

GENERAL NOTES

- 1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL DRAWINGS MARKED P AND OR FP.
2. DRAWINGS ARE DIAGRAMMATIC. DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3. DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL.
4. DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES IN FIELD. WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND IDENTIFY LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.
5. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE LATEST PLUMBING CODE AND ALL APPLICABLE LOCAL CODES.
6. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE THE WORK WITH THAT OF ALL OTHER TRADES, INCLUDING BUT NOT LIMITED TO, ELECTRICAL, HVAC, PROCESS PIPING, SPRINKLER, PLUMBING STRUCTURAL AND GENERAL ARCHITECTURE.
7. ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE, AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK.
8. ALL PIPING PENETRATING CEILINGS AND WALLS SHALL BE INSTALLED WITH ESCUTCHEONS AT THE PENETRATION. ALL PIPING PENETRATING EXTERIOR WALLS AND ROOFS SHALL BE FLASHED IN AN APPROVED MANNER AND SHALL BE SEALED WEATHERTIGHT. PIPING PENETRATING FIRE RATED PARTITIONS SHALL BE PROVIDED WITH FIRE RATED SEALS AS REQUIRED BY LOCAL CODE AUTHORITY. (SEE DETAILS).
9. MANUFACTURERS' MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.
10. INSTALLATION SHALL ADHERE TO MANUFACTURERS' RECOMMENDATIONS.
11. PROVIDE ACCESS PANELS TO SYSTEM COMPONENTS THAT ARE CONCEALED AND REQUIRE PERIODIC SERVICE.
12. TOPS OF ALL FLOOR DRAINS SHALL BE SET FLUSH WITH FINISHED FLOOR. ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING STRUCTURE OR COMPONENTS.
13. ALL PLUMBING EQUIPMENT, PIPING, INSULATION, ETC., INSTALLED IN HVAC PLENUM SPACES SHALL MEET CODE REQUIREMENTS FOR SMOKE AND COMBUSTIBILITY.
14. PROVIDE SHUTOFF VALVES ON ALL BRANCH PIPING AND ON ALL SUPPLIES TO INDIVIDUAL FIXTURES AND EQUIPMENT. PROVIDE BALL VALVES ON ALL WATER MAIN BRANCHES IN CORRIDORS AND WHERE INDICATED ON DRAWINGS.
15. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
16. PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.
17. PROVIDE GAUGE FITTINGS AND THERMOMETER WELLS AT HOT WATER SUPPLY AND RETURN BRANCHES AND AT PUMP INLETS AND OUTLETS.
18. PITCH PRESSURE PIPING IN DIRECTION OF FLOW.
19. VERIFY EXACT SIZES, LOCATIONS, INVERTS AND ELEVATIONS PRIOR TO RUNNING ANY PIPING. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL FIXTURES AND EQUIPMENT. REFER TO KITCHEN LAYOUT DRAWING FOR EXACT LOCATION AND ROUGH-IN REQUIREMENTS OF ALL KITCHEN FIXTURES AND EQUIPMENT.
20. ALL UNDERGROUND SANITARY & STORM PIPING SHALL BE BELL & SPIGOT CAST IRON

NATURAL GAS NOTES

- 1. OBTAIN GAS PERMITS AND DEFRAY ALL COSTS INCIDENTAL TO THE GAS PIPING SYSTEM. CONTRACTORS WORK SHALL COMMENCE ON THE HOUSE SIDE OF THE UTILITY CO. METER.
2. A SUITABLE DRIP OF CONDENSATE POCKET SHALL BE INSTALLED AT THE BOTTOM OF ALL GAS RISERS.
3. ALL GAS PIPING TO COMPLY WITH LOCAL AND STATE CODES.
4. GAS PIPING AND SAFETY DEVICES SHALL CONFORM TO THE REQUIREMENTS OF NFPA 54 AND SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE STATE REGULATORY BOARD.
5. PROVIDE A SUITABLE GAS COCK VALVE AT EACH BRANCH RUNOUT FROM THE MAIN RISER SERVING GAS OUTLETS AND AT EACH INDIVIDUAL GAS FIXTURE.
6. GAS PIPING SHALL BE TESTED ACCORDING TO THE STATE FUEL GAS CODE AND NATIONAL CODE PROVISIONS OF THE LOCAL PLUMBING INSPECTOR. IF INSPECTION OF THE TEST SHOWS DEFECTS, SUCH DEFECTIVE WORK AND MATERIAL SHALL BE REPLACED AND INSPECTION AND TEST SHALL BE REDONE.
7. PLUMBING CONTRACTOR IS RESPONSIBLE FOR EXTENDING ALL GAS TRAIN.
8. WATER HEATERS SHALL BE INSTALLED WITH DRAIN PANS UNDER HEATERS. ROUTE PAN DRAINS TO NEAREST FLOOR DRAIN OR SAFE DRAIN.
9. PIPING ENTERING SERVICE CORRIDOR FROM LAB AREAS SHALL NOT RUN OVER ELECTRICAL PANELS AND SHALL BE COORDINATED WITH WORK OF OTHER TRADES.

LABORATORY GENERAL NOTES

- 1. REFER TO LABORATORY CASEWORK DRAWINGS FOR FINAL LOCATION AND MOUNTING HEIGHTS OF LABORATORY OUTLETS, FUME HOODS, BIOSAFETY CABINETS, INCUBATORS AND SCIENTIFIC EQUIPMENT.
2. PROVIDE ROUGHING AND FINAL CONNECTIONS FOR LABORATORY HOT AND COLD WATER, LABORATORY WASTE AND VENT, LABORATORY VACUUM, LABORATORY COMPRESSED AIR, CARBON DIOXIDE, PURIFIED WATER, NATURAL GAS, AND SPECIAL GASES, AND INCLUDING TRAPS, TAILPIECE AND STRAINERS, WHEEL HANDLE STOPS, VALVES, COCKS AND APPURTENANCES TO FUME HOODS, BIOSAFETY CABINETS AND LABORATORY EQUIPMENT REQUIRING SAME. THIS INCLUDES WORK IN WALLS UNDER OR THROUGH BENCHES, CABINETS, AND EQUIPMENT CHASES.
3. AS LABORATORY EQUIPMENT PURCHASED MAY VARY SLIGHTLY FROM THAT INDICATED AND THEREFORE REQUIRE SOME RE-ARRANGEMENT OF PIPING DIFFERENT FROM THAT INDICATED ON DRAWINGS, MAKE CONNECTIONS TO SUCH RE-ARRANGED EQUIPMENT WITHOUT ADDITIONAL COST TO OWNER.
4. PROVIDE MISCELLANEOUS LABORATORY EQUIPMENT CONNECTIONS AND INDIRECT DRAINS FROM SIMILAR EQUIPMENT. UNIONS SHALL BE INSTALLED AT LABORATORY EQUIPMENT AND AT OTHER SHOP PLACES AS MAY BE NECESSARY TO DISCONNECT PIPING SO AS TO MAKE REPAIRS.
5. ROUGHING SHALL NOT BE UNDERTAKEN UNTIL LAB PLANNER OR ARCHITECT HAS APPROVED LABORATORY EQUIPMENT, FUME HOOD AND BIOSAFETY CABINET SHOP DRAWINGS. EXACT LOCATION OF SERVICE CONNECTIONS SHALL BE OBTAINED PRIOR TO ROUGHING.
6. FINAL CONNECTION BETWEEN GLASS WASHERS AND PURIFIED WATER BRANCH SHALL BE MADE WITH A 3 FOOT PIECE OF STAINLESS STEEL PIPE AND SHALL INCLUDE INSTALLATION OF A SHUT OFF VALVE AND VACUUM BREAKER.
7. SHOCK ABSORBERS SHALL BE INSTALLED IN CONJUNCTION WITH QUICK CLOSING VALVES ON CAGEWASHER, TUNNEL WASHER, GLASS WASHERS AND STERILIZERS. SHOCK ABSORBER SHALL BE SIZED IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE STANDARD PDI-WH 201.
8. PROVIDE ISOLATION ALVES ON ALL PLUMBING AND LABORATORY FIXTURES, FUME HOODS, BIOSAFETY CABINETS AND EQUIPMENT SUPPLIES.

IN ACCORDANCE WITH THE FEDERAL SAFE WATER DRINKING ACT (SWDA) THE PLUMBING CONTRACTOR SHALL NOT INSTALL ANY COMPONENTS IN THE PLUMBING DOMESTIC WATER SYSTEM THAT CONTAINS MORE THAN 0.25% LEAD IN ANY OF ITS WETTED PARTS AFTER JANUARY 1ST, 2014. THE CONTRACTOR SHALL PROVIDE THE LEAD FREE EQUIVALENT OF THE MODEL NUMBERS LISTED IN THE PLANS AND SPECIFICATIONS FOR THESE COMPONENTS.

ABBREVIATIONS

Table with 2 columns: ASME, ASTM, BPW, CAP, CS, EW, ES, FDA, FH, LS, T. Rows include AMERICAN SOC. OF MECHANICAL ENGINEERS, AMER. SOC. FOR THE TESTING & MATERIALS, BED PAN WASHER, COLLEGE OF AMERICAN PATHOLOGY, CUP SINK, EMERGENCY EYEWASH, EMERGENCY SHOWER, U.S. FOOD & DRUG ADMINISTRATION, FUME HOOD, LAB SINK, LABORATORY TRIM OUTLET.

Table with 2 columns: AWS, DW, EW, NCCLS, PCW, PHW, PHWR, PWR-#, PWS-#, RO/DI, TDS, TOC, TW, UF, USP, UV, WFI. Rows include ANIMAL WATERING SYSTEM, DISTILLED WATER, EMERGENCY WATER FOR SAFETY EQUIPMENT, NATIONAL COMMITTEE FOR LAB STANDARDS, PROTECTED COLD WATER (P-), PROTECTED HOT WATER (P-), PROTECTED HOT WATER RETURN (P-), PURE WATER RETURN STREAM #, PURE WATER SUPPLY STREAM #, REVERSE OSMOSIS DEIONIZED WATER, TOTAL DISSOLVED SOLIDS, TOTAL ORGANIC CARBON, TEMPERED WATER, ULTRAFILTRATION, UNITED STATES PHARMACOPEIA, ULTRAVIOLET, WATER FOR INJECTION.

Table with 2 columns: DW, LV, LW, LW-DW, LW-FM, LWMH, SV, SW. Rows include DOUBLE WALL CONTAINMENT SYSTEM, LABORATORY VENT, LABORATORY WASTE, LABORATORY WASTE-DOUBLE WALL, LABORATORY WASTE-FORCE MAIN, LABORATORY WASTE MAN-HOLE, SPECIAL VENT, SPECIAL WASTE.

Table with 2 columns: AR, BA, CO2, CA, CAI, CA-#, EOC, G, GAP, GVC, HE, H2, LGAP, MCGAP, MA, MGCV, EVAC, MVAC, N2, N2-#, NCP, N2O, O2, O3, PA, P, SPG, VAC, VE, VT, ZVB. Rows include ARGON, BREATHING AIR, CARBON DIOXIDE, COMPRESSED AIR, COMPRESSED AIR INTAKE, COMPRESSED AIR - #PSI, EMERGENCY OXYGEN CONNECTION, GAS (NATURAL), GAS ALARM PANEL, GAS VALVE CABINET, HELIUM, HYDROGEN, LOCAL GAS ALARM PANEL, MASTER GAS ALARM PANEL, MEDICAL AIR, MEDICAL GAS CONTROL VALVE, MEDICAL GAS EVACUATION, MEDICAL VACUUM, NITROGEN, NITROGEN - #PSI, NITROGEN CONTROL PANEL, NITROUS OXIDE, OXYGEN, OZONE, PATIENT AIR, PROPANE, NITROGEN OR ARGON, VACUUM, VACUUM EXHAUST, VACUUM TRAP, ZONE VALVE BOX.

* NOT ALL SYMBOLS MAY BE APPLICABLE TO THIS PROJECT

ABBREVIATIONS

Table with 2 columns: BT, DF, EWC, HB, JS, L, MSB, SH, SK, SS, U, WC, WH, NFPH, NFWH. Rows include BATHTUB, DRINKING FOUNTAIN, BED PAN WASHER, HOSE BIBB W/ VACUUM BREAKER, JANITOR SINK, LAVATORY, MOP SERVICE BASIN, SHOWER, SINK, SERVICE SINK, URINAL, WATER CLOSET, WALL HYDRANT, NON-FREEZE POST HYDRANT, NON-FREEZE WALL HYDRANT.

Table with 2 columns: CWS, CWR, CW, HW, HWR, NPCW, W, 140F HW, 140F HWR. Rows include CHILLED DRINKING WATER SUPPLY, CHILLED DRINKING WATER RETURN, COLD WATER (-), HOT WATER (-), HOT WATER RETURN (-), NON-POTABLE COLD WATER (NP-), WATER SERVICE, 140° HOT WATER SUPPLY (140°F--), 140° HOT WATER RETURN (140°F--).

Table with 2 columns: FM, FS, PI, RM, TI. Rows include FLOW METER, FLOW SWITCH, PRESSURE INDICATOR, RESISTIVITY METER, TEMPERATURE INDICATOR.

Table with 2 columns: AD, BWV, CI, CO, DD, DS, FCO, FD, FM, FS, GV, GD, GCO, GI, GT, IW, KW, OED, OD, PD, RW, SAN, RD, SS, SSD, TD, V, VS, WCO, W, WS, W & T, W & V. Rows include AREA DRAIN, BACK WATER VALVE, CAST IRON, CLEANOUT, DECK DRAIN, DOWN SPOUT BOOT, FLOOR CLEANOUT, FLOOR DRAIN, FORCE MAIN, FLOOR SINK, GARAGE VENT, GARAGE DRAIN, GRADE CLEANOUT, GREASE INTERCEPTOR, GREASE TRAP, INDIRECT WASTE, KITCHEN WASTE, OPEN END DRAIN, OVERFLOW ROOF DRAIN (SECONDARY), PLANTER DRAIN W/ MESHSCREEN, RAINWATER, SANITARY, ROOF DRAIN, SOIL STACK, SUB SOIL DRAINAGE, TRENCH DRAIN, VENT, VENT STACK, WALL CLEANOUT, WASTE, WASTE STACK, WASTE & TRAP, WASTE & VENT.

ABBREVIATIONS

Table with 2 columns: AFF, AC, AP, AVB, BV, BLDG, CFM, CFS, CI, CLG, CLDI, CV, CP-#, CP, CS, COANT, CTE, DIA, DIN, DWG, EL, EWH, EQ, ETRB, ETR, FC, FFE, FO, GPD, GPM, GALV, GSO, GWH, GC, GCO, HC, HP, HZ, IN, IW, ID, INV, MHR, MFR, MV, MTD, NC, NO, NTS, NIC, OC, OD, OS&Y, PC, PP, PSI, PH, PRV, POS, PVB, PVC, RBPB, RCP, RPM, SF, ST.ST., SWH, T & P, TRAP PRIMER, VIV, VTR, WHA, WM, W. Rows include ABOVE FINISHED FLOOR, AIR CHAMBER, ACCESS PANEL, ATMOSPHERIC VACUUM BREAKER, BALL VALVE, BUILDING, CUBIC FEET PER MINUTE, CUBIC FEET PER SECOND, CAST IRON, CEILING, CEMENT LINED DUCTILE IRON, CHECK VALVE, HOT WATER CIRCULATING PUMP #, CHROME PLATED, CUP SINK, CONTINUATION, CONNECT TO EXISTING, DIAMETER, DOWN, DRAWING, ELEVATION, ELECTRIC WATER HEATER, EQUAL, EXISTING TO BE REMOVED, EXISTING TO REMAIN, FAIL CLOSED, FINISHED FLOOR ELEVATION, FAIL OPEN, GALLON PER DAY, GALLON PER MINUTE, GALVANIZED, GAS SHUT OFF, GAS WATER HEATER, GATE VALVE, GENERAL CONTRACTOR, GRADE CLEANOUT, HANDICAPPED ACCESSIBLE, HORSE POWER, HERTZ, INCHES, INDIRECT WASTE, INSIDE DIAMETER, INVERT, MANHOLE, MANUFACTURER, MIXING VALVE, MOUNTED, NORMALLY CLOSED, NORMALLY OPEN, NOT TO SCALE, NOT IN CONTRACT, ON CENTER, OUTSIDE DIAMETER OR OVERFLOW DRAIN, OUTSIDE SCREW & YOKE, PLUMBING CONTRACTOR, POLYPROPYLENE, POUNDS PER SQUARE INCH, PHRASE, PRESSURE REDUCING VALVE, PROVIDED UNDER OTHER SECTION, PRESSURE VACUUM BREAKER, POLYVINYL CHLORIDE, REDUCED PRESSURE BACKFLOW PREVENTOR, REINFORCED CONCRETE PIPE, ROUNDS PER MINUTE, SQUARE FOOT, STAINLESS STEEL, STEAM WATER HEATER, TEMPERATURE & PRESSURE RELIEF VALVE, TRAP PRIMER, VALVE IN VERTICAL, VENT THROUGH THE ROOF, WATER HAMMER ARRESTOR, WATER METER, WITH.

PIPE LINETYPES

Table with 2 columns: Solid line, Dashed line, Dotted line, Dash-dot line. Rows include PIPE (EXISTING), PIPE (ABOVE GRADE), VENT PIPE (ABOVE GRADE), PIPE (BELOW GRADE), VENT PIPE (BELOW GRADE).

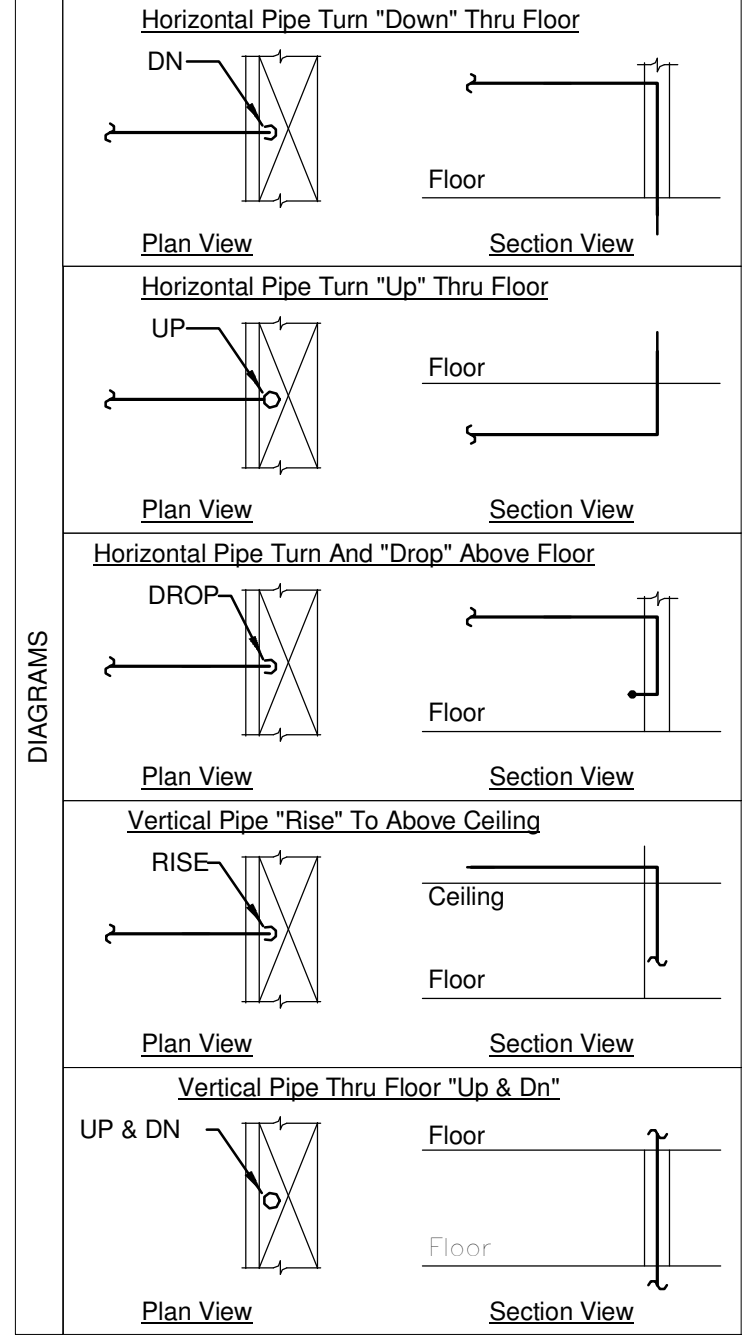
EQUIPMENT

Table with 2 columns: Emergency eyewash, Emergency shower, RFBP or RPZ, Cartridge filter.

REFERENCE

Table with 2 columns: X, XX, #, X#, X, X#, X, Y, Z, KEYNOTE, HANDICAPPED ACCESSIBLE (HC).

PIPE DIRECTION



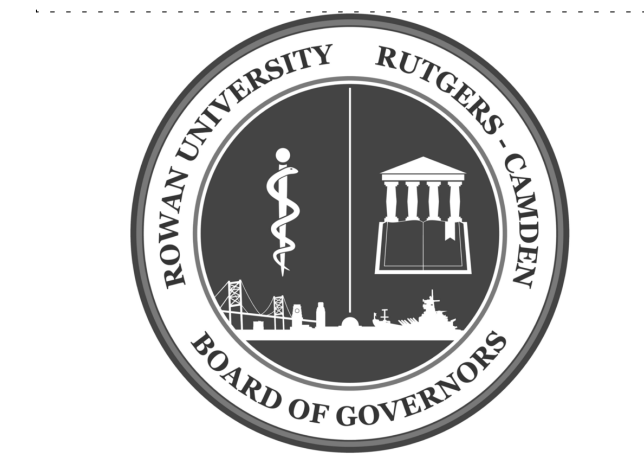
SYMBOLS

Table with 2 columns: Auto-vent, Blind flange, Connect to existing, Vent pipe (above grade), Cap or end of pipe, Concentric reducer, Concentric reducer, Cut line, Direction of flow, Direction of slope, Eccentric reducer, Eccentric reducer, Expansion joint, Expansion joint, ETBR, Flexible connection, Heat trace, Hose bibb, Hose connection (generic), In-line mixer, Pipe anchor, Pipe break, Pipe fitting down or drop, Pipe fitting tee down, Pipe fitting up, Pipe sleeve or beam penetration, Quick disconnect - female, Sight glass, Strainer, Union fitting, Vacuum relief, Wall hydrant, Water hammer arrestor, Waterproof sleeve, Y strainer w/ plugged blowdown, Y strainer w/ valve.

Table with 2 columns: Area drain, Back water valve, Cleanout, Floor or grade cleanout, Floor drain, Planter drain, P trap, Roof drain (primary), Roof drain (overflow), Trench drain.

Table with 2 columns: Angle valve, Ball valve, Balancing valve, Butterfly valve, Check valve, Diaphragm valve (closed), Diaphragm valve (open), Four way valve, Fusible link valve, Gas cock, Gate valve (closed), Gate valve (open), Knife gate valve, Mixing valve, Needle valve, OS&Y valve, Pinch valve, Post valve, Pressure reducing valve, Solenoid valve, Temp. & pressure relief valve, Three way ball valve, Three way control valve, Two way control valve, Valve in the vertical.

Table with 2 columns: Flow meter, Flow switch, Pressure indicator w/ball valve, Resistivity meter, Temp. indicator w/ball valve.



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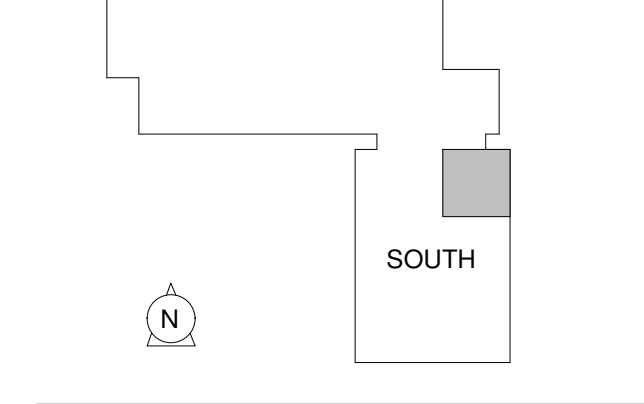


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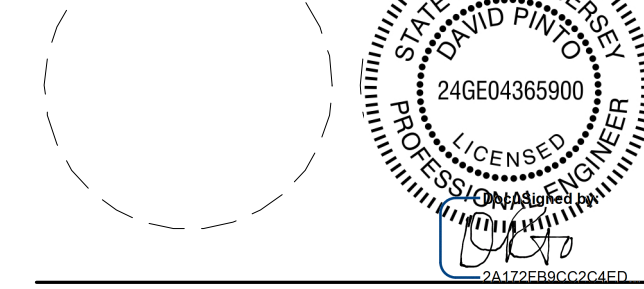


Table with 3 columns: No., Description, Date. Row 1: 1 ISSUED FOR CONSTRUCTION 01/17/2020.

Drawn by: Author Project No: 16.07011.12 Reviewed by: Checker

ISSUED FOR CONSTRUCTION - 01.17.20

PLUMBING NOTES, SYMBOLS, AND ABBREVIATIONS

P-001.CF