBLE HEIGHT.	–	1/2"	2"	2"
P-4	SERVICE SINK 20x24x15 INCH DEEP, STRUCTURAL PLASTIC POLYMER BOWL, 4-INCH INTEGRALYY MOLDED LEDGE WITH TWO HOLES ON 4-INCH CENTERS, INTEGRALLY MOLDED DRAIN, BAKED ENAMEL STEEL ANGLE LEGS. PROVIDE CHICAGO FAUCET MODEL 895-L5VB-369 OR EQUAL, POLISHED CHROME PLATED CAST BRASS, 4-INCH ON CENTER, INTEGRAL VACUUM BREAKER, 6-INCH SPOUT, INTEGRAL HOSE THREAD OUTLET. ACCESSORIES: CHROME PLATED 17 GAGE BRASS P-TRAP WITH CLEAN-OUT PLUG AND ARM WITH ESCUTCHEON, 1 ½" DRAIN WITH TAIL PIECE, CHROME PLATED RIGID OR FLEXIBLE SUPPLY RISERS TO FIXTURE WITH INTEGRAL CHROME PLATED SOLID BRASS ANGLE STOPS, LOOSE KEY HANDLE, REDUCERS AND ESCUTCHEONS.	3/4"	3/4"	2"	2"
FD-1	FLOOR DRAIN LACQUERED CAST IRON TWO PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEEP HOLES, TRAP PRIMER, REVERSIBLE CLAMPING COLLAR AND ROUND, ADJUSTABLE NICKEL-BRONZE STRAINER.	–	–	3"	2"
HB-1	HOSE BIBB AUTOMATIC DRAINING, VACUUM BREAKER-BACKFLOW PROTECTED WALL FAUCET. VACUUM BREAKER IN CONFORMANCE WITH ASSE 1011, BRASS FINISH, TEFLON IMPREGNATED PACKING, ADJUSTABLE BRASS NUT WITH DEEP STEM GUARD, METAL WHEEL HANDLE.	–	3/4"	–	–
ES-1	EMERGENCY EYE WASH AND SHOWER GUARDIAN MODEL #G1902P OR EQUAL. 10"Ø SHOWER HEAD WITH STAY-OPEN BALL VALVE, ACTUATING ARM AND PULL ROD. TWO EYE WASH NOZZLES WITH FLIP UP DUST COVERS, WATER FILTER, TEMPERING VALVE, SAFETY VALVE AND 11½"Ø BOWL.	–	1 1/4"	–	–

SUMP PUMP SCHEDULE

MARK	GPM	HEAD FT	HP	REMARKS
P-1	10	28	2	(1) (2)
P-2	10	28	2	(1) (2)

(1) BARNES MODEL SGVF OR EQUAL, 460 VOLT, 3 PHASE
(2) PROVIDE CORD LENGTH AS NEEDED TO WORK WITH SEWAGE LIFT STATION.

ELECTRIC DOMESTIC WATER HEATER SCHEDULE

MARK	CAPACITY (GALLONS)	WATER TEMP (°F)	NUMBER OF ELEMENTS	KW/ ELEMENT	REMARKS
WH-1	30 GAL	110	2	4.5	(1)

(1) GE MODEL #30S06AAG OR EQUAL, 240V, 18.8 AMP, 30" HIGH x 22.25"Ø.

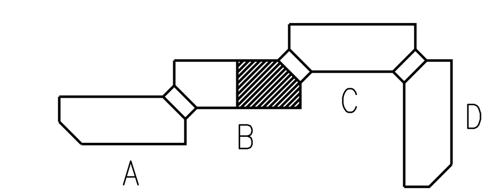
DOMESTIC HOT WATER RECIRCULATING PUMP SCHEDULE

MARK	GPM	HEAD FT	HP	SYSTEM TEMP	REMARKS
RCP-1	10	11	1/25	–	(1) (2)

(1) TACO NO. 007 OR EQUAL, BRONZE CONSTRUCTION, 115 VOLT, 60 HZ, 1 PH. OR APPROVED EQUAL
(2) PROVIDE WITH AQUASTAT CONTROLS

SOME PLUMBING SYMBOLS AND ABBREVIATIONS SHOWN ON THIS DRAWING MAY NOT BE APPLICABLE TO THIS PROJECT.

COMPLEX KEY PLAN



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GREENVILLE TECH
College That Works
BARTON CAMPUS
INDUSTRIAL COMPLEX RENOVATION
STATE PROJECT NO: H59-9997-JM

NO.	DATE	REVISION

JOB NO. 09GTECWELDING | DATE 6/15/09 | DRAWN BY CPC

PLUMBING LEGEND ABBREVIATIONS AND GENERAL NOTES

P0-1