

Order Plans @

PLUMBING SPECIFICATIONS

PLUMBING GENERAL REGULATIONS AND REQUIREMENTS

- 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 OWNER.
C. INSTALL WORK TO COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. SECURE ALL NECESSARY PERMITS AND INSPECTIONS, PAYING ALL COSTS AND FEES INVOLVED.
D. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT PROJECT SITE, SURVEY EXISTING CONDITIONS AND COORDINATE WORK TO COMPLY WITH THE CONSTRUCTION DOCUMENTS.
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, OUTWORK, 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.

DRAWINGS

- A. EXCEPT WHERE DIMENSIONS ARE SPECIFICALLY INDICATED, MECHANICAL DRAWINGS ARE DIMENSIONAL 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 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 1/2" OR LARGER SHALL NOT BE MORE THAN 10' APART. SUPPORTS FOR COPPER TUBING 1" AND SMALLER SHALL BE NOT MORE THAN 6' 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 SPACES BEHIND PLUMBING FIXTURES BY BRACKETS AND U-BOLDS SECURED TO WASTE AND VENT STACKS. SIZE U-BOLDS TO BEAK PIPING.
G. HANGERS SHALL BE COMPLETED WITH ROODS AND SUPPORTS PROPORTIONED TO THE SIZE OF PIPE TO BE SUPPORTED, ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
H. DO NOT PERFORM ROOFING WITH SUPPORT BOLTS.
I. SIZE HANGERS FOR INSULATED PIPES TO BEAR ON OUTSIDE OF INSULATION.
J. PROVIDE IMPERMEABLE PROTECTORS FOR HANGERS BEARING ON OUTSIDE OF INSULATION. PROVIDE INSERT OR ROOD SECTION OF INSULATION AT THE CEILING.
K. AFTER HANGER ROODS ARE INSTALLED IN FINISHED CONCRETE CEILING, FILL THE REMAINING OPENING WITH CEMENT SO THAT NO HOLE SHOWS AT THE CEILING.
L. PIPE HANGERS AND SUPPORTS SHALL BE INSTALLED AND FURNISHED IN ACCORDANCE WITH RECOMMENDATIONS FORTH IN MANUFACTURERS STANDARDIZATION SOCIETY STANDARD PRACTICES NPS-89 AND SP-98.
M. HANGERS AND SUPPORTS SHALL BE MANUFACTURED BY F&S, GRINELL, MICHIGAN OR APPROVED EQUAL.

SLEEVES

- 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 2# GAUGE GALVANIZED SHEET METAL.
D. SLEEVES ARE NOT REQUIRED AT INDIVIDUAL PLUMBING FIXTURES.
E. OMT 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 PIPING.
H. MAKE SLEEVES THROUGH OUTSIDE WALLS WATERIGHT. CALK BETWEEN PLUMBING PIPE AND SLEEVE WITH OUMUM AND LEAD. PACK WITH FIBERGLASS AND CALK 1" DEEP AT EACH FACE WITH NON-HARDENING SEALANT BETWEEN PIPE AND SLEEVE.
I. SIZE SLEEVES FOR INSULATED PIPES TO ALLOW FULL THICKNESS INSULATION.
J. PIPES PENETRATING WALLS BELOW GRADE SHALL BE SEALED WITH A WATERPROOF, MODULAR, MECHANICAL EXPANSION SEAL CONSISTING OF INTERLOCKING SYNTHETIC RUBBER LAMIN SHAPED TO CONTINUOUSLY FILL THE ANNULAR SPACE BETWEEN THE PIPE AND WALL OPENING. SIZE OF LAMIN 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 CALKING, OR EQUAL, IN ANNULAR SPACE BETWEEN SLEEVE AND PIPING.

WASTE AND VENT PIPING SYSTEMS AND ACCESSORIES PIPING AND FITTINGS

- A. SANITARY PIPING BELOW GROUND:
1. PVC - SOLID CORE, SCHEDULE 40 WITH SOLVENT WELD JOINTS MEETING ASTM D-2665.
B. SANITARY PIPING ABOVE GROUND:
1. PVC - SOLID CORE, SCHEDULE 40 WITH SOLVENT WELD JOINTS MEETING ASTM D-2665.
C. VENT PIPING:
1. 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 FLOWER CONNECTION. DRAINS SHALL BE AS SCHEDULED ON THE DRAWINGS.

CLEANOUTS

- A. PROVIDE CLEANOUTS IN SOIL AND WASTE LINES AS SHOWN AND AS REQUIRED BY THE GOVERNING CODE AS FOLLOWS:
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 SPECIFIED ON THE DRAWINGS.

FLASHING

- FLASH AROUND ALL PIPES PENETRATING THRU THE ROOF WITH STANDARD FACTURED FLASHINGS. FLASHING SHALL BE SHEET METAL WITH RUBBER GASKETS AND EXTEND INTO ROOFING AND UP THE DISTANCE IN ACCORDANCE WITH THE ROOFING CODE.

PLUMBING WATER SYSTEM AND ACCESSORIES PIPING AND FITTINGS

- A. ALL COPPER WATER PIPING, FITTINGS, EQUIPMENT, VALVES, OR ANY OTHER EQUIPMENT 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 BACKFLOW PREVENTER (RP2).
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 85-5 SOLDERED JOINTS AND WROUGHT COPPER, ANSI B16.22-1988A, OR CAST BRONZE, ANSI B8-5 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 ANMA C151 WITH PUSH-ON-JOINT TYPE ENDS. FITTINGS MAY BE EITHER STANDARD-PATTERN PUSH-ON-JOINT FITTINGS MEETING ANMA C110 OR COMPACT-PATTERN PUSH-ON-JOINT FITTINGS MEETING ANMA C155. ALL PUSH-ON-FITTINGS SHALL HAVE GASKETS MADE OF ANMA C111 COMPLIANT RUBBER.
3. WATER PIPING ABOVE SLAB: TYPE "L" HARD DRAWN COPPER TUBING, ASTM B88-1988A, WITH 85-5 SOLDERED JOINTS AND WROUGHT COPPER, ANSI B16.22-1988A, OR CAST BRONZE, ANSI B8-5 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.
C. 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 SYSTEMS SHALL BE AT THE SOLE DISCRETION OF THE OWNER.
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.
2. 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 SOH 80 LUBRIZOL CORZAM 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 CORZAM 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 MANUFACTURER'S 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.

INSULATION

- 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 75F. INSULATION SHALL BE 1/2" THICK FOR PIPES UP TO AND INCLUDING 1/2" DIAMETER AND 1" THICK FOR PIPING GREATER THAN 1/2" 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.
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 IN THE PROJECT SHALL BE OF ONE MANUFACTURER.
2. VALVES SHALL HAVE THE MANUFACTURER'S TRADEMARK OF THE MANUFACTURERS AND THE WORKING PRESSURE STAMPED OR CAST INTO THE VALVE BODY.
3. VALVES AND WHEELS SHALL BE ORIENTED, WHEN INSTALLED, TO PREVENT MINIMUM ACCESS FOR OPERATION.
B. VALVES FOR DOMESTIC WATER SYSTEM:
1. GATE VALVES 1/2" IN SIZE AND SMALLER AND UP 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, NISCO, STOCKHAM, OR APPROVED EQUAL.
2. GATE VALVES 1/2" 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 125# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NISCO, STOCKHAM, OR APPROVED EQUAL.
3. GATE VALVES 3/4" 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, NISCO, STOCKHAM, OR APPROVED EQUAL.
4. GATE VALVES 1/2" 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, NISCO, 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, NISCO, STOCKHAM, OR APPROVED EQUAL.
6. CHECK VALVES 3/4" IN SIZE IN HORIZONTAL PIPING AND SMALLER SHALL BE HORIZONTAL SWING TYPE WITH BRONZE BODY, BRONZE DISC FOR 125# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NISCO, STOCKHAM, OR APPROVED EQUAL.
7. CHECK VALVES 3/4" IN SIZE IN VERTICAL PIPING AND SMALLER SHALL BE INCLINE LIFT TYPE WITH BRONZE BODY, RESILIENT DISCS, SILENT ACTION, STAINLESS STEEL SPRING FOR 125# SWP. VALVES SHALL BE BY CRANE, MILWAUKEE, NISCO, STOCKHAM, OR APPROVED EQUAL.
8. 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, NISCO, OR APPROVED EQUAL.
9. PRESSURE REDUCING VALVES UP TO 3/4" IN SIZE SHALL BE SELF CONTAINED LARGE AREA DIAPHRAGM TYPE, BRONZE BODY, REPLACEABLE SEAT, SCREWABLE IN LINE, SEALED SPRING CASE 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 200 PSI. PROVIDE A STRAINER UPSTREAM OF EACH PRV AND A 1/2" 0-200 PSIG DIAL PRESSURE GAUGE ON THE UPSTREAM AND DOWNSTREAM SIDE OF EACH PRV ASSEMBLY.
10. STRAINERS SHALL BE "Y" TYPE WITH ALL BRONZE BODY, STAINLESS STEEL SCREEN, SOLID RETAINER CAP WITH NON-ASSISTED GASKET, AND RATED FOR A MINIMUM OF 200

PSI DOWNSTREAM OF THE PRV AND A PRESSURE OF 300 PSI UPSTREAM OF THE PRV.

- 11. 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 (DINING, OFFICE, HOTEL ROOM, ETC.), AND SHALLOW STEEL OR FORGED BRASS WITH SET SCREW FLANGE. INLET SHALL BE SIZED PER THE FIXTURE SCHEDULE, PS OR SWG CONNECTION TO WALK INLET ONLY. COMPRESSION FITTINGS WILL NOT BE ALLOWED AT VALVE INLET. OUTLET SHALL BE SIZED TO MATCH THE CONNECTED FIXTURE INLETS WITH PS OR COMPRESSION CONNECTIONS. SUPPLY KIT SHALL BE BY BRASS CRAFT, MOORE, WATTS OR APPROVED EQUAL.
12. 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, SPICES, SUGAR, SLAGS, AND CONSTRUCTION DEBRIS BEFORE INSPECTION.
C. UPON COMPLETION OF INSTALLATION AND BEFORE POTABLE WATER SUPPLY PIPING, ALL SUCH PIPE SHALL BE INSPECTED FOR A Mixture CONTAINING NOT LESS THAN 0.6 POUNDS OF HIGH-TEST CALCIUM HYPOPHOSPHATE PER 100 GALLONS OF WATER TO EACH 1,000 GALLONS OF WATER TO BE MADE NOT LESS THAN 50 PPM OF AMMONIUM CHLORIDE. THE Mixture SHALL BE INJECTED INTO THE SYSTEM AND REMAINED FOR NOT LESS THAN 24 HOURS (OR 4 HOURS IF THE CHLORINE LEVEL SHALL BE AT LEAST 10 PPM) AT ALL POSSIBLE WATER UNTIL ONLY NORMAL CHLORINE REGULATIONS REMAINS (2 PPM) AND PLACED IN SERVICE IF LOCAL HEALTH AGENCY REQUIRED DIFFERENT AND/OR ADDITIONAL PROCEDURES, THESE REQUIREMENTS SHALL BE MET. CERTIFICATE OR LETTER CERTIFYING ACCEPTANCE BY THE HEALTH AGENCY SHALL BE SUBMITTED.

ELECTRIC 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.

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 "WATNET" AND INTEGRAL VACUUM BREAKER, J.R. SMITH MODEL 5500T OR EQUAL, BY WATTS OR ZURN.
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.

FIXTURES

- A. PROVIDE FIXTURES AS INDICATED IN SCHEDULE.

INSTALLATION

- 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/CALK FIXTURE CONTACT WITH WALL/FLOOR/COUNTER AS APPLICABLE.

NATURAL GAS PIPING SYSTEM AND ACCESSORIES PIPING AND FITTINGS

- A. NATURAL GAS PIPING ABOVE GRADE: SCHEDULE 40 BLACK STEEL PIPE CONFORMING TO ASTM A53 WITH STANDARD WEIGHT, BENDED BLACK STEEL WALLEABLE 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 FRAT PAPER COVERING. ALL JOINTS ARE TO BE WELDED.
C. BALL VALVES 1/2" 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, OR WALWORTH.
D. GAS PRESSURE REGULATORS SHALL BE SPRING LOADED ADJUSTABLE REGULATOR WITH CAST IRON BODY, BRASS ORNICE, 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.

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