G E N E R A L

RELATED DOCUMENTS:

1. THE GENERAL REQUIREMENTS OF THE ARCHITECTURAL SPECIFICATIONS ARE PART OF THESE SPECIFICATIONS. WHERE AN INCONSISTENCY EXISTS BETWEEN THE WORDING OR INTENT, THIS SECTION SHALL TAKE PRECEDENCE. THE STANDARD FORM OF "GENERAL CONDITIONS" ISSUED BY THE AMERICAN INSTITUTE OF ARCHITECTS DOCUMENT A201, LATEST EDITION, SHALL FORM PART OF THIS CONTRACT.

2. CONTRACT DOCUMENTS MAY INCLUDE, BUT NOT LIMITED TO THE FOLLOWING: ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL, FIRE PROTECTION, AND CIVIL.

DEFINITIONS:

1. TERMINOLOGY: AS DEFINED IN MSS SP–90, "GUIDELINES ON TERMINOLOGY FOR PIPE HANGERS AND SUPPORTS."

2. WATER DISTRIBUTION PIPING: INTERIOR DOMESTIC WATER PIPING.

3. ACCESSIBLE FIXTURE: PLUMBING FIXTURE THAT CAN BE APPROACHED, ENTERED, AND USED BY PEOPLE WITH DISABILITIES.

PERFORMANCE REQUIREMENTS:

1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND COMPONENTS.

2. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND COMPONENTS.

3. DESIGN SEISMIC–RESTRAINT (IF APPLICABLE) HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT, AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

4. COMPONENTS AND INSTALLATION SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING WORKING PRESSURE, UNLESS OTHERWISE INDICATED:

   A. DOMESTIC WATER PIPING: 125 PSIG.
   B. SANITARY WASTE AND VENT PIPING: 10–FOOT HEAD OF WATER.

SUBMITTALS:

1. CONTRACTOR SHALL SUBMIT FOR REVIEW TO THE ARCHITECT/ENGINEER A COMPLETE LIST OF ITEMS TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT. INCLUDING, BUT NOT BE LIMITED TO THE FOLLOWING:

   A. DIMENSIONED SHOP DRAWINGS OF MATERIALS, FIXTURES AND EQUIPMENT.
   B. DIMENSIONED SHOP DRAWINGS OF EQUIPMENT AND PIPING PLAN LAYOUT(S).
   C. PRODUCT DATA.
   D. FIELD–QUALITY CONTROL INSPECTION AND TEST REPORTS
   E. FIELD TEST CERTIFICATES.
   F. OPERATION AND MAINTENANCE DATA.
   G. EQUIPMENT MANUALS.
   H. VALVE TAGS.
   I. WELDING CERTIFICATES.

QUALITY ASSURANCE:

1. WELDING: QUALITY PROCEDURES AND PERSONNEL ACCORDING TO ASME BOILER AND PRESSURE VESSEL CODE: SECTION IX.

2. FIRE TEST RESPONSE CHARACTERISTICS: INSULATION AND RELATED MATERIALS SHALL HAVE FIRE TEST RESPONSE CHARACTERISTICS INDICATED, AS DETERMINED BY TESTING IDENTICAL PRODUCTS PER ASTM E 84, BY A TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION. FACTORY LABEL INSULATION AND JACKET MATERIALS AND ADHESIVE, MASTIC, AND CEMENT MATERIAL CONTAINERS, WITH APPROPRIATE MARKINGS OF APPLICABLE TESTING AND INSPECTING AGENCY.

   A. INSULATION INSTALLED INDOORS: FLAME SPREAD INDEX OF 25 OR LESS, AND SMOKE DEVELOPED INDEX OF 50 OR LESS.
   B. INSULATION INSTALLED OUTDOORS: FLAME SPREAD INDEX OF 75 OR LESS, AND SMOKE DEVELOPED INDEX OF 150 OR LESS.

3. PIPING MATERIALS SHALL BEAR LABEL, STAMP, OR OTHER MARKINGS OF SPECIFIED TESTING AGENCY.

4. ASME COMPLIANCE:

   A. ASME B31.9 FOR BUILDING SERVICES PIPING VALVES.
   B. ASME COMPLIANCE FOR FERROUS VALVES: ASME B16.10 AND ASME B16.34 FOR DIMENSION AND DESIGN CRITERIA.

5. NSF COMPLIANCE:

   A. NSF 14, "PLASTIC PIPING SYSTEM COMPONENTS AND RELATED MATERIALS."
   B. NSF 61, "DRINKING WATER SYSTEM COMPONENTS – HEALTH EFFECTS; SECTIONS 1 THROUGH 9."

6. ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.

7. REGULATORY REQUIREMENTS:

   A. COMPLY WITH PUBLIC LAW 101–336, "AMERICAN WITH DISABILITIES ACT," AND "UNIFORM FEDERAL ACCESSIBILITY STANDARDS."
   B. COMPLY WITH PUBLIC LAW 102–486, "ENERGY POLICY ACT."

CONTRACT DOCUMENTS:

1. CONTRACTOR SHALL REVIEW CONTRACT DOCUMENTS AND BECOME FAMILIAR WITH THE SITE AND LOCAL CONDITIONS RELATING TO WORK AS DESCRIBED HEREIN PRIOR TO SUBMITTING BID PROPOSAL. FAILURE TO DO SO SHALL NOT RELIEVE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT. IDENTIFY ALL DISCREPANCIES AND NOTIFY ARCHITECT/ENGINEER, IN WRITING.

2. THE DRAWINGS INDICATE THE GENERAL LAYOUT OF THE VARIOUS SYSTEM(S) AND EQUIPMENT. THE LAYOUT OF THE SYSTEM(S) EQUIPMENT, ACCESSORIES AND OTHER COMPONENTS ARE DIAGRAMMATIC UNLESS SPECIFICALLY SHOWN OR DIMENSIONED.

3. CONTRACTOR SHALL BID ALL WORK AS SHOWN, AND MATERIAL AND EQUIPMENT AS SPECIFIED HEREIN. ANY SUBSTITUTION (NOT APPROVED) DURING THE BIDDING PROCESS TO SECURE AWARD OF THE CONTRACT WILL NOT BE ACKNOWLEDGED.

4. CONTRACTOR SHALL BE FINANCIALLY LIABLE FOR ANY REQUIRED ENGINEERING REVIEW DUE TO ANY PROPOSED PRODUCT CHANGE AND/OR VOLUNTARY "VALUE ENGINEERING" DURING THE BIDDING PROCEDURE AND THE SUBMITTAL PROCESS.

5. ANY CONFLICTING INFORMATION DEPICTED OR IMPLIED ON THE DRAWINGS IDENTIFIED DURING THE BIDDING PROCESS SHALL BE SUBMITTED FOR CLARIFICATION OF INTENT. FAILURE TO CLARIFY THE ARCHITECT/ENGINEER INTENT, MAY MAKE THE CONTRACTOR LIABLE FOR ANY ASSOCIATED COSTS RELATIVE TO CHANGES DURING THE CONSTRUCTION PROCESS.

SPECIFICATIONS AND DRAWINGS:

SPECIFICATIONS AND DRAWINGS ARE INTENDED TO BE COOPERATIVE. WHAT IS CALLED FOR BY EITHER SHALL BE AS BINDING AS IF CALLED FOR BY BOTH. ANY WORK OR MATERIALS NOT SPECIFICALLY MENTIONED THOUGH REQUIRED TO MAKE THE JOB COMPLETE, SHALL BE FURNISHED AT THE CONTRACTOR'S EXPENSE.

VISITING THE SITE:

PRIOR TO SUBMITTING BID PROPOSAL, CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE SITE AND EXISTING CONDITIONS FOR DOING WORK AS SHOWN ON DRAWINGS AND SPECIFIED HEREIN. FAILURE TO COMPLY SHALL NOT RELIEVE THE CONTRACTOR OF THE OBLIGATIONS OF THE CONTRACT. CONTRACTOR SHALL IDENTIFY ALL DISCREPANCIES AND NOTIFY ARCHITECT/ENGINEER, IN WRITING.

PERMITS, FEES & INSPECTIONS:

1. CONTRACTOR SHALL PREPARE AND SUBMIT ALL DATA, DRAWINGS AND DETAILS REQUIRED, SECURE AND PAY FOR ALL PERMITS, GOVERNMENTAL FEES, TAXES, INSPECTIONS AND LICENSES NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK.

2. CONTRACTOR SHALL PAY FOR ALL APPLICABLE FEES FOR TEST AND INSPECTIONS REQUIRED BY LOCAL AUTHORITIES HAVING JURISDICTION.

3. WHERE REGULATIONS OF UTILITY COMPANIES APPLY, CONFORMANCE WITH THEIR REGULATIONS IS MANDATORY AND ANY COSTS INVOLVED SHALL BE INCLUDED IN THE CONTRACT.

LAWS AND ORDINANCES:

CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF WORK AS SHOWN ON DRAWINGS AND SPECIFIED HEREIN. IF CONTRACTOR OBSERVES THAT THE DRAWINGS AND SPECIFICATIONS ARE AT VARIANCE THEREWITH, CONTRACTOR SHALL PROMPTLY NOTIFY ARCHITECT/ENGINEER IN WRITING WHEN SUBMITTING BID AND ANY NECESSARY CHANGES SHALL BE ADJUSTED AS PROVIDED IN THE CONTRACT FOR SUCH CHANGES IN WORK. IF CONTRACTOR PERFORMS ANY WORK, CONTRARY TO SUCH LAWS, ORDINANCES, RULES AND REGULATIONS, CONTRACTOR SHALL BEAR ALL COSTS FOR CORRECTING THE WORK.

TRADE JURISDICTION:

WHEN IT BECOMES NECESSARY FOR THE COMPLETE FULFILLMENT OF THIS WORK FOR THIS CONTRACTOR TO FURNISH LABOR OR MATERIALS OTHER THAN THAT WHICH IS GENERALLY ACCEPTED BY THIS TRADE OR BRANCH OF WORK, THE CONTRACTOR SHALL SUBLET SAME TO A CONTRACTOR ENGAGED IN THE TRADE OR BRANCH OF WORK INVOLVED. THERE SHALL BE NO DELAY TO OR STOPPAGE OF WORK DUE TO THE INFRINGEMENT OR ALLEGED INFRINGEMENT TO TRADE AGREEMENTS AS TO THE JURISDICTION.

REQUESTS FOR INFORMATION (RFI'S):

1. ALL REQUESTS FOR INFORMATION (RFI'S) SHALL BE SUBMITTED IN WRITING TO THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER.

2. IF THERE IS NO CONSTRUCTION MANAGER OR GENERAL CONTRACTOR. SUBMIT RFI'S TO THE ARCHITECT/ENGINEER.

3. THERE WILL BE NO RESPONSE TO RFI'S THAT ARE NOT SUBMITTED IN WRITTEN FORM.

4. ANY FORMAL OR INFORMAL, OR PHONE CONVERSATION DOES NOT CONSTITUTE THE AUTHORIZATION TO PROCEED.

WORKMANSHIP:

ALL LABOR SHALL BE EXECUTED IN A NEAT, WORKMANLIKE MANNER AND SHALL BE PERFORMED BY PERSONS SKILLED IN THEIR RESPECTIVE TRADES. THE ARCHITECT/ENGINEER SHALL DECIDE ALL MATTERS PERTAINING TO THE QUALITY OF WORKMANSHIP AND MATERIALS.

COORDINATION OF WORK:

CONTRACTOR SHALL COORDINATE WITH OTHER CONSTRUCTION TO AVOID INTERFERENCE BEFORE STARTING ANY INSTALLATION. ANY NEGLECT BY THE CONTRACTOR TO COORDINATE WITH OTHER CONSTRUCTION SHALL BE MADE AT THE CONTRACTOR'S OWN EXPENSE.

OPERATING INSTRUCTIONS:

CONTRACTOR SHALL PREPARE A TYPEWRITTEN LIST IN DUPLICATE, OF INSTRUCTIONS OF THE OPERATION OF ALL EQUIPMENT AND SHALL INSTRUCT IN ITS OPERATION. ALL VALVES AND EQUIPMENT SHALL BE MARKED WITH A METAL TAG AND A TYPEWRITTEN SCHEDULE SHALL BE GIVEN TO THE OWNER.

GUARANTEE:

CONTRACTOR SHALL GUARANTEE WORK TO BE FREE FROM DEFECTIVE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL CERTIFICATE. ANY REPAIRS OR REPLACEMENT DURING THIS PERIOD SHALL BE MADE WITHOUT COST TO THE OWNER, UPON OWNER'S REQUEST.

P R O D U C T S

MATERIALS:

1. ALL MATERIALS SHALL BE NEW AND OF FIRST CLASS PRODUCTS OF MANUFACTURERS SPECIFIED HEREIN AND OR AS APPROVED BY THE ARCHITECT/ENGINEER OF RECORD.

2. THE DESIGN INTENT, SPACE REQUIREMENTS, PERFORMANCE, ETC., ARE BASED ON PRODUCTS OF THE MANUFACTURER(S) INDICATED IN THESE SPECIFICATIONS. UNLESS NOTED OTHERWISE COMPARABLE PRODUCTS OF OTHER MANUFACTURER(S) MAY BE SUBMITTED FOR REVIEW TO THE ARCHITECT/ENGINEER OF RECORD. PRODUCTS INSTALLED WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

3. MANUFACTURER(S) IDENTIFICATION OF MATERIAL: EACH LENGTH OF PIPE, PIPE FITTING, EQUIPMENT, DEVICE AND APPURTENANCE IN THE FIRE PROTECTION SYSTEM SHALL HAVE CAST, STAMPED OR INDELIBLY MARKED ON IT THE MARKER'S MARK OR NAME, WEIGHT, CLASS OF PRODUCT AND STANDARD THAT APPLIES.

PLUMBING FIXTURES:

1. PLUMIBNG FIXTURES AND TRIMMINGS HAVE BEEN SELECTED AS A BASE FOR THIS INSTALLATION, EXCEPT WHERE OTHERWISE SPECIFIED, BUT OTHER MAKES WHICH ARE EQUAL AND APPROVED MAY BE USED. CONTRACTOR SHALL SUBMIT FOR ARCHITECT/ENGINEER'S APPROVAL PORTFOLIO ILLUSTRATING AND DESCRIBING IN DETAIL THE FIXTURES, TRIMMINGS AND VALVES CONTRACTOR CONTEMPLATES USING, GIVING NAMES AND CATALOG NUMBERS OR IDENTIFYING DESCRIPTION.

   A. PLUMBING FIXTURES SHALL BE OF THE BEST QUALITY, GRADE "A", AND SHALL HAVE MANUFACTURER'S GUARANTEE LABEL OR TRADEMARK INDICTING FIRST QUALITY.

2. INSTALL/PROVIDE FLUSH VALVES AND/OR FLUSH TANKS WITH HANDLE ON LEFT SIDE OF FIXTURE, EXCEPT IN ACCESSIBLE (ADA) STALLS WHERE HANDLES SHALL BE LOCATED ON THE WIDE SIDE OF STALL.

3. SET ALL FLOOR FIXTURES ON A WHITE TILE SETTERS GROUT TO FORM A SOLID WATER TIGHT BASE.

4. CAULK ALL FIXTURES WATER TIGHT TO WALL AND FLOOR USING CLEAR SILICONE CAULK NEAT AND SMOOTHLY SET IN PLACE AND EXCESS CLEANED FROM WALL OR FIXTURE.

HANGERS AND SUPPORTS:

1. STEEL PIPE HANGERS AND SUPPORTS: MSS SP–58, TYPES 1 THROUGH 58, FACTORY–FABRICATED COMPONENTS. REFER TO EXECUTION SECTION "HANGER AND SUPPORT APPLICATIONS."

   A. GALVANIZED, METALLIC COATINGS: PRE–GALVANIZED OR HOT DIPPED.
   B. NON–METALLIC COATINGS: PLASTIC COATING, JACKET, OR LINER.
   C. PADDED HANGERS: HANGER WITH FIBERGLASS OR OTHER PIPE INSULATION PAD OR CUSHION FOR SUPPORT OF BEARING SURFACE OF PIPING.

2. TRAPEZE PIPE HANGERS: MSS SP–69, TYPE 69, SHOP OR FIELD FABRICATED PIPE–SUPPORT ASSEMBLY MADE FROM STRUCTURAL STEEL SHAPES WITH MSS–SP–58 HANGER RODS, NUTS, SADDLES, AND U–BOLTS.

1. METAL FRAMING SYSTEMS: MFMA–3, SHOP OR FIELD FABRICATED PIPE SUPPORT ASSEMBLY MADE OF STEEL CHANNELS AND OTHER COMPONENTS.

2. THERMAL HANGER SHIELD INSERTS: 100–PSIG MINIMUM, COMPRESSIVE STRENGTH INSULATION INSERT ENCASED IN SHEET METAL SHIELD.

3. FASTENER SYSTEMS:

   A. POWDER ACTUATED FASTENERS: THREADED STEEL STUD, FOR USE IN HARDENED PORTLAND CEMENT CONCRETE WITH PULLOUT, TENSION, AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED.
   B. MECHANICAL EXPANSION ANCHORS: INSERT WEDGE TYPE, ZINC COATED OR STAINLESS STEEL, FOR USE IN HARDENED PORTLAND CEMENT CONCRETE WITH PULLOUT, TENSION, AND SHEAR CAPACITIES APPROPRIATE FOR SUPPORTED LOADS AND BUILDING MATERIALS WHERE USED.

6. EQUIPMENT SUPPORTS: WELDED, SHOP OR FIELD FABRICATED EQUIPMENT SUPPORT MADE FROM STRUCTURAL STEEL SHAPES.

7. MISCELLANEOUS MATERIALS:

   A. STRUCTURAL STEEL: ASTM A 46/A 36M, STEEL PLATES, AND BARS; BLACK AND GALVANIZED.
   B. GROUT: ASTM C 1107, FACTORY–MIXED AND PACKAGED, DRY, HYDRAULIC–CEMENT, NON–SHRINK AND NON–METALLIC GROUT; SUITABLE FOR INTERIOR AND EXTERIOR APPLICATIONS.
   C. PROPERTIES: NON–STAINING, NON–CORROSIVE, AND NON–GASEOUS.
   D. DESIGN MIX: 5000–PSI, 28–DAY COMPRESSIVE STRENGTH.

INSULATION:

1. THERMAL INSULATION MATERIALS SHALL MEET THE PROPERTY REQUIREMENTS OF THE FOLLOWING SPECIFICATIONS AS APPLICABLE TO THE SPECIFIC PRODUCT OR END USE:

   A. ASTM C547, ASTM C585, AND ASTM C1136.

2. INSULATION MATERIALS SHALL MEET THE MINIMUM REQUIREMENTS OF ASHRAE 90.1 (LATEST EDITION).

3. INSULATION MATERIALS SHALL HAVE A MAXIMUM FLAME SPREAD INDEX OF 25 AND A MAXIMUM SMOKE DEVELOPED INDEX OF 50 WHEN TESTED IN ACCORDANCE WITH THE FOLLOWING TESTING STANDARDS:

   A. ASTM E84, UL 723 AND NFPA 255.

4. INSULATION SHALL BE FIBERGLASS PIPE INSULATION, ONE–PIECE, HINGED SECTION, WITH FACTORY APPLIED WHITE POLYMER FACING, TWO–COMPONENT ADHESIVE CLOSURE SYSTEM, AND MATCHING PRESSURE SENSITIVE TAPE. MANUFACTURER'S DATA REGARDING THICKNESS CONSTRAINTS IN RELATION TO OPERATING TEMPERATURE SHALL BE FOLLOWED. STAPLING IS NOT ALLOWED TO COMPLETE THE CLOSURE.

5. MOLDED CLOSED CELL POLYETHYLENE FOAM INSULATION IN NOT ALLOWED OR APPROVED.

6. COVER ALL OF THE FOLLOWING PIPE TYPES LISTED WITH PREMOLDED PIPE INSULATION OF THICKNESS INDICATED, 4 LB. DENSITY AND ASJ JACKET.

PIPE TYPE (INCHES)	INSULATION THICKNESS (INCHES)
DOMESTIC COLD WATER	
PIPE 1 INCH AND SMALLER	1/2
PIPE 1–1/4 INCH TO 2 INCH	3/4
PIPE 2–1/2 INCH AND LARGER	1
DOMESTIC HOT WATER	
PIPE 2 INCH AND SMALLER	1
PIPE 2–1/2 INCH LARGER	1–1/2

E X E C U T I O N

SCOPE OF WORK:

1. PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, FACILITIES, TRANSPORTATION, FEES AND SERVICES NECESSARY FOR A COMPLETE PLUMBING SYSTEM(S) AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. WORKMANSHIP SHALL BE COMPLETE IN EVERY ASPECT, TESTED, APPROVED AND SATISFACTORY TO THE ARCHITECT/ENGINEER AND IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL LAWS HAVING JURISDICTION.

2. IT IS THE DECLARED AND ACKNOWLEDGED INTENT OF THESE SPECIFICATIONS TO PROVIDE A COMPLETE PLUMBING SYSTEM(S), INCLUSIVE OF ALL REQUIRED PARTS AND ACCESSORIES COMPLETE AND READY FOR USE AS DESCRIBED, BUT NOT LIMITED TO THE FOLLOWING:

   A. DOMESTIC WATER SERVICE AND DISTRIBUTION.
   B. DOMESTIC HOT WATER.
   C. SANITARY DRAINAGE SYSTEM.
   D. KITCHEN DRAINAGE SYSTEM.
   E. PLUMBING FIXTURES.
   F. PLUMBING EQUIPMENT.

3. THE DRAWINGS INDICATE DIAGRAMMATICALLY THE EXTENT AND LOCATION OF THE WORK INCLUDED. WORK INDICATED, BUT HAVING MINOR DETAILS OBVIOUSLY OMITTED, SHALL BE PROVIDED, INCLUDING THESE DETAILS, WITHOUT EXTRA COST TO THE OWNER.

SUBMITTALS AND SHOP DRAWINGS:

1. SHOP DRAWING LAYOUT SUBMITTAL(S) SHALL BE A MINIMUM OF 1/8 INCH PER FOOT SCALE, SHOWING ALL PIPING TO BE INSTALLED. DETAILED LAYOUT(S) OF TOILETS, KITCHENS AND EQUIPMENT ROOMS SHALL BE NOT LESS THAN 1/4 INCH PER FOOT SCALE. THE DRAWING SHALL ALSO SHOW THE WORK COORDINATED WITH ALL OTHER TRADES, ALL DRAWINGS SHALL BE SUBMITTED PRIOR TO STARTING ANY WORK, AND IN ACCORDANCE WITH AN APPROVED SCHEDULE, PROVIDED BY THE GENERAL CONTRACTOR, TO AVOID ANY DELAY ON THE PROJECT.

2. EQUIPMENT, FIXTURES AND OTHER RELATED APPURTENANCES SHALL BE SUBMITTED IN BOUNDED BOOKLETS. ALL DATA MUST BE CLEARLY LEGIBLE. SUBMIT SIX (6) COPIES MINIMUM OF EACH.

3. CONTRACTOR SHALL SUBMIT TO GOVERNMENTAL AGENCIES AND UTILITY COMPANIES, SHOP DRAWINGS WHICH ARE REQUIRED BY THESE AGENCIES FOR THEIR APPROVAL.

4. CONTRACTOR SHALL PREPARE AND FURNISH TO THE OWNER, TWO (2) BOUND BOOKLETS EACH CONTAINING A COMPLETE LIST OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT. EACH PIECE OF EQUIPMENT LISTED SHALL ALSO BE DESCRIBED BY MANUFACTURER(S) MODEL NUMBER, FIGURE NUMBER AND THE COMPONENTS THEREIN WHICH MAKE UP THE PART(S) LIST.

5. SHOP DRAWINGS SHALL INCLUDE CONTRACTOR'S NAME, JOB ADDRESS, MANUFACTURER'S NAME, CATALOG NUMBERS, CUTS, DIAGRAMS AND OTHER SUCH DESCRIPTIVE DATA AS REQUIRED TO IDENTIFY AND REVIEW THE EQUIPMENT.

6. ONE (1) WEEK PRIOR TO FINAL INSPECTION, DELIVER TO THE ARCHITECT/ENGINEER TYPEWRITTEN COPIES OF EACH OF THE FOLLOWING:

   A. CERTIFICATION FROM CONTRACTOR THAT ALL EQUIPMENT AND SYSTEM(S) HAVE BEEN PROPERLY INSTALLED, ADJUSTED AND TESTED.
   B. CERTIFICATION FROM RESPECTIVE MANUFACTURER(S) AUTHORIZED REPRESENTATIVE THAT EQUIPMENT AND SYSTEM(S) HAVE BEEN PROPERLY INSTALLED, ADJUSTED AND TESTED.
   C. CERTIFICATION FROM AUTHORITY HAVING JURISDICTION THAT ALL EQUIPMENT AND SYSTEM(S) HAVE BEEN PROPERLY INSTALLED, ADJUSTED, TESTED AND ACCEPTED FROM THE AUTHORITY HAVING JURISDICTION.

INSPECTIONS AND TESTS:

1. TESTING SHALL BE DONE IN THE PRESENCE OF GOVERNING AUTHORITY AND OWNER'S REPRESENTATIVE. PROVIDE FIVE (5) DAYS NOTICE TO THE OWNER, ARCHITECT OF RECORD AND GOVERNING AUTHORITY. PROVIDE ALL NECESSARY EQUIPMENT, MATERIAL AND LABOR TO PERFORM TESTS.

2. ROUGHED–IN PLUMBING: THE DRAINAGE AND VENT PIPING SYSTEMS SHALL BE TESTED UPON COMPLETION OF ROUGHED–IN PIPING INSTALLATION, BY USING WATER OR AIR TO PROVE WATERTIGHT.

3. WATER TEST: WATER TEST SHALL BE APPLIED TO THE DRAINAGE SYSTEM EITHER IN ITS ENTIRETY OR IN SECTIONS AFTER PIPING HAS BEEN ROUGHED–IN. DRAINAGE SYSTEM SHALL NOT BE TESTED WITH LESS THAN TEN (10) FOOT HEAD OF WATER. THE WATER SHALL BE KEPT IN THE SYSTEM OR SECTION BEING TESTED FOR AT LEAST FIFTEEN (15) MINUTES BEFORE INSPECTION STARTS. TESTING OF THE SYSTEM SHALL CONFIRM THAT THE SYSTEM IS TIGHT AT ALL POINTS.

4. AIR TEST: AIR TEST SHALL BE MADE BY ATTACHING AN AIR COMPRESSOR TESTING APPARATUS TO A SUITABLE OPENING AFTER CLOSING ALL OTHER INLETS AND OUTLETS TO THE SYSTEM. FORCE AIR INTO THE SYSTEM UNTIL THERE IS A UNIFORM GAUGE PRESSURE OF FIVE (5) PI OR SUFFICIENT TO BALANCE A COLUMN OF MERCURY TEN (10) INCHES IN HEIGHT. PRESSURE SHALL BE HELD WITHOUT INTRODUCTION OF ADDITIONAL AIR FOR A PERIOD OF AT LEAST FIFTEEN (15) MINUTES.

5. WATER SUPPLY SYSTEM: WATER SUPPLY SYSTEM SHALL BE TESTED AND PROVED WATERTIGHT UPON COMPLETION OF A SECTION OR THE ENTIRE SYSTEM. SYSTEM SHALL BE TESTED UNDER A WATER PRESSURE OF AT LEAST 1.5 TIMES THE SYSTEM PRESSURE, BUT AT LEAST 100 PSI AT A MINIMUM BY AIR OR WATER. TESTING PRESSURE SHALL BE MAINTAINED FOR A LEAST FIFTEEN (15) MINUTES AND WATER USED FOR TEST SHALL BE FROM POTABLE WATER.

DISINFECTION OF POTABLE WATER SYSTEM:

1. SYSTEM (OR PART THEREOF) SHALL BE FILLED WITH A CHLORINE SOLUTION CONTAINING AT 50 PARTS PER MILLION OF CHLORINE, VALVED OFF AND ALLOWED TO STAND FOR 24 HOURS OR FILLED WITH A CHLORINE SOLUTION CONTAINING 200 PARTS PER MILLION OF CHLORINE AND ALLOWED TO STAND FOR THREE (3) HOURS.

2. AFTER REQUIRED (STANDING) TIME, SYSTEM SHALL BE FLUSHED WITH CLEAN POTABLE WATER UNTIL CHLORINE LEVEL IS WITHIN ACCEPTABLE LIMITS FOR POTABLE WATER.

FLUSHING:

1. CHLORINATED WATER SUPPLY: IF WATER SUPPLY SERVING SYSTEM IS CHLORINATED FROM COMMUNITY WATER SYSTEM, SYSTEM SHALL BE FLUSHED WITH CLEAN, POTABLE WATER UNTIL NO DIRTY WATER APPEARS AT THE POINT OF OUTLET.

2. NON–CHLORINATED WATER SUPPLY: WATER SUPPLY SYSTEM SHALL BE FLUSHED WITH CLEAN, POTABLE WATER UNTIL NO DIRTY WATER APPEARS AT THE POINT OF OUTLET.

LABEL AND IDENTIFICATION:

1. IDENTIFICATION FOR ALL PIPING SYSTEM(S) SHALL COMPLY WITH ANSI A13.1 FOR SIZE OF LETTERING AND BACKGROUND COLOR FIELD.

2. PIPING SYSTEM(S): IDENTIFICATION SHALL INCLUDE THE CONTENTS OF THE PIPING SYSTEM(S) AND AN ARROW INDICATING THE DIRECTION OF FLOW. HAZARDOUS PIPING SYSTEM(S) SHALL ALSO CONTAIN INFORMATION ADDRESSING THE NATURE OF THE HAZARD. IDENTIFICATION SHALL BE REPEATED AT MAXIMUM INTERVALS OF TWENTY–FIVE (25) FEET AND AT EACH POINT WHERE PIPING PASSES THROUGH A WALL, FLOOR OR ROOF. COLOR OF THE PIPE IDENTIFICATION SHALL BE DISCERNIBLE AND CONSISTENT THROUGHOUT THE BUILDING.

3. EQUIPMENT: IDENTIFICATION SHALL INCLUDE SYSTEM NUMBER, CAPACITY, FLOW, RATE, STATIC PRESSURE, PUMP HEAD, HORSEPOWER, VOLTAGE, ETC.

4. VALVE TAGS: PROVIDE BRASS VALVE TAGS AND BRASS "S" HOOK FASTENERS WITH VALVE NUMBER AND TYPE OF SERVICE NOTED ON TAG. PROVIDE DUPLICATE CHARTS, THE CHART SHALL BE FOR ALL VALVES AND SHALL INDICATE VALVE IDENTIFICATION NUMBER, LOCATION AND PURPOSE.

PLUMBING GENERAL NOTES

1. PLUMBING GENERAL NOTES ON THESE DRAWINGS ARE A PART OF THE PLUMBING SPECIFICATIONS TO THE SAME EXTENT AS IF WRITTEN HEREIN FULL.

2. ALL WORK AND MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF LOCAL AND STATE GOVERNING CODES, ORDINANCES AND HEALTH DEPARTMENT REGULATIONS.

3. THE INTENT OF THESE DRAWINGS IS TO FURNISH THE OWNER WITH A PLUMBING INSTALLATION READY FOR USE AND COMPLETE IN EVERY ASPECT.

4. FURNISH AND INSTALL A COMPLETE AND OPERABLE SOIL, WASTE AND VENT SYSTEM WITH FINAL CONNECTIONS TO ALL FIXTURES, APPLIANCES, DRAINS, EQUIPMENT, STRUCTURES, ETC., REQUIRING DRAINAGE. CONNECTIONS THERETO TO CONVEYANCE TO THE PUBLIC SEWER SYSTEM.

   A. HORIZONTAL DRAINAGE PIPING SHALL BE INSTALLED AT UNIFORM SLOPES NOTESS THAN THE FOLLOWING:
   B. PIPING LESS THAN FOUR (4) INCHES: 1/4 INCH PER LINEAL FOOT.
   C. PIPING FOUR (4) INCHES AND LARGER: 1/8 INCH PER LINEAL FOOT.
   D. UNLESS OTHERWISE INDICATED ON DRAWINGS, UNDERGROUND DRAINAGE
   E. PIPING SHALL BE A MINIMUM OF FOUR (4) INCHES.
   F. VENT PIPING SHALL BE MINIMALLY SLOPED BACK TO DRAINAGE PIPING.

5. FURNISH AND INSTALL A COMPLETE AND OPERABLE DOMESTIC WATER DISTRIBUTION SYSTEM WITH FINAL CONNECTIONS TO ALL PLUMBING FIXTURES, APPLIANCES, EQUIPMENT, WALL HYDRANTS, ETC., REQUIRING DOMESTIC WATER CONNECTIONS THERETO FROM THE DOMESTIC WATER SERVICE.

8. FURNISH AND INSTALL ALL PLUMBING FIXTURES, EQUIPMENT, APPLIANCES, COMPLETE WITH ALL NECESSARY AND REQUIRED TRIMMINGS, ACCESSORIES, COMPONENTS AND APPURTENANCES INCLUDING BUT NOT LIMITED TO P–TRAPS, BACKFLOW DEVICES, AIR CHAMBERS, STOPS AND SUPPLIES, HANGERS, SUPPORTS, ANCHORS, CARRIERS, TAILPIPES, TEMPERING VALVES, ETC.

9. ALL PIPING SHALL BE SUPPORTED FROM STRUCTURAL MEMBERS OF THE BUILDING, OR AS APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE. PLACE ALL HANGERS ON EIGHT (8) FOOT CENTERS.

   A. PIPES ONE (1) INCH IN DIAMETER OR LESS: SOLID OR SPLIT RING TYPE
   B. PIPES LARGER THAN ONE (1) INCH: STANDARD WEIGHT CLEVIS HANGERS
   C. INSULATED PIPING: SEMI–CIRCULAR SHIELD.

10. CONTRACTOR SHALL PROVIDE ACCESS PANELS TO ACCESS ANY VALVES OR ANY PLUMBING ITEMS REQUIRING ACCESS FOR MAINTENANCE. CONTRACTOR SHALL PROVIDE TO THE GENERAL CONTRACTOR ALL LOCATION AND SIZES OF ACCESS PANELS FOR APPROVAL BY THE ARCHITECT. CONTRACTOR SHALL PROVIDE ACCESS PANELS TO THE GENERAL CONTRACTOR FOR INSTALLATION.

PLUMBING PRODUCTS AND MATERIALS

FLOOR DRAINS:

1. FD–1 (FINISHED AREAS): LACQUERED CAST IRON FLOOR DRAIN WITH ANCHOR FLANGE, TRAP PRIMER BOSS, CAST IRON MEMBRANE CLAMP RING WITH PRIMARY AND SECONDARY WEEPHOLES FOR WATERPROOFING MEMBRANE, STANDARD HEAVY DUTY POLISHED STAINLESS STEEL STRAINER, 6 INCH DIAMETER STRAINER, 6 INCH BY 6 INCH SQUARE STRAINER IN TILED AREAS.

   A. MANUFACTURER: MIFAB SERIES F1000–3
   B. MANUFACTURER: MIFAB SERIES F1000–S (TILED AREAS).

FLOOR SINKS

1. FS–1: (KITCHEN AREAS) 12 INCH BY 12 INCH BY 6 INCH DEEP SANITARY FLOOR AREA AND INDIRECT WASTE DRAIN, TYPE 304 (CF8) STAINLESS STEEL, STAINLESS STEEL SECURED RIM AND EXTRA HEAVY DUTY 1/2 GRATE, ALLEN KEY VANDAL PROOF STAINLESS STEEL SCREWS, STAINLESS STEEL ANCHOR FLANGE WITH WEEPHOLES, STAINLESS STEEL ANTI–SPLASH DOME STRAINER.

   A. MANUFACTURER: MIFAB SERIES FS1920–FL.

CLEANOUTS:

1. FCO (FINISHED AREAS): ADJUSTABLE FLOOR CLEANOUT, LACQUERED CAST IRON BODY, SECONDARY CLOSURE PLUG, STAINLESS STEEL COMBINED ROUND (SQUARE IN TILED AREAS) COVER AND PLUG TOP ASSEMBLY, STAINLESS STEEL VANDAL RESISTANT SECURITY SCREWS.

   A. MANUFACTURER: MIFAB SERIES C1220–3–6–34B
   B. MANUFACTURER: MIFAB SERIES C1220–S–6–34B (TILED AREAS).

VALVES:

1. BUTTERFLY VALVE: (2–1/2 INCH TO 3 INCH) HEAVY DUTY CONSTRUCTION, PHENOLIC BACKED LOW FRICTION CARTRIDGE LINER, BUBBLE TIGHT SEAL, EXTENDED NECK, STREAMLINE DISC, WAFER BODY, BI–DIRECTIONAL SERVICE, GEAR OPERATORS, 100 PERCENT FACTORY TESTED.

   A. MANUFACTURER: HAMMOND VALVE SERIES 6100.

2. BALL VALVE (1/2 INCH TO 2–1/2 INCH) FULL PORT OPENING, 2 PIECE BRASS BODY, BLOW OUT PROOF STEM, TFE SEATS, TFE WITH ADJUSTABLE STEM PACKING GLAND, FREE–FLOATING CHROME PLATED BRASS BALL, 100 PERCENT FACTORY TESTED.

   A. MANUFACTURER: HAMMOND VALVE SERVICE 8300.

BACKFLOW DEVICES:

REDUCED PRESSURE PRINCIPLE ASSEMBLY

1. RPZA: (1/4 INCH TO 1/2 INCH) REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY, ASSE LISTED 1013, RATED TO 180° FAHRENHEIT, FULL PORT BALL VALVES, BRONZE (ASTM B584) MAIN BODY AND ACESS COVERS, NORYL (NSF LISTED) SEAT RING AND ALL INTERNAL POLYMERS, SILICONE SEAT DISC ELASTOMERS. THE CHECKS SHALL BE ORIENTED AT A 45° ANGLE UPWARD AND ACCESSIBLE FOR MAINTENANCE WITHOUT REMOVING THE RELIEF VALVE OR THE ENTIRE DEVICE FROM THE LINE. IF INSALLED INDOORS, THE INSTALLATION SHALL BE SUPPLIED WITH AND AIR GAP AND "Y" TYPE BRONZE STRAINER.

   A. MANUFACTURER: WILKINS MODEL NUMBER 975XL.
   B. AIR GAP FITTING: WILKINS MODEL NUMBER AG.

PIPING MATERIALS:

DOMESTIC WATER SERVICE

BELOW GRADE:

SOIL, WASTE AND VENT PIPING BELOW GRADE:

1. UNDERGROUND SOIL, WASTE AND VENT PIPING: CAST IRON, SERVICE CLASS, BELL–AND–SPIGOT ENDS FOR GASKETD JOINTS.

   A. PIPE AND FITTINGS: ASTM A74.
   B. GASKETS: ASTM C564, RUBBER.

2. UNDERGROUND SOIL, WAST AND VENT PIPING (BELOW FOUNDATION WALLS: DUCTILE IRON GRAVITY SEEWER PIPE, BELL–AND SPIGOT ENDS FOR PUSH–ON JOINTS.

   A. PIPE: ASTM A746, FOR PUSH–ON JOINTS.
   B. STANDARD FITTINGS: AWWA C110, DUCTILE IRON GRAY IRON, FOR PUSH–ON JOINTS.
   C. COMPACT FITTINGS: AWWA C153, DUCTILE IRON, FOR PUSH–ON JOINTS.
   D. GASKETS: AWWA C111, RUBBER.

ABOVE GRADE:

1. ABOVEGROUND SOIL, WASTE AND VENT PIPING: CAST IRON, SERVICE CLASS, BELL–AND–SPIGOT ENDS.

   A. PIPE AND FITTINGS: ASTM A74 SERVICE CLASS.
   B. GASKETS: ASTM C564, RUBBER.
   C. CALKING MATERIALS: ASTM B29, PURE LEAD AND OAKUM OR HEMP FIBER.

   A. PIPE AND FITTINGS: ASTM A74 SERVICE CLASS.
   B. GASKETS: ASTM C564, RUBBER.
   C. LEAD AND OAKUM: ASTM B29, PURE LEAD AND OAKUM OR HEMP FIBER.

2. ABOVEGROUND SOIL, WASTE AND VENT PIPING: CAST IRON, HUBLESS.

   A. PIPE AND FITTINGS: ASTM A888 OR CISPI 301.
   B. SOVENT STACK FITTINGS: ASME B16.45 OR ASSE 1043, HUBLESS, CAST IRON, AERATOR AND DEAERATOR DRAINAGE FITTINGS.
   C. SHIELDED COUPLINGS: ASTM C1277, ASSEMBLY OF METAL SHIELD OR HOUSING, CORROSION RESISTANT FASTNERS, AND RUBBER SLEEVE WITH INTEGRAL, CENTER PIPE STOP.
   D. STANDARD, SHIELDED, STAINLESS STEEL COUPLINGS: CISPI 310, WITH STAINLESS STEEL CORRUGATED SHIELD, STAINLESS STEEL BANDS AND TIGHTENING DEVICES, ASTM AC564, RUBBER SLEEVE.
   E. HEAVY–DUTY, SHIELDED, STAINLESS STEEL COUPLINGS: WITH STAINLESS STEEL SHIELD, STAINLESS STEEL BANDS AND TIGHTENING DEVICES, ASTM C564, RUBBER SLEEVE.

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REVISIONS:

#	DATE:	DESCRIPTION:
	01/08/10	ISSUED FOR PERMIT

PROJECT NUMBER: 09-116
DRAWN BY: LEM
CHECKED BY: JKN

SHEET TITLE:
PLUMBING SPECS.

SHEET NUMBER:
P1.0

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