

PLUMBING SPECIFICATIONS

GENERAL CONDITIONS

WORK UNDER THIS DIVISION SHALL BE SUBJECT TO THE MA GENERAL AND SPECIAL CONDITIONS
SCOPE

THE WORK REQUIRED FOR THIS SECTION INCLUDES LABOR, MATERIALS, EQUIPMENT, APPURTENANCES, SERVICE AND SUPERVISION REQUIRED TO PROVIDE COMPLETE PLUMBING SYSTEMS AS SHOWN ON THE DRAWINGS AND SPECIFIED IN THIS SECTION OF THE SPECIFICATIONS INCLUDING CONNECTIONS TO SITE UTILITIES FIVE FEET, ZERO INCHES OUTSIDE OF THE BUILDING WALLS. SEE SITE ENGINEER'S PLANS FOR LOCATIONS OF SERVICES.
SPECIFICATIONS, CODES AND STANDARDS

THE FOLLOWING PUBLICATIONS FORM A PART OF THESE SPECIFICATIONS.

- APPLICABLE ORDINANCES OF LOCAL GOVERNING AGENCIES.
- INTERNATIONAL PLUMBING CODE
- NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
- CITY PLUMBING OFFICAL
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).
- NATIONAL ELECTRICAL CODE (NEC).

CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND PAY REQUIRED FEES FOR WORK INDICATED.

DRAWINGS

THE DRAWINGS INDICATE DIAGRAMATICALLY THE EXTENT OF THE WORK. MINOR VARIATIONS IN LOCATION OF EQUIPMENT SHALL BE MADE UPON WRITTEN APPROVAL OF THE ARCHITECT AT NO ADDITIONAL CHARGE.

FIXTURE CONNECTIONS

ROUGH-IN CONNECTIONS SHALL BE ONE SIZE LARGER THAN FIXTURE CONNECTIONS AND SHALL BE REDUCED AT FIXTURE SUPPLY.

PROVIDE TRAPS, SUPPLIES, STOPS, ETC., AND LEAVE SYSTEM READY FOR OPERATION.

COORDINATION

COOPERATE AND COORDINATE THE WORK OF THIS DIVISION WITH OTHER TRADES.

MATERIALS, FIXTURES AND EQUIPMENT

MATERIALS AND EQUIPMENT SHALL BE NEW AND FREE OF SCRATCHES OR ANY OTHER IMPERFECTIONS.

MATERIALS, FIXTURES AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S DETAILED INSTRUCTIONS.

MATERIAL AND EQUIPMENT SHALL BE PROPERLY STORED AND PROTECTED AT THE PROJECT SITE.

SHOP DRAWINGS

COMPLETE SCHEDULES OF MATERIALS, FIXTURES AND EQUIPMENT PROPOSED FOR INSALATION SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL.

SUBSTITUTION OF MATERIAL AND EQUIPMENT

THE NAME OF A CERTAIN BRAND, MAKE, MANUFACTURER OR DEFINITE SPECIFICATION IS TO DENOTE THE QUALITY STANDARD OF ARTICLE DESIRED. SUBSTITUTION OF ANY OTHER BRAND, MAKE, OR MANUFACTURER WHICH, IN THE OPINION OF THE ENGINEER IS RECOGNIZED THE EQUAL OF THAT SPECIFIED, MAY BE ACCEPTED.

RECORD DRAWINGS

UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL SUBMIT MARKED-UP DRAWINGS AND SKETCHES TO THE ARCHITECT/ENGINEER.

ELECTRICAL WORK

POWER WIRING AND POWER CONNECTIONS TO EQUIPMENT SHALL BE PROVIDED UNDER "ELECTRICAL" UNLESS OTHERWISE INDICATED ON THE ELECTRICAL DRAWINGS.

WHEN SUBSTITUTED EQUIPMENT REQUIRES ELECTRICAL MODIFICATIONS, THE COST OF THE ELECTRICAL MODIFICATIONS SHALL BE INCLUDED UNDER THE SECTION PROVIDING THE EQUIPMENT.

ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE ELECTRICAL SECTION OF THIS SPECIFICATION.

CUTTING AND PATCHING

CUTTING, DRILLING AND CHANNELING REQUIRED FOR THIS WORK SHALL BE DONE UNDER THIS SECTION BY SKILLED MECHANICS OF THE TRADE INVOLVED.

PIPING

PIPING SHALL BE CONCEALED THROUGHOUT THE BUILDING EXCEPT WHERE SPECIFICALLY NOTED ON THE DRAWINGS.

PLASTIC PIPING SHALL NOT BE INSTALLED IN RETURN AIR PLenums OR PENETRATE FIRE WALLS OR FIRE FLOORS AND SHALL BE USED ONLY ON ONE SIDE OF FIRE WALLS AND FIRE FLOORS.

HOT AND COLD WATER PIPING INDICATED TO BE RUN ABOVE FINISHED CEILINGS OR IN EXTERIOR WALLS SHALL BE INSTALLED ON THE CONDITIONED SPACE SIDE OF THE BUILDING INSULATION.

WATER PIPING

WATER PIPING BURIED SHALL BE TYPE "K" COPPER TUBING WITH SILVER SOLDERED JOINTS.

WATER PIPING ABOVE GRADE SHALL BE TYPE "L" COPPER TUBING WITH 95-5 TIN ANTIMONY SOLDERED JOINTS.

COPPER TUBING SHALL BE ASSEMBLED WITH WROUGHT COPPER SOLDER JOINT FITTINGS.

SOIL, WASTE, VENT AND DRAIN PIPING

DRAIN, WASTE, SOIL AND VENT PIPING SHALL BE NO-HUB CAST IRON, SCHEDULE 40 PVC OR ABS PIPE AND FITTINGS.

THIS CONTRACTOR SHALL FURNISH VENT COLLARS TO ROOFING CONTRACTOR FOR INSTALLATION.

CLEANOUTS

PROVIDE CLEANOUTS AS INDICATED ON THE DRAWINGS.

VALVES

PROVIDE VALVES AS INDICATED ON THE DRAWINGS.

CATALOG NUMBERS USED ARE NIBCO/SCOTT. VALVES WITH EQUAL CHARACTERISTICS BY JENKINS BROTHERS OR LUNKENHEIMER ARE ACCEPTABLE.

GATE VALVES THREE INCHES AND SMALLER – FIGURE S--113.

GLOBE VALVES TWO INCHES AND SMALLER – FIGURE S-213

CHECK VALVES TWO INCHES AND SMALLER – FIGURE S-413

BALANCING VALVES – DEZURIC SERIES 400

TEMPERATURE AND PRESSURE RELIEF VALVES – WATTS REGULATOR COMPANY.

PIPE HANGERS

HANGERS SHALL BE GRINNELL AUTOMATIC SPRINKLER OR APPROVED EQUAL OF THE FOLLOWING CATALOG NUMBERS.

INSULATED PIPING – INSUL-SPEED.

UNINSULATED PIPING – AUTO-GRIP.

HANGER SPACING SHALL BE PER PLUMBING CODE.

HANGERS SHALL BE SECURED TO THE STRUCTURE BY APPROVED MEANS. PROVIDE INTERMEDIATE SUPPORTS BETWEEN STRUCTURAL MEMBERS WHERE REQUIRED TO OBTAIN PROPER HANGER SPACING.

SLEEVES

SLEEVES SHALL BE INSTALLED WHERE PIPING PASSES THROUGH MASONRY CONSTRUCTION. SLEEVES SHALL BE METAL SIZED TO ACCOMMODATE PIPING AND SHALL BE SET IN PLACE AS CONSTRUCTION PROGRESSES. SET SLEEVES FLUSH WITH FINISHED SURFACES. FIRE WALL AND FIRE FLOOR PENETRATIONS SHALL BE SEALED WITH APPROVED FIRESTOP MATERIAL.

ACCESS DOORS

THIS CONTRACTOR SHALL FURNISH AND THE GENERAL CONTRACTOR SHALL INSTAL ACCESS DOORS TO SERVICE OR ADJUST VALVES, FLOW CONTROLS, ETC.; STYLE NECESSARY FOR SURFACE IN WHICH PLACED.

INSULATION

FIBERGLASS PIPE INSULATION SHALL BE ONE-HALF INCH THICK FOR PIPES UP TO TWO INCHES AND SHALL HAVE THERMAL CONDUCTIVITY OF NOT GREATER THAN 0.24 BTU/HR/SQ.FT/0 DEGREES FAHRENHEIT IN A MEAN TEMPERATURE OF 75 DEGREES FAHRENHEIT. INSULATION SHALL HAVE MANUFACTURER'S ALL PURPOSE JACKET. INSULATION SHALL BE JOHNS-MANVILLE OR OWENS-CORNING OR AT THE OPTION OF THE CONTRACTOR FLEXIBLE ELASTOMERIC CLOSED CELL INSULATION, MINIMUM THREE-EIGHTS INCH WALL THICKNESS FOR PIPING UP TO THREE INCH DIAMETER AS MANUFACTURED BY ARMASTRONG OR APPROVED EQUAL MAY BE USED IN LEO OF FIBERGLASS.

INSULATION AND ASSOCIATED MATERIALS SHALL HAVE A COMPOSITE FIRE AND SMOKE HAZARD RATING AS TESTED BY PROCEDURE ASTM E--84, NFPA 255 AND UL 723 NOT EXCEEDING:

- FLAME SPREAD – 25
- SMOKE DEVELOPED – 50

ACCESSORIES SUCH AS ADHESIVES, MASTICS, CEMENTS, TAPES AND MINERAL CLOTH FOR T-FITTINGS SHALL BE THE SAME COMPONENT RATINGS AS LISTED ABOVE.

INSULATION SHALL BE APPLIED ON CLEAN DRY SURFACES. INSULATION SHALL BE CONTINUOUS THROUGH WALL, CEILING OPENINGS AND SLEEVES.

APPLY INSULATION TO HOT, HOT RECIRCULATING, COLD WATER AND HORIZONTAL ROOF DRAINAGE PIPING UP TO AND INCLUDING ROOF DRAIN SLUMP. NO INSULATION WILL BE REQUIRED TO IMMEDIATE FIXTURE CONNECTIONS OR ON BURIED PIPING.

EQUIPMENT MARKING

CONTROLLERS, CONTROL PANELS, ETC., SHALL BE PROVIDED WITH PERMANENTLY ATTACHED (ADHESIVES NOT ACCEPTABLE) ENGRAVED BAKELITE DESIGNATION PLATES TO INDICATE EQUIPMENT SERVED.

THE CONTENTS AND FLOW DIRECTION SHALL BE IDENTIFIED ON EXPOSED PIPING.

STERILIZATION

DOMESTIC WATER SYSTEM SHALL BE THOROUGHLY STERILIZED WITH A SOLUTION CONTAINING NOT LESS THAN 50 PARTS PER MILLION OF AVAILABLE CHLORINE.

CHLORINATING MATERIALS SHALL BE LIQUID CHLORIDE GAS-WATER MIXTURE, CALCIUM HYPOCHLORITE, SODIUM HYPOCHLORITE OR CHLORINATED LIME AND WATER MIXTURE CONFORMING TO THE REQUIREMENTS OF THE AMERICAN WATER WORKS ASSOCIATION AND SHALL BE INTRODUCED INTO THE SYSTEM. THE STERILIZING SOLUTION SHALL REMAIN IN THE SYSTEM FOR A MINIMUM PERIOD OF 24 HOURS OR UNTIL PRONOUNCED BY THE LOCAL HEALTH AUTHORITY AS SAFE FOR HUMAN CONSUMPTION. DURING THE STERILIZATION PERIOD, VALVES AND OUTLETS SHALL BE OPENED AND CLOSED SEVERAL TIMES. AFTER STERILIZATION THE SOLUTION SHALL BE FLUSHED FROM THE SYSTEM WITH CLEAN WATER UNTIL RESIDUE CHLORINE CONTENT IS NOT GREATER THAN 0.2 PARTS PER MILLION UNLESS OTHERWISE DIRECTED.

TESTS

DRAIN, WASTE, SOIL AND VENT PIPING SHALL BE TESTED AS REQUIRED BY THE CODE ENFORCING AUTHORITY.

WATER PIPING SHALL BE TESTED UNDER HYDROSTATIC PRESSURE OF 100 PSIG APPLIED FOR TWO HOURS.

AIR PIPING SHALL BE SUBJECTED TO AIR PRESSURE OF NOT LESS THAN ONE AND ONE-HALF TIMES THE WORKING PRESSURE FOR ONE HOUR.

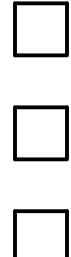
WARRANTY

THIS CONTRACTOR SHALL FURNISH A WRITTEN WARRANTY, COUNTERSIGNED AND GUARANTEED BY THE GENERAL CONTRACTOR AGAINST DEFECTS OF EQUIPMENT, MATERIAL OR WORKMANSHIP FOR A PERIOD OF ONE YEARS FROM THE DATE OF FINAL ACCEPTANCE. DEFECTS DEVELOPING DURING THAT PERIOD SHALL BE CORRECTED WITHOUT COST TO THE OWNER.



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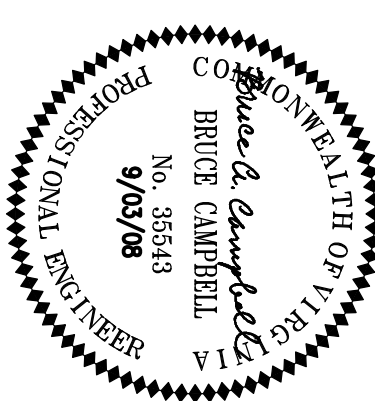
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SEPTEMBER 3, 2006



SPECIFICATIONS -
PLUMBING

REVISION DATE

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