

PLUMBING FIXTURE SCHEDULE:

- WC-1 WATER CLOSET: AMERICAN STANDARD WALL HUNG SIPHON ELONGATED 1.28-1.6 GPF, BEMIS ELONGATED COMMERCIAL PLASTIC OPEN FRONT LESS COVER TOILET SEAT WITH STATITE CHECK HINGE, WHITE, ADA COMPLIANT. FLUSH VALVE SHALL BE SLOAN G2 81161.1 OPTIMA PLUS CLOSET FLUSH VALVE, 1.6GPF, WITH ADA COMPLIANT HANDLE.
- L-1 OVALYN UNDERCOUNTER SINK, UNIVERSAL ACCESS, WHITE, 16-3/4 IN. x 13-1/4 IN. SLOAN MODEL# EBF6504 OPTIMA BATHROOM FAUCET, 0.5 GPM. DURAPRO BATHROOM FAUCET WATER CONNECTOR SUPPLY LINE, 3/8 IN X 3/8 IN. COMPRESSION X 12 IN. LONG STAINLESS STEEL, LEAD FREE. 1-1/4 IN. STRAINER GRID. PREMIER BRASS PTRAP, CHROME, 17 GAUGE, 1-1/4 IN.
- UR-1 URINAL: AMERICAN STANDARD JET TOP, 1.0 GPF. VITREOUS CHINA WALL MOUNTED WITH HANGER PLATE AND CARRIER, FLUSH VALVE SHALL BE SLOAN URINAL FLUSHMETER OPTIMA PLUS 0.5 GPF OR EQUAL, CHROME PISTON FLUSH VALVE WITH ADA COMPLIANT HANDLE.
- MS-1 FIAT MODEL MSB-2424, 24 INCH X 24 INCH X 10 INCH MOLDED STONE MOP SERVICE BASIN, WITH BUMPER GUARD, STAINLESS STEEL DRAIN BODY, COMBINATION S.S. DOME STRAINER AND LINT BASKET, FIAT 830-AA, SUPPLY FITTING WITH VACUUM BREAKER, FOUR ARM HANDLES, INTEGRAL STOPS, WALL BRACE, PAIL HOOK, THREADED SPOUT, RUBBER HOSE, WALL HOOK AND MOP HANGER.
- EWC-1 ELKAY MODEL EZH20 EZSTLDDWSLK. BI-LEVEL, SELF CONTAINED WALL MOUNT ELECTRIC WATER COOLER. SHALL HAVE A CHILLING CAPACITY OF 8 GPH OF 50°F DRINKING WATER WITH INTEGRAL WATER FILTER AND PUSH BAR ACTIVATION AND BOTTLE FILLING STATION.

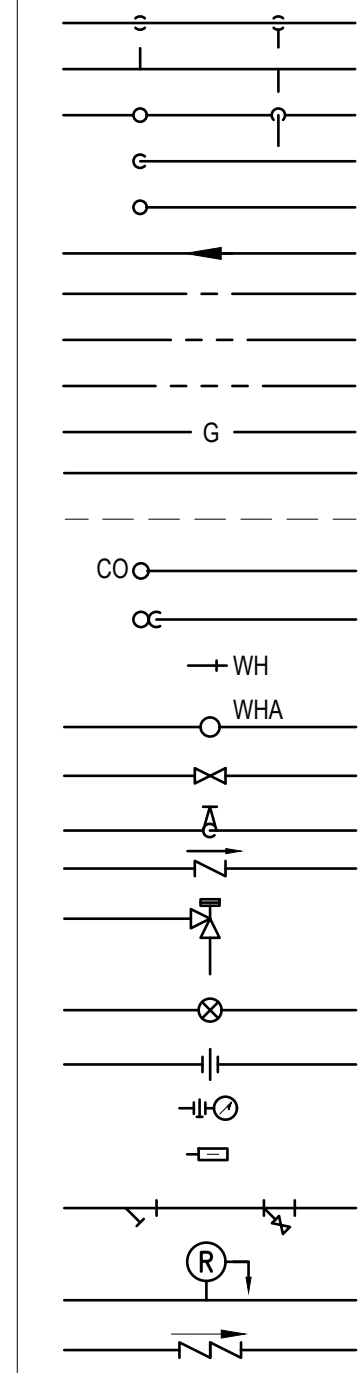
PLUMBING EQUIPMENT SCHEDULE:

- FD JOSAM #30000-A FLOOR DRAIN, SATIN FINISH BRONZE TOP, ADJUSTABLE STRAINER, SECURED GRATE, TRAP GUARD INSERT.
- TV ZURN MODE P6900-MV-XL UNDER-SINK GUARDIAN ASSE 1070 THERMOSTATIC TEMPERING VALVE FOR SINGLE FIXTURE APPLICATIONS. SET VALVE FOR MAXIMUM 109 DEG. F.
- WHA JOSAM #75000 SERIES WATER HAMMER ARRESTER, SIZE AND LOCATION IN ACCORDANCE W/ P.D.I. STD. WH-201, STAINLESS STEEL SHELL, ELASTOMER BELLOWS TYPE, FACTORY PRE-CHARGED WITH THREADED PLUG.
- CO JOSAM CLEANOUT
- WALL CHROME FLUSH WALL PLATE, RECESSED PLUG.
- FLOOR (UNFINISHED) - SATIN NIKALLOY BRONZE TOP, RECESSED PLUG.
- FLOOR (FINISHED) - RECESSED SATIN BRONZE TOP TO RECEIVE FLOOR FINISH MATERIAL (CARPET/TILE), RECESSED PLUG.

GENERAL PLUMBING NOTES:

- MAKE PIPING CONNECTIONS AS REQUIRED TO ALL FIXTURES AND EQUIPMENT EVEN THOUGH ALL BRANCH MAINS, ELBOWS AND CONNECTIONS ARE NOT SHOWN.
- REFER TO ARCHITECTURAL WORKING DRAWING BEFORE ROUGHING-IN PLUMBING FIXTURES.
- SLOPES AND INVERT ELEVATIONS OF EXISTING SEWER SHALL BE ESTABLISHED AND VERIFIED BY CONTRACTOR BEFORE ANY PIPING IS INSTALLED IN ORDER THAT PROPER SLOPE WILL BE MAINTAINED AND NECESSARY INVERT ELEVATIONS OBTAINED.
- ALL PIPES SHALL BE COORDINATED WITH OTHER NEW AND EXISTING DUCTS, PIPES, LIGHTS, STRUCTURAL SYSTEM, CEILING SUPPORTS AND FRAMING BEFORE INSTALLATION. MINOR PIPE OFFSETS SHALL BE PROVIDED AS REQUIRED. MEASUREMENTS FOR VERTICAL CLEARANCES SHALL BE TAKEN AT THE JOB SITE BEFORE INSTALLATION OF ANY PIPING.
- WASTE PIPE BELOW FLOOR, VENT PIPING ABOVE CEILING, PIPING OFFSET FOR CLARITY.
- DOMESTIC WATER PIPING SHALL BE INSTALLED ABOVE CEILINGS UNLESS NOTED OTHERWISE. DOMESTIC WATER PIPING SHOWN IN PIPE CHASE WALLS SHALL BE INSTALLED IN CHASE SPACE, PIPING OFFSET FOR CLARITY. DOMESTIC WATER PIPING SHALL NOT BE INSTALLED IN LOCATIONS SUBJECT TO FREEZING OR SPACES EXTERIOR TO BUILDING INSULATION.
- ALL PIPING, FIXTURES AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED INSTRUCTIONS.
- MATERIALS AND INSTALLATION SHALL COMPLY WITH LOCAL CODES, APPLICABLE PROVISIONS OF LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION, LOCAL UTILITY REGULATIONS AND GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION.
- WHERE PIPE CONNECTIONS ARE SHOWN CONNECTING TO EXISTING, CONTRACTOR SHALL DETERMINE EXACT LOCATIONS AND CONNECTION SIZES BY FIELD VERIFICATION PRIOR TO INSTALLATION.
- RETURN AIR PLENUM NOTE: ALL PIPING MATERIAL LOCATED IN RETURN AIR PLENUMS SHALL MEET THE REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE, SECTION 602.2.1.
- PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELS. COORDINATE INSTALLATION OF PIPES WITH ELECTRICAL PANELS WHEN SHOWN NEAR PANELS OR OVER ELECTRICAL ROOMS.

LEGEND



- BRANCH CONNECTION - BOTTOM OF MAIN
- BRANCH CONNECTION - SIDE OF MAIN
- BRANCH CONNECTION - TOP OF MAIN
- PIPE DOWN OR PIPE FROM BELOW
- PIPE UP OR PIPE FROM ABOVE
- DIRECTION OF FLOW
- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RECIRCULATING
- NATURAL GAS PIPING
- SANITARY SEWER (W), STORM DRAIN (SD)
- SANITARY VENT
- CLEANOUT FLUSH WITH FLOOR
- OUTLET WITH P-TRAP
- WALL HYDRANT
- WATER HAMMER ARRESTER
- BALL VALVE
- SHUTOFF VALVE IN VERTICAL CHECK VALVE
- T&P RELIEF VALVE
- BALANCING COCK
- UNION
- PRESSURE GAUGE AND GAUGE COCK
- THERMOMETER
- STRAINER, STRAINER WITH DRAIN
- RELIEF VALVE
- BACKFLOW PREVENTER (BFP)

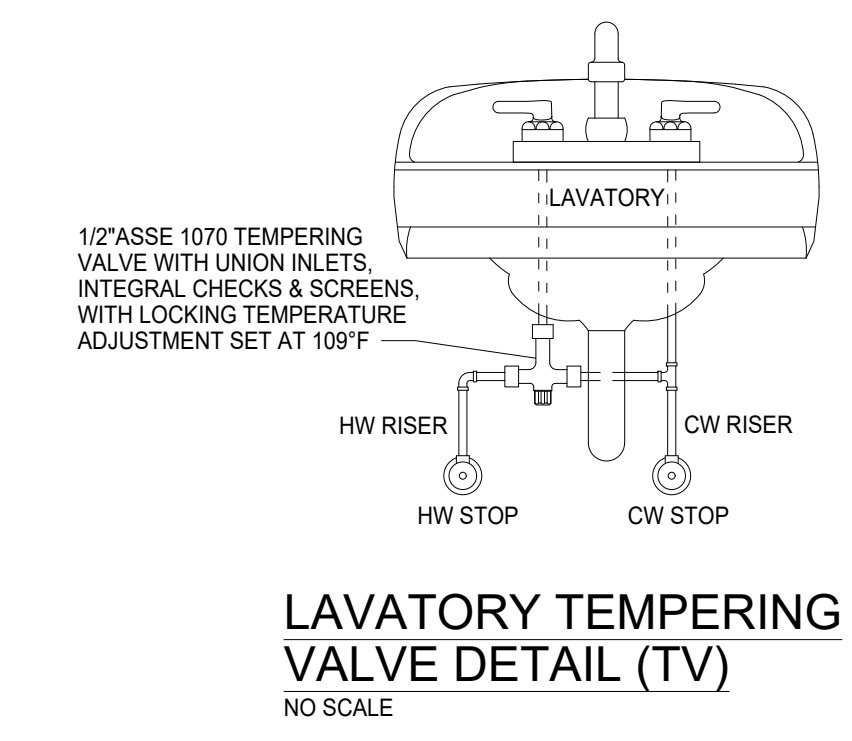
ABBREVIATIONS

- AAV AIR ADMITTANCE VALVE
- ABV ABOVE
- AFF ABOVE FINISHED FLOOR
- BFF BELOW FINISHED FLOOR
- BTU BRITISH THERMAL UNIT
- BEL BELOW
- CLG CEILING
- CO CLEANOUT
- CONN CONNECT, CONNECTION
- CW COLD WATER
- CONT CONTINUED
- DN DOWN
- EA EACH
- ELEV ELEVATION
- EWC ELECTRIC WATER COOLER
- F DEGREES FAHRENHEIT
- FD FLOOR DRAIN
- FIN FINISHED
- FLR FLOOR
- FR FROM
- FT FEET
- GPH GALLONS PER HOUR
- GPM GALLONS PER MINUTE
- HB HOSE BIBB
- HC HANDICAPPED ACCESSIBLE
- HW HOT WATER
- HP HORSEPOWER
- IN INCH, INCHES
- INV INVERT
- MAX MAXIMUM
- MBH THOUSAND BTU PER HOUR
- MIN MINIMUM
- SH SHEET
- TYP TYPICAL
- V SANITARY VENT
- VTR VENT THRU ROOF
- W SANITARY WASTE
- WCO WALL CLEANOUT
- WH WALL HYDRANT
- WHA WATER HAMMER ARRESTER

PLUMBING FIXTURE INSTALLATION SCHEDULE

FIXTURE	MARK	MOUNTING HEIGHT, IN	COLD WATER, IN	HOT WATER, IN	VENT SIZE, IN	WASTE SIZE, IN
WATER CLOSET, WALL HUNG	WC-1	17	1/2"	-	2"	4"
PUBLIC LAVATORY, WALL HUNG	L-1	34	1/2"	1/2"	1-1/2"	2"
PUBLIC URINAL, WALL HUNG	UR-1	17	3/4"	-	1-1/2"	2"
MOP SINK	MS-1	FLOOR	1/2"	1/2"	2"	3"
ELECTRIC WATER COOLER	EWC-1	40	1/2"	-	1-1/2"	2"

- NOTES:
 1. SIZES GIVEN ARE FOR ONE FIXTURE ONLY.
 2. TRAP AND WASTE PIPE SIZES FOR FLOOR DRAINS, FLOOR SINKS, AND CLEAN OUTS SHALL BE THE SAME SIZE AS THE DRAIN SIZE INDICATED ON PLANS.

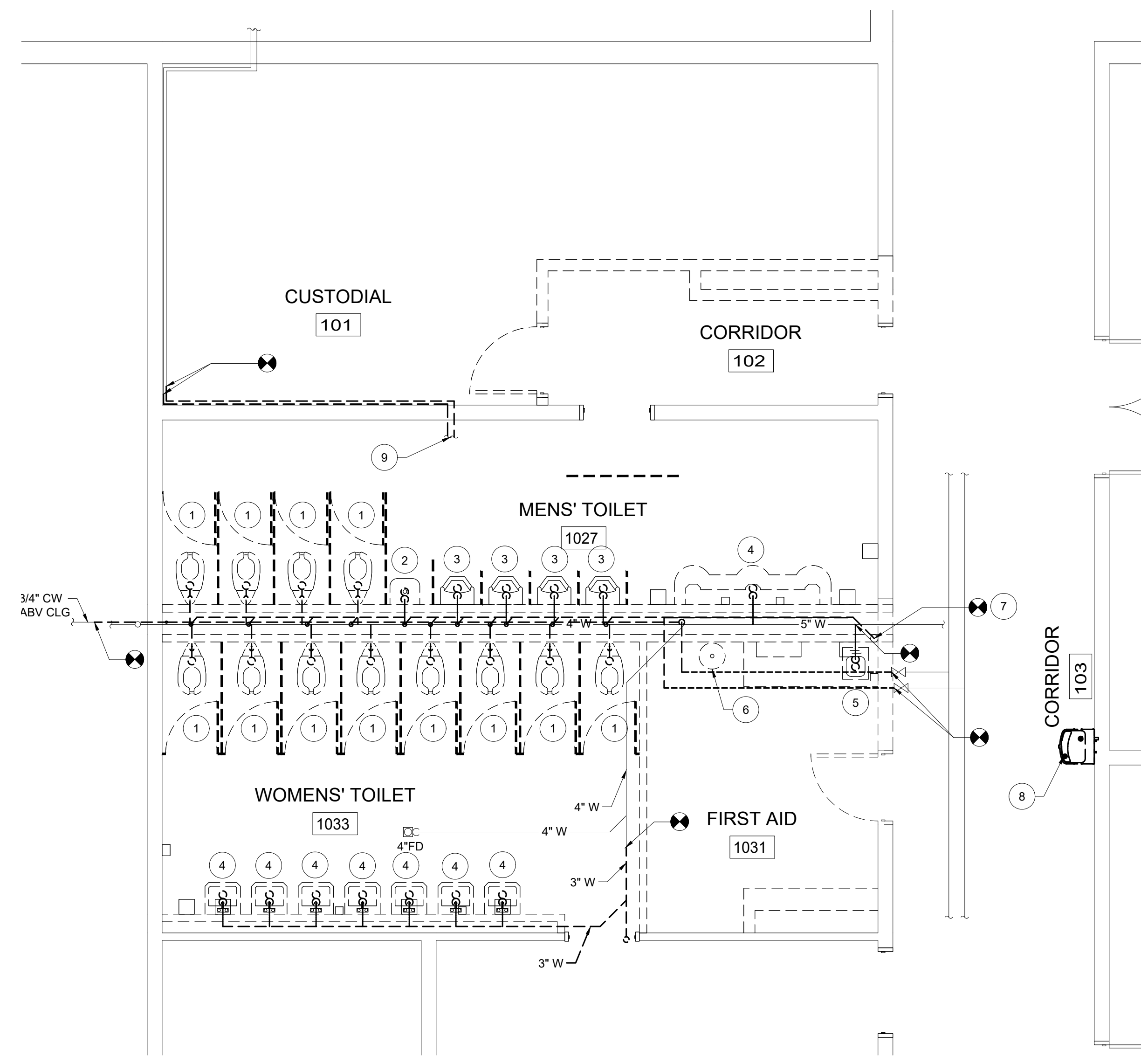


GENERAL DEMOLITION NOTES:

- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PLUMBING PIPING SIZES AND LOCATIONS PRIOR TO BIDDING.
- FOR FIXTURES BEING REMOVED, ALL ASSOCIATED BRANCH PIPING SHALL BE REMOVED BACK TO ASSOCIATED MAIN AND CAPPED UNLESS INDICATED OTHERWISE ON NEW WORK PLANS.

DEMOLITION KEYED NOTES:

- EXISTING WATER CLOSET TO BE REMOVED IN ITS ENTIRETY.
- EXISTING SERVICE SINK TO BE REMOVED IN ITS ENTIRETY.
- EXISTING URINAL TO BE REMOVED IN ITS ENTIRETY.
- EXISTING LAVATORY TO BE REMOVED IN ITS ENTIRETY.
- EXISTING SINK TO BE REMOVED IN ITS ENTIRETY.
- EXISTING FLOOR DRAIN TO BE REMOVED IN ITS ENTIRETY. REMOVE BRANCH SANITARY PIPING BELOW GRADE BACK TO MAIN AND CAP.
- DEMO VENT PIPING BACK TO 4" VENT STACK THRU ROOF.
- EXISTING ELECTRIC WATER COOLER TO BE REMOVED IN ITS ENTIRETY. REMOVE SUPPLY AND WASTE PIPING BACK BEHIND FINISHED SURFACE AND CAP.
- EXISTING CONDENSATE DRAIN LINES TO SINK DRAIN TO BE REMOVED BACK TO MECHANICAL ROOM AND CAP.



ENLARGED PLAN OF DEMOLITION



PLUMBING GENERAL NOTES, LEGEND, SCHEDULES, DETAILS, AND DEMOLITION PLAN
 DATE: 04 MAR 2025
 COMM No: 25-02
 DRAWN BY: JNB
 CHECKED BY:
 STATE PROJECT No: MOOG, INC FACILITY AT 1213 NORTH MAIN STREET BLACKSBURG, VA 24060 MECHANICAL AND RESTROOM RENOVATIONS



5 Design, LLC
 P.O. Box 320
 Riner, VA 24149
 540-230-2619
 www.5designarchitecture.com

REVISIONS	DESCRIPTION	DATE
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P001

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PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS

- A. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE VIRGINIA STATEWIDE BUILDING CODE INCLUDING ALL REFERENCED CODES AND STANDARDS AND IN ACCORDANCE WITH MANDATES OF THE LOCAL BUILDING OFFICIALS AND/OR LOCAL AUTHORITY HAVING JURISDICTION.
 - B. THE GENERAL ARRANGEMENT AND LOCATIONS OF PIPING, FIXTURES AND EQUIPMENT ARE INDICATED BY THE DRAWINGS AND SHALL BE INSTALLED IN ACCORDANCE THEREWITH; WITH THE EXCEPTION OF SUCH CHANGES AS MAY BE REQUIRED ON ACCOUNT OF OTHER TRADES. CONTRACTOR SHALL COORDINATE WORK WITH INSTALLATION OF OTHER SUBCONTRACTORS.
 - C. PLUMBING WORK SHALL BE COORDINATED WITH THE CONTRACTOR AS TO SCHEDULING, DIMENSIONING AND LOCATION OF EQUIPMENT.
 - D. MAJOR ITEMS ARE SHOWN ON THE PROJECT PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INCIDENTAL ITEMS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
 - E. ALL PIPING SYSTEMS SHALL EXTEND 5 FEET BEYOND THE BUILDING LINE UNLESS INDICATED OTHERWISE. REFER TO CIVIL DRAWINGS FOR PIPING OUTSIDE THIS AREA.
 - F. TRADE NAMES AND CATALOG NUMBERS SHALL BE INTERPRETED AS ESTABLISHING A GENERAL DESIGN AND STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. UNLESS STATED OTHERWISE, THE CONTRACTOR MAY USE ANY ARTICLE WHICH, IN HIS JUDGEMENT, AND WITH WRITTEN COMMENT FROM THE ARCHITECT/ENGINEER INDICATING NO OBJECTION, IS EQUAL OR SUPERIOR TO THAT SPECIFIED. DRAWINGS SHOWING CHANGES OR REVISIONS REQUIRED BY THE SUBSTITUTION FOR SPECIFIED ITEMS SHALL BE SUBMITTED WITH THE SHOP DRAWING DATA, AND THE COSTS OF ALL SUCH CHANGES SHALL BE BORNE BY THE CONTRACTOR.
 - G. SIMILAR ITEMS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.
 - H. ALL REQUIRED WALL OR FLOOR OPENINGS SHALL BE COORDINATED WITH THE CONTRACTOR.
 - I. ALL PIPING SHALL BE ABOVE CEILING UNLESS INDICATED OTHERWISE.
 - J. ALL EQUIPMENT SHALL BE WIPED CLEAN, REMOVING ALL TRACES OF OIL, DIRT, OR PAINT SPOTS.
 - K. PROVIDE SUPPORTS TO RIGIDLY ATTACH ALL EQUIPMENT, APPURTENANCES AND PIPE AS REQUIRED FOR SUPPORT. PRIOR TO INSTALLATION OF HANGERS AND INSERTS, THE CONTRACTOR SHALL COORDINATE LOCATIONS AND REQUIREMENTS TO MINIMIZE CONFLICTS WITH OTHER BUILDING SYSTEMS. INSTALLATION OF PIPE HANGERS AND SUPPORTS SHALL BE IN STRICT ACCORDANCE WITH MSS SP-58, 69 AND 89.
 - L. CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL EQUIPMENT INDICATED TO BE FURNISHED BY OTHERS.
2. SUBMISSION OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND PROJECT INFORMATION
- A. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS:
 - (1) CLEANOUTS
 - (2) FLOOR DRAINS
 - (3) BALL VALVES
 - (4) CHECK VALVES
 - (5) SHOCK ABSORBERS
 - (6) WATER HEATERS
 - (7) PLUMBING FIXTURES
 - (8) ALL ITEMS LISTED ON PLUMBING EQUIPMENT SCHEDULE.
 - B. IDENTIFY ALL PLUMBING SHOP DRAWINGS, PRODUCT DATA AND SAMPLES WITH THE NAME OF THE PROJECT. CLEARLY MARK THE SPECIFIC ITEMS INTENDED FOR USE. SUBMIT ALL RELATED ITEMS AT ONE TIME.
 - C. PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT, SUBMIT THE FOLLOWING INFORMATION FOR REVIEW AND APPROVAL.
 - (1) "AS BUILT" DRAWINGS.
3. GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE AND CONTRACTOR SHALL MAKE GOOD, WITHOUT ADDITIONAL COST TO THE OWNER, ANY DEFECTS WHICH MAY APPEAR WITHIN THAT PERIOD. MANUFACTURER'S WARRANTIES EXTENDING BEYOND ONE YEAR SHALL BE PROCESSED AND TURNED OVER TO THE OWNER.
4. "AS BUILT" DRAWINGS: CONTRACTOR SHALL KEEP AN ACCURATE RECORD OF THE LOCATION OF ALL CONCEALED PIPING, VALVES, CONTROLS, ETC., BOTH INTERIOR AND EXTERIOR. ON COMPLETION OF THE WORK, ONE PRINT EACH OF THE CONTRACT DRAWINGS WHICH ARE APPLICABLE SHALL BE NEATLY AND CLEARLY MARKED IN COLOR TO SHOW ALL VARIATIONS BETWEEN THE WORK ACTUALLY PROVIDED AND THAT INDICATED ON THE CONTRACT DRAWINGS.
5. ACCESS DOORS: ACCESS DOORS SHALL BE PROVIDED FOR ALL CONCEALED VALVES, CONTROLS, AND ANY OTHER EQUIPMENT OR MATERIALS REQUIRING INSPECTION OR MAINTENANCE. ACCESS DOORS SHALL BE FURNISHED FOR FLOORS, WALLS AND CEILINGS. OF ADEQUATE SIZE SO THAT CONCEALED ITEMS WILL BE READILY ACCESSIBLE FOR SERVICING OR FOR REMOVAL AND REPLACEMENT IF NECESSARY.
6. PIPING SPECIALTIES

- A. PIPE ESCUTCHEONS: INSTALL PIPE ESCUTCHEONS ON EACH PIPE PENETRATION THRU FLOORS, WALLS PARTITIONS, AND CEILINGS WHERE PENETRATION IS EXPOSED TO VIEW AND ON EXTERIOR OF BUILDING. SECURE ESCUTCHEON TO PIPE OR INSULATION SO ESCUTCHEON COVERS PENETRATION HOLE, AND IS FLUSH WITH ADJOINING SURFACE. PROVIDE SHEET STEEL ESCUTCHEONS, SOLID OR SPLIT HINGED. FOR AREAS WHERE WATER AND CONDENSATION CAN BE EXPECTED TO ACCUMULATE, PROVIDE CAST BRASS OR SHEET BRASS ESCUTCHEONS, SOLID OR SPLIT HINGED.

- B. PIPE SLEEVES: INSTALL PIPE SLEEVES WHERE PIPING PASSES THROUGH WALLS, FLOORS, CEILINGS, AND ROOFS. DO NOT INSTALL SLEEVES THROUGH STRUCTURAL MEMBERS OF WORK, EXCEPT AS DETAILED ON DRAWINGS, OR AS REVIEWED BY ARCHITECT/ENGINEER. SIZE SLEEVES SO THAT PIPING AND INSULATION (IF ANY) WILL HAVE FREE MOVEMENT IN SLEEVE, INCLUDING ALLOWANCE FOR THERMAL EXPANSION; BUT NOT LESS THAN 2 PIPE SIZES LARGER THAN PIPING RUN. INSTALL LENGTH OF SLEEVE EQUAL TO THICKNESS OF CONSTRUCTION PENETRATED, AND FINISH FLUSH TO SURFACE, EXCEPT FLOOR SLEEVES. EXTEND FLOOR SLEEVES 1/4 INCH ABOVE LEVEL FLOOR FINISH, AND 3/4 INCH ABOVE FLOOR FINISH SLOPED TO DRAIN. PROVIDE TEMPORARY SUPPORT OF SLEEVES DURING PLACEMENT OF CONCRETE AND OTHER WORK AROUND SLEEVES, AND PROVIDE TEMPORARY CLOSURE TO PREVENT CONCRETE AND OTHER MATERIALS FROM ENTERING SLEEVES.

7. INSULATION
- A. FLAME/SMOKE RATINGS: PROVIDE COMPOSITE PLUMBING INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) WITH FLAME-SPREAD RATING OF 25 OR LESS, AND SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 METHOD. INSULATION SHALL BE LABELED BY THE MANUFACTURER. THE LABEL SHALL INDICATE THE INSULATING VALUE, FLAME SPREAD AND SMOKE-DEVELOPED RATING.

- B. SUBMITTALS: SUBMIT MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR EACH TYPE OF PLUMBING INSULATION. SUBMIT SCHEDULE SHOWING MANUFACTURER'S PRODUCT NUMBER, THICKNESS, AND FURNISHED ACCESSORIES FOR EACH PLUMBING SYSTEM REQUIRING INSULATION.

- C. INSTALLATION: INSULATION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS USING ONLY ADHESIVES, MASTICS AND PLUMBING FASTENERS APPROVED BY THE INSULATION MANUFACTURER. INSULATION SHALL NOT BE APPLIED UNTIL AFTER THE EQUIPMENT HAS BEEN TESTED WITH RESULTS ACCEPTABLE TO THE ARCHITECT/ENGINEER. INSULATION WITH A VAPOR BARRIER JACKET SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN VAPOR SEAL AND ALL JOINTS SHALL BE SEALED WITH A VAPOR BARRIER ADHESIVE UNLESS OTHERWISE INDICATED. STAPLES, STICK CLIPS AND HANGERS SHALL BE VAPOR SEALED WHERE THEY PUNCTURE VAPOR BARRIER JACKETS.

- D. MATERIALS:
 - (1) GLASS FIBER PIPE INSULATION: HEAVY DENSITY PREFORMED PIPE INSULATION WITH OPERATING TEMPERATURE RANGE OF -60 DEGREES F TO 350 DEGREES F, THERMAL CONDUCTIVITY "K"=0.24 BTU-IN/HOUR-SF-DEG F, AT 100 DEGREES F. FACTORY APPLIED JACKET (ASJ) SHALL CONSIST OF WHITE KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBER YARN. EQUAL TO OWENS-CORNING ASJ.
 - (2) CELLULAR FOAM PIPE INSULATION: TUBULAR, FLEXIBLE, FIRE RESISTANT INSULATION WITH OPERATING TEMPERATURE RANGE OF -40 DEGREES F TO 220 DEGREES F, THERMAL CONDUCTIVITY "K"=0.27 BTU-IN/HOUR-SF-DEG F, AT 75 DEGREES F. NO JACKET REQUIRED. EQUAL TO ARMSTRONG ARMAFLEX AP.
 - (3) POLYETHYLENE PIPE INSULATION: INSULATION MATERIALS CORPORATION OF AMERICA (MCOA), FLEXIBLE CLOSED CELL POLYETHYLENE TUBING, ASTM G534, "K"=0.24 AT 75 DEGREES F, SERVICE TEMPERATURE -110F TO 210F. NO JACKET REQUIRED.

- E. PIPE INSULATION
 - (1) INSULATION OMITTED: OMIT INSULATION ON EXPOSED PLUMBING FIXTURE RUNOUTS FROM FACES OF WALL OR FLOOR TO FIXTURE; ON UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS, AND EXPANSION JOINTS.
 - (2) COVER VALVES, FITTINGS AND SIMILAR ITEMS IN EACH PIPING SYSTEM WITH EQUIVALENT THICKNESS AND COMPOSITION OF INSULATION AS APPLIED TO ADJOINING PIPE RUN.
 - (3) EXTEND PIPING INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR PIPING PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED.
 - (4) INSTALL PROTECTIVE METAL SHIELDS AND INSULATED INSERTS WHEREVER NEEDED TO PREVENT COMPRESSION OF INSULATION.
 - (5) PIPE HANGER INSULATION INSERTS: BUTT PIPE INSULATION AGAINST PIPE INSULATION INSERTS. FOR HOT PIPES, APPLY 3 INCH WIDE VAPOR BARRIER TAPE OR BAND OVER THE BUTT JOINTS. FOR COLD PIPING APPLY WET COAT OF VAPOR BARRIER LAP CEMENT ON BUTT JOINTS AND SEAL JOINTS WITH 3 INCH WIDE VAPOR BARRIER TAPE OR BAND.
 - (6) DOMESTIC WATER PIPING, ABOVE GROUND: PIPING SHALL BE INSULATED WITH GLASS FIBER PIPE INSULATION. CELLULAR FOAM OR POLYETHYLENE PIPE INSULATION MAY BE USED ON PIPE SIZES 1 INCH AND SMALLER. VAPOR SEAL IS NOT REQUIRED ON HOT WATER PIPING.

MATERIAL HANDLED	PIPE SIZE	INSULATION THICKNESS
COLD WATER	ALL SIZES	1/2"
HOT WATER AND HOT WATER RECIRCULATING	ALL SIZES	1/2"

8. PLUMBING PIPING
- A. DOMESTIC WATER PIPING ABOVE GROUND
 - COPPER TUBE AND FITTINGS ASTM B88, TYPE L HARD DRAWN
 - FITTINGS: WROUGHT COPPER, ASME B16.22 OR CAST COPPER ALLOY ASME B16.18.
 - JOINTS: ABV GROUND, ASTM B32 LEAD FREE SOLDER, ASTM B813 LEAD FREE FLUX.

- B. STORM, SOIL, WASTE AND VENT PIPING BELOW GRADE
 - SIZE: 4 INCHES AND SMALLER
 - PIPE: SCH. 40 PVC-DWV ASTM D-2665
 - FITTINGS: PVC SOCKET FITTINGS (DWV)
 - JOINTS: SOLVENT CEMENT JOINTS

- C. STORM, SOIL, WASTE AND VENT PIPING ABOVE GRADE
 - SIZE: 4 INCHES AND SMALLER
 - PIPE: HUBLESS ASTM C-564
 - FITTINGS: HUBLESS CAST IRON
 - JOINTS: NEOPRENE SLEEVES AND STAINLESS STEEL BANDS
- D. ALL PIPE OF THE SAME SIZE SHALL BE THE SAME MATERIAL.

- E. SLOPE ALL DRAIN LINES 1/4 INCH PER FOOT MINIMUM FOR SIZES LESS THAN 4 INCHES; SLOPE 1/8 INCH PER FOOT FOR SIZES 4 INCHES AND LARGER.
- F. SOIL, WASTE AND VENT PIPING LOCATED BELOW GRADE SHALL BE MINIMUM 2 INCH SIZE.
- G. VENTS SHALL EXTEND 12 INCHES ABOVE THE ROOF. ROOF FLASHING SHALL BE COORDINATED WITH BY THE CONTRACTOR.

- H. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BELOW GRADE WORK IN ACCORDANCE WITH THE FOLLOWING:
 - (1) TRENCHES SHALL BE GRADED TO UNIFORM PITCH AND SHALL BE NO WIDER THAN NECESSARY AND FREE FROM LOOSE EARTH.
 - (2) CLEAN BACKFILL SHALL BE USED AND THOROUGHLY TAMPED IN LAYERS NOT EXCEEDING 6 INCHES TO A MINIMUM DEPTH OF 1 FOOT ABOVE PIPE.
 - (3) COMPACTED BACKFILL SHALL BE USED FOR ENTIRE DEPTH OF EXCAVATION UNDER SLAB ON GRADE CONSTRUCTION.
- I. DOMESTIC HOT AND COLD WATER PIPING SHALL BE 1/2 INCH SIZE UNLESS INDICATED OTHERWISE.

9. NATURAL GAS SYSTEMS
- A. GAS SERVICE PIPING:
 - ALL SIZES: SCHEDULE 40 BLACK STEEL PIPE, ASTM A120/A53-CW OR ASTM/A53 GRADE B (WELDED OR SEAMLESS); WROUGHT STEEL BUTTWELDING FITTINGS.
 - B. GAS COCKS:
 - GAS COCKS 2 INCHES AND SMALLER: 150 PSI NON-SHOCK WOG, BRONZE STRAIGHTWAY COCK, FLAT OR SQUARE HEAD, THREADED ENDS.

- C. ALL GAS PIPING EQUIPMENT CONNECTIONS SHALL BE PROVIDED WITH A 6 INCH DIRT TRAP, UNION AND GAS COCK SHUT OFF.
- D. ALL JOINTS SHALL BE SEALED WITH CHEMICALLY RESISTANT SEALER APPLIED TO MALE THREADS OF PIPE CONNECTION.
- E. GAS PIPING SHALL BE INSTALLED WITH A 1/64 INCH PER FOOT DOWNWARD SLOPE IN DIRECTION OF FLOW.

10. PLUMBING PUMPS
- A. UL COMPLIANCE: DESIGN, MANUFACTURE, AND INSTALL PLUMBING PUMPS IN ACCORDANCE WITH UL 778 "MOTOR OPERATED WATER PUMPS".
 - B. UL AND NEMA COMPLIANCE: PROVIDE ELECTRIC MOTORS AND COMPONENTS WHICH ARE LISTED AND LABELED BY UNDERWRITERS LABORATORIES AND COMPLY WITH NEMA STANDARDS.
 - C. SSPMA COMPLIANCE: TEST AND RATE SUMP AND SEWAGE PUMPS IN ACCORDANCE WITH SUMP AND SEWAGE PUMP MANUFACTURERS ASSOCIATION (SSPMA) AND PROVIDE CERTIFIED RATING SEAL.
 - D. PUMP CAPACITY CURVES SHALL SLOPE UP TO MAXIMUM HEAD SHUT OFF. SELECT PUMPS NEAR MID-RANGE OF CURVE AS CLOSE TO MAXIMUM EFFICIENCY AS POSSIBLE.
 - E. PUMP HEAD SHALL BE INCREASED IF NECESSARY TO PROVIDE SPECIFIED FLOW RATE THROUGH EQUIPMENT APPROVED FOR THIS PROJECT.

11. CLEANOUTS
- A. CLEANOUTS SHALL BE THE SAME SIZE AS LINE SERVED, BUT NOT LARGER THAN 4 INCHES, AND SHALL BE PROVIDED AT THE BASE OF EACH SOIL AND WASTE STACK, AT ALL POINTS WHERE DIRECTION CHANGE IS MORE THAN 45 DEGREES, AT MINIMUM INTERVALS OF 50 FEET FOR 4 INCH AND SMALLER PIPING, AT MINIMUM INTERVALS OF 100 FEET FOR PIPING LARGER THAN 4 INCHES, AS REQUIRED BY CODE AND AS INDICATED ON THE DRAWINGS. COVERS SHALL BE SET FLUSH WITH FLOOR OR WALL.

12. FLOOR DRAINS
- A. PROVIDE FLOOR DRAINS OF SIZE AND TYPE AS INDICATED ON DRAWINGS. ALL DRAINS CONNECTING TO SANITARY SEWER SYSTEM SHALL BE FURNISHED WITH TRAP SEAL AND P-TRAP. DRAINS SHALL HAVE OUTLET COMPATIBLE WITH PIPING SYSTEM TO WHICH IT IS CONNECTED.

13. PLUMBING VALVES
- A. PROVIDE SHUT-OFF VALVE AND UNION OR EQUIVALENT AT EACH HOT AND COLD WATER EQUIPMENT CONNECTION. PROVIDE SHUT-OFF VALVE ON EACH BRANCH OR RISER THAT SERVES TWO OR MORE PLUMBING FIXTURES.
 - B. GATE VALVES 2-1/2 INCHES AND SMALLER: ALL BRONZE, RISING STEM, SOLID WEDGE DISC. STOCKHAM B-100 OR B-108.
 - C. GLOBE VALVES: ALL BRONZE, RENEWABLE COMPOSITION DISC. STOCKHAM B-16 OR B-14-T.

- D. CHECK VALVES IN HORIZONTAL PIPES:
 - (1) 2 INCHES AND SMALLER: ALL BRONZE, REGRINDING BRONZE DISC, HORIZONTAL SWING, Y-PATTERN. STOCKHAM B-3190R B-309.
- E. CHECK VALVES IN VERTICAL PIPES AND PUMP DISCHARGE: SILENT CHECK VALVE WITH SEMI-STEEL BODY, BRONZE TRIM AND STAINLESS STEEL SPRING. METRAFLEX 700 SERIES.

- F. BALL VALVES MAY BE USED IN LIEU OF GATE VALVES 2 INCHES AND SMALLER. BALL VALVES SHALL HAVE BRONZE BODY, BRONZE BALL AND TFE SEATS AND SEALS. STOCKHAM S-216BRRT OR S-216BRRS.

14. WATER HEATERS

- A. NSF LABELS: PROVIDE WATER HEATERS WHICH HAVE BEEN LISTED AND LABELED BY THE NATIONAL SANITATION FOUNDATION.
- B. UL AND NEMA COMPLIANCE: PROVIDE ELECTRIC MOTORS AND ELECTRICAL COMPONENTS REQUIRED AS PART OF PLUMBING EQUIPMENT, WHICH HAVE BEEN LISTED AND LABELED BY UNDERWRITERS LABORATORIES AND COMPLY WITH NEMA STANDARDS.
- C. NEC COMPLIANCE: COMPLY WITH NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AS APPLICABLE TO INSTALLATION AND ELECTRICAL CONNECTIONS OF ANCILLARY ELECTRICAL COMPONENTS OF PLUMBING EQUIPMENT.
- D. ASHRAE COMPLIANCE: WATER HEATERS SHALL COMPLY WITH ASHRAE STANDARD 90.
- E. WATER HEATERS SHALL BE FURNISHED WITH ASME RATED TEMPERATURE AND PRESSURE RELIEF VALVE WITH TEST LEVER.

13. PLUMBING FIXTURES

- A. CODES AND STANDARDS: COMPLY WITH APPLICABLE PORTIONS OF NATIONAL STANDARD PLUMBING CODE AND THE VIRGINIA STATEWIDE BUILDING CODE, PERTAINING TO MATERIALS AND INSTALLATION OF PLUMBING FIXTURES.
 - (1) ANSI STANDARDS: COMPLY WITH APPLICABLE ANSI STANDARDS PERTAINING TO PLUMBING FIXTURES AND SYSTEMS.
 - (2) ANSI AND ADA COMPLIANCE: CONSTRUCT AND INSTALL BARRIER FREE PLUMBING FIXTURES IN ACCORDANCE WITH ANSI STANDARD A117.1 "SPECIFICATIONS FOR MAKING BUILDINGS AND FACILITIES ACCESSIBLE TO AND USABLE BY PHYSICALLY HANDICAPPED PEOPLE" AND WITH THE "AMERICANS WITH DISABILITIES ACT GUIDELINES".

- B. ALL EXPOSED FIXTURE SUPPLIES AND WASTE LINES SHALL BE CHROME PLATED. NO EXPOSED COPPER, PVC AND/OR CAST IRON PIPING IS ALLOWED. UTILIZE CHROME NIPPLES AS REQUIRED FOR DOMESTIC ROUGH-IN.

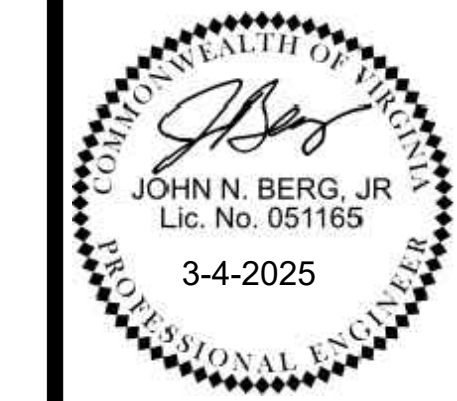
- C. PLUMBING FIXTURES SHALL BE POSITIVELY VENTED AND TRAPPED IN ACCORDANCE WITH THE VIRGINIA STATEWIDE BUILDING CODE, LATEST EDITION. WET VENTING IS ALLOWED IF WASTE PIPING IS OVSERSIZED AND IN ACCORDANCE WITH CODE PROVISIONS. LOCATION OF VENT SHALL NOT EXCEED MAXIMUM DISTANCES TO THE TRAP AS ESTABLISHED WITHIN THE CODE.

15. CLEANING AND TESTING

- A. ALL WATER PIPING, VALVES, ETC. SHALL BE THOROUGHLY FLUSHED OF FOREIGN MATTER AND TESTED FOR LEAKS IN ACCORDANCE WITH THE VIRGINIA STATEWIDE BUILDING CODE, LATEST EDITION. ANY LEAKAGE SHALL BE REPAIRED. DISINFECT DOMESTIC WATER PIPING INCLUDING WATER SERVICE PIPING IN ACCORDANCE WITH AWWA C601.
- B. ALL DRAIN, WASTE AND VENT PIPING SHALL BE TESTED FOR LEAKS IN ACCORDANCE WITH THE VIRGINIA STATEWIDE BUILDING CODE, LATEST EDITION. NO VISIBLE DROP IN WATER LEVEL WILL BE ACCEPTABLE.

END OF SPECIFICATIONS

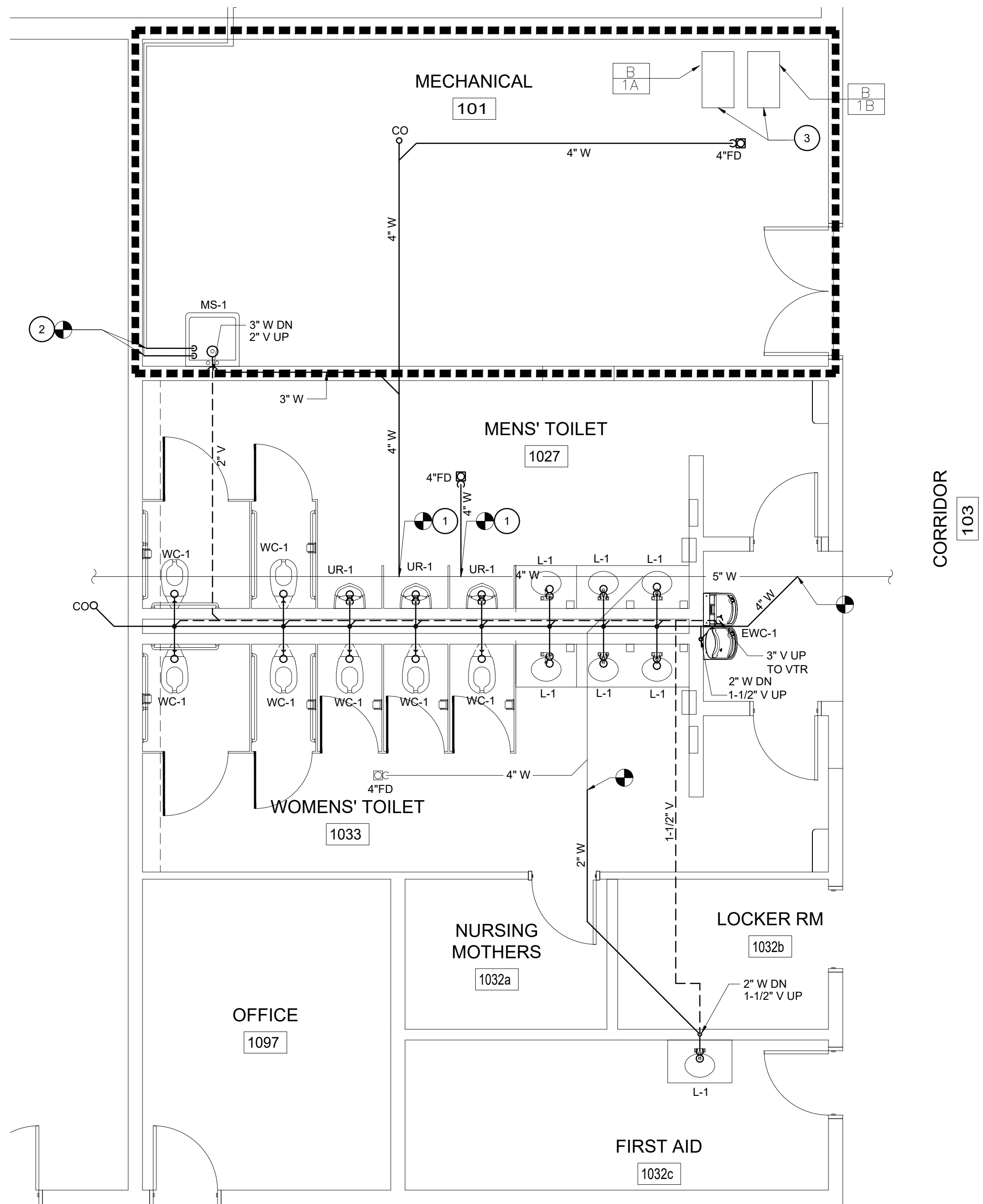
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PLUMBING SPECIFICATIONS				
MOOG, INC FACILITY AT 1213 NORTH MAIN STREET BLACKSBURG, VA 24060 MECHANICAL AND RESTROOM RENOVATIONS				



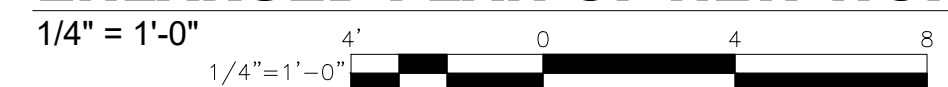
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P.O. Box 320
Riner, VA 24149
540-230-2619
www.5designarchitecture.com

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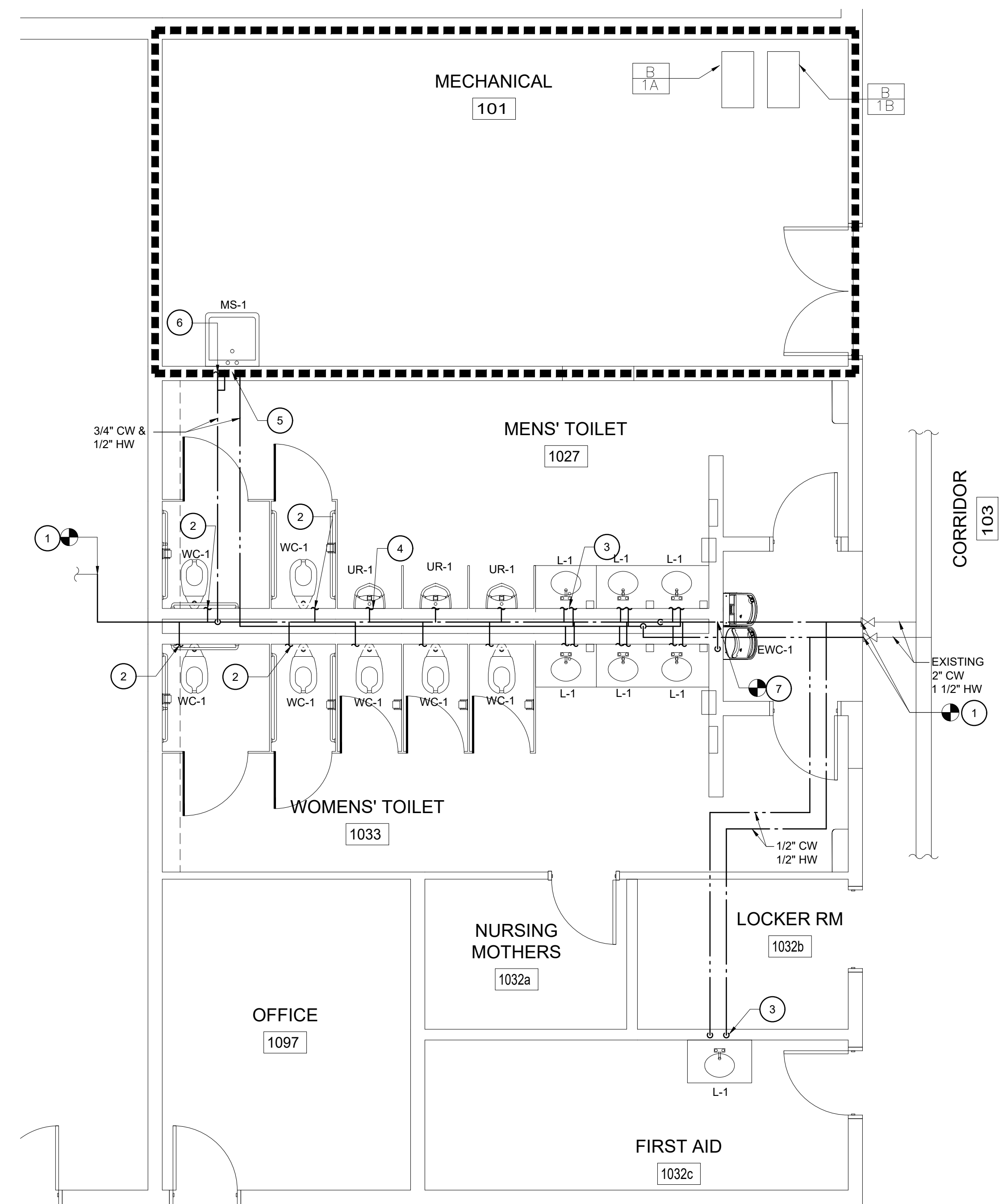


ENLARGED PLAN OF NEW WORK - W&V



NEW WORK KEYED NOTES - W&V:

1. CONNECT TO EXISTING SANITARY WASTE PIPING BELOW FLOOR.
2. CONNECT TO EXISTING DRAINS AND ROUTE TO MS-1.
3. ROUTE DRAIN FROM BOILERS TO FLOOR DRAIN.



ENLARGED PLAN OF NEW WORK - WATER



NEW WORK KEYED NOTES - WATER:

1. CONNECT TO EXISTING SUPPLY PIPING ABOVE CEILING.
2. 1" DN TO WATER CLOSET. PROVIDE WATER HAMMER ARRESTOR. (TYPICAL)
3. 1/2" HW & CW DN TO LAV. (TYPICAL)
4. 3/4" CW DN TO URINAL. (TYPICAL)
5. 1/2" HW & CW DN TO MOP SINK.
6. 3/4" CW TO MIXING SYSTEM AT MS-1.
7. CONNECT TO EXISTING SUPPLY PIPING ABOVE CEILING. PROVIDE 1/2" CW DN TO WATER COOLER.

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**ENLARGED PLANS OF PLUMBING
DEMOLITION AND NEW WORK**

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MECHANICAL AND RESTROOM RENOVATIONS

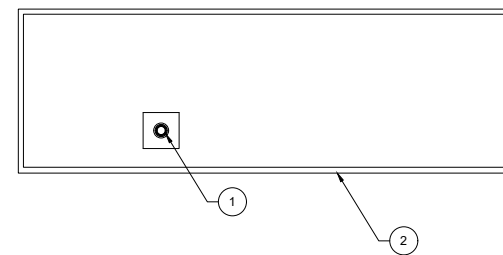
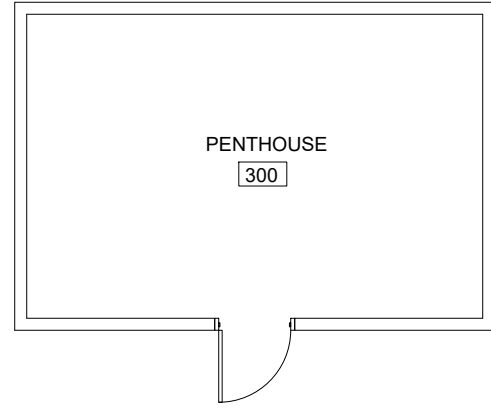
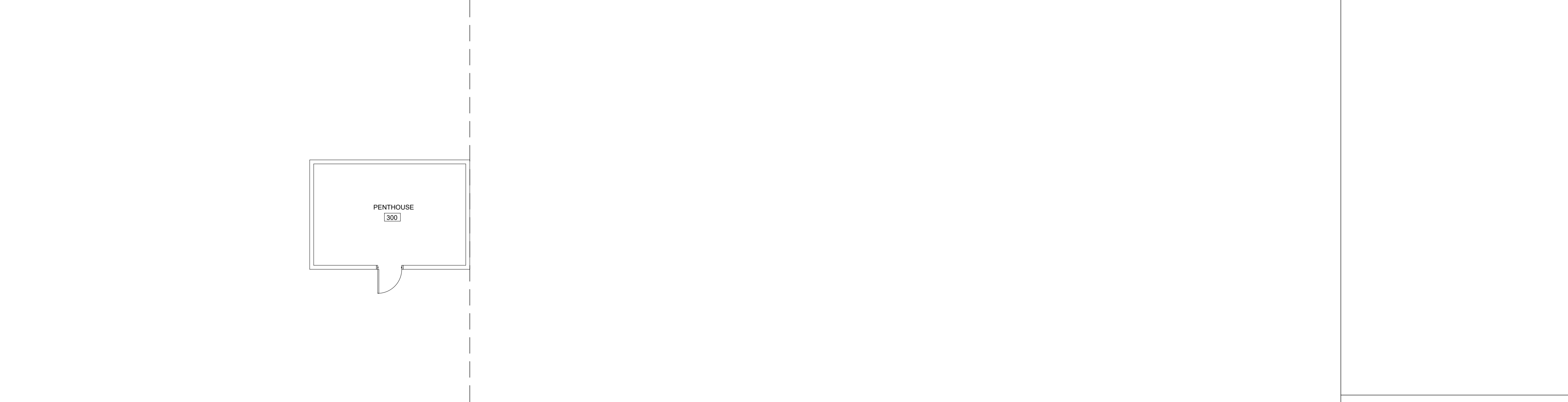


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P100



PARTIAL PLUMBING ROOF PLAN

1/8" = 1'-0"



NEW WORK KEYED NOTES

1. RE-LOCATE EXISTING ROOF DRAIN TO OUTSIDE OF NEW ROOFTOP UNIT FOOT PRINT.
2. NEW ROOFTOP UNIT IS SHOWN FOR REFERENCE.

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**PLUMBING NEW WORK
 PARTIAL ROOF PLAN**
 MOOG, INC FACILITY AT 1213 NORTH MAIN STREET BLACKSBURG, VA 24060
 MECHANICAL AND RESTROOM RENOVATIONS



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