

PLUMBING LEGEND

SYMBOL	DESCRIPTION	ABBR.	SYMBOL	DESCRIPTION	ABBR.
	SOIL, WASTE, or SEWER BELOW GRADE	S or W		EXIST. SOIL, WASTE, or SEWER BELOW GRADE	S or W(E)
	SOIL, WASTE, or SEWER ABOVE GRADE	S or W		EXIST. SOIL, WASTE, or SEWER ABOVE GRADE	S or W(E)
	VENT	V		EXIST. VENT	V(E)
	STORM DRAIN BELOW GRADE	SD		EXIST. STORM DRAIN BELOW GRADE	SD(E)
	STORM DRAIN ABOVE GRADE	SD		EXIST. STORM DRAIN ABOVE GRADE	SD(E)
	OVERFLOW STORM DRAIN BELOW GRADE	OSD		EXIST. OVERFLOW STORM DRAIN BELOW GRADE	OSD(E)
	OVERFLOW STORM DRAIN ABOVE GRADE	OSD		EXIST. OVERFLOW STORM DRAIN ABOVE GRADE	OSD(E)
	INDUSTRIAL COLD WATER	ICW		EXIST. COLD WATER	CW(E)
	COLD WATER	CW		EXIST. HOT WATER	HW(E)
	HOT WATER	HW		EXIST. HOT WATER RETURN	HW(R)(E)
	HOT WATER RETURN	HWR		EXIST. GAS—LOW PRESSURE	G(E)
	GAS—LOW PRESSURE	G		EXIST. GAS—MEDIUM PRESSURE	MG(E)
	GAS—MEDIUM PRESSURE	MG		EXIST. DRAIN	D(E)
	DRAIN	D		PIPE ANCHOR	PA
	GATE VALVE	GV		PIPE GUIDE	PG
	BALL VALVE	BV		BACKFLOW PREVENTER	BFP
	GAS COCK	GC		FIRE PROTECTION WATER SUPPLY	
	GAS PRESSURE REGULATOR	GPR		SOLENOID VALVE	
	PRESSURE REDUCING VALVE	PRV		VALVE ON RISER	
	CHECK VALVE	CKV		RISER DOWN	
	PRESSURE TEMPERATURE RELIEF VALVE	PTRV		RISER UP	
	STRAINER	STR		BRANCH TOP CONNECTION	
	CONCENTRIC REDUCER	CR		BRANCH BOTTOM CONNECTION	
	ECCENTRIC REDUCER	ER		CAP ON END OF PIPE	
	UNION	UN		PITCH DOWN IN DIRECTION OF ARROW	
	WATER HAMMER ARRESTOR	WHA		FLOW IN DIRECTION OF ARROW	
	FLOOR DRAIN	FD		ABOVE FINISHED FLOOR	AFF
	FLOOR SINK	FS		FAHRENHEIT	F
	FLOOR CLEANOUT	FCO		GALLONS	GAL
	GRADE CLEANOUT	GCO		HORSEPOWER	HP
	WALL CLEANOUT	WCO		KILOWATT	KW
	HOSE BIBB	HB		MAXIMUM	MAX.
	VENT THRU ROOF	VTR		MINIMUM	MIN.
	ROOF DRAIN	RD		LAVATORY	L
	OVERFLOW ROOF DRAIN	ORD		WATER CLOSET	WC
	DECK DRAIN	DD		BATH TUB	BT
	POINT OF CONNECTION	POC		WET STANDPIPE	WSP
	ACCESS DOOR	AD		DRY STANDPIPE	DSP
	COMPRESSED AIR	A		FIRE DEPARTMENT CONNECTION	FDC
	VACUUM	VAC		CONDENSATE DRAIN	CD
	MEDICAL COMPRESSED AIR	MA		ACID WASTE BELOW GRADE	AW
	MEDICAL VACUUM	MV		ACID WASTE ABOVE GRADE	AW
	FINISHED FLOOR	FF		ACID VENT	AV
	INVERT ELEVATION	IE		TEMPERED WATER	TW
	CUBIC FEET PER HOUR	CFH		POUNDS PER SQUARE INCH	PSI
	GALLONS PER MINUTE	GPM		WATER COLUMN	W.C.
	GALLONS PER HOUR	GPH		TOTAL DEVELOPED HEAD	TDH
	BRITISH THERMAL UNIT	BTU		TRENCH DRAIN	TD
	EXISTING	EXIST.			

NOTE:
SYMBOLS AND ABBREVIATIONS SHOWN MAY INCLUDE ITEMS
NOT USED FOR THIS PROJECT.

PLUMBING FIXTURE SPECIFICATION

WC-1	WATER CLOSET AMERICAN STANDARD "AFWALL" MODEL NO. 2287.103, WALL HUNG, VITREOUS CHINA, FURNISHED IN WHITE, ELONGATED BOWL, SIPHON JET FLUSHING (1.6 GPF), 1-1/2" TOP STD. SLOAN ROYAL MODEL NO. 111, CHROME PLATED BRASS WATER SAVER FLUSH VALVE, (1.6 GAL. PER FLUSH), OLSONITE COMFORTURFOME MODEL NO. 95 OPEN FRONT SEAT LESS COVER.
WC-2	WATER CLOSET (ADA ACCESSIBLE) SEE AS ABOVE EXCEPT RIM MOUNTING HEIGHT CONFORMING TO ADA REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING ELEVATIONS WITH SLOAN MODEL NO. F-72-A-1 TRAP PRIMER.
WC-3	WATER CLOSET (ADA ACCESSIBLE) AMERICAN STANDARD CADET 17" H EL 1.6/P/A, MODEL NO. 2198.100, FLOOR MOUNTED, VITREOUS CHINA, CLOSE-COUPLED FLUSHMETER TANK (1.6 GAL. PER FLUSH), ELONGATED BOWL, OLSONITE HEAVY DUTY SOLID PLASTIC SEAT MODEL NO. 10CC, OPEN FRONT SEAT LESS COVER, BRASSCRAFT CHROME PLATED SUPPLY.
WC-4	WATER CLOSET (ADA ACCESSIBLE) AMERICAN STANDARD CADET 17" H EL 1.6/P/A, MODEL NO. 2198.100, FLOOR MOUNTED, VITREOUS CHINA, CLOSE-COUPLED FLUSHMETER TANK WITH RIGHT-HAND TRIP LEVER (1.6 GAL. PER FLUSH), ELONGATED BOWL, OLSONITE HEAVY DUTY SOLID PLASTIC SEAT MODEL NO. 10CC, OPEN FRONT SEAT LESS COVER, BRASSCRAFT CHROME PLATED SUPPLY.
U-1	URINAL (ADA ACCESSIBLE) AMERICAN STANDARD "WASHBROOK" MODEL NO. 6501.010, WALL MOUNTED, VITREOUS CHINA, FURNISHED IN WHITE, SIPHON JET FLUSH, 3/4" INLET SPUD, 1.0 GPF. SLOAN ROYAL MODEL NO. 198-1 FLUSH VALVE (1 GAL. PER FLUSH). JAY R. SMITH FIXTURE SUPPORT FIG. 637, MOUNTING HEIGHT TO CONFORM TO ADA REQUIREMENTS. SEE ARCHITECTURAL DRAWINGS FOR MOUNTING ELEVATIONS.
L-1	LAVATORY (ADA ACCESSIBLE) AMERICAN STANDARD "AQUALYN" MODEL NO. 0476.028, SELF-RIMMING COUNTERTOP, 20"x17" OVAL VITREOUS CHINA BOWL, FURNISHED IN WHITE, SYMONS SCOT METERING FAUCET MODEL NO. S-61-G TO METER SINGLE TEMPERED WATER, 0.5 GPM FLOW FOR 30 SECONDS FOR A TOTAL OF 0.25 GALLONS PER OPERATION WITH GRID DRAIN, CHROME PLATED BRASSCRAFT SUPPLY, 17 GAUGE BRASS CHROME PLATED P-TRAP (1-1/4"x1-1/2"). SUPPLIES. PROVIDE SKAL/GARD TRAP AND SUPPLY INSULATED JACKET.
L-2	LAVATORY (ADA ACCESSIBLE) AMERICAN STANDARD "LUCERNE" MODEL NO. 0356.421, WALL HUNG, 20"-17/16"-1/4" D-B SHAPED AMERICAN STANDARD W/GR. SINGLE CENTER FAUCET, SYMONS SCOT METERING FAUCET MODEL NO. S-61-G TO METER SINGLE TEMPERED WATER, 0.5 GPM FLOW FOR 30 SECONDS FOR A TOTAL OF 0.25 GALLONS PER OPERATION WITH GRID DRAIN, CHROME PLATED BRASSCRAFT SUPPLY, 17 GAUGE BRASS CHROME PLATED P-TRAP (1-1/4"x1-1/2"). SUPPLIES. PROVIDE SKAL/GARD TRAP AND SUPPLY INSULATED JACKET.
EW-1	ELECTRIC WATER COOLER (ADA ACCESSIBLE) HAYSLEY TAYLOR OVL BARRIER-FREE BILEVEL FOUNTAIN MODEL NO. OVL-ESBP. REMOTE CHILLER MODEL NO. SBA, 1/5 HP, 120V / 1 PH / 60 HZ, 17 GAUGE BRASS P-TRAP (1 1/2"), AND BALL VALVE STOP.
SS-1	SERVICE SINK FIAT MPF SERVICE BASIN MODEL NO. MSB-2424, 24"x24"x1" MOLDED MPO RECEPTOR. FIAT SERVICE FAUCET MODEL NO. 830-AA WITH VACUUM BREAKER AND WALL BRACE, FIAT STAINLESS STEEL SINK/BOARDS MODEL NO. E-77-AA.
FD-1	FLOOR DRAIN J.R. SMITH NO. 2005, CAST IRON BODY, NICKEL BRONZE TOP, 5" DIAMETER STRAINER, TRAP PRIMER CONNECTION, FLANGED, FLASHING ON UPPER FLOORS, SEAL FLOOR PENETRATIONS WATERTIGHT. SIZE AS INDICATED ON DRAWINGS.
FS-1	FLOOR SINK GECO MODEL NO.908, 12"x12"x8" DEEP, FLANGED WITH SEEPAGE FLANGE, CLAMP COLLAR, SQUARE ENAMELED CAST IRON TOP WITH 1/2" GRATE, TRAP PRIMER CONNECTION, SEAL FLOOR PENETRATIONS WATERTIGHT. SIZE AS INDICATED ON DRAWINGS.
HB-1	HOSE BIBB WOODFORD MODEL B65, 3/4" HOSE THREAD NOZZLE, AUTOMATIC DRINKING, BUILT-IN VACUUM BREAKER, FREEZELESS, LOOSE KEY TEST, RECESSED CHROME BOX WITH LOCKABLE HINGED DOOR.
TP-1	TRAP PRIMER MEFAB TRAP SEAL PRIMER MODEL NO. M2-500
TP-2	TRAP PRIMER PRECISION PLUMBING PRODUCTS, INC. MODEL NO. MP-500-115V "MINI-PRIME" ELECTRONIC TRAP PRIMER VALVE AND RECYCLE TIMER. PROVIDE DISTRIBUTION UNIT FOR MULTIPLE DRAIN CONNECTION.
S-1	SINK ELKAY PADCAEMAK "LUSTERTONE" SINGLE COMPARTMENT STAINLESS STEEL SINK MODEL NO. LR-1918, CHICAGO FAUCETS WARTHORN SINGLE CONTROL FAUCET MODEL NO. 2302 WITH GOOSENECK SPOUT, MCQUEEN SINK BAGGET STRAINER MODEL NO. 151M, 17 GAUGE BRASS CHROME PLATED P-TRAP (1-1/2"), CHROME PLATED SOLID BRASS BRASSCRAFT SUPPLIES.
S-2	SINK ELKAY LUSTERTONE SINGLE COMPARTMENT STAINLESS STEEL SINK MODEL NO. DLR-3122-12, CHICAGO FAUCETS WARTHORN SINGLE CONTROL FAUCET MODEL NO. 2302 WITH GOOSENECK SPOUT, MCQUEEN SINK BAGGET STRAINER MODEL NO. 151M, 17 GAUGE BRASS CHROME PLATED P-TRAP (1-1/2"), CHROME PLATED SOLID BRASS BRASSCRAFT SUPPLIES.
WB-1	WASHER BOX GRAY-GUY MODEL NO. BB-200TS.
RD	ROOF DRAIN JAY R. SMITH MODEL NO. 1010Y, CAST IRON BODY, UNDERDECK CLAMP, SUMP RECEIVER, GALVANIZED CAST IRON DOME.
ORD	OVERFLOW ROOF DRAIN JAY R. SMITH MODEL NO. 1070Y, CAST IRON BODY, UNDERDECK CLAMP, SUMP RECEIVER, GALVANIZED CAST IRON DOME, OVERFLOW STANDPIPE.

PLUMBING EQUIPMENT SPECIFICATION

WH-1	WATER HEATER A. O. SMITH DURA-POWER COMMERCIAL ELECTRIC WATER HEATER MODEL NO. DEN-30, TWO 4.5 KW ELEMENTS (NON-SIMULTANEOUS OPERATION) 208V / 1 PH / 60 HZ., 18 GPM RECOVERY AT 100 DEGREE RISE, 30 GALLON GLASS-LINED STORAGE TANK, FURNISH COMPLETE WITH TEMPERATURE AND PRESSURE RELIEF VALVE AND DIELECTRIC WATER-WAY FITTINGS.
CP-1	CIRCULATION PUMP FOR TEMPERED WATER BELL & GOSSETT BRONZE FOX MODEL NO. NBF-22 MET ROTOR CIRCULATOR 99 WATTS, 115 V / 1 PH/ 60 HZ, TO PUMP 1.8 GPM AT 13 FEET TDH.
TV-1	TEMPERING VALVE SYMONS TEMPCONTROL THERMOSTATIC MIXING VALVE MODEL NO. 5-200-A-W-TOP, 5 GPM, WALL MOUNTING BRACKET, TOP SUPPLIES.
CP-2	CIRCULATION PUMP FOR HOT WATER RETURN BELL & GOSSETT BRONZE FOX MODEL NO. NBF-22 MET ROTOR CIRCULATOR 99 WATTS, 115 V / 1 PH/ 60 HZ, TO PUMP 1.8 GPM AT 13 FEET TDH.
WH-2	WATER HEATER A. O. SMITH DURA-POWER COMMERCIAL ELECTRIC WATER HEATER MODEL NO. DEN-40, TWO 4.5 KW ELEMENTS (NON-SIMULTANEOUS OPERATION) 208V / 1 PH / 60 HZ., 18 GPM RECOVERY AT 100 DEGREE RISE, 40 GALLON GLASS-LINED STORAGE TANK, FURNISH COMPLETE WITH TEMPERATURE AND PRESSURE RELIEF VALVE AND DIELECTRIC WATER-WAY FITTINGS.
CP-3	CIRCULATION PUMP FOR TEMPERED WATER BELL & GOSSETT BRONZE FOX MODEL NO. NBF-22 MET ROTOR CIRCULATOR 99 WATTS, 115 V / 1 PH/ 60 HZ, TO PUMP 1.8 GPM AT 13 FEET TDH.
TV-2	TEMPERING VALVE SYMONS TEMPCONTROL THERMOSTATIC MIXING VALVE MODEL NO. 5-200-A-W-TOP, TO GPM, WALL MOUNTING BRACKET, TOP SUPPLIES.
CP-4	CIRCULATION PUMP FOR HOT WATER RETURN BELL & GOSSETT BRONZE FOX MODEL NO. NBF-22 MET ROTOR CIRCULATOR 99 WATTS, 115 V / 1 PH/ 60 HZ, TO PUMP 1.8 GPM AT 13 FEET TDH.
WH-3	WATER HEATER STATE INDUSTRIES, SANDBLASTER FORCE MODEL NO. SOV-100-199NE, 100 GALLON STORAGE GLASS LINED TANK, 1989,999 BTU INPUT, 205 GPM RECOVERY AT 100 DEGREE RISE, 120 V 1 PH - 60 HZ, DIRECT VENTING SYSTEM WITH 3" DIAMETER PVC AIR INTAKE AND EXHAUST PIPE. PROVIDE INTAKE AND EXHAUST FLUE CAPS. INSTALL PER MANUFACTURER RECOMMENDATIONS.
CP-5	CIRCULATION PUMP FOR HOT WATER RETURN BELL & GOSSETT SERIES PL MODEL NO. PL-30, BRONZE BODIED CIRCULATOR, PERMANENTLY LUBRICATED, 1/12 HP, 115V-1PH-60HZ, TO PUMP 2 GPM AT 20 FEET TDH.
WH-4	CHROMONITE LOW PRESSURE INSTANTANEOUS WATER HEATER MODEL NO. S-80-I.
WH-A-1	WATER HAMMER ARRESTER PRECISION PLUMBING PRODUCTS, INC. SIZE RECOMMENDED BY MANUFACTURER.

WATER CALCULATIONS

CW F.U. (100%) : --- = --- GPM

A. STREET PRESSURE AFTER METER: 60 PSI

B. PRESSURE LOSSES

1. LOSS DUE TO HEIGHT
8 FT X 0.434=
2. PRESSURE REQ AT MOST REMOTE OUTLET:
3. TOTAL PRESSURE LOSSES:

C. PRESSURE LEFT TO OVERCOME FRICTION
60 PSI - 28.5 PSI =

D. 637 FT X 1.5 FITTINGS=

E. AVAILABLE FRICTION HEAD LOSS PER 100FT
31.5 PSI X 100 FT =
955 FT

* NOT REQUIRED

50 PSI

3.5 PSI
25 PSI
28.5 PSI

31.5 PSI

955 FT

3.29 PSI

FRICTION LOSS PER 100 FEET: 3 LBS.				
PIPE SIZE	GPM	FT FV	FT FV	VEL.
1/2	1.75	1		
3/4	5	6		
1	10	13		
1-1/4	17	24		
1-1/2	27	46	10	
2	60	175	76	
2-1/2	105	406	270	
3	160	692	631	

USE 3 PSI OR 8 FEET PER SECOND

GREASE INTERCEPTOR SIZE

D = NUMBER OF SEATS
GL = GAL. OF WASTE WATER PER MEAL 4
HR = NUMBER OF HOURS OPEN PER DAY
LF = LOADING FACTOR 1

$$D^{.75} \times GL \times (HR/2) \times LF = GAL.$$
$$242^{.75} \times 4 \times 12/2 \times 1 = 1473 \text{ GAL}$$

SELECT 1500 GALLON INTERCEPTOR

[illegible]

RECORD DRAWINGS

Date: 5/21/03 This record drawing has been prepared in part, based upon information furnished by others. While this information is believed to be reliable, Harrie Consulting Engineers P.C. cannot assure it's accuracy, and is not responsible for the accuracy of this record drawing or for any errors or omissions which may have been incorporated into it as a result. Those relying on this record drawing are advised to obtain independent verification of it's accuracy before applying it for any purpose.

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1. *Journal of the American Medical Association*, 1997; 277: 1039-1043.

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