- A. WORK COVERED BY THIS DOCUMENT INCLUDES LABOR, MATERIAL, PRODUCTS AND SERVICES FOR, AND INCIDENTAL TO, INSTALLATION OF PLUMBING SYSTEMS DRAWN OR SPECIFIED.
- B. WORK SHALL BE COMPLETE, TESTED, ADJUSTED AND READY FOR OPERATION PRIOR TO OCCUPATION BY
- C. INSTALL WORK TO COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. SECURE ALL

NECESSARY PERMITS AND INSPECTIONS, PAYING ALL COSTS AND FEES INVOLVED.

AND COORDINATE WORK TO COMPLY WITH THE CONSTRUCTION DOCUMENTS.

- D. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT PROJECT SITE, SURVEY EXISTING CONDITIONS
- E. PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL ORGANIZE A FACE TO FACE MEETING BETWEEN THE ELECTRICAL, MECHANICAL, FIRE PROTECTION, PLUMBING, AND OTHER SUB CONTRACTORS INVOLVED WITH THE CONSTRUCTION OF THE PROJECT. ALL PARTIES SHALL COORDINATE SPECIFIC NEEDS OF THEIR RESPECTIVE TRADES WITH OTHER RESPONSIBLE PARTIES. LOCATIONS OF ALL PIPING, DUCTWORK, EQUIPMENT, ETC. SHALL BE COORDINATED BETWEEN TRADES SO AS TO AVOID CONFLICTS IN REQUIRED INSTALLATION SPACE.

### SHOP AND RECORD DRAWINGS

A. FURNISH SHOP DRAWINGS FOR MANUFACTURED PRODUCTS, 4 COPIES MINIMUM. ALL MATERIALS SHALL BE INCLUDED IN A SINGLE SUBMITTAL. INCOMPLETE SUBMITTALS MAY BE REJECTED AS NOT REVIEWED AT THE ENGINEER'S DISCRETION.

### **EQUIPMENT SUBSTITUTIONS**

- A. EQUIPMENT AND/OR MATERIAL SUBSTITUTIONS BY THE PLUMBING SUBCONTRACTOR MUST HAVE ANY INCREASED COST FOR OTHER TRADES INCLUDED WITH THE PLUMBING PRICING CHANGE AS A LINE ITEM.
- B. ALL PLUMBING EQUIPMENT AND MATERIAL SUBSTITUTIONS MUST BE SHOWN ON THE BID DOCUMENTS TO THE OWNER AS A SEPARATE LINE ITEM ADDITION OR DEDUCTION TO THE FINAL BID.

- A. EXCEPT WHERE DIMENSIONS ARE SPECIFICALLY INDICATED, MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. HOWEVER, SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHERE POSSIBLE. DRAWINGS INDICATE REQUIRED SIZE AND ROUTES OF SYSTEM ELEMENTS. THE INTENTION OF THE CONSTRUCTION DOCUMENTS IS NOT TO INDICATE ALL OFFSETS, RISERS, AND DROPS. THE CONTRACTOR SHALL INSTALL SYSTEM ELEMENTS IN A MANNER TO CONFORM TO STRUCTURE AND AVOID OBSTRUCTIONS.
- B. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS.
- C. REFER TO ELECTRICAL DRAWINGS FOR VOLTAGE AND SYSTEM CHARACTERISTICS SUPPLIED TO MECHANICAL EQUIPMENT.
- HANGERS AND SUPPORTS A. PLUMBING PIPING UNDERGROUND SHALL BE FIRMLY BEDDED ON SOLID GROUND ON THE BODY OF THE PIPE.
- B. WHERE SEVERAL PIPES 21/2" AND SMALLER RUN PARALLEL AND IN THE SAME PLANE, THEY MAY BE SUPPORTED ON GANG OR MULTIPLE HANGERS; LARGER PIPING SHALL BE INDEPENDENTLY HUNG, PARALLEL AND EQUALLY SPACED.
- C. SUPPORTS FOR STEEL PIPE AND FOR COPPER TUBING 1¼" OR LARGER, SHALL NOT BE MORE THAN 10' APART. SUPPORTS FOR COPPER TUBING 1" AND SMALLER SHALL BE NOT MORE THAN 8' APART. PIPES SHALL BE SUPPORTED WITHIN 1' OF EACH ELBOW.
- D. SUPPORT EACH HORIZONTAL LENGTH OF SANITARY, WASTE AND VENT PIPE, EXCLUDING FITTINGS. MAXIMUM DISTANCE BETWEEN HANGERS SHALL BE 5'-0".
- E. VERTICAL PIPE SUBJECT TO MOVEMENT SHALL BE SUPPORTED FROM WALL BY MEANS OF PIPE CLAMP.
- F. SUPPORT DOMESTIC HOT AND COLD WATER PIPING IN SPACES BEHIND PLUMBING FIXTURES BY BRACKETS AND U-BOLTS SECURED TO WASTE AND VENT STACKS. SIZE U-BOLTS TO BEAR ON THE PIPING.
- G. HANGERS SHALL BE COMPLETE WITH RODS AND SUPPORTS PROPORTIONED TO THE SIZE OF PIPE TO BE SUPPORTED. IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- H. DO NOT PIERCE WATERPROOFING WITH SUPPORT BOLTS.
- I. SIZE HANGERS FOR INSULATED PIPING TO BEAR ON OUTSIDE OF INSULATION.
- J. PROVIDE INSULATION PROTECTORS AT HANGERS BEARING ON OUTSIDE OF INSULATION. PROVIDE RIGID INSERT OR RIGID SECTION OF INSULATION AT EACH INSULATION PROTECTOR.
- K. AFTER HANGER RODS ARE INSTALLED IN INSERTS IN FINISHED CONCRETE CEILING, FILL THE REMAINING OPENING WITH CEMENT SO THAT NO HOLE SHOWS AT THE CEILING.
- RECOMMENDATIONS SET FORTH IN MANUFACTURERS STANDARDIZATION SOCIETY STANDARD PRACTICES NO. SP-69 AND SP-58.

L. PIPE HANGERS AND SUPPORTS SHALL BE INSTALLED AND FURNISHED IN ACCORDANCE WITH

- M. HANGERS AND SUPPORTS SHALL BE MANUFACTURED BY F&S, GRINNELL, MICHIGAN OR APPROVED EQUAL.
- A. PROVIDE WHERE PIPES PASS THROUGH WALLS, FLOORS AND ROOFS.
- B. SLEEVES SHALL BE STANDARD WEIGHT STEEL PIPE IN CONCRETE AND MASONRY CONSTRUCTION.
- C. SLEEVES THROUGH INTERIOR DRYWALL CONSTRUCTION SHALL BE 26 GAUGE GALVANIZED SHEET METAL.
- D. SLEEVES ARE NOT REQUIRED AT INDIVIDUAL PLUMBING FIXTURES.
- E. OMIT PIPE SLEEVES IN CONCRETE FLOOR SLABS ON GRADE
- F. WALL SLEEVES SHALL BE FULL THICKNESS OF WALLS.
- G. SLEEVES MAY BE OMITTED WHEN OPENINGS ARE CORE DRILLED FOR CONCEALED VERTICAL AND HORIZONTAL
- H. MAKE SLEEVES THROUGH OUTSIDE WALLS WATERTIGHT. CAULK BETWEEN PLUMBING PIPE AND SLEEVE WITH OAKUM AND LEAD. PACK WITH FIBERGLASS AND CAULK, 1" DEEP AT EACH FACE WITH NON-HARDENING SEALANT BETWEEN PIPE AND SLEEVE.
- I. SIZE SLEEVES FOR INSULATED PIPES TO ALLOW FULL THICKNESS INSULATION.
- PIPES PENETRATING WALLS BELOW GRADE SHALL BE SEALED WITH A WATERPROOF, MODULAR, MECHANICAL EXPANSION SEAL CONSISTING OF INTERLOCKING SYNTHETIC RUBBER LINKS SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING. SIZING OF LINKS AND WALL SLEEVE SHALL BE DETERMINED BY MANUFACTURER.
- K. SLEEVES FOR ALL PIPING PENETRATING FIRE RATED WALLS AND FLOOR SHALL BE PROVIDED WITH 3M FIRE BARRIER NO. CP-25 FIRE PROOFING CAULKING, OR EQUAL, IN ANNULAR SPACE BETWEEN SLEEVE AND

# WASTE AND VENT PIPING SYSTEMS AND ACCESSORIES PIPING AND FITTINGS

- A. SANITARY/RAINWATER PIPING BELOW GROUND:
- CAST IRON SERVICE WEIGHT, HUB AND SPIGOT, MEETING ASTM A-74. GASKETS SHALL MEET ASTM
  - 2. PVC SOLID CORE, SCHEDULE 40 WITH SOLVENT WELD JOINTS MEETING ASTM D-2665.
- B. SANITARY/RAINWATER PIPING ABOVE GROUND:
- 1. CAST IRON SERVICE WEIGHT, NO HUB, PLAN END MEETING ASTM A-888 AND CISPI STANDARD 301 NO HUB COUPLINGS SHALL BE HEAVY DUTY TYPE BY HUSKY, CLAMP-ALL, MISSION OR APPROVED
- 2. PVC SOLID CORE, SCHEDULE 40 WITH SOLVENT WELD JOINTS MEETING ASTM D-2665.
- C. VENT PIPING:
- 1. CAST IRON SERVICE WEIGHT, NO HUB, PLAN END MEETING ASTM A-888 AND CISPI STANDARD 301 NO HUB COUPLINGS SHALL BE HEAVY DUTY TYPE BY HUSKY, CLAMP-ALL, MISSION OR APPROVED
- 2. PVC SOLID CORE, SCHEDULE 40 WITH SOLVENT WELD JOINTS MEETING ASTM D-2665.

### FLOOR DRAINS:

ALL FLOOR DRAINS SHALL HAVE CAST IRON BODIES, FLASHING COLLARS, NICKEL BRONZE ADJUSTABLE STRAINERS, AND BE TAPPED FOR TRAP PRIMER CONNECTION. DRAINS SHALL BE AS SCHEDULED ON THE DRAWINGS.

- A. PROVIDE CLEANOUTS IN SOIL AND WASTE LINES AS SHOWN AND AS REQUIRED BY THE GOVERNING CODE AS
- 1. AT THE BOTTOM OF EACH EXPOSED FIXTURE TRAP WHICH IS NOT INTEGRAL WITH THE FIXTURE.
- 2. AT THE END OF EACH BRANCH DRAINAGE LINE.
- 3. AT EACH CHANGE OF HORIZONTAL DIRECTION GREATER THAN 45 DEGREES.
- 4. IN HORIZONTAL DRAIN LINES AT INTERVALS OF NOT MORE THAN 100 FEET. B. CLEAN OUTS SHALL BE AS SCHEDULED ON THE DRAWINGS.

A. OIL WATER SEPARATOR SHALL BE OF ALL STEEL CONSTRUCTION WITH COATED INTERIOR, EXTERIOR, AND INTERIOR FITTINGS, SIZED TO ACCOMMODATE A 10 GPM FLOW RATE; J.R. SMITH MODEL 8510 OR APPROVED

- A. THE SINK LIFT STATION SHALL BE A PACKAGE SYSTEM CONSIST OF THE FOLLOWING:
- 1. 10 GALLON PLASTIC BASIN WITH AIR TIGHT LID AND VENT, DISCHARGE, AND INLET CONNECTIONS. 2. APPROXIMATELY ½ HP PUMP CAPABLE OF HANDLING UP TO A ¾" SOLID AND 15 FEET OF HEAD AT 36
- GPM WITH LEVEL SWITCH. OUTLET OF LIFT STATION SHALL BE EQUIPPED WITH A CHECK VALVE. 4. SINK LIFT STATION PACKAGE SHALL BE ITT GOULDS PUMPS SDS1 OR APPROVED EQUAL.

A. FLASH AROUND ALL PIPES PENETRATING THRU THE ROOF WITH STANDARD MANUFACTURED FLASHINGS. FLASHING SHALL BE SHEET METAL WITH RUBBER GASKETS AND EXTEND INTO ROOFING AND UP PIPE DISTANCES IN ACCORDANCE WITH THE LOCAL CODE.

### <u>OMESTIC WATER SYSTEM AND ACCESSORIES</u>

- A. ALL DOMESTIC WATER PIPING, FITTINGS, EQUIPMENT, VALVES, OR ANY OTHER ITEM ATTACHED TO THE DOMESTIC WATER SYSTEM SHALL BE LEAD FREE AND NSF 61 RATED UNLESS SEPARATED FROM THE DOMESTIC WATER SYSTEM BY A REDUCED PRESSURE ZONE BACKFLOW PREVENTOR (RPZ).
- B. THE PRIMARY SPECIFICATIONS FOR DOMESTIC WATER PIPING SYSTEMS SHALL BE AS INDICATED BELOW.
- 1. SERVICE PIPING BELOW GRADE (UP TO 3" IN SIZE): TYPE "K" COPPER TUBING, ASTM B88-1988A, WITH 95-5 SOLDERED JOINTS AND WROUGHT COPPER, ANSI B16.22-1988A, OR CAST BRONZE, ANSI 95-5
- B16.18-1988A, SOCKET FITTINGS. EXTEND TO A POINT 1'-0" ABOVE FINISHED FLOOR. 2. SERVICE PIPING BELOW GRADE (4" TO 6" IN SIZE): DUCTILE-IRON PIPE MEETING AWWA C151 WITH PUSH-ON-JOINT TYPE ENDS. FITTINGS MAY BE EITHER STANDARD-PATTERN PUSH-ON-JOINT FITTINGS

MEETING AWWA C110 OR COMPACT-PATTERN PUSH-ON-JOINT FITTINGS MEETING AWWA C153. ALL

- PUSH-ON-FITTINGS SHALL HAVE GASKETS MADE OF AWWA C111 COMPLIANT RUBBER. WATER PIPING ABOVE SLAB: TYPE "L" HARD DRAWN COPPER TUBING, ASTM B88-1988A, WITH 95-5 SOLDERED JOINTS AND WROUGHT COPPER, ANSI B16.22-1988A, OR CAST BRONZE, ANSI 95-5
- B16.18-1988A, SOCKET FITTINGS. 4. WATER PIPING BELOW SLAB ON GRADE: TYPE "L" SOFT DRAWN COPPER TUBING, WITHOUT JOINTS,
- CONFORMING TO ASTM B88-1988A. B. AS AN ALTERNATE TO THE PRIMARY SPECIFICATION FOR WATER PIPING. THE FOLLOWING MAY BE USED IN WHOLE OR IN PART. THE PLUMBING CONTRACTOR SHOULD LIST EACH SYSTEM AS A SEPARATE LINE ITEM AS AN ADD/ALTERNATE FOR THE OWNER'S SELECTION. USE OF ANY ALTERNATE DOMESTIC WATER PIPING
- 1. SERVICE PIPING BELOW GRADE (UP TO 6" IN SIZE): SCHEDULE 80 PVC MEETING THE REQUIREMENTS OF ASTM D 1785 WITH SCHEDULE 80 PVC SOCKET FITTINGS MEETING ASTM D 2467 REQUIREMENTS.
- ALL JOINTS AND FITTINGS SHALL BE SOLVENT-CEMENTED TOGETHER. WATER PIPING ABOVE OR BELOW SLAB: DOMESTIC HOT AND COLD WATER PIPING ABOVE GROUND SHALL BE CHLORINATED POLY VINYL CHLORIDE (CPVC) PLASTIC WITH SOLVENT WELD JOINTS. PIPE SIZES UP TO 2" SHALL BE LUBRIZOL FLOWGUARD GOLD; PIPE SIZES ABOVE 2" SHALL BE SCH 80 LUBRIZOL CORZAN OR EQUAL. THE PIPING SHALL MEET ASTM D1784 AND SHALL BE CERTIFIED BY NSF INTERNATIONAL FOR USE WITH POTABLE WATER SYSTEMS. SOLVENT CEMENTS FOR CHLORINATED POLY VINYL CHLORIDE (CPVC) PLASTIC PIPE SHALL MEET ASTM F493 SPECIFICATION AND SHALL BE APPROVED FOR USE WITH THE LUBRIZOL FLOWGUARD GOLD AND LUBRIZOL CORZAN PIPING. ALL CPVC PIPE IN APARTMENT MECHANICAL CLOSETS SHALL BE PLENUM RATED (FLAME SPREAD 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS PER ASTM E84). ALL CPVC PIPING SHALL BE INSTALLED ACCORDING TO THE MANUFACTURERS INSTALLATIONS MANUAL BY CONTRACTORS CERTIFIED BY THE MANUFACTURER TRAINING PROGRAM. ALL CPVC PIPING SHALL HAVE SOLVENT-CEMENTED JOINTS MADE WITH SOLVENT APPROVED BY LUBRIZOL FOR USE WITH THEIR BRANDED PIPE SYSTEMS. ALL BELOW SLAB CPVC WATER PIPING SHALL BE PRESSURE TESTED PRIOR TO POURING THE SLAB.

- A. INSULATION SHALL HAVE AN AVERAGE THERMAL CONDUCTIVITY NOT TO EXCEED 0.23 BTU-IN PER SQUARE FOOT, PER DEGREE F, PER HOUR, AT A MEAN TEMPERATURE OF 75°F. INSULATION SHALL BE ½" THICK FOR PIPES UP TO AND INCLUDING ¾" DIAMETER AND 1" THICK FOR PIPING GREATER THAN ¾" IN DIAMETER.
- B. THE FOLLOWING SHALL BE INSULATED:
- 1. ALL COPPER WATER PIPING REGARDLESS OF SERVICE USE OR LOCATION IN THE PROJECT.
- 2. ALL WATER PIPING IN EXTERIOR WALLS REGARDLESS OF PIPING MATERIAL.
- 3. CPVC AND PEX HOT WATER PIPING OUTSIDE DWELLING UNITS.

SYSTEMS SHALL BE AT THE SOLE DISCRETION OF THE OWNER.

- 4. CPVC AND PEX HOT WATER PIPING INSIDE DWELLING UNITS IF A HEAT TRAP OR HEAT TRAP NIPPLES ARE NOT PROVIDED AT THE WATER HEATER.
- 5. ALL WATER PIPING EXPOSED TO FREEZING CONDITIONS SHALL BE INSULATED WITH HEAT TRACE PROVIDED BELOW THE INSULATION.

### DOMESTIC WATER VALVES

## A. GENERAL REQUIREMENTS ARE AS FOLLOWS:

- 1. VALVES OF THE SAME TYPE ON THE PROJECT SHALL BE OF ONE MANUFACTURER.
- 2. VALVES SHALL HAVE THE NAME OR TRADEMARK OF THE MANUFACTURERS AND THE WORKING PRESSURE STAMPED OR CAST ON THE VALVE BODY.
- VALVE HAND WHEELS SHALL BE ORIENTED, WHEN INSTALLED, TO PROVIDE MAXIMUM ACCESSIBILITY FOR
- OPERATION. B. VALVES FOR DOMESTIC WATER SYSTEM:
- 1. GATE VALVES 3" IN SIZE AND SMALLER AND UP STREAM OF THE PRESSURE REDUCING VALVE SHALL HAVE BRONZE BODY, RISING STEM, SOLID WEDGE, THREADED BONNET FOR 150# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NIBCO, STOCKHAM, OR APPROVED EQUAL.
- 2. GATE VALVES 4" IN SIZE AND LARGER UP STREAM OF THE PRESSURE REDUCING VALVE SHALL HAVE IRON BODY, FLANGED ENDS, NON-RISING STEM, SOLID WEDGE, BOLTED BONNET FOR 150# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NIBCO, STOCKHAM, OR APPROVED EQUAL
- 3. GATE VALVES 3" IN SIZE AND SMALLER AND DOWN STREAM OF THE PRESSURE REDUCING VALVE SHALL HAVE BRONZE BODY, RISING STEM, SOLID WEDGE, THREADED BONNET FOR 125# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NIBCO, STOCKHAM, OR APPROVED EQUAL.
- 4. GATE VALVES 4" IN SIZE AND LARGER DOWN STREAM OF THE PRESSURE REDUCING VALVE SHALL HAVE IRON BODY, FLANGED ENDS, NON-RISING STEM, SOLID WEDGE, BOLTED BONNET FOR 125# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NIBCO, STOCKHAM, OR APPROVED EQUAL.
- 5. BALL VALVES SHALL HAVE BRONZE BODY WITH FULL PORT BRASS BALL AND BLOW OUT PROOF STEM WITH EXTENSION.. 125# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NIBCO, STOCKHAM, OR APPROVED EQUAL.
- WITH BRONZE BODY, BRONZE DISC FOR 125# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NIBCO, STOCKHAM, OR APPROVED EQUAL. 7. CHECK VALVES 3" IN SIZE IN VERTICAL PIPING AND SMALLER SHALL BE INCLINE LIFT TYPE WITH

SHALL BE BY CRANE, MILWAUKEE, NIBCO, STOCKHAM, OR APPROVED EQUAL.

6. CHECK VALVES 3" IN SIZE IN HORIZONTAL PIPING AND SMALLER SHALL BE HORIZONTAL SWING TYPE

BRONZE BODY, RESILIENT DISCS, SILENT ACTION, STAINLESS STEEL SPRING FOR 125# SWP. VALVES

8. BALANCING VALVES FOR HOT WATER CIRCULATING SYSTEMS SHALL BE OF THE AUTOMATIC FLOW CONTROL TYPE WITH A FIXED FLOW RATE OF 0.50 GPM. VALVES SHALL HAVE ALL BRONZE BODY BUILT IN STRAINER WITH STAINLESS STEEL MESH SCREEN. BUILT IN BALL VALVE WITH NICKEL PLATED BRASS BALL. PRESSURE TEST PORTS. AND MANUAL AIR VENT. STANDARD BALL VALVES WILL NOT BE ACCEPTED IN LIEU OF AUTOMATIC FLOW CONTROL TYPE VALVE WITHOUT PRIOR WRITTEN APPROVAL. VALVES SHALL BE GRISWOLD ISOLATOR "Y" MODEL IY11VMM OR APPROVED EQUAL.

- 9. BALANCING VALVES FOR HOT WATER CIRCULATING SYSTEMS SHALL BE MEMORY STOP FLOW CONTROL TYPE VALVES WITH TWO INTEGRATED PRESSURE GAUGE TAPS WITH CAPS FOR MEASURING THE PRESSURE DROP ACROSS THE VALVE. VALVE BODY SHALL BE OF ALL BRASS CONSTRUCTION, LEAD FREE, AND DEZINCIFICATION RESISTANT. STANDARD BALL VALVES WILL NOT BE ACCEPTED IN LIEU OF MEMORY STOP FLOW CONTROL TYPE VALVES WITHOUT PRIOR WRITTEN APPROVAL. VALVE SHALL BE BY CRANE, MILWAUKEE, NIBCO, OR APPROVED EQUAL.
- 10. PRESSURE REDUCING VALVES UP TO 3" IN SIZE SHALL BE SELF CONTAINED LARGE AREA DIAPHRAGM TYPE, BRONZE BODY, REPLACEABLE SEAT, SERVICEABLE IN LINE, SEALED SPRING CAGE AND STAINLESS STEEL SPRING. VALVE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASSE STANDARD 1003. PRV SHALL BE ADJUSTABLE FOR OUTLET PRESSURES RANGING FROM 25 TO 75 PSI WHEN INLET PRESSURES ARE AS HIGH AS 300 PSI. PROVIDE A STRAINER UPSTREAM OF EACH PRV AND A 3½" 0-200 PSIG DIAL PRESSURE GAUGE ON THE UPSTREAM AND DOWNSTREAM SIDE OF EACH PRV
- 11. STRAINERS SHALL BE "Y" TYPE WITH ALL BRONZE BODY, STAINLESS STEEL SCREEN, SOLID RETAINER CAP WITH NON-ASBESTOS GASKET, AND RATED FOR A MINIMUM OF 200 PSI DOWNSTREAM OF THE PRV AND A PRESSURE OF 300 PSI UPSTREAM OF THE PRV.
- 12. FIXTURE SUPPLY VALVE KIT SHALL INCLUDE CHROME PLATED BRASS STOPS WITH FULL TURN BRASS STEM, CHROME PLATED COPPER RISERS WHERE VISIBLE TO THE PUBLIC OR PLASTIC RISERS WHERE FIXTURE IS LOCATED IN A PRIVATE UNIT (DWELLING, OFFICE, HOTEL ROOM, ETC...), AND SHALLOW STEEL OR FORGED BRASS WITH SET SCREW FLANGE. INLET SHALL BE SIZED PER THE FIXTURE SCHEDULE, IPS OR SWEAT CONNECTION TO VALVE INLET ONLY, COMPRESSION FITTINGS WILL NOT BE ALLOWED AT VALVE INLET. OUTLET SHALL BE SIZED TO MATCH THE CONNECTED FIXTURE INLET(S) WITH IPS OR COMPRESSION CONNECTIONS. SUPPLY KIT SHALL BE BY BRASS CRAFT, MCGUIRE, WATTS OR APPROVED
- 13. CPVC BODY BALL VALVES SHALL NOT BE USED.

### TESTING AND CLEANING

- A. TEST WATER SUPPLY PIPING BEFORE FIXTURES AND FAUCETS ARE CONNECTED BY APPLYING A HYDROSTATIC PRESSURE OF 125 PSI TEST PRESSURE FOR 1 HOUR.
- B. ALL EQUIPMENT, FIXTURES, PIPE, VALVES AND FITTINGS SHALL BE CLEANED OF GREASE, OIL, PAINT, SPOTS, METAL CUTTINGS, SLUDGE, AND CONSTRUCTION DEBRIS BEFORE FINAL INSPECTION.
- C. UPON COMPLETION OF INSTALLATION AND TEST OF POTABLE WATER SUPPLY PIPING, ALL SUCH PIPING SHALL BE DISINFECTED BY A MIXTURE CONTAINING NOT LESS THAN 0.6 POUNDS OF HIGH-TEST CALCIUM HYPOCHLORITE, OR 2 POUNDS OF CHLORINATED LIME TO EACH 1,000 GALLONS OF WATER TO PROVIDE NOT LESS THAN 50 PPM OF AVAILABLE CHLORINE. THE MIXTURE SHALL BE INJECTED INTO THE SYSTEM AND RETAINED FOR NOT LESS THAN TWENTY-FOUR (24) HOURS AT WHICH TIME THE CHLORINE LEVEL SHALL BE AT 10 PPM OR GREATER. THE SYSTEM SHALL THEN BE DRAINED, FLUSHED WITH POTABLE WATER UNTIL ONLY NORMAL CHLORINE RESIDUAL REMAINS (2 PPM) AND PLACED IN SERVICE OR, IF LOCAL HEALTH AUTHORITY REQUIRED DIFFERENT AND/OR ADDITIONAL PROCEDURES, THESE REQUIREMENTS SHALL BE MET, AND A CERTIFICATE OR LETTER CERTIFYING ACCEPTANCE BY THE HEALTH AUTHORITY SHALL BE SUBMITTED.

### DIELECTRIC ADAPTERS & UNIONS

- A. WHEREVER COPPER, BRASS OR BRONZE PIPING SYSTEM ARE CONNECTED TO STEEL OR IRON PIPING SYSTEMS. THIS CONNECTION SHALL BE MADE WITH DIELECTRIC ISOLATORS. ALL DIELECTRIC ISOLATORS SHALL BE SELECTED FOR PRESSURES OF THE SYSTEMS INVOLVED.
- B. WHEREVER CPVC PIPING SYSTEMS ARE CONNECTED TO METALLIC PIPING SYSTEMS OR EQUIPMENT, THIS CONNECTION SHALL BE MADE WITH AN ADAPTER FITTING OBTAINED FROM THE CPVC PIPING MANUFACTURER. DIRECTLY THREADING CPVC INTO METALLIC VALVES AND EQUIPMENT IS NOT ALLOWED.

### WATER SUB METERING SYSTEM

A. CONTRACTOR SHALL PROVIDE A WATER SUB-METER FOR EACH APARTMENT AND/OR RETAIL UNIT PER THE OWNER'S REQUIREMENTS. WATER METERS SHALL BE SIZED EQUAL TO PIPE SIZE OF SPACE SERVED WITH A MAXIMUM PRESSURE DROP OF 10.0 PSI AT MAXIMUM FLOW AND SHALL CONFORM TO ALL SECTIONS OF AWWA STANDARD C-708. METER BODY SHALL BE MADE OF LOW LEAD BRONZE. EACH METER SHALL HAVE INTEGRATED ELECTRONIC MODULE WITH OUTPUTS FOR EITHER WIRED OR WIRELESS READING MODULES AND A MINIMUM SIX WHEEL ODOMETER FOR DIRECT READING. ELECTRONIC MODULE SHALL BE BATTERY OPERATED WITH A MINIMUM CALCULATED BATTERY LIFE OF 20 YEARS. METER MODEL AND TYPE SHELL BE PER OWNER'S REQUIREMENTS OR, IF OWNER DOES NOT HAVE A SPECIFIC REQUIREMENT, THE WATER METERS WILL BE MULTI-JET TYPE METERS BY MASTER METER WITH DIALOG WIRELESS METER READING SYSTEM. CONTRACTOR SHALL PROVIDE A MINIMUM OF FOUR (4) ELECTRONIC METER READERS TO THE OWNER ALONG WITH A CONTACT NAME OF THE COMPANY THAT THE OWNER MAY CONTACT TO ORDER MORE METER

### WALL HYDRANTS:

- A. OUTDOOR WALL HYDRANTS SHALL BE OF THE NON-FREEZE TYPE, SELF DRAINING, KEY OPERATED, STAINLESS STEEL BOX WITH LOCKING COVER CLEARLY STAMPED "WATER" AND INTEGRAL VACUUM BREAKER;
- B. INTERIOR HOSE BIBBS AND WALL HYDRANTS NOT SUBJECT TO FREEZING IN AREAS ACCESSIBLE TO THE GENERAL PUBLIC SHALL BE CHROME PLATED, KEY OPERATED WITH INTEGRAL VACUUM BREAKER; WOODFORD MODEL 76 OR EQUAL BY J.R. SMITH, WATTS, OR ZURN.
- C. INTERIOR HOSE BIBBS AND WALL HYDRANTS NOT SUBJECT TO FREEZING SHALL BE CHROME PLATED. WHEEL HANDLE OPERATED WITH INTEGRAL VACUUM BREAKER; CHICAGO MODEL 952 OR EQUAL BY SPEAKMAN, T & S BRASS, OR APPROVED EQUAL.
- D. OUTDOOR MIXING WALL HYDRANT AT DUMPSTER PAD ENCLOSURE SHALL BE NON-FREEZE TYPE, SELF DRAINING, KEY OPERATED, STAINLESS STEEL BOX WITH LOCKING COVER CLEARLY STAMPED "WATER" AND INTEGRAL VACUUM BREAKER, AND SHALL ACCOMMODATE SEPARATE CONNECTIONS FOR HOT AND COLD WATER; J.R. SMITH 5560QT OR EQUAL BY WATTS OR ZURN.

A. PROVIDE FIXTURES AS INDICATED IN SCHEDULE.

J.R. SMITH MODEL 5509QT OR EQUAL BY WATTS OR ZURN.

- <u>INSTALLATION</u> A. MAKE ALL FINAL UTILITY CONNECTIONS TO ALL FIXTURES AND EQUIPMENT.
- B. PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION AND
- MAINTENANCE LITERATURE. C. COMPONENTS REQUIRING PERIODIC MAINTENANCE OR ADJUSTMENT SHALL BE LOCATED OR INSTALLED AS TO
- PERMIT ACCESS WITHOUT DAMAGE TO BUILDING STRUCTURE, FINISHES OR OTHER EQUIPMENT. D. GROUT/SEAL/CAULK FIXTURE CONTACT WITH WALL/FLOOR/COUNTER AS APPLICABLE.

# NATURAL GAS PIPING SYSTEM AND ACCESSORIES

# PIPING AND FITTINGS

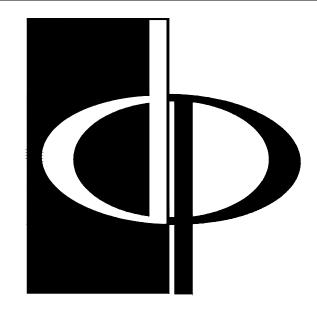
VALVES FOR NATURAL GAS SYSTEMS

OR WALWORTH.

- A. NATURAL GAS PIPING ABOVE GRADE: SCHEDULE 40 BLACK STEEL PIPE CONFORMING TO ASTM A53 WITH
- STANDARD WEIGHT, BANDED BLACK STEEL MALLEABLE IRON FITTINGS CONFORMING TO ASTM A-234-WPB. B. NATURAL GAS PIPING BELOW GRADE: SCHEDULE 40 BLACK STEEL PIPE CONFORMING TO ASTM A53 WRAPPED WITH 1/8" THICK ASPHALTIC WRAP WITH FRAFT PAPER COVERING. ALL JOINTS ARE TO BE WELDED.
- A. BALL VALVES 3" AND LARGER SHALL BE THE SEMI-STEEL TYPE WITH CAST IRON BODY, LUBRICATED CAST IRON PLUG, FLANGED ENDS, AND WRENCH OPERATED FOR 175# W.O.G MEETING THE REQUIREMENTS OF

ANSI/ASME B16.33. VALVES SHALL BE BY ROCKWELL NORDSTROM, OR WALWORTH.

- B. BALL VALVES 2½" AND SMALLER SHALL HAVE BRONZE BODY AND PLUG, THREADED ENDS, AND SQUARE HEAD FOR 125# W.O.G MEETING THE REQUIREMENTS OF ANSI/ASME B16.33. VALVES SHALL BE BY CRANE,
- C. GAS PRESSURE REGULATORS SHALL BE SPRING LOADED ADJUSTABLE REGULATOR WITH CAST IRON BODY, BRASS ORIFICE, BUNA-N OR SILICONE VALVE SEAT, STEEL VALVE STEM WITH INLET AND OUTLET RATED FOR PRESSURE AND CAPACITY NOTED ON THE PLANS. REGULATORS SHALL MAINTAIN A REDUCED OUTLET PRESSURE UNDER LOCKUP (NO-FLOW) CONDITIONS. REGULATORS INSTALLED ON THE EXTERIOR OF THE BUILDING SHALL BE APPROVED FOR OUTDOOR INSTALLATION. DO NOT INSTALL REGULATORS IN RETURN AIR PLENUMS.

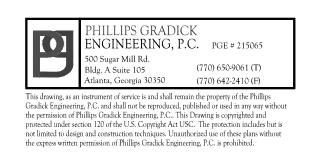


### THE PRESTON PARTNERSHIP, LLC A MULTI-DISCIPLINARY DESIGN FIRM

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# REVEL AT THE **BALLPARK** PHASE II

2885 CRESCENT PKWY

SMYRNA, GA 30080



ATLANTIC REALTY

3438 PEACHTREE ROAD **SUITE 1425** ATLANTA, GA 30326

**PARTNERS** 

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CDF SPECIFICATIONS - PLUMBING

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