

GENERAL PLUMBING NOTES

1. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL PLUMBING LAYOUTS AND PIPE ROUTING FOR BIDDING PURPOSES ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PREPARE DETAILED SHOP DRAWINGS AND TO CONFIRM SPACE ALLOCATIONS.
2. CONTRACTOR SHALL COORDINATE INSTALLATION FOR ALL EQUIPMENT PROVIDED BY OTHERS. USE LATEST EDITION OF VENDOR DRAWINGS FOR MODEL NUMBERS AND REQUIREMENTS FOR A COMPLETE OPERABLE SYSTEM. CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR A COMPLETE OPERABLE SYSTEM.
3. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL BUILDING DIMENSIONS, DETAILS, ELEVATIONS AND EXACT LOCATIONS OF FIXTURES.
4. CONTRACTOR SHALL VERIFY ALL FLOW LINES PRIOR TO ROUGHING IN.
5. ALL WORK SHALL CONFORM TO APPLICABLE PLUMBING CODE, LOCAL BUILDING CODES AND STATE HEALTH REGULATIONS HAVING JURISDICTION.
6. PLUMBING CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, ELECTRICAL, SPRINKLER AND MECHANICAL DRAWINGS AND COORDINATE HIS WORK WITH ALL OTHER TRADES FOR PIPE ROUTING AND EQUIPMENT PLACEMENT. AVOID INTERFERENCE WITH ARCHITECTURAL FEATURES, BEAMS, FOOTINGS, WINDOWS, ETC. NOTIFY ARCHITECT OF ANY CONFLICTS.
7. CONTRACTOR MAY RE-LAYOUT TO HIS ADVANTAGE CODE EQUIVALENT PLUMBING SO AS TO REDUCE INSTALLATION COSTS, OR TO RE-ROUTE TO AVOID CONFLICTS WITH OTHER TRADES AFTER FIRST HAVING RECEIVED THE APPROVAL OF THE ARCHITECT / ENGINEER.
8. PLUMBING CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR ALL VOLTAGES, ELECTRICAL LOADS, ETC. OF ELECTRICALLY OPERATED EQUIPMENT PRIOR TO ORDERING. ALL EQUIPMENT SHALL BE U.L. AND N.E.M.A. LISTED.
9. PLUMBING CONTRACTOR SHALL FURNISH ACCESS PANELS TO BE INSTALLED BY GENERAL CONTRACTOR AS REQUIRED FOR PLUMBING INSTALLATIONS.
10. ALL VALVES AND SHOKSTOPS SHALL BE ACCESSIBLE.
11. SLEEVES SHALL BE INSTALLED WHERE PIPING PASSES THROUGH STRUCTURE.
12. ALL OPENINGS THROUGH RATED WALLS SHALL BE SEALED WITH AN APPROVED FIREPROOFING TO MAINTAIN THE INTEGRITY OF THE WALL.
13. PROVIDE MANUFACTURED COMPATIBLE PIPE HANGERS, RODS AND INSERTS, OR CLAMPS FOR THE PROPER SUPPORT OF ALL PIPING. NO BAND IRON, TIE WIRE, METAL STRAPPING OR WIRE STRAPPING WILL BE PERMITTED.
14. PROVIDE SUITABLE BACKING AND SUPPORT FOR ALL PLUMBING FIXTURES.
15. OFFSET ALL V.T.R.'S AS REQUIRED WHETHER OR NOT SHOWN ON DRAWINGS.
16. ALL V.T.R.'S SHALL BE A MINIMUM OF 10 FT. AND/OR AS REQUIRED BY CODE AWAY FROM A/C INTAKES WHETHER OR NOT SHOWN ON PLANS.
17. ALL PIPING SHALL BE LABELED.
18. UPON COMPLETION OF THE WORK COVERED BY THIS CONTRACT, FURNISH THE OWNER WITH ONE (1) SET OF REPRODUCIBLE RECORD DOCUMENTS WHICH SHOW ALL PLUMBING INSTALLED UNDER THIS CONTRACT.
19. ALL PIPING SUBJECT TO FREEZING SHALL BE WRAPPED WITH HEAT TAPE EQUAL TO RAYCHEM "XL TRACE" AND SHALL BE INSULATED.
20. ALL WATER PIPING SHALL BE SLOPED TO LOW POINTS AND PROVIDED WITH DRAINS SO THAT ENTIRE SYSTEM MAY BE DRAINED. ALL DRAINS SHALL BE ACCESSIBLE.
21. PROVIDE ALL V.T.R.'S WITH 4 LB. HIGH BOOT LEAD FLASHING.
22. ALL WATER PIPING INSTALLED BELOW SLAB SHALL BE TYPE "K" COPPER. 2" OR SMALLER SHALL BE LOOPED (NO JOINTS). LARGER THAN 2" SHALL HAVE SILFOS BRAZED JOINTS.
23. DO NOT RUN ANY WATER PIPING ABOVE ELECTRICAL PANELS (COORDINATE WITH ELECTRICAL CONTRACTOR).
24. CONTRACTOR SHALL NOT INSTALL ANY DEAD ENDS IN WATER PIPING. WATER HAMMER ARRESTORS AND VALVED WATER CONNECTIONS FOR FUTURE SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO TEE CONNECTION. WATER HAMMER ARRESTORS SHALL BE INSTALLED ABOVE CEILING FOR ACCESS PURPOSES.
25. CONSTRUCTION SHALL NOT COMMENCE UNTIL FINAL APPROVAL FROM AUTHORITY HAVING JURISDICTION AND REVISED PLANS REFLECT ANY AND ALL COMMENTS.

PLUMBING SPECIFICATIONS:

PART 1:

GENERAL

1. MATERIALS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND REQUIREMENTS.
2. OBTAIN AND PAY FOR ALL REQUIRED PERMITS, INSPECTION FEES, TAPPING FEES, CONNECTION CHARGES, AND UTILITY COMPANY SERVICE CHARGES.
3. INSTALLATION SHALL BE DONE IN A NEAT AND PROFESSIONAL MANNER. PART

PART 2:

PRODUCTS

1. ALL PIPING AND FITTINGS FOR THE DOMESTIC WATER SYSTEM SHALL BE CERTIFIED BY THE UNDERWRITERS LABORATORY TO MEET THE ANSI NSF 61 SECTION 9 STANDARD.
2. ALL DOMESTIC WATER PIPING INSIDE THE BUILDING ABOVE SLAB SHALL BE TYPE "L" HARD COPPER.
3. DOMESTIC WATER PIPING BELOW SLAB AND OUTSIDE SHALL BE TYPE "K" SOFT SEAMLESS. NO JOINTS SHALL BE ALLOWED BELOW SLAB.
4. COPPER PIPE FITTINGS SHALL BE SWEATED JOINT, WROUGHT COPPER, SWEEP PATTERN FITTINGS, SOLDERED USING 95-5 LEAD-FREE SOLDER.
5. ALL SANITARY WASTE AND VENT, RAINWATER LEADERS AND STORMWATER PIPING INSIDE AND UNDERSLAB TO 5'-0" OUTSIDE THE BUILDING SHALL BE SCHEDULE 40 PVC, DWV OR SERVICE WEIGHT CAST IRON WITH DRAINAGE FITTINGS. OUTSIDE PVC PIPING 5'-0" FROM BUILDING SHALL BE SDR-35 OR D-3034.
6. JOINT FOR PVC PIPING SHALL BE SOLVENT WELD TYPE INSIDE AND UNDERSLAB TO 5'-0" OUTSIDE THE BUILDING AND NEOPRENE PUSH-ON TYPE JOINTS OUTSIDE 5'-0" FROM THE BUILDING. JOINTS FOR CAST IRON PIPE SHALL BE NO-HUB TYPE ABOVE, SLAB ON GRADE AS MANUFACTURED BY CLAMP-ALL OR ANACO HUSKY. CAST IRON SOIL PIPING INSTITUTE NO-HUB, DOUBLE BAND CONNECTORS SHALL NOT BE ALLOWED. JOINTS FOR CAST IRON PIPE BELOW SLAB OR GRADE SHALL BE NEOPRENE PUSH-ON TYPE.
7. HANGERS: PIPE SIZES 1/2" TO 1-1/2": ADJUSTABLE WROUGHT STEEL LOOP (COPPER, ELECTROPLATE IF APPLICABLE).
8. HANGERS: PIPE SIZES 2" AND UP: ADJUSTABLE WROUGHT STEEL CLEVIS (COPPER, ELECTROPLATE IF APPLICABLE).
9. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
10. PROVIDE STEEL HANGER RODS, THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUS THREADED AS REQUIRED.
11. INSULATE DOMESTIC COLD WATER, HOT WATER AND HOT WATER RECIRCULATION PIPING WITH 1" THICK FIBERGLASS INSULATION WITH MOLDED FIBERGLASS PIPE COVERING AND CONTINUOUS VAPOR AS MANUFACTURED BY MANVILLE CORPORATION, OWENS-CORNING, KNAUF, OR CERTAINTED. INSULATE DOMESTIC HOT AND COLD WATER PIPING IN WALLS AND CHASES BEHIND FIXTURES WITH 1/2" THICK FIBERGLASS INSULATION.
12. INSULATE ALL DOMESTIC WATER PIPING BELOW SLAB AND TO 5'-0" OUTSIDE THE BUILDING WITH 1/2" ARMAFLEX.
13. HORIZONTAL RAINWATER LEADERS SHALL BE CONTINUOUSLY INSULATED WITH 1/2" FIBERGLASS INSULATION WITH CONTINUOUS VAPOR BARRIER.
14. PIPE INSULATION AND COVERINGS SHALL HAVE A RATING OF NO GREATER THAN 25 FLAME SPREAD, NO HIGHER THAN 50 SMOKE DEVELOPED, AND NO MORE THAN 50 FUEL CONTRIBUTED.
15. ALL NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH SCREWED OR WELDED FITTINGS AND GASKET TYPE UNIONS AND FLANGES.
16. CONCRETE ANCHORS (WEDGE ANCHORS) SHALL BE ZINC-PLATED CARBON STEEL WEDGE ANCHORS AVAILABLE IN ANCHOR/DRILL SIZES 1/4" TO 3/4" AND LENGTHS OF 1-3/4" THROUGH 12", MEETING U.S. GOVERNMENT G.S.A. SPECIFICATIONS FF-S-325 GROUP II, TYPE 4, CLASS I, FOR FASTENING PLUMBING SYSTEMS TO CONCRETE AND PIPE HANGING. ITW RAMSET/RED HEAD BRAND OR APPROVED EQUAL.
17. ACCEPTABLE FIXTURE MANUFACTURERS
 - A. NO OTHER MANUFACTURER SUBSTITUTIONS SHALL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER FIVE (5) DAYS BEFORE BIDDING.
 - B. CONTRACTOR SHALL PROVIDE FAUCETS AND FITTINGS THAT ARE CERTIFIED BY UNDERWRITERS LABORATORY TO MEET THE ANSI NSF 61, SECTION 9 STANDARD.
 - C. FIXTURES SHALL BE MOUNTED RIGID TO WALLS AND FLOOR.
 - D. PROVIDE A DROPPED EARED "L" MOUNTED ON TREATED WOOD BACKING FOR RIGID SUPPORT OF ALL SHOWER HEADS.
 - E. FIXTURES: ELJER, AMERICAN STANDARD OR KOHLER.
 - F. SHOWER STALLS: AQUA BATH, AQUAGLASS, OR KOHLER.
 - G. FITTINGS: SYMMONS, CHICAGO FAUCET CO.
 - H. FLUSH VALVES: SLOAN VALVE COMPANY, ZURN, OR DELANEY (IF MODIFIED TO BE NON-HOLD OPEN)
 - I. STAINLESS STEEL SINKS: JUST OR ELKAY.
 - J. SERVICE BASINS: STERN WILLIAMS, FIAT, OR CREATIVE INDUSTRIES.
 - K. WATER COOLER: SUNROC, HALSEY TAYLOR, OR OASIS.
 - L. WATER HEATERS: LOCHINVAR, STATE, RUUD, OR A. O. SMITH.
 - M. FIRE PROTECTION EQUIPMENT: POTTER-ROEMER, ELKHURT BRASS OR CROCKER STANDARD.
 - N. TOILET SEATS: CHURCH, OLSONITE, BENEKE OR BEMIS.
 - O. DRAIN, HYDRANTS, CARRIERS AND SHOCK ABSORBERS: J. R. SMITH, ZURN, WADE, OR JOSAM.
 - P. WATER HEATER PANS: SHAMROCK OR TREND MFG. OF AMERICA.
 - Q. REDUCED PRESSURE BACKFLOW PREVENTION: FEBCO, HERSEY, WATTS, OR WILKINS.
 - R. ELEVATOR SUMP PUMPS: HYDRA-MATIC, MYERS, GOULDS, OR SWABY.
 - S. HOT WATER RECIRCULATION PUMPS: BELL & GOSSETT, ARMSTRONG OR GRUNDFOS.

PART 3:

EXECUTION

1. EXCAVATION, BACKFILLING AND TRENCH WORK SHALL BE DONE IN ACCORDANCE WITH O.S.H.A. AND EXISTING SAFETY STANDARDS.
 - A. PROVIDE SHORING AND CLEANING NECESSARY TO KEEP TRENCHES IN WORKING CONDITIONS, INCLUDING PUMPING OUT WATER.
 - B. IN MOSTLY ROCK MATERIAL, TRENCHES SHALL BE EXCAVATED TO AT LEAST 6" BELOW THE ELEVATION OF THE BOTTOM OF THE PIPES. AFTER EXCAVATION, TRENCH SHALL THEN BE FILLED TO THE PROPER ELEVATION WITH CRUSHED LIMESTONE. GRAVEL SHALL BE SCOOPED OUT UNDER PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.
 - C. IN MOSTLY EARTH OR SAND MATERIAL, THE LAST 6" OF EXCAVATION SHALL BE DONE BY HAND. TRENCH BOTTOM SHALL BE SCOOPED OUT AT PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.
 - D. BACKFILLING AND TAMPING SHALL BE CAREFULLY DONE SIMULTANEOUSLY ALONG BOTH SIDES OF THE PIPE USING ROCK FREE EARTH, CRUSHED STONE OR SAND UNTIL THE PIPE IS COVERED TO A DEPTH OF AT LEAST 12". THE REST OF THE FILL UP TO THE TOPSOIL LAYER MAY BE GRAVEL OR ROCK FREE EARTH. ACCEPTABLE SOIL MATERIALS FOR BACKFILL AND FILL SHALL BE FREE OF CLAY, ROCK OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, DEBRIS: WASTE, FROZEN MATERIALS AND OTHER DELETERIOUS MATTER HAVING A ELASTICITY INDEX LESS THAN 30. BACKFILL SHALL BE DONE IN LAYERS OF NOT MORE THAN 8" AND EACH LAYER SHALL BE COMPACTED. THE LAST 12" OF BACKFILL SHALL BE ROCK FREE TOPSOIL.
 - E. SURFACE SHALL BE RESTORED TO ITS ORIGINAL CONDITION.
2. EXPOSED HOT AND COLD WATER TRIM IN FINISHED AREAS SHALL BE CHROME FINISHED.
3. ALL HORIZONTAL AND VERTICAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODE RECOMMENDATIONS. SUPPORTS SHALL SECURELY HOLD PIPING, PREVENT VIBRATION, COMPENSATE FOR ALL STATIC AND OPERATIONAL CONDITIONS OF THE VARIOUS SYSTEMS AND SHALL NOT BE SUBJECT TO ELECTROLYTIC ACTION. THIS SHALL BE ACCOMPLISHED BY USING THE SUMMER SYSTEM, THE POSIFIX, STAKFIX, PIPEFIX OR CHANNEL.
4. SHOCK ABSORBERS SHALL BE INSTALLED ON ALL HOT AND COLD WATER BRANCH LINES CONTAINING SINGLE LEVER FAUCETS, FLUSH VALVES OR QUICK CLOSING VALVES SUCH AS DISHWASHERS, CLOTHES WASHERS, AND THEIR EQUIPMENT, BETWEEN THE LAST TWO FIXTURES. THIS SHALL BE ACCOMPLISHED BY USING THE SUMMER SYSTEM, THE POSIFIX, STAKFIX, PIPEFIX OR CHANNEL.
5. SANITARY WASTE AND VENT, RAINWATER LEADERS, AND STORMWATER PIPING SHALL BE UNIFORMLY GRADED TO ELEVATIONS SHOWN. IF NO ELEVATIONS ARE GIVEN, SEWERS SHALL BE PITCHED NOT LESS THAN 1/4" PER FOOT FOR ALL PIPING 3" IN DIAMETER AND SMALLER AND 1/8" PER FOOT FOR PIPE LARGER THAN 3" IN DIAMETER.
6. SUPPORT HORIZONTAL PIPING AS FOLLOWS:

MAXIMUM NOMINAL PIPE SIZE (IN.)	MINIMUM DISTANCE BETWEEN SUPPORT (FT.)	HANGER ROD DIAMETER (IN.)
1/2	6	3/8
3/4 TO 1-1/2	6	3/8
2 TO 2-1/2	10	3/8
3 TO 4	12	1/2 TO 5/8
6	14	3/4
8	14	7/8
7. HANGERS FOR PIPING GREATER THAN 1" SHALL PASS OVER THE INSULATION. PROVIDE SADDLES FOR INSULATED PIPING.
8. HANGERS SHALL BE ATTACHED TO STRUCTURAL STEEL WORK BY CLAMPING OR OTHER APPROVED METHODS, EXCEPT THAT STRUCTURAL WORK SHALL NOT BE DRILLED AND PUNCHED.
9. INSULATION SHALL BE APPLIED WITH JOINTS TIGHTLY BUTTED. OPEN CRACKS, VOIDS AND DEPRESSIONS SHALL BE FILLED WITH HYDRAULIC SETTING CEMENT AND LAPPING MATCHING THE FINISH SHALL BE PASTED NEATLY OVER JOINTS.
10. FITTINGS AND VALVES SHALL BE INSULATED WITH THE SAME TYPE INSULATION AS THE PIPING OR WITH HYDRAULIC SETTING CEMENT, BUILT UP TO THE SAME THICKNESS AS LINES. COVER SHALL BE SAME AS ADJACENT PIPING OR PVC PREFORMED JACKET.
11. PROVIDE AND INSTALL A CUT-OFF VALVE, UNION AND FULL SIZE DIRT LEG AT CONNECTION TO EACH GAS-FIRED PIECE OF EQUIPMENT.
12. SEAL ALL PENETRATIONS OF RATED PARTITIONS WITH U.L. RATED FIRE BARRIER MATERIAL.
13. AIR ADMITTANCE VALVES SHALL NOT BE ALLOWED ON SANITARY WASTE AND VENT SYSTEMS.
14. THE SYSTEM TESTS DESCRIBED HEREIN ARE MINIMUM REQUIREMENTS. HOWEVER, ADDITIONAL TESTS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION SHALL ALSO BE PERFORMED.
15. DOMESTIC WATER PIPING SHALL BE TESTED AT 125 PSI. IN ADDITION, PIPING SHALL BE TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.
16. THE DOMESTIC WATER SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY BY OPENING OUTLETS AND FLOWING WATER UNTIL RUNS CLEAR. AFTER PIPE CLEANING IS COMPLETED, THE STRAINERS SHALL BE REMOVED, CLEANED, AND REPLACED. THEN THE ENTIRE DOMESTIC WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION.
17. THE SANITARY WASTE AND STORMWATER SYSTEMS SHALL BE FLUSHED OUT PROGRESSIVELY WITH FLOWING WATER UNTIL IT RUNS CLEAR.
18. THE ENTIRE SANITARY WASTE AND STORMWATER SYSTEMS SHALL BE TESTED AGAINST A HEAD PRESSURE OF 10' TSH, FOR A MINIMUM OF 8 HOURS WITHOUT LEAKAGE.
19. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A LETTER STATING THAT THE ABOVE MENTIONED TESTING, CLEANING AND DISINFECTING WAS COMPLETED, AND ALL LEAKS (IF ANY) WERE REPAIRED AND SYSTEM CLEANED AND RETESTED. THE LETTER SHALL BE SIGNED AS WITNESSED BY THE LOCAL AUTHORITY HAVING JURISDICTION, THE GENERAL SUPERINTENDENT OR THE DESIGN ENGINEER.



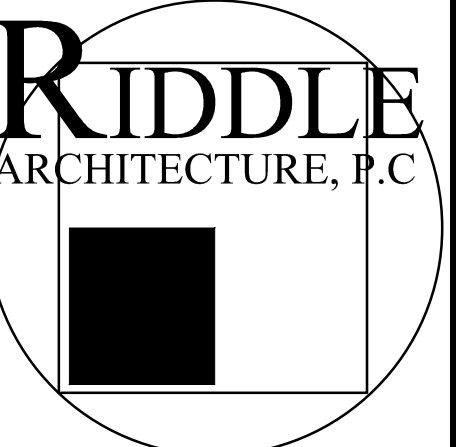
REVISIONS

#	DATE

A NEW FACILITIES SHOP FOR:

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TITLE: PLUMBING SPECIFICATIONS

JOB #: 2501
DATE: 09.11.26

SHEET #

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