

**DIVISION 15A - PLUMBING**

**1.1 DESCRIPTION OF THE WORK**

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
1. Plumbing fixtures, water heaters, and any other equipment necessary.
  2. Cold and hot water piping and insulation.
  3. DWV piping.
  4. Connection of all equipment; drain, vent, water.
- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply:
1. The National Electrical Code.
  2. 2018 N.C. Building Code: Plumbing, and all applicable category codes.
  3. American Society of Sanitary Engineering Standard 1010.
  4. All local codes and ordinances.
- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- D. The Plumbing Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.
- E. Obtain all permits, licenses, inspections, etc., required for the work, and pay for the same.
- 1.2 INTENT**
- A. The intent of these specifications and accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Plumbing Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner. The PC shall determine and coordinate with existing conditions.
- 1.3 COORDINATION**
- A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.
- B. Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.
- C. Coordinate all exterior piping connections w/Architect, site contractor/plans. Verify manhole elevations and provide backwater valves as required if flood level rims are below next upstream manhole cover elevation. Fixtures with flood level rims above upstream manhole shall not discharge thru bw valve. Notify engineer of backwater valve requirement, any issue prior to bid.
- 1.4 SHOP DRAWINGS**
- A. Shop drawings shall be submitted for plumbing fixtures and for pipe. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.
- PART 2 - PRODUCTS**
- 2.1 FIXTURES**
- A. Each fixture shall be properly supported from the building structure as required to the end effect that all fixtures and accessories will be held rigidly in place. Water pipes supplying the fixtures must also be held rigidly in place.
- B. Provide loose key angle stops and chrome plated supply pipe water supplies to fixtures.
- C. All exposed piping traps and accessories for fixtures shall be chrome plated. Provide chrome plated escutcheon plates where pipes enter walls.
- D. Provide shutoff valves for all sinks, water heaters, toilets, washing machines, refrigerator icemaker, exterior hose bibbs and all other plumbing fixtures.
- E. Provide trap primers for all floor drains in areas not served by hose bibbs.

**2.2 PIPING**

- A. Drain-Waste-Vent: All DWV piping shall be Schedule 40 PVC-DWV u.o.n., with the following exceptions: Use cast iron piping in all return air plenums, penetrations of rated walls/floors/ceilings, and in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings. ABS or cast iron piping shall be used for drainage/discharge with a temperature greater than 140 deg. F for a minimum distance of 10'-0".
- B. Hot and cold water piping above grade: Type "L" copper w/solder joints (ASTM-B88), hard drawn with wrought copper fittings (ANSI B16.22). PEX piping with copper fittings may be used with owner/tenant approval and as allowed per code. Copper piping shall be used in areas/walls adjacent to cooking equipment exhaust hoods. Review Arch. and Mech. drawings.
- C. Cold water piping below grade: Type "K" copper (ASTM-B88) soft drawn.
- D. Hangers: Use pipe hangers where required on 8-foot centers with saddles to avoid crushing insulation.
- E. Solder: 95/5. Lead free.
- F. Unions: Provide unions where indicated on drawings, in long runs of piping (except drainage) and at equipment to provide convenient disassembly. Provide dielectric unions when connecting copper tubing to equipment and piping made of ferrous materials.

**2.3 CLEANOUTS**

- A. Hex plugs in rough areas: Recessed plugs with cover plates in exposed locations.

**2.4 SHOCK ARRESTERS**

- A. Provide shock arresters as required by codes, manufacturer's recommendations and accepted industry standards for quality construction. Provide for all quick closing valves.

**PART 3 - EXECUTION**

**3.1 CONNECTIONS**

- A. This contract includes complete connection of cold water, hot water, drainage, and vent piping as required. All fittings, valves, accessories, cutoffs, drains, etc., required to complete such connections shall be included.
- B. The connection to water closets shall be made watertight with gasket and wax ring. Floor flanges shall be caulked into position. Plastic caps shall be provided on the tie down bolts, and shall be secured in place by screwing down on threaded brass washers.
- C. Where water pipes connect to exposed chrome plated trim, use proper chrome plated escutcheons.

**3.2 SERVICE ACCESS**

- A. All valves and accessories shall be insulated so that they can be properly serviced. In no case shall the Plumbing Contractor install equipment or other components in situations that do not meet code requirements or manufacturer's requirements. Provide access doors as required to access valves, etc.

**3.3 ROUTING OF PIPING**

- A. Coordinate routing of piping with others, line up work true to or at right angle to adjacent surfaces and in a workmanlike manner. Support all interior piping from building structure by means of hanger or inserts to maintain pitch of lines, to prevent vibration, and to secure piping place.

- C. Pipe hangers for insulated lines shall have suitable saddles to protect insulation.

**3.4 INSULATION**

- A. All H/W and C/W piping shall be insulated with a min. of 1" inch elastomeric insulation (R=8.5 min.) in unconditioned areas. See NCSBC-Plumbing Sect. 305 for all protection requirements. All H/W piping of circulating systems shall be insulated with 1" insulation per Sect. C404.4 of the NCSBC 2018 Energy Conservation Code.
- B. Provide pre-fabricated insulation kits for all sink and lavatory exposed drain and supply piping.

**3.5 INSPECTIONS AND TESTS**

- A. Before being concealed, all water, soil and vent piping shall be tested to determine if they are water- and air-tight.
- B. Prior to placing into service, entire system shall be tested for leaks in strict accordance with state and local codes.

**3.6 STERILIZATION OF PIPING**

- A. Sterilize the new water piping thoroughly with a solution containing not less than 50 parts per million of available chlorine, using liquid chlorine or sodium hydrochloride solution, introduced into the system in an approved manner. The sterilizing solution shall remain in the system for a period of 24 hours. After sterilization, flush the solution from the system with clean water until the residual chlorine content is not greater than 0.2 parts per million, unless otherwise directed.

**3.7 SERVICE PRESSURE**

- A. Provide approved water-pressure reducing valve (PRV) if service pressure exceeds 80 psi to reduce pressure to 80 psi static or less and as required per NCSBC-Plumbing Sect. 604.8.

**3.8 DRAINDOWN**

- A. Contractor to provide for complete plumbing system drain down.
- 3.9 CLEAN UP**
- A. During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.









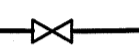
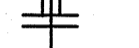
**3.10 GUARANTEES**

- A. Guarantee all materials and labor included in the plumbing work for a period of one year from date of final acceptance by the Owner.
- B. Any defects in the system which become evident during the guarantee period shall be corrected without cost to the Owner. This shall include the replacing of defective materials where required, and the repair of damage caused by leaking pipes, etc., and damage to building surfaces caused in making repairs.

**GENERAL NOTES - PLUMBING**

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE, ALL LOCAL AND OTHER APPLICABLE CODES.
2. ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE PLUMBING CONTRACTOR (PC) SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC).
3. THE PLUMBING PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLATION AND ALL DISCREPANCIES OR INTERFERENCES BROUGHT TO THE ENGINEERS ATTENTION.
4. THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. THE PC SHALL PROVIDE ALL MISC. ITEMS NEEDED FOR A COMPLETE SYSTEM REGARDLESS IF NOTED ON THE DRAWINGS OR NOT. FOR DIMENSIONS REFER TO ARCHITECTURAL PLANS.
5. THE GC SHALL PROVIDE ALL WALL, FLOOR AND ROOF OPENINGS OF THE SIZE AND LOCATION REQUIRED BY THE PC AND SHALL BE RESPONSIBLE FOR PAINTING AND FLOOR FINISHES. THE PC SHALL PROPERLY SEAL ALL PENETRATIONS AND PROVIDE ESCUTCHEON PLATES AT ALL FINISHED LOCATIONS.
6. ALL NEW WATER PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE, ADEQUATELY SUPPORTED AND PROTECTED AND PROPERLY PITCHED TO ALLOW TOTAL DRAINAGE.
7. ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED FOR A MINIMUM OF 15 MINUTES AT A MINIMUM OF 100 PSIG BEFORE COVERING AND ALL LEAKS CORRECTED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE.
8. PROVIDE MIN. 18" SHOCK ABSORBERS WITH STOPS ON ALL HOT AND COLD WATER FIXTURE RUNS AS REQUIRED BY CODE.
9. VENT LINES SHALL SLOPE UP TO ALL STACKS AND TERMINATE A MIN. OF 12" ABOVE ROOF LINE.
10. PROVIDE CUT SHEETS ON ALL PLUMBING/GAS FIXTURES FOR ARCHITECT AND OWNER APPROVAL PRIOR TO ORDERING ANY FIXTURES.
11. PROVIDE/VERIFY HOT WATER TO LAVATORIES AT 110 DEGREES (MAX) F. PROVIDE (ASSE 1070) THERMOSTATIC MIXING VALVE (WATTS FLUSH-B 'LEAD FREE' GUARDIAN OR EQUAL) IF REQUIRED. LOCATE MIXING VALVE IN A MAINTENANCE ACCESSIBLE AREA BELOW FIXTURE, ABOVE CEILING, OR AS REQUIRED.
12. PROVIDE CLEANOUTS AS REQUIRED BY CODE. NOT MORE THAN 100 FEET FOR 4" DRAIN.

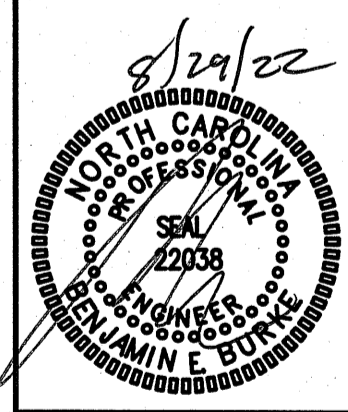
**SYMBOL LEGEND - PLUMBING**

| SYMBOL  | DESCRIPTION (U.O.N.)      |
|---|---------------------------|
|  | SANITARY WASTE PIPING (W) |
|  | VENT PIPING (V)           |
|  | COLD WATER PIPING (CW)    |
|  | HOT WATER PIPING (HW)     |
|  | CLEANOUT FINISH FLOOR     |
|  | WALL/HORIZONTAL CLEANOUT  |
|  | CLEANOUT FINISH GRADE     |
|  | DIELECTRIC UNION          |
|  | SHUT-OFF VALVE            |
|  | VENT THRU ROOF (VTR)      |
| A.A.V.  | AIR ADMITTANCE VALVE      |
| A.F.F.  | ABOVE FINISHED FLOOR      |
| U.O.N.  | UNLESS OTHERWISE NOTED    |

**FIXTURE SCHEDULE - PLUMBING \***

- LAV\* LAVATORY (WALL MOUNT)  
KOHLER CHESAPEAKE LAVATORY, K-1728, VITREOUS CHINA, 4" CENTERS, ADA COMPLIANT. PROVIDE DELTA MODEL 523LF-HGMHDF FAUCET, 0.5 GPM MAX WITH GRID STRAINER. PROVIDE P-TRAP AND SHUT-OFF VALVES.
- WC\* WATER CLOSET (ADA FLUSH TANK)  
KOHLER HIGHLINE WATER CLOSET, K-3979, ADA COMPLIANT 1.6 GPF. PROVIDE PROPER OPEN FRONT ADA SEAT, K-7837 SUPPLY AND STOP, WAX SEAL, CLOSET BOLT KIT. PROVIDE MODEL WITH FLUSH CONTROL ON SIDE OPPOSITE GRAB BAR.

\* OR APPROVED EQUAL. SUBMIT ALL ITEMS FOR APPROVAL BY TENANT AND ARCHITECT PRIOR TO ORDERING.  
ALL OTHER PLUMBING FIXTURES SHOWN ARE PROVIDED BY THE TENANT AND INSTALLED BY THE PLUMBING CONTRACTOR. SEE PLANS FOR NUMBER AND LOCATION. COORDINATE ALL REQUIREMENTS WITH EQUIPMENT SERVED.



PLUMBING SPECIFICATIONS

**21036**

ISSUED: 8-26-2022  
DWG BY: DS  
CKD BY: BEB

REVISIONS

SHEET NO.  
**P-1**

**NOTE:**  
THE EXISTING INFORMATION SHOWN ON THIS SHEET IS FROM FIELD INVESTIGATION. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND FIELD VERIFYING ALL RELEVANT INFORMATION. THE SUBMISSION OF A BID INDICATES ACCEPTANCE OF EXISTING CONDITIONS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES NOTED.

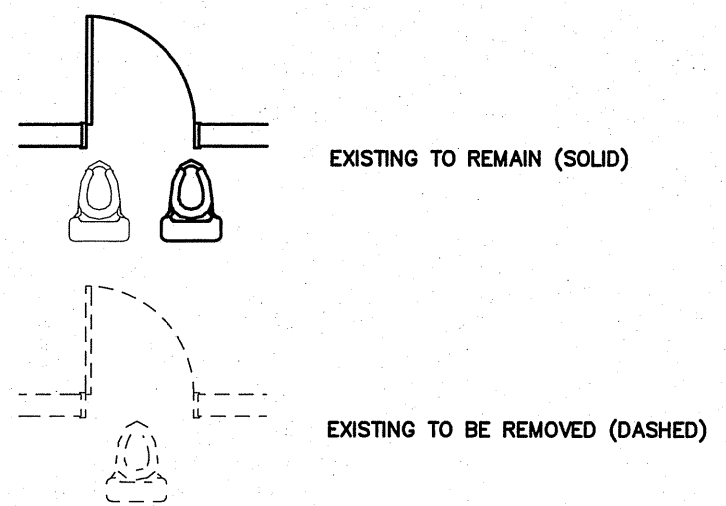
REMOVE AND REPLACE ALL CONCRETE, ASPHALT, WALL MATERIAL, CEILINGS, ETC., AS REQUIRED TO LOCATE EXISTING LINES AND INSTALL NEW LINES.

IT IS THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO LOCATE ANY AND ALL EXISTING BUILDING SYSTEMS IN CONCRETE, FLOORS, WALLS, CEILINGS, ETC., PRIOR TO START OF WORK. THAT MAY BE ENCOUNTERED DURING CONSTRUCTION TO DETERMINE METHODS REQUIRED TO AVOID AND/OR MAINTAIN EXISTING SYSTEMS OPERATION. COORDINATE WITH BLDG. OWNER, ARCH., G.C. THE PLUMBING CONTRACTOR SHALL LOCATE, TRACE, AND INSPECT FOR PROPER DRAINAGE AND CONDITION, ANY/ALL EXISTING BUILDING DRAINAGE LINES AND SYSTEMS (SANITARY, GREASE, ETC.) THAT ARE TO BE UTILIZED BY THE OCCUPANT/NEW CONNECTIONS PER DESIGN DRAWINGS THROUGH USE OF CAMERA, DYES, AND/OR ANY MEANS NECESSARY- PRIOR TO THE START OF WORK. THE CONTRACTOR SHALL REMEDY ANY ISSUES IN ORDER TO ENSURE A PROPER FUNCTIONING, CODE COMPLIANT SYSTEM, WHICH INCLUDES BUT IS NOT LIMITED TO, JETTING OF LINES, REMOVAL OF DEBRIS, REPLACEMENT OF ANY IMPROPER OR DAMAGED PIPING, VERIFY AVAILABLE DEPTH/INVERT REQUIREMENTS, FLOW DIRECTION OF EXISTING LINES, PROVIDE DOCUMENTATION TO THE ENGINEER FOR REVIEW. THE EXISTING AND NEW DRAINAGE SYSTEMS/CONNECTIONS SHALL BE TESTED FOR PROPER OPERATION UPON COMPLETION OF WORK. ALL ISSUES AND SOLUTION OPTIONS ARE TO BE COORDINATED WITH THE DRAINAGE SYSTEM/BUILDING OWNER, G.C., ARCHITECT, AND ENGINEER. PROVIDE AS-BUILT DRAWINGS FOR ENGINEER REVIEW.

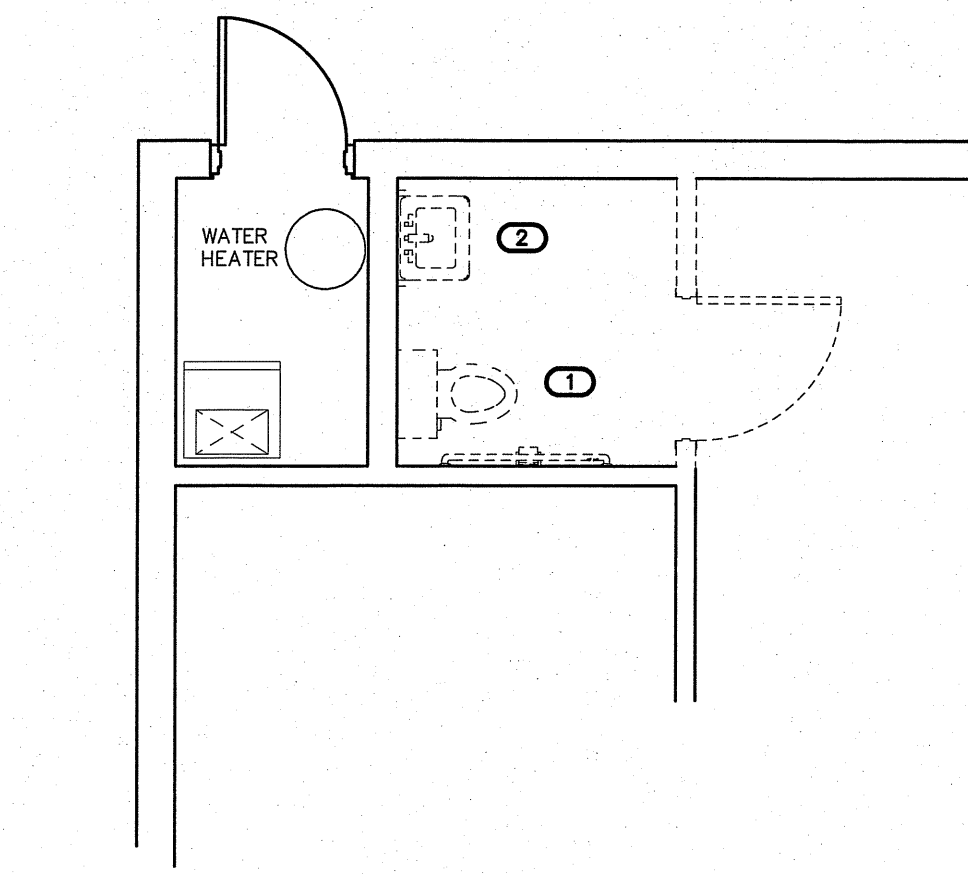
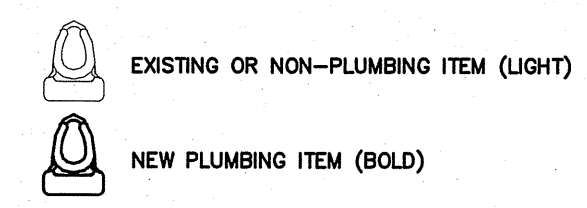
REMOVE ALL UNUSED CW AND HW LINES/STUB-OUTS, ETC., AND CAP LINES BEHIND FINAL FINISHES.

REMOVE UNUSED VENT LINES TO ABOVE CEILING AND CAP AT MAIN. REMOVE UNUSED DRAIN STUB-OUTS AND PROVIDE CLEANOUTS AT FINAL FINISHES TO PREVENT DEAD-ENDS AS REQUIRED BY CODE. COORDINATE WORK WITH BUILDING OWNER SO AS NOT TO IMPACT OPERATION OF ANY ADJACENT SPACES/LEVELS. NIGHT AND WEEKEND WORK MAY BE REQUIRED.

- KEY NOTES FOR DRAWING 1/P-2**
- CONNECT WC TO EXISTING CW IN AREA OF REMOVED UNIT. EXTEND/PROVIDE PIPING AS REQUIRED. VERIFY EXISTING LINE SIZE REQUIRED PER PIPE SIZING SCHEDULE- THIS SHEET. RE-PIPE FIXTURE SUPPLY TO NEAREST EXISTING CW MAIN IF NECESSARY/AS REQUIRED.
  - CONNECT LAV TO EXISTING HW/CW IN AREA OF REMOVED UNIT. EXTEND/PROVIDE PIPING AS REQUIRED. VERIFY EXISTING LINE SIZES REQUIRED PER PIPE SIZING SCHEDULE- THIS SHEET. RE-PIPE FIXTURE SUPPLY TO NEAREST EXISTING HW/CW MAINS IF NECESSARY/AS REQUIRED.
  - CONNECT FIXTURE TO EXISTING DWV IN AREA OF REMOVED UNIT. EXTEND/PROVIDE PIPING AS REQUIRED. VERIFY EXISTING LINE SIZES REQUIRED PER PIPE SIZING SCHEDULE- THIS SHEET. RE-PIPE DWV TO NEAREST EXISTING MAINS IF NECESSARY/AS REQUIRED.
  - CONNECT FIXTURE TO EXISTING DWV IN AREA OF REMOVED UNIT. EXTEND/PROVIDE PIPING AS REQUIRED. VERIFY EXISTING LINE SIZES REQUIRED PER PIPE SIZING SCHEDULE- THIS SHEET. RE-PIPE DWV TO NEAREST EXISTING MAINS IF NECESSARY/AS REQUIRED.



- KEY NOTES FOR DRAWING 2/P-2**
- WATER CLOSET TO BE REMOVED.
  - LAVATORY TO BE REMOVED.



( VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN )

| PIPE SIZING SCHEDULE         |        |        |      |      |
|------------------------------|--------|--------|------|------|
| FIXTURE TYPE                 | DRAIN  | VENT   | CW   | HW   |
| (LAV) LAVATORY               | 1 1/2" | 1 1/4" | 1/2" | 1/2" |
| (WC) FLUSH TANK WATER CLOSET | 3"     | 1 1/2" | 1/2" | -    |

**DWV/WATER RISER NOTES:**  
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE. SEE PIPE SIZING SCHEDULE.  
MINIMUM 2" DRAIN LINE SIZE UNDER SLAB.  
MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.  
PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

