

SPECIFICATIONS:

SECTION 15A: PLUMBING

GENERAL PROVISIONS

1. SCOPE: PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE ACCOMPANYING DRAWINGS TO PROVIDE A COMPLETE AND PROPERLY OPERATING PLUMBING SYSTEM FOR THE BUILDING.

COORDINATE THIS WORK WITH THE WORK OF THE OTHER TRADES ON THE PROJECT. ALL PLUMBING IS TO BE ROUGHED IN WHILE THE BUILDING IS BEING CONSTRUCTED AT SUCH TIMES AS NOT TO DELAY THE GENERAL CONTRACTOR ON THE BUILDING.

2. GENERAL REQUIREMENTS: COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS, CODES, RULES, AND ORDINANCES GOVERNING WORK ON THIS CHARACTER. PAY FOR AND OBTAIN NECESSARY CONSTRUCTION PERMITS AND CERTIFICATES OF INSPECTION.

A. DRAWINGS: THE LOCATION OF THE PIPING RUNS ARE APPROXIMATE AND THE CONTRACTOR MUST MAKE ANY NECESSARY CHANGES IN THE PIPING RUNS, ETC., AND AT NO ADDITIONAL COST TO THE OWNER. OUTLET LOCATIONS ARE CRITICAL AND MUST BE LOCATED EXACTLY AS SHOWN ON THE PLUMBING PLAN. COORDINATE THIS WORK WITH THE INSTALLERS OF EQUIPMENT FURNISHED AND INSTALLED BY OTHERS. REFER TO THE OTHER DRAWINGS FOR DETAILS OF THE BUILDING CONSTRUCTION AND THE OTHER MECHANICAL, ELECTRICAL, AND EQUIPMENT FEATURES.

B. COORDINATION AND WORKMANSHIP: SCHEDULE THIS WORK SO THAT IT WILL BE PROPERLY COORDINATED WITH ALL OTHER TRADES. WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE BEST PRACTICE FOR THE CLASS OF WORK INVOLVED. WORKMANSHIP SHALL ALLOW THE APPLIANCE TO OPERATE AS INTENDED AND BE INSTALLED TO BEST PROTECT THE PUBLIC AND OPERATORS FROM INJURY OR DAMAGE, AND TO PRESENT A NEAT, PLEASING, AND ORDERLY APPEARANCE.

MATERIALS AND PERFORMANCE

1. MATERIALS: ALL MATERIALS SHALL BE NEW AND OF THE QUALITY INDICATED BY THE SPECIFIED BRAND NAMES. SUBSTITUTIONS OF MATERIAL OF EQUAL QUALITY BY OTHER FIRST-LINE MANUFACTURERS MAY BE ACCEPTABLE PROVIDED A LIST OF SUCH SUBSTITUTIONS IS APPROVED IN WRITING BY MRP'S ARCHITECTURE AND ENGINEERING DEPARTMENT. A SUBSTITUTIONS LIST SHALL BE SUBMITTED IN TRIPPLICATE WITHIN FIVE (5) DAYS AFTER THE CONTRACT IS LET.

2. BACKFILLING: PERFORM ALL NECESSARY EXCAVATING AND BACKFILLING REQUIRED FOR THIS INSTALLATION. PREPARE A PROPER BED OF SAND OR GRAVEL OR EQUIVALENT IN ROCK SCREENINGS SO AS TO ELIMINATE SHIMMING AND VOID SPACE UNDER ANY OF THE UTILITY SERVICE PIPES. BENDING OF ANY HARD PIPE WILL NOT BE PERMITTED. WHERE A CHANGE IN DIRECTION IS NECESSARY ON PRESSURE PIPES, "COMPATIBLE" COUPLINGS OR EQUAL SHALL BE USED AND BENDS MAY NOT EXCEED 90 DEGREES. ALL EXCAVATION BELOW THE BOTTOM OF FOOTINGS SHALL BE BACKFILLED WITH 2000 PSI CONCRETE. OTHER BACKFILL SHALL CONSIST OF 2-3" OF SAND OR ROCK SCREENINGS AND EARTH TO A FINAL LEVEL EQUAL TO ITS ORIGINAL CONDITION. IN THE EVENT THE BACKFILL SHOULD SETTLE BEFORE THE FINAL TOP SURFACE IS APPLIED, APPLY ADDITIONAL BACKFILL TO SUSTAIN THE ORIGINAL LEVEL. CARE SHOULD BE TAKEN TO ADDITIONAL BACKFILL TO SUSTAIN THE ORIGINAL LEVEL. CARE SHOULD BE TAKEN TO MINIMIZE THE DUST LEVEL WHEN EXCAVATING AND BACKFILLING SO AS TO COMPLY WITH FEDERAL AND STATE EPA REGULATIONS RELATING TO THIS TYPE OF WORK (FUGITIVE DUST).

3. PIPING INSTALLATION: CLEANOUTS MUST BE INSTALLED ON MINIMUM DROP LINES EVEN THOUGH NOT SHOWN ON THE PLANS. USE REDUCING FITTINGS IN MAKING REDUCTIONS IN SIZE OF PIPE. BRAM ALL PIPE CUTTING, THEN TURN PIPES ON END AND LOCK OUT ALL LOOSE DIRT AND SCALE BEFORE INSTALLING. MAKE CHANGES IN HORIZONTAL DIRECTION OF SOIL AND WASTE PIPES WITH LONG RADIUS FITTINGS OR WITH COMBINATION 1/4" BRANCHES AND 1/8" BENDS. CONNECT SOIL VENTS AT BASE TO HORIZONTAL RUNS WITH 90 DEGREE ELBOWS AT 1/8" BENDS.

WATER SUPPLY PIPES TO FIXTURES AND WASTE PIPES FROM FIXTURES SHALL BE CENTERED IN THE PROPER PLACE TO THE CENTER LINE OF THE FIXTURE. NO OFFSETS UNLESS ALLOWED. ALL PIPES SHALL BE RUN MECHANICALLY STRAIGHT AND SQUARE WITH BUILDING LINES, EXCEPT FOR REQUIRED PITCH ON HORIZONTAL LINES, AND ALL CHANGES IN DIRECTION SHALL BE MADE WITH FITTINGS. WATER PIPING TO BE LOCATED IN WALLS, UNDER FLOOR SLAB, AND ABOVE SUSPENDED CEILING AS NOTED. WHERE WATER LINES ARE ROUTED UNDER THE FLOOR SLAB, NO MECHANICAL JOINTS SHALL BE MADE UNDER THE SLAB EXCEPT AS LISTED BELOW. WATER PIPING SHALL BE INSTALLED NOT TO EXERT VERTICAL NOR HORIZONTAL STRESSES ON THE SEATING OF UNIONS. UNIONS SHALL BE COPPER TYPE NIBCO #133 OR EQUAL.

NO WAX, PUTTY, OR VARNISH WILL BE PERMITTED. CRACKED FITTINGS SHALL BE REMOVED AND REPLACED WITH NEW FITTINGS. MAKE THREADED JOINTS IN BRASS PIPE AND FITTING WITH PIPE THREADING TO THE SHOULDER OF THE FITTINGS. NO SLIP JOINTS OR COUPLING JOINTS IN BRASS PIPE WILL BE PERMITTED, EXCEPT ON THE FIXTURE SIDE OF THE TRAP.

4. NATURAL GAS PIPING: FOR ABOVEGROUND INSTALLATIONS, ALL FITTINGS TO BE JOINED WITH TEFLON TAPE SEAL OR OTHER SUITABLE SEAL, AND MADE IN CONFORMANCE WITH THE BEST PRACTICES OF AGA AND NFPA 54. UNIONS SHALL BE CAST BLACK IRON AND INSTALLED IN A MANNER SUCH THAT NO STRESS WILL BE PLACED ON THE MALE-FEMALE SEALING SURFACES. PROPER ALIGNMENT WILL BE MADE AT TIME OF INSTALLATION. ALL JOINTS AND CONNECTIONS SHALL BE THOROUGHLY CLEANED OF OIL, THREAD CUTTINGS AND RESIDUALS TO ACCEPT ENAMEL PAINT. ROUGH OR SHARP EXPOSED THREAD SURFACES SHALL BE FILED SMOOTH. TESTING SHALL BE AS OUTLINED UNDER SECTION 15A, PARAGRAPH II, TESTS.

A. MATERIALS: BLACK CARBON STEEL, SCH. 40 WITH MALLEABLE IRON THREADED FITTINGS.
B. PAINTING: PAINT ALL GAS PIPING EXPOSED TO WEATHER WITH ONE COAT OF PRIMER, AND TWO COATS OF RUST-PROOF PAINT. COLOR SHALL MATCH BUILDING COLORS. COORDINATE WITH G.C.

5. WATER PIPE:
WATER METER & BACKFLOW REQUIREMENTS SHALL BE IN ACCORDANCE W/ LOCAL CODES & UTILITY COMPANIES. REFER TO CIVIL DRAWINGS FOR METER, SERVICE LINES, AND CONTAINMENT BACKFLOW PREVENTER.

JOINTS SHALL BE CLEANED AND DEBURRED AS RECOMMENDED BY THE MANUFACTURER AND FEDERAL, STATE AND LOCAL CODES AND SOLDERED AS LISTED BELOW. FLUX SHALL BE NON-CORROSIVE. ALL PIPE JOINT MATERIALS SHALL BE LEAD-FREE.

ABOVE GRADE - WHERE FITTINGS ARE SOLDERED BOTH FITTINGS AND TUBES SHALL BE CLEANED AS DESCRIBED ABOVE. UNDER NO CIRCUMSTANCES SHALL DISSIMILAR METALS COME INTO DIRECT CONTACT WITH COPPER TUBING, E.G. GALVANIZED STRAPPING, HANGERS, OR CLAMPS TO SECURE THE TUBING.

BELOW GRADE, OR FLOOR SLAB ON EARTH OR STONE FILL - HIGH TEMPERATURE, SOLDER, 1200 DEG. F OR GREATER MELTING POINT.

NOTE: WATER PIPE TO BE PROPERLY SECURED AND ALIGNED SO AS NOT TO EXERT VERTICAL OR HORIZONTAL STRESSES ON THE SEATING OF THE MATING (MALE AND FEMALE) SURFACES OF THE UNIONS.

A. MATERIALS - UNDERGROUND: TYPE "K" COPPER TUBE, SOFT TEMPER

B. MATERIALS - ABOVEGROUND: TYPE "L" COPPER TUBE, HARD DRAWN

C. INSULATION: INSULATION FOR HOT AND COLD WATER PIPING SHALL BE 1/2" THICK ARMAFLEX UL LABELED OR 1" FIBERGLASS 2B/50 WITH ASU/SSL FOIL/VINYL JACKET OR EQUAL. INSULATE ALL PIPING AND FITTINGS.

6. WASTE PIPING: INSTALL HORIZONTAL DRAIN AND WASTE PIPES WITH 1/4" FT. SLOPE.

A. MATERIALS (SANITARY/GREASE WASTE & VENT) PVC SCH. 40, SOLID CORE (ASTM 2667) WITH 50% 40 DRAINAGE PATTERN PVC FITTINGS AND SOLVENT CEMENTED JOINTS WITH TINTED PRIMER.

EXCEPTION: SEE PLAN NOTES AND RISER DIAGRAM FOR W/G GREASE WASTE LINE BETWEEN COOKING LINE FLOOR DRAIN AND GREASE WASTE MAIN. THIS LINE SHALL BE INSULATED TO SERVICE WEIGHT, COATED & LINED, CAST IRON SOIL PIPE WITH MECHANICAL JOINT & SHIP-FIT ON JOINTS.

B. MATERIALS (ABOVEGROUND INDIRECT DRAIN AND CONDENSATE DRAIN LINES): TYPE "M" COPPER TUBE, HARD DRAWN, WITH COPPER OR BRASS DRAINAGE PATTERN FITTINGS AND SOLDERED JOINTS.

INSULATION: INSULATE ALL ABOVEGROUND INDIRECT OR CONDENSATE DRAIN LINES TO PROTECT FROM FREEZING. INSULATION SHALL BE 1/2" THICK ARMAFLEX, OR EQUAL.

D. HEAT TRACING: HEAT TRACE ALL CONDENSATE DRAIN LINES INSIDE COOLERS AND FREEZERS AT 5 WATTS/LINEAR FOOT (MINIMUM).

7. PIPE SLEEVES/ESCUTCHEONS: PROVIDE CHROME-PLATED ESCUTCHEONS ON ALL PIPES PASSING THROUGH WALLS, FLOORS, OR CEILING OF FINISHED ROOMS. ESCUTCHEONS TO BE BEATON & CADWELL, #9 40, 6A OR EQUIVALENT WITH SET-SCREWS. PROVIDE ESCUTCHEONS ON ALL WASTE LINES FROM PLUMBING FIXTURES, WHETHER THROUGH WALLS, FLOORS, AND WHETHER CONCEALED BEHIND COUNTERS OR EXPOSED. PIPE SLEEVES SHALL BE PROVIDED WHEN PIPES PENETRATE FOUNDATION AND SHALL BE 1" LARGER THAN PIPE, SEAL SLEEVE WITH CAULKING.

8. PLUMBING FIXTURES: FURNISH AND INSTALL PLUMBING FIXTURES AS SHOWN ON DRAWINGS WITH ALL ACCESSORIES AND TRIM AS LISTED. ALL FIXTURES SHALL BE PROTECTED THROUGH THE COURSE OF THE CONSTRUCTION. ANY FIXTURE DAMAGED SHALL BE REPLACED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

9. CONNECTION TO OTHER FIXTURES: CONNECT BUILDING SERVICE PIPING, INCLUDING BUT NOT LIMITED TO WATER, DRAIN, AND GAS PIPES TO FOOD SERVICE EQUIPMENT AS INDICATED IN EQUIPMENT SPECIFICATIONS. PROVIDE BACKFLOW PROTECTION ON ICE MACHINES AND BEVERAGE EQUIPMENT SUPPLY CONNECTIONS.

10. TESTS:

A. DRAINAGE AND VENT PIPING - DRAINAGE AND VENT PIPING SHALL BE TESTED BEFORE THE PLUMBING FIXTURES ARE INSTALLED BY CAPPING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER AND ALLOWING IT TO STAND THIS FILLED NOT LESS THAN ONE (1) HOUR. INSPECT WATER LEVEL TO DETERMINE IF PIPING IS TIGHT.

B. WATER PIPING - THE WATER SUPPLY PIPING LINES SHALL BE TESTED BEFORE THE PLUMBING FIXTURES ARE CONNECTED BY FILLING THE ENTIRE SYSTEM WITH POTABLE WATER AND APPLYING HYDROSTATIC PRESSURE OF 100 PSI AND ALLOWING TO STAND FOR NOT LESS THAN FOUR (4) HOURS AT THIS PRESSURE TO PROVE PLUMBING INTEGRITY.

C. GAS PIPING - IN LIEU OF LOCAL REQUIREMENTS, GAS PIPING SHALL BE FILLED WITH COMPRESSED AIR TO 150 PSI AND HELD FOR A PERIOD OF FOUR (4) HOURS. EACH JOINT SHALL BE CHECKED BY LIQUID SOAP OR SPECIAL LIQUID CHEMICAL FOR LEAKS. NOTE: REMOVE ALL GAS VALVES AND PROTECT FROM DAMAGE BEFORE TESTING SYSTEM.

11. DISINFECTION OF POTABLE WATER SYSTEM: UPON COMPLETION OF INSTALLATION DISINFECT THE WATER SYSTEM BY FILLING IT WITH SOLUTION CONTAINING 50 PARTS PER MILLION OF CHLORINE AND ALLOW IT TO STAND FOR NOT LESS THAN SIX (6) HOURS BEFORE FLUSHING THOROUGHLY AND RETURNING TO SERVICE. FURNISH CLEAN WATER SAMPLES TO THE LOCAL AUTHORITY FOR TESTING AFTER THE LINES HAVE BEEN DISINFECTED. THIS PROCEDURE TO BE IN ACCORDANCE WITH STATE PLUMBING CODE.

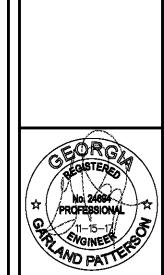
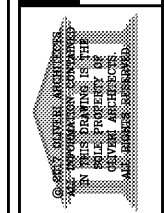
12. CLEANUP: CLEAN ALL PLUMBING FIXTURES AND EQUIPMENT THOROUGHLY BEFORE FINAL INSPECTION, LEAVING ALL READY FOR USE.

13. EXTENDED WARRANTY: WARRANTY IN WRITING ANY EQUIPMENT OR MATERIALS USED IN THE INSTALLATION HAVING AN EXTENDED WARRANTY AS OFFERED BY THE MANUFACTURER. PROVIDE NEW OR REBUILT ASSEMBLIES TO THE SITE FOR ANY SUCH EQUIPMENT OR MATERIALS WHICH FAIL DURING THIS PERIOD, AND INSTALL AT NO ADDITIONAL COST TO THE OWNER.

14. OWNER'S MANUAL: PROVIDE THE OWNER, AT THE COMPLETION OF THIS CONTRACT, WITH AN "OWNER'S MANUAL" SO LABELED. A SECOND LIKE MANUAL SHALL BE PREPARED AND FORWARDED TO THE MRP'S ARCHITECTURE AND ENGINEERING DEPARTMENT FOR "JOB RECORDS". THE MANUAL SHALL CONSIST OF THREE-RING LOOSE-LEAF BINDER CONTAINING ALL PRINTED MATTER SUCH AS: GASKET TREE CARDS, CLEANING INSTRUCTIONS, NOTICES TO OWNER, OPERATING MANUALS, AND MAINTENANCE INSTRUCTIONS THAT MAY BE CONTAINED IN THE SHIPPING CARTONS OR HOUSING OF EQUIPMENT AND ARCHITECTURAL SPECIALTIES.

REVISIONS	BY

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