PLUMBING ABBREVIATIONS

A/E 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

DCW DOMESTIC COLD WATER
DHW DOMESTIC HOT WATER
DHWR DOMESTIC HOT WATER RETURN
DHWR DOMESTIC WATER RETURN
DHWS 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 MONOSERRAT AND CENTRAL SYSTEM
EPA ENVIROMENTAL 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
FCW 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
FOV FUEL OIL VENT
FS FLOOR SINK
FS FLOW SWITCH
FU FIXTURE UNITS

PLUMBING ABBREVIATIONS

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 FIRED WATER HEATER

H&CW 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
LBS/HR 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 UNDERSTADING
MSB MOP SERVICE BASIN
MV MEDICAL VACUUM

N2 NITROGEN
N2O NITROUS OXIDE
NC NORMALLY CLOSED
NG NATURAL GAS
NIC NOT IN CONTRACT
NO NORMALLY OPEN
NOM. NOMINAL
NPW NON POTABLE WATER
NTC NOT TO SCALE

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

PLUMBING ABBREVIATIONS

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
RDL 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 FOOT/MINUTE
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

UFAS UNIFORM FEDERAL ACCESSIBILITY STANDARDS
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

2 / PL105 — DETAIL NUMBER; DRAWING NUMBER WHERE DRAWN
A / PL105 — SECTION LETTER; DRAWING NUMBER WHERE SHOWN
26-P 3 — BUILDING NO. WHERE EQUIPMENT IS LOCATED; EQUIPMENT ABBREVIATION (PUMP); PUMP NO.3 IN BUILDING NO.26; TYPICAL UNIT NO.

PLUMBING PIPING SYMBOLS

DOMESTIC COLD WATER, COLD WATER
DOMESTIC HOT WATER, HOT WATER
DOMESTIC HOW WATER RETURN, HOT WATER RETURN
MA — MEDICAL AIR
MV — MEDICAL VACUUM
LA — LABORATORY AIR
LV — LABORATORY VACUUM
OA — ORAL EVACUATION
IA — INDUSTRIAL AIR
D — DRAIN
SAN — SANITARY SEWER
SS — SANITARY SEWER (OPTIONAL)
SAN — SANITARY SEWER, BELOW GRADE
SD — STORM WATER
SD — STORM WATER, BELOW GRADE
SCW — SOFTEN COLD WATER
FCW — FILTERED COLD WATER
DWS — DRINKING WATER SUPPLY
DWR — DRINKING WATER RETURN
TWS — TEMPERED WATER SUPPLY
TWR — TEMPERED WATER RETURN
N2O — NITROUS OXIDE
O — OXYGEN
N2 — NITROGEN
NG — NATURAL GAS
NG — NATURAL GAS, BELOW GRADE
FCO — FUEL OIL DISCHARGE
FOS — FUEL OIL SUPPLY
FOV — FUEL OIL VENT
FOR — FUEL OIL RETURN

GENERAL PLUMBING SYMBOLS

DIRECTION OF PIPE PITCH (DOWN)
DIRECTION OF FLOW
ANCHOR
REDUCER OR INCREASER
ECCENTRIC REDUCER
TOP CONNECTION, 45° OR 90°
BOTTOM CONNECTION, 45° OR 90°
SIDE CONNECTION
CAPPED OUTLET
RISE OR DROP IN PIPE
UNION
PIPE UP
PIPE DOWN
POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
LIMIT OF DEMOLITION
INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES
FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES
STRAINER
THERMOMETER
PRESSURE GAGE
FE — FLOW ELEMENT
CO — CLEAN OUT
HOSE BIB

PLUMBING VALVE SYMBOLS

GATE VALVE
GLOBE VALVE
GATE VALVE WITH 3/4 " HOSE ADAPTER
CHECK VALVE
ANGLE GLOBE VALVE
BUTTERFLY VALVE
BALL VALVE
MODULATING CONTROL VALVE
TWO POSITION CONTROL VALVE
THREE-WAY MODULATING CONTROL VALVE
THREE-WAY TWO POSITION CONTROL VALVE
PRESSURE REGULATING VALVE
AUTOMATIC FLOW CONTROL VALVE
PRESSURE RELIEF VALVE
MANUAL AIR VENT
TEST PLUG (PRESSURE/TEMPERATURE)
AV — AUTOMATIC AIR VENT

GENERAL NOTES

1. ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE SUSPENDED CEILING.
2. FOR PLUMBING FIXTURE MOUNTING HEIGHTS AND LOCATIONS, REFER TO THE ARCHITECTURAL DRAWINGS.
3. ACCESS PANELS IN HARD SUSPENDED CEILINGS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.
4. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH INSTALLATION. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER OF ANY EXISTING CONDITIONS WHICH CONFLICT WITH INFORMATION PROVIDED IN CONSTRUCTION DOCUMENTS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL PIPE ROUTING WITH WORK OF OTHER TRADES AND MAKE ANY OFFSETS AS REQUIRED TO AVOID CONFLICT WITH DUCTWORK, LIGHT FIXTURES, SKYLIGHTS, ETC.
6. PLUMBING CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR ALL CONDENSATE DRAIN CONNECTIONS TO MECHANICAL EQUIPMENT.
7. SEISMIC PROVISIONS REQUIRED – SEE SPEC. SECT. 13 05 41 AND 22 05 11. ALL PRESSURES LISTED ARE GAGE PRESSURE UNLESS OTHERWISE NOTED
8. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT 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.
9. PLUMBING FIXTURES AND PIPING/ VALVES SHALL COMPLY WITH CALIFORNIA ASSEMBLY BILL AB1953.
10. ALL BRACING OF PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES, HAZARD LEVEL 'A'.
11. WHERE BRACING DETAILS ARE NOT SHOWN ON THE DRAWINGS OR IN THE GUIDELINES, THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT, MECHANICAL ENGINEER AND FIELD INSPECTOR.
12. SUPPORT AND BRACING OF ALL PIPING SHALL BE IN ACCORDANCE WITH THE SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF PLUMBING PIPING SYSTEMS", OR THE "SUPERSTRUT SEISMIC RESTRAINT SYSTEM" FOR PIPING ONLY.
13. COMPLETE LAYOUT DRAWINGS SHALL BE REQUIRED TO BE SUBMITTED PER SPEC. CONSTRUCTION WORK SHALL NOT START ON ANY SYSTEM UNTIL THE LAYOUT DRAWINGS HAVE BEEN APPROVED.

1 **PLUMBING SYMBOLS, NOTES AND ABBREVIATIONS**
SCALE: NTS

Revisions	Date
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2	7-22-2013

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