

1 GENERAL

1.01 SUMMARY

FURNISH ALL LABOR, EQUIPMENT, MATERIALS, AND TOOLS AND PERFORM ALL OPERATIONS IN CONNECTION WITH THE RENOVATIONS OF THE PLUMBING SYSTEM. COMPLY WITH ALL CODES AND AUTHORITIES HAVING JURISDICTION. PREPARATION OF RECORD DRAWINGS AND GUARANTEES AND WARRANTIES. GUARANTEES AND WARRANTIES. PROTECTION OF WORK AND QUALITY ASSURANCE OF WORKMANSHIP.

A. SECTION INCLUDES:

- ALL INSIDE SANITARY, INDIRECT WASTE, STORM DRAINAGE, COLD WATER, HOT WATER, AND NATURAL GAS PIPING
- NATURAL GAS PIPING TO OUTSIDE THE BUILDING AND CONNECT TO METER PROVIDED BY LOCAL GAS SUPPLIER
- PLUMBING FIXTURES
- PROVIDE VALVES, FAUCETS, STRAINERS, TAILPIECES, TRAPS, ADAPTERS AND MAKE ALL FINAL CONNECTIONS TO FIXTURES AND EQUIPMENT PROVIDED EITHER BY THE OWNER OR UNDER OTHER SECTIONS OF THESE SPECIFICATIONS.
- CLEANING, STERILIZING AND TESTING OF THE PIPING SYSTEMS AND ALL RELATED EQUIPMENT.

B. RELATED SECTIONS:

- DIVISION 9 – PAINTING
- SECTION 15010: MECHANICAL GENERAL REQUIREMENTS (SEE DRAWING M30.1)
- SECTION 15040: MECHANICAL IDENTIFICATION (SEE DRAWING M30.1)
- SECTION 15280: PIPING INSULATION (SEE DRAWING M30.1)
- DIVISION 16 – ELECTRIC

1.02 SUBMITTALS

A. SHOP DRAWINGS:

- PREPARE AND SUBMIT SHOP DRAWINGS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ARCHITECTURAL SPECIFICATIONS, AND OBTAIN THE ARCHITECT'S APPROVAL BEFORE PROCEEDING WITH THE FABRICATION AND WORK
- SHOW PLANS, ELEVATIONS, DETAILS AND JOB CONDITIONS, RELATIONSHIP TO OTHER WORK, AND INDICATE FINISHES
- ALL FIXTURES OF THE SAME MATERIAL (CHINA, STAINLESS STEEL, FIBERGLASS ETC.) SHALL BE OF THE SAME MANUFACTURER. ALL SINK FAUCETS SHALL BE OF THE SAME MANUFACTURER. ALL FLOOR DRAINS, CLEANOUTS AND CARRIERS SHALL BE OF THE SAME MANUFACTURER.
- SHOP DRAWINGS AND CATALOG CUTS SHALL INDICATE SPECIFICATION SECTION AND PARAGRAPH REQUIRING EQUIPMENT SUBMITTED.
 - PLUMBING FIXTURES
 - VALVES
 - CLEANOUTS
 - TRAP PRIMER

B. SAMPLES: SUBMIT ALL SAMPLES AS REQUESTED BY THE ARCHITECT OF MATERIALS SPECIFIED HEREIN IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONDITIONS OF CONTRACT, AND BEFORE ORDERING MATERIALS, OBTAIN WRITTEN APPROVAL FROM THE ARCHITECT.

C. PRODUCT GUARANTEES AND WARRANTIES: PROVIDE MANUFACTURERS STANDARD GUARANTEE/WARRANTY FOR ALL PRODUCTS PROVIDED IN THIS SECTION.

- SINK FAUCETS: FIVE (5) YEAR NON-PRO-RATED GUARANTEE.

2 PRODUCTS

2.01 MANUFACTURERS

ALL PRODUCT MODEL NUMBERS USED REFERENCE THE FIRST MANUFACTURER LISTED FOR THE APPROPRIATE ITEM

A. WATER CLOSETS: AMERICAN STANDARD, KOHLER OR BRIGGS.

B. TOILET SEATS: CHURCH, BEMIS OR BENEKE.

C. LAVATORIES: AMERICAN STANDARD OR KOHLER.

D. SINKS: STAINLESS STEEL: JUST, ELKAY, KINDRED, OR REVERE.

E. FAUCETS:

- LAVATORY: CHICAGO, T & S, SPEAKMAN
- SINKS: CHICAGO FAUCET, T & S, SPEAKMAN OR SYMONS.

F. CLEANOUTS: ZURN, WATTS, MFA8, JOSAM, OR J. R. SMITH.

G. TRAP PRIMERS: ZURN, SIOUX CHIEF, PRECISION PLUMBING PRODUCTS, JOSAM, J. R. SMITH OR WADE.

H. VALVES:

- BALL: MILWAUKEE, APOLLO, NIBCO OR CRANE
- GATE: MILWAUKEE, NIBCO OR CRANE
- CHECK: MILWAUKEE, NIBCO OR CRANE

I. FIRE STOP SEALANT: SPECSAL FIRESTOP PUTTY OR EQUAL.

J. SAFETY FIXTURES:

- TEMPERING VALVE: LAWLER OR EQUAL.

K. TRAPS AND SUPPLIES:

- SK, L & WC: MCGUIRE.

2.02 MATERIALS

A. SOIL, WASTE, VENT, INDIRECT WASTE, AND PRIMARY STORM DRAINAGE PIPING:

- STANDARD WEIGHT CAST IRON WITH SIZE, WEIGHT AND MANUFACTURER'S NAME ON EACH LENGTH AND FITTING, AND SHALL CONFORM TO ASTM STANDARD SPECIFICATIONS. JOINTS ABOVE GROUND SHALL BE COMPRESSION GASKETS OR NO-HUB WITH STAINLESS STEEL COUPLINGS. JOINTS BELOW GROUND SHALL BE NONSPRONG TRAPS AND SUPPLIES TO BE COVERED WITH SAFETY INSULATION
- SCHEDULE 40 POLYVINYL CHLORIDE (PVC) WITH SOLVENT CEMENT JOINTS.
- FITTINGS SHALL BE OF THE DRAINAGE PATTERN.
- DOUBLE BRANCH DRAINAGE CONNECTIONS 2" AND SMALLER SHALL BE MADE WITH DOUBLE WYE FITTINGS.

B. COLD WATER, TEMPERED HOT WATER, AND HOT WATER PIPING:

- ABOVE GROUND:
 - LESS THAN 3" SIZE: SHALL BE TYPE "L" HARD-DRAWN COPPER TUBING WITH WROUGHT COPPER, SOLDER-TYPE FITTINGS, IMMEDIATE EXPOSED PIPING AT FIXTURES SHALL BE IPS COPPER, CAST BRASS THREADED FITTINGS, ALL FINISHED AND CHROME-PLATED, UNLESS OTHERWISE NOTED.
 - TAKE-OFFS MAY BE MADE IN COPPER PIPING USING THE "1-DRILL" METHOD WITH BRAZED JOINTS. CONNECTIONS SHALL BE CONSTRUCTED, PREPARED AND JOINED IN ACCORDANCE WITH ALL THE RECOMMENDATIONS OF THE TAPPING TOOL MANUFACTURER.
 - PROVIDE VACUUM BREAKERS WHERE REQUIRED BY CODES.

C. GAS PIPING SYSTEM:

- PIPING SHALL BE SCHEDULE 40 BLACK STEEL, MALLEABLE IRON THREADED FLAT BAND BLACK FITTINGS OR WELDED FITTINGS AND JOINTS. ALL PIPING OF 1 IPS OR MORE OR 4" IPS OR LARGER SHALL HAVE ALL WELDED FITTINGS; WALCOY BRASS TO IRON SEAT MALLEABLE UNIONS. PROVIDE SHUT-OFFS AT EACH PIECE OF EQUIPMENT. PROVIDE DRAIN POCKETS AT RISERS AND LOW POINTS. GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NFPA BULLETINS NO. 54 AND NO. 58.

D. CLEANOUTS:

- CLEANOUTS SHALL BE INSTALLED FOR DRAINAGE PIPING AT BASE OF RISERS, AT CHANGES IN DIRECTION, WHERE SHOWN, AND AS REQUIRED BY CODE. ALL CLEANOUTS SHALL BE FURNISHED WITH BRONZE FLUGS.
- AT THE COMPLETION OF THE WORK, REMOVE CLEANOUT COVERS, FLUSH LINES AND GREASE THREADS.
- RESILIENT TILE FLOORS: #7N-1400-Y-BP ROUND TOP, RECESS FOR TILE.
- CARPETED AREAS: #Z-1400-CM-BP ROUND TOP WITH CARPET MARKER.
- WALLS: #Z-1440-BP, CAST IRON FERRULE, PLUG, WITH ROUND STAINLESS STEEL COVER WITH ACCESS COVER WITH WANDER-PROOF SCREW.
- ALL OTHERS: ZN-1400-BP ROUND NICKEL BRONZE TOP.

E. VALVES AND FITTINGS: PROVIDE VALVES FOR COMPLETE OPERATION AND DRAINAGE. PROVIDE ACCESSIBLE SECTIONALIZING VALVES WHERE WATER BRANCHES CONNECT TO MAINS. PROVIDE DRAIN VALVES AT THE LOW POINTS.

- GATE, BRONZE BODY, SOLID BRONZE WEDGE DISC, NON-RISING STEM AND THREADED BONNET, 200 PSI WOG FOR SHUT-OFFS ONLY.
 - THREADED ENDS: #105.
 - SWEAT ENDS: #115.
- BALL, BRONZE BODY, BLOWOUT-PROOF STAINLESS STEEL STEM, STAINLESS STEEL BALL, TEFLOON SEALS, STAINLESS STEEL LEVER HANDLE WITH WINKL GRIP, RATED FOR 600 PSI WOG. USE FOR SHUT-OFFS OR BALANCING.
 - THREADED ENDS: #8A-100S.
 - SWEAT ENDS: #8A-150S.
- CHECK: BRONZE BODY AND DISC, 200 PSI WOG, BUNA-N SEAL.
 - THREADED ENDS: # 509.
 - SWEAT ENDS: #1509.

F. DIELECTRIC FITTINGS: PROVIDE DIELECTRIC FITTINGS WHEREVER DISSIMILAR METAL MATERIALS ARE TO BE JOINED. FITTINGS SHALL BE NOT LESS THAN 175 PSI RATED AND HAVE A MAXIMUM TEMPERATURE RATING OF NOT LESS THAN 200F.

G. HANGERS (INDIVIDUAL):

- ALL HANGERS SHALL BE OF THE ADJUSTABLE CLEVIS TYPE WITH SHIELDS FOR PLASTIC PIPING AND ALL INSULATED PIPING. VERTICAL PIPE CLAMPS FOR COPPER PIPING SHALL BE COPPER, BRONZE OR BRONZE PLATED CONSTRUCTION; ALL OTHER VERTICAL CLAMPS AND ALL HORIZONTAL PIPE HANGERS SHALL BE ALL STEEL CONSTRUCTION.
- ALL PIPING BELOW GROUND SHALL BE CONTINUOUSLY SUPPORTED ON UNDISTURBED BEARING SOIL OR ON ENGINEERED COMPACTED FILL.
- HORIZONTAL ABOVE GROUND PIPING SHALL BE SUPPORTED AS FOLLOWS:
 - CAST IRON: AT EVERY OTHER JOINT UP TO EVERY 5'-0". FOR SINGLE LENGTHS OF PIPE LONGER THAN 5'-0" PROVIDE ONE HANGER FOR EACH LENGTH OF PIPE UP TO EVERY 10'-0". LOCATE HANGERS WITHIN 1'-0" OF A HUB OR A JOINT. PROVIDE A HANGER FOR EACH BRANCH TAKE-OFF WITHIN 1'-6" OF THE CONNECTING MAIN.
 - COPPER: 1/2" – 1-1/4"; EVERY 6'-0". 1-1/2" UP: EVERY 10'-0".
 - STEEL: 3/4" & 1" IPS: EVERY 8'-0". 1-1/4" & 1-1/2" IPS: EVERY 10'-0".
 - P.V.C.: ALL SIZES: EVERY 4'-0".
- VERTICAL ABOVE GROUND PIPING SHALL BE SUPPORTED AS FOLLOWS:
 - CAST IRON: AT EVERY FLOOR AND AT THE BASE OF EVERY STACK.
 - COPPER: 1-1/2" UP: EVERY 6'-0". 1-1/2" UP: EVERY 10'-0".
 - STEEL: 3/4" & 1" IPS: EVERY 8'-0". 1-1/4" & 1-1/2" IPS: EVERY 10'-0".
 - P.V.C.: ALL SIZES: EVERY 4'-0".
- PROVIDE HANGERS WITHIN 1'-0" EACH WAY OF EACH CHANGE OF DIRECTION EXCEPT AT EXPANSION LOOPS WHICH SHALL HAVE HANGERS BEFORE, AFTER AND AT THE MID-POINT OF EACH LOOP.
- ALL HANGING SUPPORTS SHALL BE ATTACHED TO THE TOP CHORD OF THE BUILDING FRAMING SYSTEM.

H. HANGERS (TRAPETS):

- MODEL P1001, 12 GAGE 1 5/8" WIDE BY 3 1/4" DEEP CHANNEL DESIGNED FOR BOTH TOP AND BOTTOM CLAMPING; THE CHANNEL SHALL BE CAPABLE OF SUPPORTING NO LESS THAN 850 POUNDS UNIFORM LOAD OVER A 8'-0" SPAN AT A DEFLECTION OF L/240. SPACE CHANNELS BY THE LOWEST APPLICABLE VALUE IN ITEM 2.02 M 3 ABOVE.
- SUPPORT EACH CHANNEL WITH A MINIMUM OF TWO 1/2" DIA. THREADED RODS. ATTACH RODS WITH BEAM CLAMPS TO EITHER THE TOP CHORD OR JOISTS AT THE PANEL POINTS OR THE TOP FLANGE OF THE BEAMS. RODS SHALL BE SPACED NO MORE THAN 8'-0" ALONG THE CHANNEL. A PIPE MAY BE ATTACHED TO A CANTILEVERED SIDE OF THE CHANNEL WITHIN 12" OF A HANGER ROD.
- PROVIDE CUSHION-CLAMP ASSEMBLIES WITH SHOULDER BOLTED STAINLESS STEEL CLAMPS AND THERMOPLASTIC ELASTOMER CUSHION FOR GAS PIPING. FOR ALL OTHER PIPES PROVIDE #2024 THRU #2070-84 SHOULDER BOLTED STAINLESS STEEL CLAMP ASSEMBLIES WITH INSULATION SHIELDS.

I. GAS PIPING SEISMIC SUPPORTS:

- PROVIDE BOTH LATERAL AND LONGITUDINAL BRACES SIZED IN ACCORDANCE WITH THE BOCA BUILDING CODE. PROVIDE LOAD CALCULATIONS FOR ALL BRACES USED OR MANUFACTURERS LOAD TABLES FOR PRE-ENGINEERED SYSTEMS.
- BRACES MUST BE PLACED PARALLEL TO THE FORCES ACTING ON THE PIPING BEING RESTRAINED EITHER IN THE 2-WAY OR 4-WAY CONFIGURATION. 3-WAY BRACES ARE NOT ACCEPTABLE.
- MAXIMUM SPACING BETWEEN BRACES SHALL BE PER THE BOCA BUILDING CODE.

J. ANCHORS AND GUIDES SHALL BE SUPPORTED FROM STEEL BEAMS OR ANGLE IRON AND OTHER STEEL WORK PROVIDED.

K. SLEEVES:

- PIPES THROUGH FLOORS: FORM WITH SCHEDULE 40 (GALVANIZED) STEEL PIPE AND EXTEND 1" ABOVE SURROUNDING FLOOR.
- PIPES THROUGH INTERIOR PARTITIONS: FORM WITH STEEL PIPE OR 16 GAUGE GALVANIZED STEEL.
- PIPES THROUGH EXTERIOR BUILDING WALLS, CONCRETE WALLS OR FOOTING: FORM WITH SCHEDULE 40 (GALVANIZED) STEEL PIPE.
- SIZE: THE MINIMUM SLEEVE DIAMETER SHALL BE EITHER 2 PIPE SIZES OR 2" IN DIAMETER LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE. THE OUTSIDE DIAMETER OF INSULATED PIPING SHALL BE MEASURED AT THE INSULATION JACKET.

L. ESCUTCHEON PLATES SHALL BE INSTALLED WHERE PIPING PASSES THROUGH WALLS, PARTITIONS, FLOORS, CEILING, ETC. ESCUTCHEON PLATES SHALL BE ALL METAL CONSTRUCTION AND OF STANDARD ONE PIECE DESIGN. IN FINISHED AREAS, THEY SHALL BE CHROME PLATED. IN UNFINISHED AREAS, THEY SHALL HAVE PRIME COAT OF PAINT. HANGERS EXTENDED THROUGH FINISHED CEILING SHALL HAVE CHROME-PLATED WASHERS.

M. SOLDER AND BRAZING METALS:

- SOLDER METAL SHALL BE A COMPOSITE OF 95% TIN AND 5% ANTIMONY OR 95.5% TIN, 4% COPPER AND 0.5% SILVER.
- BRAZING METAL SHALL BE A COMPOSITE OF 45% (+1%) SILVER, 25% (+2%) ZINC AND 30% (+1%) COPPER.

N. FIRE STOP SEALANT:

- UNINSULATED PIPING PENETRATIONS: THE ANNULAR SPACE SHALL BE COMPLETELY FILLED WITH NON-COMBUSTIBLE, NON-EXPANDING CEMENTITIOUS MORTAR. SUFFICIENT MATERIAL SHALL BE USED TO ACHIEVE A FIRE BARRIER EQUAL TO OR GREATER THAN THAT OF THE SEPARATION BEING PROTECTED. THE INSTALLATION SHALL BE IN COMPLETE ACCORDANCE WITH ALL OF THE MANUFACTURERS DIRECTION AND RECOMMENDATIONS.
- INSULATED PIPING AND MULTIPLE PIPE PENETRATIONS: PROVIDE ONE LAYER OF "WRAP STRIP": A NON-COMBUSTIBLE, FLEXIBLE, HIGH EXPANSION MATERIAL ON EACH INSULATED PIPE. THEN, THE REMAINING ANNULAR SPACE SHALL BE COMPLETELY FILLED WITH NON-EXPANDING CEMENTITIOUS MORTAR. SUFFICIENT QUANTITIES OF EACH MATERIAL SHALL BE USED TO ACHIEVE A COMPOSITE FIRE BARRIER EQUAL TO OR GREATER THAN THAT OF THE SEPARATION BEING PROTECTED. THE INSTALLATION SHALL BE IN COMPLETE ACCORDANCE WITH ALL OF THE MANUFACTURERS DIRECTIONS AND RECOMMENDATIONS.

2.03 FIXTURES

A. WATER CLOSETS: VITREOUS CHINA, ELONGATED BOWL, SIPHON JET, TANK TYPE, WHITE NO. 850050N ELONGATED SEAT WITH SELF-SUSTAINING CHECK HINGES. PROVIDE # H-158-LK CHROME-PLATED BRASS, 3/4" LOOSE KEY SUPPLY.

- WC-1: #2168.100(LEFT HAND TRIP LEVER) CADET ELONGATED WATER SAVER, 18" HIGH TO RIM.

B. LAVATORIES: PROVIDE #155-A GRID STRAINER AND 1-1/4" TALLPIECE, #PW2150 PREWRAPPED HEAVY CAST BRASS 1 1/4" X 1" ADJUSTABLE P-TRAP, 17 GAUGE SEAMLESS TUBULAR BRASS WALL BEND EXTENSION TO WALL, CHROME PLATED BOX FLANGE WITH TWO STOP VALVE, RISER TUBE AND WHEEL HANDLE INSULATION COVERS AND H-158-LK CHROME-PLATED BRASS, 3/8" LOOSE KEY SUPPLIES.

C. COUNTER SINKS: SINKS SHALL BE ALL 18-8, TYPE 304, STAINLESS STEEL CONSTRUCTION. SELF-RUNNING COUNTER TYPE; THE UNDERSIDE SHALL BE PROVIDED WITH A SOUND-DEADENING COATING. NUMBER OF FAUCET HOLES TO AGREE WITH ASSOCIATED FAUCET. PROVIDE #151-A STAINLESS STEEL BASKET STRAINER WITH 1-1/2" TALLPIECE, #812 CHROME-PLATED BRASS, 1/2" TRAP WITH EXTENSION TO WALL AND #2158-LK CHROME-PLATED BRASS, 1/2" LOOSE KEY SUPPLIES; TRAPS AND SUPPLIES TO BE COVERED WITH SAFETY INSULATION

- SK-1: #58W-2125-A-OR 18 GAUGE, SINGLE BOWL, 21" FRONT TO BACK BY 25" LEFT TO RIGHT OVERALL, 18" X 22" X 5-1/2" DEEP BOWL
- FAUCETS: ALL FAUCETS SHALL BE A WASHERLESS CERAMIC DISC, QUARTER TURN CARTRIDGE DESIGN, CHROME PLATED BRASS FINISH WITH BRASS AND COPPER WATERWAYS. DUAL LEVER FAUCETS SHALL HAVE A MAXIMUM 80 DEGREE HANDLE ROTATION WITH POSITIVE ON AND OFF STOPS.
 - SK-1: #85S-317-822-8X, 4" CENTERS, QUARTER CERAMIC CARTRIDGES, COLOR CODED 4" WRIST BLADE HANDLES, GOOSENECK SWING SPOUT AND #E2 2.0 CPN LAMINAR FLOW OUTLET

D. SAFETY EQUIPMENT: SIGNAGE SHALL BE PROVIDED WITH EACH UNIT. ALL EXPOSED PIPING SHALL BE CHROME PLATED.

- EYEWASH TEMPERING VALVE: MODEL # 811E THERMOSTATIC MIXING VALVE, DESIGNED TO MAINTAIN 85 DEGREE F, DISBURSE TEMPERATURE AND TO FAIL WITH THE HOT WATER CLOSED COLD WATER OPEN POSITION. THE VALVE SHALL INCLUDE AN INTEGRAL THERMOMETER, VANDAL-RESISTANT TEMPERATURE ADJUSTMENT AND HAVE A CHROME-PLATED FINISH.

E. VACUUM BREAKERS: WHERE REQUIRED, PROVIDE AND INSTALL VACUUM BREAKERS. BREAKER SHALL BE CHROME-PLATED WHERE USED WITH CHROME TRIM AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS.

F. SHOCK ARRESTERS: PROVIDE PISTON TYPE, MECHANICAL SHOCK ARRESTERS FOR ALL FIXTURE GROUPS AND FOR REMOTE INDIVIDUAL FIXTURES.

G. TRAPS:

- ALL TRAPS SHALL BE CAST BRASS WITH A GROUND SWIVEL JOINT AND CLEANOUT PLUG, PROVIDE CHROME FINISH FOR ALL TRAPS NOT COVERED WITH SAFETY INSULATION. NONSPRONG TRAPS SHALL BE PROVIDED WHERE REQUIRED BY LAW IN LIEU OF TRAPS SPECIFIED.

H. TRAP PRIMER: Z-1022 AUTOMATIC TRAP PRIMER, ALL BRONZE CONSTRUCTION, INTEGRAL VACUUM BREAKER, DESIGNED TO OPERATE ON FLOW.

I. TRAP GUARD: ELASTOMERIC FLOW THROUGH DRAIN INSERT, MODEL TG34P FOR 4" FLOOR DRAINS AND MODEL TG22P FOR 2" FLOOR DRAINS. INSTALL PER MANUFACTURERS INSTRUCTIONS.

J. TRIM: ALL TRIM SUPPLIES AND ALL IMMEDIATELY EXPOSED PIPING AT FIXTURES & EQUIPMENT SHALL BE CHROME-PLATED ON FINISHED BRASS OR ON COPPER EXCEPT WHERE SAFETY INSULATION IS INSTALLED. ALL FAUCETS SHALL HAVE REMOVABLE UNITS AND REMOVABLE SEATS. ALL HOT AND COLD WATER SUPPLIES TO FIXTURES AND EQUIPMENT SHALL BE FITTED WITH STOPS IN ADDITION TO BRANCH SHUT-OFFS.

K. FIXTURE SUPPORTS: PROVIDE AND INSTALL CONCEALED ARM, FOOT SUPPORT CHAIR CARRIERS FOR ALL WALL HUNG FIXTURES AS FOLLOWS: LAVATORIES – #Z-1231

3 EXECUTION

3.01 EXAMINATION

A. STUDY ALL DRAWINGS AND SPECIFICATIONS, VISIT THE SITE AND BECOME ACCQUAINTED WITH EXISTING CONDITIONS AND THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS. NO CLAIM WILL BE RECOGNIZED FOR EXTRA COMPENSATION DUE TO FAILURE TO BECOME FAMILIARIZED WITH THE CONDITIONS AND EXTENT OF PROPOSED WORK.

3.02 ERECTION, INSTALLATION AND APPLICATION

A. PIPING SHALL BE RUN CONCEALED IN WALLS OR ABOVE CEILING, WHERE TWO OR MORE PIPES ARE TO BE RUN PARALLEL, THEY SHALL BE LOCATED AS CLOSE PRACTICAL TO EACH OTHER.

- ALL WATER PIPING SHALL BE RUN AT A MINIMUM PITCH OF 1" PER 80'-0" TO DRAIN VALVES, AND ALL PIPING SHALL BE RUN WITHIN THE HEATED SPACE OF THE BUILDING.
- ALL VENT PIPING SHALL BE RUN AT A POSITIVE PITCH TO DRAIN BACK TO THE DRAINAGE CONNECTIONS.
- SANITARY DRAINAGE PIPING UNDER 4" SIZE SHALL BE RUN AT 1/4" PER FOOT (TWO PERCENT) PITCH.
- SANITARY DRAINAGE PIPING 4" AND LARGER SHALL BE RUN AT 1/8" PER FOOT (ONE PERCENT) PITCH.
- STORM DRAINAGE PIPING SHALL BE RUN AT 1/8" PER FOOT (ONE PERCENT) PITCH.
- INDIRECT WASTE DRAINAGE PIPING UNDER 4" SIZE SHALL BE RUN AT 1/4" PER FOOT (TWO PERCENT) PITCH.
- NATURAL GAS SHALL BE RUN WITH A POSITIVE PITCH TO ACCESSIBLE DRAIN POCKETS.

B. ALL FLOOR CLEANOUTS SHALL BE SET PARALLEL TO AND FLUSH WITH THE SURROUNDING FLOOR.

C. ALL FIXTURES SHALL BE INSTALLED LEVEL AND FLUSH TO WALLS AND FLOORS AS APPLICABLE.

D. ALL FIXTURES SHALL BE SEALED WATER TIGHT WITH CAULK TO ALL ADJACENT SURFACES. THIS SHALL INCLUDE BUT NOT BE LIMITED TO SEALING WALL-HUNG LAVATORIES TO WALLS; WATER CLOSETS TO FLOORS AND COUNTER SINKS AND LAVATORIES TO COUNTER TOPS. CAULKING SHALL BE OF THE APPROPRIATE TYPE FOR THE GIVEN APPLICATION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.

E. ALL FIXTURES AND EQUIPMENT SHALL BE SUPPORTED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE DETAILED.

F. PROVIDE SERVICE SHUT-OFF VALVES AND UNIONS ON ALL INLETS AND OUTLETS TO ALL EQUIPMENT INSTALLED UNDER THIS SECTION.

G. ALL SHUT-OFF VALVES SHALL BE IN ACCESSIBLE LOCATIONS. ALL VALVES ABOVE CEILING SHALL BE OPERABLE WITHIN 18" OF THE CEILING TILE PLANE.

H. PROVIDE 3'-0" MINIMUM SERVICE SPACE IN FRONT OF ALL CONTROL PANELS, ACCESS PANELS, MOTORS AND EQUIPMENT WHICH REQUIRES PERIODIC MAINTENANCE AND/OR ADJUSTMENT.

I. THE ENTIRE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MAINE STATE INTERNAL PLUMBING CODE, AND ALL LOCAL CODES.

J. THE ENTIRE GAS INSTALLATION SHALL COMPLY WITH NFPA 54 AND 58 AND ALL LOCAL CODES.

3.03 TESTS

A. TEST AND PROVE TIGHT ALL PIPING SYSTEMS IN THE BUILDING. INVITE THE LOCAL PLUMBING INSPECTOR AND THE OWNER'S REPRESENTATIVE TO WITNESS EACH TEST A MINIMUM OF 2 WORKING DAYS PRIOR TO THE COMMENCEMENT OF THE TEST. SUBMIT TO THE ARCHITECT DOCUMENTATION OF EACH TEST IDENTIFYING THE SYSTEM BEING TESTED, THE STARTING AND FINISHING DAY AND TIME OF THE TEST, THE STARTING AND FINISHING TEST PRESSURES, THE TEST LIQUID OR GAS USED AND SIGNED BY THE PARTY RESPONSIBLE FOR CONDUCTING THE TEST.

- COLD WATER AND HOT WATER SHALL BE TESTED WITH POTABLE WATER TO 125 PSI.
- ROUGH DRAINAGE AND VENTING SYSTEMS SHALL BE TESTED WITH 5 PSI AIR PRESSURE.
- GAS PIPING SHALL BE TESTED WITH COMPRESSED AIR TO 30 PSIG.
- ALL TESTS WILL BE CONDUCTED FOR 2 HOURS MINIMUM WITH NO PRESSURE DROP IN THE RESPECTIVE SYSTEMS.

3.04 STERILIZATION

A. AFTER TESTING, ALL AERATORS SHALL BE REMOVED FROM FAUCETS AND THE FAUCETS OPENED FULLY TO ALLOW ALL WATER PIPING TO BE FLUSHED WITH WATER UNTIL NO VISIBLY DIRTY WATER APPEARS AT THE OUTLETS. AFTER FLUSHING ALL AERATORS SHALL BE REINSTALLED.

B. THE PIPING SYSTEM SHALL BE COMPLETELY FILLED WITH WATER CONTAINING NO LESS THAN 50 PARTS PER MILLION (PPM OR MG/L) OF CHLORINE. THE SYSTEM SHALL THEN BE VALVED OFF AND ALLOWED TO STAND FOR NO LESS THAN 24 HOURS. AN ALTERNATIVE CONCENTRATION OF 200 PPM OF CHLORINE ALLOWED TO STAND 2 HOURS MAY BE USED.

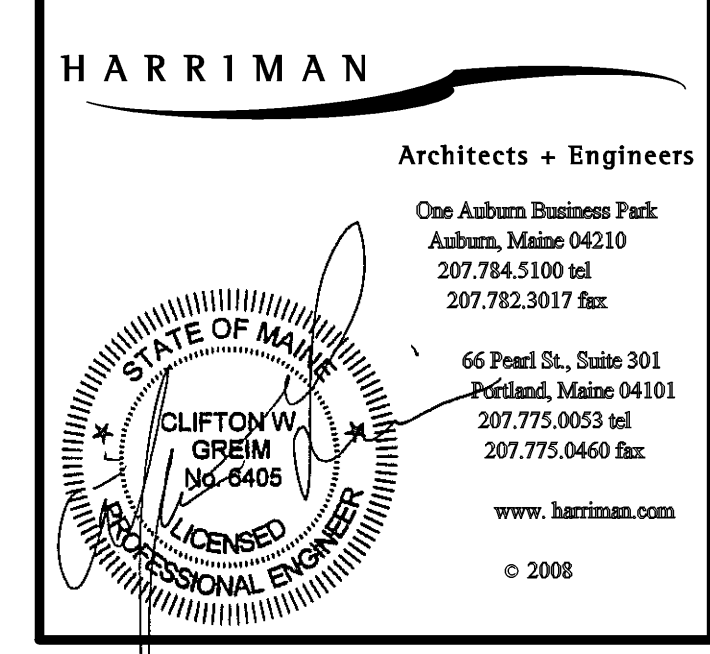
C. AT THE END OF 24 HOURS (OR THE ALTERNATIVE TIME OF 2 HOURS) THE ENTIRE SYSTEM SHALL BE FLUSHED WITH WATER UNTIL NO EXCESS CHLORINE REMAINS IN THE SYSTEM.

D. NOTIFY THE ARCHITECT A MINIMUM OF 2 WORKING DAYS PRIOR TO THE COMMENCEMENT OF THE FLUSHING AND STERILIZATION PROCEDURE. SUBMIT TO THE ARCHITECT DOCUMENTATION OF STERILIZING PROCEDURE, IDENTIFYING THE STARTING AND FINISHING DAY AND TIME, THE TYPE OF CHLORINE CONCENTRATE USED, THE PERCENT OF PURITY OF THE CONCENTRATE, THE TOTAL VOLUME OF CONCENTRATE USED, THE DILUTED CHLORINE CONCENTRATION AND SIGNED BY THE PARTY RESPONSIBLE FOR STERILIZING THE SYSTEM.

3.05 CLEANING

A. AT THE COMPLETION OF WORK ALL FIXTURES AND EQUIPMENT SHALL BE CLEANED IN ACCORDANCE WITH THE APPROPRIATE MANUFACTURER'S RECOMMENDATIONS. ALL EXPOSED UNCHROMED PIPING SHALL BE CLEANED OF ALL DIRT, GREASE, OILS, ETC., SUITABLE TO ACCEPT A PRIME COAT OF PAINT.

END OF SECTION



Project Title

WESTGATE SHOPPING CENTER

PORTLAND, ME

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|----------------|-------|
| HA Project No. | 07182 |
| Key Plan | |

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| – | 05-16-08 | ISSUED FOR BID | | | | | | | |
| Mark | Date | Description | | | | | | | |
| Issue Dates | | | | | | | | | |

Drawing Status

Drawing Title

PLUMBING SPECIFICATIONS

PA / PE: **CG** Drawn By: **CDG**

Drawing Number