

## MECHANICAL SPECIFICATIONS

1. GENERAL PROVISIONS:
- A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE APPLICABLE AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
- E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERINGS SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
- F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCHES SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WITH ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
2. OPERATION AND MAINTENANCE MANUALS:
- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, Piping DIAGRAMS, CATALOGS, CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.
- C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A BINDING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER, CONTRACTORS, ETC.
3. MANUFACTURERS:
- A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND NOT BE CONSIDERED AS LIMITING COMPETITION. MATERIALS, FINISHES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.
4. MOTORS:
- A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.
5. TESTING, BALANCING, AND CLEANING:
- A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
- B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
- C. FIRE PROTECTION PIPING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA.
- D. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
- E. NATURAL GAS PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 90 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
- F. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED INDEPENDENT BALANCING PERSONNEL, WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE CERTIFIED BY THE ASSOCIATED AIR BALANCE BOARD (AABB) OR NATIONAL BALANCING BUREAU (NBB).
- 1) BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION OF PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
- 2) WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCING ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS, ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.
- G. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER, THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO DISBURTHERNED AIR FROM THE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED, IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION, SAMPLES OF WATER IN THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.
6. PLUMBING:
- A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
- B. ALL EXPOSED WASTE PIPE SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
- C. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.
- D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
- E. CLEANOUTS:
- 1) VINYL TILE FLOOR, JR SMITH #4420, OR EQUAL.
- 2) QUARRY TILE FLOOR, JR SMITH #4220, OR EQUAL.
- 3) CARPETED FLOOR, JR SMITH #4202-Y, OR EQUAL.
- 4) FINISHED FLOOR, JR SMITH #4020, OR EQUAL.
- 5) WALL, JR SMITH #4412, OR EQUAL, 24" ABOVE THE FLOOR.
- 6) GRADE, JR SMITH #4256, OR EQUAL, WITH HEAVY DUTY CAST IRON BODY AND COVER.
- F. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTIONS TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREENED, SOLID, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS.
7. WATER HEATERS:
- 1) EVERY WATER HEATER SHALL HAVE AN APPROVED MEANS INSTALLED ON THE COLD WATER SUPPLY LINE ABOVE THE EQUIPMENT TO PREVENT SIPHONS OF A STORAGE WATER HEATER OR TANK.
- 2) BOTTOM FED WATER HEATERS AND TANKS CONNECT TO WATER HEATERS SHALL HAVE A VACUUM RELIEF VALVE INSTALLED. ANSI J21.22.
- 3) STORAGE HEATERS OPERATING ABOVE ATMOSPHERIC PRESSURE SHALL HAVE AN APPROVED PRESSURE RELIEF VALVE AND/OR TEMPERATURE RELIEF VALVE.
8. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES:
- 1) INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
- 2) INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
- ALL SEWER PIPING LOCATED EXTERIOR TO THE BUILDINGS SHALL BE INSTALLED WITH THE FOLLOWING SLOPES:
- 1) INSTALL 4" AND SMALLER PIPE AT A MINIMUM OF 2% SLOPE.
- 2) INSTALL 6" AND LARGER PIPE AT A MINIMUM OF 1% SLOPE.
9. PIPING:
- A. DOMESTIC COLD, AND HOT WATER (ABOVEGROUND).
- 1) TYPE L HARD DRAWN COPPER TUBING, ASTM B-88.
- a) WROUGHT COPPER, ASTM B75 ALLOY C12200, ANSI B16.22, MSS SP-104.
- b) MECHANICAL PRESS COPPER FITTINGS FOR USE IN PLUMBING OR MECHANICAL APPLICATIONS, ASME B16.22, ASME B16.51, OR ASME B16.10. MECHANICAL PRESS COPPER FITTINGS SHALL CONFORM TO ASME B16.51 OR ASME B16.51.
- 2) PEK, HIGH-DENSITY CROSS-LINKED POLYETHYLENE TUBING SHALL BE MANUFACTURED TO THE REQUIREMENTS OF ASTM F816 AND MEET THE STANDARD GRADE HYDROSTATIC PRESSURE RATINGS FROM PLASTIC PIPE IN ACCORDANCE WITH TR-4103.
- (MUST BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS FOR PLENUM USE)
- a) PEK-A AND PEK-B MEETING ANSI/NFPA 61 AND ANSI/NFPA 25 STANDARDS FOR POTABLE WATER SAFETY AND LEAD-FREE STATUS MUST BE MARKED WITH "PWS", "NSF-61-6", OR OTHER NSF-APPROVED MARKING. ANSI F2023 FOR USE WITH CHLORINATED WATER.
- (MUST BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS FOR PLENUM USE)
- b) PEK MECHANICAL CRIMP FITTINGS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PIPE SIZES GIVEN ON THE DRAWINGS ARE NOMINAL COPPER PIPE SIZE. INCREASE PEK PIPING SIZE TO EQUAL OR EXCEED COPPER PIPE INSIDE DIAMETER FOR SUPPLY MAINS. (MUST BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS FOR PLENUM USE)
- 3) VALVES:
- a) TO BE INSTALLED ON THE FIXTURE SUPPLY TO EACH PLUMBING FIXTURE.
- b) TO BE INSTALLED ON THE WATER SUPPLY SIDE TO EACH APPLIANCE OR MECHANICAL EQUIPMENT.
- c) TYPES:
1. GATE VALVE, JOMAR T-5-3016 OR EQUAL, LEAD-FREE NSF 61, ANSI B1.20.1.
2. GLOBE VALVE, JOMAR T-5-3016 OR EQUAL, LEAD-FREE NSF 61, ANSI B1.20.1.
3. BALL VALVE, JOMAR T-5-3016 OR EQUAL, COMPACT LEAD FREE BRASS BALL VALVE, UL642, CSA 5971-12 #151-12, FM, CALIFORNIA CODE AB1983, 1/2" INCH PRESSURE RATING.
4. BALL VALVE, JOMAR T-100E, OR EQUAL, UL642, FM, CSA NSF 61-5, MSS SP-110.
- B. DOMESTIC WATER SERVICE, 1"-5"
- 1) TYPE K SOFT DRAWN COPPER TUBING, ASTM B-88.
- a) Cast Copper Alloy Fittings for Flared Copper Tube, ASME/ANSI B16.26.
- 2) HDPE, PIGMENTED BLUE THROUGHOUT, CTS SIZES 1-1/2" ANVIA C401 4710 DR11 PC230 IPS SIZES 2"-3", ANVIA C401 4710 DR11 PC230.
- MATERIAL AND INSTALLATION MUST CONFORM TO WATER DEPARTMENT REQUIREMENTS.
- C. WATER (FIRE) SERVICE, 3" OR LARGER.
- 1) DUCTILE IRON PIPE & FITTINGS, ANVIA C151, CLASS 50, CEMENT LINING, SEALCOATED, ANVIA C151, HURST BLOCKS IN ACCORDANCE WITH NFPA 24.
- 2) HDPE IPS SIZES PIGMENTED BLUE THROUGHOUT, 3" ANVIA C401 4710 DR11 PC230 4" AND LARGER, ANVIA C406 3406/4710 DR13.5 PC160.
- a) STIFFENERS MUST BE USED IN THE ENDS OF THE HDPE, APPROVED TRACE WIRE MUST BE USED.
- b) 12 ANS COPPERHEAD REINFORCED TRACE WIRE (BLUE IN COLOR).
- c) MATERIAL AND INSTALLATION MUST CONFORM TO WATER DEPARTMENT REQUIREMENTS.
- 3) POLYVINYL CHLORIDE (PVC) PIPE, ANVIA C400, CLASS 300, WITH BELL END AND ELASTOMERIC GASKET, WITH PLAN END FOR CAST-IRON OR DUCTILE-IRON FITTINGS, OR PVC ELASTOMERIC GASKET FITTINGS.
- a) PVC COUPLINGS AND FITTINGS, ANVIA C400, WITH ASTM F 471 ELASTOMERIC SEAL GASKETS, ASTM F 471, ELASTOMERIC SEAL.
- b) DUCTILE-IRON AND CAST-IRON FITTINGS, ANVIA C110, DUCTILE-IRON OR CAST-IRON, 250-PSI PRESSURE RATING, OR ANVIA C150, DUCTILE-IRON COMPACT FITTINGS, 350-PSI PRESSURE RATING, OR DIMENSION TO MATCH PIPE OUTSIDE DIAMETER, ANVIA C104, CEMENT MORTAR LINING, GASKETS PER ANVIA C111, RUBBER.
- 4) THRUST BLOCKS IN ACCORDANCE WITH NFPA 24.
- D. LEAD CONTENT OF WATER SUPPLY PIPE AND FITTINGS:
- 1) PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, UTILIZED IN THE WATER SUPPLY SYSTEM SHALL NOT HAVE MORE THAN 0% LEAD CONTENT.
- 2) PIPE, PIPE FITTINGS, JOINTS, VALVES, FAUCETS, AND FIXTURE FITTINGS UTILIZED TO SUPPLY WATER FOR DRINKING OR COOKING SHALL COMPLY WITH NSF 372 AND SHALL HAVE A WEIGHTED AVERAGE LEAD CONTENT OF 0.25% OR LESS.

## MECHANICAL SPECIFICATIONS (CONTINUED)

- E. SANITARY SEWER, AND VENTS (UNDERGROUND, INTERIOR TO THE BUILDING).
- 1) ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE, ASTM D 2681, SCHEDULE 40; CELLULOSE-ACETATE ABS PIPE, ASTM F 620, SCHEDULE 40; ABS SOCKET FITTINGS, ASTM D 2681, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS, SOLVENT CEMENT, ASTM D 2235.
- 2) PVC PIPE AND FITTINGS, PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE, ASTM D 2685, DRAIN, WASTE, AND VENT, PVC SOCKET FITTINGS, ASTM D 2685, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER, ASTM F 656, SOLVENT CEMENT, ASTM D 2664.
- 3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS, HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 880 AND GOST STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO GOST STANDARD 310 AND BE CERTIFIED BY NSF8 INTERNATIONAL.
- 4) HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS, HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 74.
- F. SANITARY SEWER, AND VENTS (ABOVE GROUND, INTERIOR TO THE BUILDING).
- 1) ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE, ASTM D 2681, SCHEDULE 40; CELLULOSE-ACETATE ABS PIPE, ASTM F 620, SCHEDULE 40; ABS SOCKET FITTINGS, ASTM D 2681, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS, SOLVENT CEMENT, ASTM D 2235.
- 2) PVC PIPE AND FITTINGS, PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE, ASTM D 2685, DRAIN, WASTE, AND VENT, PVC SOCKET FITTINGS, ASTM D 2685, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER, ASTM F 656, SOLVENT CEMENT, ASTM D 2664.
- 3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS, HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 880 AND GOST STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO GOST STANDARD 310 AND BE CERTIFIED BY NSF8 INTERNATIONAL.
- 4) HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS, HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 74.
- G. SANITARY SEWER, AND VENTS (UNDERGROUND, EXTERIOR TO THE BUILDING).
- 1) ABS PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL ABS PIPE, ASTM D 2681, SCHEDULE 40; CELLULOSE-ACETATE ABS PIPE, ASTM F 620, SCHEDULE 40; ABS SOCKET FITTINGS, ASTM D 2681, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS, SOLVENT CEMENT, ASTM D 2235.
- 2) PVC PIPE AND FITTINGS, PVC PIPE AND FITTINGS SHALL COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS. INCLUDE MARKING WITH "NSF-DWV" FOR PLASTIC DRAIN, WASTE, AND VENT PIPING AND "NSF-SEWER" FOR PLASTIC SEWER PIPING. SOLID-WALL PVC PIPE, ASTM D 2685, DRAIN, WASTE, AND VENT, PVC SOCKET FITTINGS, ASTM D 2685, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER, ASTM F 656, SOLVENT CEMENT, ASTM D 2664.
- 3) HUBLESS CAST IRON SOIL PIPE AND FITTINGS, HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 880 AND GOST STANDARD 301. HUBLESS COUPLINGS SHALL CONFORM TO GOST STANDARD 310 AND BE CERTIFIED BY NSF8 INTERNATIONAL.
- 4) HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS, HUB AND SPIGOT CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 74.
- H. CONDENSATE DRAINS 1" INDIRECT WASTE (ABOVEGROUND).
- 1) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINED (CONDENSATE).
- 2) DWV, WROUGHT COPPER, ANSI B-16.24 (WATER HEATER TYP).
- I. REFRIGERATION:
- 1) ASTM B 280, TYPE ACR, HARD-DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS COPPER TUBING.
- 2) WROUGHT COPPER, ANSI B16.22, STREAMLINED PATTERN, FITTINGS, BRAZED JOINTS, AMS A 5.0, CLASSIFICATION BAG-1 (SILVER).
- 3) SUBSTITUTES FOR COPPER TUBING, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING.
- 4) SIZE AND INSTALLATION OF PIPE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- J. NATURAL GAS:
- a) BLACK STEEL PIPE, SCHEDULE 40, ASTM A53.
- b) PIPE 3" AND SMALLER, 150 LB. MALLEABLE IRON, THREADED FITTINGS.
- c) PIPE 4" AND SMALLER, VESPA MESA PRESSURE S FOR WATER AND GAS, CSA L64, T59A/ASME B31 FOR USE WITH ASTM A548 SCHEDULE 40 BLACK IRON PIPE.
- d) PIPE 2-1/2" AND LARGER, WELDED.
- e) FLUG VALVE, ROCKWELL NORDSTROM TYPE NO. 142 OR 143.
- f) BALL VALVE, JOMAR T-100E, APPROVALS-UL642, FM, CSA NSF 61-5, MSS SP-110.
- 2) DWV, WROUGHT COPPER, ANSI B-16.24 (WATER HEATER TYP).
- a) ALL BLACK STEEL GAS PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE PRIMED AND PAINTED TO EITHER MATCH ADJACENT EXTERIOR WARE LOCATED ON OR NEAR EXTERIOR WALL AND PAINTED SAME COLOR WHEN LOCATED ON THE WALL.
- b) POLYETHYLENE PLASTIC PIPE, TUBING, AND FITTINGS RATED FOR UNDERGROUND USE WITH NATURAL GAS PIPING SHALL CONFORM TO 2005 EDITION OF ASTM D 2513. PIPE SHALL BE MARKED "GAS" AND "ASTM D 2513".
- c) PLASTIC PIPE, TUBING, TRACER WIRE AND ANODELESS RISERS SHALL COMPLY WITH THE FOLLOWINGS:
- FACTORY-ASSEMBLED ANODELESS RISERS SHALL BE RECOMMENDED BY THE MANUFACTURER FOR THE GAS USED AND SHALL BE LEAK TESTED BY THE CONTRACTOR TO THE REQUIREMENTS OF THE MANUFACTURER'S RECOMMENDATIONS AND FIELD-ASSEMBLED ANODELESS RISERS INCORPORATING SERVICE HEAD ADAPTERS SHALL BE RECOMMENDED BY THE MANUFACTURER FOR THE GAS USED, AND SHALL BE DESIGNED DEPARTMENT OF TRANSPORTATION, CODE OF FEDERAL REGULATIONS, TITLE 49, PART 192.203(b) THE MANUFACTURER SHALL PROVIDE THE USER WITH QUALIFIED INSTALLATION INSTRUCTIONS AS PRESCRIBED BY THE U.S. DEPARTMENT OF TRANSPORTATION, CODE OF FEDERAL REGULATIONS, TITLE 49, PART 192.203(b).
- K. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FIBERGLASS, OR MASON, OR ELGEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-64.
- L. SLEEVES:
- 1) PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE TANK MOVEMENT.
- 2) INTERIOR PARTITIONS: 16 GAUGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
- 3) ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
- 4) PROTECTION AGAINST CONTACT: METALLIC PIPING, EXCEPT FOR CAST IRON, DUCTILE IRON AND GALVANIZED STEEL SHALL NOT BE PLACED IN DIRECT CONTACT WITH STEEL FRAMING MEMBERS, CONCRETE, OR GIDER WALLS AND FLOORS OR OTHER MASONRY. METALLIC PIPING SHALL NOT BE PLACED IN DIRECT CONTACT WITH CORROSIIVE SOIL. SHIELDINGS USED TO PREVENT DIRECT CONTACT SHALL HAVE A THICKNESS OF GREATER THAN 0.020, AND THE SHEATHING SHALL BE MADE OF PLASTIC, ANY PIPE THAT PASSES THROUGH A FOUNDATION WALL OR FOOTING SHALL BE PROVIDED WITH A RELIEVING ARCH, OR A PIPE SLEEVE SHALL BE BUILT INTO THE FOUNDATION WALL. THE SLEEVE SHALL BE TWO TIMES GREATER THAN THE PIPE PASSING THOUGH THE WALL OR FOOTING.
- 5) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.
- M. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.
- N. WATER HEATERS:
- A. COMMERCIAL, LIGHT-DUTY, STORAGE, ELECTRIC, DOMESTIC-WATER HEATERS:
1. STANDARD, UL 174.
2. STORAGE-TANK CONSTRUCTION: STEEL, VERTICAL ARRANGEMENT.
- a. PRESSURE RATINGS: 150 PSIG.
- b. INTERIOR FINISH: COMPLY WITH NSF 61 AND NSF 312 BARRIER MATERIALS FOR POTABLE-WATER TANK.
- c. LININGS, INCLUDING INTERIOR FINISH OR HIGH-IMPACT COMPOSITE MATERIAL.
3. FACTORY-INSTALLED, STORAGE-TANK APPURTENANCES:
- a. ANODE ROD, REPLACEABLE MAGNESIUM.
- b. DIP TUBE, REQUIRED UNLESS COLD-WATER INLET IS NEAR BOTTOM OF TANK.
- c. DRAIN VALVE: CORROSION-RESISTANT METAL WITH HOSE-END CONNECTION.
- d. INSULATION: COMPLY WITH ASHRAE 90.1.
- e. JACKET STEEL WITH ENAMELED FINISH OR HIGH-IMPACT COMPOSITE MATERIAL.
- f. HEAT-TRAP FITTINGS: INLET TYPE IN COLD-WATER INLET AND OUTLET TYPE IN HOT-WATER OUTLET.
- g. HEATING ELEMENTS: ELECTRIC, SORENN IMMERSSION TYPE.
- h. TEMPERATURE CONTROL: ADJUSTABLE THERMOSTAT.
- i. SAFETY CONTROL: HIGH-TEMPERATURE LIMIT CUTOFF DEVICE OR SYSTEM.
- j. RELIEF VALVE: ASME RATED AND STAMPED FOR COMBINATION TEMPERATURE-AND-PRESSURE RELIEF VALVES, INCLUDING AT LEAST ONE INLET AND ONE OUTLET. THE RELIEF VALVE SHALL BE SET TO THE SETTING LESS THAN WORKING-PRESSURE RATING OF DOMESTIC-WATER HEATER. SELECT RELIEF VALVE WITH SENSING ELEMENT THAT EXTENDS INTO STORAGE TANK.
- B. DOMESTIC-WATER EXPANSION TANKS:
1. DESCRIPTION: STEEL, PRESSURE-RATED TANK CONSTRUCTED WITH WELDED JOINTS AND FACTORY-INSTALLED BUTYL-RUBBER DIAPHRAGM. INCLUDE AIR PRECHARGE TO MINIMUM SYSTEM-OPERATING PRESSURE AT TANK.
2. CONSTRUCTION:
- a. TAPPINGS: FACTORY-FABRICATED STEEL, WELDED TO TANK BEFORE TESTING AND LABELING. INCLUDE ASME B1.20.1 PIPE THREAD.
- b. INTERIOR FINISH: COMPLY WITH NSF 61 AND NSF 312 BARRIER MATERIALS FOR POTABLE-WATER TANK.
- c. AIR-CHARGING VALVE: FACTORY INSTALLED.
3. CAPACITY AND CHARACTERISTICS:
- a. WORKING-PRESSURE RATING: 150 PSIG.
4. FIRE PROTECTION (NET PIPE SPRINKLER SYSTEM):
- A. PROVIDE A "NET-PIPE" SPRINKLER SYSTEM WITH AUTOMATIC SPRINKLERS AND CONNECTED TO A SUFFICIENT WATER SUPPLY.
- B. THE SYSTEM DESIGN SHALL BE BASED ON LIGHT HAZARD CLASSIFICATION, NFPA 13.
- C. THE NET PIPE SPRINKLER SYSTEM SHALL CONFORM TO ALL REQUIREMENTS OF THE OWNER'S INSURANCE CARRIER AND LOCAL AUTHORITIES. PROVIDE SYSTEM DRAWINGS WITH A PROFESSIONAL ENGINEER'S STAMP ON THE DRAWINGS FOR REVIEW BY THE OWNER'S INSURANCE CARRIER AND LOCAL AUTHORITIES PRIOR TO INSTALLATION OF PIPING.
- D. THE NET PIPE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED, BASED ON A WATER FLOW DATA OBTAINED FROM THE LOCAL WATER OR FIRE DEPARTMENT.
- E. PIPE AND TUBING MATERIALS:
- 1) STEEL PIPE, SMALLER THAN 2":
- a) ASTM A 53/A 53M STANDARD, SCHEDULE 40, SEAMLESS, BLACK STEEL PIPE.
- b) ASTM A 199/A 199M OR ASTM A 785/A 785M, OR ASME B36.10M, WALL THICKNESS GREATER THAN OR EQUAL TO SCHEDULE 30 AND LESS THAN SCHEDULE 10, BLACK STEEL PIPE.
- c) ASTM A 199 OR ASTM A 785/A 785M, THREADED, WALL THICKNESS LESS THAN SCHEDULE 30 AND GREATER THAN SCHEDULE 10, BLACK STEEL PIPE.
- d) ASTM A 199 OR ASTM A 785/A 785M SCHEDULE 10, BLACK STEEL PIPE.
- 2) STEEL PIPE, 2" AND LARGER, ASTM A 199, SCHEDULE 10, SEAMLESS, BLACK STEEL.

## MECHANICAL SPECIFICATIONS (CONTINUED)

- F. FITTINGS:
- 1) CAST-IRON THREADED FITTINGS: ANSI B16.4, CLASS 125, STANDARD PATTERN, FOR THREADED JOINTS. THREADS SHALL CONFORM TO ANSI B1.20.1.
- 2) MALLEABLE-IRON THREADED FITTINGS: ANSI B16.3, CLASS 150, STANDARD PATTERN, FOR THREADED JOINTS. THREADS SHALL CONFORM TO ANSI B1.20.1.
- 3) STEEL FITTINGS: ASTM A 234, SEAMLESS OR WELDED, FOR WELDED JOINTS.
- 4) GROOVED MECHANICAL FITTINGS: ASTM A 89, GRADE 68-45-12 DUCTILE IRON; ASTM A 14 GRADE 350-12 HASTELLOY C-276; ASTM A 182, GRADE 316, TYPE 316, E, OR 316 GRADE 316 DUCTILE IRON; WITH GROOVES OR SHOULDERS DESIGNED TO ACCEPT GROOVED END COUPLINGS, IN ACCORDANCE WITH ITS LISTING.
5. HANGERS AND SUPPORTS:
- 1) HANGERS, ANCHORS, AND SUPPORTS FOR FIRE PROTECTION PIPING AND EQUIPMENT SHALL BE IN ACCORDANCE WITH NFPA 13. HANGERS, ANCHORS, SUPPORTS, AND COMPONENTS SHALL BE LISTED BY UL AND SHOWN ON THE AGENCIES REQUIRED BY THE LOCAL FIRE AUTHORITIES AND THE OWNER'S INSURANCE CARRIER.
- 2) AUTOMATIC SPRINKLERS:
- 1) SPRINKLER HEADS: TYPE AS INDICATED OR REQUIRED BY THE APPLICATION. UNLESS OTHERWISE REQUIRED, PROVIDE QUICK RESPONSE HEADS WITH NOMINAL 1/2 INCH DISCHARGE ORIFICE, FOR "LIGHT HAZARD" TEMPERATURE RANGE.
- 2) SPRINKLER HEADS SHALL BE OF THE FOLLOWING CONSTRUCTION, CONFIGURATIONS, AND FINISH FOR THE AREAS INDICATED:
- a) FINISHED AREAS: SEMI-RECESSED PENDANT, CHROME PLATED, CHROME ESCUTCHEON GUIN.
- b) UNFINISHED AREAS: UPRIGHT, ROUGH BRASS.
- 3) FURNISH THREE EXTRA SPRINKLER HEADS OF EACH TYPE INCLUDED IN THE PROJECT, AND PROVIDE A SPRINKLER HEAD CABINET AND ANY SPECIAL WRENCHES TO REMOVE OR INSTALL SPRINKLER HEADS.
- 4) FURNISH QUICKSTOP TALON SPRINKLER TOOL, QUICKSTOP TALON SHALL STOP 1/4" AND 3/4" HEADS, THE TOOL SHALL FEATURE A FUSIBLE LINK TO RELEASE THE TOOL IF HEATED AND SHALL BE 100% WATER TIGHT UP TO 350 PSI.
6. ALARM DEVICES:
- 1) WATER FLOW INDICATORS: VANE TYPE WATER-FLOW DETECTOR, RATED TO 250 PSIG, DESIGNED FOR HORIZONTAL OR VERTICAL INSTALLATION, HAVE 2-SPOT CIRCUIT SWITCHES TO PROVIDE ISOLATED ALARM AND AUXILIARY CONTACTS, 1 AMPERE 125 VOLTS AC AND 0.25 AMPERE 24 VOLTS DC, COMPLETE WITH ADJUSTABLE RETARD DELAY TO PREVENT FALSE SIGNALS, AND TAMPER-PROOF COVER WHICH SENDS A SIGNAL WHEN COVER IS REMOVED.
- 2) SUPERVISORY SWITCHES: SPST, NORMALLY CLOSED CONTACTS, DESIGNED TO SIGNAL VALVE IS IN OTHER THAN FULL OPEN POSITION.
10. INSULATION AND DUCT LININGS:
- A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, AND 0 NO FLAMES, 2500N PREBURNED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- B. PIPE INSULATION - ABOVE GRADE:
- 1) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.21 BTU PER IN-H/54R-FIT OR LESS.
- 2) FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASU JACKET, FACTORY APPLIED PRESSURE SEALING AND ANCHORING LAF, 1/2" NO STUDIES, 2500N PREBURNED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 3) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSUL OR PRESUL WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONGS AP ARMAFLEX OR ARMAFLEX 2002.
- 4) FOR NON CIRCULATING SYSTEMS, THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND THE HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
- 5) FOR CIRCULATING SYSTEMS, ALL HOT WATER PIPING IN THE CIRCULATION LOOP MUST BE INSULATED AS SPECIFIED BELOW.
- 6) INSULATION SCHEDULE:
- a) DOMESTIC COLD WATER 1/2"
- b) DOMESTIC HOT WATER 1"
- c) CONDENSATE DRAINS INSIDE BUILDING 1/2"
- d) REFRIGERANT SUCTION 3/4" FOR PIPING UP TO 1-1/4", 4 1/2" FOR PIPING 1-1/2" AND LARGER
- C. EQUIPMENT INSULATION:
- 1) FLEXIBLE FIBERGLASS GLASS FIBER INSULATION, ASTM C 593, TYPE 1, CLASS B-4, SEMI-RIGID BOARD, WITH FACTORY LAMINATED KRAFT ALUMINUM FOIL (ALL SERVICE JACKET), VAPOR BARRIER, OPENS/CORNS PIPE AND TANK INSULATION.
- D. DUCTWORK: ACoustical INSULATION:
- 1) DUCT LINING: 2 LB/CF, THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.
- a) DUCT LINING SCHEDULE:
- (1) RECTANGULAR SUPPLY DUCT 1/2": THROUGHOUT THE FIRST 10 FEET OF DUCT.
- (2) RETURN AIR DUCT 1/2": THROUGHOUT THE FIRST 10 FEET OF DUCT.
- (3) SOUND BOOT 1"
- E. DUCTWORK: THERMAL INSULATION:
- 1) DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FLASH, THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 2) DUCT COVERING SCHEDULE: MINIMUM R-6
- a) (1) ROUND SUPPLY DUCT 2"
- (2) RECTANGULAR SUPPLY DUCT 2"
- (3) RETURN AIR DUCT 2"
- (4) VANE-UP AIR DUCT 2"
- (5) OUTDOOR AIR 2"
- 2) DUCT LINING: 2 LB/CF, THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.
- a) DUCT LINING SCHEDULE:
- (1) RECTANGULAR SUPPLY DUCT 1/2"
- (2) ROUND SUPPLY DUCT 1/2"
- (3) RETURN AIR DUCT 1"
- 3) EXPOSED SPIRAL DUCT:
- a) DOUBLE WALL SPIRAL - DOUBLE WALL INSULATED SPIRAL DUCT AND FITTINGS WITH PERFORATED 1/4INER WITH A K VALUE OF 0.21.
- b) SPIRAL DUCT LINING: JOHNS MANVILLE SPIRACOUSSTIC PLUS ROUND DUCT LINER SYSTEM, VSD, SD, AND LD SIZES, 5/8" AND UP, MEETS ASTM E 84 25-50 FLAME AND SMOKE, ASHRAE 62, MEAT37-50-M, SMACNA APPLICATION STANDARDS, NAMA FIBERGLASS DUCT LINER STANDARD, 1" THICKNESS, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.
- 4) DUCT COVERING (EXTERIOR SUPPLY AND RETURN)
- a) EXTERIOR INSULATION: JOHNS MANVILLE XSPCT ISOFOAM AFF BOARD, 1-1/2" THICK R-4.3, UNIFORM POLYESTER-GLASS FIBER INSULATION WITH POLYURETHANE FOAM CORE BONDING.
- b) EXTERIOR INSULATION: JOHNS MANVILLE XSPCT ISOFOAM AFF BOARD, 1-1/2" THICK R-4.3, UNIFORM POLYESTER-GLASS FIBER INSULATION WITH POLYURETHANE FOAM CORE BONDING.
- c) EXTERIOR INSULATION: JOHNS MANVILLE XSPCT ISOFOAM AFF BOARD, 1-1/2" THICK R-4.3, UNIFORM POLYESTER-GLASS FIBER INSULATION WITH POLYURETHANE FOAM CORE BONDING.
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1/26/2023



a new development for  
**Town Centre Lot 1**  
520 NE Town Centre Drive  
Lee's Summit, Missouri 64064

date 05.19.22  
drawn by MA/FS  
checked by EK/DS  
revisions  
12.22.22 REV 1  
01.26.23 REV 2

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**P1.0**

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permit

project number  
20231

PLUMBING GENERAL NOTES:

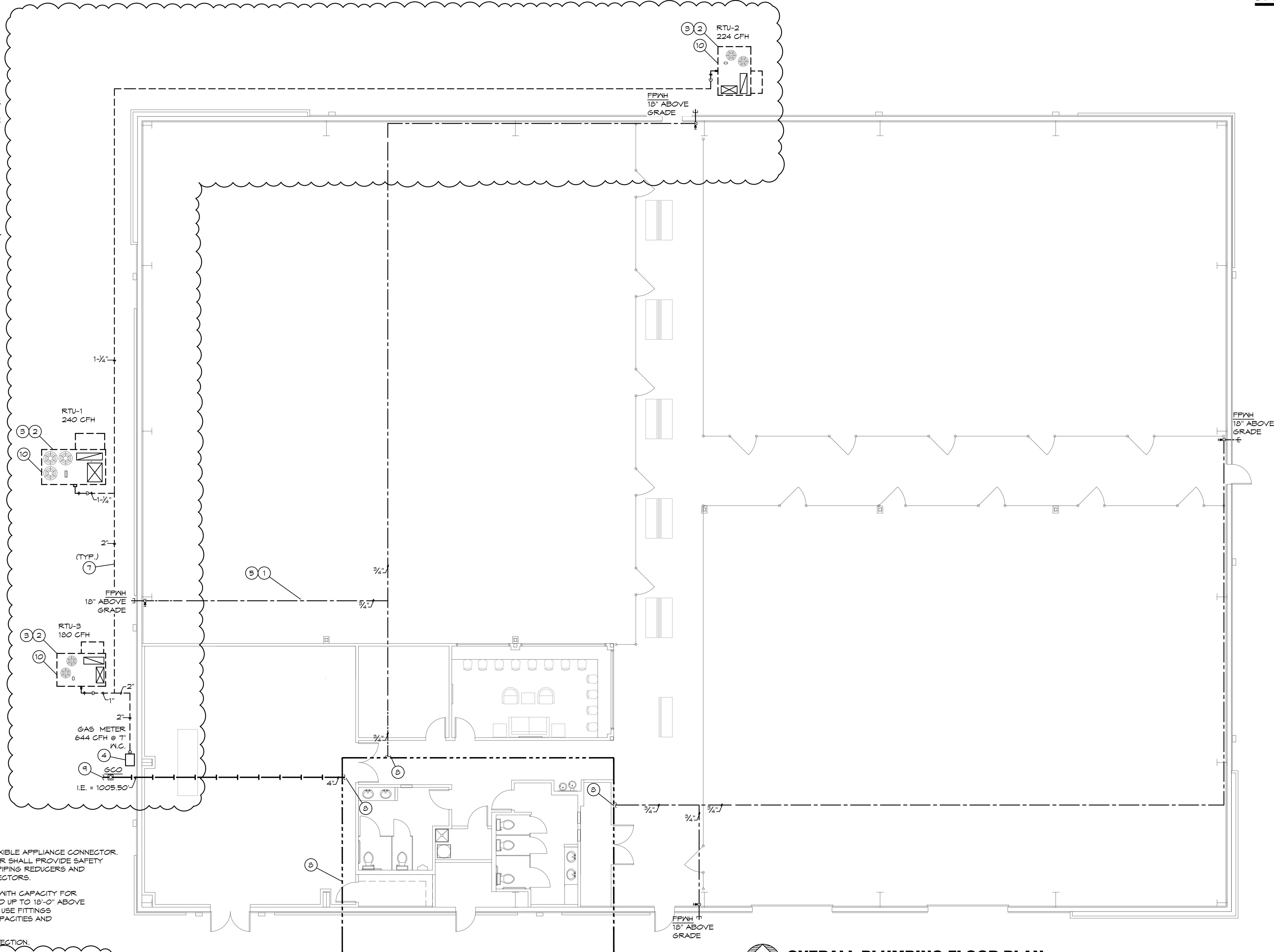
1. INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
2. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES.
4. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
5. PROVIDE 1" SCHEDULE 40 PVC CONDENSATE DRAIN PIPE FOR ROOFTOP UNIT LAID ROUTED TO GRASSY AREA. PROVIDE WATER TRAP AND CLEAN OUTS AS DETAILED. SECURE PVC PIPE TO DRAIN WITH NYLON STRAP.
6. NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
7. CONTRACTOR TO TEST WATER PRESSURE ON SITE AND PROVIDE PRESSURE REDUCING VALVE ON WATER SERVICE IF PRESSURE IS OVER 80 PSI.
8. ALL WATER SERVICE INSTALLATIONS INCLUDING BACKFLOW DEVICES ARE SUBJECT TO FIELD VERIFICATION AND APPROVAL BY THE WATER DEPARTMENT INSPECTOR.

PLUMBING SYMBOLS

	SOIL AND WASTE PIPING BELOW FLOOR/GRADE
	SOIL AND WASTE PIPING ABOVE FLOOR/GRADE
	SANITARY VENT PIPING ABOVE GRADE
	SANITARY VENT PIPING BELOW GRADE
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	GAS PIPING
	EQUIPMENT DRAIN LINE
	FIRE LINE
	PIPING TURNING DOWN
	PIPING TURNING UP
	TEE TOP CONNECTION
	UNION
	BACKFLOW PREVENTER
	FLOOR DRAIN
	FLOOR CLEAN OUT
	WALL CLEAN OUT
	GRADE CLEAN OUT
	VALVE
	BALANCING VALVE
	SOLENOID VALVE
	PRESSURE REGULATOR
	CHECK VALVE
	CONNECT TO EXISTING
	I.E. INVERT ELEVATION OF PIPE
	MATCH MARKS ON PLUMBING RISER DIAGRAM

PLUMBING PLAN NOTES:

1. INSTALL WALL HYDRANT 18" ABOVE GRADE / FINISHED FLOOR.
2. CONNECT GAS TO EQUIPMENT AS REQUIRED AND AS DETAILED.
3. ALL APPLIANCE CONNECTIONS SHALL BE MADE WITH UL LISTED FLEXIBLE APPLIANCE CONNECTOR. FLEX CONNECTORS SHALL BE PROVIDED BY TENANT. CONTRACTOR SHALL PROVIDE SAFETY LOCK AND CHAIN AT ALL GAS APPLIANCES ON WHEELS. PROVIDE PIPING REDUCERS AND INCREASERS AS REQUIRED TO MATE HARD PIPING WITH FLEX CONNECTORS.
4. COORDINATE WITH GAS COMPANY FOR INSTALLATION OF A METER WITH CAPACITY FOR 694 CFH @ 7" W.C. ROUTE PIPING UP INSIDE THE EXTERIOR WALL AND UP TO 18"-0" ABOVE FINISHED FLOOR. ALL CONCEALED JOINTS ARE TO BE WELDED OR USE FITTINGS APPROVED FOR CONCEALED USE. VERIFY ALL EQUIPMENT GAS CAPACITIES AND OPERATING PRESSURES PRIOR TO INSTALLATION OF ANY PIPING.
5. ROUTE PIPING ON INTERIOR SIDE OF INSULATION FOR FREEZE PROTECTION.
6. NOT USED.
7. ROUTE POLYETHYLENE GAS PIPING UNDERGROUND TO EQUIPMENT LOCATION. PROVIDE A LISTED PREMANUFACTURED ANODELESS RISER AND TRANSITION TO POLYETHYLENE GAS PIPING RATED FOR UNDERGROUND USE. INSTALL PIPING A MINIMUM OF 12" BELOW GRADE AND PROTECT FROM PHYSICAL DAMAGE. WHERE GAS PIPING PENETRATES A WALKWAY SLAB, IT SHALL BE THROUGH A 12"x12" OPEN AREA FILLED WITH GRAVEL 16" DEEP. PROVIDE 18 AWG TRACER WIRE RATED FOR DIRECT BURIAL ALONG PE GAS PIPE. PROVIDE PREMANUFACTURED ANODELESS RISER AT EQUIPMENT.
8. SEE ENLARGED PLUMBING PLAN ON SHEET P1.1 FOR CONTINUATION OF PIPING AND PIPING IN THIS AREA.
9. SEE CIVIL PLAN FOR CONTINUATION OF 4" SANITARY SEWER. MAINTAIN MIN 30" COVER.
10. CONNECT CONDENSATE TO RTU AS REQUIRED AND AS DETAILED.



**OVERALL PLUMBING FLOOR PLAN**  
SCALE: 1/8" = 1'-0"  
F.F.E. = 1008.50'

BC PROJECT #: 22323  
MISSOURI PE COA #2009003629  
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**BC ENGINEERS  
INCORPORATED**

5720 Reeder Shawnee, Ks. 66203 (913)262-1772