

## SANITARY WASTE & VENT

- BELOW GRADE PIPING AND JOINTS:** PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). INSTALL PLASTIC PIPE BELOW GRADE PER ASTM D2321. FOAM CORE PVC PIPING IS NOT APPROVED.
- ABOVE GRADE PIPING AND JOINTS:** PROVIDE SERVICE WEIGHT CAST IRON NO-HUB PIPE AND FITTINGS (CISPI 301) WITH NEOPRENE GASKET AND STAINLESS STEEL CLAMP JOINTS (CISPI 310) WITH NEOPRENE GASKET / STAINLESS STEEL CLAMP JOINTS (ASTM C1540-15) OR PROVIDE SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). FOAM CORE PIPE IS NOT APPROVED. DO NOT INSTALL PVC PIPING IN RETURN AIR PLUMBING.
- SLOPE WASTE AND STORM DRAIN PIPING AT 1/4" PER FOOT MINIMUM FOR PIPING 2-1/2" AND SMALLER AND 1/8" PER FOOT MINIMUM FOR PIPING 3" AND LARGER UNLESS NOTED OTHERWISE. SLOPE ALL KITCHEN GREASE WASTE PIPING AT 1/4" PER FOOT MINIMUM.
- PROVIDE CLEAN-OUTS AT THE BASE OF WASTE STACKS AND AT EVERY TURN IN PIPING IN EXCESS OF 45° AND SPACED WITH IN 100'-0" APART IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.
- PROVIDE FLOOR CLEANOUTS WITH TOPS DESIGNED TO MATCH SPECIFIC FLOOR FINISHES SUCH AS CARPET, TILE, ETC. YARD CLEANOUTS SHALL BE PROVIDED IN AN 18"x18"x6" CONCRETE PAD.
- WHERE WASTE PIPING IS EXPOSED IN REST ROOM AREAS, PROVIDE CHROME PLATED BRASS PIPING, REMOVABLE P-TRAPS, MATCHING STOPS AND ESCUTCHEONS FOR ALL LAVATORIES.
- WASTE AND VENT SYSTEMS SHALL BE TESTED AND PROVED WATER TIGHT UNDER A HEAD PRESSURE OF NO LESS THAN 10 FT. THIS PRESSURE SHALL BE HELD FOR A PERIOD OF NO LESS THAN 15 MINUTES.
- WHERE MECHANICAL ROOM FLOOR DRAINS ARE INSTALLED ABOVE GRADE, PROVIDE 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET ON THE FLOOR DRAIN BODY, THE ASSOCIATED P-TRAP AND HORIZONTAL DRAIN PIPING ABOVE GRADE.
- INSULATE HORIZONTAL DRAIN PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.
- PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES SHALL MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS AS TESTED BY ASTM E84 (NFPA 255) METHOD. INSTALL INSULATION CONTINUOUSLY THRU FIRE RATED WALLS AND PIPE HANGERS. PROVIDE GALVANIZED STEEL SHIELD BETWEEN PIPE HANGER AND INSULATION.

## 2018 NORTH CAROLINA ENERGY CONSERVATION CODE COMMERCIAL ENERGY EFFICIENCY - PLUMBING SUMMARY

| EQUIPMENT TYPE           | SIZE CATEGORY (INPUT) | SUB CATEGORY OR RATING CONDITION | PERFORMANCE REQUIRED a,b | REQ'D EFFICIENCY | SPECIFIED EQPM |
|--------------------------|-----------------------|----------------------------------|--------------------------|------------------|----------------|
| WATER HEATER<br>ELECTRIC | ≤ 12 kW               | RESISTANCE                       | 0.97 - 0.00132V, EF      | 0.94             | 0.96           |

a. ENERGY FACTOR (EF) AND THERMAL EFFICIENCY (E) ARE MINIMUM REQUIREMENTS. IN THE EF EQUATION V IS THE VOLUME IN GALLONS.  
b. STANDBY LOSS (SL) IS THE MAXIMUM BTU/H BASED ON A NOMINAL 70° TEMPERATURE DIFFERENCE BETWEEN STORED WATER AND AMBIENT REQUIREMENTS. IN THE SL EQUATION Q IS THE NAMEPLATE INPUT RATE IN BTU/H. IN THE EQUATIONS FOR ELECTRIC WATER HEATERS, V IS THE RATED VOLUME IN GALLONS AND V<sub>H</sub> IS THE MEASURED VOLUME IN GALLONS. IN THE SL EQUATION FOR GAS WATER HEATERS AND BOILERS, V IS THE RATED VOLUME IN GALLONS.  
c. REFER TO WATER HEATER SCHEDULES FOR SPECIFIED WATER HEATING EQUIPMENT TYPES, CAPACITIES (STORAGE VOLUME) AND ENERGY INPUTS (ELECTRIC AND/OR GAS)

**C408 - SYSTEM COMMISSIONING**

- PROJECT AREA IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- PROJECT AREA IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.

## DOMESTIC WATER PIPING

- ABOVE GRADE PIPING AND JOINTS:** PROVIDE TYPE 1" HARD DRAWN SEAMLESS COPPER TUBING (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.18). JOINTS 2" AND SMALLER SHALL BE LEAD FREE 95-5 TIN/SILVER SOLDER JOINTS (ASTM B 32); JOINTS 2-1/2" AND LARGER SHALL BE ECUP SILVER / PHOSPHORUS / COPPER BRAZED JOINTS (AWS A5.8). ALTERNATELY PROVIDE COPPER PIPE AND FITTINGS AS SPECIFIED ABOVE EXCEPT WITH GROOVED ENDS (ASTM B 88, ASME B16.18) AND JOINTS UTILIZING GROOVED MECHANICAL COUPLINGS MEETING (ASTM F1476).
- INSULATE PIPING ABOVE GRADE (EXCEPT EXPOSED CONNECTIONS TO PLUMBING FIXTURES) WITH GLASS FIBER INSULATION HAVING A VAPOR BARRIER AND JACKET FOR HOT WATER PIPING AND PROVIDE CLOSED CELL ELASTOMERIC INSULATION WITH JACKET FOR COLD WATER PIPING. PIPE INSULATION SHALL HAVE A CONDUCTIVITY NOT EXCEEDING 0.27 BTUH x SQ. FT °F. SEE LIST BELOW FOR INSULATION THICKNESS:
  - PROVIDE 1" THICK INSULATION FOR HW & HWV PIPING SIZES 1/2" THRU 3/4", R-VALUE R7.
  - PROVIDE 1-1/2" THICK INSULATION FOR HW & HWV PIPING SIZES 1" THRU 1-1/4", R-VALUE R12.5.
  - PROVIDE 1-1/2" THICK INSULATION FOR HW & HWV PIPING SIZES 1-1/2" THRU 4", R-VALUE R17.
  - PROVIDE 1" THICK INSULATION FOR CW PIPING SIZES 1/2" THRU 1-1/4", R-VALUE R6.5.
  - PROVIDE 1" THICK INSULATION FOR CW PIPING SIZES 1-1/2" THRU 4", R-VALUE R6.5.
- PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES SHALL MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS AS TESTED BY ASTM E84 (NFPA 255) METHOD AND SHALL BE PLENUM RATED. PROVIDE PVC INSULATION JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. INSTALL INSULATION CONTINUOUSLY THRU FIRE RATED WALLS AND PIPE HANGERS. PROVIDE GALVANIZED STEEL SHIELD BETWEEN PIPE HANGER AND INSULATION.
- PROVIDE A CHROME FINISH ON EXPOSED PIPING IN REST ROOMS AND OTHER FINISHED AREAS.
- PROTECT COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON TRAPEZE HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH DISSIMILAR OTHER METALS.
- PROTECT COPPER PIPING AGAINST CONTACT WITH MASONRY. WHERE COPPER IS SLEEVED THROUGH MASONRY, PROVIDE COPPER OR RED BRASS SLEEVES. WHERE COPPER MUST BE CONCEALED IN OR AGAINST MASONRY PARTITIONS, PROVIDE A HEAVY COATING OF ASPHALTIC ENAMEL ON THE COPPER PIPING AND 15# ASPHALT SATURATED FELT BETWEEN THE PIPING AND THE MASONRY PARTITION.
- PERFORM A PRESSURE TEST ON ALL WATER PIPING. FILL PIPING WITH POTABLE WATER, CAP AND SUBJECT PIPING TO A STATIC WATER PRESSURE OF 50 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING PRESSURE RATING OF PIPING SYSTEM MATERIALS OR PRESSURIZE PIPING WITH AIR TO AT LEAST ONE HUNDRED (100) PSI. ISOLATE TEST SOURCE AND ALLOW TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS THAT MUST BE REPAIRED. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED
- STERILIZE THE DOMESTIC WATER SYSTEM IN PER THE AMERICAN WATER WORKS ASSOCIATION'S INSTRUCTIONSPPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
- SLOPE WATER PIPING FOR DRAINAGE WITH DRAIN VALVES INSTALLED AT LOW POINTS.
- BALANCE THE DOMESTIC HOT WATER CIRCULATION SYSTEM TO THE PERFORMANCE SPECIFICATIONS INDICATED ON THE PLANS AND PROVIDE THE ENGINEER WITH THREE COPIES OF A COMPLETE TEST AND BALANCE REPORT. THE REPORT IS TO BE ISSUED A MINIMUM OF TWO WEEKS PRIOR TO PROJECT COMPLETION. THE TEST AND BALANCE REPORT WILL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER. ANY ADDITIONAL TESTING, ADJUSTING AND BALANCING REQUIRED (AT ENGINEER'S REQUEST) AFTER REVIEW OF THE INITIAL REPORT SHALL BE PROVIDED AT NO ADDITIONAL COST. TEST AND BALANCE REPORT TO BE COMPLETED BY AN INDEPENDENT, CERTIFIED TEST AND BALANCE CONTRACTOR.

## NATURAL GAS PIPING

- ABOVE GRADE PIPING AND FITTINGS:** PROVIDE SCHEDULE 40 BLACK STEEL PIPING, TYPE S, SEAMLESS, GRADE B (ASTM A 53) AND 150 PSI MALLEABLE BLACK IRON FITTINGS, GRADE 32510, (ASTM B 16.3) OR FORGED STEEL WELDING TYPE FITTINGS (ASTM A 234). PROVIDE THREADED JOINTS FOR PIPE 2" AND SMALLER. PROVIDE WELDED JOINTS (ASME B 31.1) FOR PIPE 2-1/2" AND LARGER.
- SPACE GAS PIPING HANGER RODS 7'-0" ON CENTER MAXIMUM AND SPACE TRANSVERSE BRACING 20'-0" ON CENTER MAXIMUM. TRANSVERSE BRACING FOR ONE SECTION MAY ACT AS LONGITUDINAL BRACING FOR THE PIPE SECTION CONNECTED TO IT IF THE BRACING IS INSTALLED WITHIN 24" OF THE ELBOW OR TEE. COORDINATE HANGER LOCATIONS WITH STRUCTURAL DRAWING DETAILS.
- PROVIDE A.G.A. CERTIFIED SHUT-OFF VALVES MINIMUM 125 PSI RATED, NON-LUBRICATED PLUG TYPE WITH BRONZE BODY AND BRONZE PLUG, STRAINERS AND REGULATORS (AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER) FOR ALL EQUIPMENT CONNECTED TO THE NATURAL GAS SYSTEM.
- GAS PRESSURE REGULATORS SHALL COMPLY WITH ANSI Z21.80. REGULATORS SHALL BE CAST IRON OR DIE-CAST ALUMINUM CONSTRUCTION WITH INTERCHANGEABLE ZINC-PLATED STEEL SPRINGS, ZINC-PLATED STEEL DIAPHRAGM PLATE, NITRILE RUBBER SEAT DISC, INTERCHANGEABLE ALUMINUM ORIFICE, AND ULTRAVIOLET-STABILIZED MINERAL FILLED NYLON SEAL PLUG. REGULATOR SHALL BE SINGLE PORT SELF-CONTAINED WITH ORIFICE NO LARGER THAN REQUIRED AT MAXIMUM PRESSURE INLET AND NO PRESSURE SENSING PIPING EXTERNAL TO THE REGULATOR. PRESSURE REGULATOR SHALL MAINTAIN DISCHARGE PRESSURE SETTING DOWNSTREAM AND NOT EXCEED 150 PERCENT OF DESIGN DISCHARGE PRESSURE AT SHUTOFF. OVERPRESSURE PROTECTION DEVICE SHALL BE FACTORY MOUNTED ON REGULATOR. WHEN USING VENTLESS REGULATORS, MOUNT REGULATOR IN A HORIZONTAL UPRIGHT POSITION. IF VENTED TYPE REGULATORS ARE USED, INSTALL VENT PIPING (FULL SIZE OPENING) FROM GAS PRESSURE REGULATORS TO OUTDOORS AND TERMINATE IN WEATHERPROOF HOOD.
- PAINT ALL GAS PIPING WITH 2 COATS OF YELLOW ENAMEL PAINT APPLIED WITH A BRUSH (2 MIL THICKNESS MINIMUM). LABEL ALL GAS PIPING ON 5'-0" CENTERS INDICATING THE GAS PRESSURE. 2 PSI GAS PIPING SHALL BE LABELED "2-PSI GAS". LOW PRESSURE GAS PIPING SHALL BE LABELED "GAS".

## PLUMBING DEMOLITION NOTES

- THE PLUMBING CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY EXISTING CONDITIONS AND DETERMINE THE LEVEL OF DEMOLITION REQUIRED AND INCLUDE ALL NECESSARY PRICING IN THEIR BID. ANY DISCREPANCIES NOTED BETWEEN THE DOCUMENTS AND EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING.
- PLUMBING CONTRACTOR SHALL REMOVE EXISTING PLUMBING FIXTURES AND EQUIPMENT AS INDICATED, INCLUDING ASSOCIATED HOT WATER, COLD WATER, WASTE AND VENT PIPING, UNLESS NOTED OTHERWISE. SEE ARCHITECTURAL DEMOLITION PLAN FOR LOCATIONS.
- PLUMBING CONTRACTOR SHALL REMOVE UNUSED HW & CW BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS, TERMINATE WITH SHUT-OFF VALVE AND CAP.
- PLUMBING CONTRACTOR SHALL TERMINATE UNUSED BRANCH WASTE PIPING WITH A CLEAN-OUT AT THE MOST REMOTE END OR ABANDONED AND CAPPED WITHIN 12" OF THE MAIN IT CONNECTS. (NO DEAD- ENDS ALLOWED)
- PLUMBING CONTRACTOR SHALL REMOVE UNUSED VENT BRANCH PIPING BACK TO WITHIN 12" OF THE MAIN IT CONNECTS THEN CAP.
- PLUMBING CONTRACTOR SHALL VERIFY PROPER OPERATION OF ALL EXISTING EQUIPMENT PRIOR TO BEGINNING WORK. ANY PROBLEMS SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ARCHITECT IMMEDIATELY.
- WITH THE REMOVAL OF EXISTING WALLS, SOME EXISTING WASTE, VENT, STORM DRAIN, OR DOMESTIC WATER PIPING MAY BE DISCOVERED. ANY EXISTING PIPING DISCOVERED THAT IS ACTIVE SHALL BE OFFSET BY THE P.C. TO NEW WALLS. ANY EXISTING PIPING DISCOVERED THAT IS ABANDONED SHALL BE REMOVED.

## PLUMBING GENERAL NOTES

- PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2018 NORTH CAROLINA STATE PLUMBING CODE AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
  - SCOPE: PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES.
  - PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC AUTHORITY HAVING JURISDICTION. ACRAGE CHARGES, FACILITIES CHARGES AND BOND PROPERTY ASSESSMENTS ARE NOT TO BE CONSTRUED TO BE A PART OF THIS CONTRACT.
  - WARRANT THE SYSTEM LABOR, MATERIALS AND EQUIPMENT FOR THE TIME PERIOD SPECIFIED IN THE PROJECT MANUAL. IF NO WARRANTY SECTION IS PROVIDED, THEN WARRANTY THE SYSTEM LABOR, MATERIAL AND EQUIPMENT FOR A MINIMUM OF ONE YEAR AFTER COMPLETION AND ACCEPTANCE. PRIOR TO TURNING THE COMPLETED SYSTEM OVER TO THE OWNER, REVIEW THE INSTALLATION WITH THE ARCHITECT / ENGINEER AND REPLACE OR REPAIR ANY DEFECTIVE WORKMANSHIP, EQUIPMENT AND MATERIALS AT NO ADDITIONAL COST TO THE OWNER.
  - COORDINATE ALL PLUMBING PIPING LOCATIONS, ROUGH-IN LOCATIONS AND EQUIPMENT LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. FINAL PIPING AND EQUIPMENT LOCATIONS SHALL BE A CODE COMPLIANT INSTALLATION FOR ALL TRADES.
  - FIELD VERIFY PROPER OPERATION OF EXISTING SYSTEMS BEFORE STARTING CONSTRUCTION. NOTIFY THE ARCHITECT / ENGINEER OF RECORD OF ANY PROBLEMS OR DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND EXISTING CONDITIONS AND/OR ANY POTENTIAL PROBLEMS OBSERVED BEFORE CONTINUING WORK IN THE AFFECTED AREAS.
  - PLUMBING PLANS SHALL NOT BE SCALED. REFERENCE THE ARCHITECTURAL PLANS FOR DIMENSIONS OF ALL LOCATIONS OF PLUMBING FIXTURES, FLOOR DRAINS, COLUMNS, WALLS, DOORS, ETC.
  - WHERE DISCREPANCIES ARE FOUND IN THE DRAWINGS AND SPECIFICATIONS THE MORE STRINGENT SHALL APPLY. CONTACT ENGINEER FOR CLARIFICATION.
  - ALL PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.
  - ALL VALVES, BACKFLOW PREVENTERS, ETC. SERVING THE DOMESTIC WATER SYSTEM SHALL MEET LEAD FREE STANDARDS PER ANSI/NSF 372 AND NSF 61, ANNEX G.
  - PROVIDE COMPLETE PLUMBING FIXTURES AND EQUIPMENT. INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAP, TAIL PICES, ESCUTCHEONS, ETC. AND INSTALL PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - CUT WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF PLUMBING WORK. ALL CUTTING SHALL BE HELD TO A MINIMUM. PATCH AND FINISH SURFACES TO MATCH ADJOINING SURFACES.
  - PIPING AND SPECIALTIES SHALL BE LOCATED CONCEALED IN WALLS, PARTITIONS OR ABOVE CEILINGS UNLESS NOTED OTHERWISE. SHALL BE RUN TIGHT TO UNDERSIDES OF STRUCTURE.
  - PIPE PENETRATIONS THRU WALLS, PARTITIONS AND FLOORS SHALL BE SLEEVED. CORE DRILLING THRU WALLS AND PARTITIONS IS PERMITTED IF PERFORMED IN A NEAT CRAFTSMAN LIKE MANNER. OPENINGS THROUGH WALLS, PARTITIONS, AND FLOORS SHALL BE LARGE ENOUGH FOR PIPE INSULATION TO REMAIN CONTINUOUS. PIPES PENETRATING THRU EXTERIOR WALLS SHALL BE SEALED WATER TIGHT. INSTALL ESCUTCHEONS IN ALL EXPOSED AREAS.
  - PROVIDE ACCESS DOORS FOR ALL SPECIALTIES, VALVES, WATER HAMMER ARRESTORS, TRAP PRIMERS, ETC., CONCEALED BEHIND WALLS OR CEILINGS THAT REQUIRE MAINTENANCE ACCESS.
  - DO NOT INSTALL PIPING IN AREAS SUBJECT TO FREEZING TEMPERATURES. INSTALL PIPING SHOWN IN EXTERIOR WALLS ON THE CONDITIONED SIDE OF THE WALL INSULATION.
  - PIPING, VENTS, ETC. EXTENDING THROUGH EXTERIOR WALLS AND/OR THE ROOF SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER. COORDINATE FLASHING WITH THE GENERAL CONTRACTOR.
  - PROVIDE A CHROME FINISH FOR ALL EXPOSED PIPING IN REST ROOMS AND OTHER FINISHED AREAS.
  - PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.
  - REFER TO THE STRUCTURAL PLANS AND DETAILS FOR ACCEPTABLE LOCATIONS TO ATTACH HANGERS AND SUPPORTS TO THE BUILDING STRUCTURE. HANGERS SHALL NOT ATTACH TO THE ROOF DECK.
  - PROVIDE MANUFACTURERS RECOMMENDED CLEARANCES AROUND ALL EQUIPMENT FOR MAINTENANCE.
  - VALVES AND OTHER PIPING ACCESSORIES REQUIRING ACCESS SHALL BE INSTALLED IN ACCESSIBLE LOCATION NO MORE THAN 18" ABOVE THE CEILING, PROVIDE OFFSETS IN PIPING AS NEEDED.
  - PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO: PLUMBING FIXTURES AND EQUIPMENT, FIRE STOPPING, PIPE IDENTIFICATION, DOMESTIC WATER SYSTEM, SANITARY WASTE AND VENT SYSTEM, NATURAL GAS SYSTEM.
- FIRE STOPPING:**
- FIRE STOP ALL PENETRATIONS, BY PIPING OR CONDUITS, OF FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE A DEVICE(S) OR SYSTEM(S) WHICH HAS BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE A DEVICE(S) OR SYSTEM(S) WITH AN "F" RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED. REFER TO ARCHITECTURAL PLANS FOR WALL AND FLOOR TYPES.
- PIPE IDENTIFICATION:**
- PIPE IDENTIFICATION SHALL MATCH THE FACILITY'S EXISTING STANDARD. IF NO STANDARD EXISTS, THEN THE PIPE IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI A13.1.
  - PROVIDE PIPING LABELS FOR ALL PLUMBING PIPING. PIPING LABELS SHALL BE ACRYLIC FACED, WRAP-AROUND TYPE. EACH LABEL SHALL INDICATE THE PIPING CONTENTS, DIRECTION OF FLOW AND SHALL BEAR THE MANUFACTURER'S STANDARD COLOR FOR THE SERVICE INDICATED.
- SUBMITTALS:**
- PROVIDE SUBMITTALS BEARING THE CONTRACTORS REVIEW STAMP FOR ALL PLUMBING FIXTURES, PIPING, EQUIPMENT AND ACCESSORIES IN ELECTRONIC FORMAT (PDF).
  - NO PRIVATE LABELED MATERIALS WILL BE ACCEPTED AS EQUALS TO PRODUCTS SPECIFIED HEREIN.
  - THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SUBSTITUTIONS TO SPECIFIED PLUMBING FIXTURES AND EQUIPMENT INCLUDING, BUT NOT LIMITED TO, PROVIDING MAINTENANCE ACCESS CLEARANCE, PIPING, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC. AND ANY MODIFICATIONS TO ASSOCIATED MECHANICAL, ELECTRICAL OR PLUMBING SYSTEMS REQUIRED BY THE EQUIPMENTS INSTALLATION INSTRUCTIONS. ALL COSTS ASSOCIATED WITH SUBSTITUTIONS SHALL BE INCLUDED IN THE ORIGINAL BASE BID.

## PLUMBING LEGEND

| SYMBOL | ABBREVIATION      | DESCRIPTION                                  |
|--------|-------------------|--|
| ----   | CW                | COLD WATER PIPING                            |
| ----   | HW                | HOT WATER PIPING                             |
| ----   | HWR               | HOT WATER RETURN PIPING                      |
| ----   | W                 | SANITARY WASTE PIPING                        |
| ----   | V                 | SANITARY VENT PIPING                         |
| ---    | G                 | NATURAL GAS PIPING                           |
| -○-    | PIPING ELBOW DOWN |  |
| -○-    | PIPING ELBOW UP   |  |
| -○-    | PIPING CONTINUOUS |  |
| -○-    | SHUT-OFF VALVE    |  |
| -○-    | CHECK VALVE       |  |
| -○-    | BALANCING VALVE   |  |
| -○-    | RPZ               | REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY |
| -○-    |                   | IN-LINE PUMP                                 |
| -○-    |                   | PIPING REDUCER                               |
| -○-    | YCO               | YARD CLEANOUT                                |
| -○-    | WCO               | WALL CLEANOUT                                |
| -○-    | FD                | FLOOR DRAIN                                  |
| -○-    | HB                | HOSE BIBB / WALL HYDRANT                     |
| -○-    | SA-#              | SHOCK ARRESTOR - SUFFIX INDICATES PDI SIZE   |

## ADDITIONAL ABBREVIATIONS

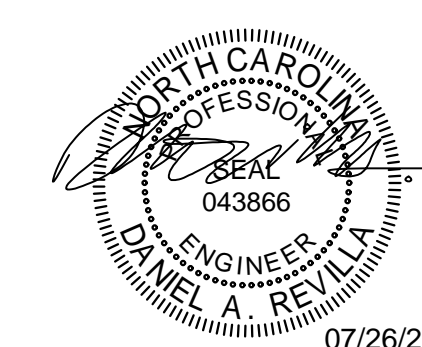
|      |                                   |     |                          |
|------|-----------------------------------|-----|--------------------------|
| AFF  | ABOVE FINISHED FLOOR              | MFG | MANUFACTURER             |
| AFG  | ABOVE FINISHED GRADE              | PSI | POUNDS PER SQUARE INCH   |
| BFF  | BELOW FINISHED FLOOR              | T&P | TEMPERATURE AND PRESSURE |
| CFH  | CUBIC FEET PER HOUR               | TW  | TEMPERED WATER           |
| CLG  | CEILING                           | TYP | TYPICAL                  |
| CONT | CONTINUATION                      | UG  | UNDERGROUND              |
| DN   | DOWN                              | VTR | VENT THRU ROOF           |
| GF   | GALLONS PER FLUSH                 | WC  | WATER COLUMN             |
| GPM  | GALLONS PER MINUTE                | EC  | ELECTRICAL CONTRACTOR    |
| HP   | HORSE POWER                       | GC  | GENERAL CONTRACTOR       |
| INV  | INVERT ELEVATION                  | MC  | MECHANICAL CONTRACTOR    |
| KW   | KILOWATT                          | PC  | PLUMBING CONTRACTOR      |
| MBH  | 1,000 BRITISH THERMAL UNIT / HOUR |     |                          |

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CONSTRUCTION DOCUMENTS

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PLUMBING LEGEND, INDEX, AND NOTES

**P-001**

| PLUMBING SPECIALTIES SCHEDULE |  |                 |    |      |    |   |  |
|-------------------------------|--|-----------------|----|------|----|---|--|
| SYMBOL                        | DESCRIPTION  | CONNECTION SIZE |    |      |    | SPECIFICATION   | REMARKS  |
|                               |  | W               | V  | CW   | HW |   |  |
| CS-x                          | BALANCING VALVE, THERMOSTATIC, AUTOMATIC, SUFFIX INDICATES PIPE SIZE, SEE FLOOR PLANS                  | -               | -  | -    | ** | EQUIPMENT: CIRCUIT SOLVER CS SERIES, SIZES 1/2" THRU 2", NSF 61 CERTIFIED.                  | PROVIDE 115°F MODEL                                      |
| SA-x                          | SHOCK ARRESTOR, SUFFIX INDICATES PDI SIZE  | -               | -  | x    | -  | EQUIPMENT: SIOUX CHIEF 650 SERIES, SIZES 1/2" THRU 2", NSF 61 CERTIFIED.                    | SEE SHOCK ARRESTOR TABLE THIS SHEET                      |
| HB1                           | HOSE BIBB, INTERIOR, EXPOSED, STAINLESS STEEL FACE PLATE, ANTI-SIPHON                                  | -               | -  | 3/4" | -  | EQUIPMENT: ZURN Z1333-C-34EL, PROVIDE VACUUM BREAKER AND METAL LOOSE KEY FOR EACH HOSE BIBB | MOUNT 18" AFF  |
| HB2                           | HOSE BIBB, EXTERIOR, EXPOSED, STAINLESS STEEL FACE PLATE, FREEZELESS, ANTI-SIPHON                      | -               | -  | 3/4" | -  | EQUIPMENT: ZURN Z1310-34EL, PROVIDE VACUUM BREAKER AND METAL LOOSE KEY FOR EACH HOSE BIBB   | MOUNT 18" AFF  |
| HB3                           | HOSE BIBB, INTERIOR, EXPOSED, EXTERNAL VACUUM BREAKER, ANTI-SIPHON                                     | -               | -  | 3/4" | -  | EQUIPMENT: ZURN Z1341, PROVIDE METAL LOOSE KEY FOR EACH HOSE BIBB                           | MOUNT 18" AFF  |
| WCO                           | WALL CLEANOUT, CAST IRON BODY, STAINLESS STEEL WALL PLATE  | **              | -  | -    | -  | CLEANOUT: ZURN Z-1446-BP, BRONZE PLUG, CLEANOUT SIZE SHALL MATCH PIPE SIZE                  | GAS / WATER TIGHT  |
| YCO                           | YARD CLEANOUT, CAST IRON BODY, NICKEL BRONZE TOP, ADJUSTABLE, INSTALLED IN 18" X 18" X 6" CONCRETE PAD | **              | -  | -    | -  | CLEANOUT: ZURN ZN-1400-BP, BRONZE PLUG, INSTALL IN 18" X 18" X 6" DEEP CONCRETE PAD         | GAS / WATER TIGHT, INSTALL TOP FLUSH WITH FINISHED GRADE |
| FD1                           | FLOOR DRAIN, CAST IRON BODY, ROUND NICKEL BRONZE GRATE, ADJUSTABLE                                     | 3"              | 2" | -    | -  | DRAIN: ZURN ZN-415-B, 6" DIAMETER GRATE P-TRAP: 3" DEEP SEAL                                | INSTALL TOP FLUSH WITH FINISHED FLOOR. SEE NOTE 1 BELOW. |

NOTES:  
 1. PROVIDE WATERLESS INLINE TRAP GUARD FOR EACH FLOOR DRAIN CONFORMING TO ASSE 1072 AND EQUAL TO RECOTORSEAL "SURE-SEAL" MODEL S53009V. INSTALL TRAP GUARDS IN THE OUTLET OF THE FLOOR DRAIN BODY (NOT IN THE STRAINER).  
 \*\* MATCH PIPE SIZE SHOWN ON PLANS, SEE PLANS.

| APPROVED EQUALS:  | PRODUCT TYPE:  | ACCEPTED MANUFACTURERS:  |
|---|--|--|
| THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED. | SHOCK ARRESTOR<br>HOSE BIBBS<br>DRAINS<br>BACKFLOW PREVENTER | SIOUX CHIEF, PPP INC., ZURN, WATTS<br>ZURN, WOODFORD, ZURN, J.R. SMITH<br>ZURN, J.R. SMITH, WADE<br>WILKINS, WATTS, APOLLO |

| SHOCK ARRESTOR TABLE |               |                          |               |  |
|----------------------|---------------|--------------------------|---------------|--|
| DRAWING SYMBOL       | FIXTURE UNITS | P.D.I. WH201 DESIGNATION | ARRESTOR SIZE | REMARKS  |
| SA-A                 | 1 - 11        | A                        | 1/2"          | INSTALL SHOCK ARRESTORS PER THE PLUMBING DRAINAGE INSTITUTE (P.D.I.) GUIDELINES. |
| SA-B                 | 12 - 32       | B                        | 3/4"          |  |
| SA-C                 | 33 - 60       | C                        | 1"            |  |
| SA-D                 | 61 - 113      | D                        | 1-1/4"        | ACCEPTED MANUFACTURERS:<br>SIOUX CHIEF, WATTS, PPP INC., ZURN                    |
| SA-E                 | 114 - 154     | E                        | 1-1/2"        |  |

PROVIDE SECONDARY ARRESTOR CENTERED ON BRANCH LINE IF BRANCH SUPPLY EXCEEDS 20'-0" IN OVERALL LENGTH.

| PLUMBING EQUIPMENT SCHEDULE |   |            |      |  |                                 |
|-----------------------------|---|------------|------|--|---------------------------------|
| SYM.                        | DESCRIPTION                                     | CONN. SIZE |      | SPECIFICATION  | REMARKS                         |
|                             |   | INLET      | OUT  |  |                                 |
| WH1                         | WATER HEATER, COMMERCIAL STORAGE TANK, ELECTRIC | 3/4"       | 3/4" | EQUIPMENT: AO SMITH DEL-20 ELEC. 277V, 4.5 KW RECOVERY: 23 GAL. AT 80° RISE. | SET OUTLET TEMPERATURE TO 120°F |
| ET1                         | THERMAL EXPANSION TANK 5.1 GALLON CAPACITY      | 3/4"       | -    | EQUIPMENT: AMTROL ST-12-C  | -                               |
| RCP1                        | CIRCULATION PUMP ALL BRONZE CONSTRUCTION        | 3/4"       | 3/4" | PUMP: B&G NBF-22, 1/12 HP, 120V RATED FOR 2 GPM AT 2.5' HEAD                 | SEE NOTE 1                      |

NOTES:  
 1. INTERLOCK WITH FULLY ADJUSTABLE AQUASTAT AND 7-DAY, 24 HOUR TIMER.  
 \*\* MATCH PIPE SIZE SHOWN ON PLANS, SEE PLANS.

| APPROVED EQUALS:  | PRODUCT TYPE:                             | ACCEPTED MANUFACTURERS:  |
|---|---|--|
| THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED. | WATER HEATERS<br>EXPANSION TANKS<br>PUMPS | STATE, LOCHINVAR, BRADFORD WHITE, A.O. SMITH<br>AMTROL, A.O. SMITH, WATTS, WESSLES<br>B&G, TACO, ARMSTRONG |

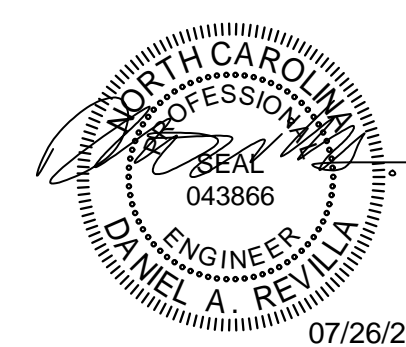
| PLUMBING FIXTURE SCHEDULE |  |                 |        |        |      |   |   |
|---------------------------|--|-----------------|--------|--------|------|---|---|
| SYMBOL                    | DESCRIPTION  | CONNECTION SIZE |        |        |      | SPECIFICATION   | REMARKS                                     |
|                           |  | W               | V      | CW     | HW   |   |   |
| P1                        | TOILET ELONGATED, WHITE VITREOUS CHINA, WALL HUNG (1.28 GPP) BATTERY POWERED, SENSOR OPERATED FLUSH VALVE  | 4"              | 2"     | 1-1/4" | -    | FIXTURE: ZURN Z5616<br>FLUSH VALVE: ZURN ZER6000AV-HYD HYDRO POWERED SENSOR, TRUE MECHANICAL OVERRIDE, AND CHEMICAL RESISTANT DIAPHRAGM.<br>SEAT: CHURCH 295SSCT ANTI-MICROBIAL (WHITE) | 15" RIM HEIGHT. SEE NOTE 6 BELOW            |
| PIA                       | TOILET, A.D.A. COMPLIANT ELONGATED, WHITE VITREOUS CHINA, WALL HUNG (1.28 GPP) BATTERY POWERED, SENSOR OPERATED FLUSH VALVE  | 4"              | 2"     | 1-1/4" | -    | FIXTURE: ZURN Z5616<br>FLUSH VALVE: ZURN ZER6000AV-HYD HYDRO POWERED SENSOR, TRUE MECHANICAL OVERRIDE, AND CHEMICAL RESISTANT DIAPHRAGM.<br>SEAT: CHURCH 295SSCT ANTI-MICROBIAL (WHITE) | 16.5" RIM HEIGHT. SEE NOTES 5 & 6 BELOW     |
| P2                        | URINAL WHITE VITREOUS CHINA, CARRIER MOUNTED, (0.5 GPP) BATTERY POWERED, SENSOR OPERATED FLUSH VALVE   | 2"              | 2"     | 3/4"   | -    | FIXTURE: ZURN Z5755<br>FLUSH VALVE: ZURN ZER6003AV-HYD HYDRO POWERED SENSOR, TRUE MECHANICAL OVERRIDE, AND CHEMICAL RESISTANT DIAPHRAGM.  | SEE NOTE 1 BELOW                            |
| P2A                       | URINAL, A.D.A. COMPLIANT WHITE VITREOUS CHINA, CARRIER MOUNTED, (0.5 GPP) BATTERY POWERED, SENSOR OPERATED FLUSH VALVE   | 2"              | 2"     | 3/4"   | -    | FIXTURE: ZURN Z5755<br>FLUSH VALVE: ZURN ZER6003AV-HYD HYDRO POWERED SENSOR, TRUE MECHANICAL OVERRIDE, AND CHEMICAL RESISTANT DIAPHRAGM.  | SEE NOTE 1 BELOW                            |
| P3A                       | LAVATORY, A.D.A. COMPLIANT, 20"X18" RECTANGULAR BOWL, WHITE ENAMELED CAST IRON, CARRIER MOUNTED, 4" CENTER SET FAUCET HOLES, SENSOR OPERATED FAUCET (0.5 GPM) VANDAL RESISTANT AERATOR | 2"              | 1-1/2" | 1/2"   | 1/2" | FIXTURE: ZURN Z5844<br>FAUCET: ZURN ZG6955<br>GRID DRAIN: ZURN 8743; P-TRAP: ZURN Z-8701 (1-1/4"x1-1/2", 17 GA.)<br>SUPPLIES/STOPS: ZURN 8806-XL-LR-LK                                  | SEE NOTES 2 & 4 BELOW                       |
| P4                        | WATER COOLER, A.D.A. COMPLIANT, STAINLESS STEEL FINISH, SINGLE BOWL, VANDAL RESISTANT, CARRIER MOUNTED, INTEGRAL WATER FILTER  | 2"              | 1-1/2" | 1/2"   | -    | FIXTURE: ELKAY LVRCGRNB<br>ELEC: 260 WATT, 120 VOLT, SINGLE PHASE<br>P-TRAP: ZURN Z-870 (1-1/4"x1-1/2", 17 GA.) SUPPLY/STOP: ZURN 8806-XL-LR-LK   | SEE NOTE 3 BELOW                            |
| P4A                       | WATER COOLER & BOTTLE FILLER, A.D.A. COMPLIANT, STAINLESS STEEL FINISH, VANDAL RESISTANT, CARRIER MOUNTED, INTEGRAL WATER FILTER, SENSOR OPERATED BOTTLE FILLER WITH AUTO SHUT-OFF.    | 2"              | 1-1/2" | 1/2"   | -    | FIXTURE: ELKAY LVRCGRNBWSK<br>ELEC: 260 WATT, 120 VOLT, SINGLE PHASE<br>P-TRAP: ZURN Z-870 (1-1/4"x1-1/2", 17 GA.)<br>SUPPLY/STOP: ZURN 8806-XL-LR-LK                                   | SEE NOTE 3 BELOW                            |
| P6                        | MOP SINK, 28" X 28" X 12" TERRAZZO BASIN, 6" DROP FRONT WITH STAINLESS STEEL THRESHOLD CAP, 36" HIGH STAINLESS STEEL WALL GUARDS, SERVICE FAUCET, HOSE, MOP HANGER BRACKET.            | 3"              | 2"     | 1/2"   | 1/2" | FIXTURE: FIAT TSCR100, R30AA, R32AA, (2) MSG2R28<br>FAUCET: ZURN Z842M4 WITH INTEGRAL VACUUM BREAKER,<br>DRAIN: 3" STAINLESS STEEL SLOTTED P-TRAP: 3" DEEP SEAL, CAST IRON              | PROVIDE CHECK VALVES ON HW AND CW SUPPLIES. |

NOTES:  
 1. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT. PROVIDE A FLOOR MOUNTED PLATE STYLE CARRIER EQUAL TO ZURN Z1222-EZ (-S) SERIES. WHEN CARRIER IS LOCATED BEHIND A BLOCK WALL, PROVIDE EXTENDED STUD LENGTHS TO COMPENSATE FOR THE BLOCK WALL THICKNESS.  
 2. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT. PROVIDE A FLOOR MOUNTED, ADJUSTABLE CONCEALED ARM CARRIER EQUAL TO ZURN Z1231-EZ (-S) SERIES. WHEN CARRIER IS LOCATED BEHIND BLOCK WALL, PROVIDE EXTENDED CONCEALED ARM SLEEVES TO COMPENSATE FOR THE BLOCK WALL THICKNESS.  
 3. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT. PROVIDE A FLOOR MOUNTED PLATE STYLE CARRIER EQUAL TO ZURN Z1225-EZ (-S) SERIES. WHEN CARRIER IS LOCATED BEHIND A BLOCK WALL, PROVIDE EXTENDED STUD LENGTHS TO COMPENSATE FOR THE BLOCK WALL THICKNESS.  
 4. PROVIDE PRE-MANUFACTURED A.D.A. COMPLIANT INSULATION KIT FOR EXPOSED P-TRAP AND SUPPLY TRIM UNDER SINK.  
 5. PROVIDE LEVER ON WIDE SIDE OF STALL.  
 6. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHT. PROVIDE A FLOOR MOUNTED CARRIER EQUAL TO ZURN Z1203 (-S) SERIES. WHEN CARRIER IS LOCATED BEHIND A BLOCK WALL, PROVIDE EXTENDED STUD LENGTHS TO COMPENSATE FOR THE BLOCK WALL THICKNESS.  
 \*\* MATCH PIPE SIZE SHOWN ON PLANS, SEE PLANS.

| APPROVED EQUALS:  | PRODUCT TYPE:  | ACCEPTED MANUFACTURERS:  |
|---|--|--|
| THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT. PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED. | VITREOUS CHINA<br>FLUSH VALVES<br>ENAMELED CAST IRON<br>CARRIERS<br>FAUCETS<br>WATER COOLERS<br>SUPPLIES, STOPS<br>HOSE BIBBS<br>UTILITY SINKS | KOHLER, AMERICAN STANDARD, SLOAN<br>SLOAN, ZURN, DELANEY<br>KOHLER, AMERICAN STANDARD, ZURN<br>ZURN, J.R. SMITH, WADE<br>AMERICAN STANDARD, ZURN, CHICAGO<br>ELKAY, HALSEY TAYLOR, HAWS<br>ZURN, MCGUIRE, BRASSCRAFT<br>ZURN, J.R. SMITH, WOODFORD<br>FIAT, FLORESTONE, STERN WILLIAMS |



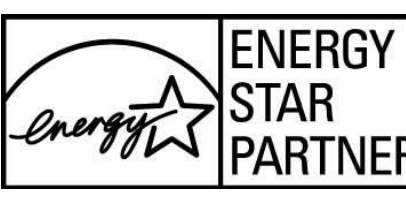
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PLUMBING SCHEDULES

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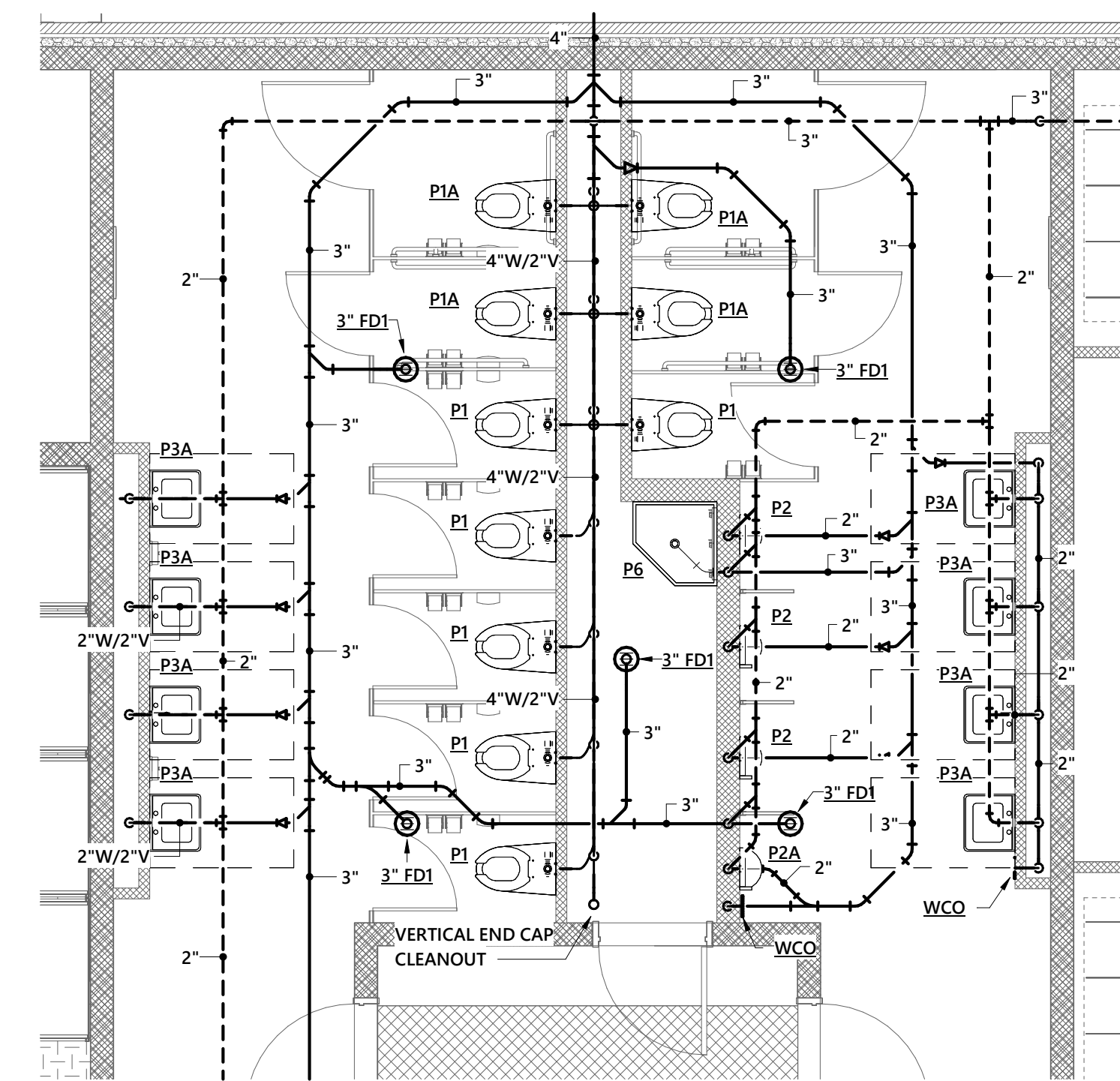
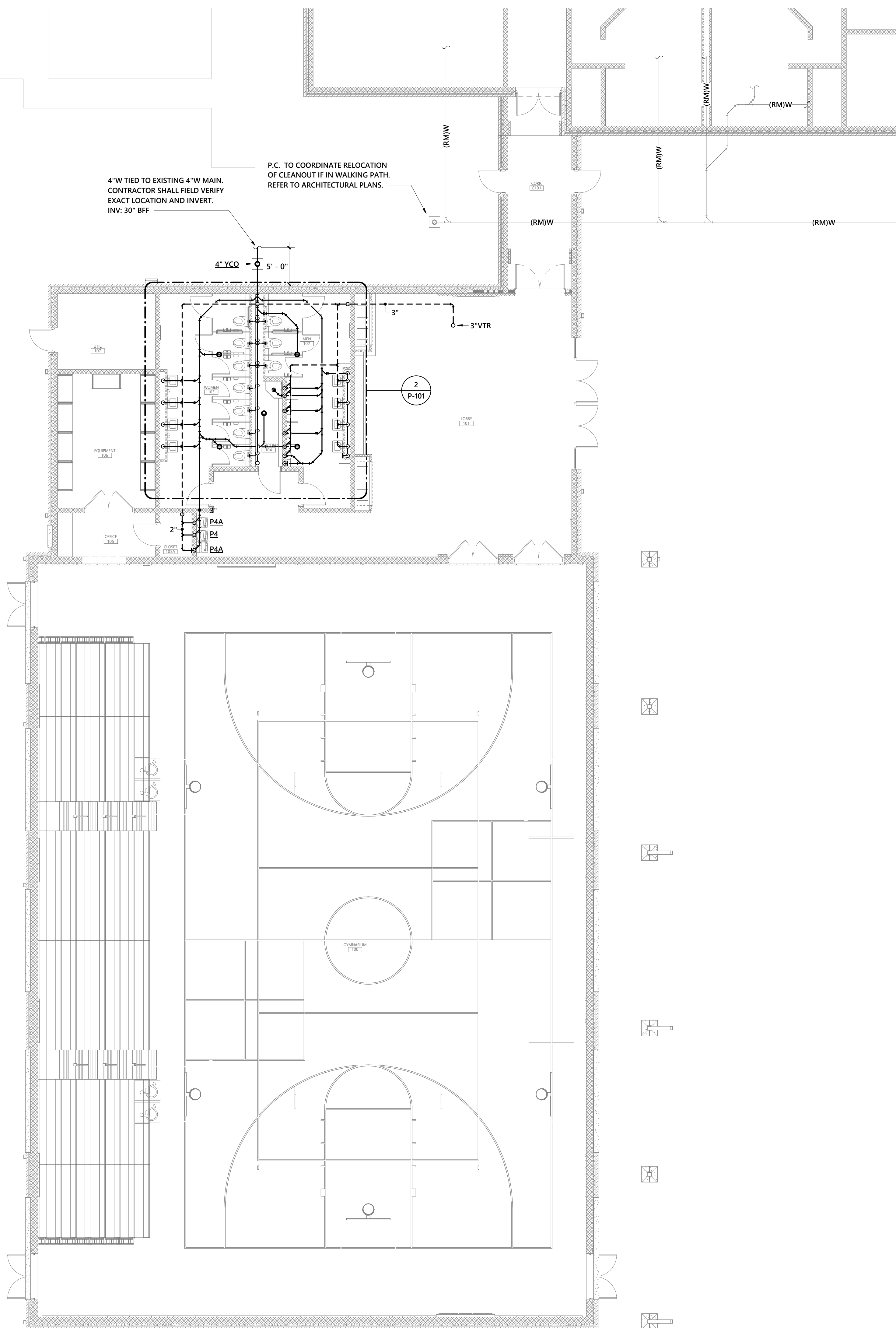
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| WALL LEGEND |                 |
|-------------|-----------------|
| SYMBOL      | DESCRIPTION     |
|             | 1 HR FIRE RATED |
|             | 2 HR FIRE RATED |

| RENOVATION LEGEND ABBREVIATIONS |   |
|---------------------------------|---|
| ER                              | EXISTING ITEM RELOCATED TO THIS LOCATION. |
| RL                              | EXISTING ITEM TO BE RELOCATED.            |
| EX                              | EXISTING ITEM TO REMAIN.                  |
| RP                              | EXISTING ITEM TO BE REPLACED.             |
| RV                              | EXISTING ITEM TO BE REMOVED.              |
| RC                              | RE-CONNECT                                |

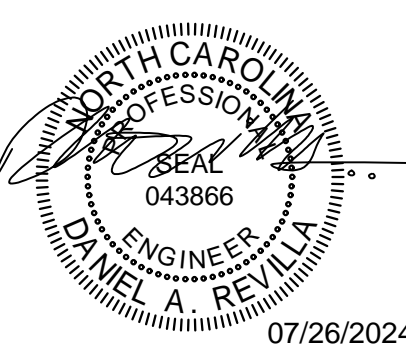


**1 ADDITION PLUMBING DRAINAGE PLAN**  
1/8" = 1'-0"

**2 ADDITION PLUMBING DRAINAGE PLAN - RESTROOM ENLARGED**  
1/4" = 1'-0"

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ADDITION PLUMBING  
DRAINAGE PLAN

**P-101**

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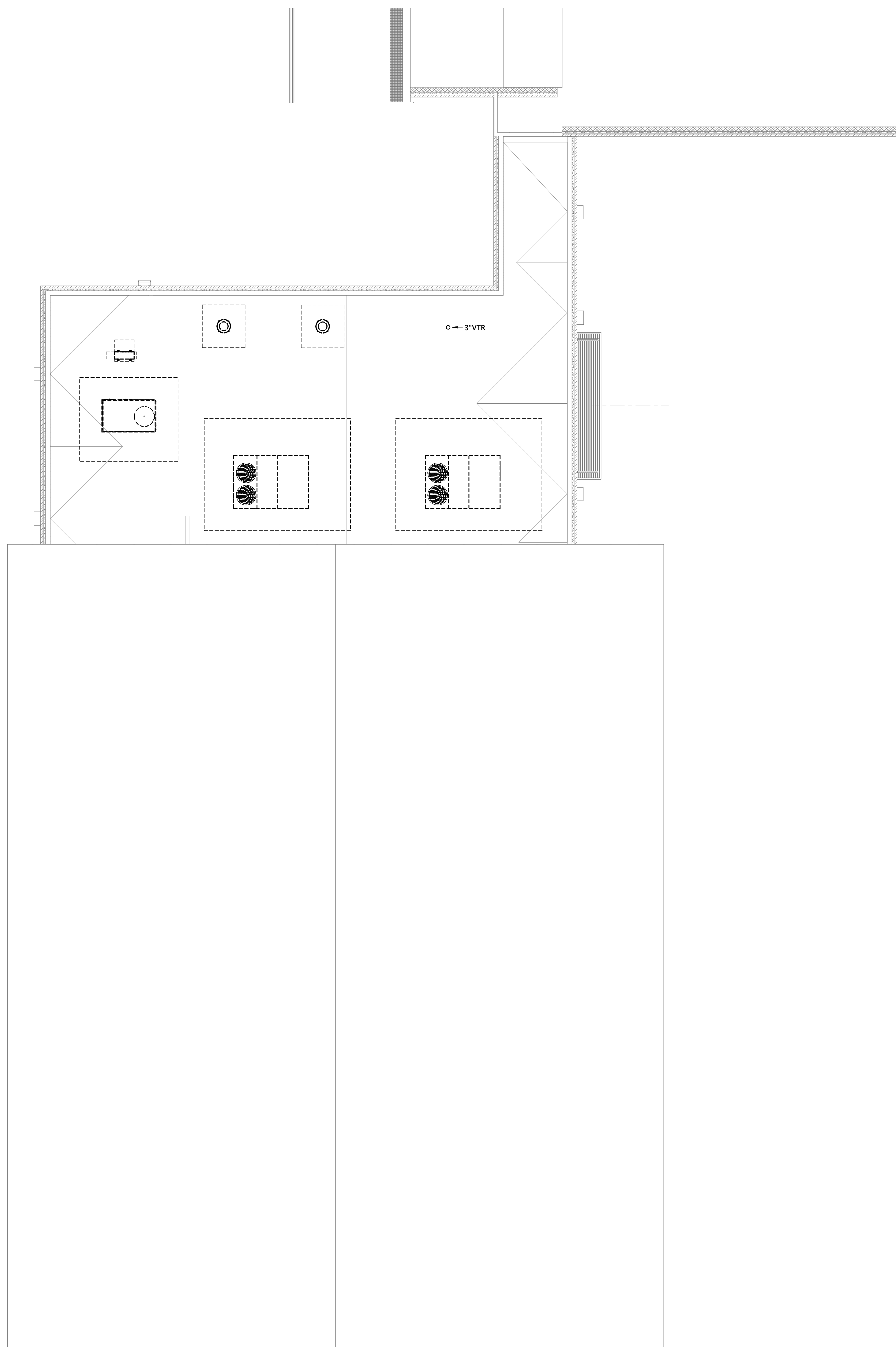
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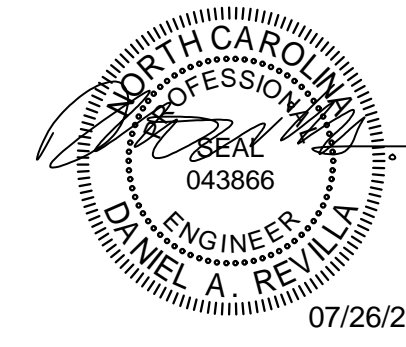
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| WALL LEGEND |                 |
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| SYMBOL      | DESCRIPTION     |
|             | 1 HR FIRE RATED |
|             | 2 HR FIRE RATED |



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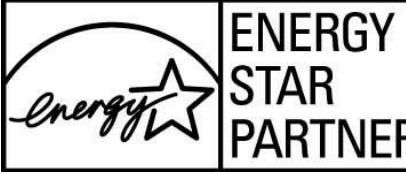
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ADDITION ROOF  
PLUMBING  
DRAINAGE PLAN

**P-102**

**1** ADDITION PLUMBING DRAINAGE ROOF PLAN  
1/8" = 1'-0"

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| WALL LEGEND |                 |
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| SYMBOL      | DESCRIPTION     |
|             | 1 HR FIRE RATED |
|             | 2 HR FIRE RATED |

| RENOVATION LEGEND ABBREVIATIONS |   |
|---------------------------------|---|
| ER                              | EXISTING ITEM RELOCATED TO THIS LOCATION. |
| RL                              | EXISTING ITEM TO BE RELOCATED.            |
| EX                              | EXISTING ITEM TO REMAIN.                  |
| RP                              | EXISTING ITEM TO BE REPLACED.             |
| RV                              | EXISTING ITEM TO BE REMOVED.              |
| RC                              | RE-CONNECT                                |

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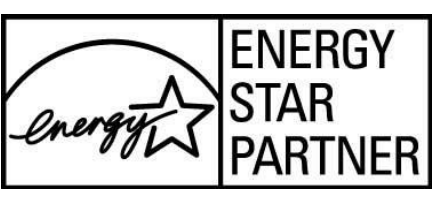
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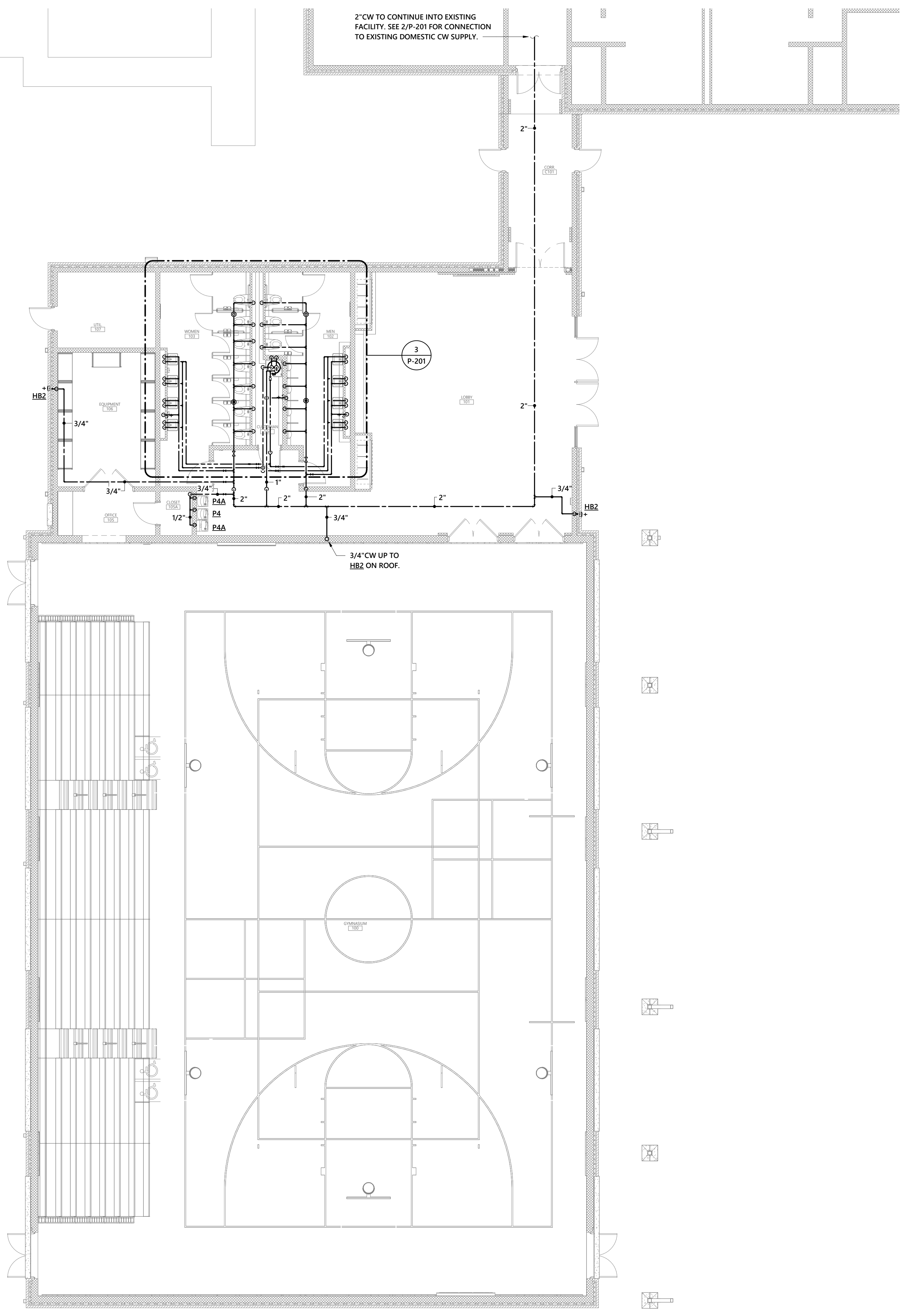


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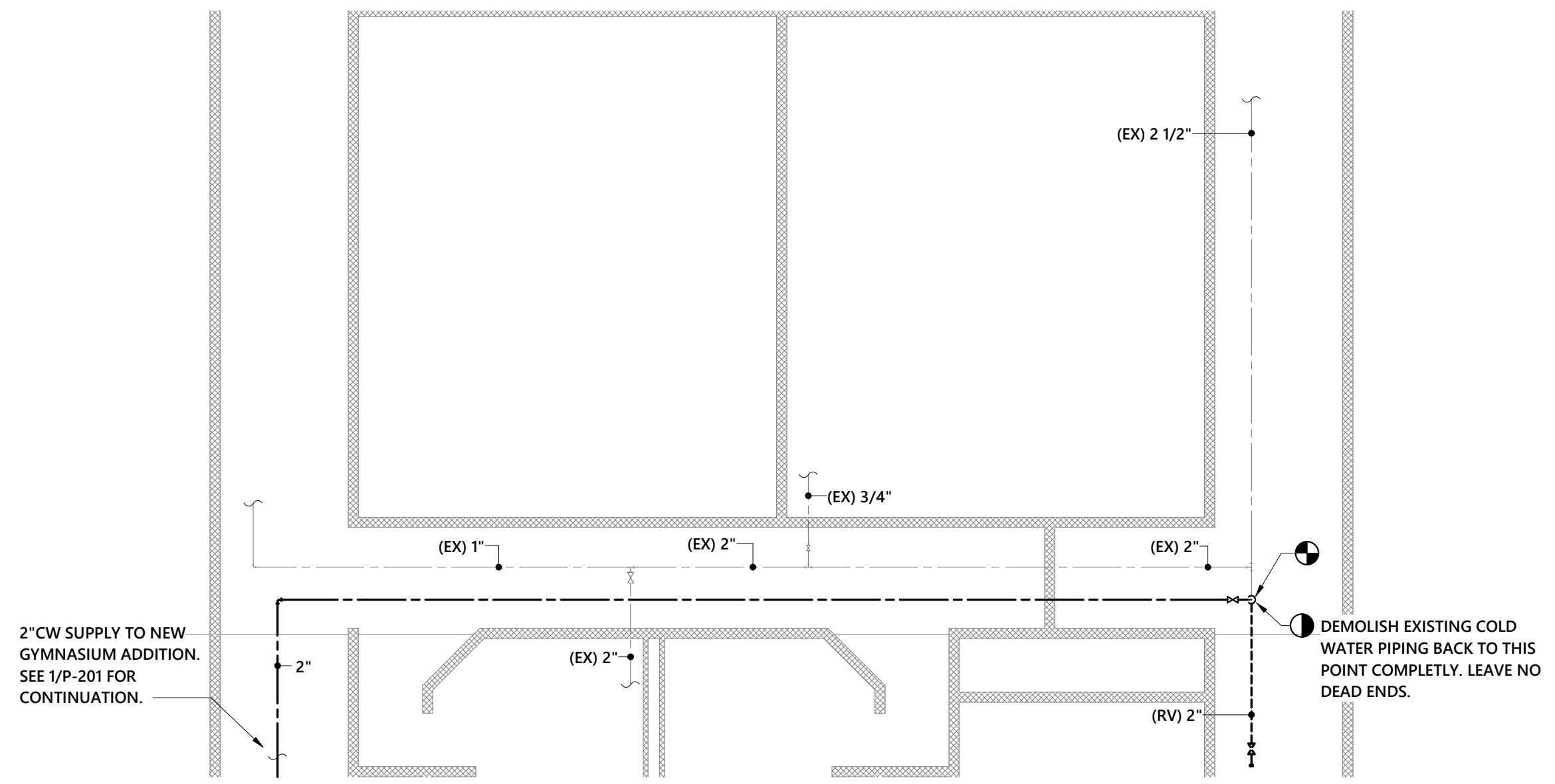
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ADDITION PLUMBING SUPPLY PLAN

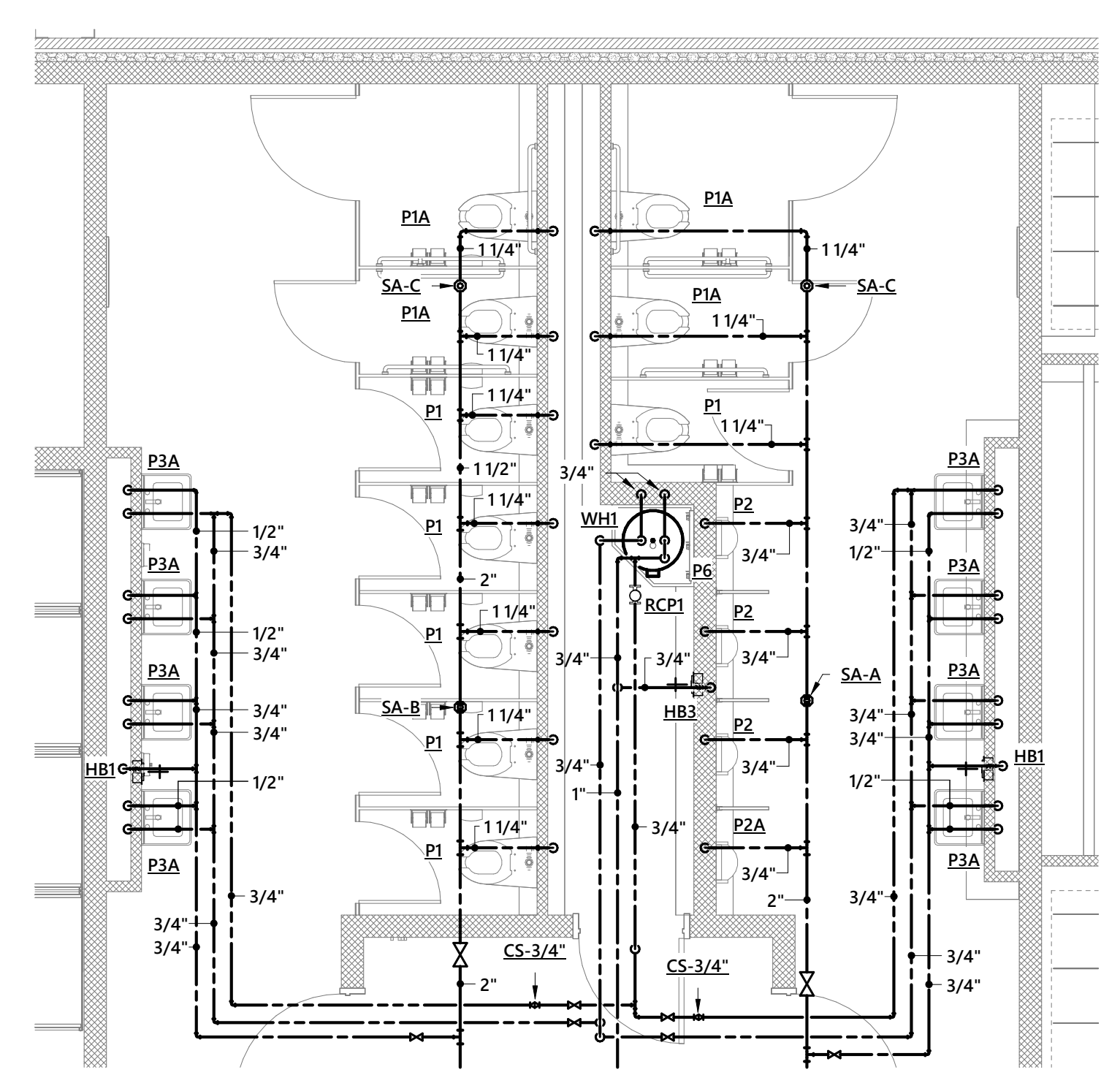
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**1** ADDITION PLUMBING SUPPLY PLAN  
1/8" = 1'-0"



**2** ADDITION PLUMBING SUPPLY PLAN - CONNECTION TO EXISTING DOMESTIC CW SUPPLY  
1/8" = 1'-0"



**3** ADDITION PLUMBING SUPPLY PLAN - RESTROOM ENLARGED  
1/4" = 1'-0"

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| WALL LEGEND |                 |
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| SYMBOL      | DESCRIPTION     |
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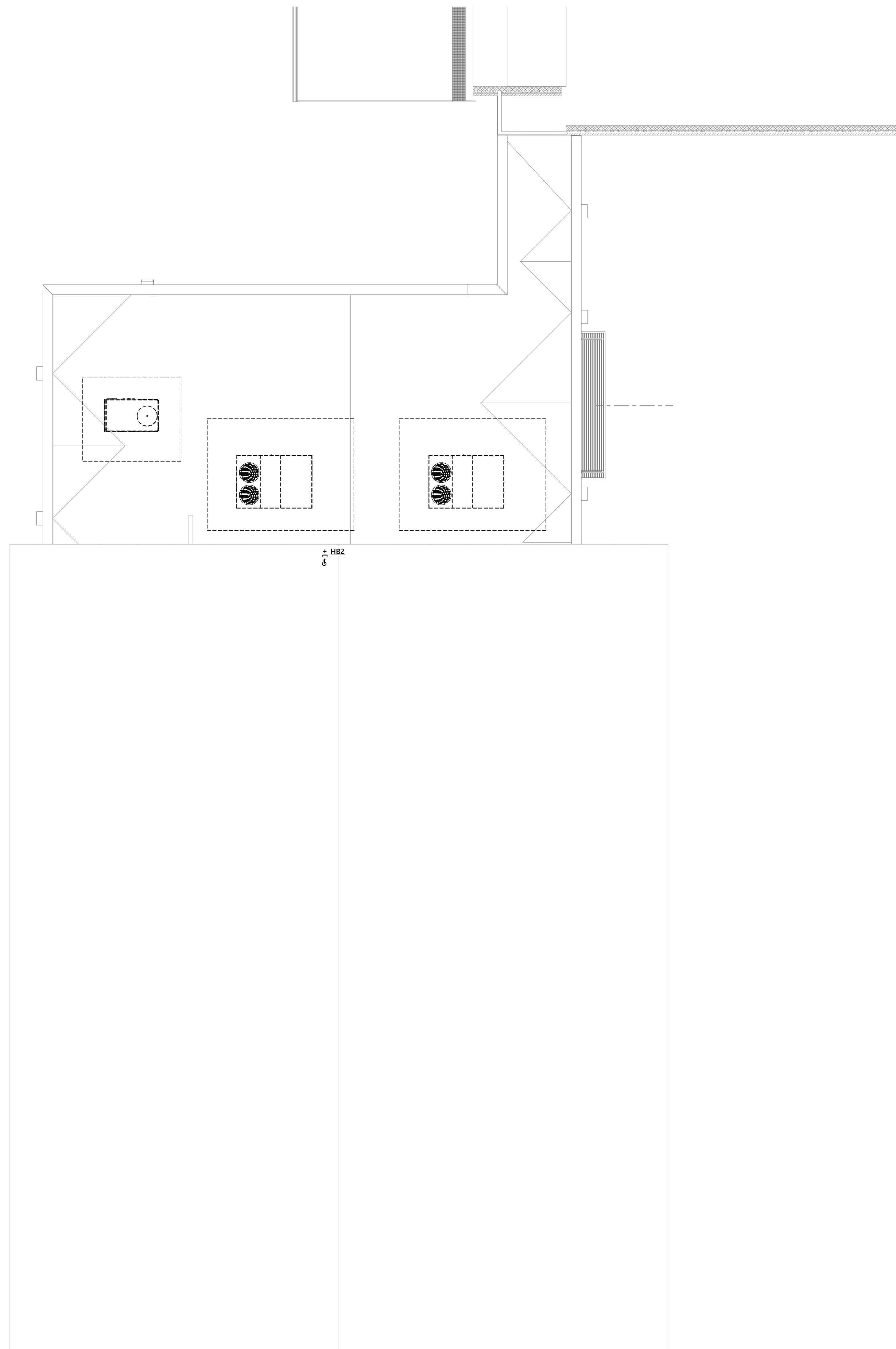
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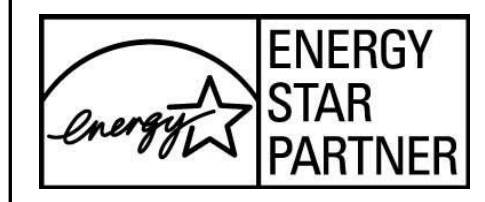
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ADDITION ROOF PLUMBING SUPPLY PLAN

P-202

**1** ADDITION PLUMBING SUPPLY ROOF PLAN  
1/8" = 1'-0"

7/24/2024 2:02:43 PM Autodesk Docs://02110.300 Lillington-Shawtown ES24-0045R\_Lillington-Shawtown ES Addition\_MEFPF\_R23.rvt

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| WALL LEGEND |                 |
|-------------|-----------------|
| SYMBOL      | DESCRIPTION     |
|             | 1 HR FIRE RATED |
|             | 2 HR FIRE RATED |

**GAS LOAD SUMMARY:**

- HVAC ROOF TOP UNITS 790 CFH
- TOTAL CONNECTED LOAD 790 CFH

GAS PRESSURE PROVIDED AT METER - 2 PSI

GAS PIPING SIZED PER NCGC TABLE 402.4(5) WITH AN INLET PRESSURE OF 2 PSI WITH PRESSURE DROP OF 1.0 PSI AT 0.60 SPECIFIC GRAVITY, (100 FT. PIPE LENGTH EQUIVALENT)

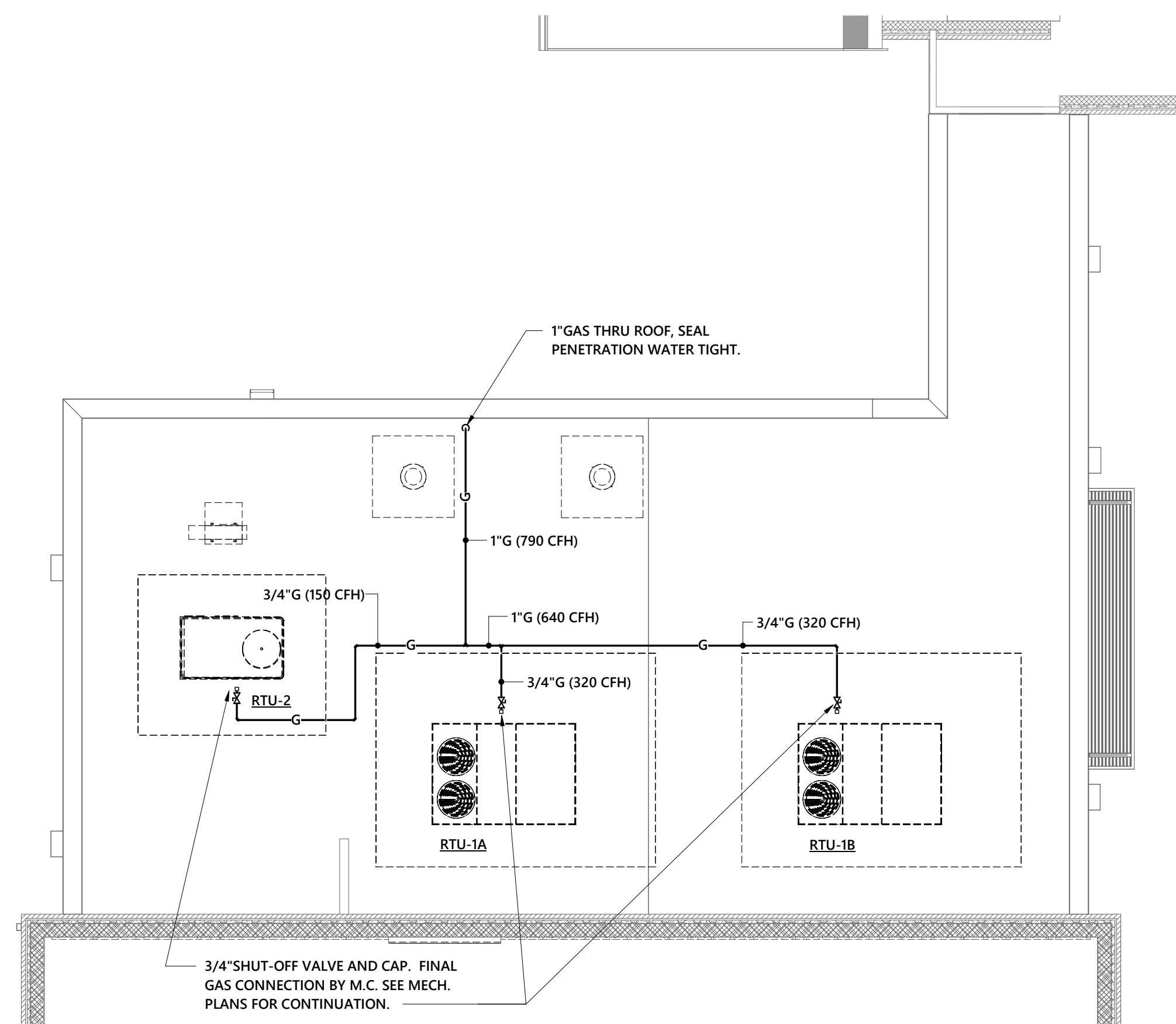
UNDERGROUND GAS SERVICE AND GAS METER ASSEMBLY BY LOCAL NATURAL GAS UTILITY COMPANY.

CONTRACTORS WORK BEGINS DOWNSTREAM OF THE GAS METER ASSEMBLY.

1" G (790 CFH)

1" GAS ENTERING BLDG. ABOVE GRADE THEN UP THRU ROOF.

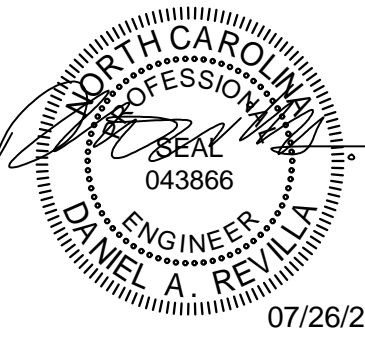
**1 ADDITION PLUMBING GAS PLAN**  
1/8" = 1'-0"



**2 ADDITION PLUMBING GAS ROOF PLAN**  
1/8" = 1'-0"

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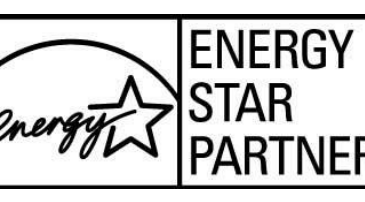
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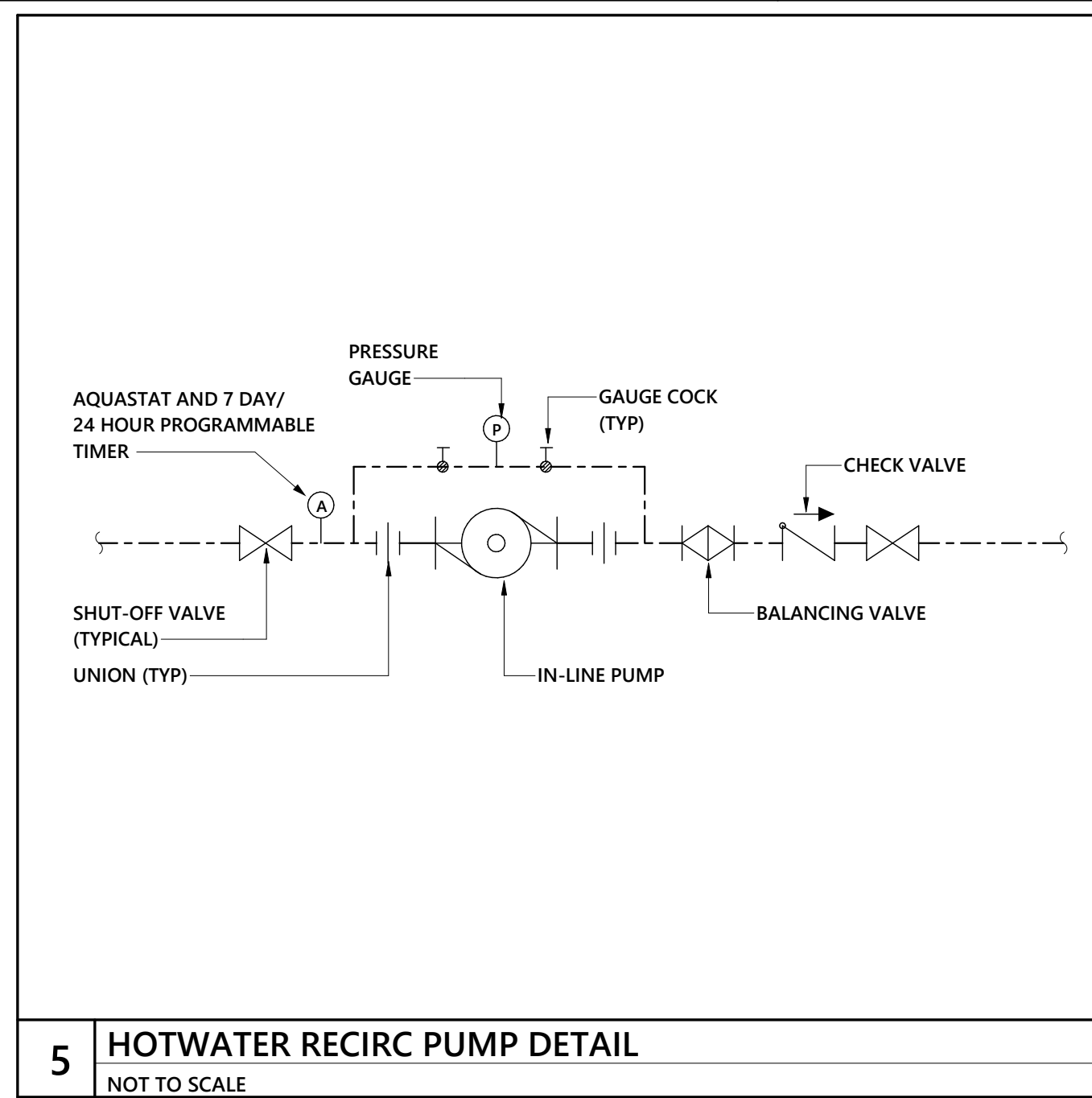


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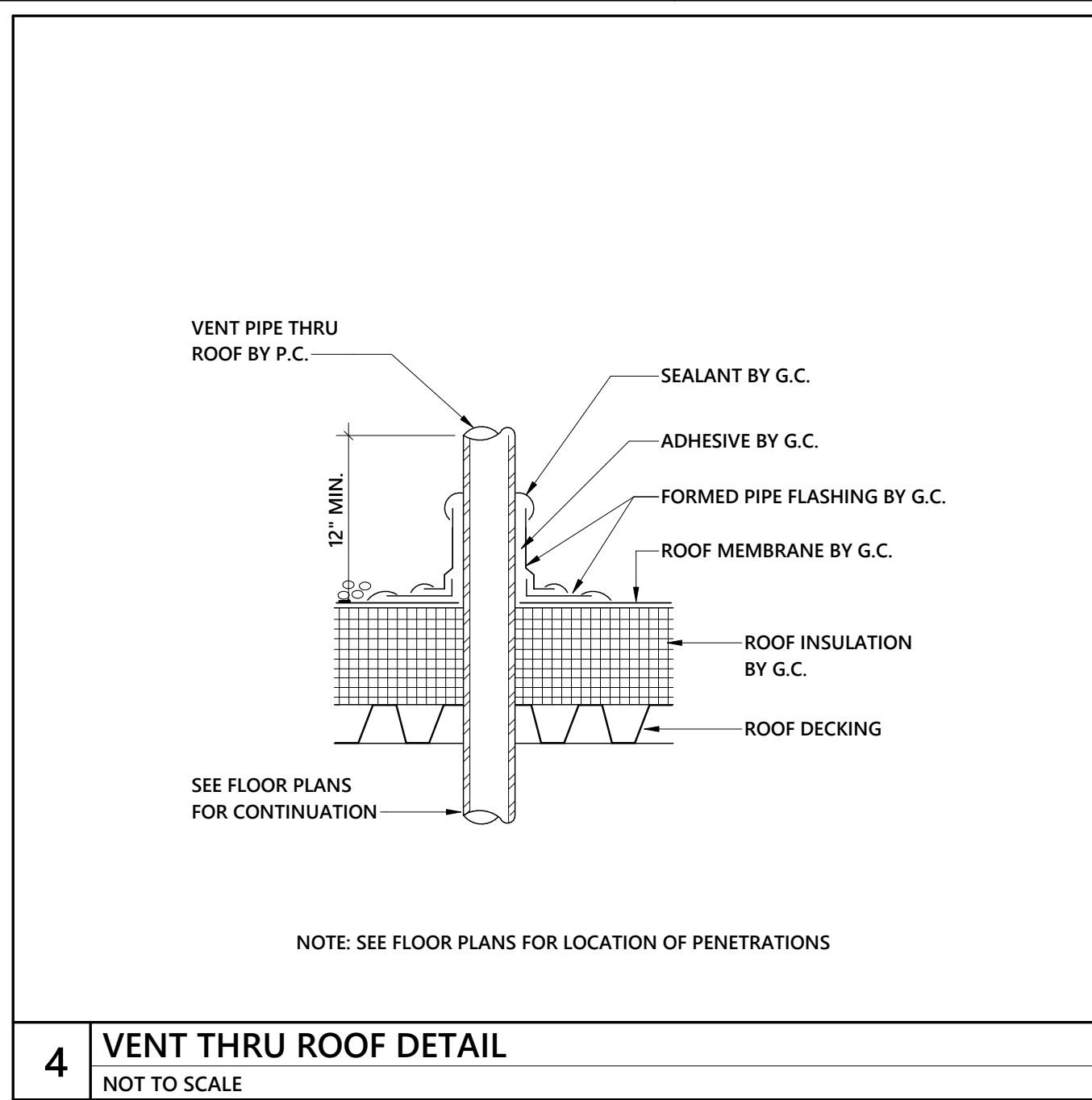
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ADDITION PLUMBING GAS PIPING PLANS

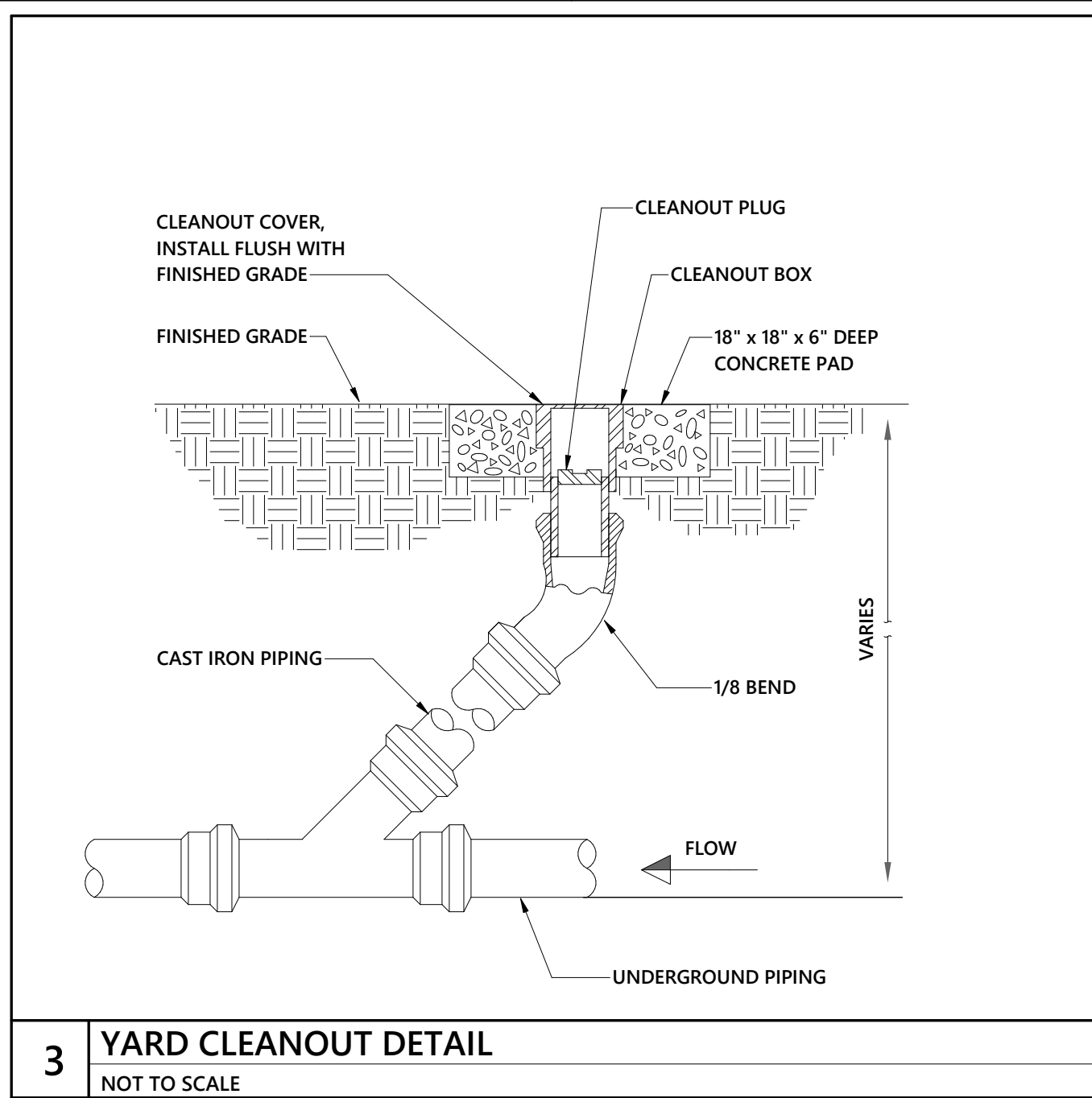
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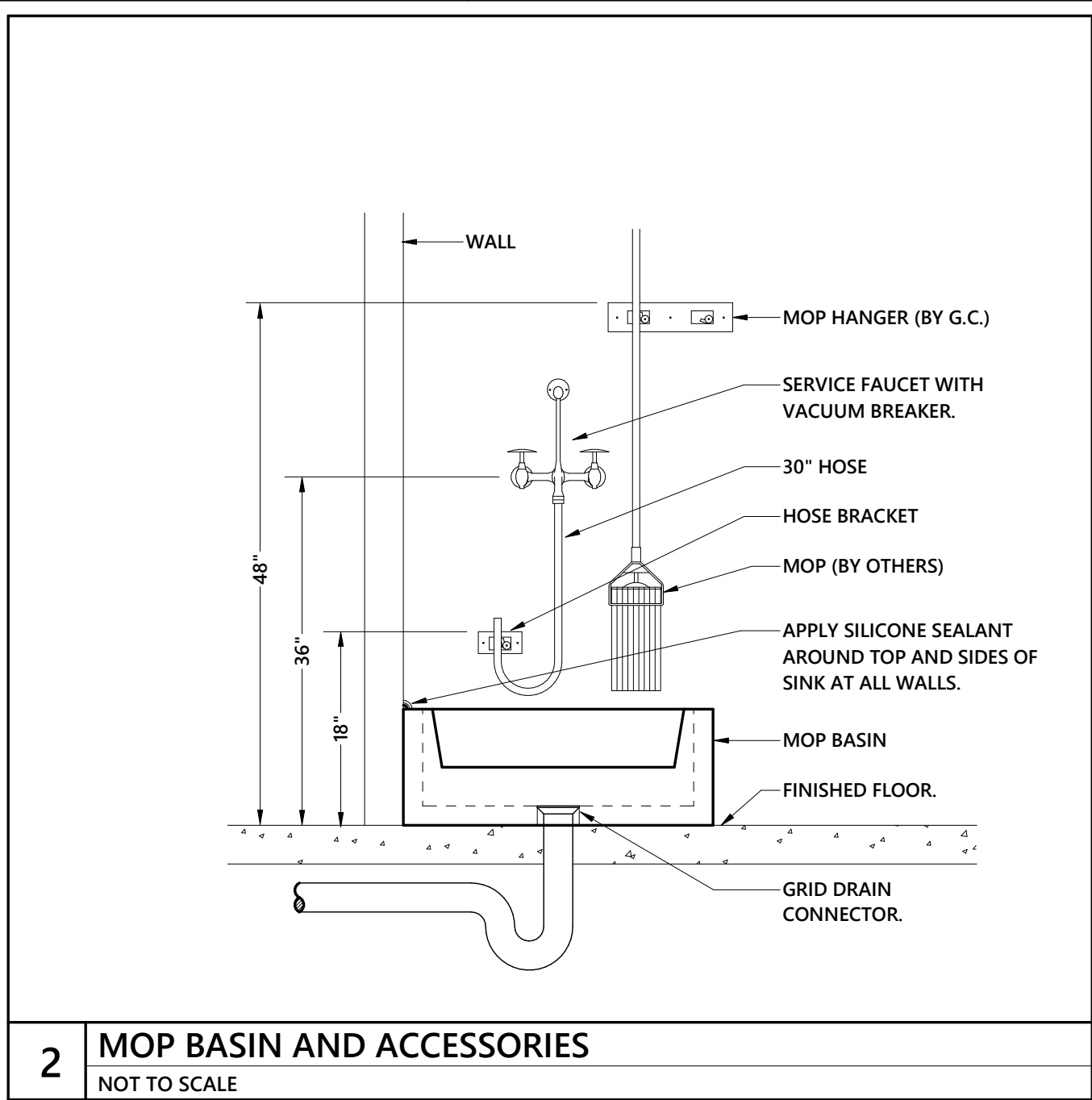
5 HOTWATER RECIRC PUMP DETAIL  
NOT TO SCALE



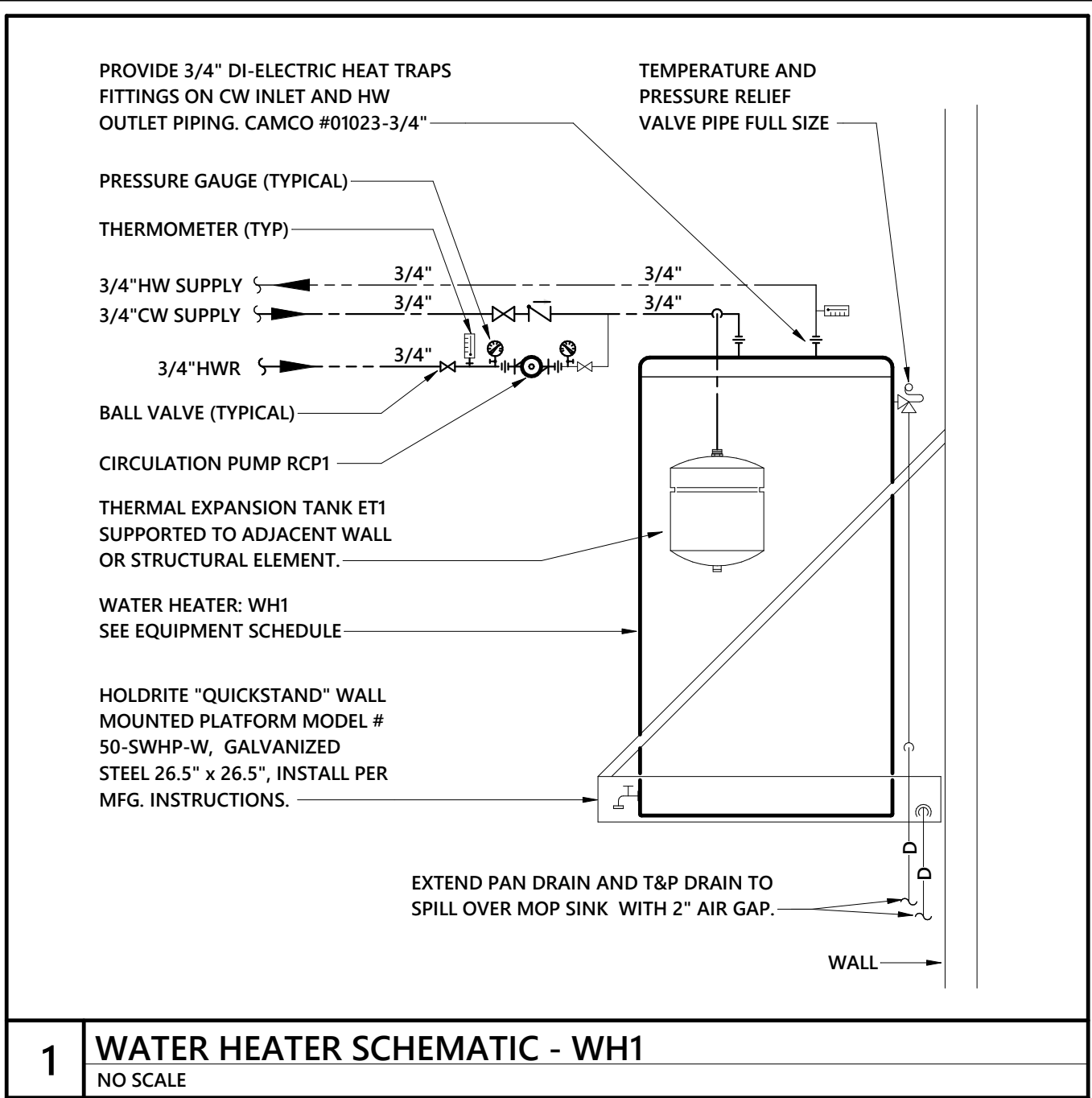
4 VENT THRU ROOF DETAIL  
NOT TO SCALE



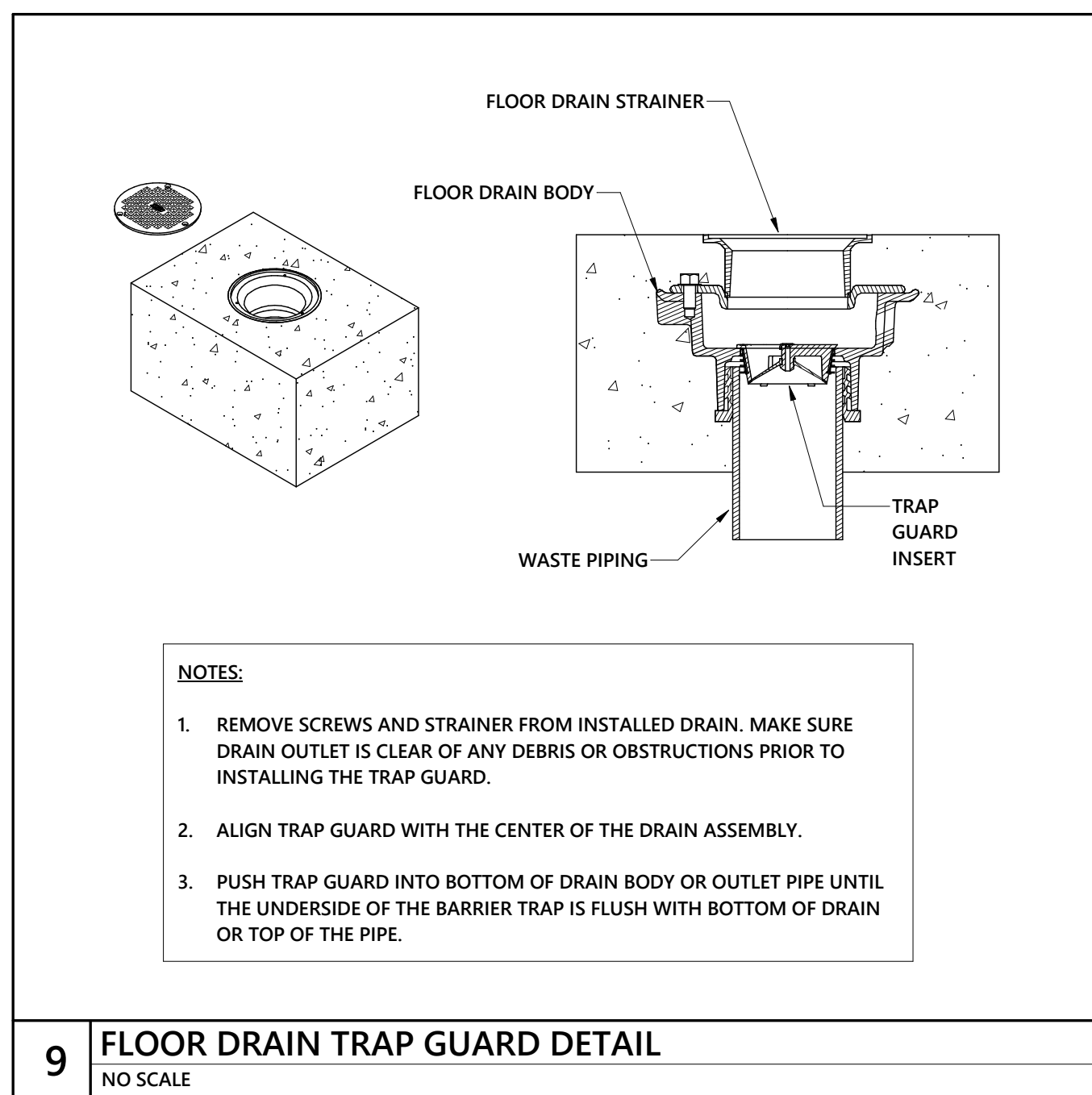
3 YARD CLEANOUT DETAIL  
NOT TO SCALE



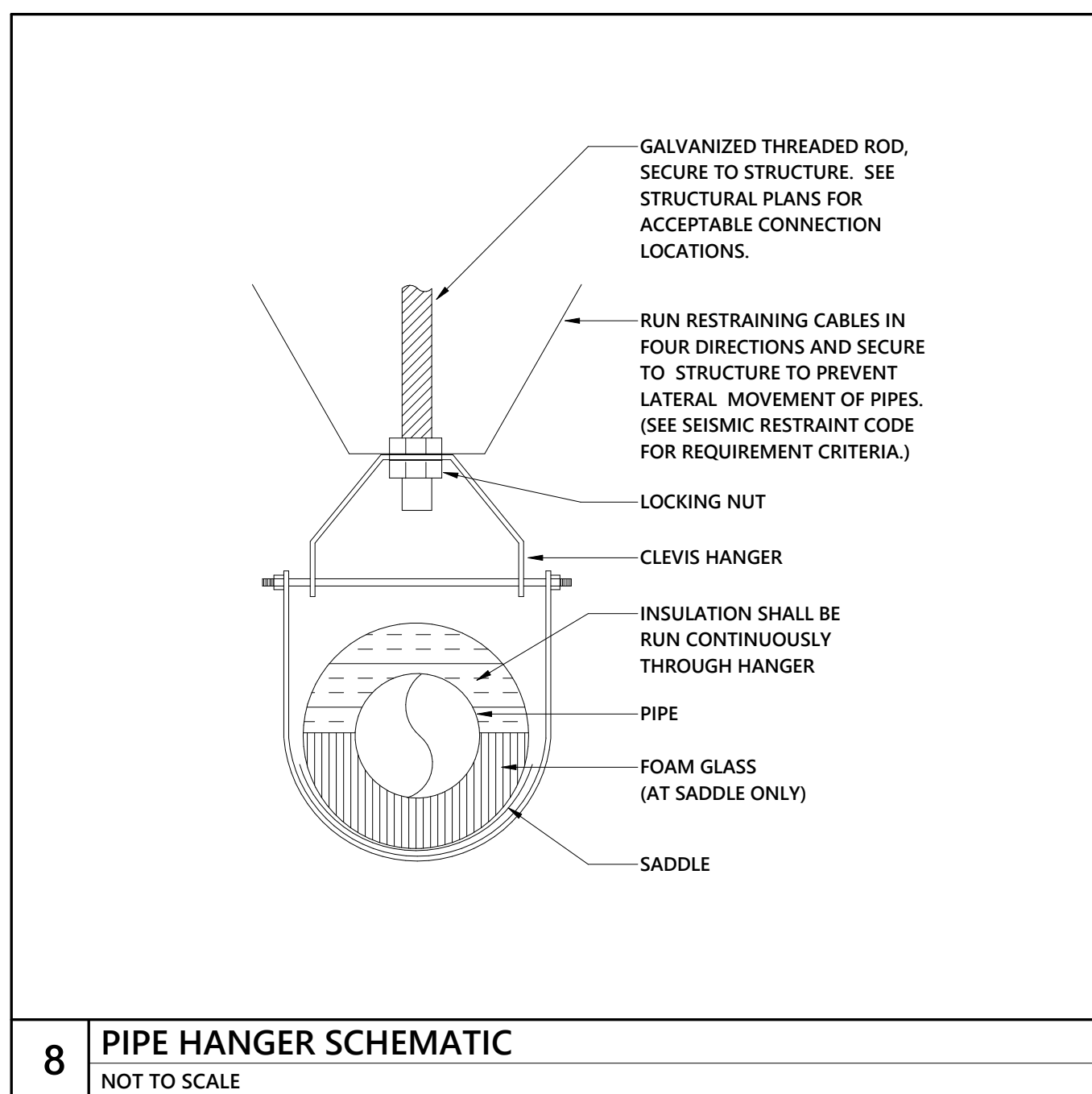
2 MOP BASIN AND ACCESSORIES  
NOT TO SCALE



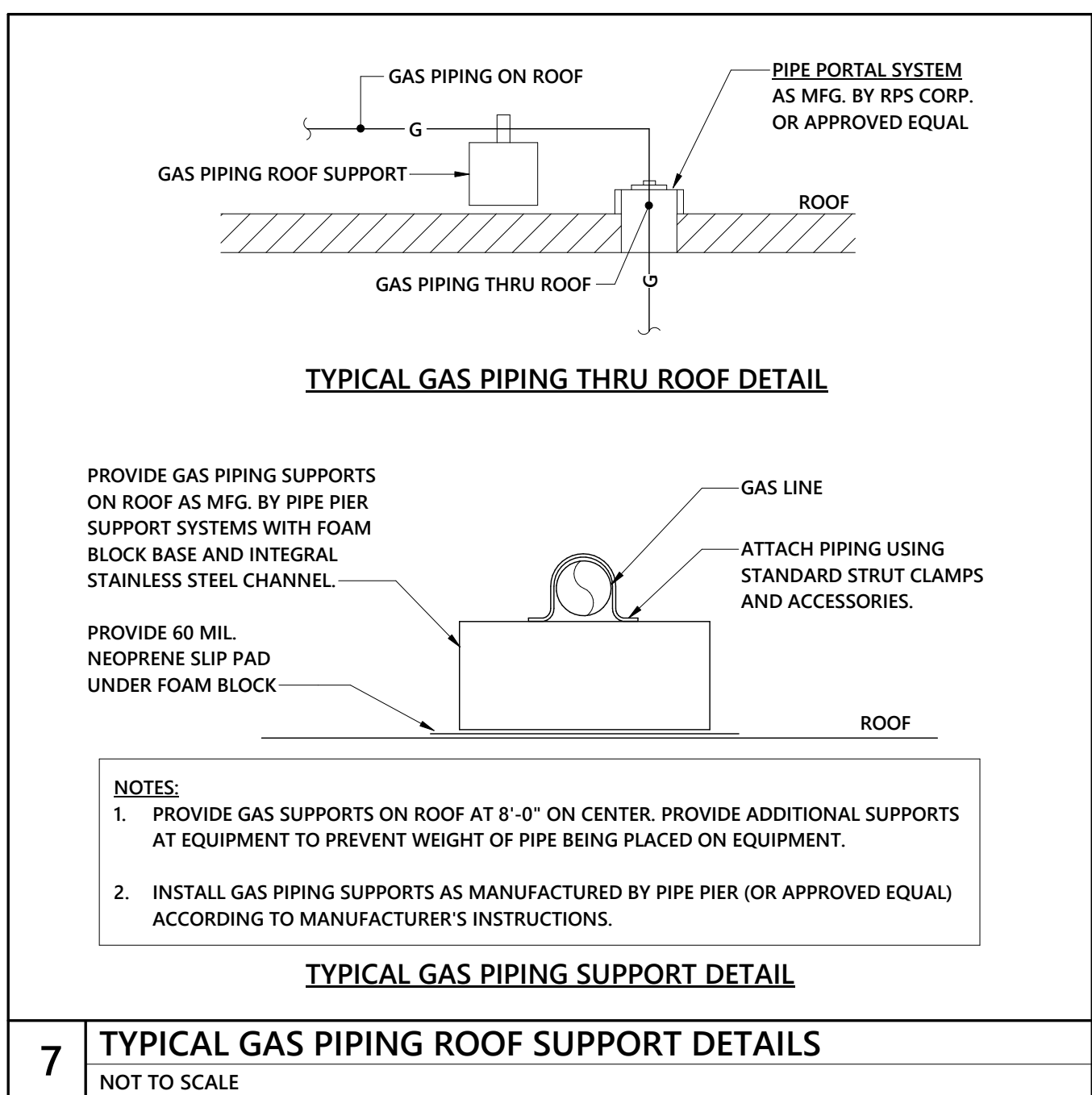
1 WATER HEATER SCHEMATIC - WH1  
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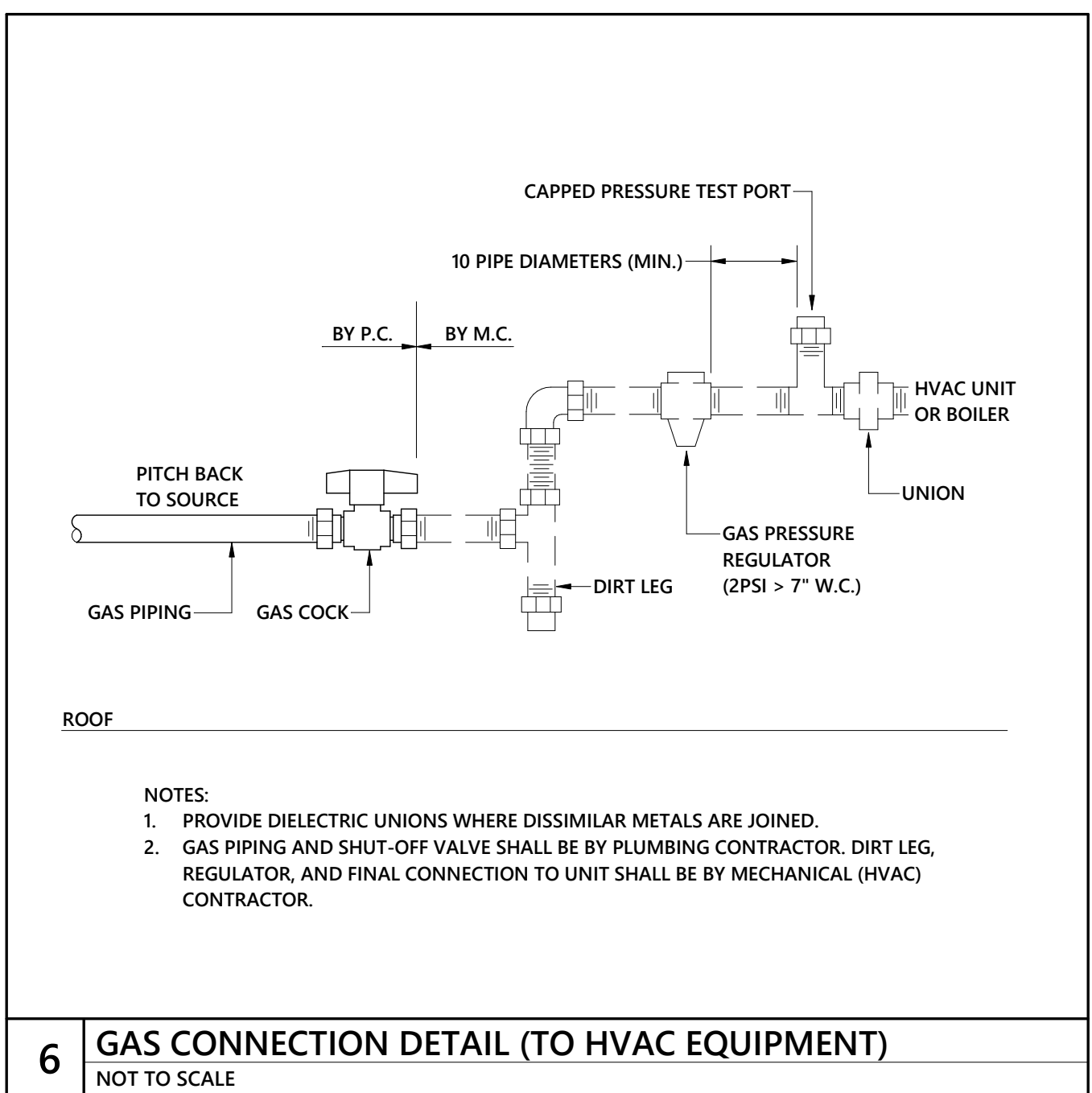
9 FLOOR DRAIN TRAP GUARD DETAIL  
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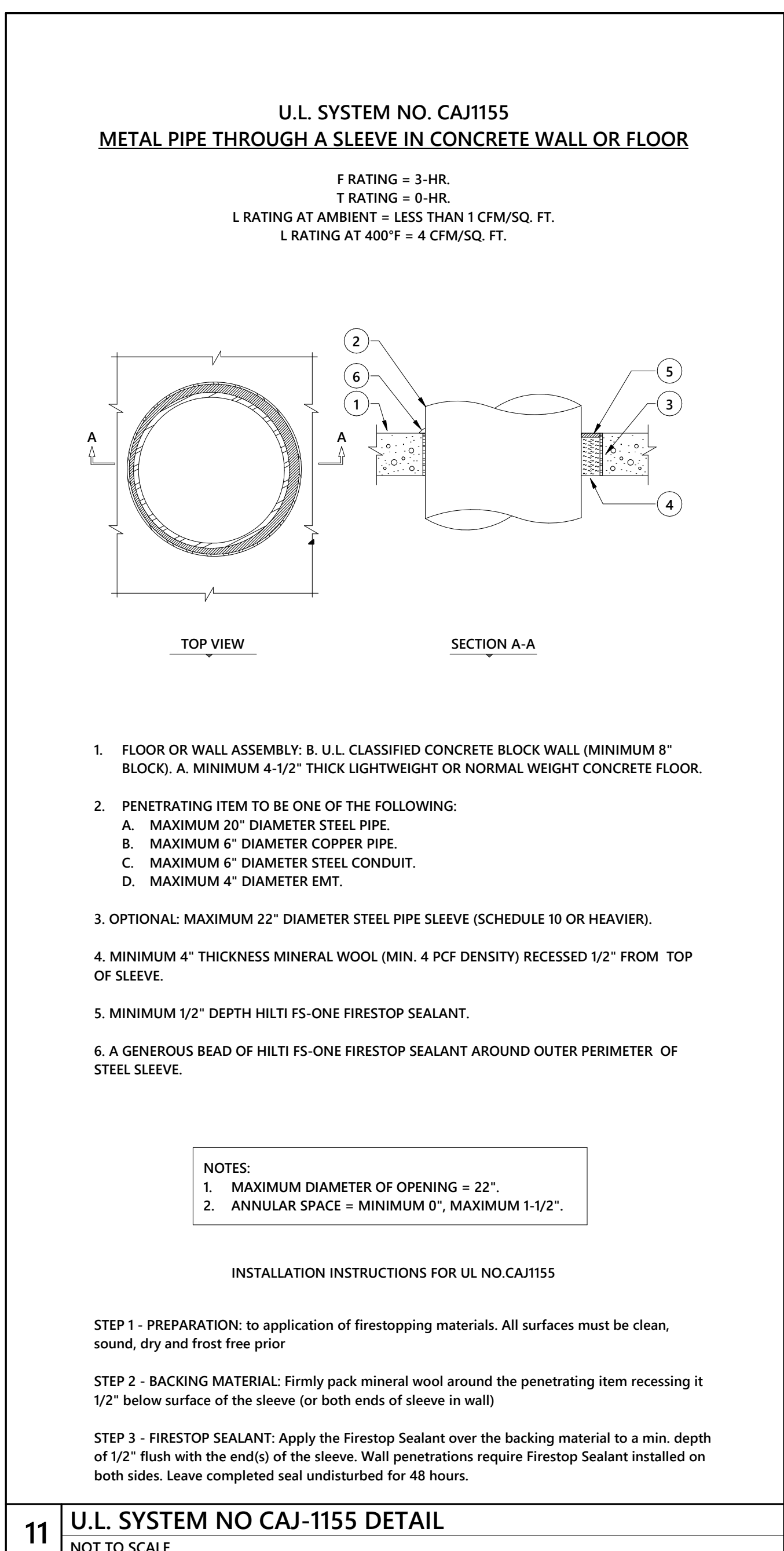
8 PIPE HANGER SCHEMATIC  
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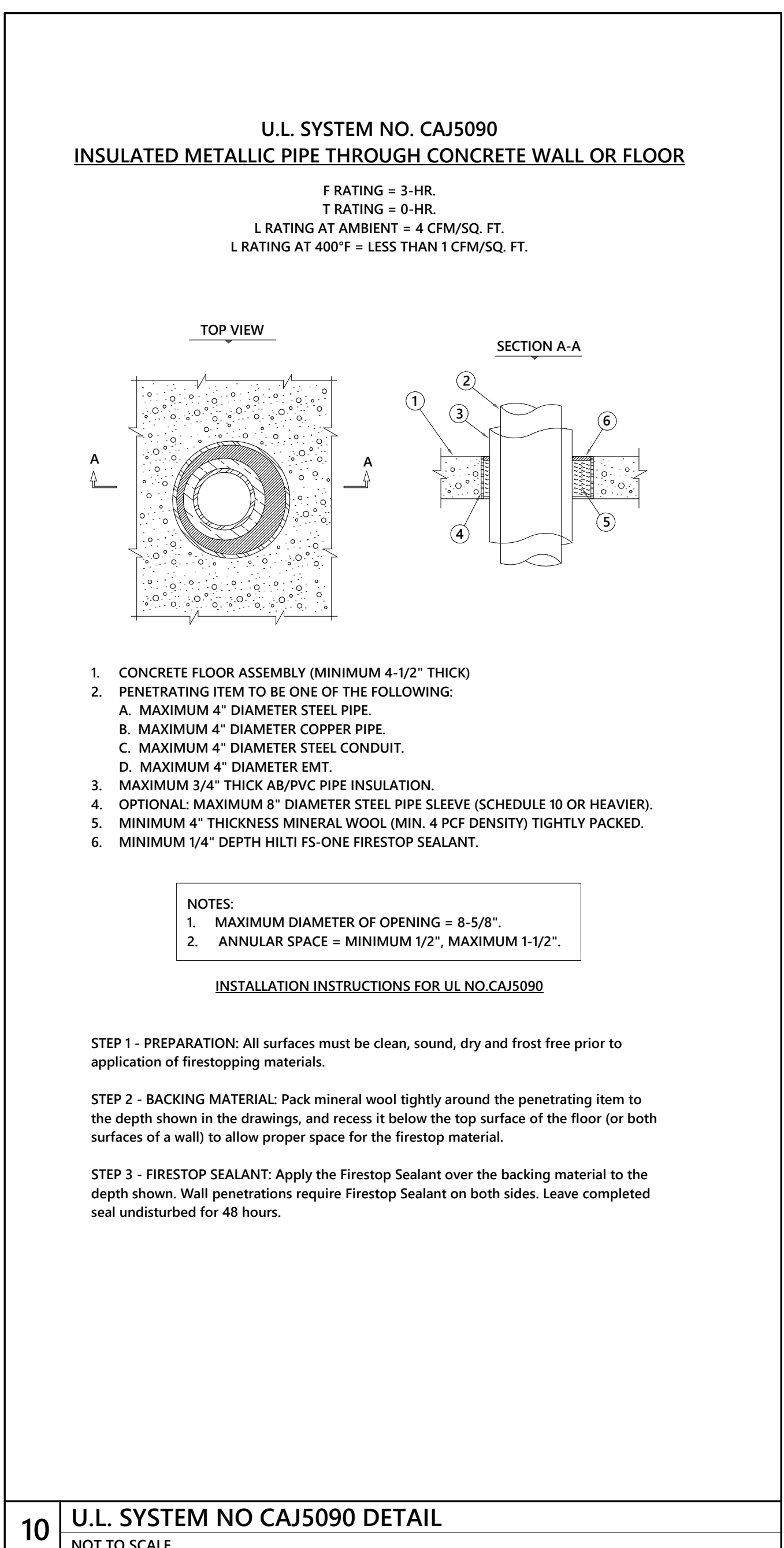
7 TYPICAL GAS PIPING ROOF SUPPORT DETAILS  
NOT TO SCALE



6 GAS CONNECTION DETAIL (TO HVAC EQUIPMENT)  
NOT TO SCALE



11 U.L. SYSTEM NO CAJ-1155 DETAIL  
NOT TO SCALE



10 U.L. SYSTEM NO CAJ5090 DETAIL  
NOT TO SCALE

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**ENERGY STAR PARTNER**

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**PLUMBING DETAILS**

**P-501**

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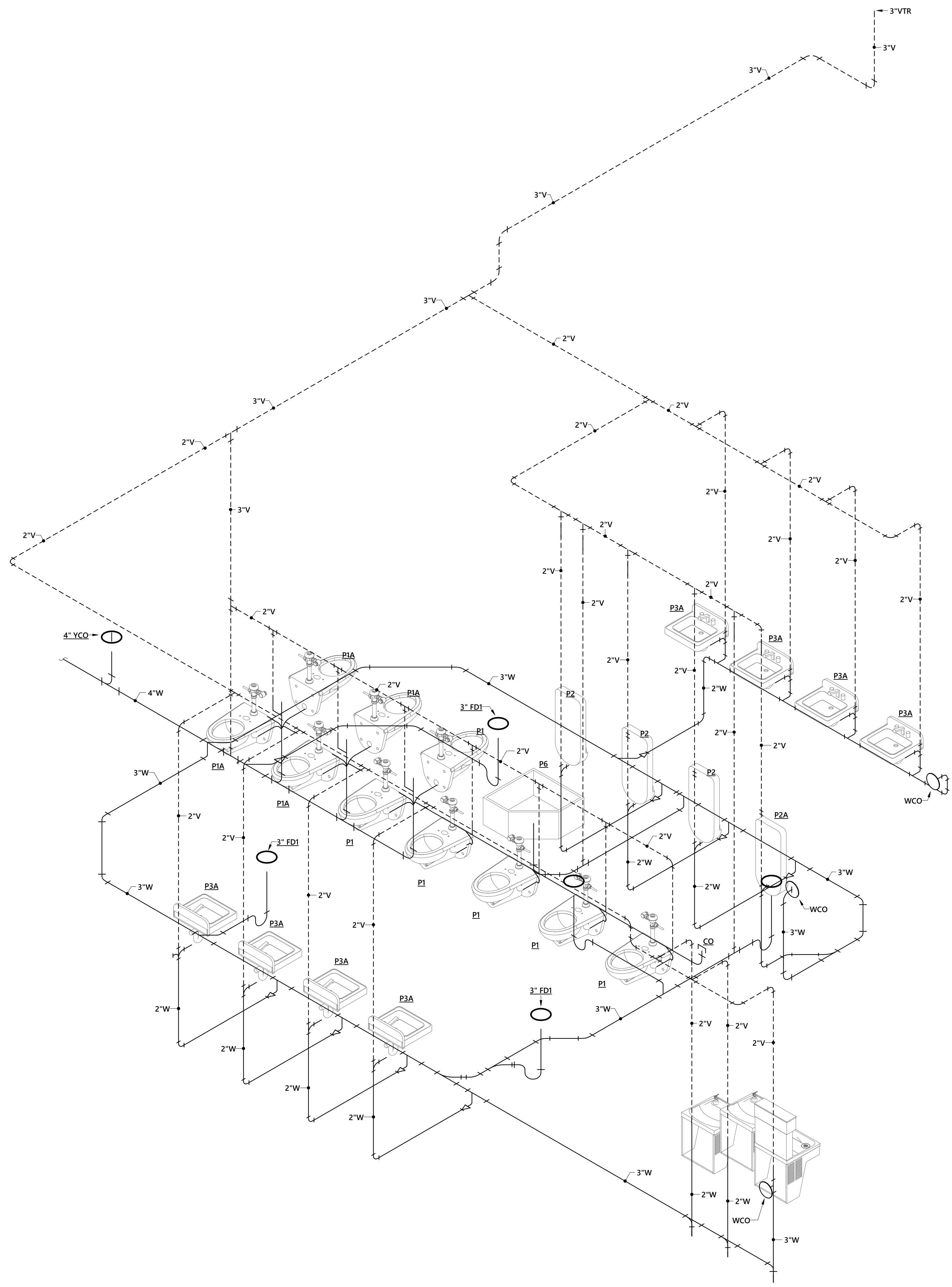
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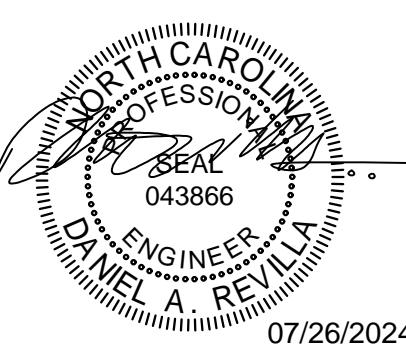


1 RESTROOM WASTE & VENT RISER DIAGRAM  
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WASTE & VENT  
RISER DIAGRAMS

P-502

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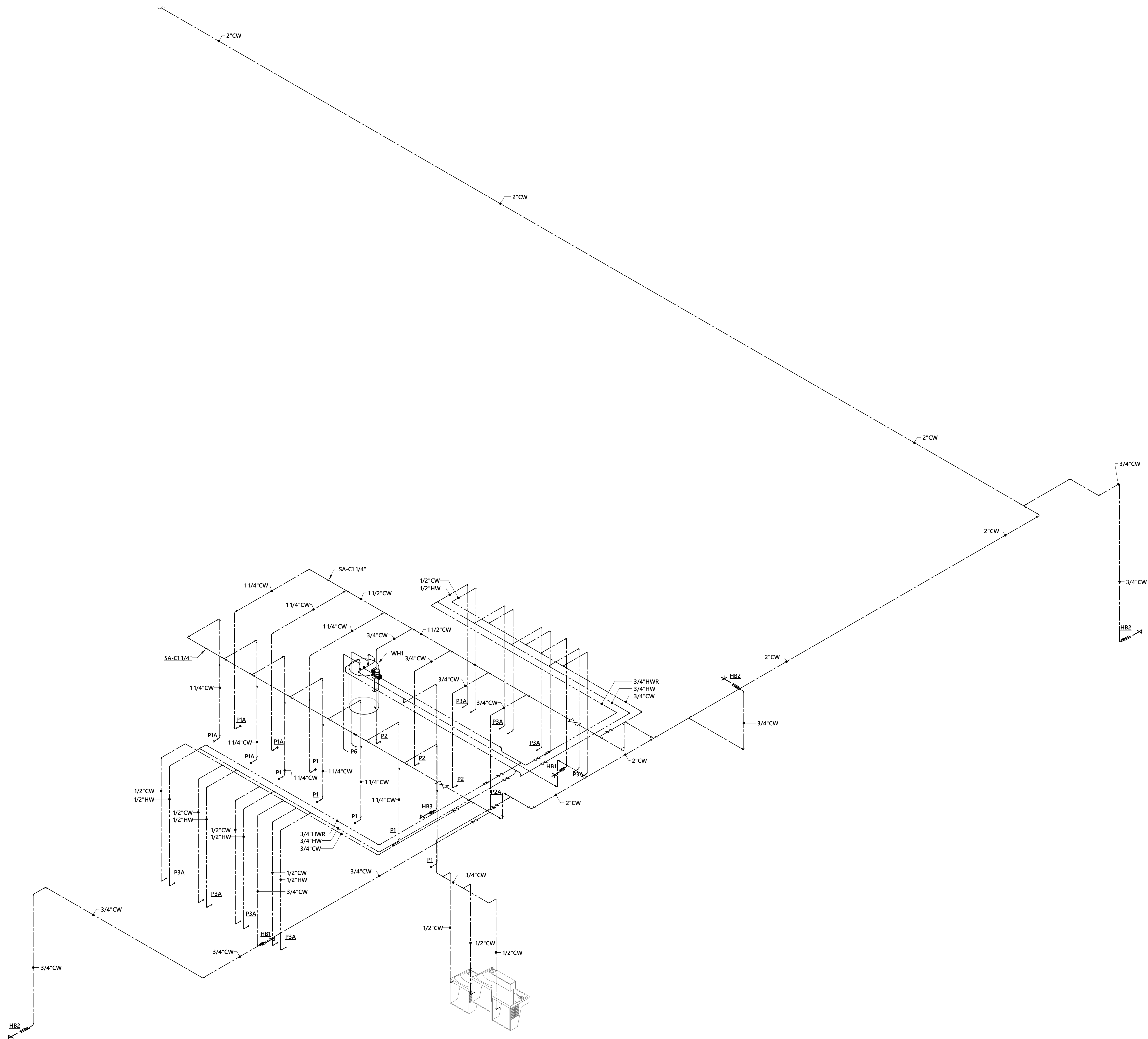
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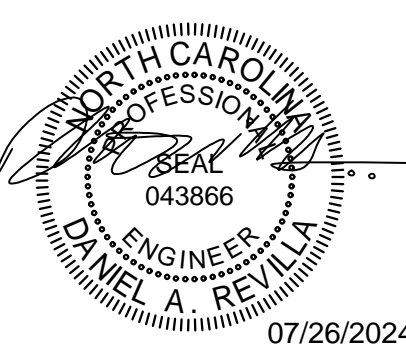


**1** RESTROOM DOMESTIC WATER RISER DIAGRAM  
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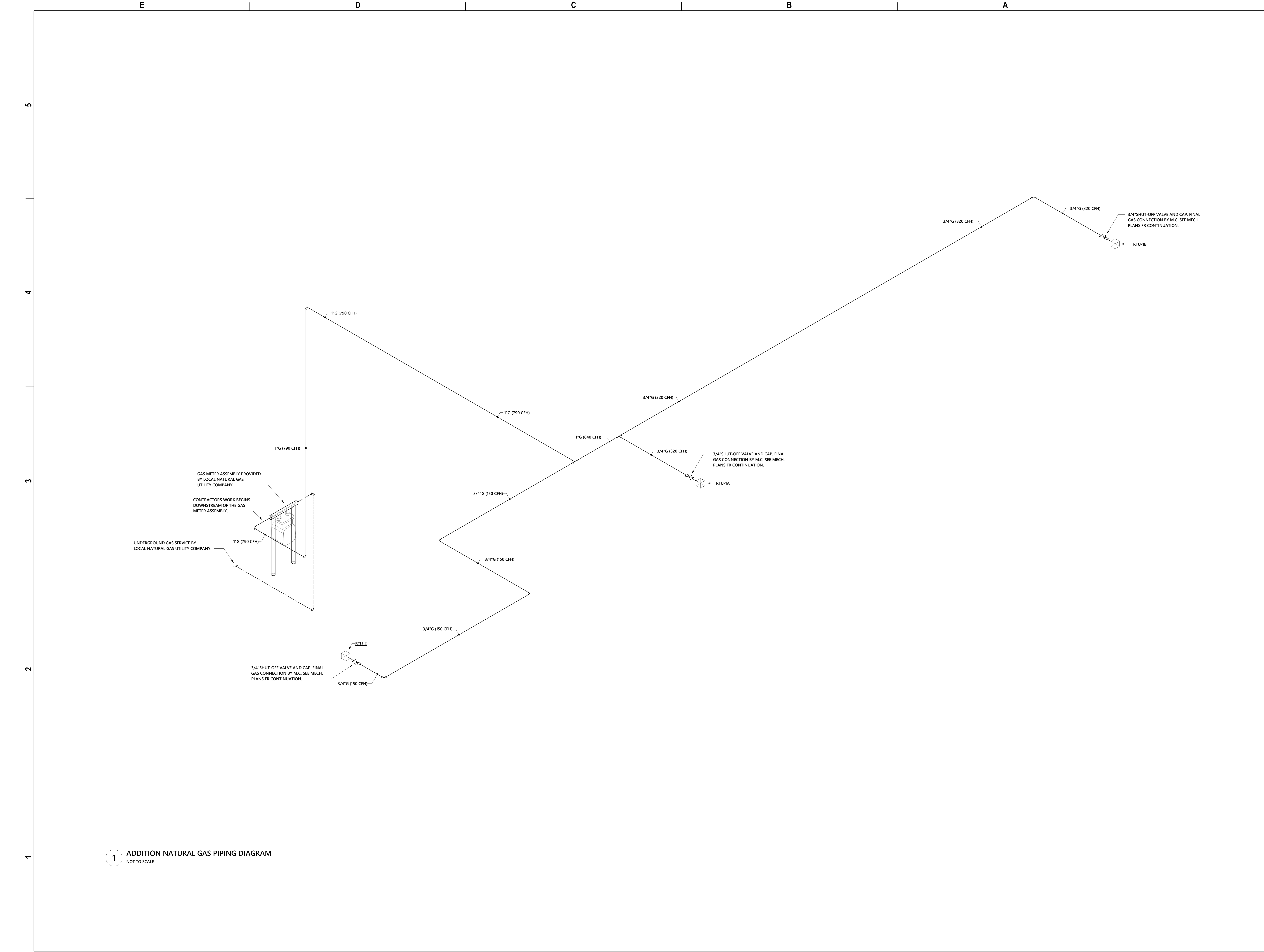
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DOMESTIC RISER  
DIAGRAM

**P-503**

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GAS METER ASSEMBLY PROVIDED BY LOCAL NATURAL GAS UTILITY COMPANY.  
 CONTRACTORS WORK BEGINS DOWNSTREAM OF THE GAS METER ASSEMBLY.

UNDERGROUND GAS SERVICE BY LOCAL NATURAL GAS UTILITY COMPANY.

3/4" SHUT-OFF VALVE AND CAP. FINAL GAS CONNECTION BY M.C. SEE MECH. PLANS FR CONTINUATION.

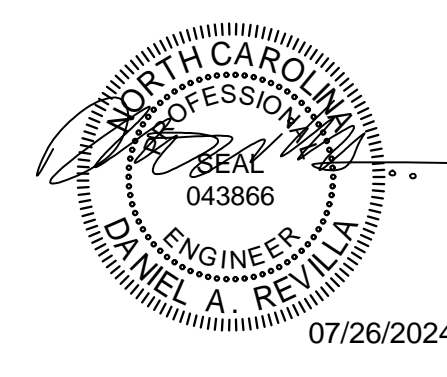
3/4" SHUT-OFF VALVE AND CAP. FINAL GAS CONNECTION BY M.C. SEE MECH. PLANS FR CONTINUATION.

3/4" SHUT-OFF VALVE AND CAP. FINAL GAS CONNECTION BY M.C. SEE MECH. PLANS FR CONTINUATION.

**1** ADDITION NATURAL GAS PIPING DIAGRAM  
 NOT TO SCALE

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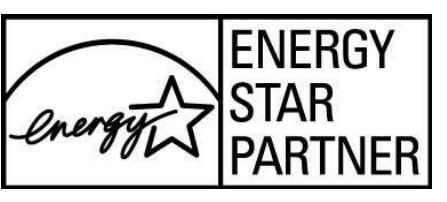
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NATURAL GAS RISER DIAGRAM

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