CHAPTER XIII
ABBREVIATIONS, DEFINITIONS AND RECOMMENDED SYMBOLS FOR PLUMBING

ABBREVIATIONS USED IN THE PLUMBING TRADES

A	Area
ABS	Acrylonitrile-butadiene-styrene
AC	Above Center
ADAPTR	Adapter
&	and
Assy	Assembly
AGA	American Gas Association
Al	Aluminum
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
API	American Petroleum Institute
ASCE	American Society of Civil Engineering
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASPE	American Society of Plumbing Engineers
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
Avg	Average
AWWA	American Water Works Association
BD	Bend (⅛, ¼, 90°)
B & S	Bell and Spigot (also used for Brown & Sharpe gage)
B.O.C.A.	Building Officials and Code Administrators International
B.O.D.	Biochemical Oxygen Demand
BTU	British Thermal Unit
C	Centigrade
C to C	Center to Center
°C	Degree Centigrade
CF	Carlson Fitting
cfm	Cubic Feet per minute
CI	Cast Iron
	Cast Iron Soil Pipe Institute Trademark
CISP	Cast Iron Soil Pipe
CISPI	Cast Iron Soil Pipe Institute
CI	Chlorine
CLO	Closet
CO	Cleanout
COMB	Combination

CS	Cast Steel
Cu	Copper (Chemical Abbreviation
Cu. Ft.	Cubic Feet
Cu. In.	Cubic Inch
C.W.	Cold Water
DBL	Double
deg. or °	Degree
D.F.	Drinking Fountain
DH	Double Hub Cast Iron Soil Pipe
dwg	Drawing
EWC	Electric Water Cooler
EXT	Extended, Extension
F	Figure
°F	degree Fahrenheit
Fe	Iron (Chemical Abbreviation)
FER	Ferrule
FF	Finish Floor
F.G.	Finish Grade
Fig.	Figure
FLNG	Flange
F.P.	Fire Plug
FS	Federal Specification
FTG	Fitting
F.U.	Fixture Unit
Ga or ga	Gage or Gauge
Gal.	Gallon (231 Cu. In.)
gpm or Ga. Per. Min.	Gallons per minute
Galv.	Galvanized
G.V.	Gate Valve
GPD	Gallons per day
H	Hydrogen (Chemical Abbreviation)
H.B.	Hose Bib
H & S	Hub and Spigot
hd. or Hd.	Head
HI	High
HOR	Horizontal
hr.	Hour
H.W.	Hot Water
I.A.P.M.O.	International Association of Plumbing and Mechanical Officials
ID	Inside Diameter
IN	Inch
INC	Increaser, Increasing

IPS	Iron pipe size
LH	Left Hand
l or L	Length
L	less
lav.	Lavatory
lb	Pound
LG	Long
LH	Left Hand
LNG	Long
LS	Long Sweep
/MAIN	On Main
Max	Maximum
MCAA	Mechanical Contractors Association of America
MGD	Million Gallons Per Day
Mfr.	Manufacturer
M.H.	Manhold
MI	Malleable Iron
Min.	Minimum
Min.	Minute
MN	On Main
MS	Mild Steel
NAPHCC	National Association of Plumbing, Heating and Cooling Contractors
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NFPA	National Fire Protective Association
NH	Hubless Pipe & Fittings
NPS	Nominal Pipe Size (also called IPS)
O	Oxygen (Chemical Abbreviation)
O.D.	Outside Diameter
oz.	ounce
P.	pressure
Pb	Lead (Chemical Abbreviation)
PDI	Plumbing Drainage Institute
PIV	Post Indicator Valve
pH	Hydrogen-ion concentration
ppm	Parts per Million
psi	Pounds per Square Inch
psig	Pounds per Square Inch Gage
PVC	Polyvinyl Chloride
qt	Quart
R	Hydraulic Radius
Rad	Radius
RD	Rate of Demand

R.D.	Roof Drain
red.	Reducer
REV	Revent
RH	Right Hand
R.L.	Roof Leader
RS	Rate of Supply
S	Hydraulic slope (in inches per ft.)
San	Sanitary
Sb	Antimony (Chemical Abbreviation)
S.B.C.C.I.	Southern Building Code Congress International
SD	Side
Sec	Second
SH	Single Hub Cast Iron Soil Pipe
SL & Notch	Slotted & Notched
Sn	Tin (Chemical Abbreviation)
SO	Side Opening
Spec	Specification
Sq	Square
Sq. Ft.	Square Feet
Sq. In.	Square Inches
SS	Service Sink
SS	Short Sweep
SSU	Seconds Saybolt Universal
ST	Sanitary Tap
Std	Standard
SV	Service Cast Iron Soil Pipe
S & W	Soil & Waste
T	Tee
T or t	temperature
T or t	thickness
t	time
TAP	Tap, Tapped
TOT	Tap on Top
TP	Tap, Tapped
TY	Tee Wye, (San Tee)
U or Urn	Urinal
UPC	Uniform Plumbing Code
v	Valve
v	Velocity
v	Vent
V	Volume
VERT	Vertical
vtr	Vent through roof

W	Waste
W/	With
WC	Water Closet
WH	Wall Hydrant
W.L.	Water Level
Wt	Weight
XH	Extra Heavy Cast Iron Soil Pipe
Y	Wye

DEFINITIONS USED IN THE PLUMBING TRADES

AEROBIC—Living with air.

ABSORPTION—This term applies to immersion in a fluid for a definite period of time. It is usually expressed as a percent of the weight of the dry pipe.

ANAEROBIC—Living without air.

ANCHOR—Is usually pieces of metal used to fasten or secure pipes to the building or structure.

AREA OF CIRCLE—The square of the radius multiplied by pi(3.1416). Area = π^2 or (rxrx3.1416).

BACK FILL—That portion of the trench excavation which is replaced after the sewer line has been laid. The material above the pipe up to the original earth line.

BACKFLOW—The flow of water or other liquids, mixture or substances into the distribution pipe of a potable supply of water from any source other than that intended.

BACKFLOW PREVENTER—A device or assembly designed to prevent backflow into the potable water system.

BACK-SIPHONAGE—A term applied to the flow of used water, wastes and/or contamination into the potable water supply piping, due to vacuums being established in the distribution system, building service, water main or parts thereof.

BASE—The lowest portion or lowest point of a stack of vertical pipe.

BRANCH—Any part of the piping system other than a main riser, or stack.

CAST IRON SOIL PIPE—The preferred material for drain, waste, vent, and sewer systems.

CAULKING—A method of sealing against water or gas by means of pliable substances such as lead and oakum, etc.

CIRCUMFERENCE OF A CIRCLE—The diameter of the circle multiplied by pi. Circumference = πD.

CLARIFIED SEWAGE—A term used for sewage from which suspended matter has been removed.

CODE—An ordinance, rule or regulation which a city or governing body may adopt to control the plumbing work within its jurisdiction.

COLIFORM GROUP OF BACTERIA—Organisms considered in the coili aerogenes group as set forth in the American Water Works Association and the American Public Health Association literature.

COMPRESSION—Stress which resists the tendency of two forces acting toward each other.

CONDUCTOR—That part of the vertical piping which carries the water from the roof to the storm drain, which starts either 6" above grade if outside the building, or at the roof sump or gutter if inside the building.

CROSS CONNECTION—(or inter-connection) Any physical connection between a city water supply and any waste pipe, soil pipe, sewer, drain, or any private or uncertified water supply. Any potable water supply outlet which is submerged or can be submerged in waste water and/or any other source of contamination.

CRUDE OR RAW SEWAGE—Untreated sewage.

DEAD END—A branch leading from any soil, waste or vent pipe, building drain, or building sewer, which is terminated at a distance of two (2) feet or more by means of a cap, plug or other fitting not used for admitting water or air to the pipe, except branches serving as cleanout extensions.

DEVELOPED LENGTHS—Length measured along the center line of the pipe and fittings.

DIAMETER—A straight line that passes through the center of a circle and divides it in half.

DIGESTER AND DIGESTION—That portion of the sewage treatment process where biochemical decomposition of organic matter takes place, resulting in the formation of simple organic and mineral substances.

DOMESTIC SEWAGE—Sewage originating principally from dwellings, business buildings, institutions and usually not containing storm water. In some localities it may include industrial wastes and rain water from combination sewers.

DRAIN—Any pipe which carries waste water or water-borne wastes in a building drainage system.

DRAIN, BUILDING OR HOUSE—That part of the lowest horizontal piping of a building drainage system which receives and conveys the discharge from soil, waste and drainage pipes, other than storm drains, from within the walls or footings of any building to the building sewer.

DRAINS, COMBINED—That portion of the drainage system within a building which carries storm water and sanitary sewage.

DRAINS, STORM—Piping and its branches which convey sub-soil and/or surface water from areas, courts, roofs or yards to the building or storm sewer.

DRAINS, SUBSOIL—That part of the drainage system which conveys the subsoil, ground or seepage water from the footings of walls, or from under buildings, to the building drain, storm water drain or building sewer.

DRY WEATHER FLOW—Sewage collected during the dry weather which contains little or no ground water and no storm water.

DUCTILITY—The property of elongation, above the elastic limit, but short of the tensile strength.

EFFLUENT—Sewage, treated or partially treated, flowing from sewage treatment equipment.

ELASTIC LIMIT—The greatest stress which a material can withstand without permanent deformation after release of stress.

EROSION—The gradual destruction of metal or other material by the abrasive action of liquids, gases, solids or mixtures of these materials.

EXISTING WORK—That portion of a plumbing system which has been installed prior to current or contemplated addition, alteration or correction.

FIXTURES, BATTERY OF—Any group of two or more similar adjacent fixtures which discharge into a common horizontal waste or soil branch.

FIXTURES, COMBINATION—Any integral unit such as a kitchen sink and a laundry unit.

FIXTURES, PLUMBING—Installed receptacles, devices or appliances which are supplied with water, or which receive liquids and/or discharge liquids, or liquid-borne wastes, either directly or indirectly into drainage system.

FIXTURE UNIT—Amount of fixture discharge equivalent to seven and one-half (7½) gallons or more; one cubic foot of water per minute.

FLOOD LEVEL RIM—The top edge of the receptacle from which water overflows.

FLUSH VALVE—A device located at the bottom of the tank for flushing water closets and similar fixtures.

FLUSHOMETER VALVE—A device which discharges a predetermined quantity of water to a fixture for flushing purposes; powered by direct water pressure.

FOOTING—The part of a foundation wall resting on the bearing soil, rock or piling which transmits the superimposed load to the bearing material.

FRESH SEWAGE—Sewage of recent origin still containing free dissolved oxygen.

INVERT—A line that runs lengthwise along the base of the channel at the lowest point on its wetted perimeter, its slope established when the sewer or drain is installed.

LATERAL SEWER—A sewer which does not receive sewage from any other common sewer except house connections.

LEACHING WELL OR CESSPOOL—Any pit or receptacle having porous walls which permit the contents to seep into the ground

LEADER—The piping from the roof which carries rainwater.

MAIN SEWER—(Also call the TRUNK SEWER) The main stem or principal artery of the sewage system to which branches may be connected.

MASTER PLUMBER—A plumber licensed to install and to assume responsibility for contractual agreements pertaining to plumbing and to secure any required permits. The journeyman plumber is licensed to install plumbing under the supervision of a master plumber.

OFFSET—In a line of piping, a combination of pipe, pipes and/or fittings which join two approximately parallel sections of a line of pipe.

OUTFALL SEWERS— Sewers which receive sewage from the collection system and carry it to the point of final discharge or treatment; usually the largest sewer of a system.

OXIDIZED SEWAGE—Sewage in which the organic matter has been combined with oxygen and has become stable.

PIPE, HORIZONTAL—Any pipe installed in a horizontal position or which makes an angle of less than 45° from the horizontal.

PIPE, INDIRECT WASTE—Pipe that does not connect directly with the drainage system but conveys liquid wastes into a plumbing fixture or receptacle which is directly connected to the drainage system.

PIPE, LOCAL VENTILATING—A pipe on the fixture side of the trap through which pipe vapors or foul air can be removed from a room fixture.

PIPE, SOIL—Any pipe which conveys to the building drain or building sewer the discharge of one or more water closets and/or the discharge of any other fixture receiving fecal matter, with or without the discharge from other fixtures.

PIPE, SPECIAL WASTE—Drain pipe which receives one or more wastes which require treatment before entry into the normal plumbing system; the special waste pipe terminates at the treatment device on the premises.

PIPE, VERTICAL—Any pipe installed in a vertical position or which makes an angle of not more than 45° from the vertical.

PIPE, WASTE—A pipe which conveys only liquid or liquid-borne waste, free of fecal matter.

PIPE, WATER RISER—A water supply pipe which extends vertically one full story or more to convey water to branches or fixtures.

PIPE, WATER DISTRIBUTION—Pipes which convey water from the service pipe to its points of usage.

PIPES, WATER SERVICE—That portion of the water piping which supplies one or more structures or premises and which extends from the main to the meter or, if no meter is provided, to the first stop cock or valve inside the premises.

PITCH—The amount of slope given to horizontal piping, expressed in inches or vertically projected drop per foot of horizontal pipe.

PLUMBING—The practice, materials and fixtures used in the installation, maintenance, extension and alteration of all piping, fixtures, appliances and appurtenances in connection with any of the following: Sanitary drainage or storm drainage facilities, the venting system and the public or private water-supply systems; also the practice and materials used in the installation, maintenance, extension or alteration of water-supply systems and/or the storm water, liquid waste or sewage system of any premises to their connection with any point of public disposal or other acceptable termina.

PLUMBING INSPECTOR—Any person who, under the supervision of the authority having jurisdiction, is authorized to inspect plumbing and drainage as defined in the code for the municipality, and complying with the laws of licensing and/or registration of the State, City or County.

PRECIPITATION—The total measurable supply of water received directly from the clouds, as snow, rain, hail and sleet. It is usually expressed in inches per day, month or year.

PRIVATE USE— A term which applies to a toilet room or bathroom intended specifically for the use of an individual or family and such visitors as they may permit to use such toilet or bathroom.

PUBLIC USE—A term which applies to toilet rooms and bathrooms used by employees, occupants, visitors or patrons, in or about any premises.

PUTREFACTION—Biological decomposition of organic matter with the production of ill-smelling products. It usually takes place where there is a deficiency of oxygen.

REVENT (individual vent)—That part of a vent pipe line which connects directly with any individual waste pipe or group of wastes, underneath or behind the fixture, and extends to the main or branch vent pipe.

ROUGHING IN—A term concerning the installation of all parts of the plumbing system which should be completed before the installing of the plumbing fixtures. Includes drainage, water supply, vent piping and necessary fixture connections.

SANITARY SEWER—The conduit of pipe carrying sanitary sewage, storm water, and infiltration of ground water.

SEPTIC SEWAGE—Sanitary sewage undergoing putrefaction.

SEPTIC TANK—A receptacle which receives the discharge of a drainage system or part thereof, and is designed and so constructed to separate solids from liquids to discharge into the soil through a system of open-joint or perforated piping, or into a disposal pit.

SEWAGE—Any liquid waste containing animal, vegetable or chemical wastes in suspension or solution.

SEWER, BUILDING—Also called house sewer. That part of the horizontal piping of a drainage system extending from the building drain, storm drain and/or sub-soil drain to its connection into the point of disposal, and carrying the drainage of but one building or part thereof.

SEWER, BUILDING STORM—(or house storm sewer) The extension from the building storm drain to the point of disposal.

SEWER, PRIVATE—A sewer located on private property which conveys the drainage of one or more buildings to a public sewer or to a privately owned sewage disposal system.

SEWER, STORM—A sewer used to convey rainwater, surface water, condensate, cooling water or similar water wastes, exclusive of sewage and industrial wastes.

SLICK—The thin oily film which gives the characteristic appearance to the surface of water into which sewage or oily water is discharged.

SLUDGE—The accumulated suspended solids of sewage deposited in tanks, beds or basins, mixed with sufficient water to form a semiliquid mass.

STACK—The vertical main of a system of soil, waste or vent piping.

STACK VENT—The extension of a soil or waste stack above the highest horizontal drain connected to the stack.

STALE SEWAGE—Sewage which contains little or no oxygen, but is free from putrefaction.

STRAIN—Change of shape or size produced by stress.

STRESS—External forces resisted by reactions within.

SUB-MAIN SEWER—Also called BRANCH SEWER. A sewer into which the sewage from two or more lateral sewers is discharged.

SUBSOIL DRAIN—A drain which receives the discharge from drains or other wastes, located below the normal grade of the gravity system, which must be emptied by mechanical means.

SUMP—A tank or pit which receives the discharge from drains or other wastes, located below the normal grade of the gravity system, which must be emptied by mechanical means.

TENSION—That stress which resists the tendency of two forces acting opposite from each other to pull apart two adjoining planes of a body.

TRAP—A fitting or device so designed and constructed as to provide, when properly vented, a liquid seal which will prevent the back passage of air or sewer gas without materially affecting the flow of sewage or waste water through it.

TRAP SEAL—The vertical distance between the crown weir and the top of the dip of the trap.

TURBULENCE—Any deviation from parallel flow.

UNDERGROUND PIPING—Piping in contact with the earth below grade. Pipe in a tunnel or in a watertight trench is not included within the scope of this term.

VACUUM—Any pressure less than that exerted by the atmosphere (may be termed a negative pressure).

VELOCITY—Time rate of motion in a given direction.

VENT, CIRCUIT—A branch vent that serves two or more traps and extends from in front of the last fixture connection of a horizontal branch to the vent stack.

VENT, COMMON—Also called dual vent, vent connecting at the junction of two fixture drains and serving as a vent for both fixtures.

VENT, CONTINUOUS—A vent that is a continuation of the drain to which it connects. A continuous vent is further defined by the angle which the drain and vent make with the horizontal at the point of connection; for example, vertical continuous waste-and-vent, 45° continuous waste-and-vent, and flat (small angle) continuous waste-and-vent.

VENT, LOOP—A vent which is connected into the same stack into which the fixtures discharge. It the loop vent serves more than one fixture, it is one type of circuit vent.

VENT STACK—A vertical vent pipe installed primarily to provide circulation of air to that part of a venting system to which circuit vents are connected. Branch vents, revents or individual vents may be led to and connected with a vent stack. The foot of the vent stack may be connected either into a horizontal drainage branch or into a soil or waste stack.

VENT SYSTEM—Pipes installed to provide a flow of air to or from a drainage system or to provide a circulation of air within such system to protect trap seals from siphonage and back pressure.

VENT, WET—A vent which receives the discharge of wastes other than from water closets.

VENT, YOKE—A pipe connecting upward from a soil or waste stack to a vent stack for the purpose of preventing pressure changes in stacks.

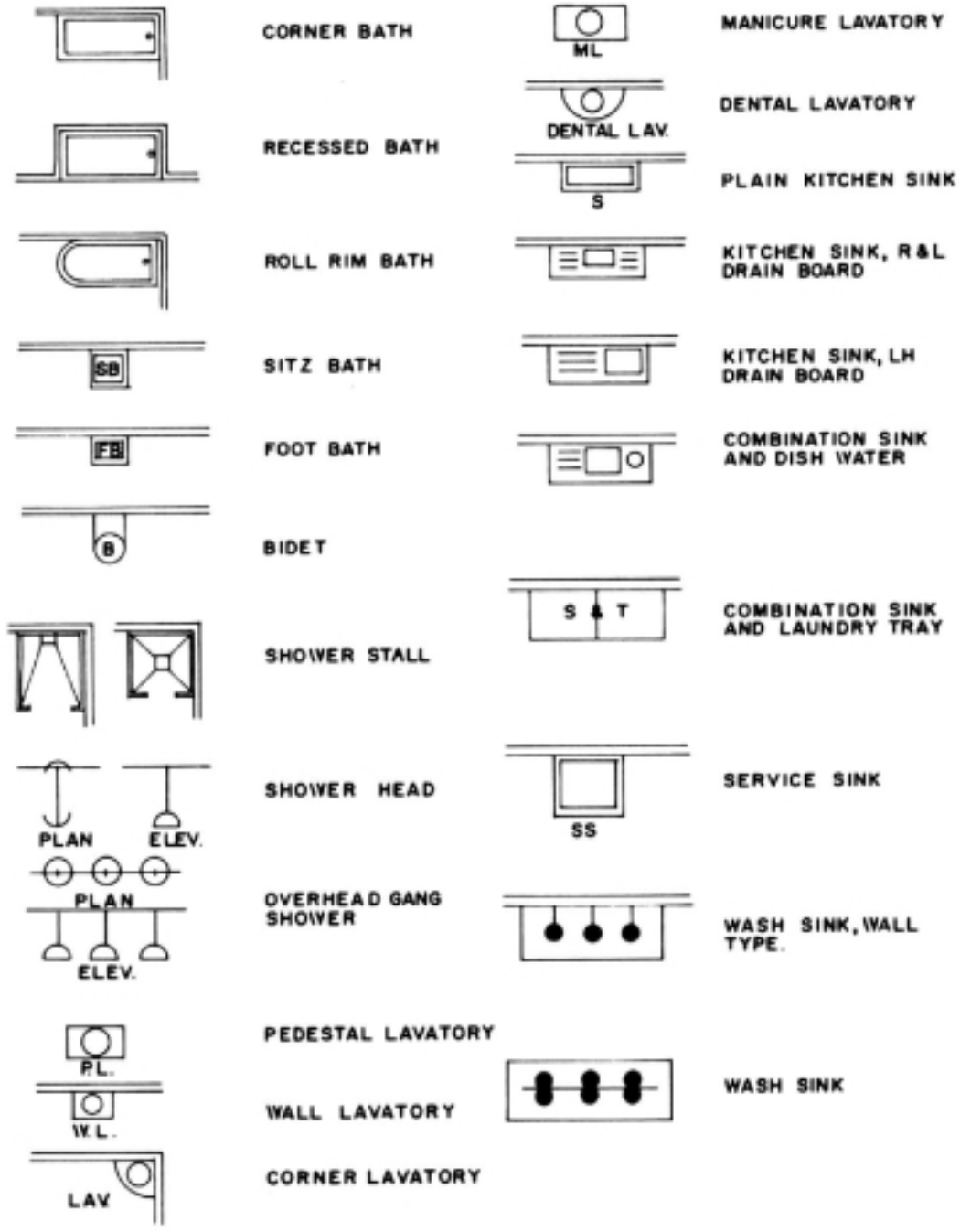
VENTING, STACK—A method of venting a fixture through the soil and waste stack.

VENTS, INDIVIDUAL—Separate vents for each fixture.

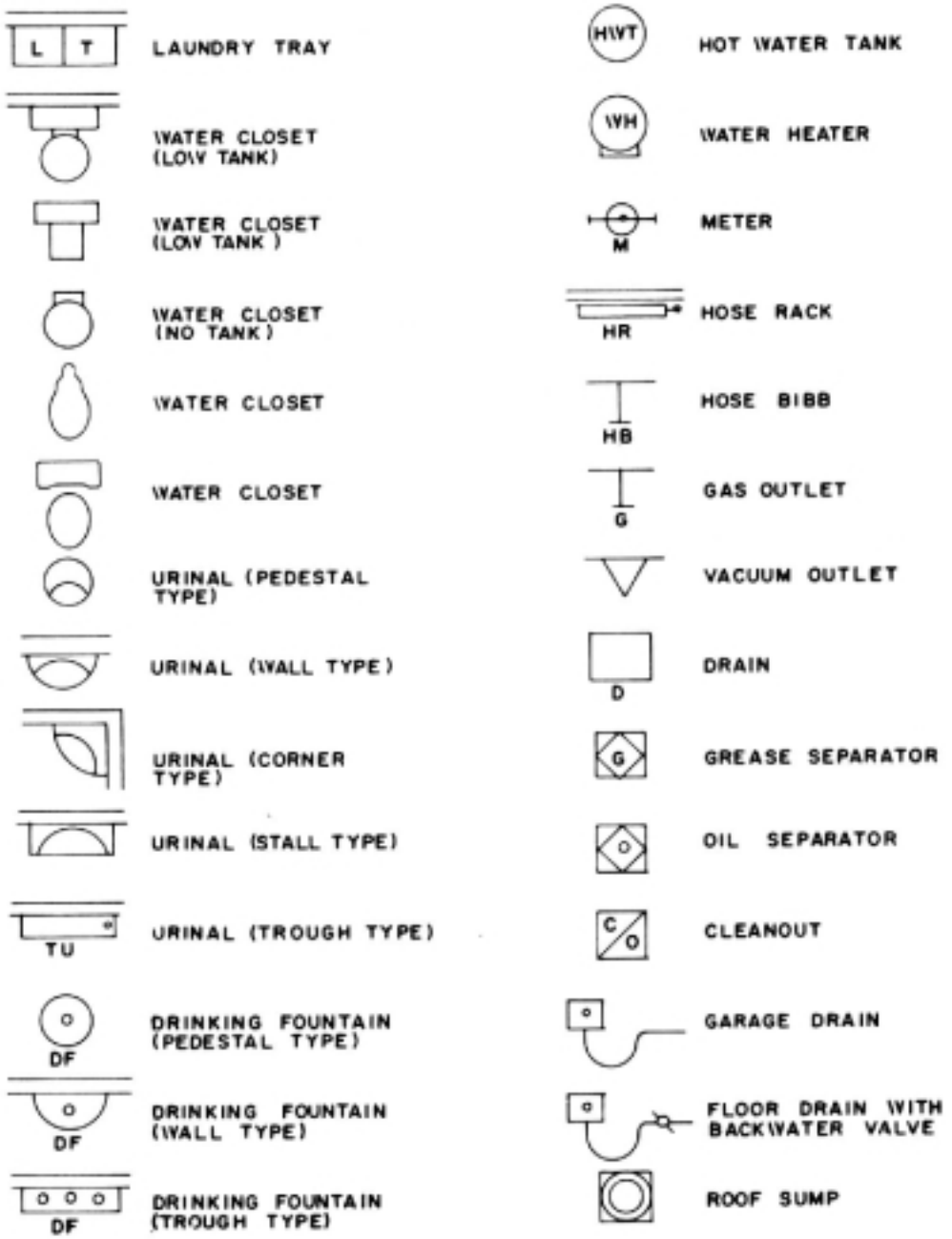
WASTE—The discharge from any fixture, appliance or appurtenance in connection with the plumbing system, which does not contain fecal matter. For example, the liquid from a lavatory, a tub, a sink or drinking fountain.

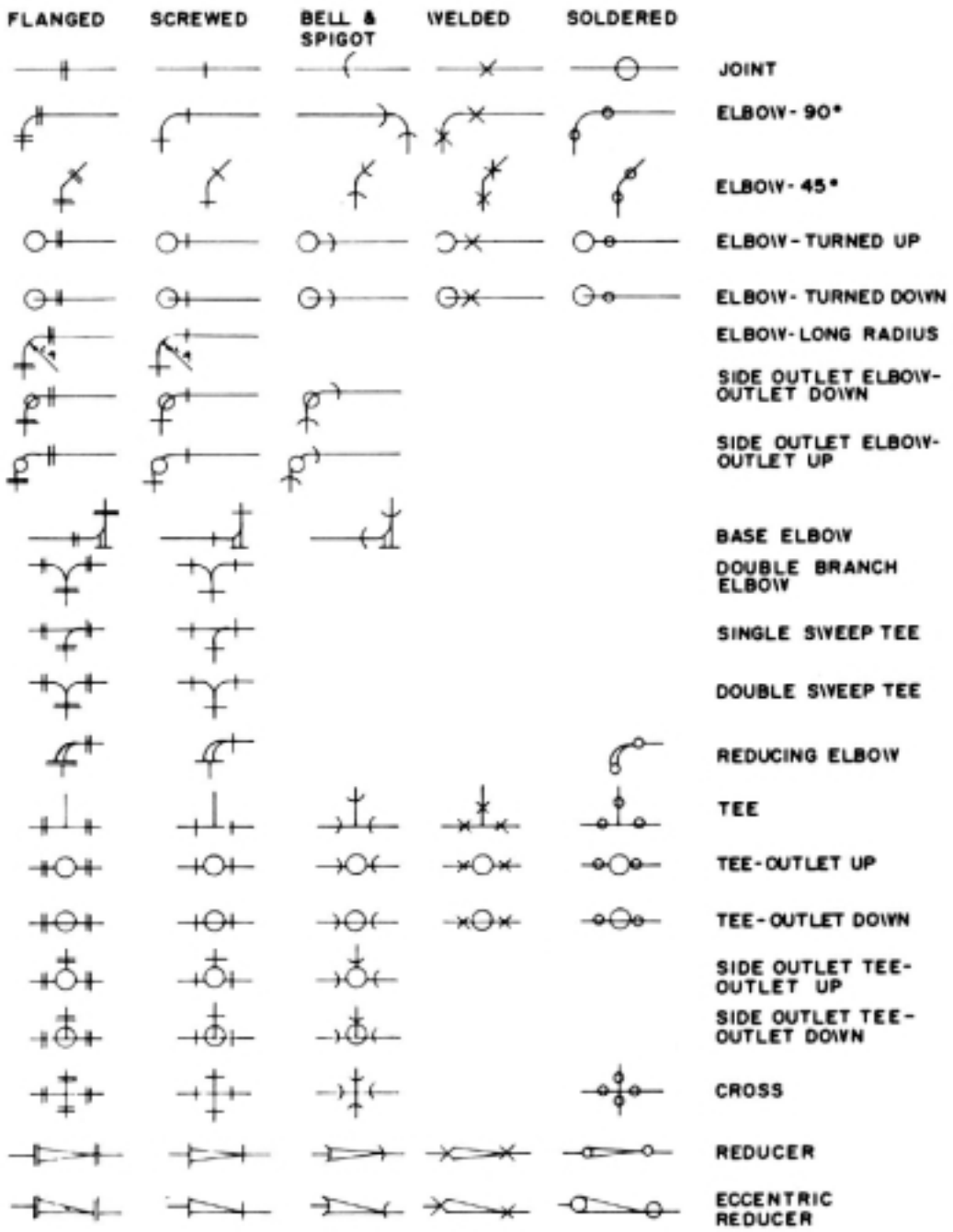
RECOMMENDED SYMBOLS FOR PLUMBING

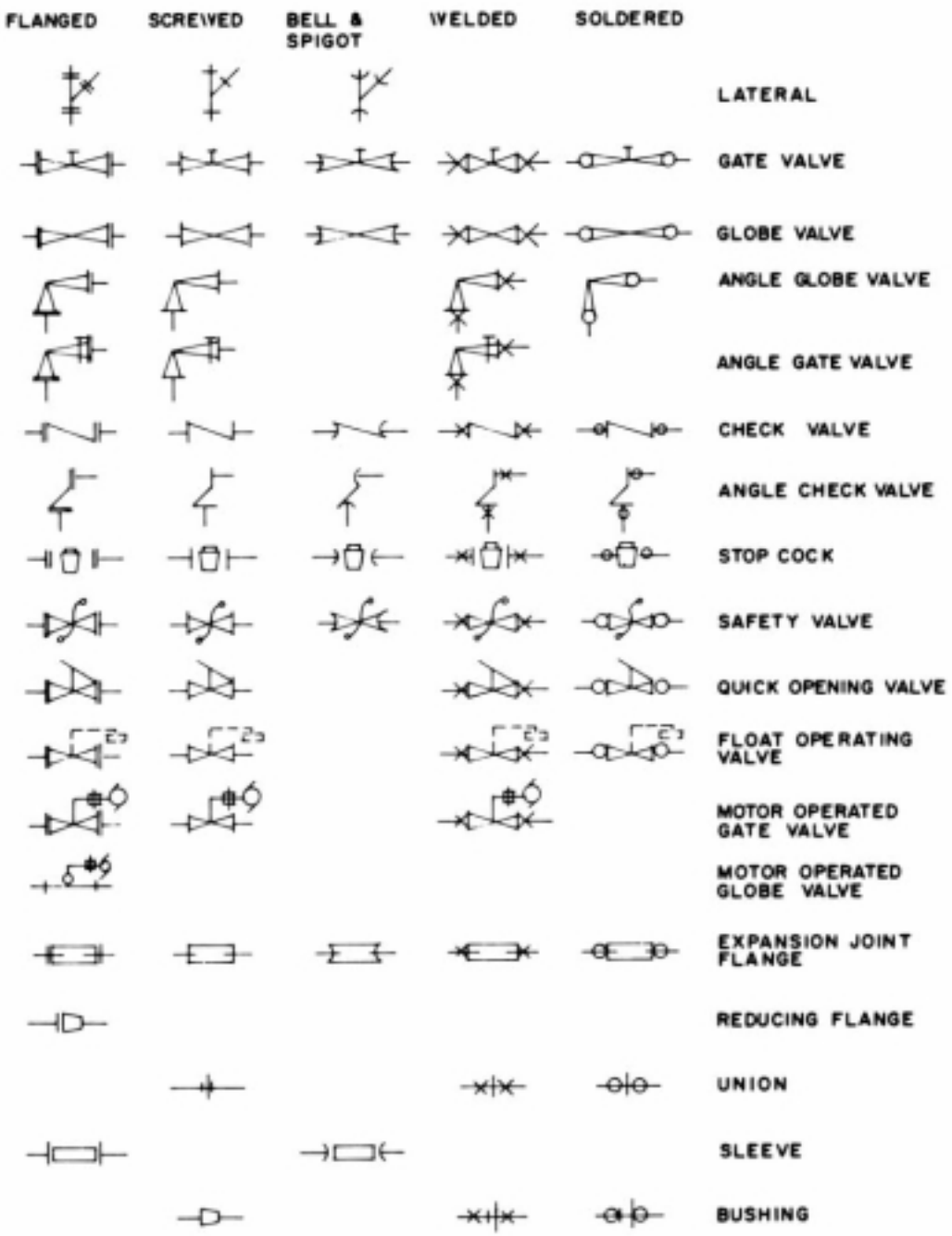
Symbols for Fixtures[1]

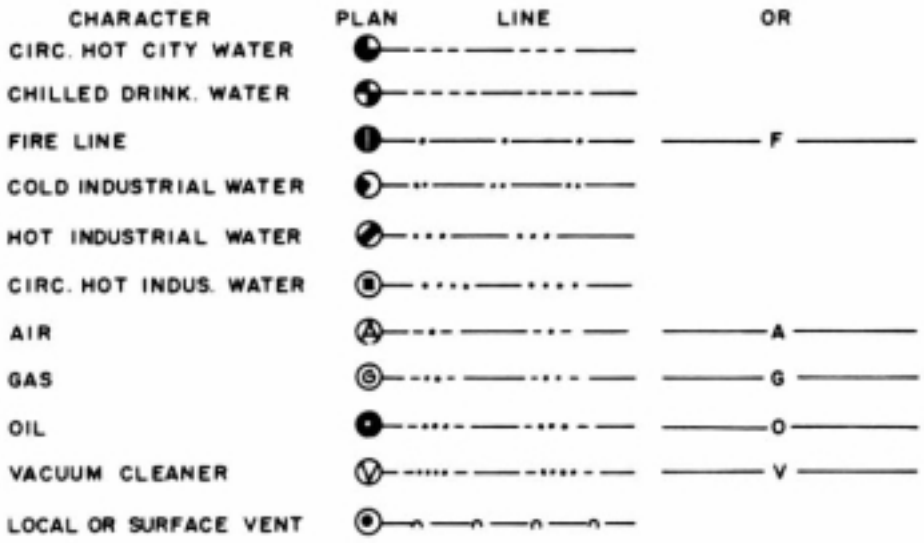


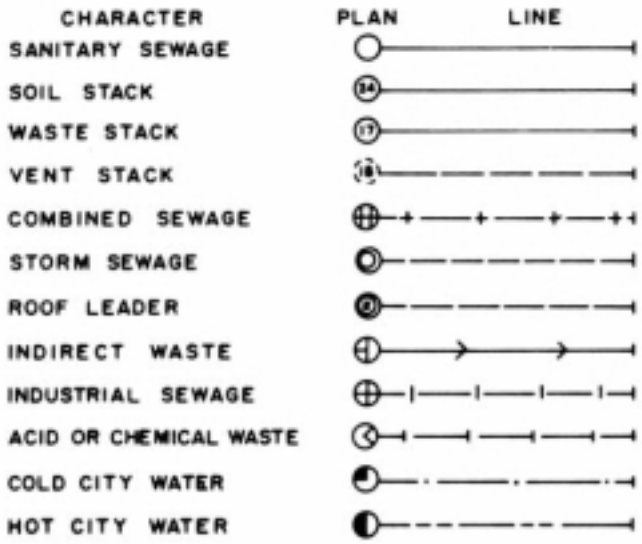
[1] Symbols adopted by the American National Standards Association (ANSI)


L T
LAUNDRY TRAY
WATER CLOSET (LOW TANK)
WATER CLOSET (LOW TANK)
WATER CLOSET (NO TANK)
WATER CLOSET
WATER CLOSET
URINAL (PEDESTAL TYPE)
URINAL (WALL TYPE)
URINAL (CORNER TYPE)
URINAL (STALL TYPE)
TU
URINAL (TROUGH TYPE)
DF
DRINKING FOUNTAIN (PEDESTAL TYPE)
DF
DRINKING FOUNTAIN (WALL TYPE)
DF
DRINKING FOUNTAIN (TROUGH TYPE)
HWT
HOT WATER TANK
WH
WATER HEATER
M
METER
HR
HOSE RACK
HB
HOSE BIBB
G
GAS OUTLET
VACUUM OUTLET
D
DRAIN
G
GREASE SEPARATOR
O
OIL SEPARATOR
C/O
CLEANOUT
GARAGE DRAIN
FLOOR DRAIN WITH BACKWATER VALVE
ROOF SUMP


FLANGED
SCREWED
BELL & SPIGOT
WELDED
SOLDERED
JOINT
ELBOW - 90°
ELBOW - 45°
ELBOW - TURNED UP
ELBOW - TURNED DOWN
ELBOW - LONG RADIUS
SIDE OUTLET ELBOW - OUTLET DOWN
SIDE OUTLET ELBOW - OUTLET UP
BASE ELBOW
DOUBLE BRANCH ELBOW
SINGLE SWEEP TEE
DOUBLE SWEEP TEE
REDUCING ELBOW
TEE
TEE - OUTLET UP
TEE - OUTLET DOWN
SIDE OUTLET TEE - OUTLET UP
SIDE OUTLET TEE - OUTLET DOWN
CROSS
REDUCER
ECCENTRIC REDUCER


FLANGED
SCREWED
BELL & SPIGOT
WELDED
SOLDERED
LATERAL
GATE VALVE
GLOBE VALVE
ANGLE GLOBE VALVE
ANGLE GATE VALVE
CHECK VALVE
ANGLE CHECK VALVE
STOP COCK
SAFETY VALVE
QUICK OPENING VALVE
FLOAT OPERATING VALVE
MOTOR OPERATED GATE VALVE
MOTOR OPERATED GLOBE VALVE
EXPANSION JOINT FLANGE
REDUCING FLANGE
UNION
SLEEVE
BUSHING


CHARACTER
PLAN
LINE
OR
CIRC. HOT CITY WATER
CHILLED DRINK. WATER
FIRE LINE
F
COLD INDUSTRIAL WATER
HOT INDUSTRIAL WATER
CIRC. HOT INDUS. WATER
AIR
A
GAS
G
OIL
O
VACUUM CLEANER
V
LOCAL OR SURFACE VENT


CHARACTER
PLAN
LINE
SANITARY SEWAGE
SOIL STACK
WASTE STACK
VENT STACK
COMBINED SEWAGE
STORM SEWAGE
ROOF LEADER
INDIRECT WASTE
INDUSTRIAL SEWAGE
ACID OR CHEMICAL WASTE
COLD CITY WATER
HOT CITY WATER