PLUMBING SPECIFICATIONS:

GENERAL

1. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

2. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.

3. PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED.

4. SUPPORT ALL PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.

5. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

6. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.

7. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING.

8. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.

9. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.

10. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

11. SEAL OPENINGS AROUND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL.

12. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

13. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

14. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

15. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

16. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

17. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

18. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING PIPING (SIZES, CLEARANCES, ETC) AND CONDITIONS.

19. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

20. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

21. DEFINITIONS:
   - A. "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
   - B. "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
   - C. "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
   - D. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

220500 - PLUMBING PIPING SYSTEMS, GENERAL

1. PERFORM PLUMBING WORK PER THE LATEST EDITIONS OF THE MAINE STATE PLUMBING CODE (UPC 2015) INSTALL PIPING COMPLETE WITH: PIPE, FITTINGS, VALVES, STRAINERS, HANGERS, SUPPORTS, GUIDES, SLEEVES AND ACCESSORIES. INCLUDE ESCUTCHEONS AT THRU-WALL AND THRU-FLOOR PENETRATIONS IN FINISHED SPACES.

2. PIPE SUPPORTS: PROVIDE ADEQUATE SUPPORT FOR THE PIPE AND CONTENTS TO PREVENT SAGGING, VIBRATION, AND SWAYING AND ALLOW FOR EXPANSIONS AND CONTRACTION. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE STRUCTURE CANNOT SUPPORT POINT LOADS. WHERE CONNECTING TO EXISTING ROOF JOISTS, CONNECT AT TOP CHORD PANEL POINTS ONLY. HORIZONTAL PIPING TO BE SUPPORTED BY FORGED STEEL ADJUSTABLE CLEVIS TYPE HANGERS, UNLESS OTHERWISE NOTED ON DRAWINGS.
   - A. PROVIDE INSULATION SHIELDS ON INSULATED LINES.

220529 - PIPE SUPPORTS

1. PROVIDE ADEQUATE SUPPORT FOR PIPE AND CONTENTS TO PREVENT SAGGING, VIBRATION, OR SWAYING AND ALLOW FOR EXPANSION AND CONTRACTION. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE STRUCTURE CANNOT SUPPORT POINT LOADS.

2. FURNISH AND INSTALL EXPANSION COMPENSATORS FOR ALL LONG, STRAIGHT RUNS OF PIPING BETWEEN ANCHORED POINTS. SUBMIT TYPE AND PERFORMANCE TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

3. HORIZONTAL PIPING TO BE SUPPORTED BY FORGED STEEL ADJUSTABLE CLEVIS TYPE HANGER. MAXIMUM SPACING AS FOLLOWS:
   - A. COPPER 3 IN. AND SMALLER: 7 FT.
   - B. ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION, RUNOUTS, AND CONCENTRATED LOADS DUE TO VALVES, ETC.

4. VERTICAL PIPING:
   - A. BASE ELBOW SUPPORT WITH BEARING PLATE ON STRUCTURAL SUPPORT.
   - B. GUIDES AT EVERY SECOND FLOOR (SPACING NOT TO EXCEED 25 FT).
   - C. TOP SUPPORT HANGER OR SADDLE IN HORIZONTAL CONNECTION WITH PROVISIONS FOR EXPANSION.
     - a. INTERMEDIATE STEEL RISER CLAMP SUPPORT BOLTED AND WELDED TO PIPE BEARING ON STRUCTURAL STEEL OR BEARING PLATE AT FLOOR.

5. ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE PROVIDED WITH CHROME PLATED CAST BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.

220553 - PLUMBING IDENTIFICATION

1. MANUFACTURED PIPE MARKERS, GENERAL: PREPRINTED, COLOR-CODED, WITH LETTERING INDICATING SERVICE, AND SHOWING DIRECTION OF FLOW.
   - A. COLORS: COMPLY WITH ASME A13.1, UNLESS OTHERWISE INDICATED.
   - B. LETTERING: USE PIPING SYSTEM TERMS INDICATED AND ABBREVIATE ONLY AS NECESSARY FOR EACH APPLICATION LENGTH.
   - C. PIPES WITH OD, INCLUDING INSULATION, LESS THAN 6 INCHES: FULL-BAND PIPE MARKERS EXTENDING 360 DEGREES AROUND PIPE AT EACH LOCATION.
   - D. PIPES WITH OD, INCLUDING INSULATION, 6 INCHES AND LARGER: EITHER FULL-BAND OR STRIP-TYPE PIPE MARKERS AT LEAST THREE TIMES LETTER HEIGHT AND OF LENGTH REQUIRED FOR LABEL.
   - E. ARROWS: INTEGRAL WITH PIPING SYSTEM SERVICE LETTERING TO ACCOMMODATE BOTH DIRECTIONS; OR AS SEPARATE UNIT ON EACH PIPE MARKER TO INDICATE DIRECTION OF FLOW.
2. VALVE TAGS: STAMPED OR ENGRAVED WITH 1/4-INCH LETTERS FOR PIPING SYSTEM ABBREVIATION AND 1/2-INCH NUMBERS, WITH NUMBERING SCHEME APPROVED BY ENGINEER. PROVIDE 5/32-INCH HOLE FOR FASTENER.
   - A. MATERIAL: 0.032-INCH- THICK BRASS.
   - B. VALVE-TAG FASTENERS: BRASS WIRE-LINK OR BEADED CHAIN; OR S-HOOK .

220719 - INSULATION - GENERAL REQUIREMENTS

1. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723 (ASTM E-84), (ASA A2.5-1963). FLAMESPREAD: MAXIMUM 25. FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION FROM MOISTURE OR HUMIDITY ARE NOT ACCEPTABLE.

2. DEFINITIONS:
   - A. EXPOSED: PIPING LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING CEILINGS OR OPENING ACCESS PANELS.
   - B. CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED.
     - a. INSULATE ALL PIPING IN ACCORDANCE WITH THE FOLLOWING:
   - C. SERVICE: LOW TEMP PIPING - 40°F TO 100°F
     - a. SIZE: UP TO 4"
     - b. THICKNESS: 1"
     - c. MATERIAL: P-1
     - d. FINISH: VAPORSEAL
   - D. SERVICE: LOW TEMP FITTINGS AND VALVES - 40°F TO 100°F
     - a. SIZE: UP TO 4"
     - b. THICKNESS: 1"
     - c. MATERIAL: P-1
     - d. FINISH: VAPORSEAL
   - E. SERVICE: HOT PIPING - 100°F TO 250°F
     - a. SIZE: UP TO 2"
     - b. THICKNESS: 1-1/2"
     - c. MATERIAL: P-2
     - d. FINISH: F-1
   - F. SERVICE: HOT FITTINGS AND VALVES - 100°F TO 212°F
     - a. SIZE: UP TO 2"
     - b. THICKNESS: 1-1/2"
     - c. MATERIAL: P-2
     - d. FINISH: F-1

3. PIPING, VALVES AND FITTINGS TO BE INSULATED:
   - A. LOW TEMPERATURE PIPING SYSTEMS - 40 TO 100 DEG F INCLUDING:
     - a. COLD WATER SUPPLY.
     - b. CONDENSATE DRAIN PIPING.
     - c. FORCED MAIN CONDENSATE DRAIN PIPING.
   - B. LOW TEMPERATURE HOT PIPING SYSTEMS - 100 TO 212 DEG F INCLUDING:
     - a. DOMESTIC HOT WATER SUPPLY.

4. MATERIAL:
   - A. ALL INSULATION (INCLUDING JACKET, FACING, AND ADHESIVE) SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURES LISTED IN ASTM E-84, NFPA 255, AND UL 273; NOT EXCEEDING A FLAME SPREAD OF 25 AND A SMOKE DEVELOPED OF 50.
   - B. TYPE P-1: CLOSED-CELL FLEXIBLE ELASTOMERIC, MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIES FIRE-RETARDENT FOIL-SKRIM-KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO ARMSTRONG AP ARMAFLEX. ASTM C 534.
   - C. TYPE P-2: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.32 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY-APPLIED FIRE-RETARDANT FOIL-SKRIM-KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO OWENS-CORNING 650 ASJ. ASTM C 552.

5. FINISH:
   - A. TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.

6. INSTALLATION:
   - A. BEFORE APPLYING INSULATION, ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED.
   - B. ALL INSULATION SHALL BE BUTTED FIRMLY TOGETHER. PROVIDE 2 IN. LAMP STRIPS AT ALL SEAMS SECURED WITH ADHESIVE. USE VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE WHERE REQUIRED. STAPLES NOT PERMITTED. REFRIGERANT PIPING INSULATION SHALL HAVE MITERED FITTINGS.
   - C. ALL INSULATION AND VAPOR BARRIERS SHALL BE CONTINUOUS PASSING THROUGH SLEEVES, HANGERS, ETC., OR OTHER OPENINGS. PROVIDE SADDLES OR SHIELDS FOR PROTECTION.
   - D. INSULATION FOR STRAINERS OR OTHER FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.

221116 - DOMESTIC AND NON-POTABLE WATER PIPING SYSTEMS

1. APPLICABLE SYSTEMS:
   - A. DOMESTIC COLD WATER (CW)
   - B. DOMESTIC HOT WATER (HW)
   - C. NON-POTABLE COLD WATER (NPW)
   - D. EMERGENCY TEMPERED WATER (TW)
   - E. TRAP PRIMER WATER (TP)

2. PROVIDE COMPONENTS AND INSTALLATIONS CAPABLE OF PRODUCING PIPING SYSTEMS WITH THE FOLLOWING MINIMUM WORKING PRESSURE RATINGS, UNLESS OTHERWISE NOTED.
   - A. ABOVE GROUND WATER PIPING SYSTEMS: 125 PSIG
   - B. BELOW GROUND WATER PIPING SYSTEMS: 150 PSIG

3. ABOVE GRADE DOMESTIC AND NON-POTABLE WATER PIPING: HARD DRAWN TYPE L SEAMLESS COPPER TUBING, COPPER FITTINGS AND LEAD-FREE SOLDERED JOINTS.

4. BELOW GRADE TRAP PRIMER PIPING (TP): TYPE K SEAMLESS COPPER TUBING, LEAD FREE SILVER SOLDERED CONNECTIONS TO TERMINATION POINTS / TRANSITION FITTINGS. OTHERWISE, NO FITTINGS ALLOWED.

5. WATER PIPING SYSTEM VALVES: BRONZE BODIED VALVES, AS MANF BY HAMMOND, JENKINS, NIBCO.
   - A. SHUT-OFF DUTY: FULL PORT BALL VALVES
   - B. DIRECTIONAL DUTY: SWING STYLE CHECK VALVES.
   - C. HIGH-POINT VENTS AND LOW POINT DRAINS: FULL PORT BALL VALVES WITH CAP AND CHAIN.
   - D. THROTTLING DUTY: FIELD ADJUSTABLE CIRCUIT SETTERS.

6. WATER PIPING SYSTEM SPECIALTIES: PROVIDE TEMPERATURE AND PRESSURE GAUGES AND IN-LINE SPECIALTIES AS NECESSARY.

7. WATER PIPING SYSTEM INSULATION: PROVIDE CLOSED CELL ELASTOMER INSULATION ON ABOVE GRADE WATER PIPING SYSTEMS.
   - A. PIPING UP TO 1-1/4-INCH: 1/2-INCH THICK
   - B. PIPING LARGER THAN 1-1/4-INCH: 1-INCH THICK.
   - C. INSULATION NOT REQUIRED ON TW PIPING.

8. WATER PIPING SYSTEM TESTING: PRESSURIZE PIPING SYSTEMS TO 1.5 TIMES THEIR WORKING PRESSURE FOR A PERIOD OF 4 HOURS, OR AS DIRECTED BY PLUMBING OFFICIALS. MAKE CORRECTIONS AND RETEST AS NECESSARY. PROVIDE TEST REPORTS.

9. WATER PIPING SYSTEM FLUSHING AND CLEANING: FLUSH PIPING SYSTEMS WITH WATER. DISINFECT WITH A WATER - CHLORINE SOLUTION (50 PPM CHLORINE) FOR 24 HOURS, OR AS DIRECTED BY PLUMBING OFFICIALS. FLUSH SYSTEMS AND PROVIDE WATER QUALITY REPORTING.

221116 - DRAINAGE, WASTE AND VENT PIPING SYSTEMS

1. APPLICABLE SYSTEMS:
   - A. INDIRECT WASTE (IW)
   - B. CONDENSATE PIPING (CD)
   - C. FORCED MAIN CONDENSATE PIPING (CD(FM))

3. ABOVE GRADE INDIRECT WASTE AND CONDENSATE PIPING:
   - A. HARD DRAWN TYPE L SEAMLESS COPPER TUBING, DRAINAGE PATTERN COPPER FITTINGS AND LEAD-FREE SOLDERED JOINTS
   - B. PITCH PIPING RUNNING IN THE HORIZONTAL AT 1/4" / FT.

4. ABOVE GRADE FORCED MAIN CONDENSATE PIPING:
   - A. HARD DRAWN TYPE L SEAMLESS COPPER TUBING, DRAINAGE PATTERN COPPER FITTINGS AND LEAD-FREE SOLDERED JOINTS
   - B. PITCH PIPING RUNNING IN THE HORIZONTAL AT 0" / FT.

221119 - "PRO-PRESS" PIPING SYSTEM

1. APPLICABLE SYSTEM:
   - A. INDIRECT WASTE (IW)
   - B. CONDENSATE PIPING (CD)
   - C. FORCED MAIN CONDENSATE PIPING (CD(FM))
   - D. DOMESTIC COLD WATER (CW)
   - E. DOMESTIC HOT WATER (HW)
   - F. NON-POTABLE COLD WATER (NPW)

2. PROVIDE COMPONENTS AND INSTALLATIONS CAPABLE OF PRODUCING PIPING SYSTEMS WITH THE FOLLOWING MINIMUM WORKING PRESSURE RATINGS, UNLESS OTHERWISE NOTED.
   - A. 125 PSIG.

3. TYPE L SEAMLESS COPPER TUBING, COPPER AND COPPER ALLOY PRESS FITTINGS WITH "SMART CONNECT" FEATURE DESIGN.

4. PIPING SYSTEM TESTING: PRESSURIZE PIPING SYSTEMS TO 1.5 TIMES THEIR WORKING PRESSURE FOR A PERIOD OF 4 HOURS, MAKE CORRECTIONS AND RETEST AS NECESSARY. PROVIDE TEST REPORTS.

221119 - EMERGENCY EQUIPMENT

1. EMERGENCY EQUIPMENT
   - A. GENERAL: COMPLY WITH ANSI Z358.1, "EMERGENCY EYEWASH AND SHOWER EQUIPMENT." IN AS MUCH AS POSSIBLE, PROVIDE WATER TEMPERING EQUIPMENT AND FIXTURES AS SUPPLIED BY THE SAME MANUFACTURER
   - B. WATER TEMPERING EQUIPMENT: THERMOSTATIC MIXING VALVE ASSEMBLY WITH FAIL-COLD BYPASS. VALVES SHALL BE SPECIFICALLY MANUFACTURED FOR USE WITH EMERGENCY FIXTURES.
     - a. WATER SUPPLIED TO PLUMBED EMERGENCY FIXTURES TO BE 85F, +/- 5F.
     - b. MINIMUM FLOW RANGE FOR VALVES SERVING SHOWERS: 20-30 GPM.
     - c. MINIMUM FLOW RANGE FOR VALVES SERVING EYE/FACE WASHES: 3-5 GPM.
     - d. BASIS OF DESIGN: AS SCHEDULED ON THE DRAWINGS.
   - C. EMERGENCY FIXTURES: FIXTURES MAY INCLUDE; SHOWERS, COMBINATION SHOWER & EYE/FASH WASH UNITS, AND EYE/FACE WASH UNITS. UNITS SHALL BE BARRIER FREE AND SHALL INCLUDE STAY OPEN STYLE ACTIVATION.
     - a. BASIS OF DESIGN: AS SCHEDULED ON THE DRAWINGS.
   - D. DRAIN PIPING: PROVIDE DRAIN PIPING FOR EYE/FACE WASH UNITS AS WELL AS THE EYE/FACE WASH PORTION OF COMBINATION UNITS, WHERE DRAIN PORTS ARE SUPPLIED AS PART OF THE FIXTURE.
     - a. EXPOSED PIPING APPLICATION: STEEL PIPE AND FITTINGS, SCHEDULE 40, GALVANIZED. INCLUDE GALVANIZED STEEL ESCUTCHEONS WHERE PIPING PENETRATES FINISHED WALLS.
     - b. CONCEALED PIPING APPLICATIONS: COPPER TUBE AND FITTINGS, TYPE DWV.
   - E. SIGNAGE: PROVIDE SIGNAGE FOR EACH UNIT, AS SUPPLIED BY THE SAME MANUFACTURER AS THE FIXTURES. SIGNAGE TO BE AS PER ANSI Z358.1.
   - F. QUALITY CONTROL: CONTRACTOR SHALL CONFIRM THAT WATER PRESSURE FEEDING THE EMERGENCY EQUIPMENT FROM THE MIXING VALVE OUTLET IS A MINIMUM OF 30.0 PSIG.
   - G. TEST EQUIPMENT: PROVIDE THE FOLLOWING TEST EQUIPMENT FOR THE PROJECT WHERE SHOWER OR COMBINATION UNITS ARE INCLUDED. TEST EQUIPMENT TO BE FURNISHED BY THE SAME MANUFACTURER AS THE FIXTURES.
     - a. TEST CURTAIN CHUTE.
     - b. 5 GALLON COLLECTION BUCKET.

221119 - PLUMBING SPECIALTIES

1. CLEANOUTS SHALL BE COMMERCIAL GRADE BRASS. APPROVED MANUFACTURERS INCLUDE ZURN, WADE, J.R. SMITH, JOSAM, OR APPROVED EQUAL.

2. WATER HAMMER ARRESTORS SHALL BE ASSE 1010 OR PDI-WH201, PISTON TYPE WITH PRESSURIZED METAL-TUBE CUSHIONING CHAMBER. APPROVED MANUFACTURERS INCLUDE ZURN, SIOUX CHIEF, WATTS, PPP INC, OR APPROVED EQUAL.

221119 - ACCESORIES

1. PROVIDE FLOOR DRAINS AND TRAP PRIMERS AS SCHEDULED.

2. PROVIDE WALL BOXES AS SCHEDULED.

224000 - PLUMBING FIXTURES

1. REFERENCE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR SINK BASIN AND COUNTERTOP.

2. COMPLY WITH THE FOLLOWING APPLICABLE STANDARDS AND OTHER REQUIREMENTS SPECIFIED FOR PLUMBING FIXTURES:
   - A. STAINLESS-STEEL OR CHINA FIXTURES OTHER THAN SERVICE SINKS: ASME A112.19.3/CSA B45.4.

3. COMPLY WITH THE FOLLOWING APPLICABLE STANDARDS AND OTHER REQUIREMENTS SPECIFIED FOR LAVATORY AND SINK FAUCETS:
   - A. FAUCETS: ASME A112.18.1/CSA B125.1.
   - B. NSF MATERIALS: NSF 61.
   - C. SUPPLY AND DRAIN FITTINGS: ASME A112.18.1/CSA B125.1.

4. COMPLY WITH THE FOLLOWING APPLICABLE STANDARDS AND OTHER REQUIREMENTS SPECIFIED FOR MISCELLANEOUS FITTINGS:
   - A. BRASS AND COPPER SUPPLIES: ASME A112.18.1/CSA B125.1.
   - B. TUBULAR BRASS DRAINAGE FITTINGS AND PIPING: ASME A112.18.1/CSA B125.1.

5. COMPLY WITH THE FOLLOWING APPLICABLE STANDARDS AND OTHER REQUIREMENTS SPECIFIED FOR MISCELLANEOUS COMPONENTS:
   - A. FLEXIBLE WATER CONNECTORS: ASME A112.18.6.
   - B. SUPPLY AND DRAIN PROTECTIVE SHIELDING GUARDS: ICC A117.1.

6. FAUCETS
   - A. GENERAL: INCLUDE HOT- AND COLD-WATER INDICATORS; COORDINATE FAUCET INLETS WITH SUPPLIES AND FIXTURE HOLES AND OUTLET WITH SPOUT AND FIXTURE RECEPTOR.
   - B. SPOUT LOCATION: CENTER OF BOWL.
   - C. CARTRIDGE TYPE: CERAMIC.
   - D. MAXIMUM FLOW RATE. (UNLESS OTHERWISE INDICATED):
     - a. SINKS: 2.5 GPM.
   - E. BODY MATERIAL: CAST BRASS.
   - F. FINISH: POLISHED CHROME PLATE.
   - G. OPERATION MECHANISM: LEVER HANDLES.

7. PROTECTIVE SHIELDING GUARDS
   - A. GENERAL: MANUFACTURED INSULATION AND PLASTIC COVERING FOR WATER SUPPLY, TRAP AND DRAIN PIPING AND COMPLYING WITH ADA REQUIREMENTS.

8. SUPPLY STOPS
   - A. GENERAL: CAST BRASS OR COPPER, CHROME PLATED ANGLE STYLE WITH CHROME PLATED ESCUTCHON AND LOOSE KEY OPERATOR.
   - B. SINK AND TANK STYLE WATER CLOSET SUPPLIES: NPS 1/2.

223300 - ELECTRIC HOT WATER HEATER

1. STORAGE TANK CONSTRUCTION: ASME-CODE STEEL WITH 150 PSIG WORKING PRESSURE RATING. NSF 5 CONSTRUCTION.

2. TAPPING: FACTORY FABRICATED OF MATERIALS COMPATIBLE WITH TANK FOR PIPING CONNECTIONS, RELIEF VALVE, PRESSURE GAGE, THERMOMETER, DRAIN, ANODE RODS AND CONTROLS AS REQUIRED. ATTACH TAPPINGS TO TANK SHELL BEFORE TESTING AND LABELING THE PIPING.
   - A. 2" AND SMALLER: THREADED ENDS ACCORDING TO ASME B1.20.1 PIPE THREADS.

3. INSULATION: SURROUND ENTIRE STORAGE TANK EXCEPT CONNECTIONS AND CONTROLS.

4. BASIS OF DESIGN: RHEEM OR APPROVED EQUAL. SEE SCHEDULE ON PLANS FOR PERFORMANCE.

CITY OF PORTLAND, MAINE · RESURGAM

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 02/09/18

REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	12-21-17

ISSUED FOR CONSTRUCTION
12-21-17
CURRENT ISSUE STATUS:

STATE OF MAINE · KERRY D. BINEEN · 13301 · LICENSED · PROFESSIONAL ENGINEER · 12-21-17

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PLUMBING SPECIFICATIONS

SHEET TITLE:

0 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

PROJECT MANAGER:	RSC	PROJECT NO:	17123
A/E OF RECORD:	KDD		
JOB CAPTAIN:	SDL		
DRAWN BY:	CWF		
SMRT FILE:	PL002-17123	SHEET No.	PL002

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30x42