

GENERAL MECHANICAL & PLUMBING NOTES AND SPECIFICATIONS:

- ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, ALL FEDERAL, STATE, AND CITY CODES, ORDINANCES, AND STANDARDS.
- IT IS THE INTENT OF THESE DOCUMENTS THAT THE CONTRACTOR PROVIDE ALL LABOR, MATERIAL, EQUIPMENT AND TOOLS FOR THE COMPLETE INSTALLATION OF ALL WORK SHOWN ON THE PLANS AND/OR DESCRIBED HEREIN, INCLUDING ALL DEVICES AND CONTROLS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM.
- ALL WORK PROVIDED UNDER THIS CONTRACT INCLUDING ALL MECHANICAL EQUIPMENT, MATERIALS, AND LABOR SHALL BE PROVIDED WITH A 1 YEAR WARRANTY.
- CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL EQUIPMENT FOR APPROVAL PRIOR TO INSTALLATION.
- THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. NOT ALL FITTINGS, OFFSETS, VENTS, OR DRAINS ARE SHOWN. THE CONTRACTOR SHALL INCLUDE ALL OFFSETS, VENTS, AND DRAINS AS REQUIRED FOR A FULLY FUNCTIONING SYSTEM.
- ALL DUCTWORK CONSTRUCTION AND INSTALLATION SHALL COMPLY WITH THE LATEST EDITION OF THE SMACNA DUCT CONSTRUCTION HANDBOOK.
- 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.
- PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL PANELS. COORDINATE INSTALLATION OF PIPES WITH ELECTRICAL PANELS WHEN SHOWN NEAR PANELS OR OVER ELECTRICAL ROOMS.

SPRINKLER NOTES:

- SPRINKLER CONTRACTOR SHALL MODIFY EXISTING SPRINKLER SYSTEM FOR AREA OF WORK AND PROVIDE THE DESIGN AND INSTALLATION OF THE FIRE SUPPRESSION SYSTEM IN ACCORDANCE WITH NFPA 13 AND THE CURRENT VIRGINIA UNIFORM STATEWIDE BUILDING CODE.
- ALL AREAS WITHIN THE RENOVATION ARE CONSIDERED TO HAVE AN OCCUPANCY CLASSIFICATION OF LIGHT HAZARD.
- REMOVE ALL SPRINKLER HEADS AND SPRINKLER BRANCH PIPING NOT REQUIRED FOR NEW LAYOUT.
- PROVIDE NEW QUICK RESPONSE TYPE SPRINKLER HEADS WITHIN THE RENOVATION AREAS. NEW HEADS SHALL BE CENTERED WITHIN THE CEILING GRID TILES WHERE APPLICABLE AND SHALL MATCH THE EXISTING TYPE OF SPRINKLER HEADS CURRENTLY LOCATED WITHIN THE EXISTING FACILITY. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE OWNERS DESIGN STANDARDS FOR THE FACILITY.
- HYDRAULIC CALCULATIONS SHALL BE PERFORMED AS NECESSARY TO MEET SPECIFIC DEMAND FOR THE RENOVATED AREAS.

PLUMBING FIXTURE SCHEDULE:

WC-1	WATER CLOSET: AMERICAN STANDARD "AFWALL MILLENNIUM FLOWISE ELONGATED FLUSHOMETER TOILET" MODEL #3352.101, VITREOUS CHINA ELONGATED SIPHON JET BOWL, WALL MOUNTED, WHITE EXTRA HEAVY DUTY SOLID PLASTIC OPEN FRONT SEAT WITHOUT COVER, TOP SPUD WITH SLOTTED RIM FOR BEDPAN HOLDING, STAINLESS STEEL CHECK HINGE, ADA COMPLIANT. PERMANENT EVERCLEAN ANTIMICROBIAL SURFACE. FLUSH VALVE SHALL BE MOEN 8310M128 SERIES OR EQUAL WITH BED PAN WASHER MODEL 8310BPW16 (BED PAN WASHER SHALL ONLY BE PROVIDED FOR PATIENT ROOMS), 1.28 GPF CHROME PISTON FLUSH VALVE WITH ADA COMPLIANT HANDLE. PROVIDE WITH NEW WATER CLOSET CARRIER IN WALL.
L-1	AMERICAN STANDARD "LUCERNE" 0355.012 WHITE VITREOUS CHINA WALL HUNG HANDICAP LAVATORY, THREE HOLE MOUNT FOR 4" CENTERS, WITH MOEN 8413F05 CENTERSET CHROME FAUCET WITH SINGLE LEVER HANDLE, METAL GRID STRAINER, OFFSET PVC P-TRAP, FLEXIBLE TUBING SUPPLIES, COMPRESSION FITTINGS AND STOPS. PROVIDE TRUEBRO #102W PRE- MOLDED INSULATION ON BOTH WATER SUPPLIES AND DRAIN. PROVIDE WITH WALL CARRIER.
L-2	SOLID SURFACE COUNTER WITH INTEGRAL SINK. PROVIDE ELKAY FAUCET MODEL LK406GN05T4, 4" CENTERSET WITH EXPOSED DECK FAUCET WITH 5" GOOSENECK SPOUT AND 4" WRISTBLADE HANDLES IN CHROME. PROVIDE DRAIN WITH PERFORATED GRID STRAINER AND TAILPIECE.
SH-1	XXX
S-1	XXX
S-2	XXX
S-3	XXX
EW-1	ELECTRIC WATER COOLER, ELKAY EZH20 BOTTLE FILLER STATION WITH FILTERED BI-LEVEL COOLER. MODEL LZSTL8WS(V)RSP WITH HI/LO CONFIGURATION. UNIT SHALL DELIVER 8 GPH OF 50°F OF DRINKING WATER AT 90°F AMBIENT AND 80°F INLET WATER. PUSH BAR ACTIVATION. BOTTLE FILLING UNITS SHALL INCLUDE AN ELECTRONIC SENSOR FOR TOUCHLESS ACTIVATION WITH AN AUTOMATIC 20-SECOND SHUT-OFF TIMER. LED LIGHT ILLUMINATING THE WATER DISPENSING AREA, BRIGHTENING AS WATER IS BEING DISPENSED. SHALL INCLUDE A GREEN TICKER™ DISPLAYING COUNT OF PLASTIC BOTTLES SAVED FROM WASTE. BOTTLE FILLER SHALL PROVIDE A 1.1 GPM FLOW RATE WITH LAMINAR FLOW TO MINIMIZE SPLASHING. SHALL INCLUDE THE WATERSENTRY® PLUS 3000-GALLON CAPACITY FILTER, CERTIFIED TO NSF/ANSI 42 & 53, WITH VISUAL FILTER MONITOR TO INDICATE WHEN REPLACEMENT IS NECESSARY. UNIT SHALL AUTOMATICALLY DETECT A NEW FILTER AND RESET VISUAL FILTER MONITOR ACCORDINGLY. UNIT SHALL HAVE THE ABILITY TO TURN OFF REFRIGERATION SYSTEM AS NEEDED, IN ADDITION TO SELF DIAGNOSING SYSTEM ISSUES AND DISPLAY RELATED MESSAGES. SHALL INCLUDE INTEGRATED SILVER ION ANTI-MICROBIAL PROTECTION IN KEY AREAS. UNIT SHALL MEET ADA GUIDELINES. UNIT SHALL BE A LEAD-FREE DESIGN WHICH IS CERTIFIED TO NSF/ANSI 61 AND 372 AND MEETS FEDERAL AND STATE LOW-LEAD REQUIREMENTS.

LEGEND		ABBREVIATIONS	
	BRANCH CONNECTION - BOTTOM OF MAIN	AAV	AIR ADMITTANCE VALVE
	BRANCH CONNECTION - SIDE OF MAIN	ABV	ABOVE
	BRANCH CONNECTION - TOP OF MAIN	AFF	ABOVE FINISHED FLOOR
	PIPE DOWN OR PIPE FROM BELOW	BFF	BELOW FINISHED FLOOR
	PIPE UP OR PIPE FROM ABOVE	BTU	BRITISH THERMAL UNIT
	DIRECTION OF FLOW	BEL	BELOW
	DOMESTIC COLD WATER	CLG	CEILING
	DOMESTIC HOT WATER	CO	CLEANOUT
	DOMESTIC HOT WATER RECIRCULATING	CONN	CONNECT, CONNECTION
	NATURAL GAS PIPING	CW	COLD WATER
	SANITARY SEWER, GREASE WASTE OR DRAIN	CONT	CONTINUED
	SANITARY VENT	DN	DOWN
	CLEANOUT FLUSH WITH FLOOR	EA	EACH
	OUTLET WITH P-TRAP	ELEV	ELEVATION
	WALL HYDRANT	EWC	ELECTRIC WATER COOLER
	WATER HAMMER ARRESTER	F	DEGREES FAHRENHEIT
	GATE VALVE	FD	FLOOR DRAIN
	BALL VALVE	FIN	FINISHED
	SHUTOFF VALVE IN VERTICAL	FLR	FLOOR
	CHECK VALVE	FR	FROM
	T&P RELIEF VALVE	FT	FEET
	BALANCING COCK	GPH	GALLONS PER HOUR
	UNION	GPM	GALLONS PER MINUTE
	PRESSURE GAUGE AND GAUGE COCK	GW	GREASE WASTE
	THERMOMETER	HB	HOSE BIBB
	STRAINER, STRAINER WITH DRAIN	HC	HANDICAPPED ACCESSIBLE
	RELIEF VALVE	HW	HOT WATER
	BACKFLOW PREVENTER (BFP)	HP	HORSEPOWER
	MEDICAL GAS PIPING - OXYGEN	IN	INCH, INCHES
	MEDICAL GAS PIPING - VACUUM	INV	INVERT
	MEDICAL GAS PIPING - MEDICAL AIR	MAX	MAXIMUM
	CONNECT TO EXISTING	MBH	THOUSAND BTU PER HOUR
	LIMITS OF DEMOLITION	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
		ZVB	MEDICAL GAS ZONE VALVE BOX

PLUMBING EQUIPMENT SCHEDULE:

FD	FLOOR DRAIN, ZURN MODEL Z415, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET, COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS. FOR MECHANICAL ROOM DRAINS NOT RECEIVING INDIRECT WASTE, FINISHED SPACES INCLUDING TOILET, SHOWER, LOCKER ROOMS, ETC., PROVIDE WITH TYPE B, ROUND, POLISHED NICKEL BRONZE, LIGHT DUTY HEEL PROOF STRAINER. FOR ANY FLOOR DRAINS RECEIVING INDIRECT WASTE OR CONDENSATE (NOT FLOOR SINKS), PROVIDE TYPE I POLISHED NICKEL BRONZE STRAINER WITH RAISED FLANGE. ALL FLOOR DRAINS SHALL BE PROTECTED AGAINST LOSS OF TRAP SEAL BY EVAPORATION BY INSTALLATION OF ELASTOMERIC TRAP GUARD DRAIN INSERT, EQUAL TO PROSET SYSTEMS MODEL #TG.
WHA	JOSAM #75000 SERIES WATER HAMMER ARRESTER, SIZE AND LOCATION IN ACCORDANCE WITH P.D.I STD WH-201. STAINLESS STEEL SHELL, ELASTOMER BELLOWS TYPE, FACTORY PRE-CHARGED WITH THREADED PLUG.
HB	HOSE BIBB/ WALL FAUCET. ZURN MODEL Z1341-BFP, EXPOSED, ANTI-SIPHON, WALL FAUCET FOR USE IN MODERATE CLIMATE INSTALLATION, COMPLETE WITH Z1399-BFP EXTERNAL BACKFLOW PREVENTER, ALL BRONZE INTERIOR COMPONENTS, VANDAL-RESISTANT OPERATING STEM, ROUGH BRONZE EXTERIOR AND 3/4 MALE HOSE CONNECTION (CONFORM TO ASME B1.20.7).
BFP-1	REDUCED PRESSURE ZONE BACK FLOW PREVENTER (FOR BUILDING SERVICE) SIZES 2-1/2" - 4". WATTS SERIES 909. PROVIDE WITH OUTSIDE STEM AND YOKE RESILIENT SEATED GATE VALVES AND AIR GAP DRAIN OUTLET PIPED TO NEAREST FLOOR DRAIN.
EX	EXPANSION TANK - AMTROL THERM-X-TROL MODEL #ST-5 THERMAL EXPANSION TANK, 2.0 GALLONS MIN. ACCEPTANCE VOLUME WITH DIAPHRAGM. FACTORY PRE-CHARGED TO 40 PSI, SET EQUAL TO LINE PRESSURE.
GWH-1	GAS WATER HEATER, A.O. SMITH MODEL #BTH-199A, 100 GALLON CAPACITY TANK, 235 GAL./HR. RECOVERY AT 40 DEG.F. ENT.AND 100 DEG.F. RISE, 208V/1PH; T & P RELIEF VALVE. PIPING CONNECTIONS INCLUDING T&P RELIEF VALVE ON SIDE OF EQUIPMENT. WATER HEATER SHALL BE PROVIDED WITH FACTORY INSTALLED HEAT TRAP.
HWCP-1	HOT WATER RE-CIRCULATION PUMP.
TV	WATTS MODEL SERIES LFUSG-B-M2 UNDER SINK GUARDIAN ASSE 1080 THERMOSTATIC TEMPERING VALVE FOR SINGLE FIXTURE APPLICATIONS. SET VALVE FOR MAXIMUM 109 DEG. F.
CO	JOSAM CLEANOUT
WCO	WALL CLEANOUT - CHROME FLUSH WALL PLATE, RECESSED PLUG.
FCO	FLOOR CLEANOUT (FINISHED) - RECESSED SATIN BRONZE TOP TO RECEIVE FLOOR FINISH MATERIAL (CARPET/TILE), RECESSED PLUG.

CODE COMPLIANCE		
1.	GOVERNING CODES & REGULATIONS	2021 VIRGINIA CONSTRUCTION CODE (IBC 2021 AMENDED)
		2021 VIRGINIA EXISTING BUILDING CODE (IEBC 2021 AMENDED)
		2021 VIRGINIA MECHANICAL CODE (IMC 2021 AMENDED)
		2020 VIRGINIA ELECTRICAL CODE (NFPA 70, 2020 AMENDED)
		2021 VIRGINIA PLUMBING CODE (IPC 2021 AMENDED)
		2021 VIRGINIA FUEL GAS CODE (IFGC 2021 AMENDED)
		2021 VIRGINIA ENERGY CONSERVATION CODE

DRAWING INDEX	
DRAWING NUMBER	DRAWING TITLE
P001	PLUMBING OVERVIEW SHEET
P100	PLUMBING FIRST FLOOR PLAN - WATER & GAS
P101	PLUMBING SECOND FLOOR PLAN - WATER & GAS
P200	PLUMBING FIRST FLOOR PLAN - WASTE & VENT
P201	PLUMBING SECOND FLOOR PLAN - WASTE & VENT
P300	PLUMBING ROOF PLAN
P400	PLUMBING DETAILS
P500	PLUMBING SPECIFICATIONS

DATE: Issue Date: 23-30
 COMM No: JNB
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 STATE PROJECT No: ISNRV Blacksburg, VA

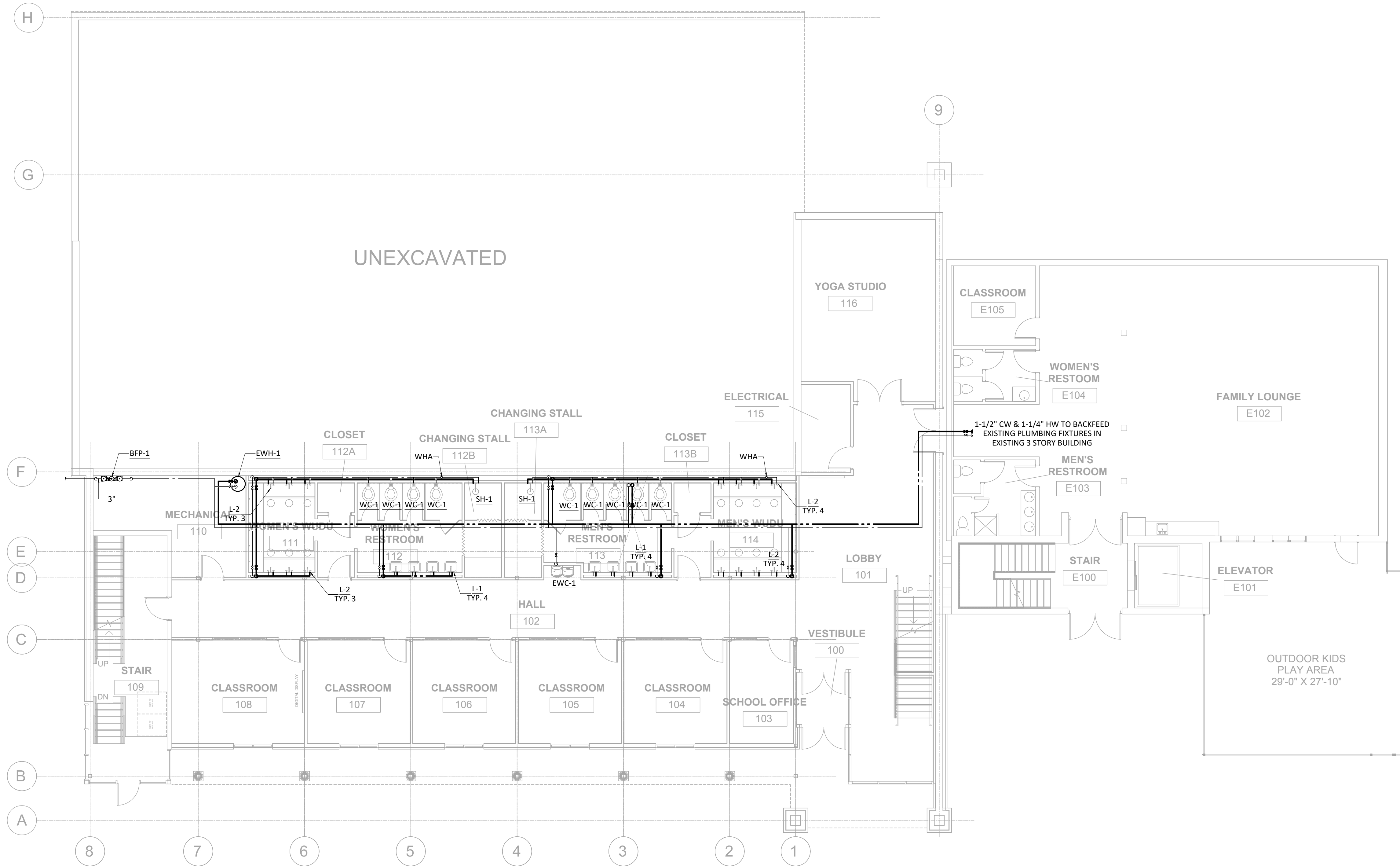
PLUMBING OVERVIEW SHEET

PROGRESS SET
 09/03/2024
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5 Design, LLC
 20 Midway Plaza Dr
 Suite 300
 Christiansburg, VA 24073
 540-230-2619
 www.5designarchitecture.com

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PLUMBING FIRST FLOOR PLAN - WATER & GAS

1
P100 SCALE = 1/8"=1'-0"

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**PLUMBING FIRST FLOOR PLAN -
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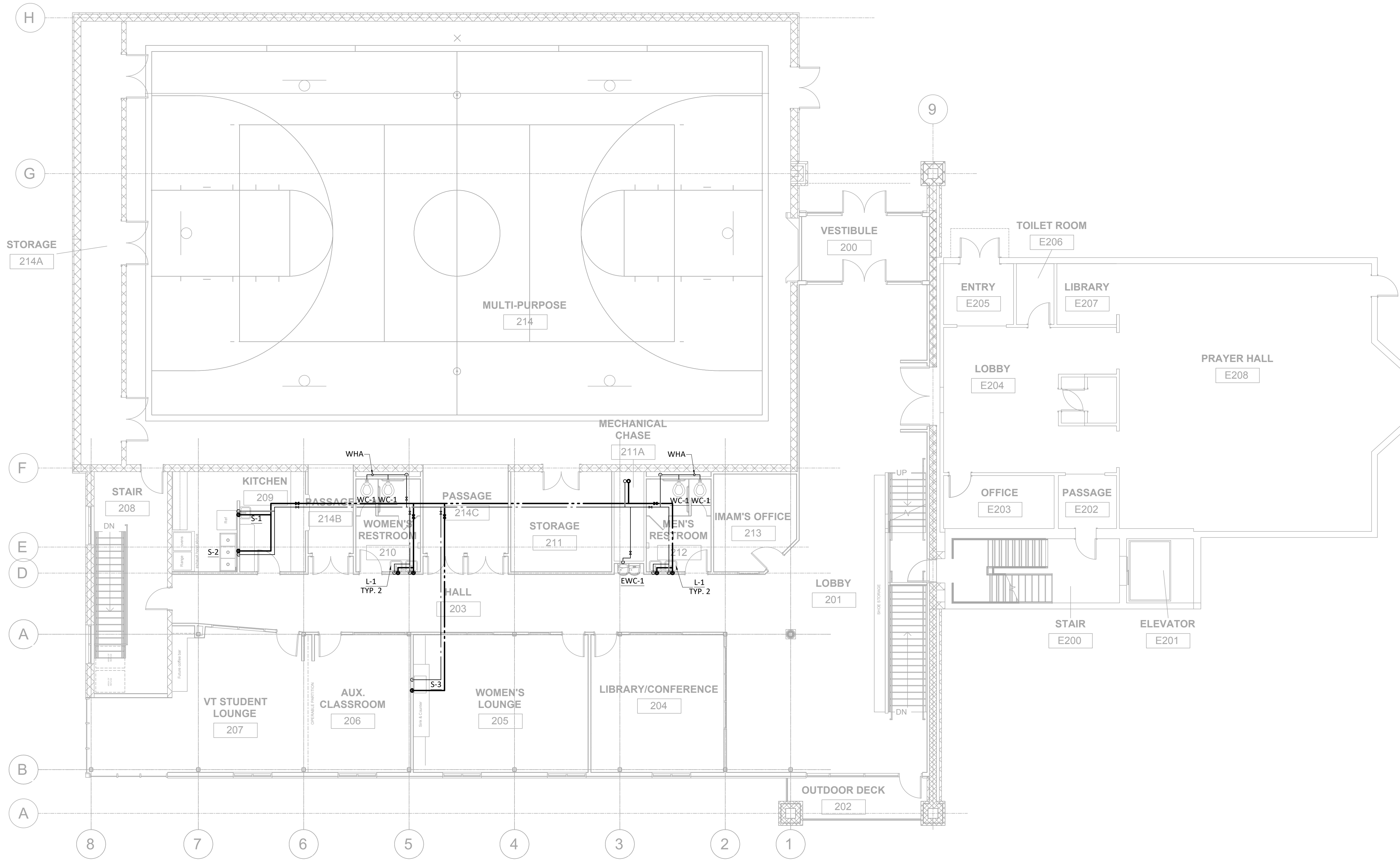
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PLUMBING SECOND FLOOR PLAN - WATER & GAS

1
P101 SCALE = 1/8"=1'-0"

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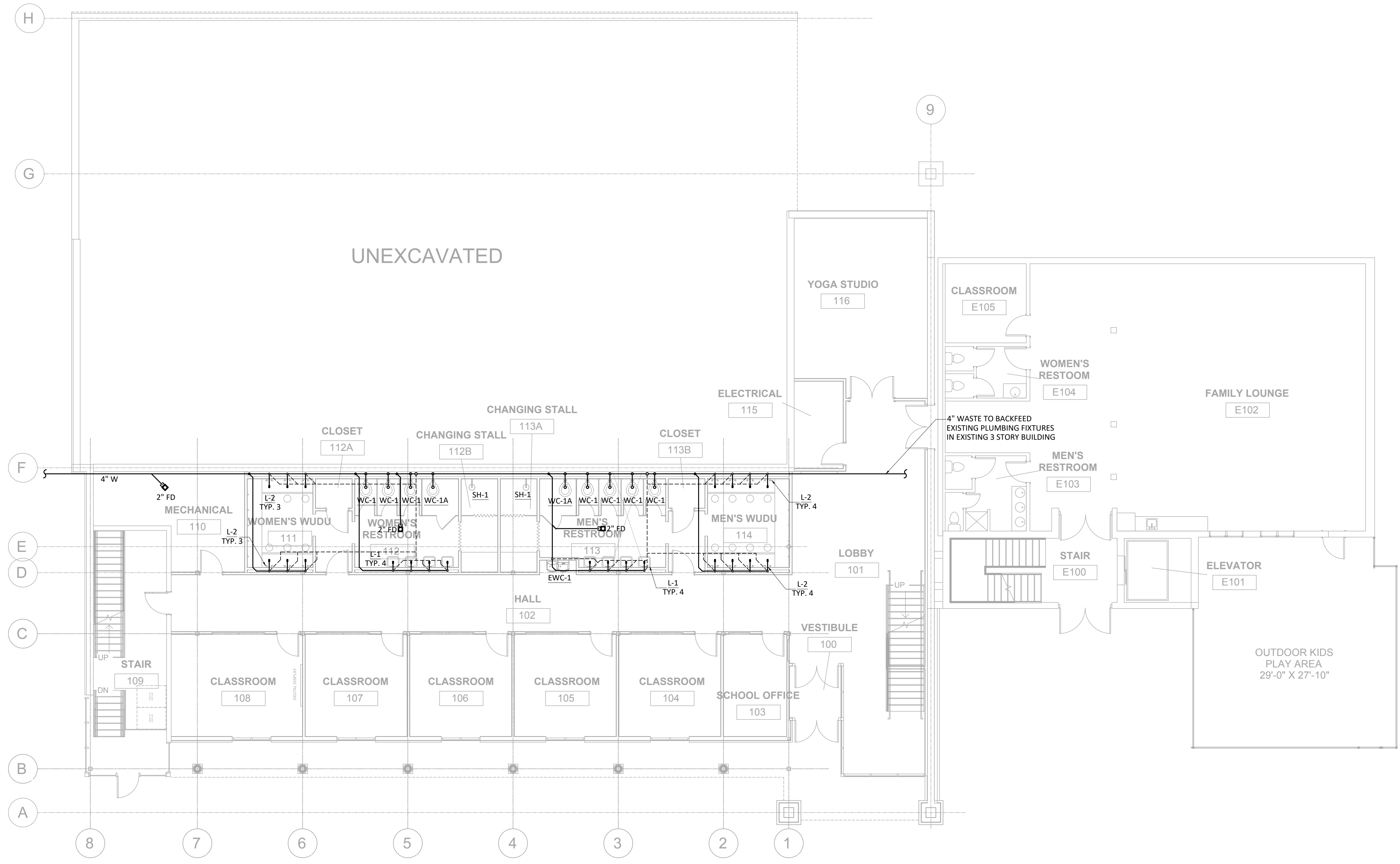
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P101

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PLUMBING FIRST FLOOR PLAN - WASTE & VENT

1 P100 SCALE = 1/8"=1'-0"

PLUMBING FIRST FLOOR PLAN - WATER & GAS

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P200

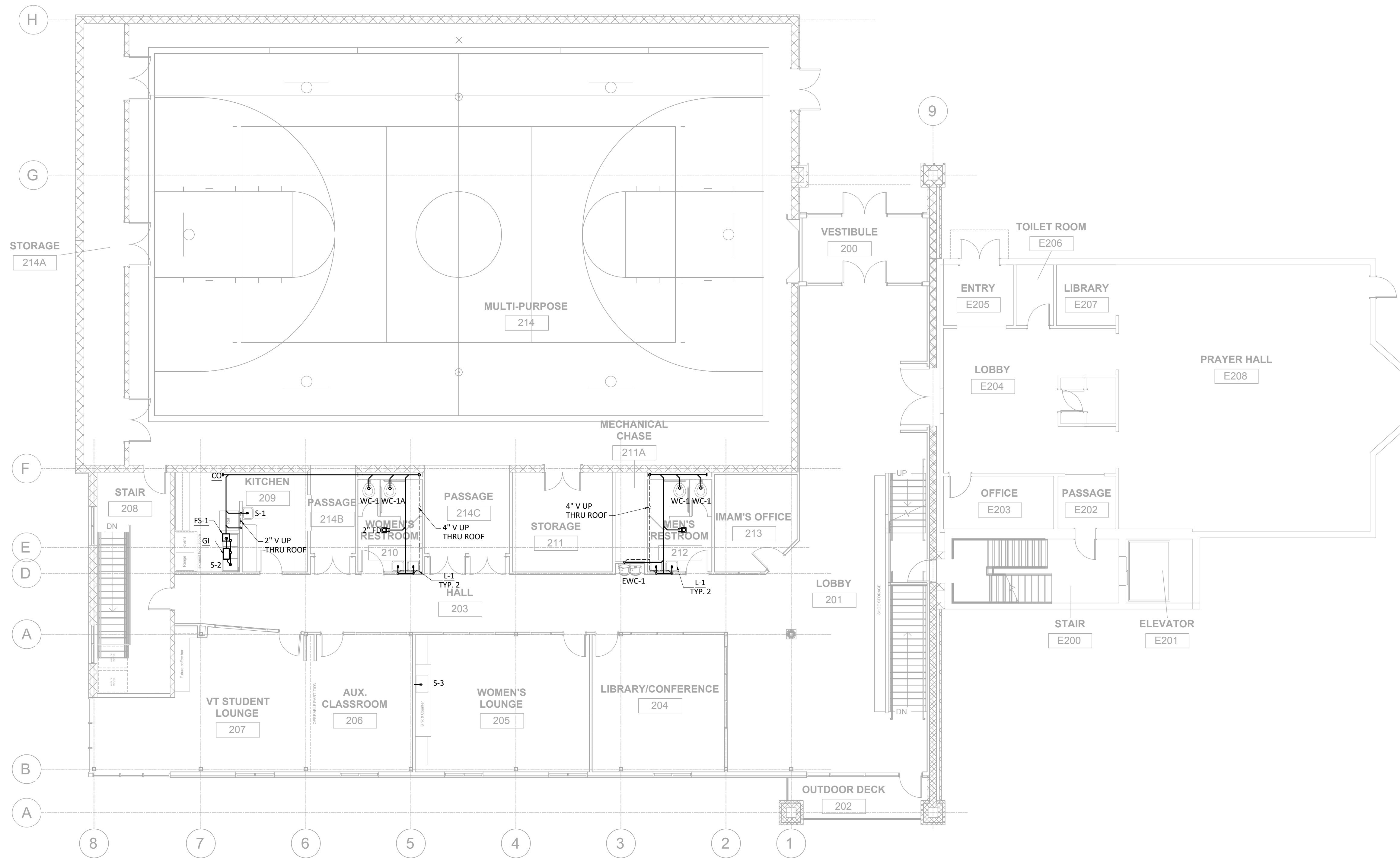
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PLUMBING SECOND FLOOR PLAN - WASTE & VENT

1 P101 SCALE = 1/8"=1'-0"

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**PLUMBING SECOND FLOOR PLAN -
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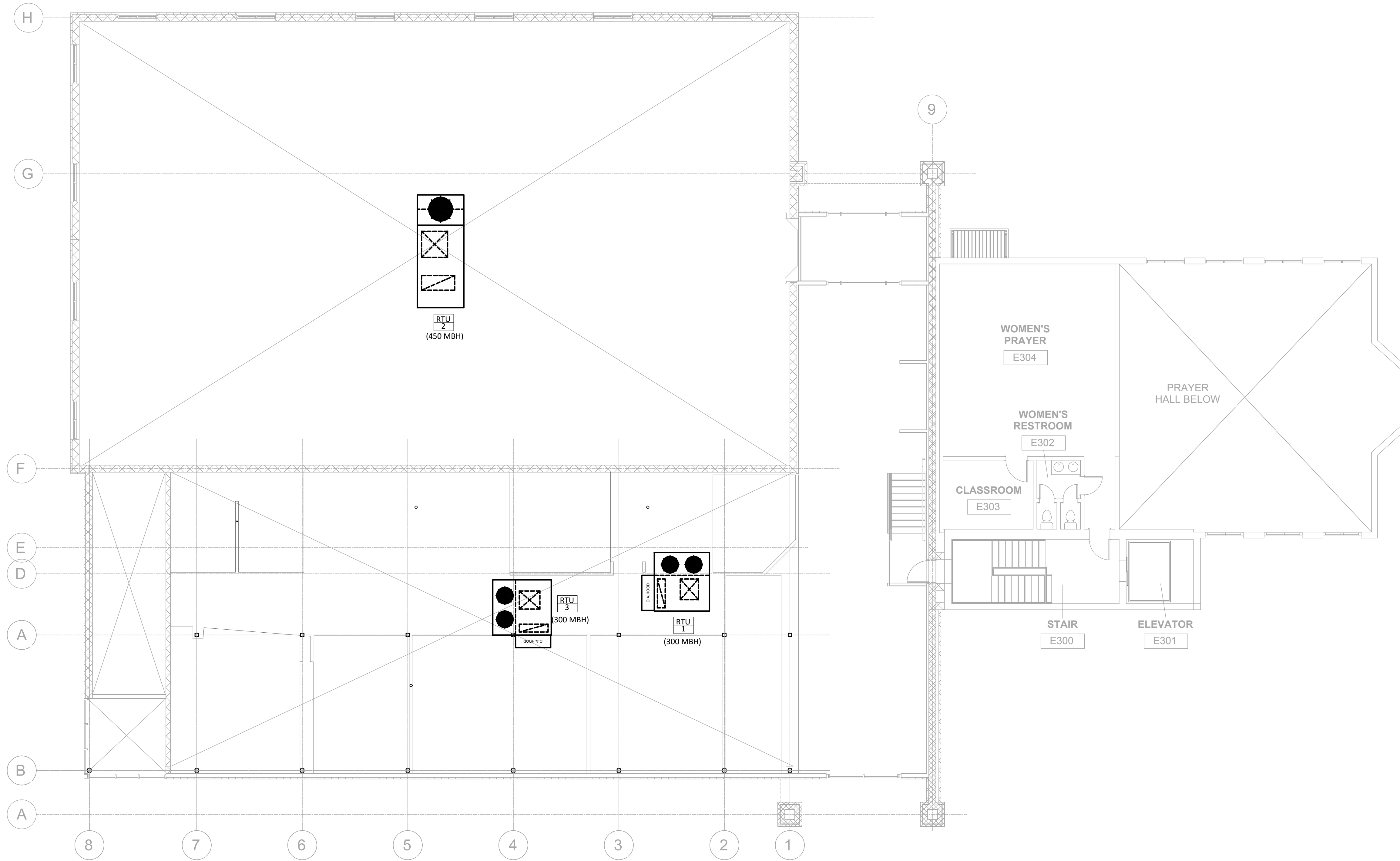
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P201

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PLUMBING ROOF PLAN

1
P300 SCALE = 1/8"=1'-0"

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**PLUMBING THIRD FLOOR PLAN -
WATER & GAS**

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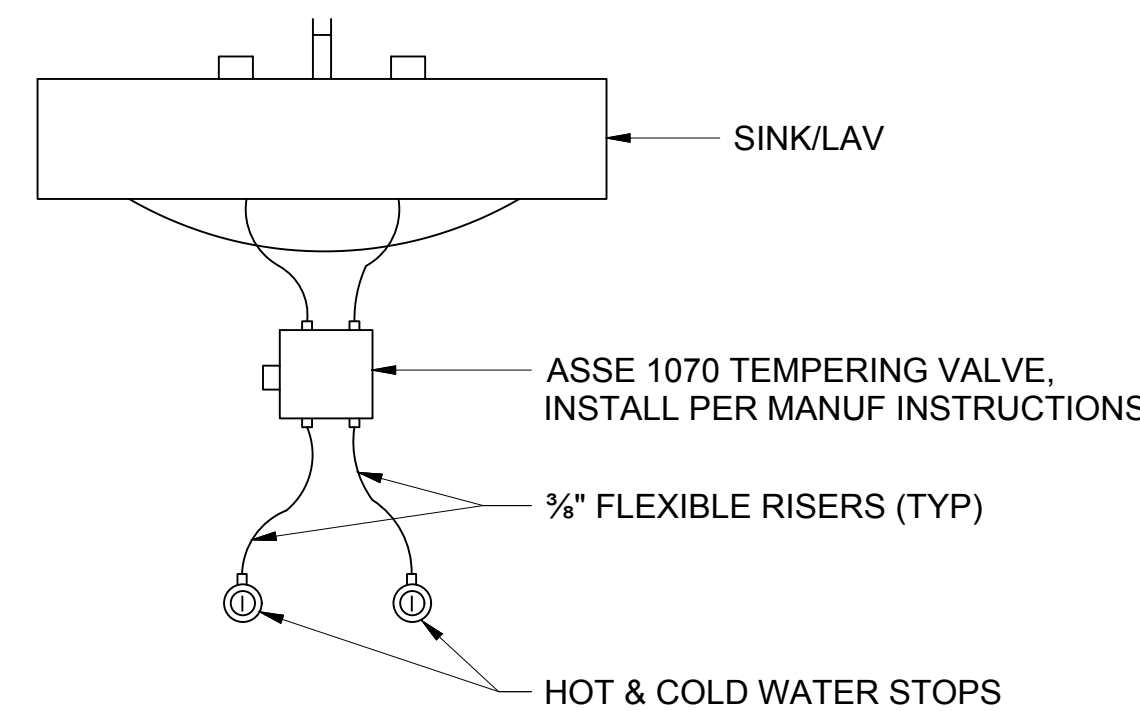
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P300

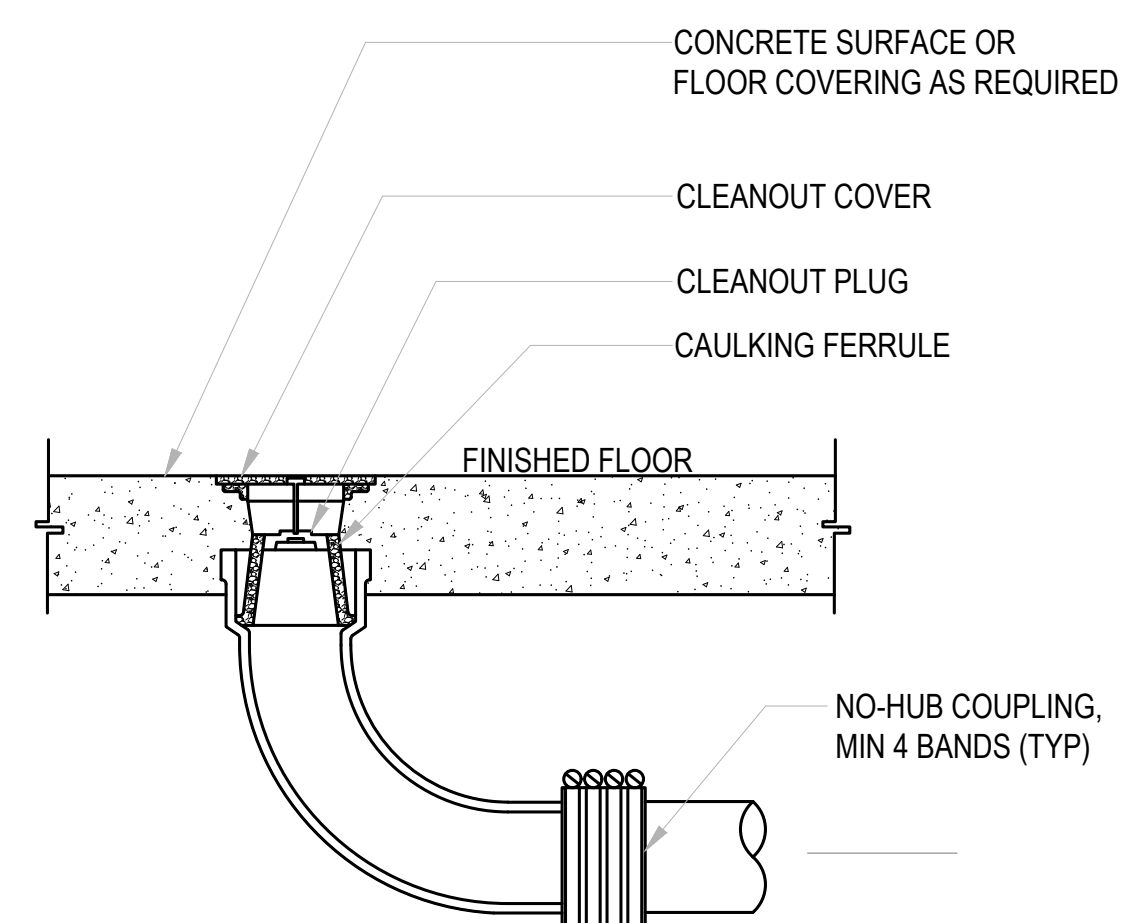
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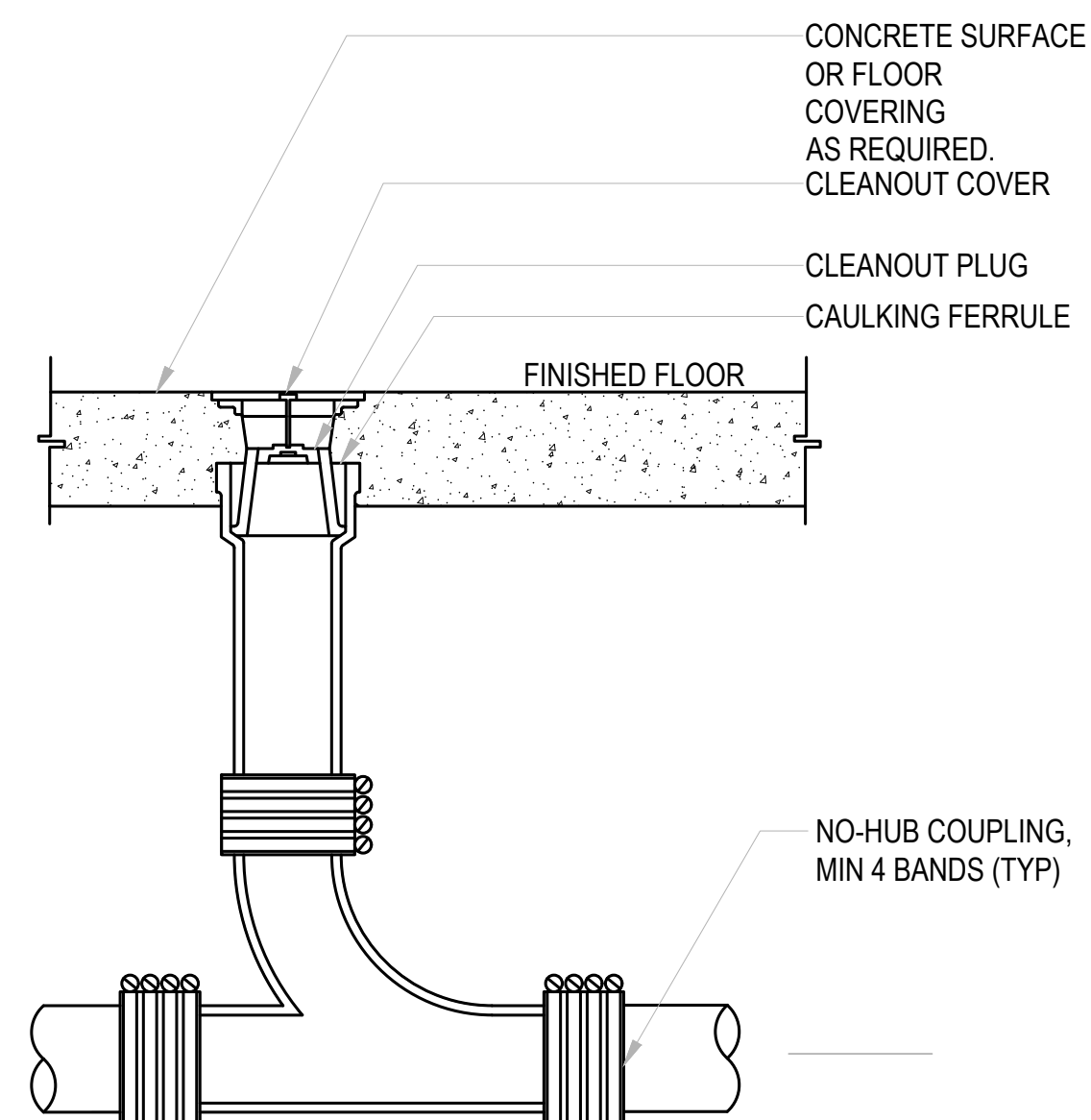
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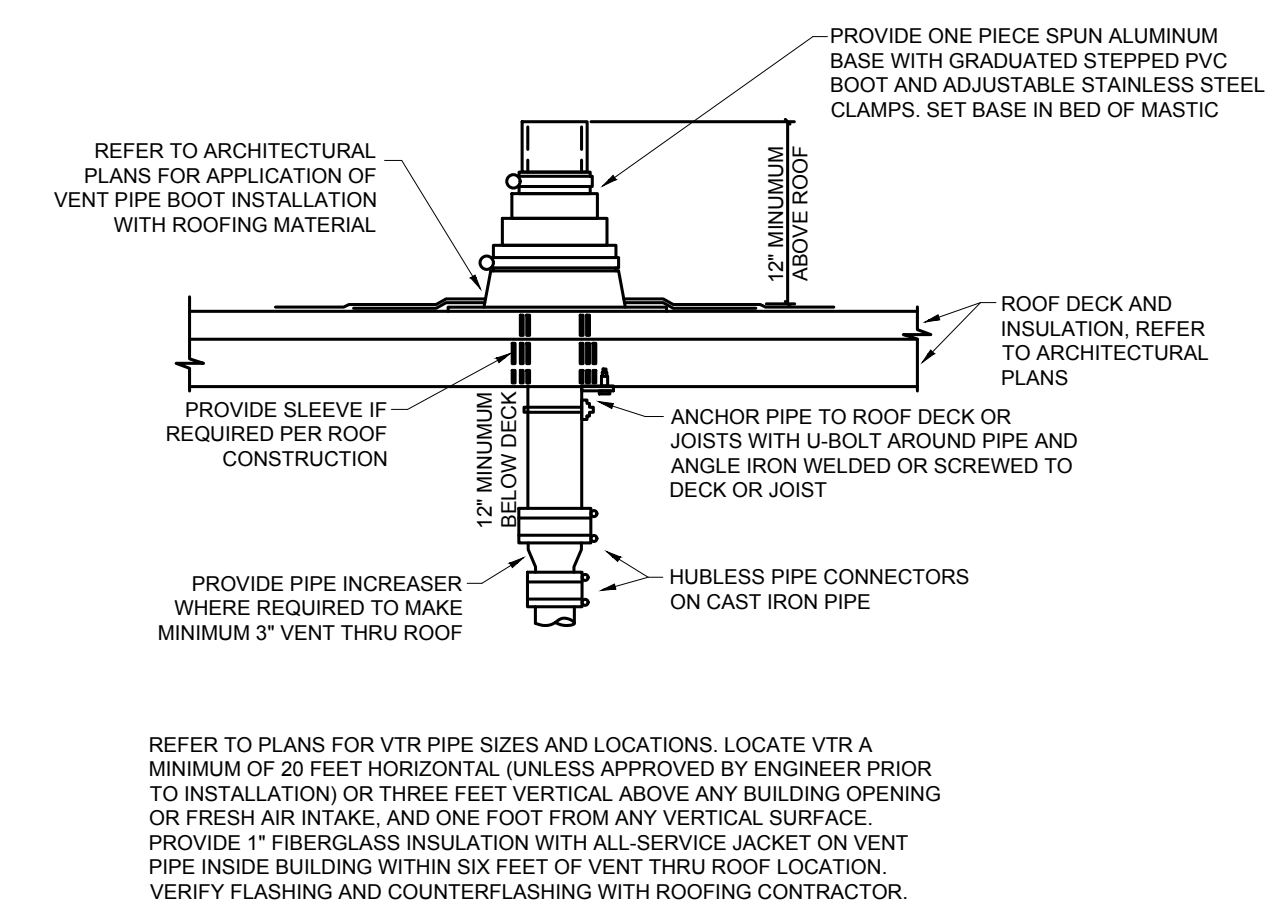
TYPICAL TEMPERING VALVE FOR SINKS AND LAV'S



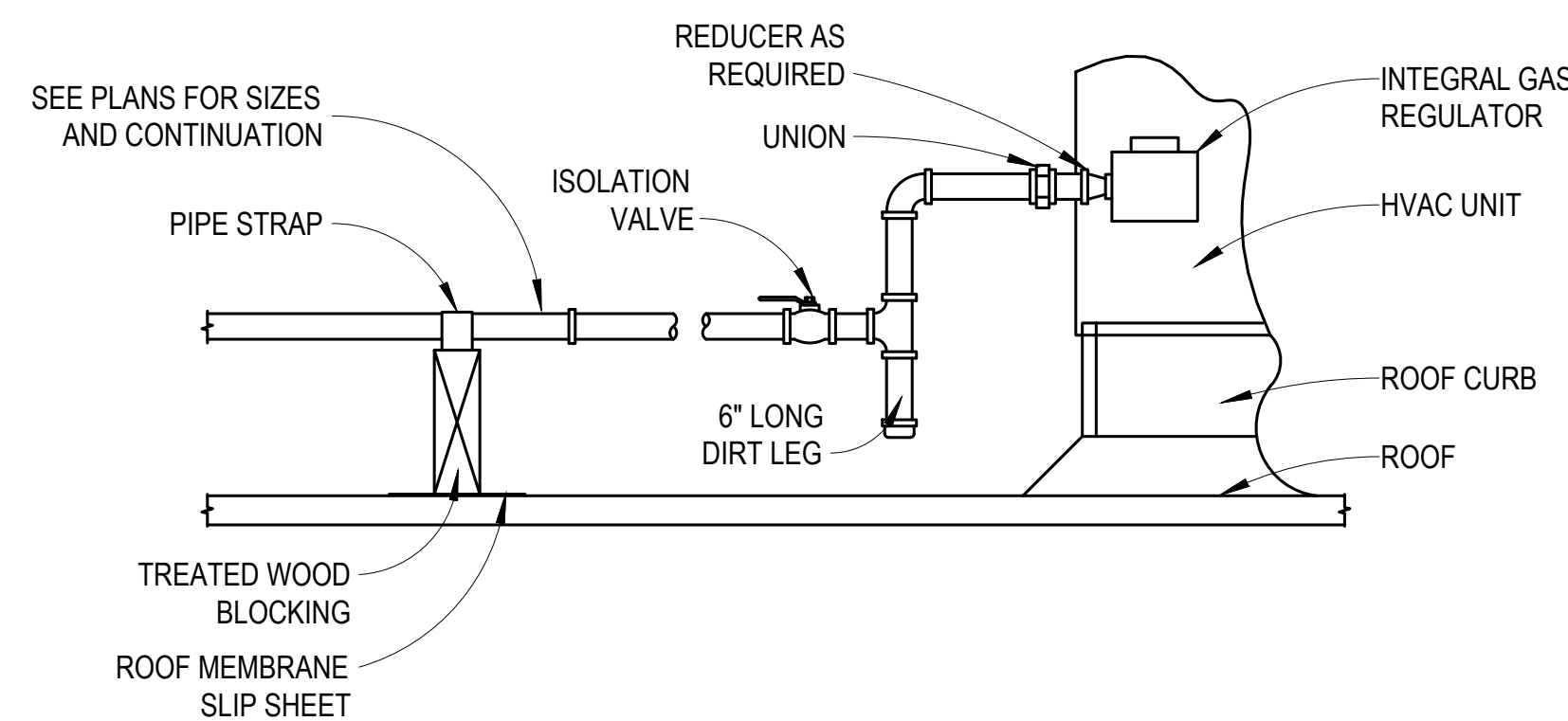
NOTES:
1. REFER TO PLANS FOR SIZES AND CONTINUATION.



NOTES:
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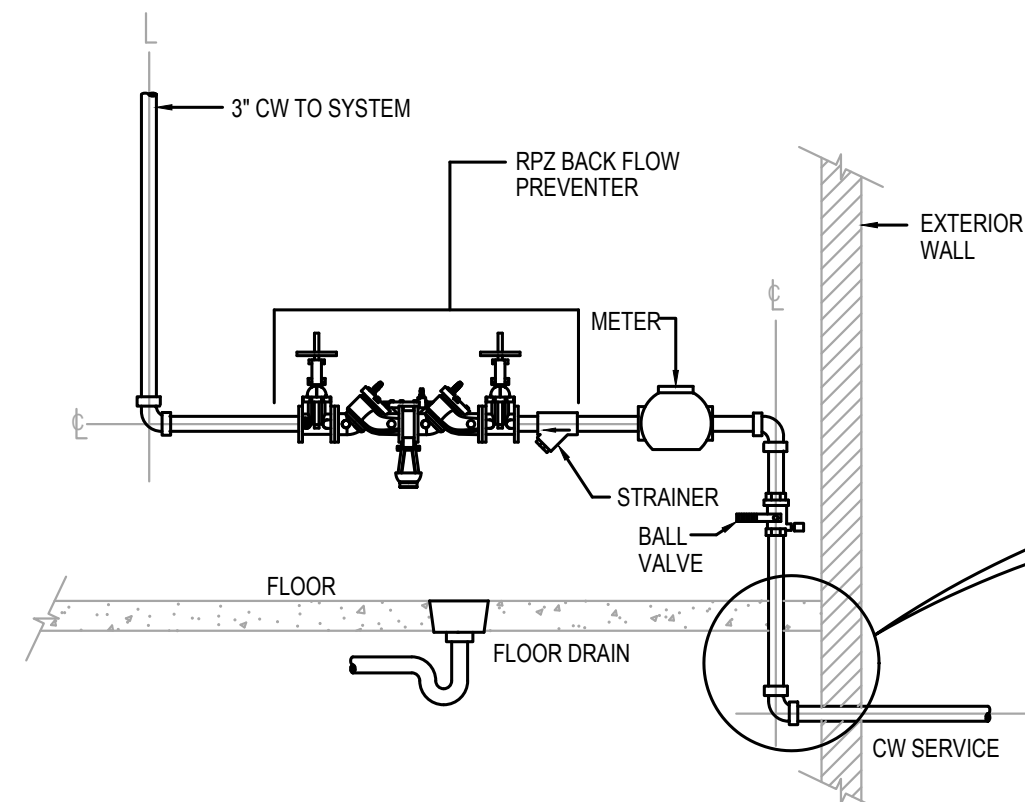
VENT THRU ROOF (VTR) DETAIL



CLEANOUT DETAILS

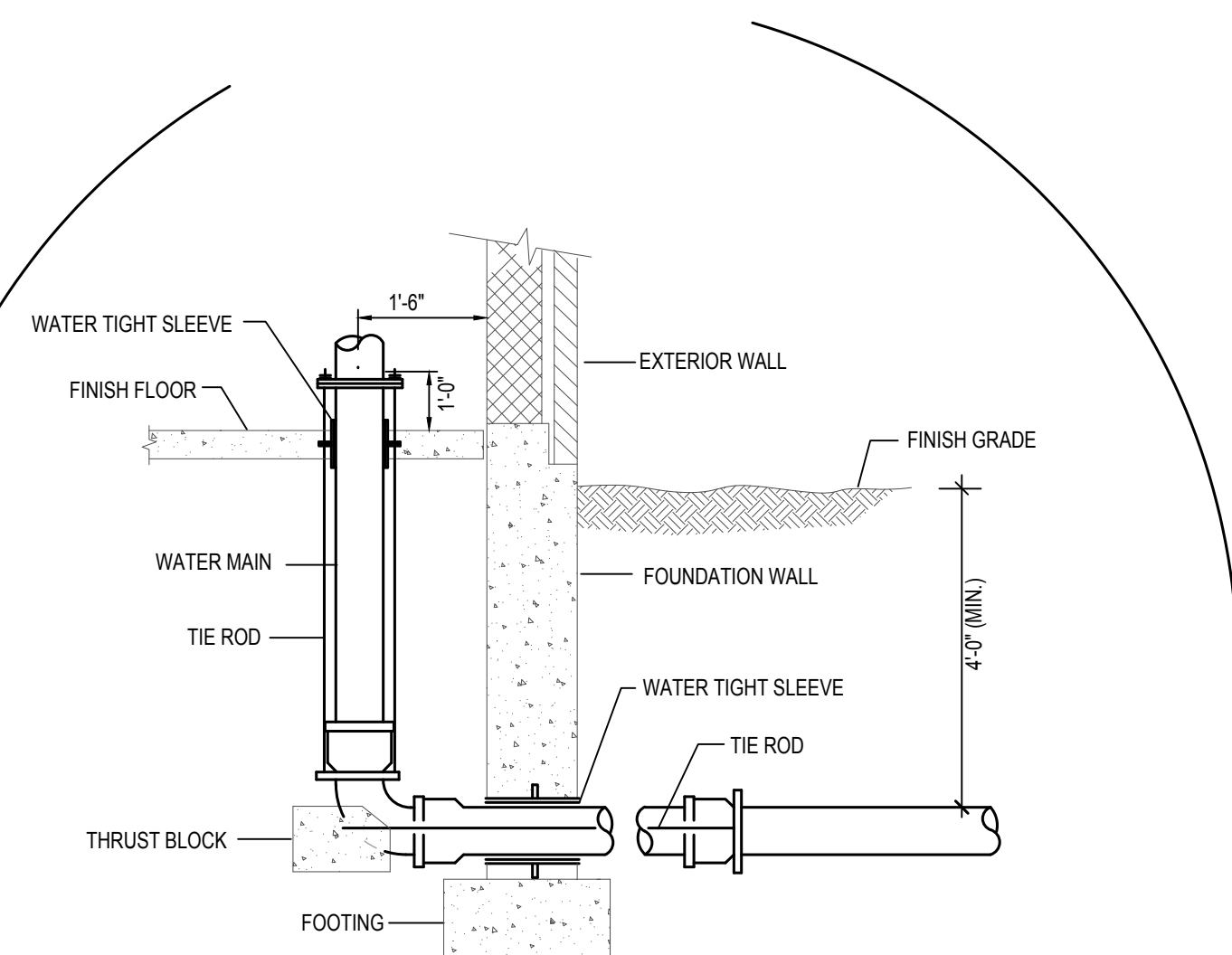
NOTE:
1. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ROOF CURBS AND PIPE PORTAL.
2. BUILDING GAS PRESSURE IS LOW PRESSURE (LESS THAN 2 PSI)

GAS CONNECTION TO RTU DETAIL



NOTES:
1. R.P.Z. SHALL BE LOCATED WITHIN THE BUILDING AFTER BUT CLOSE TO THE POINT OF SERVICE ENTRY.
2. R.P.Z. SHALL BE INSTALLED ABOVE GROUND AND IN HORIZONTAL POSITION ONLY. COORDINATE INSTALLATION REQUIREMENTS WITH LOCAL WATER COMPANY AND LOCAL AUTHORITY HAVING JURISDICTION.
3. R.P.Z. SHALL BE INSTALLED BETWEEN 12\"/>

INCOMING WATER SERVICE CONNECTION DETAIL



MAIN AND TIE BACK DETAIL

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PLUMBING DETAILS

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Blacksburg, VA

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P400

SHEET

PLUMBING SPECIFICATIONS:

1. GENERAL PROVISIONS:

- 1.A. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, ALL FEDERAL, STATE, AND CITY CODES, ORDINANCES, AND STANDARDS.
- 1.B. THE PLANS ARE DIAGRAMMATIC IN NATURE AND BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL THE DETAILS OF THE EQUIPMENT. VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT PROPOSED TO BE USED. INSTALLATION SHALL BE WITHIN THE LIMITATIONS IMPOSED BY THE ARCHITECTURAL, STRUCTURAL, HVAC, ELECTRICAL, AND PLUMBING REQUIREMENTS WITH ADEQUATE SPACE FOR MAINTENANCE.
- 1.C. 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.
- 1.D. MAJOR ITEMS ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INCIDENTAL ITEMS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM.
- 1.E. A 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.
- 1.F. SIMILAR ITEMS SHALL BE PROVIDED BY A SINGLE MANUFACTURER.
- 1.G. ALL REQUIRED WALL OR FLOOR OPENINGS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR AND/OR OTHER RELEVANT TRADES.
- 1.H. ALL PIPING SHALL BE INSTALLED ABOVE THE CEILING UNLESS INDICATED OTHERWISE. ALL WATER PIPING AND P-TRAPS SHALL BE INSTALLED WITHIN THE BUILDINGS INSULATION ENVELOPE OR BE PROVIDED WITH A FREEZE PROTECTION SYSTEM.
- 1.I. 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 MANUFACTURERS STANDARDIZATION SOCIETY (MSS) STANDARDS SP-58, 69 AND 89.
- 1.J. THE CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL EQUIPMENT INDICATED TO BE FURNISHED BY OTHERS.

2. SUBMITTAL AND SHOP DRAWINGS:

- 2.A. SUBMIT MANUFACTURER'S CERTIFIED DATA RELATIVE TO ALL EQUIPMENT, PIPING, CONTROLS, ETC. REQUIRED FOR THE INSTALLATION OF THE PLUMBING AND FIRE PROTECTION SYSTEMS. SUBMIT FOR REVIEW ALL NECESSARY ENGINEERING, PRODUCT AND INSTALLATION DATA, SHOP DRAWINGS, SAMPLES ETC. FOR ALL EQUIPMENT, MATERIAL, AND SYSTEMS TO ASCERTAIN COMPLIANCE WITH THE TECHNICAL REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- 2.B. SUBMIT A DIGITAL PDF OF ALL NECESSARY DATA, CUTS, MANUFACTURER'S SELECTIONS, CATALOGS, BULLETINS, INSTALLATION INSTRUCTIONS, DRAWINGS, DIAGRAMS, CURVES, ETC. CLEARLY INDICATE ON THE SUBMITTED DATA, THE MANUFACTURER'S NAME, PRODUCT NUMBER(S), OPTIONS, EQUIPMENT CAPACITY, DIMENSIONAL DATA, WEIGHTS, AND OTHER APPLICABLE TECHNICAL DATA FOR THE PROJECT.
- 2.C. TRADE NAMES, MANUFACTURERS, AND CATALOGUE NUMBERS ARE MENTIONED HEREIN AND ON THE DRAWINGS SOLELY IN ORDER TO ESTABLISH A STANDARD FOR THE TYPE, GENERAL DESIGN, AND QUALITY OF PRODUCT REQUIRED. OTHER PRODUCTS SIMILAR IN DESIGN OF EQUIVALENT QUALITY CAPABLE OF FITTING WITHIN THE SPACES ALLOCATED AND COMPLYING WITH THE DRAWINGS AND SPECIFICATIONS WILL BE CONSIDERED AFTER THE CONTRACT IS LET

UNLESS "PRIOR APPROVAL" REQUIREMENTS ARE SET FORTH IN THESE DOCUMENTS.

- 2.D. REVIEW OF SUBMITTALS AND SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR FITTING THE EQUIPMENT IN THE SPACE ALLOTTED WITH SPACE FOR ALL CONNECTIONS AND SERVICING AND FOR THE COORDINATION OF THE WORK WITH WORK OF OTHER TRADES.
- 2.E. THE CONTRACTOR SHALL REVIEW ALL SUBMITTALS AND SHOP DRAWINGS AND INDICATE BY STAMP OR LETTER THAT HE HAS REVIEWED THEM, BEFORE FORWARDING THEM TO THE ARCHITECT AND/OR ENGINEER. SUBMITTALS AND DRAWINGS WILL BE RETURNED AFTER REVIEW INDICATING WHETHER EXCEPTIONS ARE TAKEN, THE SUBMITTAL RETURNED WITH CORRECTIONS, OR IS COMPLETELY REJECTED. RESUBMISSION OF REVISED SUBMITTALS AND SHOP DRAWINGS, IF REQUIRED, SHALL BE DONE BEFORE INSTALLATION AND CONSTRUCTION IS BEGUN.
- 2.F. CORRECTIONS OR COMMENTS MADE ON THE SUBMITTALS AND DRAWINGS DURING THIS REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THIS REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FABRICATION PROCESSES, TECHNIQUES OF CONSTRUCTION, COORDINATING THE WORK WITH THAT OF ALL OTHER TRADES, AND PERFORMING WORK IN A SAFE AND SATISFACTORY MANNER. REVIEW OF THE SUBMITTALS SHALL NOT PERMIT ANY DEVIATION FROM PLANS AND SPECIFICATIONS.
- 3. AS-BUILT DRAWINGS:
 - 3.A. MAINTAIN DAILY UPDATED DRAWINGS SHOWING DEVIATIONS FROM CONSTRUCTION DOCUMENTS. AT THE END OF THE PROJECT, PROFESSIONALLY PREPARE AS-BUILT DRAWINGS AND SUBMIT DRAWINGS TO THE ARCHITECT/ENGINEER.
- 4. OPERATION AND MAINTENANCE MANUALS:
 - 4.A. UPON COMPLETION OF THE PROJECT, SUBMIT ALL OPERATION AND MAINTENANCE MANUALS, WARRANTIES, SPARE PARTS LIST, AS-BUILT DRAWINGS, TEST AND BALANCE REPORTS, AND LETTER OF GUARANTEE ALL BOUND IN THREE RING BINDERS, CLEARLY SHOWING WHICH EQUIPMENT WAS SUPPLIED TO THE JOB.
- 5. PIPING SPECIALTIES:
 - 5.A. 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.
 - 5.B. 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.
 - 5.C. 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.
 - 5.D. WATER HAMMER ARRESTORS (WHA): PROVIDE AT ALL FAST OPENING WATER VALVES INCLUDING WATER CLOSETS, URNIALS, AND CLOTHES WASHERS. SHALL BE ZURN MODEL 1260XL OR EQUIVALENT AND SHALL BE SIZED AND PLACED WITHIN THE SYSTEM AS RECOMMENDED BY THE MANUFACTURER.

6. INSULATION:

- 6.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.
- 6.B. 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.
- 6.C. MATERIALS:
 - 6.C.A. 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.
 - 6.C.B. 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.
 - 6.C.C. A POLYETHYLENE PIPE INSULATION: INSULATION MATERIALS CORPORATION OF AMERICA (IMCOA), FLEXIBLE CLOSED CELL POLYETHYLENE TUBING, ASTM C534. "K"=0.24 AT 75 DEGREES F, SERVICE TEMPERATURE -110F TO 210F. NO JACKET REQUIRED.
- 6.D. OMIT INSULATION ON EXPOSED PLUMBING FIXTURE RUNOUTS FROM FACES OF WALL OR FLOOR TO FIXTURE; ON UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS, AND EXPANSION JOINTS.
- 6.E. COVER VALVES, FITTINGS AND SIMILAR ITEMS IN EACH PIPING SYSTEM WITH EQUIVALENT THICKNESS AND COMPOSITION OF INSULATION AS APPLIED TO ADJOINING PIPE RUN.
- 6.F. ALL DOMESTIC WATER PIPING ABOVE GROUND INCLUDING COLD, HOT, AND HOT WATER RE-CIRCULATING PIPING SHALL BE INSULATED WITH A MINIMUM 1/2" THICK INSULATION.
- 7. PLUMBING PIPING:
 - 7.A. DOMESTIC WATER PIPING SHALL BE COPPER TUBE AND FITTINGS IN ACCORDANCE WITH ASTM B88, TYPE L HARD DRAWN COPPER. JOINTS SHALL BE MADE WITH LEAD FREE SOLDER.
 - 7.B. STORM, SOIL, WASTE, AND VENT PIPING BELOW GRADE SHALL BE SCHEDULE 40 PVC PIPE AND FITTINGS. PVC SCHEDULE 40 PIPE SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1785. INJECTION MOLDED PVC SCHEDULE 40 FITTINGS SHALL CONFORM TO ASTM D 2466. PIPE AND FITTINGS SHALL BE MANUFACTURED AS A SYSTEM AND BE THE PRODUCT OF ONE MANUFACTURER. PIPE AND FITTINGS SHALL CONFORM TO NSF INTERNATIONAL STANDARD 61 AND THE HEALTH-EFFECTS PORTION OF NSF STANDARD 14.
 - 7.C. STORM, SOIL, WASTE, AND VENT PIPING ABOVE GRADE SHALL BE HUBLESS CAST IRON TYPE DESIGNED FOR SAID APPLICATION. HUBLESS CAST IRON PIPE AND FITTINGS SHALL BE MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 888 AND CISPI STANDARD 301. ALL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE® AND LISTED BY NSF® INTERNATIONAL. HUBLESS COUPLINGS SHALL CONFORM TO CISPI STANDARD 310, SHALL BE MANUFACTURED IN THE UNITED STATES, AND BE CERTIFIED BY NSF® INTERNATIONAL.
 - 7.D. CONDENSATE DRAINS SHALL BE TYPE L HARD DRAWN COPPER. JOINTS SHALL BE MADE WITH LEAD FREE SOLDER.
 - 7.E. SLOPE ALL DRAIN LINES AT 1/4 INCH PER FOOT FOR

SIZES LESS THAN 4 INCHES. SLOPE AT 1/8 INCH PER FOOT FOR SIZES 4 INCH AND LARGER.

- 7.F. SOIL, WASTE, AND VENT PIPING BELOW GRADE SHALL BE A MINIMUM OF 2 INCH AND SHALL BE PROVIDED WITH METALLIC TRACING/DETECTION WIRE.
- 7.G. VENTS SHALL EXTEND A MINIMUM OF 12 INCHES ABOVE THE ROOF. ROOF FLASHING SHALL BE PROVIDED AND COORDINATED WITH THE GENERAL AND ROOFING CONTRACTORS.
- 7.H. TRENCHING AS REQUIRED FOR UNDERGROUND PIPING SHALL BE GRADED TO UNIFORM PITCH AND SHALL BE NO WIDER THAN NECESSARY FOR PIPING INSTALLATION. CLEAN BACKFILL SHALL BE USED AND THOROUGHLY TAMPED IN LAYERS NOT EXCEEDING 6 INCHES TO A MINIMUM DEPTH OF 1 FOOT ABOVE PIPE. COMPACTED BACKFILL SHALL BE USED FOR THE ENTIRE DEPTH OF EXCAVATION UNDER SLAB ON GRADE CONSTRUCTION.
- 7.I. NATURAL GAS SYSTEMS: PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE, ASTM A120/A53-CW OR ASTM/A53 GRADE B (WELDED OR SEAMLESS); WROUGHT STEEL BUTTWELDING FITTINGS. GAS COCKS 2 INCHES AND SMALLER SHALL BE RATED FOR 150 PSI, NON SHOCK WOG, BRONZE STRAIGHTWAY COCK, FLAT OR SQUARE HEAD, WITH THREADED ENDS. ALL GAS PIPING CONNECTIONS SHALL BE PROVIDED WITH A 6 INCH DIRT TRAP, UNION, AND GAS COCK SHUT OFF VALVE. ALL JOINTS SHALL BE SEALED WITH CHEMICALLY RESISTANT SEALER APPLIED TO MALE THREADS OF PIPE CONNECTION. GAS PIPING SHALL BE INSTALLED WITH A 1/64 INCH PER FOOT DOWNWARD SLOPE IN THE DIRECTION OF FLOW. A ROLLER BEARING TYPE PIPE SUPPORT SHALL BE USED TO SUPPORT ALL GAS PIPING LOCATED ON THE ROOF. SUPPORTS SHALL HAVE A POLYCARBONATE BASE, WITH PIPE RESTING ON A SELF LUBRICATING POLYCARBONATE RESIN AXLE AND ROLLER AND BE SIZED FOR THE PIPE BEING SUPPORTED. MAXIMUM SPACING SHALL NOT EXCEED 10FT.
- 8. PLUMBING FIXTURES, PUMPS, AND WATER HEATERS SHALL BE PROVIDED AND INSTALLED AS PER THE PLUMBING FIXTURE SCHEDULE. ALL EXPOSED FIXTURE SUPPLIES AND WASTE LINES SHALL BE CHROME PLATED. NO EXPOSED COPPER, PVC, AND/OR CAST IRON IS ALLOWED.
- 9. 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.
- 10. PLUMBING VALVES
 - 10.A. PROVIDE SHUT-OFF VALVE AND UNION OR EQUIVALENT AT EACH HOT AND COLD WATER EQUIPMENT CONNECTION. PROVIDE SHUTOFF VALVE ON EACH BRANCH OR RISER THAT SERVES TWO OR MORE PLUMBING FIXTURES.
 - 10.B. GATE VALVES 2-1/2 INCHES AND SMALLER: ALL BRONZE, RISING STEM, SOLID WEDGE DISC. STOCKHAM B-100 OR B-108.
 - 10.C. GLOBE VALVES: ALL BRONZE, RENEWABLE COMPOSITION DISC. STOCKHAM B-16 OR B-14-T.
 - 10.D. CHECK VALVES IN HORIZONTAL PIPES: 2 INCHES AND SMALLER: ALL BRONZE, REGRINDING BRONZE DISC, HORIZONTAL SWING, Y-PATTERN. STOCKHAM B-3190R B-309.
 - 10.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.
 - 10.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.
- 11. CLEANING AND TESTING
 - 11.A. ALL WATER PIPING, VALVES, ETC. SHALL BE THOROUGHLY FLUSHED OF FOREIGN MATTER AND TESTED FOR LEAKS IN ACCORDANCE WITH THE PLUMBING AND BUILDING CODE, LATEST EDITION. ANY LEAKAGE SHALL BE REPAIRED. DISINFECT DOMESTIC WATER PIPING INCLUDING WATER SERVICE PIPING IN ACCORDANCE WITH AWWA C601.
 - 11.B. ALL DRAIN, WASTE AND VENT PIPING SHALL BE TESTED FOR LEAKS IN ACCORDANCE WITH THE PLUMBING AND BUILDING CODE CODE, LATEST EDITION. NO VISIBLE DROP IN WATER LEVEL WILL BE ACCEPTABLE.

END OF SPECIFICATIONS.

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COMM No:	23-30
DRAWN BY:	JNB
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STATE PROJECT No:	

PROGRESS SET
09/03/2024
NOT FOR CONSTRUCTION

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P500

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