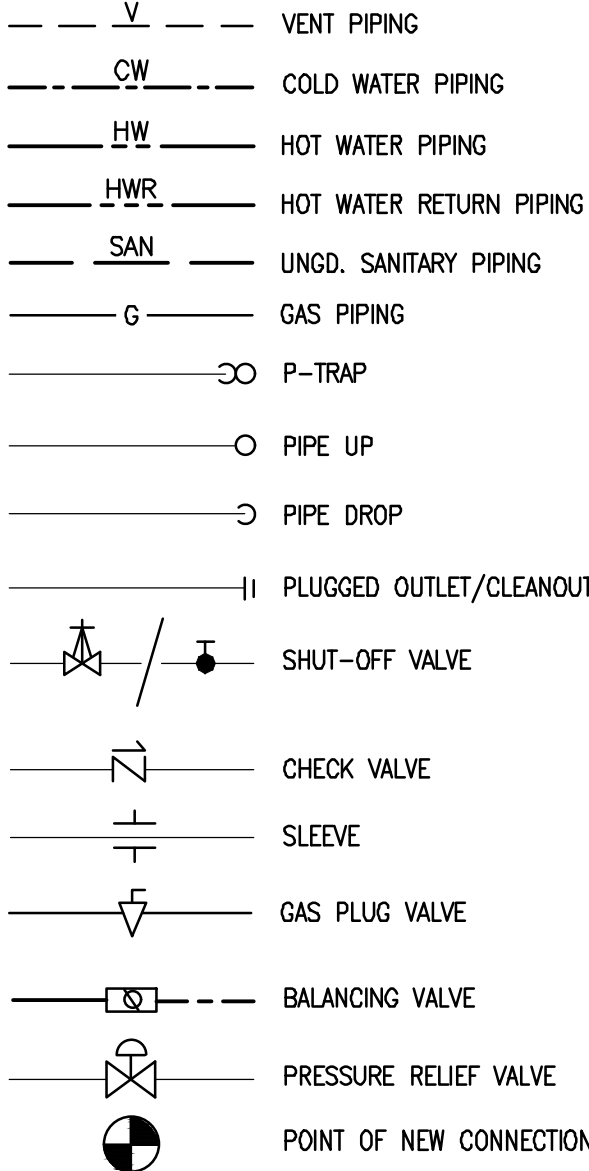


PLUMBING SYMBOLS LIST



PLUMBING ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
BFP	BACK FLOW PREVENTER
CW	COLD WATER
DN	DOWN
DF	DRINKING FOUNTAIN
E	EXISTING
ET	EXPANSION TANK
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
G	GAS
HW	HOT WATER
HWR	HOT WATER RETURN
L	LAVATORY
MS	MOP SINK
SAN	SANITARY
SQ. FT.	SQUARE FEET
PS	PANTRY SINK
TYP.	TYPICAL
V	VENT
VTR	VENT THRU ROOF
W	WASTE
WH	HOT WATER HEATER
WC	WATER CLOSET
GR	GAS RANGE
AHU	AIR HANDLING UNIT
FCB	FLORIDA BUILDING CODE
PC	PLUMBING CODE
AHJ	AUTHORITY HAVING JURISDICTION

CODE COMPLIANCE

ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT:

- 2023 FLORIDA BUILDING CODE – 8TH EDITION.
- 2023 FLORIDA MECHANICAL CODE– 8TH EDITION.
- 2023 FLORIDA PLUMBING CODE – 8TH EDITION.
- 2020 NATIONAL ELECTRICAL CODE (NFPA 70).
- 2023 FLORIDA ENERGY CONSERVATION CODE – 8TH EDITION.
- 2023 FLORIDA FUEL GAS CODE – 8TH EDITION.

BUILDING DEPARTMENT PLUMBING NOTES:

1. ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, GAS & WATER DISTRIBUTION PIPING SYSTEMS) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2023 FLORIDA PLUMBING CODE, 8TH EDITION.
2. INSTALLATION OF UNDERGROUND SANITARY DRAINAGE AND VENT PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IN PC 702.2
3. PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION IN PC 305.
4. TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION IN PC 306.
5. RODENT PROOFING AS PER IN PC 304.
6. MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IN PC 303, PC 402, PC 605, PC 702, PC 802, PC 902 & PC 1004.
7. EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
8. DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002. AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708
9. BUILDING HOUSE TRAPS SHALL BE PROVIDED AS PER SECTION PC 1002.
10. DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
11. VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308
12. WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601–603, 604, 606, 607, 608, 610
13. THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF PC CHAPTER 7 SECTIONS PC 701 THROUGH PC 712.
14. VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTIONS PC 901 THROUGH PC 912 THROUGH PC 917
15. THE GAS PIPING SHALL BE SIZED AND INSTALLED IN ACCORDANCE 2023 FBC FUEL GAS CODE 8TH EDITION CHAPTER 4.
16. INSPECTION AND TESTING OF PLUMBING AND GAS PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC107,312.

PLUMBING DRAWING LIST

P0.1	PLUMBING SYMBOLS, ABBREVIATIONS, NOTES & SPECIFICATIONS
P0.2	PLUMBING SPECIFICATIONS
P1.0	PLUMBING SANITARY AND VENT FLOOR PLAN
P1.1	PLUMBING WATER SUPPLY AND GAS FLOOR PLAN
P2.0	PLUMBING DETAILS
P3.0	PLUMBING SCHEDULE
P3.1	PLUMBING WATER SUPPLY AND SANITARY RISER DIAGRAMS
P3.2	PLUMBING GAS RISER DIAGRAM

PLUMBING SPECIFICATIONS:

1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS
- 1.01 SCOPE
 - A. PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
 - B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.
 - C. OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.
 - D. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.
 - E. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.
 - F. IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
 - G. ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
 - H. COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.
 - I. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.
 - J. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
 - K. THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
- 1.02 SUBMITTALS
 - A. SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION, UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.
 1. PIPE AND FITTINGS
 2. VALVES
 3. HANGERS AND SUPPORTS
 4. PLUMBING PIPING LAYOUT
 5. TESTS
 6. PLUMBING FIXTURES
 7. WATER HEATERS & ACCESSORIES
 8. MIXING VALVES
 9. BACKFLOW PREVENTER
 10. ALL SCHEDULED PLUMBING EQUIPMENT
 - B. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.
 - C. THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.
 - D. REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
 - E. SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.
 - F. SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.
 - G. FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.
 - H. RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.
- 1.03 SUBSTITUTIONS
 - A. ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURER'S EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.
 - B. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.
- 1.04 DEFINITIONS
 - A. FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.

B. INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.

C. PROVIDE: TO FURNISH AND INSTALL.

D. PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.

E. REFER TO THE NATIONAL STANDARD PLUMBING CODE FOR ADDITIONAL DEFINITIONS.

1.05 DRAWINGS

A. THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.

B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.

C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.

D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.

E. VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.

F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

1.06 PRODUCTS

A. SANITARY AND VENT PIPING:

1. ABOVE GRADE SANITARY AND VENT PIPING SHALL BE POLYVINYL CHLORIDE (PVC) PLASTIC PIPE WITH A SOLID CELLULAR CORE OR COMPOSITE WALL. PIPE SHALL BE COMPLY WITH ASTM D2665, ASTM F891, ASTM F1488, CSA B181.2. PVC PIPE AND FITTINGS AS SPECIFIED UNDER SECTION 702.1 SHALL BE USED. OR SHALL MATCH WITH EXISTING PIPING MATERIALS IN COMPLIANCE WITH 2023 FBC, PC SECTIONS 702 AND 902.

2. BELOW GROUND SANITARY AND VENT PIPING SHALL BE POLYVINYL CHLORIDE (PVC) PLASTIC PIPE.PIPE SHALL COMPLY WITH ASTM D 2665, ASTM F 891, CAS B181.2 AND FITTING WITH JOINTS MADE WITH PVC ASTM D 3034 AND FITTINGS AS SPECIFIED UNDER SECTION 702.4 SHALL BE USED. OR SHALL MATCH WITH EXISTING PIPING MATERIALS IN COMPLIANCE WITH 2023 FBC, PC SECTIONS 702 AND 902.

3. SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE 3" TO 6" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 2-1/2" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.

4. PVC OR OTHER COMBUSTIBLE PLASTIC PIPING SHALL NOT BE INSTALLED IN CEILING PLENUM SPACES.

B. DOMESTIC WATER PIPING:

1. ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.

2. FITTINGS IN DOMESTIC WATER PIPING SHALL BE WROUGHT COPPER OR CAST BRASS.

3. JOINTS SHALL BE MADE WITH LEAD–FREE SOLDER.

4. THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.

5. COMPLY WITH NSF 61 FOR MATERIALS FOR WATER–SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.

6. ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE–RETARDANT, FACTORY–APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY–APPLIED VAPOR BARRIER. INSULATION REQUIREMENTS SHOULD COMPLY WITH 2023 FLORIDA ENERGY CONSERVATION CODE, 8TH EDITION SECTION C403.2.10 REFER BELOW TABLE.

MINIMUM PIPE INSULATION THICKNESS									
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)						
	CONDUCTIVITY BTU·IN./ (H·FT²·°F)	MEAN RATING TEMPERATURE, °F	<1	1 to < 1½	1½ to < 4	4 to < 8	>8		
105–140	0.21–0.28	100	1.0	1.0	1.5	1.5	1.5		
40–60	0.21–0.27	75	0.5	0.5	1.0	1.0	1.0		

7. WATER DISTRIBUTION SYSTEM AS PER FLORIDA ENERGY CONSERVATION CODE 2023, 8TH EDITION, C404.7, HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:

a. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.

b. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).

8. AS PER FLORIDA ENERGY CONSERVATION CODE 2023, 8TH EDITION, C404.6.1 HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL

AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER.

NOMINAL PIPE SIZE (INCHES)	MAXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1¼"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

9. SEAL ALL JOINTS BETWEEN SEGMENTS OF INSULATION.

10. PROVIDE SHIELDS BETWEEN HANGERS AND INSULATION.

C. MIXING VALVES

1. VALVE BODY SHALL BE MADE OF CAST BRASS. THE INTERNAL COMPONENTS SHALL BE MADE OF BRASS OR STAINLESS STEEL.

2. TYPES A, C & D VALVES: VALVE SHUTS OFF IN FULL COLD POSITION AND MUST PASS THROUGH COLD RANGE BEFORE DELIVERING WARM AND/OR HOT WATER. TEMPERATURE LIMIT SET AT 105°F MAXIMUM DELIVERY TEMPERATURE. IF ONE SUPPLY SHOULD FAIL, THE OTHER WILL AUTOMATICALLY AND INSTANTLY SHUT DOWN. DELIVERY CAPACITY IS 5GPM @ 45 PSIG DIFFERENTIAL.

3. TYPES OF VALVES: TYPE A– THERMOSTATICALLY OPERATED BY MEANS OF BI–METALLIC STRIP, OR EXPANSION BELLOW; TYPE B– SINGLE HANDLE MECHANICAL MIXER, OR INDIVIDUAL HOT AND COLD CONTROL VALVES; TYPE C– PRESSURE BALANCING SHOWER VALVE/PISTON OPERATED MIXING VALVE; TYPE D– BALANCED PRESSURE OPERATION, WITH INTEGRAL DIAL THERMOMETER INDICATING DELIVERED WATER TEMPERATURE.

4. EACH ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUT–OFF SWITCH. ALL INTERNAL CIRCUITS SHALL BE FUSED. THE OUTER JACKET SHALL BE OF BAKED ENAMEL FINISH AND SHALL BE PROVIDED WITH FULL SIZE CONTROL COMPARTMENT FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH HINGED FRONT PANEL AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. ELECTRICAL JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK SHALL BE PROVIDED. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.

D. GAS FIRED WATER HEATER

1. TANKLESS GAS FIRED WATER HEATER WITH TOTAL APPLICATION FLOW OF 5.2 GPM CAPACITY @60°F.

2. BURNER SHALL BE ALUMINIZED STEEL OR CAST IRON, ADJUSTABLE, OR SELF–ADJUSTING AIR–GAS MIXTURE CONTROL.

3. INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH NFPA 54, NFPA 211, AND THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.

4. THE OUTER JACKET SHALL BE STEEL WITH BAKED ENAMEL/ACRYLIC FINISH AND SHALL BE PROVIDED WITH ACCESS DOOR FOR SERVICING CONTROLS AND BURNER

5. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.

E. HANGERS AND SUPPORTS:

1. HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.

2. SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.

3. ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS.

4. PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

5. UNLESS OTHERWISE INDICATED OR REQUIRED BY AUTHORITIES HAVING JURISDICTION, THE FOLLOWING SHALL BE PROVIDED WITH SEISMIC RESTRAINTS AS REQUIRED BY THE BOCA NATIONAL BUILDING CODE, SECTION 1610.6.4: ALL EQUIPMENT AND MACHINERY, ALL NEW PIPING 2–1/2" AND LARGER (1–1/4" AND LARGER INBOILER/MECHANICAL ROOMS) WITH HANGERS GREATER THAN 12" IN LENGTH FROM THE TOP OF PIPE TO THE STRUCTURE.

6. SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

F. GAS PIPING

1. ALL GAS PIPING WORK SHALL COMPLY WITH 2023 FLORIDA BUILDING CODE, FUEL GAS, 8TH EDITION, LOCAL UTILITY GAS REQUIREMENTS.

2. FURNISH AND INSTALL ALL NECESSARY GAS PIPING TO ALL EQUIPMENT REQUIRING GAS SUPPLY.

3. PROVIDE A LUBRICATED GAS VALVE AT ALL CONNECTIONS TO EQUIPMENT.

4. ALL GAS PIPING AND INSTALLATION SHALL BE IN ACCORDANCE WITH RULES AND REGULATIONS OF LOCAL UTILITY GAS COMPANY AND OTHER AUTHORITIES HAVING JURISDICTION.

5. PROVIDE ADEQUATE SUPPORT FOR ALL PIPING.

6. GAS PIPING SHALL BE BLACK STEEL SCHEDULE 40 THREADED PIPE CONFORMING TO ANSI B36–20. FITTINGS SHALL BE MALLEABLE IRON.

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G. VALVES:

1. PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT-OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4", PROVIDE GATE VALVES. PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT-OFF DUTY.
2. ALL FIXTURES WITH THE EXCEPTION O FLUSHOMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
3. ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF VALVES ON SUPPLY LINES.
4. ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
5. ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
6. PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

H. SLEEVES AND ESCUTCHEONS:

1. SLEEVES THROUGH STRUCTURAL CONCRETE MEMBERS AND SLEEVES FOR WALLS BELOW GRADE AND FLOORS ON GRADE SHALL BE STANDARD WEIGHT GALVANIZED SCHEDULE 40 STEEL PIPE. SLEEVES THROUGH OTHER THAN STRUCTURAL COMPONENTS OF THE BUILDING SHALL BE 20 GAGE GALVANIZED SHEET METAL WITH LOCK SEAM JOINTS. USC THERMAFIBER SAFING INSULATION SHALL BE INSTALLED BETWEEN PIPE AND SLEEVE.
2. PIPE ESCUTCHEON PLATES SHALL BE INSTALLED WHERE EXPOSED PIPING PASSES THROUGH WALLS, CEILINGS, AND FLOORS AND SHALL BE MINIMUM 20 GAGE STEEL. PROVIDE CHROME PLATED ESCUTCHEON PLATES IN FINISHED AREAS.

I. DRAINAGE ACCESSORIES

1. GENERAL:
 - a. INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.
 - b. SECURE EXTERNAL COMPONENTS IN PLACE WITH VANDAL RESISTANT FASTENERS OR DEVICES WHICH CANNOT BE REMOVED WITHOUT SPECIAL TOOLS.
2. DEVICES:
 - a. CLEANOUT & CLEANOUT PLUG
 - THREADED PIPE FITTING OR CAST IRON FERRULE WITH GAS TIGHT CLEANOUT PLUG
 - PLUG SHOULD BE CAST BRASS OR BRONZE, WITH THREADED END, AND RAISED OR COUNTERSUNK HEAD.
 - LUBRICATE THREADS OF CLEANOUT PLUG WITH ANTI-SEIZE LUBRICANT BEFORE FINAL INSTALLATION.
 - b. CLEANOUT WALL PLATE
 - IT SHOULD BE ROUND, STAINLESS STEEL OR POLISHED CHROME PLATED BRONZE COVER PLATE WITH STAINLESS STEEL VANDAL RESISTANT FASTENER TO SECURE TO CLEANOUT PLUG.
 - c. CLEANOUT DECK PLATE
 - IT SHOULD BE STANDARD DUTY FLOOR CLEANOUT FITTING WITH COATED CAST IRON BODY; ROUND, POLISHED NICKEL BRONZE SCORiated TOP SECURED TO CLEANOUT PLUG WITH STAINLESS STEEL VANDAL RESISTANT FASTENER; THREADED HEIGHT ADJUSTMENT, CAST IRON HEAD, GAS TIGHT CLEANOUT PLUG, AND CONNECTION TO MATCH PIPING OPTION SELECTED.

- I. INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.
- J. VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH.
- K. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.
- L. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL. REMOVE PROTECTIVE COATINGS PRIOR TO INSTALLATION.
- M. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.
- N. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.
- O. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.
- P. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

- Q. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.
- R. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL. REMOVE PROTECTIVE COATINGS PRIOR TO INSTALLATION.

- S. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.

- T. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

- U. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.

- V. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

- W. PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.

- X. PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.

- Y. ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.

- Z. ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.

- AA.WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.

- AB.AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.

- AC.ALL PIPING INSTALLED ON THE ROOF SHALL BE SUPPORTED BY "PILLOW BLOCK" PIPE STANDS AS MANUFACTURED BY MIRO INDUSTRIES, OR APPROVED EQUAL. WOOD PIPE SUPPORTS SHALL NOT BE ACCEPTABLE. PROVIDE TRAFFIC/WALK PADS BELOW ALL PIPE STANDS.

- AD.INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.

- AE.PROVIDE WATER HAMMER ARRESTERS ON SUPPLY PIPING TO ALL FLUSHOMETER VALVES AND QUICK-CLOSING VALVES.

- AF.UNLESS OTHERWISE INDICATED, TRAPS SEALS AT ALL FLOOR DRAINS SHALL BE MAINTAINED BY AN APPROVED TRAP PRIMING DEVICE.

- AG.MAINTAIN ALL REQUIRED AND RECOMMENDED CLEARANCES FOR ALL PLUMBING SYSTEM COMPONENTS AND EQUIPMENT.

- M. MAINTAIN MINIMUM 10'-0" CLEARANCE BETWEEN ALL PLUMBING V.T.R.S AND ALL OUTDOOR AIR INTAKES. OFFSET VENT STACKS AND STACK VENTS IF AND AS REQUIRED BELOW ROOF TO MAINTAIN SUCH CLEARANCE WHETHER OR NOT SUCH OFFSET IS INDICATED ON THE DRAWINGS. PROVIDE ALL REQUIRED SEISMIC SUPPORTS.

2. INSTALLATION

2.01 GENERAL

- A. ALL WORK WHICH REQUIRES DISRUPTION OF THE ROOFING SHALL BE DONE BY A CONTRACTOR CERTIFIED BY THE ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ANY EXISTING ROOF WARRANTIES.
- B. EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECTS.
- C. EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.
- D. COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.
- E. REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN AND FERROUS END PIPE.
- F. REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE, BEFORE ASSEMBLY.
- G. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS.
- H. COORDINATION WITH THE WORK OF OTHER TRADES IS REQUIRED. PROVIDE OFFSETS IN PIPING SYSTEMS OR MINOR DEVIATIONS TO THE INDICATED PIPE ROUTING IN ORDER TO COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES AND THE GENERAL BUILDING CONDITIONS.
- I. NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.
- J. PRIOR TO DISCONNECTING AND CONNECTING NEW WORK TO EXISTING SYSTEMS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE PROPERTY MANAGER AND OFFER A PROPOSED SCHEDULE OF WORK. ELECTRICAL SERVICE BOARD(ESB) WILL AUTHORIZE CONNECTIONS AND COORDINATE NECESSARY SHUT DOWNS AND DRAIN DOWNS AS REQUIRED. SHUT DOWNS AND DRAIN DOWNS MAY BE PERFORMED BY THE PLUMBING CONTRACTOR ONLY AFTER RECEIVING ESB AUTHORIZATION, AND SHOULD BE PERFORMED UNDER SUPERVISION OF ESB PERSONNEL. THREE (3) DAYS ADVANCE NOTICE TO THE PROPERTY MANAGER IS REQUIRED.
- K. THE PLUMBING CONTRACTOR IS ADVISED THAT DUE TO THE NATURE OF

THE OPERATIONS AND TENANT REQUIREMENTS, CONNECTIONS TO EXISTING SYSTEMS MAY HAVE TO BE MADE AFTER REGULAR WORKING HOURS. THE PROPERTY MANAGER WILL ADVISE THE PLUMBING CONTRACTOR OF THE TIME CONSTRAINTS UPON RECEIPT AND APPROVAL OF THE PLUMBING CONTRACTOR'S REQUEST FOR SHUT DOWN AND CONNECTION TO EXISTING SYSTEMS.

- L. WHEN CONNECTING TO EXISTING STACKS AND RISERS, PROVISION IS TO BE MADE FOR FUTURE CONNECTIONS BY PROVIDING CAPPED AND VALVED OUTLETS ON DOMESTIC WATER RISERS AND PLUGGED OUTLETS ON THE SANITARY AND VENT STACKS.

2.02 ABOVE GRADE

- A. INSTALL PLUMBING PIPING IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PIPING COMPLIES WITH REQUIREMENTS AND SERVES INTENDED PURPOSES.

- B. ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE. MAINTAIN GRADIENT. SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN. IN DOMESTIC WATER SYSTEMS, PROVIDE DRAIN VALVES AT MAIN SHUT-OFF VALVES AND ALL LOW POINTS IN PIPING.

- C. USE EXISTING CONNECTIONS AT MAINS WHERE AVAILABLE FOR NEW BRANCH PIPING. LOCATE ALL RISERS AND PIPING BEFORE CONSTRUCTION COMMENCES AND TAKE CARE NOT TO DAMAGE SAME. ANY DAMAGE OCCURRING TO THE EXISTING PIPING WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

2.03 INSULATION

COVER ALL HOT WATER AND HOT WATER RECIRCULATION PIPE WITH 1" THICK FOR PIPE SIZE UP TO 1½" AND 1½" THICK FOR PIPE SIZE 1½" AND GREATER WITH MANVILLE MICRO-LOK AP-T PLUS FIBERGLASS INSULATION. COVER ALL COLD WATER PIPE WITH ½" THICK FOR PIPE SIZE UP TO 1½" AND 1" THICK FOR PIPE SIZE 1½" AND GREATER WITH 1" MANVILLE MICRO-LOK AP-T PLUS FIBERGLASS INSULATION. FITTINGS AND VALVES SHALL BE INSULATED WITH MANVILLE ZESTON 2000 PVC INSULAT-ED FITTING COVERS. INSTALL ALL INSULATION AS PER MANUFACTURERS RECOMMENDATIONS. ALL INSULATION MATERIAL SHALL COMPLY WITH THE NEW YORK CITY BUILDING CODE REQUIREMENT OF A FLAME SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DEVELOPED RATING NOT TO EXCEED 50. ALL PIPE INSULATION SHALL COMPLY WITH 2023 FLORIDA ENERGY CONSERVATION CODE 8TH EDITION.

3. TESTING

- A. AT THE COMPLETION OF THE PLUMBING WORK, COMPLETELY TEST THE ENTIRE INSTALLATION OF ALL SYSTEMS FOR PROPER OPERATION AND COMPLIANCE WITH APPLICABLE CODES AND LOCAL REQUIREMENTS. CORRECT ALL DEFICIENCIES FOUND.

- B. TESTING OF THE INSTALLED SYSTEMS SHALL BE MADE BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER.

- C. THE CONTRACTOR SHALL NOT COVER UP OR PERMANENTLY CONCEAL PIPING, DEVICES OR ANY PORTION OF NEWLY CONSTRUCTED PLUMBING SYSTEM(S) UNTIL SUCH SYSTEM, OR PORTION OF THE SYSTEM, HAS BEEN TESTED IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER AND INSPECTED BY THE LOCAL INSPECTOR AND APPROVED IN WRITING, EXCEPT PIPING PASSING THROUGH FLOORS, WALLS, PARTITIONS, OR BEAMS, FOR DISTANCES EQUAL TO THE THICKNESS OF SUCH FLOOR, WALL, PARTITION OR BEAM.

- D. THIS CONTRACTOR SHALL NOTIFY THE VARIOUS DEPARTMENTS, BUREAUS AND INDIVIDUALS AT LEAST TWO WEEKS IN ADVANCE OF THE TIME THAT THE TESTS ARE TO BE CONDUCTED.

- E. ALL DEFECTIVE PARTS SHALL BE REPLACED OR CORRECTED BY THIS CONTRACTOR AND AN EXTRA TEST OR TESTS SHALL BE MADE UNTIL THE OPERATION IS SATISFACTORY. ALL ARRANGEMENTS AND EXPENSES NECESSARY TO CONDUCT ALL TESTS REQUIRED BY THESE SPECIFICATIONS AND THE VARIOUS AGENCIES HAVING JURISDICTION OVER THE WORK INSTALLED UNDER THIS CONTRACT SHALL BE MADE BY THIS CONTRACTOR. NO EXTRA COMPENSATION WILL BE ALLOWED FOR THESE TESTS, THE COST THEREOF BEING INCLUDED IN THE LUMP SUM BID FOR THIS CONTRACT.

- F. WHERE ANY EVIDENCE OF STOPPAGE IS FOUND IN PIPING OR EQUIPMENT, THIS CONTRACTOR SHALL DISCONNECT, CLEAN, REPAIR AND RECONNECT ALL OBSTRUCTED PIPING OR EQUIPMENT AND SHALL ALSO PAY FOR ALL NECESSARY CUTTING AND REPAIRS TO ADJOINING WORK.

- G. ALL PIPING AND EQUIPMENT SHALL BE THOROUGHLY CLEANED INSIDE AND OUT, OF DIRT, CUTTINGS, OILS AND OTHER FOREIGN SUBSTANCES AND SHALL BE LEFT CLEAN.

- H. ALL REQUIRED TESTS SHALL BE WITNESSED BY LOCAL AUTHORITIES AND THE OWNER'S REPRESENTATIVE.

- I. ALL EQUIPMENT WILL BE FACTORY TESTED.

- J. CONTRACTOR SHALL IDENTIFY TO THE OWNER'S REPRESENTATIVE ANY LEAKS OR DAMAGE THAT OCCURS AS A RESULT OF SYSTEM TESTING. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO LIMIT ANY POTENTIAL DAMAGE. CORRECTIVE ACTION REQUIRED AS A RESULT OF TESTING SHALL BE PERFORMED IMMEDIATELY AND AT THE CONTRACTOR'S EXPENSE.

- K. REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.

L. TESTING REQUIREMENTS

- a. TEST ALL DOMESTIC WATER PIPING HYDROSTATICALLY TO 125 PSIG.
- b. HYDROSTATIC TEST PRESSURES SHALL REMAIN CONSTANT WITH NO VARIATION FOR 120 MINUTES.
- c. TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
- d. THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE TEST AREA AND ADJACENT TENANT OR ELECTRICAL SERVICE BOARD SPACES.

- M. REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIN CHEMICAL CORP.) AT A STRENGTH TO MEET STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD OF RETENTION AS STIPULATED.

- N. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.

4. WARRANTY

- A. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY CORRECT AND REPAIR ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT MAY OCCUR WITHIN THAT PERIOD SHALL ALSO BE PROMPTLY REPAIRED.

F. GAS PIPING

1. ALL GAS PIPING WORK SHALL COMPLY WITH 2023 FLORIDA BUILDING CODE, FUEL GAS, 8TH EDITION, LOCAL UTILITY GAS REQUIREMENTS.
2. FURNISH AND INSTALL ALL NECESSARY GAS PIPING TO ALL EQUIPMENT REQUIRING GAS SUPPLY.
3. PROVIDE A LUBRICATED GAS VALVE AT ALL CONNECTIONS TO EQUIPMENT.
4. ALL GAS PIPING AND INSTALLATION SHALL BE IN ACCORDANCE WITH RULES AND REGULATIONS OF LOCAL UTILITY GAS COMPANY AND OTHER AUTHORITIES HAVING JURISDICTION.
5. PROVIDE ADEQUATE SUPPORT FOR ALL PIPING.
6. GAS PIPING SHALL BE BLACK STEEL SCHEDULE 40 THREADED PIPE CONFORMING TO ANSI B36-20.

FITTINGS SHALL BE MALLEABLE IRON.

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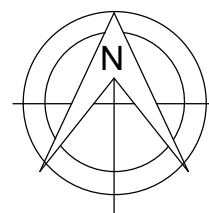
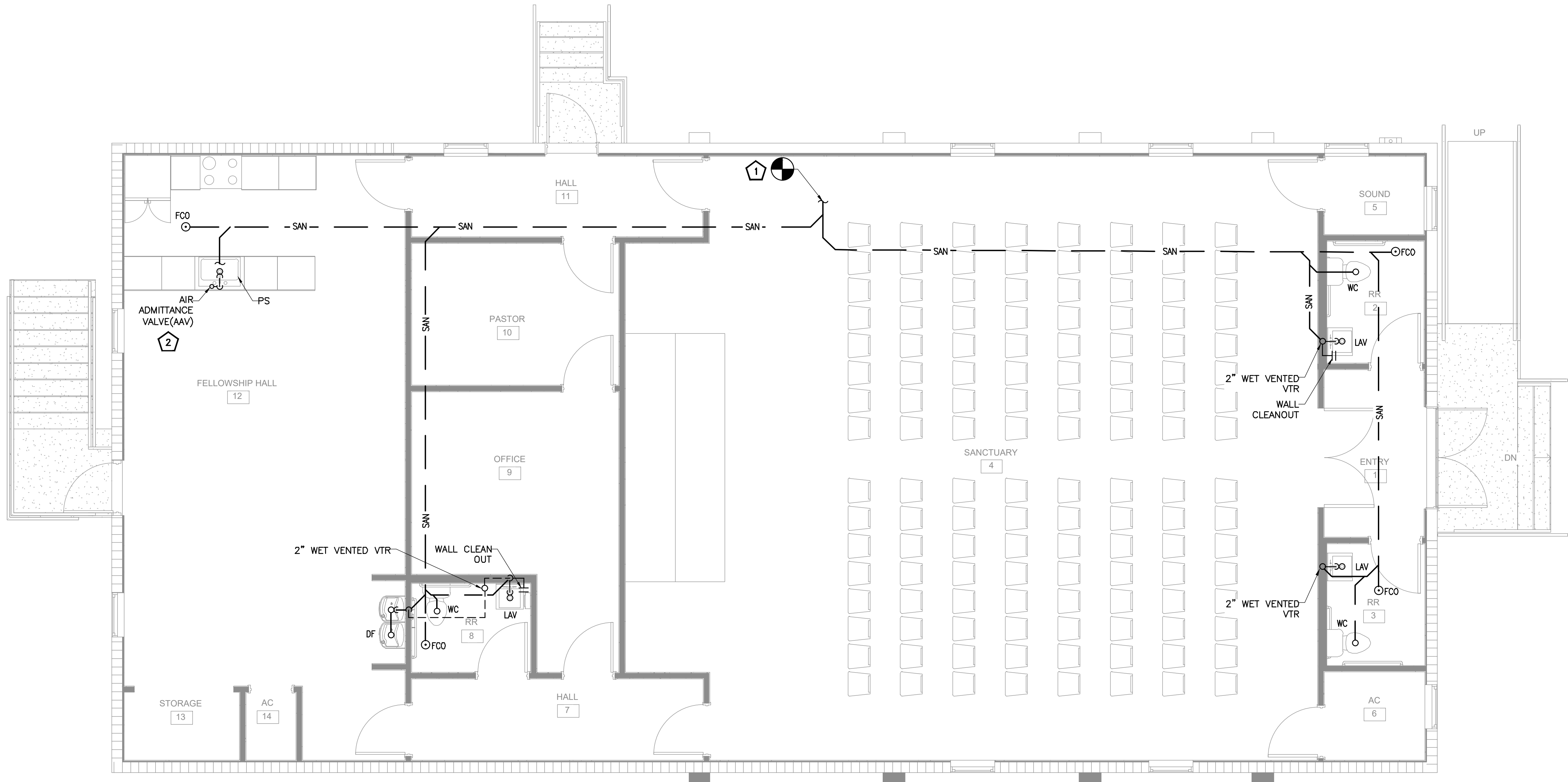
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20-194

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#1 CHURCH OF CHRIST
1802 PASCO STREET TALLAHASSEE, FL 32301

PLUMBING SANITARY AND
VENT FLOOR PLAN



1
P1.0

PLUMBING SANITARY AND VENT FLOOR PLAN

1/4" = 1'-0"

GENERAL NOTES

- ALL PIPING SHALL BE SNAKE CLEAN PRIOR TO CONNECTION WITH EXISTING PIPING.
- ALL DRAIN, WASTE AND VENT FITTINGS SHALL MATCH WITH EXISTING PIPING MATERIALS.
- EX-HAUST AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM ANY OUTSIDE AIR INTAKE, AND 1'-0" FROM ANY DEMISING WALL VERTICAL PLANE.
- ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.
- ALL FLOOR PENETRATIONS MUST BE CORE BORED, SLEEVED, GROUTED, SEALED AND MADE WATERPROOF. SLEEVES MUST EXTEND A MINIMUM OF 4" AFF.
- SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE 3" AND ABOVE. 1/4" PER FOOT OF RUN FOR PIPE LESS THAN 3". VENT PIPING SHALL BE PITCHED TO DRAIN.
- PROVIDE ACCESS PANEL FOR CLEANOUTS AND ALL CONCEALED EQUIPMENTS THAT REQUIRE MAINTENANCE ACCESS. CONTRACTOR TO COORDINATE WITH ARCHITECT FOR LOCATION.
- PROVIDE WALL CLEANOUTS WHEREVER POSSIBLE FOR EACH CHANGE IN DIRECTION OF MORE THAN 45DEG.
- ANY WORK SHOWN ON THE DRAWINGS AND NOT PARTICULARLY DESCRIBED IN THE SPECIFICATIONS OR DETAILS, OR ANY WORK WHICH MAY BE DEEMED NECESSARY TO COMPLETE THE CONTRACT SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THIS CONTRACT.
- CONTRACTOR TO FIELD VERIFY FEASIBILITY OF FLOOR SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
- REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
- ALL PIPING SHALL BE CONCEALED WITH CEILING SPACE WALLS AND CHASES AS SHOWN ON PLANS. ALL PIPES SHOULD BE FIRMLY ANCHORED AND SUPPORTED TO THE ENTIRE LENGTH.



PLUMBING KEYED WORK NOTES:



EXTEND AND CONNECT NEW 4" SAN TO EXISTING 4" SANITARY PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, SIZE AND CONNECTING INVERT OF EXISTING SANITARY PIPING AND UPGRADE IF REQUIRED.



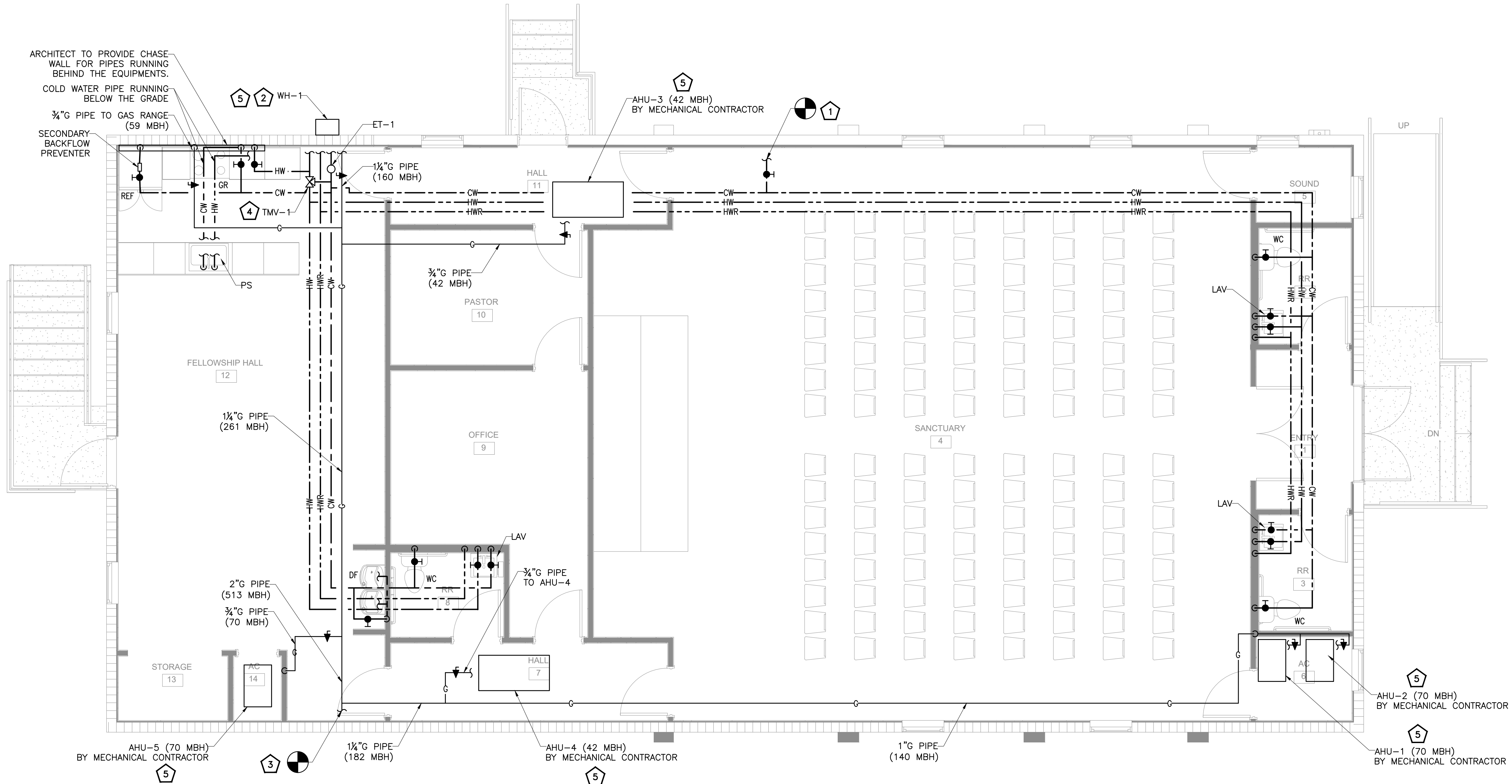
PROVIDE ASSE 1051 APPROVED AIR ADMITTANCE VALVE (AAV). CONTRACTOR TO PROVIDE ACCESS AND VENTILATION TO THE AAV AS REQUIRED BY LOCAL CODES AND STANDARDS.

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20-194

P1.0



1 PLUMBING WATER SUPPLY AND GAS FLOOR PLAN
P1.1 1/4" = 1'-0"

GENERAL NOTES

- ALL PIPING SHALL BE SNAKE CLEAN PRIOR TO CONNECTION WITH EXISTING PIPING.
- ABOVE GRADE WATER SERVICE PIPING SHALL BE COPPER TYPE "L" ASTM B-88 AND UNDERGROUND PIPING SHALL BE COPPER TYPE "K" ASTM B-88.
- ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE.
- ALL FLOOR PENETRATIONS MUST BE CORE BORED, SLEEVED, GROUTED, SEALED AND MADE WATERPROOF. SLEEVES MUST EXTEND A MINIMUM OF 4" AFF.
- IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE.
- ANY WORK SHOWN ON THE DRAWINGS AND NOT PARTICULARLY DESCRIBED IN THE SPECIFICATIONS OR DETAILS, OR ANY WORK WHICH MAY BE DEEMED NECESSARY TO COMPLETE THE CONTRACT SHALL BE PROVIDED BY THE CONTRACTOR AS PART OF THIS CONTRACT.
- HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2023 FLORIDA BUILDING CODE-ENERGY CONSERVATION, 8TH EDITION RESIDENTIAL SECTION R40.3.5.3.
- CONTRACTOR TO FIELD VERIFY FEASIBILITY OF FLOOR SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
- REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
- PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR & SHUT-OFF VALVES AS REQUIRED.
- PROVIDE MINIMUM PRESSURE REQUIRED FOR WATER LINES AT EXTREME FIXTURE AS PER TABLE NO 604.8 FROM 2023 FLORIDA PLUMBING CODE 8TH EDITION. PROVIDE BRANCH PRV IF PRESSURE INCREASES 80 PSI.
- PROVIDE HOT WATER RETURN AS PER 2023 FLORIDA BUILDING CODE-ENERGY CONSERVATION, 8TH EDITION R403.5.1.
- ALL PIPING SHALL BE CONCEALED WITH CEILING SPACE WALLS AND CHASES AS SHOWN ON PLANS. ALL PIPES SHOULD BE FIRMLY ANCHORED AND SUPPORTED TO THE ENTIRE LENGTH.

PLUMBING KEYED WORK NOTES:

- EXTEND AND CONNECT NEW 1" CW PIPING TO EXISTING COLD WATER PIPING WITH EXISTING WATER METER IN SPACE CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, SIZE AND PRESSURE OF EXISTING CW PIPING AND WATER METER, UPGRADE IF REQUIRED. CONTRACTOR TO COORDINATE WITH THE AHJ FOR THE REQUIREMENT OF BACKFLOW PREVENTER AND PROVIDE IF REQUIRED.
- PROVIDE NEW GAS FIRED TANKLESS WATER HEATER (WH-1) WITH EXPANSION TANK (ET-1) IN OUTDOOR AS SHOWN ON PLAN, CONDENSATE DRAIN TO BE DRAINED INDIRECTLY TO THE EXISTING AREA DRAIN / STORM SYSTEM AS PER LOCAL CODES AND STANDARDS.
- EXTEND AND CONNECT NEW 2" GAS PIPING TO EXISTING GAS PIPING AT THE EXISTING GAS METER LOCATION. CONTRACTOR SHALL VERIFY IN THE FIELD THE SIZE AND LOCATION OF EXISTING GAS PIPING AND THE CAPACITY OF THE EXISTING GAS METER. UPGRADE GAS PIPING AS REQUIRED, AND IF THE EXISTING GAS METER CAPACITY IS LESS THAN 550 MBH, UPGRADE OR PROVIDE NEW GAS METER BASED ON REQUIRED LOAD AND AVAILABLE GAS PRESSURE FROM THE UTILITY SERVICE PROVIDER.
- PROVIDE NEW TMV-1 (ASSE 1017) IN THE HOT WATER MAIN LINE SUPPLYING TO ALL THE LAVATORIES AND LIMIT THE TEMPERATURE TO 110° F.
- CONTRACTOR TO MAKE SURE THAT THE ADEQUATE INLET PRESSURE IS PROVIDED TO ALL THE GAS FIRED EQUIPMENTS AS PER THE MANUFACTURER RECOMMENDATIONS. PROVIDE PRESSURE REGULATOR IF REQUIRED.

01/16/2025

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20-194

P1.1

PLUMBING FIXTURE SCHEDULE								
LEGEND	PLUMBING FIXTURE	CONNECTION SIZE – INCHES						REMARKS
		TRAP	SOIL/WASTE	VENT	COLD WATER	HOT WATER	THERMOSTATIC MIXING VALVE	
WC	WATER CLOSET	–	4"	2"	¾"	–	–	FLUSH TANK, USE 4" BY 3" CLOSET BEND WITH FLANGE AS APPROVED BY FLORIDA BUILDING CODE, PLUMBING 8TH EDITION, 2023.
LAV	LAVATORY	2"	2"	2"	½"	½"	–	P–TRAP
DF	DRINKING FOUNTAIN	2"	2"	1½"	(#2) ½"	–	–	P–TRAP
REF	REFRIGERATOR	–	–	–	½"	–	–	PROVIDE SECONDARY BFP (WATTS LF9D – ASSE 1012)
PS	PANTRY SINK	2"	2"	1½"	½"	½"	–	P–TRAP
NOTE: CONTRACTOR TO COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ALL PLUMBING FIXTURES SPECIFICATIONS AND MOUNTING HEIGHT INSTALLATION.								

TANKLESS GAS FIRED WATER HEATER SCHEDULE											
UNIT TAG	QTY.	TYPE	FUEL TYPE	GAS CONSUMPTION (BTU/HR)	FLOW RATE (GPM)	ENERGY FACTOR	WATER CONNECTION SIZE (IN)	GAS CONNECTION SIZE (IN)	MAKE/ MODEL	SHIPPING WEIGHT (lbs)	REMARKS
WH	01	TANKLESS	GAS	160,000	5.2 @ 60°F ΔT	0.98	¾"	¾"	RINNAI RXP160i	57	– DIMENSIONS 25.8" (H)X 18.5" (W)X 11.4"(D) – PROVIDE DRIP PAN IF REQUIRED. – HEATER CONDENSATE DRAIN TO BE DISPOSED TO THE NEAREST PLUMBING DRAIN AS PER 2023 FLORIDA BUILDING CODE, PLUMBING, 8th EDITION & AS PER MANUFACTURERS INSTRUCTION. – CONDENSATE NEUTRALIZER MUST BE INSTALLED AS PER 2023 FLORIDA BUILDING CODE, PLUMBING, 8th EDITION. – SET POINT TEMP 120°F

1. WATER HEATER SHALL BE INSTALLED AS PER MANUFACTURERS INSTRUCTIONS.
2. SERVICE CLEARANCE SHALL BE MAINTAINED AS PER MANUFACTURERS INSTRUCTIONS.
3. CONDENSATE DRAIN PIPE SHALL BE CORROSION RESISTANT PIPE, DO NOT USE METAL PIPE.
4. CONDENSATE DRAIN PIPE SHALL BE INSTALLED ACCORDANCE WITH 2023 FLORIDA BUILDING CODE, PLUMBING, 8th EDITION & MANUFACTURERS INSTRUCTIONS.
5. PROVIDED WATER HEATER COMES WITH INBUILT RECIRCULATION PUMP.

EXPANSION TANK SCHEDULE										
ITEM	QUANTITY	LOCATION	SERVICE	TYPE	CONNECTION SIZE	MAX WORKING PRESSURE(PSI)	SHIPPING WEIGHT(LBS)	TANK VOLUME (GAL)	MAKE	REMARKS
EXPANSION TANK (ET)	01	HOT WATER HEATER	HOT WATER	DIAPHRAGM	¾"	150	09	4.4	AMTROL ST–5	DIMENSIONS– 15"(H)x11"(DIA.)

THERMOSTATIC MIXING VALVE SCHEDULE							
ITEM	SERVICE	FLOW RANGE (GPM)	MAKE	PIPE SIZE	TEMP RANGE	SET POINT	MATERIAL
TMV	HOT WATER	2.25	WATTS LFE480 (ASSE 1017)	3/4"	80–120 DEG F	110 DEG F (FOR LAVATORY FAUCETS)	BRASS

#1 CHURCH OF CHRIST
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PLUMBING SCHEDULE

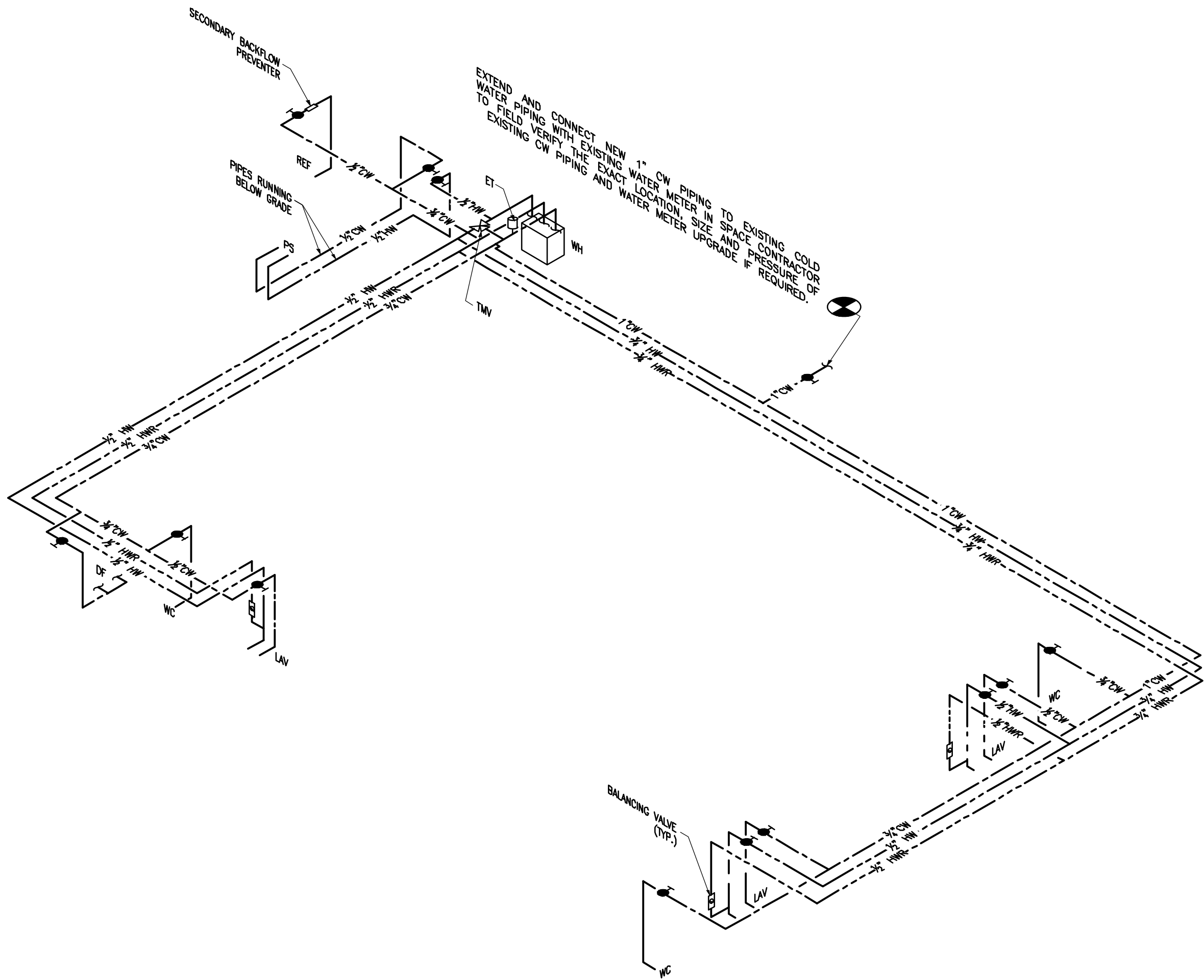
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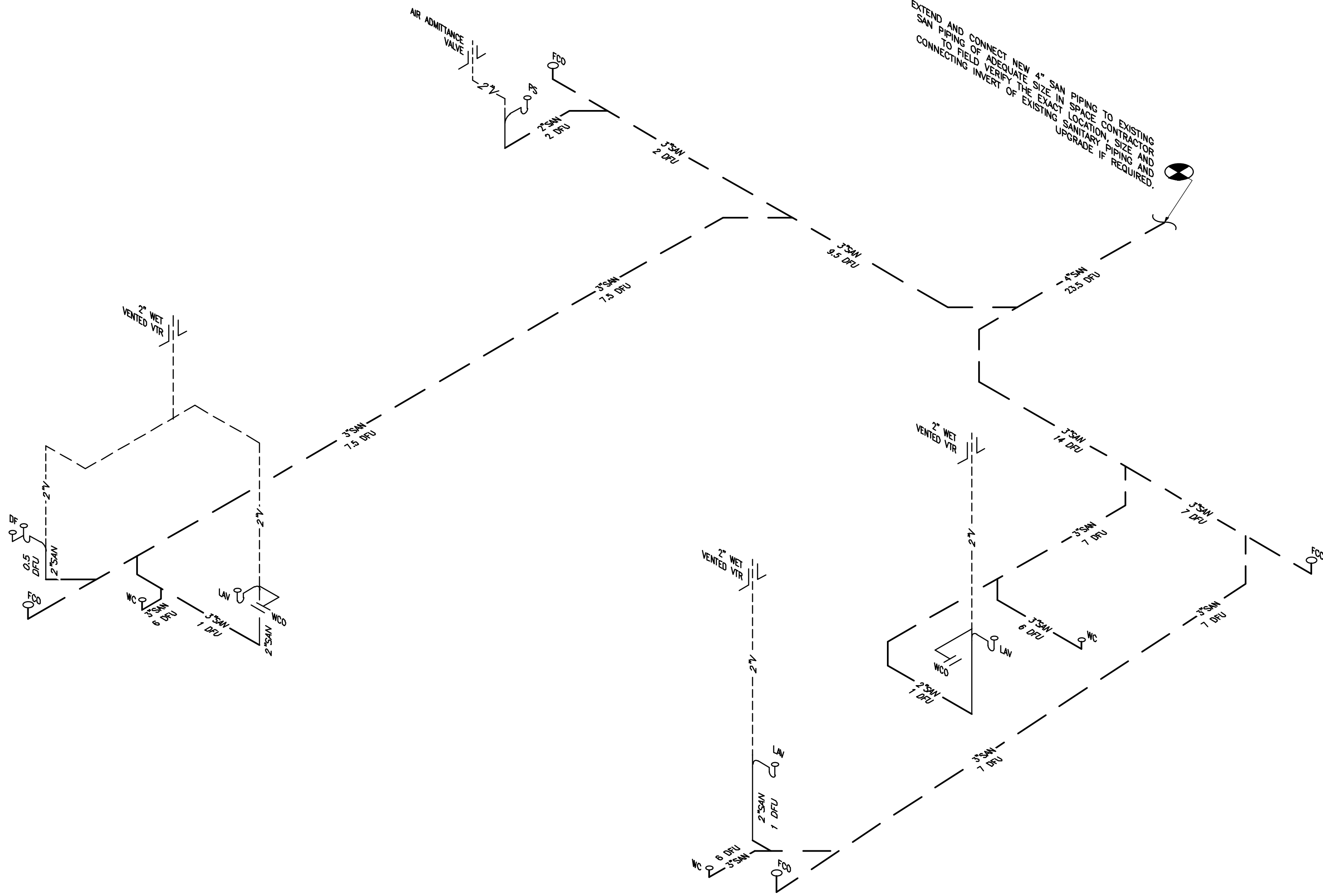
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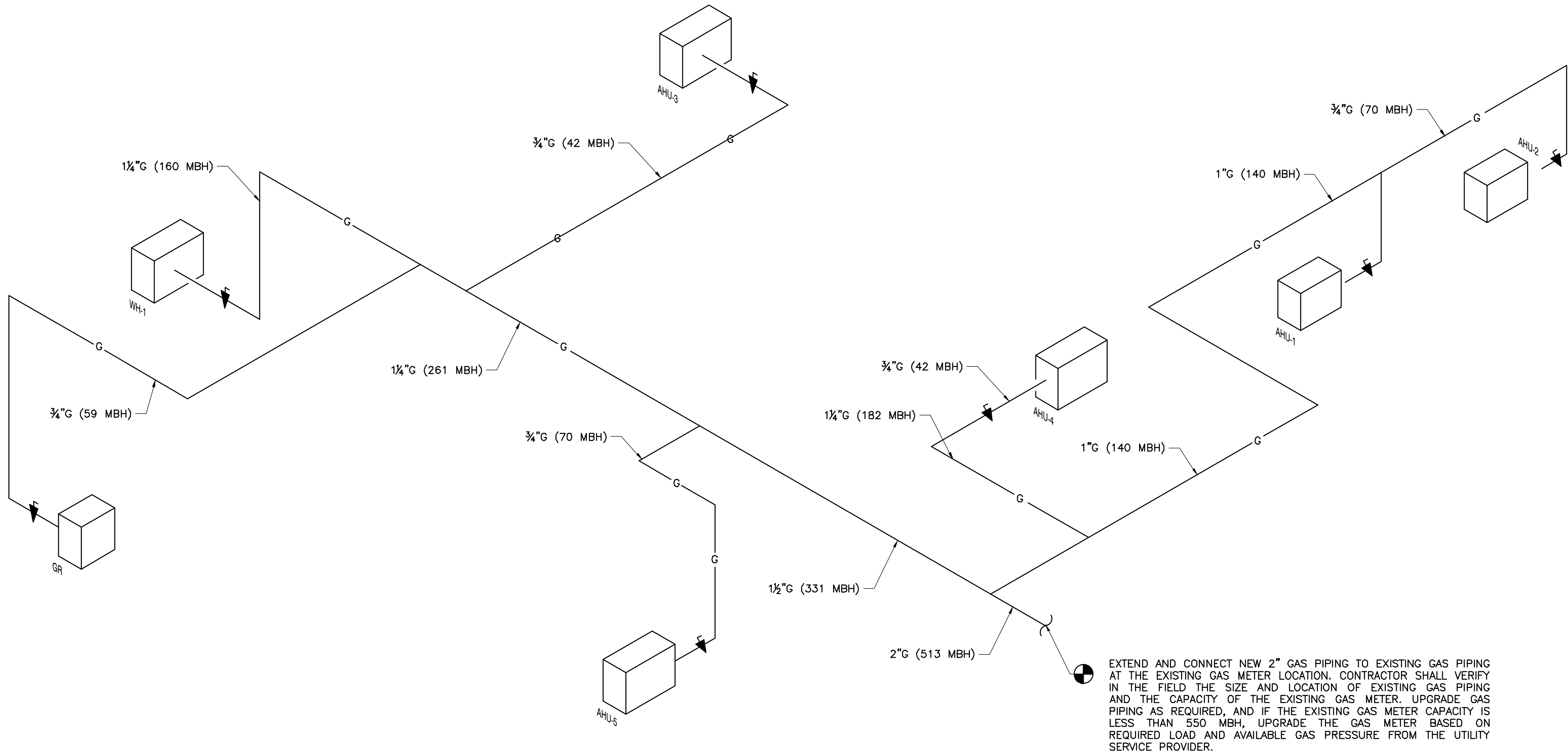
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2 PLUMBING WATER SUPPLY RISER DIAGRAM
P3.1 N.T.S



1 PLUMBING SANITARY AND VENT RISER DIAGRAM
P3.1 N.T.S



1 PLUMBING GAS RISER DIAGRAM
 P3.2 N.T.S

GAS SCHEDULE					
DESCRIPTION	QTY.	MANUFACTURER	MODEL	SIZE	TOTAL MBH
WH	1	RINNAI	RXP160I	1 $\frac{1}{4}"$	160
AHU-1	1	REFER MECHANICAL PLANS	REFER MECHANICAL PLANS	$\frac{3}{4}"$	70
AHU-2	1	REFER MECHANICAL PLANS	REFER MECHANICAL PLANS	$\frac{3}{4}"$	70
AHU-3	1	REFER MECHANICAL PLANS	REFER MECHANICAL PLANS	$\frac{3}{4}"$	42
AHU-4	1	REFER MECHANICAL PLANS	REFER MECHANICAL PLANS	$\frac{3}{4}"$	42
AHU-5	1	REFER MECHANICAL PLANS	REFER MECHANICAL PLANS	$\frac{3}{4}"$	70
GAS RANGE	1	REFER ARCHITECTURAL PLANS	REFER ARCHITECTURAL PLANS	$\frac{3}{4}"$	59
TOTAL LOAD					513

TOTAL GAS CONSUMPTION = 513 MBH
 TOTAL FARTHEST DISTANCE = 150'
 REQUIRED PIPE SIZE = 2" SDR 11
 PRESSURE: LESS THAN 2 PSI
 PRESSURE DROP: 0.5 IN W.C
 SPECIFIC GRAVITY: 0.60
 TABLE [402.4(2)] FBC 2023-GAS
 SCHEDULE 40 METALLIC PIPE (ABOVE GROUND)
 TABLE [402.4(21)] FBC 2023-GAS
 POLYETHYLENE PLASTIC PIPE (UNDER GROUND)
 ALL WORK TO BE DONE IN ACCORDANCE WITH THE
 FLORIDA BUILDING CODE 2023, 8TH ED. STATE AND
 LOCAL ORDINANCES.

- CONTRACTOR NOTES
- GAS PIPING SHALL NOT PENETRATE BUILDING FOUNDATION WALLS AT ANY POINT BELOW GRADE. GAS PIPING SHALL ENTER AND EXIT A BUILDING AT A POINT ABOVE GRADE AND THE ANNULAR SPACE BETWEEN THE PIPE AND THE WALL SHALL BE SEALED.
 - UNDER GROUND GAS PIPING (POLYETHENE PLASTIC) MINIMUM DEPTH OF 12" BELOW GRADE.
 - GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.
 - CONTRACTOR TO FIELD VERIFY THE INCOMING PRESSURE BEFORE START OF THE WORK.
 - NEW GAS METER LOCATION SHALL BE 5 FT AWAY FROM THE FRONT OF THE PROPERTY, 5 FT AWAY FROM ELECTRICAL SERVICE & 3 FT AWAY FROM THE DRIVE WAY.
 - CONTRACTOR TO ADJUST THE PIPE SIZING ACCORDINGLY AS PER THE EQUIVALENT LENGTH MEASURED IN SITE CONDITION AS PER FBC, GAS CODE 2023.