

SECTION 15B: PLUMBING CONTINUED:

15B 2-4 PIPING INSTALLATION

GENERAL: CLEAN PIPE THOROUGHLY PRIOR TO INSTALLATION. REAM ENDS OF PIPE TO REMOVE BURRS. CUT PIPE ACCURATELY TO MEASUREMENTS TAKEN ON THE JOB. INSTALL WITH ADEQUATE CLEARANCE FOR INSTALLATION OF COVERINGS WHERE REQUIRED. PIPE SHALL NOT BE SPRUNG OR BENT UNLESS NECESSARY TO ALIGN PIPE. CONNECT IT SECURELY AND SUPPORT IT FROM THE BUILDING STRUCTURE WITH HANGERS AS SPECIFIED BELOW. PROVIDE CHROME-PLATED ESCUTCHEONS ON PIPES PASSING THROUGH CEILINGS, FLOORS OR WALLS OF FINISHED SPACES. RUN PIPES FREELY THROUGH FLOOR AND WALL PENETRATIONS USING PIPE SLEEVES. DO NOT CROSS IN PLACE UNLESS REQUIRED FOR STRUCTURAL FIRE INTEGRITY. INSTALL PIPE CONCEALED IN FINISHED SPACES WHEREVER POSSIBLE. USE A DIELECTRIC UNION WHERE FERROUS AND COPPER PIPE CONNECT. DIELECTRIC UNION SHALL HAVE A ZINC-PLATED STEEL BODY, A THREADED NYLON INSERT, AND INSULATING PRESSURE GASKET. NO FERROUS METAL-TO-COPPER CONNECTION MADE WITHOUT INSULATING UNIONS WILL BE ALLOWED.

HANGER & SUPPORTS: PIPE HANGERS SHALL BE AS DESCRIBED IN THE SPECIFICATIONS BY B-LINE OR EQUAL BY AMAL, MICHIGAN, TRUSCON, OR UNISTRUT. CONNECT HANGERS TO THE STRUCTURE WITH SIDE BEAM CONNECTORS AND ALL THREADED HANGER RODS. PROVIDE ENGINEERED SUPPORT STRUTS BETWEEN JOISTS AND OTHER STRUCTURAL MEMBERS AS REQUIRED TO PROVIDE A RIGID HANGING INSTALLATION. DO NOT HANG PIPES FROM OTHER PIPES, CONDUIT OR DUCTWORK. PROVIDE HANGER RODS AND SPACE HANGERS AT INTERVALS AS SPECIFIED IN "HANGER SPACING". PROVIDE SUPPORT WITHIN 1' OF EACH ELBOW AND TEE. PROVIDE SUPPORTS WITHIN 1' OF EACH EQUIPMENT CONNECTION. INSTALL HANGER TYPES OR SUPPORTS FOR VARIOUS PIPING AS FOLLOWS:

COPPER TUBE: ADJUSTABLE BAND HANGERS FOR BARE COPPER TUBE 3" AND SMALLER SHALL BE B-LINE #B3170 CT COPPER PLATED ADJUSTABLE BAND SWIVEL RING TYPE. ADJUSTABLE BAND HANGERS FOR INSULATED COPPER TUBE AND 3" SMALLER SHALL BE B-LINE #B3170 NF ADJUSTABLE BAND SWIVEL RING TYPE. CLEVIS HANGERS FOR INSULATED COPPER TUBE 4" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. SUPPORT EXPOSED COPPER TUBE 2" AND SMALLER TO WALLS OR IN CHASES WITH B-LINE #B3198RCT COPPER COATED EXTENSION SPLIT RING PIPE CLAMPS, 3/8" THREADED ROD AND B-LINE #B3198CT CEILING FLANGES. SUPPORT COPPER TUBE IN CHASES AND WALLS AT PLUMBING FIXTURES WITH PLASTIC OR COPPER BRACKETS SECURED TO STRUCTURE AND 1/4" BOLTS SIZED TO BARE ON THE PIPE. RISER CLAMPS TO SUPPORT VERTICAL COPPER TUBE SHALL BE B-LINE #B3373CT COPPER COATED STEEL, CUT INSULATION, SEAL VAPOR BARRIER, AND ATTACH TO BARE TUBE.

STEEL PIPE: ADJUSTABLE BAND HANGERS FOR 2" AND SMALLER SHALL BE B-LINE #B3170 NF ADJUSTABLE BAND SWIVEL RING TYPE. CLEVIS HANGERS FOR 2-1/2" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. RISER CLAMPS TO SUPPORT VERTICAL PIPE SHALL BE B-LINE #B3373 GALVANIZED STEEL.

CAST IRON PIPE: ADJUSTABLE BAND HANGERS FOR 2" AND SMALLER. CLEVIS HANGERS FOR 3" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. RISER CLAMPS TO SUPPORT VERTICAL PIPE SHALL BE B-LINE #B3373 GALVANIZED STEEL.

PVC PIPE: ADJUSTABLE BAND HANGERS FOR 3" AND SMALLER. CLEVIS HANGERS FOR 4" AND LARGER SHALL BE B-LINE #B3100 GALVANIZED STEEL CLEVIS TYPE. RISER CLAMPS TO SUPPORT VERTICAL PIPE SHALL BE B-LINE #B3373 GALVANIZED STEEL.

INSULATION PROTECTION SHIELDS: B-LINE #B3151 OF 18 GAUGE GALVANIZED SHEET METAL SHALL SHIELD COVER HALF OF THE CIRCUMFERENCE OF THE PIPE AND SHALL BE OF LENGTH INDICATED BY MANUFACTURER FOR PIPE SIZE AND THICKNESS OF INSULATION.

HANGER SPACING, ROD SIZES & CONNECTORS: CONNECT RODS TO STEEL BEAMS OR JOISTS WITH B-LINE #B3031 OR #B3033BEAM CLAMPS AS REQUIRED. CONNECT RODS TO CONCRETE WITH B-LINE #B3014 MALLEABLE IRON SINGLE TYPE INSERTS WITH MALLEABLE IRON NUT. CONNECT RODS IN WOOD CONSTRUCTION WITH B-LINE #B3058 SIDE BEAM CONNECTORS. HANG AND SUPPORT PIPING WITH SPACING AND ROD SIZES AS FOLLOWS:

COPPER TUBE: 1-1/2" AND SMALLER - EVERY 6' WITH 3/8" HANGER RODS; 2" - EVERY 10' WITH 1/2" HANGER RODS; 2-1/2" AND 3" - EVERY 10' WITH 1/2" HANGER RODS; 4" - EVERY 10' WITH 5/8" HANGER RODS. SUPPORT VERTICAL COPPER TUBE EVERY 10'.

STEEL PIPE: 1" AND SMALLER - EVERY 8' WITH 3/8" HANGER RODS; 1-1/4" TO 2" - EVERY 10' WITH 3/8" HANGER RODS; 2-1/2" AND 3" - EVERY 10' WITH 1/2" HANGER RODS; 4" - EVERY 10' WITH 5/8" HANGER RODS. SUPPORT VERTICAL STEEL PIPE EVERY 10'.

CAST IRON PIPE: EVERY 10' AND WITHIN 4' OF EACH FITTING. 2" AND SMALLER WITH 3/8" HANGER RODS; 3" WITH 1/2" HANGER RODS; 4" WITH 5/8" HANGER RODS; 6" WITH 1" HANGER RODS; 8" AND LARGER WITH 7/8" HANGER RODS. SUPPORT VERTICAL CAST IRON PIPE EVERY 15'.

PVC PIPE: SUPPORT ALL PIPES EVERY 8'. 1-1/2" AND SMALLER WITH 3/8" HANGER RODS; 2" AND LARGER WITH 1/2" HANGER RODS; 3" WITH 1/2" HANGER RODS; 4" WITH 5/8" HANGER RODS. SUPPORT VERTICAL PVC PIPE EVERY 4'.

SUPPORTS ON ROOF: SUPPORT PIPING ON ROOF WITH 4" X 4" X 12" LONG COA ROF-PROOF WOOD BLOCKS. SET WOOD BLOCKS ON 18" X 18" X 3/16" THICK ROOF WALKWAY MATERIAL. CONNECT PIPE TO WOOD BLOCKS WITH GALVANIZED STEEL PIPE CLAMP AND 1/4" X 1-1/2" LONG CHROME-PLATED LAG SCREWS. STACK BLOCKS AND NAIL THEM TOGETHER AS REQUIRED AND SO SUPPORT PIPE AS REQUIRED TO CHANGE PIPE ELEVATION. SUPPORT PIPE WITH SPACING DESCRIBED ABOVE AT A MINIMUM 7" ABOVE THE ROOF. SET BLOCKS ON 18" X 18" X 3/16" THICK ROOF WALKWAY MATERIAL COMPATIBLE WITH ACTUAL ROOF MATERIAL.

GROUND INSTALLATION FOR WASTE: INSTALL WASTE PIPING TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" OR LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" OR SMALLER. LAY PIPE AT UNIFORM SLOPE, FREE FROM SAGS, WITH HUB END UPSIDE UP. MAKE CHANGES IN DIRECTION FROM HORIZONTAL TO VERTICAL, AT FITTURE BRANCHES AND OTHER BRANCH CONNECTIONS WITH SANITARY "TEES" OR SHORT SWEEP "ELLS". MAKE CHANGES IN DIRECTION FROM VERTICAL TO HORIZONTAL OR HORIZONTAL TO HORIZONTAL WITH LONG RADIUS FITTINGS, LONG SWEEPING "ELLS", COMBINATION "Y" AND 1/8 BEND" FITTINGS, OR 90 DEGREE "ELLS" (1/8 BEND FITTINGS), 1/8 BEND OR 1/16 BEND AND "Y" FITTINGS. INSTALL PIPE WITH THE BARREL OF THE PIPE ON FIRM, SOLID EARTH FOR ITS ENTIRE LENGTH, AND EXCAVATE HOLES FOR THE PIPE BELLS. LAY PIPE IN A STRAIGHT LINE AND INSTALL WITH UNIFORM GRADE TO LINE WITH BATTEN BOARDS SET NOT MORE THAN 24"-0" APART. CLOSE OPEN ENDS OF PIPE WITH A STOPPER WHEN PIPE LAYING IS NOT IN PROGRESS. CENTER FITTINGS ACCURATELY IN BELLS FOR UNIFORM CAULKING. PROVIDE A SMOOTH AND UNIFORM INVERT IN THE SYSTEM. DRILLING OR TAPPING OF SOIL AND WASTE LINES, AND SADDLE HUBS AND BANDS ARE NOT PERMITTED. LOCATE AND INSTALL SOIL AND WASTE LINES AS INDICATED ON THE DRAWINGS. DETERMINE EXACT LOCATIONS IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCE. PRIOR TO INSTALLATION OF ANY BUILDING DRAIN PIPE, VERIFY ELEVATION OF CONNECTION POINT OF EXISTING SEWER, SERVICE LINE OR EXISTING TENANT CONNECTIONS INDICATED ON THE DRAWINGS. IF THE INSTALLATION WILL NOT TIE INTO THE INDICATED INVERT ELEVATION POINT WHILE MAINTAINING PROPER FALL, NOTIFY ARCHITECT SO THAT AN ALTERNATIVE MAY BE DETERMINED.

PLUMBING VENT: CONNECT PLUMBING VENT PIPES TO FIXTURE DRAIN PIPES AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE INSTALLATION PRACTICES ADOPTED AND ENFORCED BY LOCAL CODES OFFICIAL, AND EXTEND VENT PIPES FULL SIZE THROUGH THE ROOF LINE. GRADE PIPE TO A UNIFORM SLOPE SO AS TO DRAIN BACK BY GRAVITY TO THE DRAINAGE PIPING SYSTEM. VENTS PASSING THROUGH THE ROOF SHALL BE MINIMUM 3" SIZE EXCEPT IN TROPICAL CLIMATES, PER LOCAL CODES. TURN FLASHING DOWN INTO STACKS AT LEAST 2", AND EXTEND FLASHING 24" IN ALL DIRECTIONS FROM THE PIPE AT THE ROOF LINE. APPLY WHITE LEAD PIPE DOPE ON MALE STEEL PIPE THREADS. VENT LINES SHALL BE AIR AND WATER TIGHT. VENT FLOOR DRAINS INDIVIDUALLY OR CONNECT THEM TO A HORIZONTALLY VENTED LINE AS SHOWN ON THE DRAWINGS.

DOMESTIC WATER: ARRANGE COLD, HOT, AND HOT WATER RECIRCULATION PIPING TO DRAIN AT THE LOWEST POINT IN EACH SYSTEM. INSTALL AT LEAST ONE PIPE UNION ADJACENT TO ALL SHUTOFF VALVES, AT CONNECTION POINTS OF EACH PIECE OF EQUIPMENT, AND ELSEWHERE IN THE SYSTEM WHERE REQUIRED TO ALLOW PROPER MAINTENANCE. PROVIDE UNIONS OF THE GROUND JOINT TYPE. MAKE ALLOWANCE FOR EXPANSION AND CONTRACTION WHERE REQUIRED BY THE INSTALLATION. WHERE WATER PIPING OCCURS IN EXTERIOR WALLS, HOLD PIPE AS CLOSE AS POSSIBLE TO THE INTERIOR FACE OF WALL AND INSTALL INSULATION BATT OR OTHER INSULATION (MINIMUM R8) BETWEEN PIPING AND THE EXTERIOR WALL FACE.

NATURAL GAS: PITCH NATURAL GAS PIPING, AND PROVIDE ACCESSIBLE DIRT LEGS AT THE LOW POINTS. TAKE BRANCH PIPES OFF THE TOP OR SIDES OF MAIN PIPES, TO PREVENT ACCUMULATION OF WATER IN THE BRANCHES. INSTALL GAS PIPING VALVES AND UNIONS ONLY IN ACCESSIBLE LOCATIONS. DO NOT INSTALL GAS PIPE BELOW THE BASE SLAB.

15B 2-5 PIPING SANITIZATION

SANITIZE THE ENTIRE DOMESTIC WATER PIPING SYSTEM (COLD, HOT, AND HOT WATER RETURN) WITH A SOLUTION CONTAINING NOT LESS THAN 50 PPM AVAILABLE CHLORINE. KEEP SOLUTION IN THE SYSTEM FOR A MINIMUM OF 24 HOURS, WITH EACH VALVE BEING OPERATED SEVERAL TIMES DURING THE PERIOD. AFTER COMPLETION, FLUSH SYSTEM WITH CITY WATER UNTIL CHLORINE RESIDUAL IS LOWERED TO INCOMING CITY WATER LEVEL.

15B 2-6 PIPE AND VALVE MARKERS

PROVIDE MANUFACTURER'S STANDARD PRE-PRINTED, SEMI-RIGID SNAP-ON OR PERMANENT ADHESIVE, PRESSURE-SENSITIVE VINYL PIPE MARKERS. PIPE MARKERS SHALL BE COLOR-CODED COMPLYING WITH ANSI A13.1.

INSTALL PIPE MARKERS ON EACH PLUMBING PIPING SYSTEM AND INCLUDE ARROWS TO SHOW NORMAL DIRECTION OF FLOW.

LOCATE PIPE MARKERS AND COLOR BANDS WHEREVER PIPING IS EXPOSED TO VIEW IN OCCUPIED SPACES, MACHINE ROOMS, ACCESSIBLE MAINTENANCE SPACES (SHAFTS, TUNNELS, PLENUMS) AND EXTERIOR NON-CONCEALED LOCATIONS.

PROVIDE PLASTIC LAMINATE OR BRASS VALVE TAG ON EVERY VALVE, COCK AND CONTROL DEVICE IN EACH PLUMBING PIPING SYSTEM, EXCEPT CHECK VALVES, VALVES WITHIN FACTORY-FABRICATED EQUIPMENT UNITS, PLUMBING FIXTURE FAUCETS, CONVENIENCE AND LAWN-WATERING HOSE BIBBS, AND SHUT-OFF VALVES AT PLUMBING FIXTURES AND SIMILAR ROUGH-IN CONNECTIONS OF END-USE FIXTURES AND UNITS.

15B 2-7 HEAT TRACE

PROMOTE HEAT TRACE SYSTEM WHERE INDICATED ON THE DRAWINGS MANUFACTURED BY RAYCHEM, CHROMALOX, NEXTRON, NELSON OR APPROVED EQUAL.

HEAT TRACE CABLE: PAIR OF PARALLEL NO. 18 AWG TINNED-COPPER BUS WIRES EMBEDDED IN CROSS LINKED CONDUCTOR POLYMER CORE, WHICH VARIES POWER OUTPUT IN RESPONSE TO TEMPERATURE ALONG ITS LENGTH; LINE VOLTAGE AS INDICATED ON THE DRAWINGS. PROVIDE OUTER JACKET MATERIAL AS INDICATED ON THE DRAWINGS. CABLE SHALL BE CAPABLE OF CROSS OVER ITSELF WITHOUT OVERHEATING. CABLE SHALL CAPABLE OF A HEAT OUTPUT OF 50% OF RATING OVER A TEMPERATURE RANGE OF 40T TO 150T PIPE TEMPERATURE. PROVIDE FIELD-APPLIED POWER CONNECTION KITS, END SEAL KITS AND ANY TEE KITS AS REQUIRED.

HEAT TRACE CONTROL PANEL: FOR "ON-OFF" CONTROL OF HEAT TAPE CIRCUIT WITH NEMA 4X FIBERGLASS REINFORCED PLASTIC ENCLOSURE FOR OUTDOOR INSTALLATION WITH HINGED ACCESS DOOR WITH WINDOW AND FURNISHED WITH THE FOLLOWING: MICROPROCESSOR BASED CONTROLLER WITH LED DISPLAY WITH KEYPAD INTERFACE AND NON-VOLATILE MEMORY. GROUND FAULT CIRCUIT PROTECTION CAPABLE OF CHECKING HEATING CABLE CIRCUIT FAULTS. LED INDICATOR LIGHTS: CURRENT MODE, HEATER ON, ALARM CONDITIONS TO RECEIVE & TRANSMIT DATA. ALARM CONDITIONS: RTD FAILURE, HIGH/LOW TEMPERATURE, HIGH/LOW CURRENT, HIGH/LOW RESISTANCE AND HIGH/LOW VOLTAGE, GROUND FAULT ALARM, TRIP, LOSS OF PROGRAMMED VALUES AND ELECTROMECHANICAL RELAY FAILURE. ALARM CONTAINS ONE SINGLE POLE SINGLE THROW RATED AT 0.75 AMP 120 TO 277 VOLT RELAY AND ONE DIODE PILOT DUTY ONLY RELAY RATED AT 48 VAC / DC 50 MILLAMPS, 350 OHM MAXIMUM RESISTIVE SWITCH. POWER STRIP FOR CONNECTING 277 VOLT SINGLE PHASE AT 30 AMP MAXIMUM. TEMPERATURE CONTROL SENSORS: TOTAL OF TWO THREE WIRE 100 OHM PT100 WITH 10 FOOT LONG STAINLESS STEEL SHEATH, AMBIENT TEMPERATURE SENSITIVE TO 10SEET WITH AN ACCURACY OF ±3°F AND A REPEATABILITY OF ±3°F.

THERMOSTATS: SHALL BE AS SCHEDULED ON THE DRAWINGS AND OF THE SAME MANUFACTURER AS THE HEAT TRACE SYSTEM.

15B 3-3 VALVES, STRAINERS, HOSE BIBBS, AND COCKS

PLUMBING SYSTEM VALVES SHALL BE CRANE COMPANY OR NIBCO OF MODELS HEREIN SPECIFIED OR APPROVED EQUAL BY HAMMOND, LEONARD, WORTH, STOCKHAM OR WUELLER VALVES. VALVES SHALL BE OF THE BEST QUALITY DESIGNED FOR 125 PSI SITAM WORKING PRESSURE. INSTALL VALVES ON THE HOT AND COLD WATER LINES AT THE WATER HEATER CONNECTIONS AND OTHER PLACES OF EQUIPMENT. AT FIXTURES FROM MAINS SERVING GROUPS OF FIXTURES, AND AT OTHER PLACES INDICATED OR REQUIRED BY THE INSTALLATION TO ALLOW EASE OF FUTURE MAINTENANCE.

GATE VALVES: GATE VALVE SIZE 2-1/2" AND SMALLER SHALL BE CRANE #1701 OR NIBCO 1113, NON-RISING STEM, SCREWED BRASS BODY AND PARTS, WITH WEDGE DISC. GATE VALVES 3" AND LARGER SHALL BE CRANE #465-1/2 OR NIBCO #617-0, O.S. & Y, IRON BODY FLANGED WEDGE GATE WITH BRASS SEATS AND STEM.

GLOBE VALVES: GLOBE VALVES SHALL BE CLASS 125. GLOBE VALVES 2-1/2" AND SMALLER SHALL BE CRANE #1310 OR NIBCO #1-211, SCREWED BRASS BODY AND BRASS DISC. GLOBE VALVES 3" AND LARGER SHALL BE CRANE #351 IRON BODY FLANGED VALVE WITH BRASS TRIM.

CHECK VALVES: CHECK VALVES SHALL BE CLASS 125. CHECK VALVES FOR INSTALLATION IN HORIZONTAL PIPE RUNS SHALL BE OF THE "SWING DISC" DESIGN. HORIZONTAL CHECK VALVES 2-1/2" AND SMALLER SHALL BE CRANE #137 OR NIBCO #1-413 WITH SCREWED BRASS BODY AND BRASS DISC. HORIZONTAL CHECK VALVES 3" AND LARGER SHALL BE CRANE #373 OR NIBCO #1-918 IRON BODY FLANGED VALVE WITH BRASS TRIM. CHECK VALVES FOR INSTALLATION IN VERTICAL PIPE RUNS SHALL BE OF THE "VERTICAL LIFT" DESIGN. VERTICAL CHECK VALVES 2-1/2" AND SMALLER SHALL BE CRANE #29 OR NIBCO #1-480 WITH SCREWED BRASS BODY AND BRASS DISC. VERTICAL CHECK VALVES 3" AND LARGER SHALL BE CENTER GUIDED.

GAS COCKS: GAS COCKS 2-1/2" AND SMALLER SHALL BE HOMESTAD #611, SCREWED IRON BODY WITH BRASS TRIM AND FLAT HEAD. GAS COCKS 3" AND LARGER SHALL BE HOMESTAD #612 FLANGED SEMI-STEEL BODY WITH IRON TRIM AND SQUARE HEAD. APPROVED EQUAL ARE MCDONALD, ROCKWELL-NORDSTROM OR DEZURIK.

THERMOSTATIC MIXING VALVES: THERMOSTATIC MIXING VALVES SHALL BE POWERS AS DESCRIBED ON THE DRAWINGS OR EQUAL BRADLEY, LEONARD, LAWLER, SYMONS OR WATTS MEETING ASSE 1016 WITH BRASS BODY, NON-CORROSIVE INTERNAL PARTS, TAMPER RESISTANT TEMPERATURE ADJUSTMENT, UNION INLETS AND CHECK STOPS WITH STRAINERS. SET TEMPERATURE AT 100°F FOR HAND WASHING.

EMERGENCY MIXING VALVES: EMERGENCY MIXING VALVES SHALL BE POWERS AS DESCRIBED ON THE DRAWINGS OR EQUAL BY BRADLEY, LEONARD, LAWLER, SYMONS OR HAWS MEETING ASSE 1071 COMPLETE WITH CHROME PLATED BRONZE BODY CONSTRUCTION, FULL FLOW COLD WATER BY-PASS, NON-CORROSIVE INTERNAL PARTS, TAMPER RESISTANT TEMPERATURE ADJUSTMENT, DIAL THERMOMETER, UNION INLETS WITH STRAINERS, CHECKS, AND STOPS.

GAS LINE PRESSURE REGULATORS: GAS LINE PRESSURE REGULATORS SHALL BE BY EQUIMETER, FISHER, MAXITROL OR AMERICAN METER COMPANY WITH CAPACITIES AS SCHEDULED ON THE DRAWINGS. REGULATORS SHALL BE SINGLE STAGE, STEEL JACKETED, CORROSION-RESISTANT TYPE WITH INTERSTITIAL RELIEF VALVE WITH ATMOSPHERIC VENT, ELEVATION COMPENSATOR; WITH THREADED ENDS, FOR INLET AND OUTLET.

SANITARY POST HYDRANTS: HOEPINER "FREEZE-FLOW EXECUTIVE" OR EQUAL BY WOODFORD MEETING ASSE #1057.

UNIONS: FERROUS UNIONS SHALL BE CRANE OR EQUAL, COMBINATION IRON AND BRASS, GROUND JOINT WITH SCREWED ENDS. COPPER UNIONS SHALL BE STRIFELINE OR EQUAL, CAST BRONZE SWEAT TYPE WITH GROUND JOINT. FERROUS TO COPPER UNIONS SHALL BE UNIVERSAL CONTROLS OR EQUAL, DIELECTRIC TYPE WITH THREADED NYLON INSERT.

FLOW CONTROL VALVES: FOR INSTALLATION IN HOT WATER RECIRCULATION LINES, SHALL BE BELL & GOSSETT #PF-1/25 "CIRCUIT SETTER" OR EQUAL BY ARMSTRONG OR NIBCO WITH BRONZE BODY, BRASS BALL, THE SEAT RINGS, CALIBRATED ORifice, MEMORY STOP, REDUCING VALVES WITH INTERNAL CHECK VALVES, DRAIN PORT AND SWEAT CONNECTIONS. PROVIDE BALL VALVE, STRAINER AND CHECK VALVE UPSTREAM AND UNION AND BALL VALVE DOWNSTREAM OF EACH FLOW CONTROL VALVE. SET THE FLOW CONTROL VALVES TO THE FLOWS AS INDICATED ON THE DRAWINGS.

15B 3-4 GREASE TRAPS AND INTERCEPTORS

GREASE INTERCEPTORS SHALL BE PRECAST CONCRETE OF LOCAL MANUFACTURE SIMILAR TO DETAIL ON THE DRAWINGS, CONFORMING TO REQUIREMENTS OF THE LOCAL SEWER DISTRICT FOR CONFIGURATION AND CAPACITY. PROVIDE SAMPLING PORT AND VENT FOR GREASE INTERCEPTOR AS SHOWN ON THE DRAWINGS.

15B 3-5 WATER SERVICE ENTRANCE: PRESSURE REDUCING VALVE AND BACKFLOW PREVENTER

PROVIDE A BACKFLOW PREVENTER (BFP) OF TYPE REQUIRED BY LOCAL CODE, AND A PRESSURE REDUCING VALVE (PRV) IF REQUIRED BY EXCESSIVE WATER PRESSURE, ON THE DOMESTIC WATER SERVICE IMMEDIATELY DOWNSTREAM FROM THE POINT OF WATER SERVICE ENTRY.

DOUBLE CHECK VALVE (DCV) SHALL BE AS SPECIFIED ON THE DRAWINGS, WATTS OR EQUIVALENT BY FEBCO, CONBRACO, OR WILKINS. 2" AND SMALLER SHALL BE BRONZE BODY WITH STAINLESS STEEL TRIM, BRONZE BALL VALVE SHUT-OFFS ON INLET AND OUTLET, AND BRONZE STRAINER WITH STAINLESS STEEL SCREEN AND CLEANOUT. FOR 2-1/2" AND LARGER PROVIDE IRON BODY WITH FUSED EPOXY COATING, RESILIENT WEDGE AWMA C509 IRON GATE VALVES ON INLET AND OUTLET, IRON STRAINER WITH FUSED EPOXY COATING, ALL FLANGE CONNECTED. UNIT SHALL BE SUITABLE FOR 175 PSI WORKING PRESSURE.

REDUCE PRESSURE ZONE ASSEMBLY (RPZ) SHALL BE AS SPECIFIED ON THE DRAWINGS, WATTS OR EQUIVALENT BY FEBCO, CONBRACO, OR WILKINS. FOR 2" AND SMALLER PROVIDE BRONZE BODY WITH STAINLESS STEEL TRIM, BRONZE BALL VALVE SHUT-OFFS ON INLET AND OUTLET, AND BRONZE STRAINER WITH STAINLESS STEEL SCREEN AND CLEANOUT. FOR 2-1/2" AND LARGER PROVIDE IRON BODY WITH FUSED EPOXY COATING, AWMA C509 IRON GATE VALVES ON INLET AND OUTLET, IRON STRAINER WITH FUSED EPOXY COATING, ALL FLANGE CONNECTED, BRONZE TRIM, EPDM ELASTOMERS AND STAINLESS STEEL SPRING. UNIT SHALL BE RATED FOR 175 PSI WORKING PRESSURE. PROVIDE A CAP FITTING ON INTERMEDIATE VENT AND PIPE IT TO DISCHARGE OVER NEAREST FLOOR DRAIN.

PROVIDE A PRESSURE REDUCING VALVE (PRV) WITH AN INLET STATIC DOMESTIC WATER PRESSURE DOWNSTREAM OF THE BFP EXCEEDS 80 PSI. PRV SHALL BE AS SPECIFIED ON THE DRAWINGS, WATTS OR EQUIVALENT BY WILKINS. FOR 2" AND SMALLER PROVIDE WITH BRONZE BODY WITH STAINLESS STEEL TRIM, DIRECT ACTING, SPRING LOADED DIAPHRAGM TYPE, SUITABLE FOR 300 PSI INLET PRESSURE. FOR 2-1/2" AND LARGER PROVIDE IRON BODY WITH FUSED EPOXY COATING. OUTLET PRESSURE SHALL BE 50 PSI.

15B 3-6 SYSTEM ACCESSORS

THERMOMETERS SHALL BE AMERICAN 3" BI-METAL DIAL TYPE WITH SEPARABLE SOCKET, AND SHALL BE INSTALLED WHERE INDICATED OR REQUIRED.

PRESSURE GAUGES SHALL BE ASHCOFT 3" DIAL TYPE WITH SHUT-OFF COCK, AND SHALL BE INSTALLED WHERE INDICATED OR REQUIRED.

THERMOMETERS SHALL BE AS SPECIFIED ON THE DRAWINGS, PRECISION PLUMBING PRODUCTS "FRAME RITE" OR EQUAL BY MFBAB OR SOUX CHIEF WITH BRASS BODY AND INTERNAL VACUUM BREAKER. PROVIDE DISTRIBUTION BOX WHERE MORE THAN ONE TRAP IS INTEGRATED TO BE PRIMED ON THE DRAWINGS. PROVIDE ACCESS PANEL WHERE REQUIRED.

ICE MAKER CONNECTION BOXES SHALL BE AS SPECIFIED ON THE DRAWINGS, GUY GRAY #BMB7S OR APPROVED EQUAL, WITH 20 GAUGE STEEL BODY BODY, WALL FLANGE AND WATER CONNECTION.

15B4 PLUMBING FIXTURES AND EQUIPMENT

15B 4-1 PLUMBING FIXTURES

FURNISH AND INSTALL COMMERCIAL GRADE PLUMBING FIXTURES, SEE THE DRAWINGS FOR QUANTITIES AND DESCRIPTIONS.

FIXTURES SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN SHALL BE FURNISHED AND INSTALLED, SET FIRM AND TRUE, CONNECTED TO REQUIRED PIPING SERVICES, THOROUGHLY CLEANED, LEFT CLEAN AND READY FOR USE. EXPOSED FITTINGS AND PIPING AT THE FIXTURES SHALL BE CHROME-PLATED, AND WATER SUPPLY PIPING SHALL BE VALVED AT EACH FIXTURE.

15B 4-2 WATER HEATER

WATER HEATER PER PLUMBING FIXTURE SCHEDULE ON SHEET P6.0.

Order Plans @

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PLUMBING SPECIFICATIONS



Table with columns for project details, revision history, and sheet information.

P8.0



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