PLUMBING SPECIFICATIONS

PART 1 - GENERAL

1.01 INSTRUCTIONS
SCOPE OF WORK SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH LOCAL AND STATE CODES, AND CONTRACT DRAWINGS AND SPECIFICATIONS.

1.02 LOCAL CONDITIONS CONTRACTOR SHALL VISIT THE SITE AND OBSERVE ALL EXISTING LOCAL CONDITIONS WHICH WOULD AFFECT WORK UNDER THIS CONTRACT. CONTRACTOR SHALL EXAMINE ALL PLANS AND SPECIFICATIONS FOR THIS PROJECT AND CONSULT THEM FOR INSTRUCTIONS PERTAINING TO WORK OF THIS SECTION.

1.03 PERMITS AND FEES CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS REQUIRED FOR PERTAINING TO WORK UNDER THIS CONTRACT AND PAY ALL CHARGES INCIDENTAL THERETO. DELIVER TO ARCHITECT ALL CERTIFICATES OF INSPECTION ISSUED BY AUTHORITIES HAVING JURISDICTION.

1.04 CODES AND STANDARDS
A. FURNISH AND INSTALL MECHANICAL SYSTEMS TO MEET ALL CURRENT REQUIREMENTS OF NATIONAL, STATE AND MUNICIPAL CODES, RULES REGULATIONS, LAWS, AND STANDARDS AS THEY ARE ADOPTED BY THE GOVERNING AGENCY AND AS THEY MAY APPLY.
1. 2007 FLORIDA BUILDING CODE WITH 2009 REVISIONS.
2. 2007 FLORIDA MECHANICAL CODE WITH 2009 REVISIONS.
3. 2007 FLORIDA PLUMBING CODE WITH 2009 REVISIONS.
4. 2007 FLORIDA FIRE PREVENTION CODE

1.05 SUBMITTALS
A. MATERIAL LIST: WITHIN TWENTY (20) DAYS OF AWARD OF CONTRACT, CONTRACTOR SHALL SUBMIT TO ARCHITECT A COMPLETE LIST OF MATERIALS TO BE PROVIDED FOR THE HVAC WORK. THE LIST SHALL INCLUDE SUPPLIERS' NAMES AND MANUFACTURERS' NAMES AND NUMBER OR SERIES FOR EACH ITEM ON LIST.
B. SHOP DRAWINGS: SUBMIT TO THE ARCHITECT FOR APPROVAL, BEFORE COMMENCING WORK, SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT TO BE PROVIDED UNDER THIS CONTRACT. THE FOLLOWING APPLIES TO THE SHOP DRAWINGS:
1. CONTRACTOR SHALL SUBMIT WITHIN 30-DAYS AFTER AWARD OF CONTRACT, DRAWINGS AND/OR CUT SHEETS OF ALL MATERIALS AND EQUIPMENT; AND 1/4" SCALE EQUIPMENT ROOM DRAWINGS FOR APPROVAL BY ARCHITECT-ENGINEER. SUCH SUBMITTALS MUST CONTAIN OUTLINE DIMENSIONS, OPERATING CLEARANCES, INSTALLATION, OPERATING AND MAINTENANCE INFORMATION AND SUFFICIENT ENGINEERING DATA TO INDICATE SUBSTANTIAL COMPLIANCE WITH SPECIFICATIONS. ALL SHOP DRAWINGS FOR ONE SECTION OF WORK OR ONE MECHANICAL SYSTEM SHALL BE SUBMITTED AT ONE TIME IN LOOSE-LEAF 3-RING BINDERS; NO APPROVAL WILL BE GIVEN IF SUBMITTED PIECEMEAL.
2. WHERE CONTRACTOR CONSIDERS ADDITIONAL DETAIL OR SHOP DRAWINGS ESSENTIAL TO PROPER FABRICATION OR INSTALLATION OF EQUIPMENT, DUCTWORK, AND PIPING, HE SHALL PREPARE SUCH CONSISTENT WITH CURRENT INDUSTRY METHODS AND STANDARDS. ENGINEER RESERVES THE RIGHT TO DIRECT REMOVAL AND REPLACEMENT OF ANY ITEMS WHICH, IN HIS OPINION, DO NOT PRESENT AN ORDERLY AND REASONABLY NEAT AND WORKMANLIKE APPEARANCE, PROVIDED SUCH AN ORDERLY INSTALLATION CAN BE MADE USING CUSTOMARY TRADE METHODS. REMOVAL AND REPLACEMENT SHALL BE DONE WHEN DIRECTED IN WRITING BY ENGINEER AT THE CONTRACTOR'S EXPENSE AND WITHOUT ADDITIONAL EXPENSE TO OWNER.
3. APPROVAL GRANTED ON SHOP DRAWINGS IS RENDERED AS A SERVICE ONLY AND SHALL NOT BE CONSIDERED AS GUARANTEE OF MEASUREMENTS OF BUILDING CONDITIONS, NOR SHALL IT BE CONSTRUED AS RELIEVING THE MECHANICAL CONTRACTOR OF BASIC RESPONSIBILITIES UNDER THIS CONTRACT.
4. CHANGES IN FOUNDATIONS, BASES, CONNECTIONS, PIPING, CONTROLS, STARTERS, ELECTRICAL EQUIPMENT, WIRING AND CONDUIT, SPACE OPENINGS, WALLS AND CEILINGS, AND VIBRATION ISOLATION IN ORDER TO ACCOMMODATE SUBSTITUTE EQUIPMENT SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND RECEIVE ENGINEER'S APPROVAL BEFORE INSTALLING MATERIALS OR EQUIPMENT. ANY EQUIPMENT OR MATERIALS INSTALLED PRIOR TO RECEIPT OF APPROVED SHOP DRAWINGS FROM ENGINEER SHALL BE SUBJECT TO REMOVAL AND/OR ALTERATION AT THE DISCRETION OF THE MECHANICAL ENGINEER AT NO ADDITIONAL COST.
6. APPROVAL OF ANY SUBMITTED DATA OR SHOP DRAWINGS FOR MATERIALS, EQUIPMENT, APPARATUS DEVICES, ARRANGEMENTS AND/OR LAYOUTS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY OF FURNISHING SAME OF PROPER DIMENSIONS, CAPACITIES, SIZES, QUANTITIES AND INSTALLATION DETAILS TO EFFICIENTLY PERFORM REQUIREMENTS AND INTENT OF CONTRACT. SUCH APPROVAL SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS OF ANY SORT.
C. ANY ELECTRICAL DEVIATIONS BETWEEN THE CONTRACT DOCUMENTS AND THE FURNISHED EQUIPMENT MUST BE SEPARATELY ACKNOWLEDGED BY A SUBSTITUTION REQUEST AND ADDITIONALLY NOTED ON THE SUBMITTAL.
D. PROVIDE PLUMBING SHOP DRAWINGS FOR: WASTE AND VENT PIPING, DOMESTIC WATER PIPING, VALVES, PLUMBING FIXTURES AND PIPE INSULATION.

1.06 CONNECTING TO WORK OF OTHERS
A. BEFORE STARTING HIS WORK, AND FROM TIME TO TIME AS WORK PROGRESSES, PLUMBING CONTRACTOR SHALL EXAMINE WORK AND MATERIALS INSTALLED BY OTHERS INSOFAR AS THEY APPLY TO HIS WORK AND SHALL NOTIFY ENGINEER IMMEDIATELY IN WRITING IF CONDITIONS EXIST WHICH WILL SHOULD CONTRACTOR START HIS WORK WITHOUT SUCH NOTIFICATION, IT SHALL BE CONSTRUED AS:
B. AN ACCEPTANCE BY HIM OF ALL CLAIMS OR QUESTIONS AS TO SUITABILITY OR WORK OF OTHERS TO RECEIVE HIS WORK. HE SHALL REMOVE AND REPLACE, AT HIS OWN EXPENSE, ALL WORK UNDER THIS CONTRACT WHICH MAY HAVE TO BE REMOVED ON ACCOUNT OF SUCH DEFECTS.

1.07 CONTRACT DRAWINGS
A. IT IS THE INTENT OF DRAWINGS AND SPECIFICATIONS TO OBTAIN A COMPLETE AND FULLY OPERATIONAL AND SATISFACTORY INSTALLATION. AN ATTEMPT HAS BEEN MADE TO SEPARATE AND COMPLETELY DEFINE WORK UNDER THIS CONTRACT. HOWEVER, SUCH SEPARATE DIVISIONAL DRAWINGS AND SPECIFICATIONS SHALL NOT RELIEVE CONTRACTOR FROM FULL RESPONSIBILITY OF COMPLIANCE WITH WORK OF HIS TRADE WHICH MAY BE INDICATED ON ANY DRAWING OR IN ANY SECTION OF THE SPECIFICATIONS.
B. CONTRACTOR SHALL CAREFULLY EXAMINE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL DRAWINGS PRIOR TO SUBMITTING BID. CONTRACTOR WILL BE REQUIRED TO FURNISH, INSTALL AND CONNECT WITH APPROPRIATE SERVICES ALL ITEMS SHOWN ON ANY DRAWINGS WITHOUT ADDITIONAL EXPENSE TO OWNER. ARCHITECT SHALL BE NOTIFIED PRIOR TO BID DATE OF ANY DISCREPANCIES, OMISSIONS, CONFLICTS OR INTERFERENCES WHICH OCCUR BETWEEN DRAWINGS OR BETWEEN DRAWINGS AND SPECIFICATIONS. IF SUCH NOTIFICATION IS RECEIVED IN ADEQUATE TIME, ADDITIONAL DATA OR CHANGES WILL BE ISSUED BY ADDENDUM TO ALL BIDDERS. SUBMITTAL OF BID BY CONTRACTOR SHALL INDICATES THE CONTRACTORS ACKNOWLEDGEMENT AND ACCEPTANCE TO PROVIDE ALL NECESSARY EQUIPMENT, MATERIALS AND LABOR TO MEET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IN ACCORDANCE WITH ALL CODE REQUIREMENTS.
C. ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER MECHANICAL DRAWINGS WITH REFERENCE TO BUILDING CONSTRUCTION. PLUMBING DRAWINGS ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION OF BUILDING AND WORK OF OTHER TRADES WILL PERMIT. WHERE LOCATIONS OF EQUIPMENT, DEVICES OR FIXTURES ARE CONTROLLED BY ARCHITECTURAL FEATURES, ESTABLISH SUCH LOCATIONS BY REFERRING TO DIMENSIONS ON ARCHITECTURAL DRAWINGS AND NOT BY SCALING DRAWINGS. CHANGES FROM DRAWINGS NECESSARY TO MAKE WORK OF CONTRACTOR CONFORM WITH BUILDING AS CONSTRUCTED AND TO FIT WORK OF OTHER TRADES OR RULES OF BODIES HAVING JURISDICTION SHALL BE MADE BY CONTRACTOR AT HIS OWN EXPENSE. SOME DRAWINGS MAY HAVE BEEN PREPARED FROM EXISTING DRAWINGS WITH INTENT OF PROVIDING THE CONTRACTOR WITH INFORMATION CONCERNING THE EXISTING CONDITIONS. DATA SHOWN HAS NOT BEEN COMPLETELY VERIFIED BY ARCHITECT/ENGINEER AND NO GUARANTEE OF ACCURACY OF THIS INFORMATION IS GIVEN OR INTENDED. IT SHALL BE THE RESPONSIBILITY OF CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS. DATA WHICH IS SHOWN BUT PROVES TO BE INCORRECT SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM INSTALLING HIS WORK WITHIN THE INTENT OF PLANS AND SPECIFICATIONS, NOR SHALL IT CONSTITUTE BASIS FOR A CHANGE ORDER UNLESS, IN THE OPINION OF THE ARCHITECT/ENGINEER IT IS DETERMINED TO BE AN EXTRA COST OVER AND ABOVE THE BASIC INTENT OF THESE PLANS AND SPECIFICATIONS.

1.08 DAMAGE TO OTHER WORK
A. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTIVE MEASURES WHEN WORKING OVERHEAD OR IN FINISHED AREAS. HE/SHE SHALL REPAIR, REPLACE OR TOUCH-UP ALL FINISHED SURFACES WHICH MAY BE DAMAGED AS A RESULT OF HIS OPERATIONS.

1.09 STORAGE AND WORK AREAS
A. ALL EQUIPMENT AND MATERIALS SHALL BE PROTECTED FROM THE WEATHER, DAMAGE, MOISTURE, DIRT, DEBRIS, ETC. USE OF CARDBOARD, VISQUEEN, OR OTHER SIMILAR MATERIALS WHILE STORED OUTSIDE IS NOT ACCEPTABLE. DO NOT INSTALL DAMAGED EQUIPMENT.

1.10 APPROVAL OF MATERIAL
A. EQUIPMENT OTHER THAN SPECIFIED IN THE CONTRACT DOCUMENTS REQUIRES APPROVAL FROM ENGINEER 10 DAYS PRIOR TO BID DATE.
B. WRITTEN REQUEST FOR PRIOR APPROVAL MUST BE RECEIVED IN ENGINEER'S OFFICE BY CLOSE OF BUSINESS NO LATER THAN 10 DAYS PRIOR TO SCHEDULED BID DATE. REQUEST SHALL CONTAIN DETAILED INFORMATION ON THE PROPOSED ITEM. THIS SHALL INCLUDE:
1. CATALOG CUTS SHEETS
2. DETAILED SPECIFICATIONS
3. DESCRIPTION OF DEVIATION FROM SPECIFIED ITEM
C. AN ADDENDA SHALL BE ISSUED LISTING ALL PROSPECTIVE CONTRACTORS LISTING ALL PRIOR APPROVED MANUFACTURERS AND PRODUCTS.

PART 2 - PRODUCTS

2.01 PLUMBING SYSTEMS.
A. PIPE MATERIALS:
1. DWV (DRAIN, WASTE, AND VENT) PIPING/FITTINGS SHALL BE LONG RADIUS FITTINGS, EXCEPT FITTINGS IN VENT PIPING MAY BE SHORT RADIUS FITTINGS. MINIMUM SIZE PIPING SHALL BE 2 INCHES FOR BURIED PIPING AND 1-1/4 INCHES FOR ABOVEGROUND PIPING. CONTRACTOR'S OPTION:
A. BELOW GRADE: CAST IRON, ASTM A74, STANDARD, SINGLE HUB, COATED, WITH JOINTS CAULKED AND LEADED.
B. ABOVE GRADE: CAST IRON, NO HUB, CISPI STANDARD 301, WITH CAST IRON COUPLING WITH GASKET AND STAINLESS STEEL BANDS.
C. ABOVE AND BELOW GRADE: PVC, SCHEDULE 40, MEETING ASTM D1785, WITH SOLVENT WELD JOINTS MEETING ASTM D2564. NO FOAM CORE PIPE SHALL BE PERMITTED.
2. DOMESTIC WATER PIPING (CONTRACTOR'S OPTION):
A. BELOW GRADE
1. COPPER, MEETING ASTM B88: TYPE K, COATED WITH COAL TAR SHELLAC, 95/5 SOLDERED JOINTS.
2. SDR PIPE: PVC, SCHEDULE 40, MEETING ASTM 2241.
B. ABOVE GRADE
1. CPVC, MEETING ASTM D2846 AND F441. PIPING UP TO 1-1/4" SHALL BE SCHEDULE 40. PIPING 1-1/2" AND LARGER SHALL BE SCHEDULE 80; SOLVENT WELD JOINTS.
2. COPPER, MEETING ASTM B88: TYPE L, WITH 95/5 SOLDERED JOINTS.
C. DIELECTRIC UNIONS: SHALL BE USED AT ALL JOINTS OF DISSIMILAR PIPE MATERIALS.
3. ROOF DRAINAGE PIPING: SAME AS DWV ABOVE. INSULATE ALL ROOF DRAINAGE PIPE ABOVE GROUND
B. PIPING INSULATION:
1. ELECTRIC WATER COOLER WASTE:
A. 3/4-LB., 1-1/2 INCH BLANKET.
B. FSK JACKET.
2. DOMESTIC COLD AND HOT WATER MAINS AND RISERS:
A. 1-INCH STANDARD FIBERGLASS.
B. FACTORY JACKET AND FITTING GOVERS.
3. DOMESTIC WATER PIPING EXPOSED TO EXTERIOR: NITRILE RUBBER BASED ELASTOMERIC SHEET INSULATION; ARMSTRONG "ARMAFLEX 2", MINIMUM INSULATION THICKNESS SHALL BE 3/4-INCH.
4. CPVC WATER PIPING AND PVC WASTE, VENT AND ROOF DRAIN PIPING RUN IN RETURN AIR PLENUMS: WRAP WITH A FIRE PROTECTIVE JACKET WITH A MAXIMUM FLAME SPREAD RATING OR 25 AND A MAXIMUM SMOKE DEVELOPMENT RATING OF 50 IN ACCORDANCE WITH NFPA-90A, PARAGRAPHS 2-3.3.1 AND 2-3.10.1.
5. PIPING TO BE UNINSULATED: PIPING RUN-OUTS TO FIXTURES (EXCEPT AS NOTED FOR HANDICAP-ACCESSIBLE FIXTURES):
C. ACCEPTABLE MANUFACTURERS:
1. MANUFACTURERS' MODEL NUMBERS ARE LISTED TO ESTABLISHED A STANDARD OF QUALITY AND LEVEL OF PERFORMANCE.
2. EQUIVALENT ITEMS OF THE FOLLOWING MANUFACTURES ARE ACCEPTABLE:
A. FIXTURES: SEE FIXTURE SCHEDULE.
1. AMERICAN-STANDARD, ELJER, KOHLER, CRANE, ELKAY, JUST, AND BRIGGS.
B. FIXTURE TRIM: SEE FIXTURE SCHEDULE.
1. AMERICAN-STANDARD, KOHLER, SPEAKMAN, MOEN, DELTA, T&S BRASS, CHICAGO FAUCET, SYMMONS, BRIGGS.
3. DRAIN AND FIXTURE SPECIALTIES: J.R. SMITH, JOSAM, ZURN.
A. FLOOR AND EXTERIOR CLEANOUTS: ZURN-1440 OR EQUAL.
B. WALL CLEANOUT: ZURN-1441 OR EQUAL W/ SMOOTH SECURED COVER.
C. FLOOR DRAINS: SEE SCHEDULE.
D. ROOF DRAINS: ZURN-100 OR EQUAL.
4. WATER COOLERS: SEE FIXTURE SCHEDULE, OASIS, ELKAY, HALSEY TAYLOR.
5. WATER HEATERS: SEE FIXTURE SCHEDULE, RHEEM, A.O. SMITH, STATE, LOCHINVAR.
6. WATER SYSTEM SPECIALTIES:
A. WATER HAMMER ARRESTORS SHALL CONFORM TO PDI WH201 AND ASSE 1010. ACCEPTABLE: ZURN SHOKTROLS Z-1700 OR EQUAL.
B. WALL HYDRANTS AND HOSE BIBBS: SEE FIXTURE SCHEDULE.
C. WATER CLOSETS SHALL HAVE STAINLESS STEEL FLANGE.

2.03 PIPING SPECIALTIES
A. ESCUTCHEONS SHALL BE MANUFACTURED WALL, CEILING AND FLOOR PLATES, DEEP-PATTERN TYPE WHERE REQUIRED TO CONCEAL PROTRUDING FITTINGS AND SLEEVES. CONSTRUCT OF ONE-PIECE CAST BRASS WITH POLISHED CHROME PLATE FINISH AND SET-SCREW.

2.04 PIPE INSULATION
A. FLEXIBLE ELASTOMERIC CELLULAR INSULATION, TYPE I, ASTM C 534, FLEXIBLE EXPANDED CLOSED-CELL STRUCTURE WITH SMOOTH SKIN ON BOTH SIDES. PRODUCT AS MANUFACTURED BY ARMSTRONG OR EQUIVALENT BY RUBATEX OR HALSTEAD. AVERAGE MAXIMUM THERMAL CONDUCTIVITY SHALL BE 0.30 AT 75 DEG F.
B. FLEXIBLE ELASTOMERIC CELLULAR INSULATION ADHESIVE, SOLVENT-BASED, CONTACT ADHESIVE RECOMMENDED BY INSULATION MANUFACTURER.

2.05 HANGERS AND SUPPORTS
A. PROVIDE HANDERS, RODS, AND SUPPORT CLAMPS AS REQUIRED TO PROPERLY SUPPORT PIPING FROM STRUCTURE.
B. PROVIDE BUILDING ATTACHMENTS OR CONCRETE INSERTS APPROPRIATE FOR BUILDING MATERIALS.
C. PIPING SHALL NOT BE SUPPORTED WITH WIRE OR PERFORATED PIPE STRAP.

2.06 SLEEVES:
A. WALLS AND PARTITIONS:
1. PIPE SLEEVES 8-INCH DIAMETER AND SMALLER (ABOVE GRADE): SLEEVES SHALL BE MILD STEEL PIPE OR PLASTIC SLEEVES BUILT INTO WALL, PARTITION OR BEAM, SIZED TO PASS PIPE AND COVERING, LEAVING A CLEAR SPACE OF 1/4-INCH MINIMUM BETWEEN COVERING AND SLEEVE. PENETRATIONS OF FIRE RATED BARRIERS SHALL HAVE MILD STEEL SLEEVES.
2. PIPE SLEEVES INSTALLED IN EXTERIOR WALLS BELOW GRADE: SCHEDULE 40 STEEL HOT DIPPED GALVANIZED AFTER FABRICATION OR CAST IRON SLEEVE WITH 1/4-INCH X 3-INCH CENTER FLANGE (WATER STOP) AROUND THE OUTSIDE.
B. PIPE SLEEVES IN FLOORS (ABOVE GRADE): SLEEVES SHALL BE 14 GAUGE GALVANIZED SHEET STEEL OR PLASTIC, SET BEFORE FLOOR IS POURED, SIZED TO PASS PIPE AND COVERING, LEAVING A CLEAR SPACE OF 1/4-INCH BETWEEN COVERING AND SLEEVE, AND SHALL EXTEND 1/2-INCH ABOVE FINISHED FLOOR.
C. SEALING OF SLEEVES:
1. SLEEVES BELOW GRADE: CAULK ANNULAR SPACE BETWEEN PIPE AND SLEEVE USING OAKUM AND POURED LEAD BOTH SIDES MINIMUM ONE INCH DEEP TO MAKE WALL PENETRATION WATER TIGHT.
2. SLEEVES ABOVE GRADE: OPENINGS AROUND PIPES, DUCT, ETC., PASSING THROUGH SLEEVES SHALL BE MADE DRAFT FREE AND VERMIN-PROOF BY PACKING SOLIDLY WITH MINERAL WOOL OR FIBERGLASS.
3. SEALING OF SLEEVES THROUGH FIRE RATED BARRIERS: OPENINGS AROUND PIPES, ETC., THROUGH FIRE RATED BARRIERS SHALL BE SEALED USING AN U.L. APPROVED METHOD RATED AT LEAST EQUAL TO THE WALL BEING PENETRATED.

PART 3 - EXECUTION

3.01 PIPE INSULATION INSTALLATION
A. INSTALL ONE INCH THICK PIPE INSULATION ON HOT WATER PIPING. INSTALL ONE INCH THICK PIPE INSULATION ON COLD WATER PIPING THAT IS ABOVE THE ROOF INSULATION.
B. INSTALL INSULATION IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN RECOMMENDATIONS.

3.02 TESTING OF WATER DISTRIBUTION SYSTEMS
A. TEST FOR LEAKS AND DEFECTS IN NEW WATER DISTRIBUTION PIPING SYSTEMS. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT SEPARATE REPORT FOR EACH TEST, COMPLETE WITH DIAGRAM OF PORTION OF SYSTEM TESTED.
B. LEAVE UNCOVERED AND UNCONCEALED NEW WATER DISTRIBUTION PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE WORK THAT HAS BEEN COVERED OR CONCEALED BEFORE IT HAS BEEN TESTED AND APPROVED FOR TESTING.
C. CAP AND SUBJECT THE PIPING SYSTEM TO A STATIC WATER PRESSURE OF 50 PSIG ABOVE THE OPERATING PRESSURE WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR 4 HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED.
D. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.
E. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3.03 TESTING OF DRAINAGE AND VENT PIPING SYSTEMS
A. TEST FOR LEAKS AND DEFECTS IN NEW DRAINAGE AND VENT PIPING SYSTEMS. IF TESTING IS PERFORMED IN SEGMENTS, SUBMIT A SEPARATE REPORT FOR EACH TEST, COMPLETE WITH A DIAGRAM OF THE PORTION OF THE SYSTEM TESTED.
B. LEAVE UNCOVERED AND UNCONCEALED NEW DRAINAGE AND VENT PIPING UNTIL IT HAS BEEN TESTED AND APPROVED. EXPOSE FOR TESTING WORK THAT HAS BEEN COVERED OR CONCEALED BEFORE IT HAS BEEN TESTED AND APPROVED.
C. TEST PIPING OF PLUMBING DRAINAGE AND VENTING SYSTEMS ON COMPLETION OF ROUGH-IN PIPING INSTALLATION. TIGHTLY CLOSE ALL OPENINGS IN PIPING SYSTEM AND FILL WITH WATER TO POINT OF OVERFLOW, BUT NOT LESS THAN 5 FEET HEAD OF WATER. WATER LEVEL SHALL NOT DROP DURING THE PERIOD FROM 15 MINUTES BEFORE INSPECTION STARTS THROUGH COMPLETION OF INSPECTION. INSPECT JOINTS FOR LEAKS. AFTER PLUMBING FIXTURES HAVE BEEN SET AND THEIR TRAPS FILLED WITH WATER, TEST CONNECTIONS AND PROVE GASTIGHT AND WATERTIGHT. PLUG STACK OPENINGS ON ROOF AND BUILDING DRAIN WHERE IT LEAVES THE BUILDING AND INTRODUCE AIR INTO THE SYSTEM EQUAL TO PRESSURE OF 1-INCH WATER COLUMN. USE A U TUBE OR MANOMETER INSERTED IN THE TRAP OF A WATER CLOSET TO MEASURE THIS PRESSURE. AIR PRESSURE SHALL REMAIN CONSTANT WITHOUT INTRODUCING ADDITIONAL AIR THROUGHOUT PERIOD OF INSPECTION. INSPECT PLUMBING FIXTURE CONNECTIONS FOR GAS AND WATER LEAKS.
D. REPAIR LEAKS AND DEFECTS USING NEW MATERIALS AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.
E. PREPARE REPORTS FOR TESTS AND REQUIRED CORRECTIVE ACTION.

3.04 CLEANING
A. PURGE NEW POTABLE WATER DISTRIBUTION PIPING SYSTEMS PRIOR TO USE.
B. USE PURGING AND DISINFECTING PROCEDURE PRESCRIBED BY AUTHORITY HAVING JURISDICTION OR, IF A METHOD IS NOT PRESCRIBED BY THAT AUTHORITY, THE PROCEDURE DESCRIBED IN EITHER AWWA C651 OR AWWA C652OR AS DESCRIBED BELOW:
1. FLUSH PIPING SYSTEM WITH CLEAN, POTABLE WATER UNTIL DIRTY WATER DOES NOT APPEAR AT OUTLETS.
2. FILL SYSTEM OR PART THEREOF WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF CHLORINE. ISOLATE (VALVE OFF) AND ALLOW TO STAND FOR 24 HOURS. PROVIDE PROPER SIGNAGE TO PREVENT ACCIDENTAL USE DURING DISINFECTION.
3. DRAIN SYSTEM OR PART THERE OF OF PREVIOUS SOLUTION AND REFILL WITH WATER/CHLORINE SOLUTION CONTAINING AT LEAST 200 PARTS PER MILLION OF CHLORINE.ISOLATE AND ALLOW TO STAND FOR 3 HOURS.
4. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL CHLORINE DOES NOT REMAIN IN WATER COMING FROM SYSTEM FOLLOWING ALLOWED STANDING TIME.
C. SUBMIT WATER SAMPLES IN STERILE BOTTLES TO AUTHORITY HAVING JURISDICTION. REPEAT PROCEDURE IF BIOLOGICAL EXAMINATION MADE BY THE AUTHORITY SHOWS EVIDENCE OF CONTAMINATION.
D. PREPARE AND SUBMIT REPORTS FOR PURGING AND DISINFECTING ACTIVITIES.
E. CLEAN INTERIOR OF PIPING SYSTEM. REMOVE DIRT AND DEBRIS AS WORK PROGRESSES.

3.05 AS-BUILT DRAWINGS
A. UPON COMPLETION OF INSTALLATION, THE CONTRACTOR SHALL FURNISH TO THE ARCHITECT A SET OF DRAWINGS, MARKED TO SCALE, INDICATING THE SIZE AND LOCATION OF PIPING AND DUCTS, AND NOTING ALL MAJOR CHANGES MADE DURING CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN THE DRAWINGS FROM THE ARCHITECT AND SHALL BEAR ALL COSTS IN OBTAINING THE DRAWINGS AND PROVIDING THE AS-BUILT DRAWINGS. THE CONTRACTOR SHALL DELIVER THE DRAWINGS PLUS TWO SETS OF AS-BUILT DRAWINGS TO THE ARCHITECT. EACH SHEET IN EACH SET SHALL BE SIGNED BY A PRINCIPAL REPRESENTATIVE OF THE CONTRACTOR, DATED AND HAVE "AS-BUILT" STAMPED NEAR THE SIGNATURE. DRAWINGS SHALL GIVE ACCURATE DIMENSIONS MEASURED FROM COLUMNS, WALLS, BEAMS AND OTHER FIXED PARTS OF THE BUILDING TO THE CONCEALED MATERIALS. THE CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE SITE AND EACH DAY SHALL RECORD INSTALLATION OF PIPE, DUCTS, ETC. TO INSURE ACCURATE "AS-BUILT" DRAWINGS. THE CONTRACTOR SHALL ALSO FURNISH A SET OF DRAWINGS AND TWO SETS OF CONTRACTOR SIGNED AND DATED AS-BUILT DRAWINGS OF THE CONTROLS.

3.06 GUARANTEE AND SERVICE
A. IN ADDITION TO THE GUARANTEE OF EQUIPMENT BY THE MANUFACTURER OF EACH PIECE OF EQUIPMENT SPECIFIED HEREIN, THE MECHANICAL CONTRACTOR SHALL ALSO GUARANTEE SUCH EQUIPMENT AND SHALL BE HELD RESPONSIBLE FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE FOR NECESSARY ADJUSTMENTS AND/OR REPLACEMENTS OF ALL DEFECTIVE EQUIPMENT, MATERIALS AND WORKMANSHIP WITHOUT EXPENSE TO THE OWNER. PROVIDE A LETTER TO THE OWNER STATING THE CONTRACTOR'S GUARANTEE AND DATES OF GUARANTEE COVERAGE.

3.07 REMOVAL OF RUBBISH
A. CONTRACTOR SHALL AT ALL TIMES KEEP PREMISES FREE FROM ACCUMULATIONS OF WASTE MATERIAL OR RUBBISH GENERATED BY WORK UNDER THIS CONTRACT.

3.08 EXCAVATION, BACKFILLING AND COMPACTION
A. ALL EXCAVATION, BACKFILLING, COMPACTION, TESTING, ETC. REQUIRED FOR THE INSTALLATION OF UNDERGROUND PIPING IN THIS DIVISION OF THE SPECIFICATIONS SHALL BE DONE BY THE PLUMBING CONTRACTOR. THIS WORK SHALL BE DONE IN STRICT ACCORDANCE WITH EXCAVATION AND BACKFILLING SECTION OF DIVISION 2.

WEST SIDE COMMUNITY CENTER

CERTIFICATE OF AUTHORIZATION # 00008701

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APPROVED W.H.F.
REVISIONS

SHEET P-1
OF 3

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