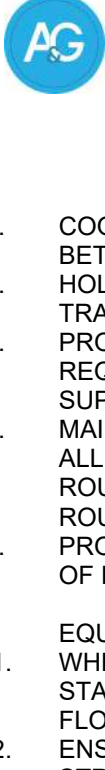


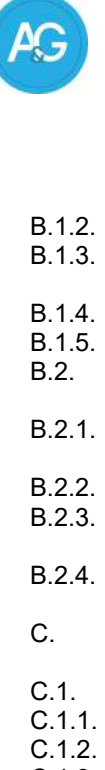


GENERAL NOTES - PLUMBING

- A. PLUMBING CONDITIONS FOR PLUMBING WORK.
A.1. POLY WORK UNDER THIS CONTRACT SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH FEDERAL, STATE, AND LOCAL CODES. WHERE THESE PLANS AND SPECIFICATIONS ARE IN CONFLICT WITH SUCH CODES, THE CODES SHALL GOVERN. BIDS SUBMITTED BY CONTRACTOR SHALL INCLUDE WORK REQUIRED TO COMPLY WITH ALL SUCH CODES. ANY ITEMS REQUIRED AND/OR MISSED IN THESE BASIS OF DESIGN DOCUMENT, SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR AT CONTRACTORS' EXPENSE AND THE OWNER AND/OR DESIGN TEAM. CONTRACTOR SHALL PAY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS AND CERTIFICATES OF INSPECTION.
A.2. CONTRACTOR SHALL STUDY CONTRACT DOCUMENTS, FULLY UNDERSTAND AND ACCEPT THE BASIS OF DESIGN AND SCOPE OF WORK. SUBMISSION OF BID INDICATES CONTRACTOR'S COMPLETE APPROVAL AND ACCEPTANCE OF CONSTRUCTION DOCUMENTS.
A.3. CONTRACTOR SHALL USE ADEQUATE NUMBERS OF SKILLED WORKMEN, TRAINED LICENSED AND EXPERIENCED IN COMMERCIAL PLUMBING, AND WHO ARE FAMILIAR WITH THE CONSTRUCTION DOCUMENTS AND METHODS OF PERFORMING THE WORK REQUIRED.
A.4. CONTRACTOR SHALL PROVIDE A MINIMUM ONE (1) YEAR WARRANTY ON ALL LABOR AND MATERIALS INSTALLED. CONTRACTOR SHALL MAKE ALL WARRANTIED REPAIRS OR REPLACEMENT WITHIN SEVEN (7) CALENDAR DAYS, AT NO ADDITIONAL COST TO THE OWNER.
- B. BASIS OF DESIGN:
B.1. ALL CONSTRUCTION DOCUMENTS PROVIDED BY OWNER, INCLUDING ENGINEERING DRAWINGS, NOTES, SCHEDULE, DETAILS, CALCULATIONS AND SPECIFICATIONS PROVIDED, ALONG WITH EQUIPMENT MANUFACTURER'S DRAWINGS AND SPECIFICATIONS, FROM THE BASIS OF DESIGN AND GENERALLY SCHEMATIC IN NATURE. PIPING, FIXTURES AND EQUIPMENT SHOWN ON DRAWINGS IS UNDERSTOOD TO BE THE GENERAL ARRANGEMENT ONLY, TO BE FIELD ADJUSTED AS REQUIRED.
B.2. DRAWINGS DO NOT SHOW EVERY DETAIL OR ITEM REQUIRED FOR FIXTURE AND EQUIPMENT INSTALLATIONS. REFER TO ALL EQUIPMENT MANUFACTURER'S INSTRUCTIONS FOR ADDITIONAL REQUIRED PARTS AND ACCESSORIES NEEDED FOR COMPLETE INSTALLATIONS.
B.3. DOWN (IE) OF SANITARY DRAIN PIPING, SHOWN ON PLANS, IS ESTIMATED MINIMUM DEPTH BELOW FINISHED FLOOR ONLY, COORDINATE W/CIVIL FOR ADDITIONAL INFORMATION NOT SHOWN. THESE DRAWINGS ARE INTENDED TO GENERALLY SHOW THE EXISTING BUILDING AND PLUMBING SYSTEMS MODIFICATION REQUIRED FOR THIS PROJECT. INFORMATION PROVIDED INCLUDES LOCATION, QUANTITY, TYPE, SIZE, CAPACITY AND FUNCTION OF SPECIFIC COMPONENTS OF THE NEW/MODIFIED PLUMBING SYSTEMS TO BE PROVIDED BY CONTRACTOR.
B.5. FOR CLARITY, SEE PLUMBING FIXTURE AND DRAIN SCHEDULES FOR ALL PIPING CONNECTIONS SIZES NOT SHOWN ON PLANS.
B.6. INCIDENTAL MODIFICATIONS FOR DEMOLITION OF EXISTING PLUMBING SYSTEMS AND COMPONENTS AS REQUIRED FOR INSTALLATION OF NEW WORK IS INCLUDED AS PART OF THE PROJECT, WEATHER SHOWN ON PLANS OR NOT. CONTRACTOR SHALL FIELD VERIFY ALL REQUIREMENTS PRIOR TO BIDDING PROJECT.
- B.7. CEILING TILE AND GRID REMOVAL, MODIFICATIONS AND REINSTALLATION AS REQUIRED FOR WORK SHOWN SHALL BE PROVIDED BY OTHERS AND IS NOT CONSIDERED PART OF THE PLUMBING CONTRACTOR'S SCOPE OF WORK. COORDINATE WITH OWNER TO PROVIDE THE REQUIRED WORK ACCESS ABOVE ALL LAY-IN CEILINGS.
B.8. RELOCATION OF EXISTING BUILDING SYSTEMS AND EQUIPMENT, SUCH AS LIGHT FIXTURES, FIRE SPRINKLER PIPING AND HEADS, SMOKE DETECTORS, ELECTRICAL CONDUITS, DUCTWORK, ETC., AS REQUIRED BY FOR INSTALLATION OF NEW WORK IS TO BE PROVIDED BY OTHERS AND IS NOT CONSIDERED PART OF THE PLUMBING CONTRACTOR'S SCOPE OF WORK. COORDINATE WITH OWNER TO PROVIDE THE REQUIRED INTERFERENCE REMOVAL OF OTHER TRADES.
B.9. THE EXISTING BUILDING PLUMBING SYSTEMS ARE INTENDED TO BE REUSED AS SHOWN ON PLANS OR AS INSTALLED IF NOT SHOWN ON PLANS. ALL EXISTING PLUMBING SYSTEMS AND EQUIPMENT SHOWN ON PLANS IS FOR REFERENCE ONLY AND MAY BE DIFFERENT IN THE FIELD. CONTRACTOR SHALL FIELD SURVEY, TEST AND INSPECT ALL EXISTING PLUMBING SYSTEMS PRIOR TO BIDDING TO ENSURE HE UNDERSTANDS AND ACCEPTS ALL EXISTING CONDITIONS.
B.10. THE EXISTING GAS EQUIPMENT SHOWN ON PLANS ARE FOR REFERENCE ONLY TO ASSIST WITH MODIFICATIONS TO BE PROVIDED BY THE PLUMBING CONTRACTOR AND GAS UTILITY COMPANY. FIELD VERIFY ALL ACTUAL GAS LOADS PRIOR TO COORDINATING MODIFICATIONS WITH GAS UTILITY, GAS DESIGN, SIZING, LAYOUT, AND MODIFICATIONS ESTIMATES SHOWN ON PLANS ARE STRICTLY PRELIMINARY.
- C. SCOPE OF WORK:
C.1. FURNISH ALL REQUIRED LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO PERFORM THE WORK DESCRIBED IN THE CONSTRUCTION DOCUMENTS. CONTRACTOR SHALL MAKE ALL INSTALLATIONS ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND SPECIFICATION, IN ADDITION TO THOSE SHOWN ON PLANS.
C.2. INSTALL COMPLETE AND OPERABLE PLUMBING SYSTEMS AS DESCRIBED BY THE BASIS OF DESIGN DOCUMENTS. INCIDENTALS ITEMS NOT SPECIFIED, BUT WHICH ARE ESSENTIAL FOR THE PROPER OPERATION OF SPECIFIED SYSTEMS AND EQUIPMENT, ARE INCLUDED IN THE SCOPE OF WORK AND SHALL BE PROVIDED BY CONTRACTOR AT NO ADDITIONAL COST.
C.3. COMPLY WITH COMMISSIONING PLAN SHOWN ON DRAWINGS AND AS IMPLEMENTED BY OWNER'S DESIGNATED 'COMMISSIONING AGENT/AUTHORITY' (CA).
C.4. PROVIDE STRUCTURAL ENGINEERING DESIGN, DRAWINGS AND MODIFICATIONS FOR INSTALLATION OF PLUMBING EQUIPMENT OVER 100 LBS., UTILIZING THE BUILDING STRUCTURE OR FOUNDATION FOR SUPPORT, UNLESS PROVIDED IN ADVANCE BY OWNER.
- D. CODE COMPLIANCE:
D.1. ALL WORK SHALL BE PREPARED IN ACCORDANCE WITH ALL LOCALLY ADOPTED MECHANICAL FUEL GAS AND PLUMBING CODES, ACCORDING TO THE LOCAL AUTHORITY HAVING JURISDICTION(AHJ). THE BASIS OF DESIGN IS INTENDED TO COMPLY WITH ALL LOCAL CODES ENFORCED BY THE AHJ OVER THOSE PROJECTS. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS MADE BY THE AHJ, WHETHER SPECIFICALLY SHOWN ON PLANS OR NOT.
- E. DISCREPANCIES:
E.1. IN THE CASE OF A DISCREPANCY BETWEEN DRAWINGS, SPECIFICATIONS OR MANUFACTURER'S REQUIREMENTS, THE MOST STRINGENT SHALL APPLY AND BE COMPLIED WITH BY THE CONTRACTOR.
E.2. IN THE CASE IF A DISCREPANCY BETWEEN CODES AND THE CONSTRUCTION DOCUMENTS OR MANUFACTURER'S REQUIREMENTS, THE AHJ SHALL DETERMINE WHICH SHOULD BE COMPLIED WITH BY THE CONTRACTOR.
- F. JOBSITE CONDITIONS:
F.1. CONTRACTOR SHALL EXAMINE THE JOBSITE PRIOR TO BIDDING AND FULLY UNDERSTAND THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED, BY SUBMITTING A BID FOR WORK, CONTRACTOR ACCEPTS ALL JOB CONDITIONS AS-IS WITHOUT EXTRA COMPENSATION.
F.2. CONTRACTOR SHALL LOCATE AND UNCOVER THE EXISTING UTILITY SERVICES, INCLUDING GAS, WATER AND SEWER PIPING, TO DETERMINE EXISTING SIZE AND DEPTH OF EACH PRIOR TO STARTING WORK. SERVICE CONNECTIONS SHOWN ON THE PLANS ARE PRELIMINARY ONLY.
- G. PERMITS AND FEES:
G.1. CONTRACTOR SHALL OBTAIN THE NECESSARY PERMITS, LICENSES, AND CERTIFICATIONS REQUIRED BY THE AHJ AND PAY FOR ALL PERMITTING FEES.
- H. COORDINATION WITH OTHER TRADES:
H.1. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO AVOID INTERFERENCES, PROPERLY SEQUENCE INSTALLATIONS, AND PROVIDE MANUFACTURER'S REQUIRED SERVICE CLEARANCES. WHERE REQUIRED, CONTRACTOR SHALL MAKE THE ADJUSTMENTS TO PLUMBING SYSTEMS AND OR INSTALLATION SCHEDULE.
H.2. ALL FUEL GAS CONNECTIONS TO HVAC EQUIPMENT, INCLUDING SERVICE VALVES REGULATORS, FLEXIBLE COUPLINGS, AND OTHER FITTINGS SHALL BE PROVIDED BY PLUMBING CONTRACTOR AS REQUIRED BY MANUFACTURER'S INSTALLATION INSTRUCTIONS, OBTAIN COMPLETE AND FINAL FUEL PIPING REQUIREMENTS FROM EQUIPMENT SUPPLIER.
H.3. ALL ELECTRICAL CONNECTIONS TO PLUMBING FIXTURES AND EQUIPMENT SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR, INCLUDING DISCONNECTS, ENCLOSURES REQUIREMENTS FOR EQUIPMENT FURNISHED.
H.4. COORDINATE WITH ROOFING CONTRACTOR TO SEAL ALL PIPING PENETRATION THROUGH ROOF PER ARCHITECTURAL ROOFING SPECIFICATIONS, PROVIDE ALL WEATHERPROOFING REQUIRED.
- I. UTILITY CONNECTIONS:
I.1. COORDINATE WITH UTILITY TO DETERMINE ACTUAL REQUIREMENTS FOR NEW SERVICE CONNECTION SAND METERING. INSTALL ALL UTILITY CONNECTIONS AS REQUIRED BY UTILITY SPECIFICATIONS.
I.2. PAY ALL UTILITY REQUIRED FEES FOR SERVICE CONNECTIONS OR MODIFICATIONS SHOWN ON PLANS.
- J. CONTRACTOR FURNISHED EQUIPMENT & MATERIALS:
J.1. SHALL BE NEW, MANUFACTURED CERTIFIED TO COMPLY WITH THE BASIS OF DESIGN, FREE OF DEFECT AND COVERED UNDER A MINIMUM 1-YEAR FACTORY WARRANTY, UNLESS SPECIFIED DIFFERENTLY ELSEWHERE.
J.2. SHALL BE AS SPECIFIED IN CONSTRUCTION DOCUMENTS OR AN ACCEPTABLE SUBSTITUTION OF EQUAL ITEM. ALL SUBSTITUTIONS MUST BE APPROVED THROUGH THE COMMISSIONING PROCESS TO BE ACCEPTABLE.
J.3. SHALL BE COMMERCIAL GRADE EQUIPMENT AND MATERIALS, UNLESS OTHERWISE INDICATED IN CONSTRUCTION DOCUMENTS.
- K. CUTTING AND PATCHING:
K.1. WHERE CUTTING AND PATCHING ARE REQUIRED TO INSTALL PLUMBING SYSTEMS, CONTRACTOR SHALL PROVIDE THE CUTTING SERVICE AND DO SO AS TO MINIMIZE THE AMOUNT OF OPENING. AFTER PLUMBING SYSTEMS HAVE BEEN INSTALLED, PATCH ALL OPENINGS TO MATCH ADJACENT FINISHED SURFACES.
K.2. FINISHED TEXTURING AND PAINTING TO BE PROVIDED BY OTHERS BUT AT THE PLUMBING CONTRACTORS EXPENSES.
- L. PIPING AND SUPPORTS:
L.1. OPEN PIPING SYSTEMS, INCLUDING FLOOR DRAINS, FLOOR SINKS, HUB DRAINS, ETC., SHALL BE CAPPED OR PLUGGED DURING ALL CONSTRUCTION TO PREVENT DAMAGE AND THE ENTRANCE OF FOREIGN MATERIALS. REMOVE ALL PROTECTIVE COVERINGS UPON COMPLETION OF ALL WORK.

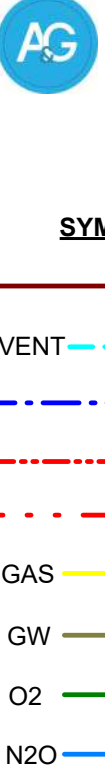


- L.2. COORDINATE WITH HVAC CONTRACTOR TO MAINTAIN A MINIMUM OF TEN (10) FEET OF SEPARATION BETWEEN ALL VENT STACKS TERMINATIONS AND ALL OUTDOOR AIR INTAKES.
L.3. HOLD ALL PIPING TIGHT AGAINST STRUCTURE TO AVOID DAMAGE AND INTERFERENCE FROM OTHER TRADES. RUN ALL PIPING IN A NEAT AND WORKMAN LIKE MANNER PARALLEL TO BUILDING LINES.
L.4. PROVIDE ALL REQUIRED PIPING HANGERS AND SUPPORTS WITH PROPER SPACING PER CODE REQUIREMENTS. GROUP PARALLEL RUNS OF PIPING TOGETHER ON COMMON HANGERS AND SUPPORTS TO MINIMIZE SPACE WHEREVER POSSIBLE.
L.5. MAINTAIN MINIMUM 1/4" PER FOOT SLOPE TOWARDS DRAIN FOR BOTH WASTE AND VENT PIPING. ROUT ALL DRAIN PIPING AS NEEDED TO MINIMIZE REQUIRED DEPTH OF BUILDING SEWER. DRAIN PIPING ROUTING SHOWN ON PLANS IS SCHEMATIC LAYOUT, PLUMBING CONTRACTOR SHALL DETERMINE ACTUAL ROUTING PER CODE AND AS TO MINIMIZE COST TO OWNER.
L.6. PROVIDE INSULATION FOR ALL PLUMBING SYSTEMS AND EQUIPMENT AS REQUIRED FOR PREVENTION OF HEAT LOSS AND/OR FREEZING, REGARDLESS IF SHOWN ON PLANS OR NOT.
- M. EQUIPMENT INSTALLATIONS:
M.1. WHERE REQUIRED FOR EQUIPMENT PIPING CONNECTIONS, PROVIDE STEEL CHANNEL SUPPORTS STANDS FOR MOUNTING OF PIPING, VALVES, AND FITTINGS. PROPERLY SECURE SUPPORTS TO FLOORS OR WALLS.
M.2. ENSURE THAT SERVICE CLEARANCES ARE NOT BLOCKED BY ROUTING OF PIPING OR SUPPORT STRUCTURES AT ALL EQUIPMENT CONNECTIONS. COORDINATE WITH HVAC CONTRACTOR AND OR EQUIPMENT PROVIDER TO DETERMINE REQUIRED CLEARANCES AND SERVICE WORK AREAS.
M.3. PROVIDE WATER HAMMER ARRESTERS ON HOT AND COLD-WATER SUPPLY PIPING FOR ALL WASHING MACHINES, DISHWASHERS, FLUSH VALVES, AND ANY OTHER EQUIPMENT WITH QUICK CLOSING VALVES, AND WHERE REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION. FOR CLARITY, ARRESTORS MAY NOT BE SHOWN ON PLANS.
M.4. PROVIDE TRAP PRIMERS AND WATER SUPPLY PIPING ON ALL FLOOR DRAINS. FOR CLARITY, TRAP PRIMERS MAY NOT BE SHOWN ON PLANS.
M.5. INSTALL PUMP AND OTHER VIBRATING EQUIPMENT IN A MANNER THAT MINIMIZES NOISE LEVELS. MAKE ALL POSSIBLE ADJUSTMENTS TO REDUCE NOISE TO ACCEPTABLE LEVELS. SQUEAKS, SQUEALING AND RATTLING ARE NOT ACCEPTABLE.
- N. EXCAVATIONS:
N.1. IT IS THE PLUMBING CONTRACTORS JOB TO CALL FOR A DIG TEST.
N.2. PERFORM EXCAVATIONS CAUTIOUSLY TO AVOID DISRUPTION OR DAMAGE TO UNDERGROUND UTILITIES HAVE ALL UNDERGROUND UTILITIES LOCATED AND MARKED. PRIOR TO DIGGING, UTILIZE HAND DIGGING WHEN NEAR BURIED PIPING, CABLES, GAS LINES, ETC. ANY AND ALL DAMAGE TO UNDERGROUND UTILITIES WILL BE REPAIRED BY OTHERS BUT AT THE PLUMBING CONTRACTORS EXPENSE.
N.3. E.C.COMBINE UNDERGROUND PIPING INTO COMMON TRENCHES WHERE POSSIBLE TO MINIMIZE TRENCHING. PIPE ROUTING SHOWN ON PLANS IS PRELIMINARY. SEE CIVIL ENGINEERING PLANS FOR FINAL ROUTING, EQUIPMENT AND UTILITY CONNECTION LOCATIONS.
- O. DELIVERY, STORAGE AND PROTECTION:
O.1. CONTRACTOR SHALL FURNISH DELIVERY OF ALL REQUIRED MATERIALS AND EQUIPMENT TO BE INSTALLED ABOVE ALL LAY-IN EQUIPMENT IS UNLIMAGED AT THE TIME OF DELIVERY FORM THE FACTORY. DAMAGED ITEMS SHOULD BE RETURNED TO THE FACTORY FOR REPLACEMENTS AT NO ADDITIONAL COST TO THE OWNER.
O.2. WHERE REQUIRED, CONTRACTOR SHALL PROVIDE CRANE AND OR ALL RIGGING EQUIPMENT NEEDED TO INSTALL PLUMBING EQUIPMENT IN PLACE AS SHOWN ON PLANS.
O.3. CONTRACTOR SHALL ADVISE OWNER TO OBTAIN ACCEPTABLE JOBSITE STORAGE LOCATION FOR MATERIALS. CONTRACTOR SHALL COMPLY WITH OWNER REQUIREMENTS FOR PROTECTION, ACCESS AND SECURITY OF MATERIALS STORED ONSITE.
O.4. CONTRACTOR SHALL TAKE ALL REQUIRED PRECAUTIONS TO PROPERLY PROTECT ALL STORED MATERIALS FORM WEATHER, DAMAGE, THEFT OR ANY OTHER HAZARD PRESENT AT THE STORAGE LOCATION.
- P. SPARE PARTS:
P.1. PRIOR TO COMPLETION OF WORK, CONTRACTOR SHALL PROVIDE OWNER WITH ALL SPARE PARTS PROVIDED FROM FACTORY WITH ANY EQUIPMENT PURCHASED FOR THE PROJECT.
- COMMISSIONING PLAN - PLUMBING:**
- A. COMMISSIONING AGENT
THE OWNER'S PROJECT MANAGER OR OTHER PERSON DESIGNATED SHALL FUNCTION AS THE COMMISSIONING AGENT (CA) FOR THE PROJECT.
- B. SUBMITTALS
B.1. IN ORDER TO OBTAIN OFFICIAL APPROVAL PRIOR TO ORDERING OF EQUIPMENT, CONTRACTOR SHALL FURNISH THE CA WITH MANUFACTURE'S SUBMITTAL DATA ON ALL NEW EQUIPMENT TO BE FURNISHED. PRE-CONSTRUCTION SUBMITTALS SHALL INCLUDE MANUFACTURER'S SPECIFICATIONS, SHOP DRAWINGS AND MATERIALS DATA SHEETS. PROVIDE SUBMITTALS FOR THE FOLLOWING MAJOR COMPONENTS AND EQUIPMENT PRIOR TO ORDERING:
B.1.1. PLUMBING FIXTURES, PLUMBING FIXTURE ACCESSORIES, FAUCETS, VALVES, ETC. WATER HEATERS, HOT WATER CIRCULATION PUMPS, PIPING (HOT, DOMESTIC, AND NATURAL GAS)
- C. FIELD INSPECTIONS:
C.1. WHERE REQUIRED BY CA, COORDINATE FIELD INSPECTIONS OF CRITICAL CONSTRUCTION DETAILS FOR APPROVAL, PRIOR TO PROCEEDING WITH ADDITIONAL WORK. AT A MINIMUM, FIELD INSPECTIONS SHALL INCLUDE:
C.1.1. PIPING SYSTEM STARTUP AND TESTING, EQUIPMENT STARTUP AND TESTING, OPERATIONS AND MAINTENANCE TRAINING
- D. STARTUP AND TESTING:
D.1. PRESSURE TEST THE WASTE/VENT PIPING SYSTEMS BY PLUGGING BUILDING MAIN DRAIN CONNECTION TO SEWER, AND FILLING ENTIRE SYSTEM FULL OF WATER FROM LOWEST POINT TO HIGHEST POINT.
D.2. PRESSURE TEST THE POTABLE WATER SYSTEMS TO MINIMUM OF 60 PSIG, USING POTABLE WATER OR AIR. FOR A MINIMUM OF 60 MINUTES WITHOUT LEAKS. FLUSH TO REMOVE DEBRIS AND PROVIDE DISINFECTION AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
D.3. FOLLOW ALL EQUIPMENT MANUFACTURERS INSTALLATION INSTRUCTIONS TO PROVIDE COMPLETE STARTUP AND TESTING OF NEW PLUMBING EQUIPMENT. MAKE MODIFICATION ADJUSTMENTS AS REQUIRED TO MEET PERFORMANCE SPECIFICATIONS ON PLANS. PROVIDE THE CA WITH COMPLETED MANUFACTURE'S STARTUP SHEETS AS RECORD OF SUCCESSFUL INSTALLATION. PROVIDE STARTUP FOR THE FOLLOWING:
D.3.1. NATURAL GAS FIRED WATER HEATERS, CIRCULATION PUMPS, NATURAL GAS FIRED DRIERS
- E. O&M DOCUMENTATION:
E.1. PROVIDE THE CA WITH A MINIMUM OF TWO (2) SETS OF BINDERS FOR THE PROJECT. EACH BINDER SHOULD INCLUDE THE FOLLOWING ITEMS:
E.1.1. AS-BUILD DRAWING MARKUPS SHOWING MODIFICATIONS WHERE INSTALLATIONS ARE DIFFERENT THAN DESIGN DRAWINGS.
E.1.2. EQUIPMENT MANUFACTURES' INSTALLATION, OPERATION MAINTENANCE MANUALS.
E.1.3. COMPLETED MANUFACTURE'S EQUIPMENT STARTUP SHEETS.
E.1.4. EQUIPMENT SET-POINTS DETERMINED AT STARTUP.
E.1.5. EQUIPMENT WARRANTIES
- F. TRAINING:
F.1. PROVIDE A MINIMUM OF ONE (1) TRAINING SESSION OF NO LESS THAN TWO (2) HOURS OF ON-SITE TRAINING FOR OWNER'S OPERATIONAL STAFF UPON COMPLETION OF ALL STARTUP WORK. TRAINING SHALL COVER OPERATIONS AND MAINTENANCE ON ALL NEW PLUMBING SYSTEMS AND EQUIPMENT INSTALLED BY CONTRACTOR. TRAINING SHALL UTILIZE MANUFACTURER'S OPERATIONS AND MAINTENANCE MANUALS AS BASIS FOR INSTRUCTION.
- EQUIPMENT & MATERIALS - PLUMBING**
- A. NATURAL GAS EQUIPMENT:
A.1. GAS PIPING: BLACK STEEL, CONFIRMING TO ASTM A 53 OR ASTM A 106. SCHEDULE 40 WITH SCREWED OR WELDED JOINTS AND FITTINGS OF SAME MATERIAL AS PIPING. SCREWED FITTINGS SHALL USE JOINT TAPE ON ALL MALE THREADS WELDED JOINTS SHALL USE AN APPROVED METAL FILLER MATERIAL FOR NATURAL GAS.
A.2. GAS COCK: FLAT TEE HEAD GAS PLUG VALVE, BRONZE BODY, RATED TO 2 PSIG, FNPT THREADED, AS MANUFACTURED BY A.Y. MCDONALD OR EQUALS. SELECT VALVE SUITABLE FOR LOCATION WHERE INSTALLED.
A.3. VENT PIPING: SHALL BE AS SPECIFIED BY GAS FIRED EQUIPMENT MANUFACTURER'S INSTRUCTIONS AS FOLLOWS:
A.3.1. TYPE B, HEAVY-GAUGE, DOUBLE WALL AIR-INSULATED PIPE, GALVANIZED STEEL OUTER WALL, ALUMINUM INNER WALL. MANUFACTURED BY AMERVENT, OR EQUAL. FITTINGS AND ACCESSORIES SHALL BE BY SAME MANUFACTURER AS VENT PIPING.
A.3.2. SCHEDULE 40 PVC PIPING AND FITTINGS AS REQUIRED BY MANUFACTURER'S INSTRUCTIONS. PROVIDE FACTORY WALL CAP AT TERMINATION. PROVIDE CONDENSATE DRAIN PIPING AND FITTINGS AND ROUTE TO APPROVED DRAIN LOCATIONS, PER MANUFACTURE'S INSTRUCTIONS. WHERE REQUIRED FOR PROPER DRAINAGE, PROVIDE FACTORY CONDENSATE DRAIN PUMP AND CONDENSATE NEUTRALIZER.
- B. DOMESTIC WATER PIPING :
B.1. WATER SERVICE PIPING (OUTSIDE BUILDING): MINIMUM 160 PSI PRESSURE RATED, CONFORMING TO NSF 61 STANDARDS, OF THE FOLLOWING APPROVED TYPES:
TYPE K COPPER, WITH JOINTS AND FITTINGS OF SAME MATERIAL. SOLDER JOINTS SHALL HAVE A MAXIMUM OF 8% LEAD CONTENT.



- B.1.2. GALVANIZED STEEL PIPING,JOINTS AND FITTINGS.
B.1.3. PVC PLASTIC PIPE AND FITTINGS WITH SLIP OR SCREWED JOINTS AND FITTINGS OF SAME MATERIAL.
B.1.4. POLYETHYLENE (PE) PLASTIC TUBING, JOINTS, AND FITTINGS.
B.1.5. POLYPROPYLENE (PP) PLASTIC PIPE OR TUBING, JOINTS AND FITTINGS.
B.2. WATER DISTRIBUTION PIPING (INSIDE BUILDING): MINIMUM 100 PSI PRESSURE RATED, CONFORMING TO NSF 61 STANDARDS OF THE FOLLOWING APPROVED TYPES:
B.2.1. TYPE L OR M COPPER, WITH JOINTS AND FITTINGS OF SAME MATERIAL. SOLDER JOINTS SHALL BE TYPE L WITH LEAD FREE FLUX AND SOLDER.
B.2.2. GALVANIZED STEEL PIPING, JOINTS AND FITTINGS.
B.2.3. CPVC PLASTIC PIPE AND FITTINGS WITH SLIP OR SCREWED JOINTS AND FITTINGS OF SAME MATERIAL.
B.2.4. PEX PLASTIC TUBING AND FITTINGS.
- C. SANITARY WASTE AND VENT PIPING: CAN UTILIZE ANY OF THE FOLLOWING PIPING MATERIAL TYPES DEPENDING UPON THE APPLICATION:
C.1. BUILDING DRAINAGE (INSIDE BUILDING):
C.1.1. SCHEDULE 40 ABS PLASTIC PIPE AND FITTINGS
C.1.2. CAST IRON PIPE AND FITTINGS
C.1.3. SCHEDULE 40 PVC PLASTIC PIPING AND FITTINGS
C.2. BUILDING SEWER(OUTSIDE BUILDING):
C.2.1. SCHEDULE 40 ABS PLASTIC PIPE AND FITTINGS
C.2.2. CAST IRON PIPE AND FITTINGS
C.2.3. SCHEDULE 40 PVC PLASTIC PIPING AND FITTINGS
- D. PIPING INSULATION:
D.1. MATERIALS: PIPING INSULATION MATERIALS SHALL BE ONE OF THE FOLLOWING TYPES:
D.1.1. POLYETHYLENE FOAM, SELF-SEALING TYPE
D.1.2. RUBBER, SELF-SEALING TYPE/MOLDED FIBERGLASS WITH ALL SERVICE JACKET
D.2. DOMESTIC HW PIPING:
PROVIDE PIPING INSULATION ON ALL DOMESTIC HOT WATER PIPING, AS WELL AS ALL DOMESTIC WATER PIPING INSTALLED IN EXTERIOR WALLS, ATTICS OR UNCONDITIONED SPACES. INSULATION SHALL BE MINIMUM R-4 RATED, WITH MINIMUM 1" THICKNESS ON HW PIPING UP THRU 1-1/4" AND MINIMUM 1.5" ON PIPING OVER 1-1/4".
D.3. LAVATORIES:
INSULATE ALL EXPOSED DRAIN AND WATER PIPING UNDER LAVATORIES WITH FACTORY COVERS AS MANUFACTURED BY TRUEBRU LAVGUARD, MODEL #102 OR EQUAL.
- E. PLUMBING FIXTURES AND ACCESSORIES:
AS SCHEDULED ON DRAWINGS OR APPROVED EQUAL. FURNISH AND INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE ALL REQUIRED FITTINGS AND ACCESSORIES FOR A COMPLETE AND FUNCTIONING FIXTURE, WHETHER SPECIFIED ON PLANS OR NOT.
E.1. POINT OF USE MIXING VALVES:
THERMOSTATIC TEMPERATURE LIMITING DEVICE USED TO SUPPLY SINGLE OUTLET, AS MANUFACTURED BY THERM-O-JET, MODEL #170-TLF, OR EQUAL. ADJUST AS NEEDED TO MAINTAIN MAXIMUM WATER TEMPERATURE AT OUTLET BELOW 120°F.
E.2. WATER HEATERS:
TYPE, STORAGE CAPACITY (IF NOT TANKLESS), AND PERFORMANCE AS SCHEDULED ON DRAWINGS OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE ALL CONNECTIONS, VALVES AND FITTINGS AS SHOWN ON THE PLANS, INCLUDING THE FOLLOWING ACCESSORIES:
E.3. EXPANSION TANK:
ANTI-MICROBIAL LINER, WATER DIFFUSER, PRE-CHARGED TO MATCH WATER SERVICE PRESSURE, DEEP DRAWN STEEL DOMES, THICK RUBBER DIAPHRAGM, STAINLESS STEEL SYSTEM CONNECTION. NSF61 APPROVED, AS MANUFACTURED BY AMITROL, MODEL THERM-X-TROL, OR EQUAL. SIZING SHALL BE PROVIDED BY VENDOR BASED ON WATER HEATER CAPACITY.
E.4. VACUUM BREAKER:
LOW PROFILE, ALL BRASS BODY, PROTECTIVE CAP, AS MANUFACTURED BY WATTS MODEL #N36-M1 OR EQUAL. LINE SIZED FOR COLD WATER INLET PIPING.
E.5. T&P RELIEF VALVE:
TEMPERATURE AND PRESSURE RELIEF VALVE, LEAD-FREE COPPER ALLOY BODY WITH NPT MALE INLET AND NPT FEMALE OUTLET CONNECTIONS. UNIQUE THERMOSTAT WITH SPECIAL THERMO-BONDED COATING, AND A TEST LEVER. TEMPERATURE RELIEF:210°F, PRESSURE RELIEF RANGE: 75PSI TO 150PSI, AS MANUFACTURED BY WATTS, SERIES LF100XL.
E.6. HW RECIRCULATION PUMP:
IN-LINE CENTRIFUGAL PUMP, ELECTRONIC CONTROLS CAPABLE OF STARTING/STOPPING THE PUMP AS THE DEMAND FOR HOT WATER COMES AND GOES, AND STOPPING PUMP WITHIN 5 MINUTES OF END OF HEATING CYCLE. INCLUDE ALL FACTORY REMOTE TEMPERATURE SENSORS AND ACCESSORIES REQUIRED TO COMPLY WITH IECC (AHJ APPROVED YEAR).
- E.7. HOSE BIBBS:
E.7.1. OUTDOOR SHALL BE WOODFORD MODEL 67, CHROME FINISH, FREEZEPROOF TYPE, AUTOMATIC DRAINING WITH BACK FLOW PREVENTER AND KEVED OPERATION, OR APPROVED EQUAL. CONTRACTOR SHALL VERIFY WALL THICKNESS PRIOR TO ORDERING HOSE BIBBS.
E.7.2. INDOOR: SHALL BE WOODFORD MODEL 24P-1/2, CHROME FINISH, ANTI-SIPHON VACUUM BREAKER, OPTIONAL TEE KEY, OR APPROVED EQUAL.
- E.8. FLOOR DRAINS:
AS SCHEDULED ON DRAWINGS OR MANUFACTURER RECOMMENDED EQUAL. VERIFY SCHEDULED SELECTIONS WITH DRAIN MANUFACTURER FOR EXPECTED USE AND LOCATION AND PROVIDE MANUFACTURER SPECIFIED DRAINS, ALONG WITH RECOMMENDED ACCESSORIES.
- E.9. TRAP PRIMERS:
PROVIDE ALL FLOOR DRAINS WITH TRAP PRIMERS OR AS NOTED ON PLANS. AUTOMATIC VALVE, BRASS BODY, 1/2" NPT THREADED CONNECTIONS, AS MANUFACTURED BY JAY R. SMITH, FIGURE 2699 OR EQUAL.
- E.10. CLEANOUTS:
PROVIDE WHERE SHOWN ON PLANS AND AS REQUIRED BY LOCAL PLUMBING CODES. CLEANOUTS SHALL BE SUITABLE FOR CONDITIONS WHERE INSTALLED AS FOLLOWS:
E.10.1. FLOORS, FINISHED:
CAST IRON WITH NICKEL BRONZE, ADJUSTABLE TOP, AS MANUFACTURED BY J.R. SMITH,MODEL # 4020 OR EQUAL.
E.10.2. FLOORS UNFINISHED:
CAST IRON WITH NON-TILT TRACTOR COVER, ADJUSTABLE TOP, AS MANUFACTURED BY J.R.SMITH, MODEL #4237 OR EQUAL.
E.10.3. WALL:
CAST IRON CLEAN-OUT TEE, STAINLESS STEEL ROUND COVER AND SCREW, IRON PLUG WITH SEAL, AS MANUFACTURED BY J.R. SMITH,MODEL#4205 OR EQUAL.
E.10.4. GRADE:
HEAVY DUTY CAST IRON COVER, FLANGED FOR USE IN POURED CONCRETE, SUITABLE FOR USE IN ASPHALT PAVING OR EARTH, CAST IRON BODY WITH ADJUSTABLE TOP, AS MANUFACTURED BY J.R. SMITH, MODEL #4250 OR EQUAL.
E.10.5. 2-WAY(DOUBLE):
GRADE CLEAN-OUT WITH 2-WAY CLEAN-OUT TEE FITTING IN SEWER LINE, JUST OUTSIDE BUILDINGS WALL OR AS SHOWN ON PLANS.
- E.11. BACK-FLOW PREVENTER:
REDUCED PRESSURE TYPE, DUAL CHECK VALVES WITH INTERMEDIATE RELIEF VALVE, TEE HANDLE SHUTOFF VALVES, AS MANUFACTURED BY WATTS, SERIES 009 OR EQUAL.
- E.12. BALL VALVES:
LINE SIZED, FULLY PORTED, BRASS BODY.
- E.13. WATER HAMMER ARRESTERS:
PROVIDE SHOCK ABSORBER ON DOMESTIC WATER AND HOT WATER SUPPLY LINES FOR ALL FAST ADJUSTING SHUTOFF VALVES, INCLUDING BUT NOT LIMITED TO WASHING MACHINES, DISHWASHERS AND OTHER EQUIPMENT WITH AUTOMATIC VALVES, AS MANUFACTURED BY WATTS, MODEL #51M2 OR EQUAL. SELECT AND INSTALL PER MANUFACTURERS INSTRUCTIONS.
- E.14. ELECTRIC WATER COOLER:
SELF-CONTAINED, HEAVY DUTY, VANDAL RESISTANT WATER COOLER, FRONT PUSHBUTTON ACTIVATION, INTERNAL BASIN DRAIN, WALL MOUNTED, AS MANUFACTURED BY ELKAY, #RVCHT0185C OR APPROVED EQUAL. SEE SCHEDULES FOR PERFORMANCE REQUIREMENTS. REFRIGERATION SYSTEM INCLUDES RECIPROCATING TYPE COMPRESSOR WITH R134 REFRIGERANT, COPPER TUBING AND STAINLESS-STEEL TANK, EPS FOAM INSULATION, CONDENSER FAN AND ADJUSTABLE THERMOSTATIC CONTROLS.
- E.15. SAMPLE WELL:
FACTORY MADE, BELOW GRADE INSTALLATION, CONCRETE CONSTRUCTION WITH STEEL RISER COVER, PEDESTRIAN RATED LOADING ON COVER, AS MANUFACTURED BY PARK ENVIRONMENTAL, MODEL #SWBP OR EQUAL. COORDINATE FINAL SELECTION, INCLUDING REQUIRED ACCESSORIES AND DESIGN.

DESIGN WITHOUT CONSTRUCTION ADMINISTRATION:
IT IS UNDERSTOOD AND AGREED THAT THE ARCHITECT/ENGINEER'S SCOPE DOES NOT INCLUDE PROJECT OBSERVATION OR REVIEW OF THE CONTRACTOR'S PERFORMANCE OR ANY OTHER CONSTRUCTION PHASE SERVICES. THE OWNER AGREES TO PROVIDE CONSTRUCTION ADMINISTRATION AND ASSUMES ANY AND ALL POTENTIAL LIABILITY ARISING FROM SUCH ADMINISTRATION. THE OWNER ASSUMES ALL RESPONSIBILITY FOR THE INTERPRETATION OF THE CONTRACT DOCUMENTS AND FOR CONSTRUCTION OBSERVATION AND THE OWNERS WAIVES ANY CLAIMS AGAINST THE ARCHITECT/ENGINEER THAT MAY BE IN ANY WAY CONNECTED THERETO. THE ARCHITECT/ENGINEER WILL NOT RESPOND TO ANY QUESTIONS DIRECTED TO THE INTERPRETATION OF THE CONTRACT DOCUMENTS OR IN RESPONSE TO ISSUES ENCOUNTERED BY AND AS RELAYED BY THE CONTRACTOR IN THE FIELD.



SYMBOL LEGEND - PLUMBING:

- SANITARY SEWER LINE
— VENT — SANITARY VENT LINE
- - - DOMESTIC COLD WATER LINE
- - - DOMESTIC HOT WATER LINE (INSULATED)
- - - DOMESTIC HW RE-CIRCULATION LINE
— GAS — NATURAL GAS LINE
— GW — GREASE WASTE LINE
— O2 — OXYGEN LINE (1/2" COPPER, UON)
— N2O — MED GAS (NITROUS OXIDE) PIPING (3/8" COPPER, UON)
— AIR — COMPRESSED AIR LINE (1/2" COPPER, UON)
— VAC — VACUUM LINE (1/2" PVC, UON) CONNECTED TO SCAVENGE
- POINT OF CONNECTION TO EXISTING WATER PIPING
— PIPE ELBOW, 90 DEG TURNED DOWN
— PIPE ELBOW, 90 DEG TURNED UP
— PIPE TEE, BRANCH TURNED DOWN
— PIPE TEE, BRANCH TURNED UP
— VENT STACK CONNECTION TO WASTE LINE BELOW
— WASTE STACK THROUGH FLOOR
— CLEANOUT, FLOOR OR GRADE, WITH PROPER COVER
— WALL CLEANOUT PLUG AND COVER
— WALL HYDRANT, FREEZEPROOF WITH VACUUM BREAKER
— GATE VALVE, LINE SIZED
— BALL VALVE, LINE SIZED
— GAS COCK, LINE SIZED
— CHECK VALVE OR BACKFLOW PREVENTOR AS NOTED
— PRESSURE REGULATOR VALVE, GAS OR WATER
— BALANCING VALVE OR CIRCUIT SETTER
— PIPE UNION COUPLING
— PIPE FLEXIBLE COUPLING
— HW RECIRCULATION PUMP (WITH AQUASTAT)
— NEW PLUMBING FIXTURE
— NEW FLOOR DRAIN
— FLOOR SINK
— TEMPERING VALVE
— OUTLET PORT - AIR 1/2" UON
— OUTLET PORT - NITROUS OXIDE 3/8" UON
— OUTLET PORT - OXYGEN 1/2" UON
— INLET PORT - VACUUM/SCAVANGE 1/2" UON



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ISSUE FOR PERMIT	DESCRIPTION	DATE
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REVISION SCHEDULE		



29 FEB 2024

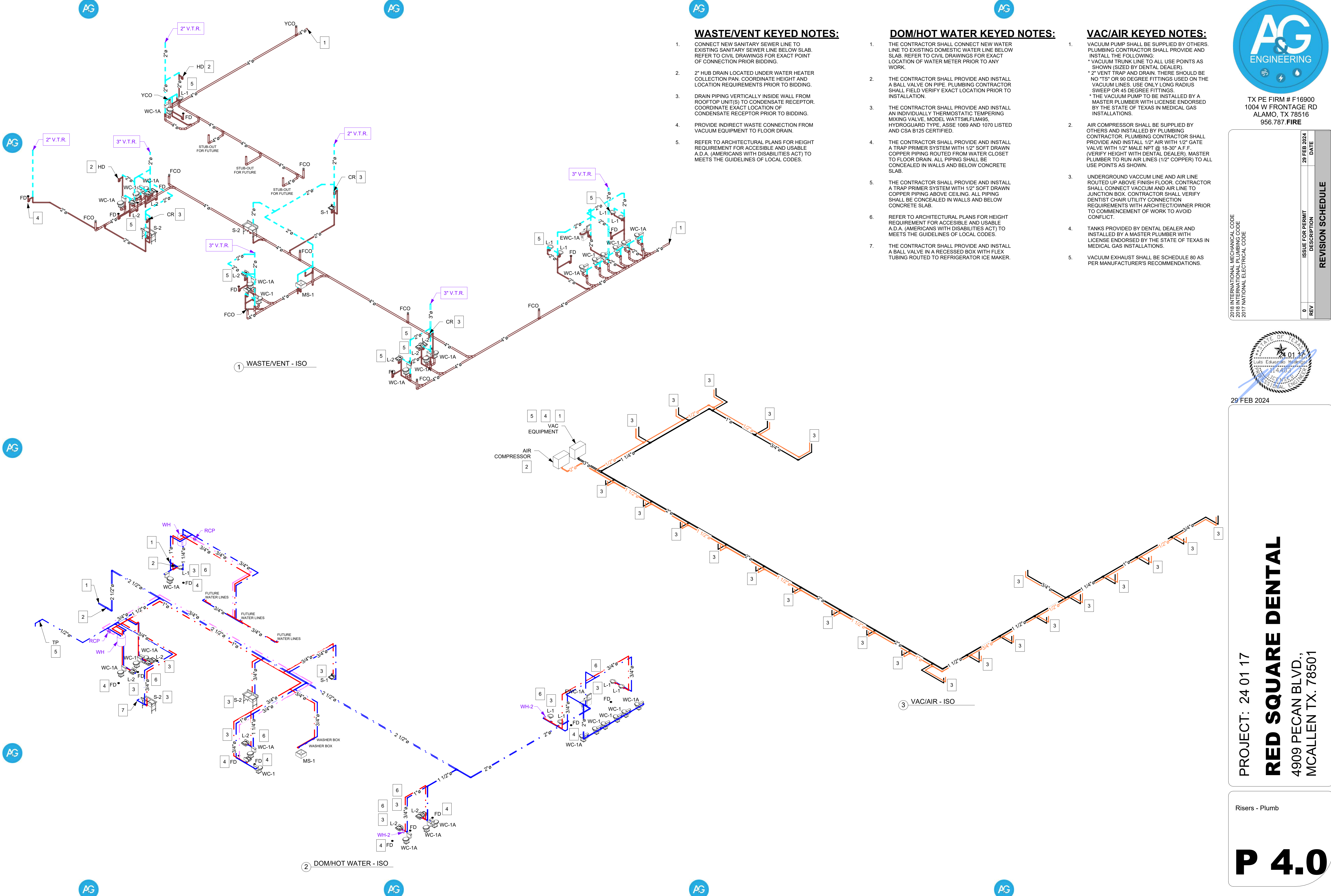
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REVISION SCHEDULE		
REV	DESCRIPTION	DATE
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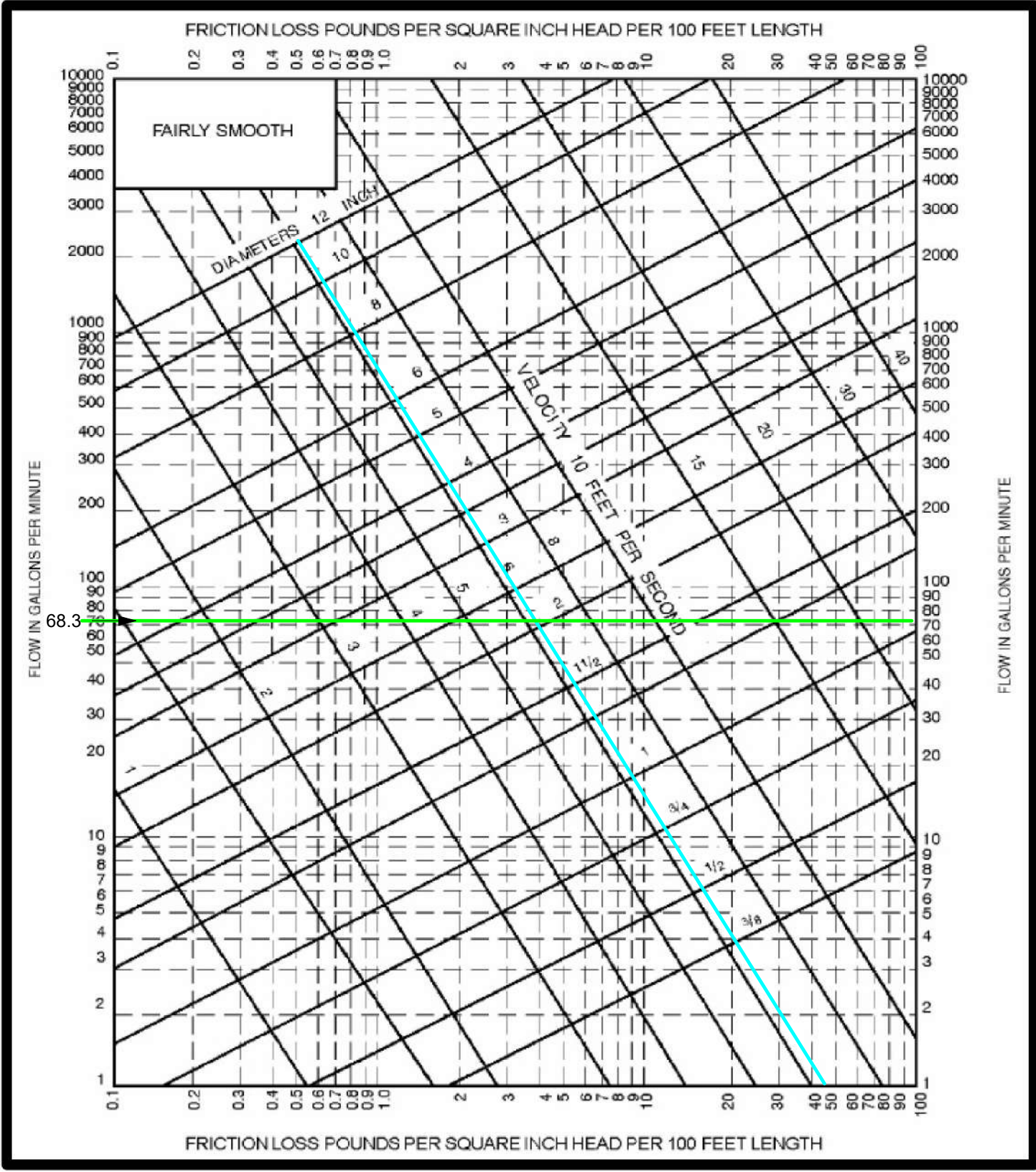
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WATER SUPPLY FIXTURE UNITS (2018 IPC-Table E103.3(2))						
DEVICE	WSFU PER DEVICE				TOTAL WSFU	
	COLD	HOT	TOTAL	QTY	COLD	HOT TOTAL
BATHTUB (PRIVATE)	1.0	1.0	1.4	0	0.00	0.00 0.00
BATHTUB (PUBLIC)	3.0	3.0	4.0	0	0.00	0.00 0.00
LAVATORY (PRIVATE)	0.5	0.5	0.7	12	6.00	6.00 8.40
LAVATORY (PUBLIC)	1.5	1.5	2.0	0	0.00	0.00 0.00
WATER CLOSET (PRIVATE FLUSH TANK)	2.2	0.0	2.2	0	0.00	0.00 0.00
WATER CLOSET (PRIVATE FLUSH VALVE)	6.0	0.0	6.0	14	84.00	0.00 84.00
WATER CLOSET (PUBLIC FLUSH TANK)	5.0	0.0	5.0	0	0.00	0.00 0.00
WATER CLOSET (PUBLIC FLUSH VALVE)	10.0	0.0	10.0	0	0.00	0.00 0.00
WATER CLOSET (PUB./PRIV. FLUSHOMETER)	2.0	0.0	2.0	0	0.00	0.00 0.00
SHOWER HEAD (PUBLIC)	3.0	3.0	4.0	0	0.00	0.00 0.00
SHOWER HEAD (PRIVATE)	1.0	1.0	1.4	0	0.00	0.00 0.00
SINK (PRIVATE)	1.0	1.0	1.4	3	3.00	3.00 4.20
KITCHEN SINK (HOTEL/RESTAURANT)	3.0	3.0	4.0	0	0.00	0.00 0.00
SERVICE SINK	2.25	2.25	3.0	0	0.00	0.00 0.00
WATER HEATER	0.00	2.0	2.0	3	0.00	6.00 6.00
BIDET	1.5	1.5	2.0	0	0.00	0.00 0.00
URINAL (1" FLUSHOMETER)	10.0	0.0	10.0	0	0.00	0.00 0.00
URINAL (3/4" FLUSHOMETER)	5.0	0.0	5.0	0	0.00	0.00 0.00
COMBINATION FIXTURE	2.25	2.25	3.0	0	0.00	0.00 0.00
WASHING MACHINE (8 LBS PUBLIC)	2.25	2.25	3.0	0	0.00	0.00 0.00
WASHING MACHINE (8 LBS PRIVATE)	1.0	1.0	1.4	0	0.00	0.00 0.00
WASHING MACHINE (15 LBS PUBLIC)	3.0	3.0	4.0	0	0.00	0.00 0.00
HOSE BIB	2.5	0.0	2.5	0	0.00	0.00 0.00
DRINKING FOUNTAIN	0.25	0.0	0.25	1	0.25	0.00 0.25
DISHWASHING MACHINE	0.0	1.4	1.4	0	0.00	0.00 0.00
ICE MACHINE	8.0	0.0	8.0	0	0.00	0.00 0.00
TOTAL (WSFU)					93.3	15.0 102.9
TOTAL(GPM) (Table E103.3(3))						68.3



PLUMBING SCHEDULE							
GENERAL				CONNECTION SIZE			
LABEL	DESCRIPTION	MAKE	MODEL	DW	HW	WASTE	VENT
EW-1A	B-LEVEL ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION	ELKAY	LVRCTLBWSK	0" - 0 1/2"	0" - 0"	0" - 2"	0" - 2"
FCO	CLEANOUT	ZURN	Z1400-HD			0" - 4"	
FD	FLOOR DRAIN	ZURN	Z319			0" - 2"	0" - 2"
L-1	LAVATORY	KOHLER	K-2198	0" - 0 1/2"	0" - 0 1/2"	0" - 2"	0" - 2"
L-2	LAVATORY	KOHLER	K-2008	0" - 0 1/2"	0" - 0 1/2"	0" - 2"	0" - 2"
MS-1	MOP SINK	FIAT	TSB-100	0" - 0 3/4"	0" - 0 3/4"	0" - 2"	0" - 2"
RCP	RETURN CIRCULATING PUMP	BELL AND GOSSETT	PL-308				
S-1	HAND SINK	---	BY OWNER	0" - 0 3/4"	0" - 0 3/4"	0" - 2"	0" - 2"
S-2	DOUBLE COMPARTMENT SINK	---	BY OWNER	0" - 0 3/4"	0" - 0 3/4"	0" - 2"	0" - 2"
WC-1	WATER CLOSET	KOHLER	K-86053	0" - 1"		0" - 4"	0" - 2"
WC-1A	WATER CLOSET (HANDICAPPED)	KOHLER	K-86057	0" - 1"		0" - 4"	0" - 2"
WH	ELECTRIC WATER HEATER (TANK)	A.O. SMITH	DEL-50	0" - 0 3/4"	0" - 0 3/4"		
WH-2	ELECTRIC WATER HEATER (TANKLESS)	EEMAX	PA005240T	0" - 0 3/4"	0" - 0 3/4"		
YCO	YARD CLEANOUT	ZURN	Z1402			0" - 4"	

Grand total: 62



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SANITARY SEWER/ VENT PIPE MATERIAL	
SYSTEM	MATERIAL; JOINTS
SANITARY DRAINS & VENTS (UNDERGROUND)	SCHEDULE 40 PVC PIPE; SOLVENT WELD
SANITARY DRAINS & VENTS (ABOVE GROUND)	SCHEDULE 40 PVC PIPE; SOLVENT WELD

DOMESTIC/HOT WATER PIPE MATERIAL	
SYSTEM	MATERIAL; JOINTS; INSULATION
DOMESTIC COLD WATER (UNDERGROUND)	COPPER, TYPE "K" SOFT ANNEALED; BRAZED; NO INSULATION
DOMESTIC COLD WATER (ABOVE GROUND)	COPPER, TYPE "L" HARD DRAWN; SOCKET WELD; 0-1/2" MINERAL FIBER
DOMESTIC HOT WATER (ABOVE GROUND)	COPPER, TYPE "L" HARD DRAWN; SOCKET WELD; 1-1/2" MINERAL FIBER

WATER HAMMER ARRESTOR SCHEDULE			
#	P.D.I. SYMBOL	FIXTURE UNITS	SIZE
A		001 - 011	1/2" NPT
B		012 - 032	3/4" NPT
C		033 - 060	1" NPT
D		061 - 113	1 1/4" NPT
E		114 - 154	1 1/2" NPT
F		155 - 330	2" NPT

PIPING RISER DIAGRAMS/TYPICAL RISER DETAILS ILLUSTRATE WATER HAMMER ARRESTORS FOR FIXTURE WATER PIPE OPENINGS. ALL ARRESTORS SHALL BE SIZED AS INDICATED ON DRAWINGS OR IN ACCORDANCE WITH THIS SCHEDULE. WHICHEVER PLACES THE MOST STRINGENT REQUIREMENT.

PROVIDE ARRESTORS IN ACCORDANCE WITH THE REQUIREMENTS OF PLUMBING DRAINAGE INSTITUTE (PDI) STANDARD PDI-WH-201. THE USE OF AIR CHAMBERS SHALL NOT BE ACCEPTABLE.

PROVIDE ACCESS PANELS WHEN LOCATED IN INACCESSIBLE LOCATION AND AS REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

FIRE SPRINKLER PIPE MATERIAL SCHEDULE	
SYSTEM	MATERIAL
UNDERGROUND	PVC C900 DR-18
ABOVE GROUND - 2" AND SMALLER	BLACK STEEL SCHEDULE 40
ABOVE GROUND - 2-1/2" AND LARGER	BLACK STEEL SCHEDULE 10

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