

PLUMBING NOTES AND SPECIFICATIONS

GENERAL

- CONTRACTOR SHALL PERFORM ALL WORK SO AS TO CONFORM TO LOCAL, STATE AND NATIONAL CODES AND THE REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
- CONTRACTOR SHALL EXAMINE SITE TO DETERMINE THE EXACT CONDITIONS EFFECTING THE PLUMBING WORK.
- DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGRAMMATIC. IN SCOPE, THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF PIPING, FIXTURES, ETC., TO A REASONABLE EXTENT AS THE BUILDING CONDITIONS MAY DICTATE. PRIOR TO THEIR INSTALLATION, IN WRITING, EXTRA COST TO THE OWNER. THE EXACT LOCATION AND ARRANGEMENT OF ALL EQUIPMENT AND PARTS SHALL BE DETERMINED AS THE WORK PROGRESSES.
- DETAILS OF CONSTRUCTION AND OF WORKMANSHIP WHERE NOT SPECIFICALLY DESCRIBED HEREIN OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS LEFT IN GOOD WORKING ORDER, READY FOR OPERATION.
- SCRAP AND DEBRIS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR.
- CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING AND START-UP OF THE SYSTEM.
- ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND DIRT. PROVIDE SUFFICIENT FIREPROOF PARTIALING AND COVER ALL EQUIPMENT IN WORK AREA WITH SAME DURING INSTALLATION.
- CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND EQUIPMENT CUTS TO ARCHITECT FOR APPROVAL (MINIMUM FIVE (5) COPIES).
- CONTRACTOR SHALL FILE, SECURE AND PAY FOR ALL NECESSARY APPROVALS, PERMITS AND INSPECTIONS.
- ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECT FOR ONE YEAR AFTER ACCEPTANCE OF THE INSTALLATION BY OWNER.
- ALL WORK SHALL BE IN ACCORDANCE WITH THE NEW JERSEY UNIFORM CONSTRUCTION CODE AND THE NATIONAL STANDARD PLUMBING CODE.
- THE PLUMBING SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE NATIONAL STANDARD PLUMBING CODE. CONTRACTOR TO COORDINATE TESTS WITH LOCAL OFFICIALS.
- WHERE DEVICES REQUIRING ACCESS (VALVES, CLEANOUTS, ETC.) HOLD OTHERWISE BE RENDERED INACCESSIBLE BY BUILDING CONSTRUCTION, PROVIDE FRAMED ACCESS DOOR. ACCESS DOORS FINISHED SHALL BE COORDINATED WITH ARCHITECT. IN GENERAL, ACCESS DOORS SHALL BE PRIMED, PAINTABLE, STEEL WHEN LOCATED IN DRYWALL CONSTRUCTION. ACCESS DOORS IN TOILET ROOM TILE HANGOUT SHALL BE STAINLESS STEEL. ACCESS DOORS IN EXTERIOR WALLS SHALL BE PROVIDED WITH INSULATED DOORS. ACCESS DOORS IN CLOSET ENCLOSURES OR FIRE RESISTIVE WALLS SHALL BE FIRE RATED IN ACCORDANCE WITH BOCA ARTICLE 401.
- COORDINATE LOCATIONS OF ALL VALVES AND CONNECTIONS TO APPLIANCES WITH EQUIPMENT SUPPLIER.
- SCOPE OF WORK:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF ALL FIXTURES, MATERIALS, PIPING AND COMPONENTS AS REQUIRED FOR A COMPLETE AND OPERATIONALLY FUNCTIONAL SYSTEM. SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO:
 - INSTALLATION OF ABOVE GROUND SANITARY DRAIN WASTE AND VENT PIPING.
 - INSTALLATION OF CLEANOUTS IN SANITARY DRAINAGE SYSTEMS.
 - INSTALLATION OF FLOOR DRAINS AS INDICATED ON THE DRAWINGS.
 - INSTALLATION OF DOMESTIC HOT AND COLD WATER PIPING INCLUDING ANTI-WATER HAMMER SHOCK ABSORBERS, VALVES, STOP VALVES, FLEX-SUPPLIES, DIELECTRIC UNIONS BETWEEN DISSIMILAR PIPING MATERIALS, ETC.
 - INSTALLATION OF DOMESTIC WATER HEATERS INCLUDING ASME APPROVED, ASA RATED TEMPERATURE AND PRESSURE RELIEF VALVES, GATE VALVES, UNIONS, REGULATION PUMPS, CHECK VALVES, CONTROLS, ETC.
 - INSTALLATION OF BACKFLOW PREVENTORS, PRESSURE REDUCING AND RELIEF VALVES AS INDICATED ON THE DRAWINGS.
 - INSTALLATION OF FIXTURES INCLUDING WALL HANGERS, SUPPORTS, STOP VALVES, FLEX-SUPPLIES, DRAINS, TRAPS, STRAINERS, FAUCETS, SOAP DISPENSERS, ESCUTCHEONS, SEATS AND OTHER DEVICES AS SHOWN ON THE DRAWINGS AND INDICATED IN THE SCHEDULE OF PLUMBING FIXTURES.
 - TESTING OF THE PLUMBING SYSTEM INCLUDING AIR OR WATER TEST OF DRAINAGE SYSTEM ROUGHINGS, SMOKE TEST OF FINISHED DRAINAGE SYSTEM AND PRESSURE TEST OF DOMESTIC WATER SYSTEMS.
 - DISINFECTION OF THE DOMESTIC WATER SUPPLY SYSTEM.
 - PIPING SUPPORT INCLUDING SEISMIC RESTRAINT SHAW BRACING IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE.
 - INSTALLATION OF FIBERGLASS INSULATION, FITTING COVERS AND JACKETS ON ALL HOT AND COLD DOMESTIC WATER PIPING.
 - CUTTING AND PATCHING AS REQUIRED.
 - PERMITS, INSPECTIONS, APPROVALS AND CERTIFICATES, INCLUDING FEES.
 - GUARANTEE.

SANITARY DRAINAGE

- ABOVE GROUND SANITARY WASTE AND VENT DRAIN PIPING SHALL BE CAST IRON, NO-HUB TYPE.
- VERTICAL, NON-COMBUSTIBLE OCCUPYING AN AREA OF MORE THAN ONE SQUARE FOOT, PIPING ARRANGED IN GROUPS OF TWO OR MORE LINES, WHICH PENETRATE TWO OR MORE FLOORS SHALL BE ENCLOSED IN SHIRT HAVING A FIRE RESISTANCE RATING IN ACCORDANCE WITH BOCA ARTICLE 401 (MINIMUM 1 HOUR).
- CLEANOUTS FOR SANITARY DRAINAGE SYSTEMS SHALL BE LOCATED IN ACCORDANCE WITH ARTICLE 5.4 OF THE NATIONAL STANDARD PLUMBING CODE.
- FLOORS DRAINS SHALL BE JAY R. SMITH MODEL NO. 2005, ROUND TOP WITH STAINLESS STEEL STRAINER. PROVIDE DEEP SEAL TRAP.
- ALL VENT PENETRATIONS THROUGH BUILDING ROOF SHALL BE MADE WATER-TIGHT BY THE USE OF PROPER FLASHING MATERIALS. SUBMIT FLASHING DETAILS FOR APPROVAL BY THE ARCHITECT.
- VENTS THRU ROOF SHALL NOT BE LESS THAN 3" TO PREVENT FROST CLOSURE. WHERE VENTS SHALLER THAN 3" ARE INDICATED ON THE DRAWINGS, INCREASE TO 3" SIZE AT LEAST 12" BELOW ROOF.
- VENTS SHALL TERMINATE NOT LESS THAN 6" ABOVE ROOF. VENTS SHALL NOT TERMINATE BELOW OR WITHIN 10' HORIZONTALLY OF ANY DOOR, WINDOW, FRESH AIR INTAKE OR OTHER VENTILATION OPENING, WHERE 10' HORIZONTAL CLEARANCE CANNOT BE MAINTAINED. EXTEND VENT TO AT LEAST 2' ABOVE VENTILATION OPENING.

DOMESTIC WATER

- DOMESTIC COLD AND HOT WATER PIPING SHALL BE COPPER TYPE "L" (FITTINGS SHALL BE BROUGHT COPPER, 90% MIN SOLID) SHALL BE USED.
- ROUSTABLE WATER PIPING SHALL BE DISINFECTED AS PER AWWA STANDARD C601-54 AND AS REQUIRED BY THE LOCAL BUILDING AND HEALTH DEPARTMENT CODES.
- ANTI WATER-HAMMER SHOCK ABSORBERS SHALL BE JAY R. SMITH "HYDROCONTROL" SIZED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE STOP VALVES FOR ALL DOMESTIC WATER CONNECTIONS TO FIXTURES EXCEPT WHERE GATE VALVES ARE INDICATED ON THE DRAWINGS.
- ALL HOSE BIBS AND HYDRANTS SHALL BE PROVIDED WITH APPROVED VACUUM BREAKERS.
- PROVIDE CHROME PLATED, BRASS ANGLED STOP VALVES FOR ALL WATER CLOSETS, LAVS, SINKS, ETC.
- PROVIDE ASME TEMPERATURES AND PRESSURE RELIEF VALVES FOR ALL DOMESTIC WATER HEATERS.
- DISCHARGE OF ALL RELIEF VALVES SHALL BE PIPED TO THE FLOOR TO PREVENT ACCIDENTAL SCALDING.
- PROVIDE TWO (2) GATE VALVES AND TWO (2) UNIONS AND DRAIN VALVE WITH HOSE THREAD FOR EACH DOMESTIC WATER HEATER.

HANGERS AND SUPPORTS

- ALL FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE PIPING SYSTEM. SEE "FIXTURES" SECTION OF "NOTES AND SPECIFICATIONS" AND FIXTURE SCHEDULE NOTES.
- MAXIMUM SPACING OF SUPPORTS FOR VERTICAL PIPING SHALL NOT EXCEED:

TYPE OF PIPING	MAXIMUM SPACING
CAST IRON SOIL LINES THREADED STEEL PIPE COPPER TUBE	AT BASE AND EACH STORY AT EVERY OTHER STORY AT 10'-0" INTERVALS
PROVIDE RISER CLAMPS, HALL BRACKET HANGER, ETC. AS REQUIRED. HANGERS FOR PVC PIPING SHALL BE AS APPROVED BY THE MANUFACTURER.	
MAXIMUM SPACING OF SUPPORTS FOR HORIZONTAL PIPING SHALL NOT EXCEED:	
TYPE OF PIPING	MAXIMUM SPACING
CAST IRON SOIL PIPE THREADED STEEL PIPE (3/4" & LESS) THREADED STEEL PIPE (1" & LARGER) COPPER TUBE (1/4" & LESS) COPPER TUBE (1/2" & LARGER)	AT 5'-0" (10'-0" FOR 10' LENGTHS) AT 10'-0" INTERVALS AT 12'-0" INTERVALS AT 6'-0" INTERVALS AT 10'-0" INTERVALS

- ALL RISERS SHALL BE SUPPORTED AT THE BASE.
- PROVIDE CAPABILITY FOR EXPANSION AND CONTRACTION IN ALL PIPING AS INDICATED BELOW.

TYPE OF PIPING	TYPE OF PROVISIONS
DRAIN LINES IN UNHEATED AREAS DOMESTIC HOT WATER LINES	EXPANSION FITTING @ 12' EXPANSION LOOP @ 100'

INSULATION

- THE FOLLOWING PIPING SHALL BE INSULATED:
 - DOMESTIC COLD WATER
 - DOMESTIC HOT WATER
- INSULATION SHALL BE 1" RIGID FIBERGLASS AND SHALL BE MANVILLE "MICRO-LOK" OR APPROVED EQUAL. PROVIDE JACKETS AS SPECIFIED BELOW.
- JACKETS FOR GENERAL PURPOSE, INDOOR USE SHALL BE MANVILLE "AP-T PLUS" PRESSURE SENSITIVE LAP SEALING SYSTEM OR APPROVED EQUAL.
- JACKETS FOR OUTDOOR USE SHALL BE MANVILLE "ZESTON 2000" PVC WITH "TERMA-HELD" ADHESIVE OR APPROVED EQUAL.
- VALVES, FLANGES, ELBOWS, TEES, UNIONS AND OTHER FITTINGS SHALL BE INSULATED USING MANVILLE "W-LO TEMP" FIBERGLASS INSERTS WITH MANVILLE "ZESTON 2000" PVC FITTING COVERS SECURED WITH MANVILLE "TERMA-HELD" ADHESIVE.
- ALL INSULATION SYSTEMS, INCLUDING INSULATION ADHESIVES AND JACKETS SHALL BE CERTIFIED IN ACCORDANCE WITH ASTM F84 FOR FLAMESREAD RATING OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS.
- ALL BUT JOINTS OF INSULATION SECTIONS SHALL BE SEALED USING BUTT STRIPS AS RECOMMENDED BY THE MANUFACTURER FOR THE JACKET EMPLOYED.

FIXTURES

- SEE FIXTURE SCHEDULE FOR FIXTURE TYPES AND CONNECTION SIZES.
- COORDINATE EXACT FIXTURE LOCATIONS FOR ROUGHING WITH THE ARCHITECTURAL DRAWINGS.
- WHERE ARCHITECTURAL DRAWINGS INDICATE TOILET ROOMS TO BE HANDICAPPED ACCESSIBLE OR HANDICAPPED ADAPTABLE COORDINATE FIXTURE CLEARANCE WITH N.J.A.C. 5:23-1, "BARRIER - FREE SECTIOE".
- UNLESS OTHERWISE INDICATED, ALL FIXTURES SHALL BE "WHITE". COORDINATE ALL FIXTURE COLORS WITH THE ARCHITECT.
- PROVIDE POP-UP DRAIN AND OVERFLOW FOR ALL LAVS.

TESTING AND DISINFECTION

- ALL NEW PLUMBING SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE N.E.P.C.
- SANITARY DRAINAGE SYSTEMS ROUGHING SHALL BE PRESSURE TESTED AT NOT LESS THAN 5 PSI FOR A PERIOD OF 15 MINUTES. PROVIDE TEST TEES, TEST PLUGS AND COMPRESSOR AS REQUIRED. THE FINAL SANITARY DRAINAGE SYSTEM SHALL BE SMOKE TESTED. WHERE APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION, PEPPERMIT MAY BE USED IN LIEU OF SMOKE TESTS.
- DOMESTIC WATER SYSTEMS SHALL BE HYDROSTATIC TESTED AT 80 PSI FOR NOT LESS THAN ONE HOUR.
- ALL NEW DOMESTIC WATER SYSTEMS SHALL BE DISINFECTED USING A WATER CHLORINE SOLUTION AND IN ACCORDANCE WITH THE REQUIREMENTS OF N.E.P.C. ARTICLE #10.9.

PLUMBING SYMBOLS

PIPING

- UNDERGROUND SANITARY DRAIN
ABOVE GROUND SANITARY DRAIN
VENT PIPING
- DOMESTIC COLD WATER
DOMESTIC HOT WATER SUPPLY (140°F)
DOMESTIC HOT WATER RETURN (140°F)
DOMESTIC HOT WATER (180°F)
- PIPE TURNING DOWN
PIPE TURNING UP

SANITARY SYSTEMS

- DECK PLATE CLEANOUT
HORIZONTAL CLEANOUT
VENT THRU ROOF W/FLASHING & COUNTERFLASHING
TRAP
ACCESS DOOR
FLOOR DRAIN W/TRAP
FLOOR RECEPTOR W/SPASH PROOF RIM
TRENCH DRAIN
F.D., F.R., ETC. W/BACKWATER VALVE
PSIA
PSIG
PSI GAUGE
REGULATING
SHOCK
VAC.
WTR.
XHC1

DOMESTIC WATER SYSTEMS

- BALANCING VALVE
CHECK VALVE
STOP VALVE (GROMMET PLATED)
GATE VALVE (NORMALLY OPEN)
GATE VALVE (NORMALLY CLOSED)
UNION
FLANGED CONNECTION
SOLENOID VALVE
ANGLE VALVE
ASME APPROVED T & P RELIEF VALVE
GLOBE VALVE
THREE-WAY VALVE
PRESSURE GAUGE W/COCK
THERMOMETER
TEMPERATURE SWITCH (AQUASTAT)
FLOW SWITCH
PRESSURE SWITCH
STRAINER
ANTI-WATER HAMMER DEVICE (PDI RATING AS NOTED)
BASE MOUNTED PUMP
AUTOMATIC TRAP PRIMER W/BACKFLOW PREVENTION
WATER METER W/FLANGED CONNECTIONS
FLANGED CIRCULATING PUMP W/BRONZE CASING & IMPELLER
HOSE BIBB W/VACUUM BREAKER
FREEZE PROOF WALL HYDRANT W/VACUUM BREAKER
WATER METER ASSEMBLY W/GATE VALVES & UNIONS
FLANGED WATER METER ASSEMBLY W/ GATE VALVES
DOUBLE CHECK VALVE BACKFLOW PREVENTER W/DIAP
REDUCED PRESSURE ZONE BACKFLOW PREVENTER
THERMOSTATIC MIXING VALVE
SHOWER HEAD
SHOWER VALVE (ANTI-SCALD PRESSURE BALANCED TYPE)

MISCELLANEOUS

- CONNECT TO EXISTING

ABBREVIATIONS

- AFB ABOVE FINISHED FLOOR
BTU BRITISH THERMAL UNITS
CJ COMBUSTION AIR INTAKE
CU CAST IRON
CU COPPER
CUFT CUBIC FEET
DI GOLD WATER
DI DUCTILE IRON
ELEV ELEVATION
FPS FEET PER SECOND
GAL GALLONS
GPD GALLONS PER DAY
GPH GALLONS PER HOUR
GPM GALLONS PER MINUTE
HP HEAD
HP HORSEPOWER
HM HOT WATER
ID INSIDE DIAMETER
IPS INTERNATIONAL PIPE SIZE
LF LINEAR FEET
NTS NOT TO SCALE
OD OUTSIDE DIAMETER
PSI POUNDS PER SQUARE INCH
PSIA PSI ABSOLUTE
PSIG PSI GAUGE
REGULATING SERVICE HEIGHT
SHOCK SERVICE HEIGHT CAST IRON
VAC VACUUM
WTR WATER
XHC1 EXTRA HEAVY CAST IRON

Revisions

Date	Issue	Description
03-06-15	1	ISSUED FOR DCA FILING
03-18-15	2	ISSUED FOR BIDDING

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Checked By	SG
Dwg. Title	PLUMBING NOTES, SYMBOLS & SCHEDULES

Work Order No.	Dwg. No.
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SCHEDULE OF PLUMBING FIXTURES

FIXTURE TAG	FIXTURE TYPE	MANUFACTURER/MODEL & ACCESSORIES			FIXTURE CONNECTIONS (VALVE INLET)				GPM GPF	FLOOD RIM (A.F.F.)	MATERIALS												SEE NOTE(S)					
		FIXTURE	SEAT	FAUCET/FLUSH VALVE	WASTE	VENT	C.W.	H.W.			VITE. CHINA	STAINLESS	POPC. ON STL	ENW. CAST IRON	OTHER	WALL HANGER	SUPPORT CARRIER	STRAINER DRAIN	POP-UP DRAIN	P-TRAP W/ C.O.	OFFSET DRAIN	INSULATION KIT		INTERNAL STOPS	ANGLED STOPS	LEVER DRAIN STOP	VACUUM BREAKER	FLEX. SUPPLY(S)
PDI	PUBLIC AREA FLOOR DRAIN	JAY R. SMITH #2005-55-P050	N/A	N/A	3"	2"	1/2"	N/A	N/A	N/A	●			●			●											—
KCI	FLOOR MOUNTED WATER CLOSET	KOHLER "WELLKNORTH" #K-3917-O	KOHLER CLOSED FRONT #K-4639-O	PRESSURE ASSISTED FLUSH VALVE	4"	2"	1/2"	N/A	120 GPF	14-1/2"	●												●					4,5,6,7,9,14
MBI	MOP BASIN	FRAT "STOCKTON" #T5B6000	N/A	FRAT #B20-AA FAUCET/ #B32-AA HOSE & BRACKET/ #B24-CG (MOP HANGER)	3"	2"	1/2"	1/2"	25 GPM	28"	●		●				●	●	●	●								3,8,10,12
LAVI	VANITY TOP W/ INTEGRAL SINKS (4" CENTERS)	VANITY TOP W/ INTEGRAL SINKS (4" CENTERS)	N/A	KOHLER "CORALAIS" #K-5162-F-CP SINGLE LEVER	1 1/4"	1 1/4"	1/2"	1/2"	05 GPM	34"				●	●	●	●	●	●	●	●	●	●	●	●	●		1,2,3,7,9,12,13
SI	COUNTERTOP 1 COMPARTMENT PANTRY SINK (3 HOLE)	LG H-HAAS SINGLE SINK, ARCTIC WHITE #236	N/A	KOHLER "BELLERA" #K-560-VS SINGLE LEVER	1 1/2"	1 1/2"	1/2"	1/2"	25 GPM	2'-8"				●			●	●	●	●	●	●	●	●	●	●		1,4,7,11,12,13
SH	SHOWER	VIGO INDUSTRIES "W/ JAY R. SMITH #2005 SHOWER DRAIN W/ FLASHING CLAMP"	N/A	KOHLER "CORALAIS" W/ #K-1704-4-CP RIM & #K-20TH-KS PRESSURE BALANCING VALVE	2"	1 1/2"	1/2"	1/2"	25 GPM	N/A				●			●	●	●	●	●	●	●	●	●	●		3,9,10

SCHEDULE OF WATER HEATERS

WATER HEATER	SERVICE	TYPE	OUTLET TEMPERATURE (°F)	MANUFACTURER/ MODEL NO.	EFFICIENCY (%)	STORAGE (GAL.)	ELECTRICAL REQUIREMENTS			GAS REQUIREMENTS				RECOVERY @ 90° (GPM)
							KW PER ELEMENT	VOLTS/PHASES/Hz	AMPS	TYPE	MBTUS	GAS PRESSURE (IN. WC)	VENT SIZE (INCHES)	
WH-1	120° HOT WATER	STORAGE, ELEC.	140	AO SMITH #ECRT-80	100	80	4.5	208V/60	21.6	NA	NA	NA	NA	21 GPM

NOTES TO SCHEDULE OF WATER HEATERS:

- REFER TO PIPING DIAGRAM FOR ADDITIONAL NOTES.
- REFER TO SCHEDULE OF EXPANSION TANKS FOR BLADDER TYPE EXPANSION TANK.

SCHEDULE OF EXPANSION TANKS

EXPANSION TANK	SERVICE	TYPE	MANUFACTURER/MODEL NO.	VOLUME (GAL.)	ACCEPTANCE FACTOR	HEIGHT (INCHES)	DIAMETER (INCHES)	WATER CONNECTION (N.P.T.)
EXT-1	WH-1	BLADDER TYPE	AMTROL "THERM-X-TROL" #51-S-C	2.1	0.48	10 3/8"	10"	3/4"