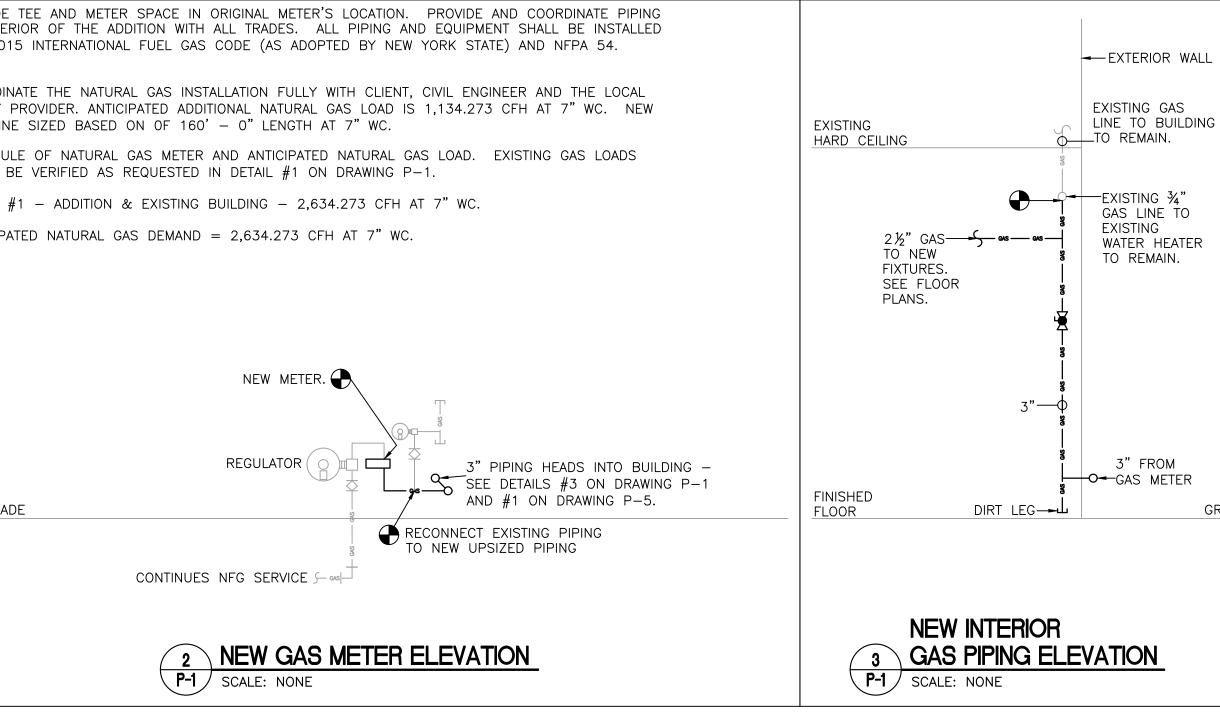
		FIXTURE		MATERIAL		TYPE		TOR/FITT	TING	CARRIE	R F	H.W. (	C.W.	WASTE	VENT		CESSORIES
1	DESCRIPTION	FLOOF	R DRAIN	CAST IRON		SQUARE ADJUSTABLE STRAINER								4"	2"	DRAINS SHALL HAVE (LXH04-P050-B08-U-BH	
	MANUFACTURER	R JAY R. SMITH			#20001												-
1	DESCRIPTION	FACTURER JAY R. SMITH		CAST IRON	SQUAF	NICKEL BRONZE SQUARE GRATE #3150Y-C-19 BI-FUNCTIONAL								4"  2" OR	2" 		
	MANUFACTURER															DRAINS SHALL HAVE OPTIONS LISTED: (-LP-O	
RD	DESCRIPTION MANUFACTURER		DRAIN/OVERFLOW CAST IRON FROET			JNC 110NA #100C							<u>3"</u>			SIZES SHALL BE SELECTED BASED ON PIPE	
 S:					π											CALLED OUT	ON PLANS.
LL RC	_ FLOOR DRA OVIDE ACCES:	NS (FD-1) S PANEL V	) SHALL H <i>i</i> /HEN PRIME	VE TRAP PRIME RS ARE INSTALI	LED IN WA	ALLS. WH	n). autom <u>Here no fi</u> ESTIC	XTURE IS	S AVAILAI	BLE, SEE	DETAILS	#1, #2	2, AND #3	3 ON DF	FIXTURE AWING F	E AND RUN DRAIN TO TRAP SE P—3.	EAL BEING PROTE
		~	Recovery	First Hour		Fuel				ysical Da							
De		Capacity gallons)	(gal's./hr. 100° F. ris	Rating	Thermal fficiency	hermal _		Gas Valve	Dia. He		t Outlet Inlet	Contr		ntrols		Remarks	
	WH-2	100.0	291.0	361.0	96%	Natural Gas	250,000	3⁄4"	27 3⁄4"	76"	4"ø	Built-	—in Adjus	table Th	nermosta	t 1, 2, 3, 4, 5	5, & 6
111	IOTES:																
1. 2. 3. 4. 5. 6.	a. MAINTA b. COORE 6. PIPE RELIE 6. PROVIDE E 6. SEE DETAIL	CONTRACT AIN A MINII DINATE FIN F VALVE ( XPANSION S #1, #2	OR SHALL MUM OF 10 AL VENT TH DUTLET TO TANK TO N , #3, AND	PROVIDE MANUF. '—0" BETWEEN ROUGH THE RO	VENT DISC OF WITH E OR FLOOF EATER. G P-2.	S CONCEN CHARGE L EXISTING R DRAIN & COMPLI	LOCATION AI ROOF EDGE USING FUL ETE INSTALL	ND HVAC AND EG SIZE T ATION.	OUTSIDE QUIPMENT YPE 'L'	AIR LOC	ATIONS, (	OPERAE	BLE OPEN	NINGS, 8 2 DRAIN	≿ EXHAU	ST FANS. D NEAR EXISTING WATER HEATE	er noted on pla
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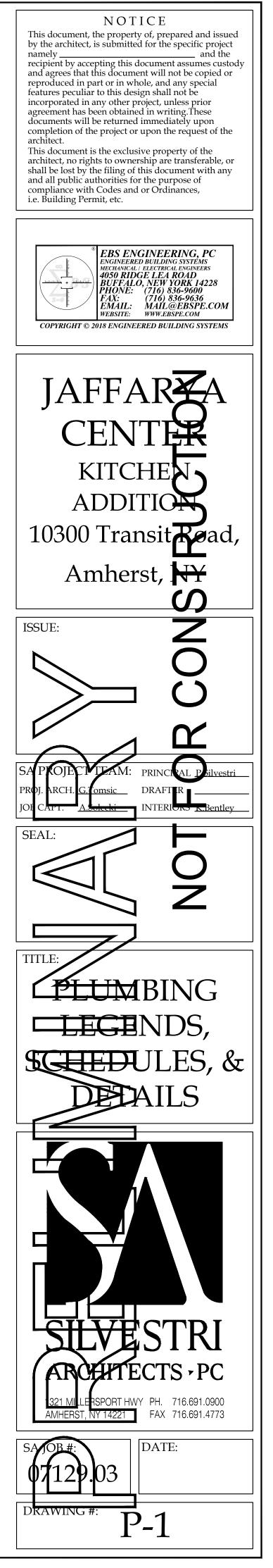
SCHEDULE OF EXISTING NATURAL GAS METER AND ASSUMED EXISTING NATURAL GAS LOAD. ALL EXISTING LOADS AND PIPING SIZES SHALL BE VERIFIED IN FIELD BEFORE ANY WORK CAN BEGIN.	PROVIDE TO INTEI PER 201
METER #1 - HOUSE - 1,500 CFH - METER CAPACITY IS 1,500 CFH PER METER NAMEPLATE.	
ASSUMED EXISTING NATURAL GAS DEMAND = 1,500 CFH	NOTE: COORDIN UTILITY GAS LIN
	SCHEDU SHALL E
	METER ;
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EXISTING METER AND PIPING INTO THE BUILDING TO BE REMOVED. SEE DETAIL #2 ON DRAWING P-1. REGULATOR GRADE CONTINUES NFG SERVICE	GRA

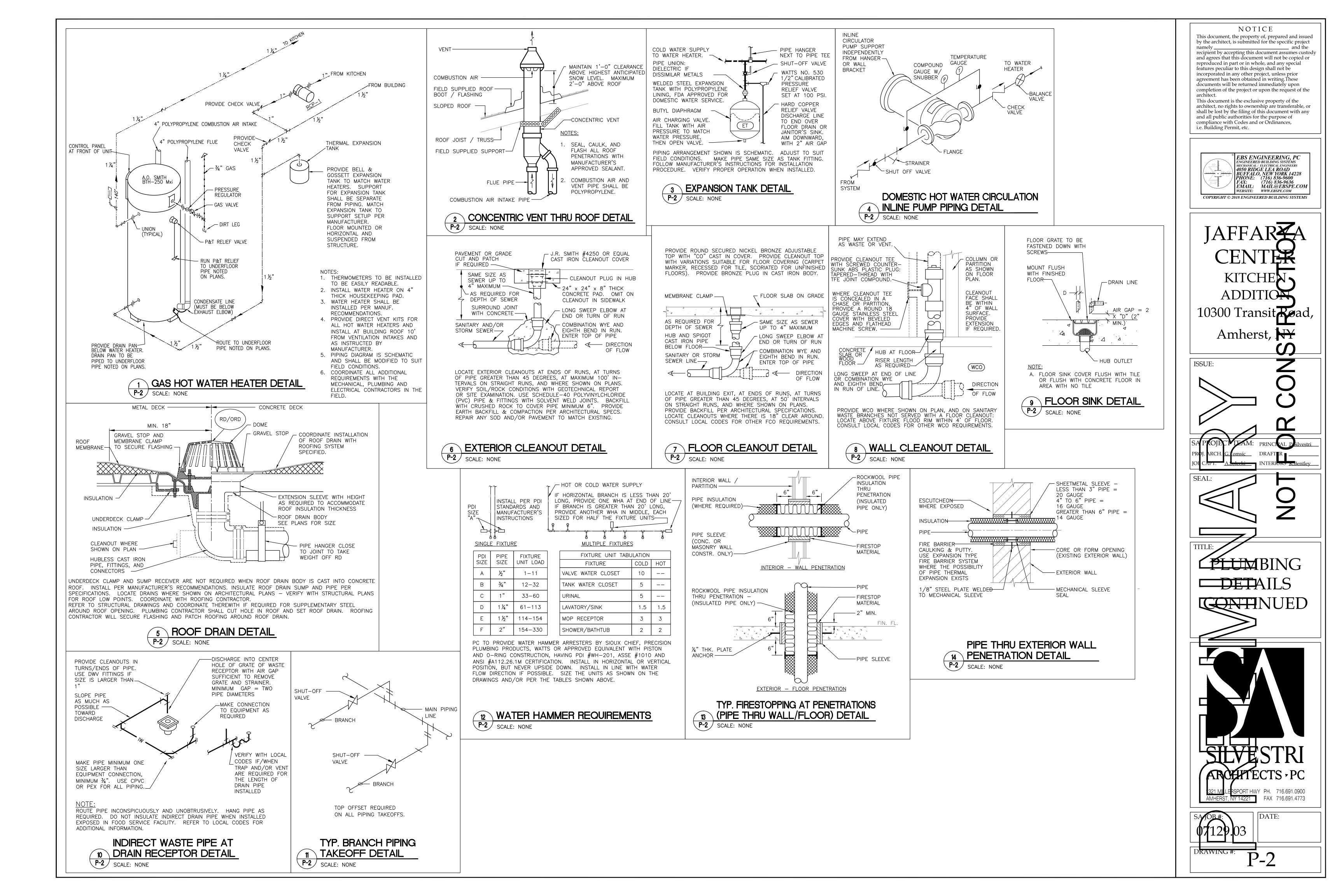
## GENERAL PLUMBING NOTES

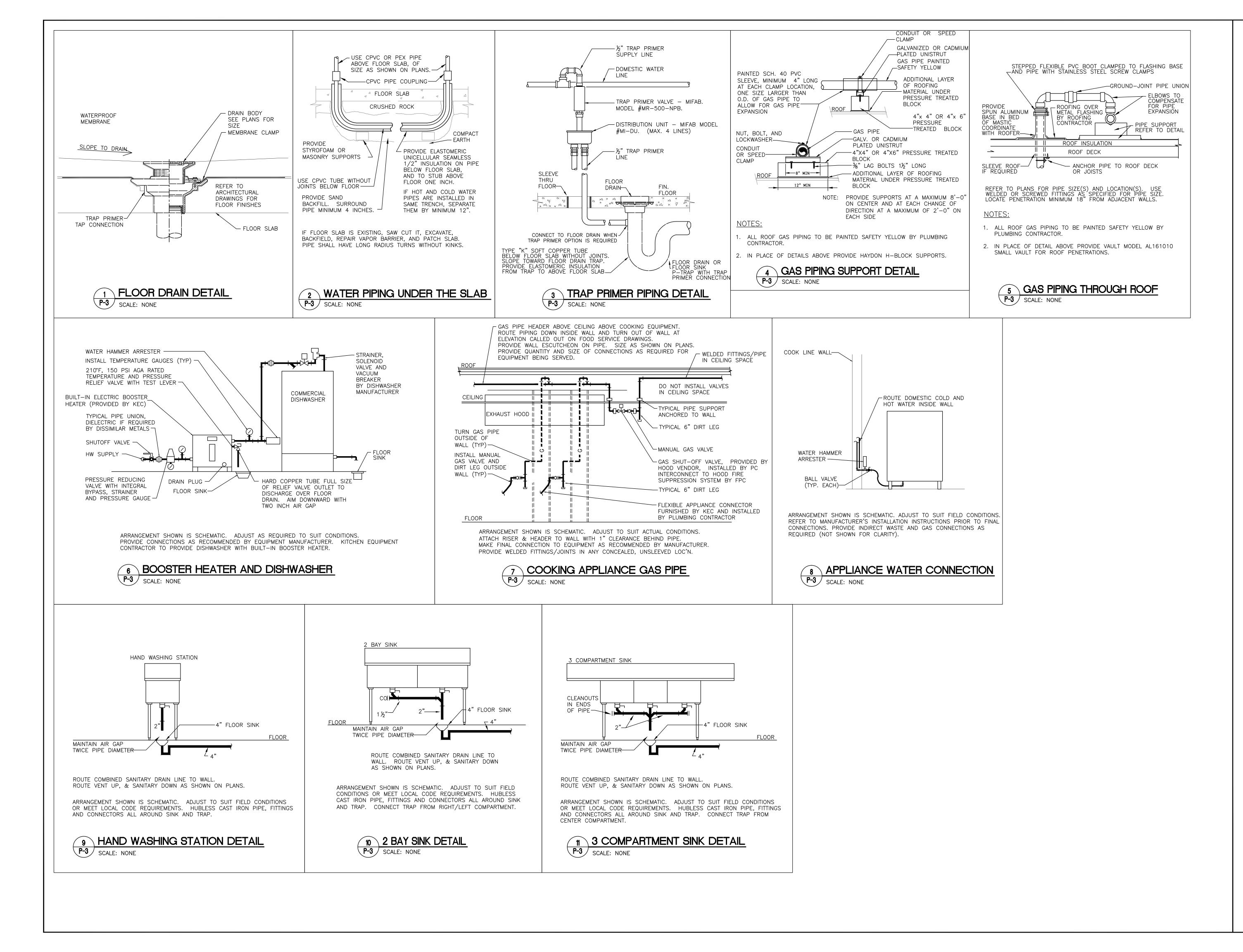
- 1. GENERAL NOTES ARE APPLICABLE TO ALL PLUMBING WORKING DRAWINGS.
- 2. THE WORK SHALL BE EXECUTED IN STRICT CONFORMITY WITH BASE BUILDING SPECIFICATION AND WITH TH LATEST EDITION OF THE PREVAILING LOCAL PLUMBING AND BUILDING CODES AND ALL LOCAL REGULATIONS THAT MAY APPLY. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND A GOVERNING CODE ( ORDINANCE THE MORE STRINGENT STANDARD SHALL APPLY.
- ALL PLUMBING WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE PROCEEDING WITH INSTALLATION.
- 4. NO CHANGES ARE TO BE MADE IN PLUMBING LAYOUT WITHOUT WRITTEN PERMISSION BY THE ENGINEER OF RECORD.
- 5. NO PIPING SHALL RUN EXPOSED IN FINISHED AREAS.
- 6. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR PAYING RELATED FEES.
- ROUGH-IN DIMENSIONS OF TOILET FIXTURES MUST BE COORDINATED WITH GENERAL CONTRACTOR AND FIEL SUPERVISOR.
- 8. INSTALL BALL VALVES ON ALL BRANCH SUPPLY LINES.
- 9. PROVIDE ACCESS PANELS ON ALL INACCESSIBLE VALVES AND CLEANOUTS. ACCESS PANELS SHALL BE PROVIDED BY PLUMBING CONTRACTOR AND CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR LOCATION. MC SHUT-OFF VALVES NO HIGHER THAN 12'-8" AFF.
- 10. ALL WORK SHALL BE PROPERLY TESTED, BALANCED AND CLEANED. PROVIDE A ONE YEAR WARRANTY FROM DATE OF FINAL INSPECTION ON ALL PARTS AND LABOR.
- 11. FOLLOW PDI STANDARDS FOR WATER HAMMER ARRESTORS.
- 12. ALL FIXTURES TO BE SUPPLIED & INSTALLED BY PLUMBING CONTRACTOR UNLESS OTHERWISE NOTED. PROVIDE DEARBORN #ADA100 OR #ADA101 INSULATING KITS ON TRAPS AND HOT AND COLD WATER SUPPL TO ALL HANDICAPPED LAVATORIES. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF HANDICAPPED FIXTU
- 13. ALL NOTED FIXTURES SHALL BE ACCESSIBLE TO INDIVIDUALS WITH DISABILITIES IN ACCORDANCE WITH THE "AMERICANS WITH DISABILITIES ACT OF 1990". FIXTURES AND THEIR INSTALLATION SHALL ALSO COMPLY WI AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) PUBLICATION A117.1 - "PROVIDING ACCESSIBILITY AND USABILITY FOR PHYSICALLY HANDICAPPED PEOPLE" AND/OR GOVERNING CODE. ALL PLUMBING FIXTURES, EQUIPMENT, TRIM, AND FITTINGS SHALL COMPLY WITH LOCAL, STATE, AND FEDERAL REGULATIONS AND COD
- 14. WATER AND ENERGY CONSERVATION CODES. THE SCHEDULED AND/OR SPECIFIED PLUMBING FIXTURES AND EQUIPMENT REPRESENT THE MINIMUM CRITERIA AND SHALL BE THE BASIS FOR THE CONTRACTOR'S BASE IF THE SCHEDULED OR SPECIFIED FIXTURES OR EQUIPMENT DO NOT COMPLY WITH GOVERNING CODES OR REGULATIONS IN ALL RESPECTS, THE CONTRACTOR SHALL PROVIDE AN ALTERNATE BID FOR COMPLYING FIXTURES, EQUIPMENT, TRIM, OR FITTINGS. THE ABSENCE OF AN ALTERNATE BID SHALL BE CONSTRUED TO MEAN THAT THE CONTRACTOR'S BID INCLUDES ALL COSTS NECESSARY TO MEET ALL REGULATIONS AND CO
- 15. PLUMBING FIXTURES SHALL BE WATER CONSERVING TYPE AS FOLLOWS (PROVIDE REQUIRED AERATORS ON FAUCETS TO ENSURE FLOW RATES ARE MET): WATER CLOSET (TOILET) - MAX. 1.28 GPF
- BATHROOM LAV. FAUCET MAX. 0.5 GPM (PUBLIC) BATHROOM SHOWER HEAD - MAX. 1.5 GPM
- KITCHEN FAUCET MAX. 2.2 GPM
- 16. GENERAL CONTRACTOR SHALL COORDINATE WATER METER LOCATION AND INSTALLATION WITH LOCAL AUTHORITIES AND SITE DRAWINGS IF NOT EXISTING.
- 17. PROVIDE BUILDING WATER AND GAS SERVICE LINES 5'-0" FROM BUILDING LINE, OR INSIDE BUILDING FROM OUTLET SIDE OF METER AS SHOWN ON SITE PLAN. COORDINATE EXACT LOCATION WITH SITE DRAWINGS AND JOB SITE. PROVIDE BACKFLOW PREVENTER AS REQUIRED BY LOCAL AUTHORITIES FOR WATER SERVICE.
- 18. SANITARY SEWER PIPING SHOWN IS BASED ON 0.125"/FT FOR 3"-6" & 0.25"/FT FOR 2 1/2" OR LESS ALL PIPING. COORDINATE BUILDING SEWER LOCATION AND INVERT ELEVATION WITH SITE DRAWINGS.
- 19. TRAP SEAL PRIMERS ARE TO BE PROVIDED AT ALL FLOOR DRAIN LOCATIONS.
- 20. FIRESTOP ALL FLOOR TO FLOOR PENETRATIONS AS REQUIRED.



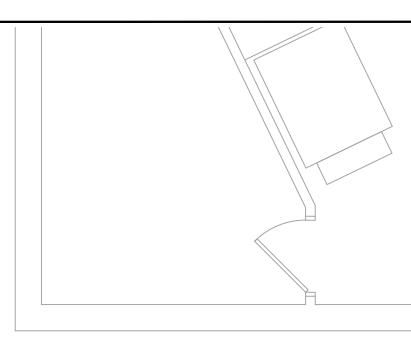
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	0ST 0ST	OVERFLOW STORM WATER PIPING (OST)				
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		DOMESTIC COLD WATER (CW)				
		HOT WATER RECIRCULATING (HWR)				
YING		DOMESTIC HOT WATER (HW)				
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		SANITARY VENT (V)				
	CAS CAS CAS	GAS PIPING				
MOUNT	ca ca	COMPRESSED AIR PIPING				
ROM		FIRE PROTECTION PIPING				
	PD	PUMPED DISCHARGE				
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		BACKFLOW PREVENTER – DOUBLE CHECK VALVE TYP				
ROM AND AT		BALL VALVE				
		CHECK VALVE SHUT-OFF VALVE				
SS FOR		IN VERTICAL LINE				
		GAS PRESSURE REGULATOR				
		TEMP. & PRESS. RELIEF VALVE				
		ROOF DRAIN				
	FD	FLOOR DRAIN				
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	FD FLOOR DRAIN FDS FLOOR DRAIN TYP. TYPICAL	I HW HOT WATER NS CW COLD WATER/CITY WATER GC GENERAL CONTRACTOR FCO FLOOR CLEANOUT ROOF CONT. CONTINUATION				
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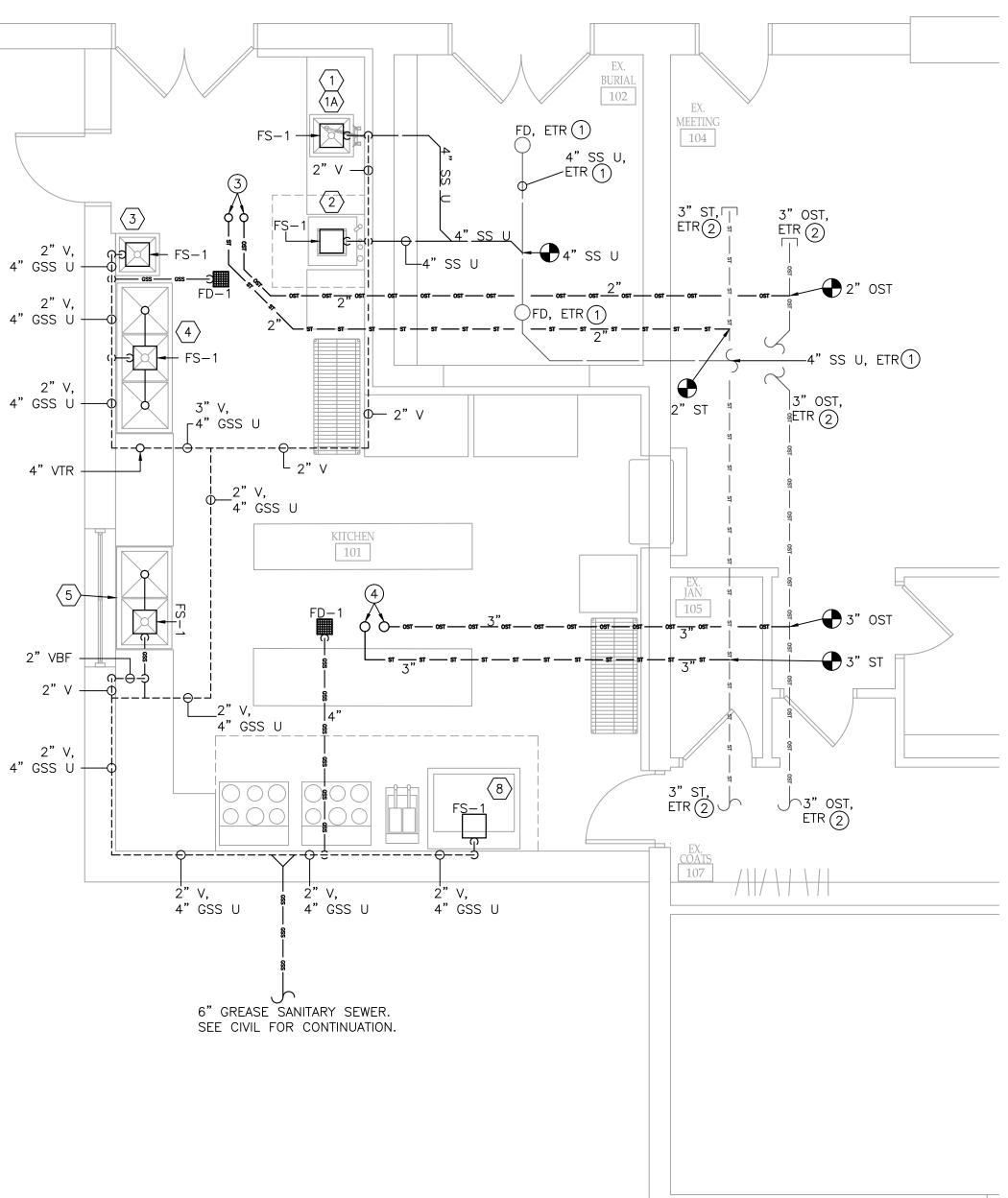


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SILVESTRI
321 MILLERSPORT HWY PH. 716.691.0900
AMHERST, NY 14221 FAX 716.691.4773
<b>07</b> 129.03
DRAWING #: P-3









# SANITARY + STORM SEWER FLOOR PLAN

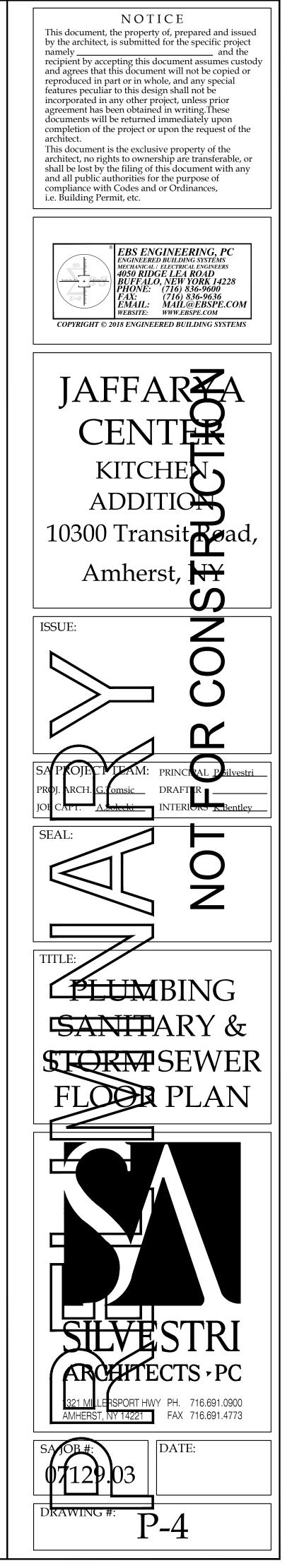
### **GENERAL NOTES:**

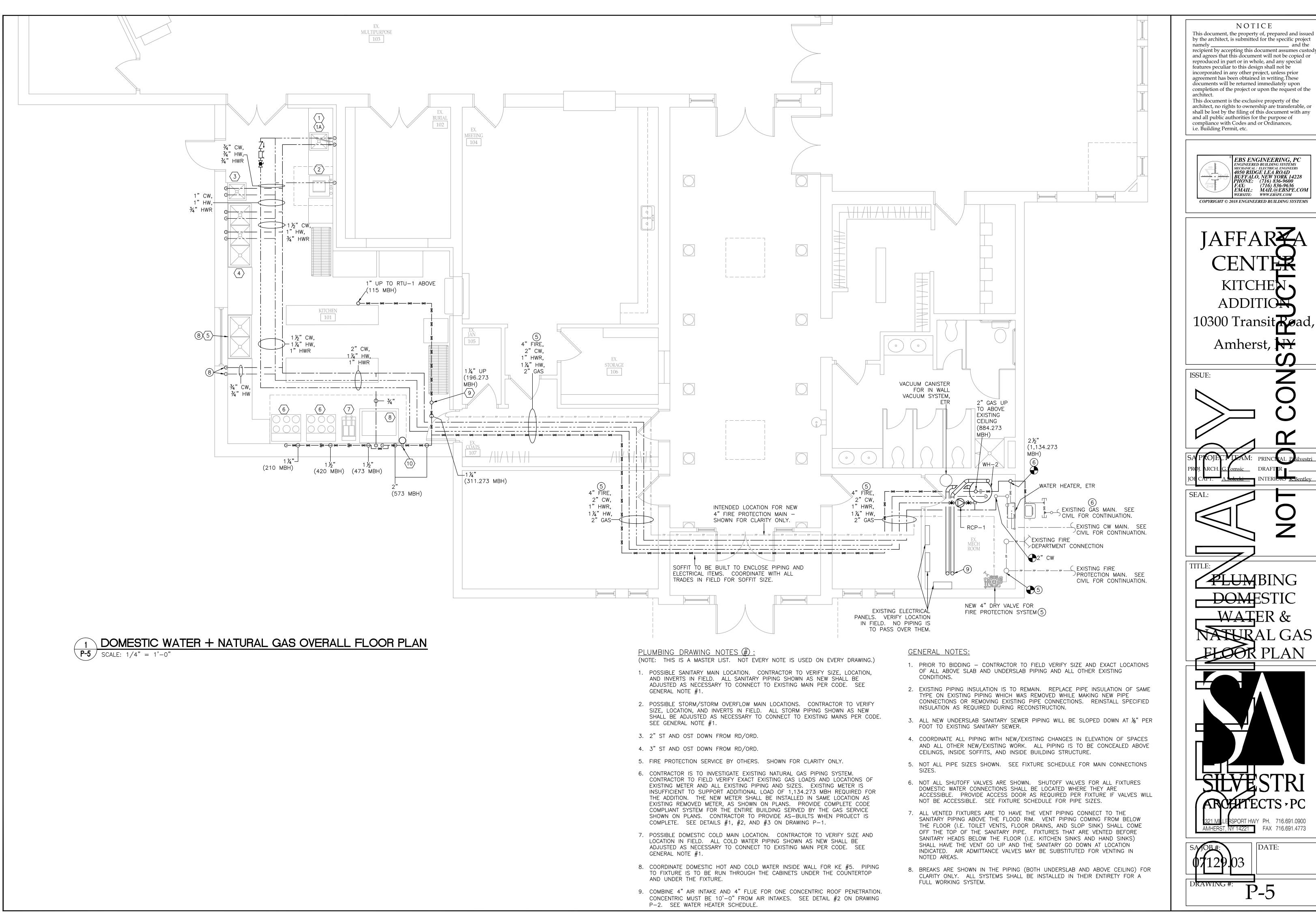
- 1. PRIOR TO BIDDING CONTRACTOR TO FIELD VERIFY SIZE AND EXACT LOCATIONS OF ALL ABOVE SLAB AND UNDERSLAB PIPING AND ALL OTHER EXISTING CONDITIONS.
- 2. EXISTING PIPING INSULATION IS TO REMAIN. REPLACE PIPE INSULATION OF SAME TYPE ON EXISTING PIPING WHICH WAS REMOVED WHILE MAKING NEW PIPE CONNECTIONS OR REMOVING EXISTING PIPE CONNECTIONS. REINSTALL SPECIFIED INSULATION AS REQUIRED DURING RECONSTRUCTION.
- 3. ALL NEW UNDERSLAB SANITARY SEWER PIPING WILL BE SLOPED DOWN AT %" PER FOOT TO EXISTING SANITARY SEWER.
- 4. COORDINATE ALL PIPING WITH NEW/EXISTING CHANGES IN ELEVATION OF SPACES AND ALL OTHER NEW/EXISTING WORK. ALL PIPING IS TO BE CONCEALED ABOVE CEILINGS, INSIDE SOFFITS, AND INSIDE BUILDING STRUCTURE.
- 5. NOT ALL PIPE SIZES SHOWN. SEE FIXTURE SCHEDULE FOR MAIN CONNECTIONS SIZES.
- 6. NOT ALL SHUTOFF VALVES ARE SHOWN. SHUTOFF VALVES FOR ALL FIXTURES DOMESTIC WATER CONNECTIONS SHALL BE LOCATED WHERE THEY ARE ACCESSIBLE. PROVIDE ACCESS DOOR AS REQUIRED PER FIXTURE IF VALVES WILL NOT BE ACCESSIBLE. SEE FIXTURE SCHEDULE FOR PIPE SIZES.
- 7. ALL VENTED FIXTURES ARE TO HAVE THE VENT PIPING CONNECT TO THE SANITARY PIPING ABOVE THE FLOOD RIM. VENT PIPING COMING FROM BELOW THE FLOOR (I.E. TOILET VENTS, FLOOR DRAINS, AND SLOP SINK) SHALL COME OFF THE TOP OF THE SANITARY PIPE. FIXTURES THAT ARE VENTED BEFORE SANITARY HEADS BELOW THE FLOOR (I.E. KITCHEN SINKS AND HAND SINKS) SHALL HAVE THE VENT GO UP AND THE SANITARY GO DOWN AT LOCATION INDICATED. AIR ADMITTANCE VALVES MAY BE SUBSTITUTED FOR VENTING IN NOTED AREAS.
- 8. BREAKS ARE SHOWN IN THE PIPING (BOTH UNDERSLAB AND ABOVE CEILING) FOR CLARITY ONLY. ALL SYSTEMS SHALL BE INSTALLED IN THEIR ENTIRETY FOR A FULL WORKING SYSTEM.

### PLUMBING DRAWING NOTES (#)

(NOTE: THIS IS A MASTER LIST. NOT EVERY NOTE IS USED ON EVERY DRAWING.)

- 1. POSSIBLE SANITARY MAIN LOCATION. CONTRACTOR TO VERIFY SIZE, LOCATION, AND INVERTS IN FIELD. ALL SANITARY PIPING SHOWN AS NEW SHALL BE ADJUSTED AS NECESSARY TO CONNECT TO EXISTING MAIN PER CODE. SEE GENERAL NOTE #1.
- 2. POSSIBLE STORM/STORM OVERFLOW MAIN LOCATIONS. CONTRACTOR TO VERIFY SIZE, LOCATION, AND INVERTS IN FIELD. ALL STORM PIPING SHOWN AS NEW SHALL BE ADJUSTED AS NECESSARY TO CONNECT TO EXISTING MAINS PER CODE SEE GENERAL NOTE #1.
- 3. 2" ST AND OST DOWN FROM RD/ORD.
- 4. 3" ST AND OST DOWN FROM RD/ORD.
- 5. FIRE PROTECTION SERVICE BY OTHERS. SHOWN FOR CLARITY ONLY.
- 6. CONTRACTOR IS TO INVESTIGATE EXISTING NATURAL GAS PIPING SYSTEM. CONTRACTOR TO FIELD VERIFY EXACT EXISTING GAS LOADS AND LOCATIONS OF EXISTING METER AND ALL EXISTING PIPING AND SIZES. EXISTING METER IS INSUFFICIENT TO SUPPORT ADDITIONAL LOAD OF 1,134.273 MBH REQUIRED FOR THE ADDITION. THE NEW METER SHALL BE INSTALLED IN SAME LOCATION AS EXISTING REMOVED METER, AS SHOWN ON PLANS. PROVIDE COMPLETE CODE COMPLIANT SYSTEM FOR THE ENTIRE BUILDING SERVED BY THE GAS SERVICE SHOWN ON PLANS. CONTRACTOR TO PROVIDE AS-BUILTS WHEN PROJECT IS COMPLETE. SEE DETAILS #1, #2, AND #3 ON DRAWING P-1.
- 7. POSSIBLE DOMESTIC COLD MAIN LOCATION. CONTRACTOR TO VERIFY SIZE AND LOCATION IN FIELD. ALL COLD WATER PIPING SHOWN AS NEW SHALL BE ADJUSTED AS NECESSARY TO CONNECT TO EXISTING MAIN PER CODE. SEE GENERAL NOTE #1.
- 8. COORDINATE DOMESTIC HOT AND COLD WATER INSIDE WALL FOR KE #5. PIPING TO FIXTURE IS TO BE RUN THROUGH THE CABINETS UNDER THE COUNTERTOP AND UNDER THE FIXTURE.
- 9. COMBINE 4" AIR INTAKE AND 4" FLUE FOR ONE CONCENTRIC ROOF PENETRATION. CONCENTRIC MUST BE 10'-0" FROM AIR INTAKES. SEE DETAIL #2 ON DRAWING P-2. SEE WATER HEATER SCHEDULE.

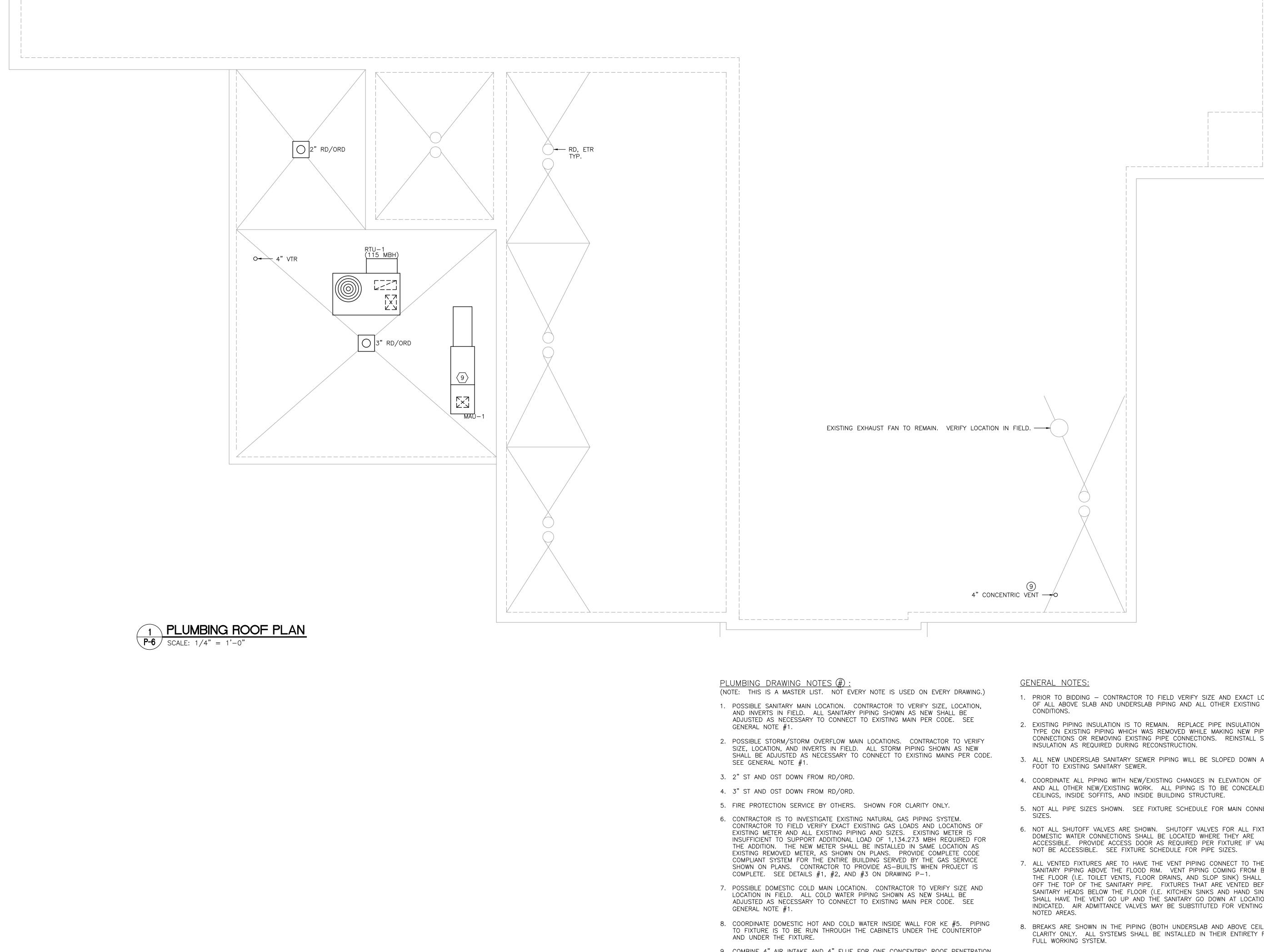




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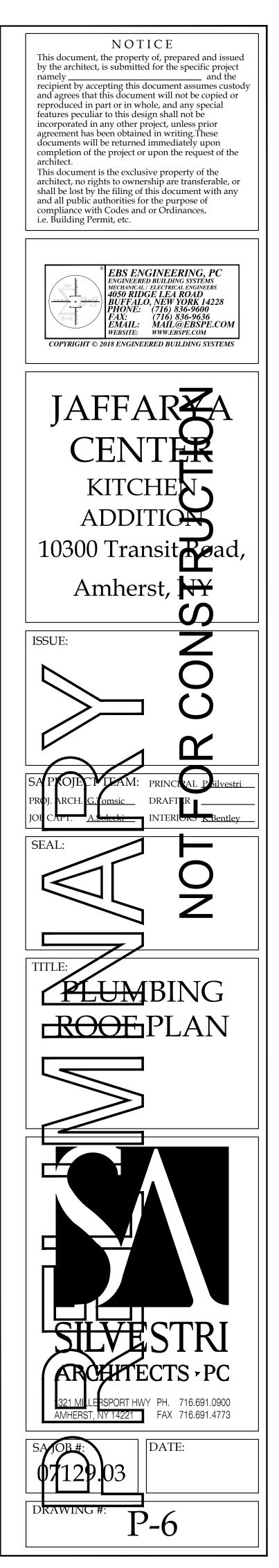


- 9. COMBINE 4" AIR INTAKE AND 4" FLUE FOR ONE CONCENTRIC ROOF PENETRATION. CONCENTRIC MUST BE 10'-0'' FROM AIR INTAKES. SEE DETAIL #2 ON DRAWING P-2. SEE WATER HEATER SCHEDULE.

1. PRIOR TO BIDDING - CONTRACTOR TO FIELD VERIFY SIZE AND EXACT LOCATIONS OF ALL ABOVE SLAB AND UNDERSLAB PIPING AND ALL OTHER EXISTING

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- 2. EXISTING PIPING INSULATION IS TO REMAIN. REPLACE PIPE INSULATION OF SAME TYPE ON EXISTING PIPING WHICH WAS REMOVED WHILE MAKING NEW PIPE CONNECTIONS OR REMOVING EXISTING PIPE CONNECTIONS. REINSTALL SPECIFIED INSULATION AS REQUIRED DURING RECONSTRUCTION.
- 3. ALL NEW UNDERSLAB SANITARY SEWER PIPING WILL BE SLOPED DOWN AT ½" PER FOOT TO EXISTING SANITARY SEWER.
- 4. COORDINATE ALL PIPING WITH NEW/EXISTING CHANGES IN ELEVATION OF SPACES AND ALL OTHER NEW/EXISTING WORK. ALL PIPING IS TO BE CONCEALED ABOVE CEILINGS, INSIDE SOFFITS, AND INSIDE BUILDING STRUCTURE.
- 5. NOT ALL PIPE SIZES SHOWN. SEE FIXTURE SCHEDULE FOR MAIN CONNECTIONS
- 6. NOT ALL SHUTOFF VALVES ARE SHOWN. SHUTOFF VALVES FOR ALL FIXTURES DOMESTIC WATER CONNECTIONS SHALL BE LOCATED WHERE THEY ARE ACCESSIBLE. PROVIDE ACCESS DOOR AS REQUIRED PER FIXTURE IF VALVES WILL NOT BE ACCESSIBLE. SEE FIXTURE SCHEDULE FOR PIPE SIZES.
- 7. ALL VENTED FIXTURES ARE TO HAVE THE VENT PIPING CONNECT TO THE SANITARY PIPING ABOVE THE FLOOD RIM. VENT PIPING COMING FROM BELOW THE FLOOR (I.E. TOILET VENTS, FLOOR DRAINS, AND SLOP SINK) SHALL COME OFF THE TOP OF THE SANITARY PIPE. FIXTURES THAT ARE VENTED BEFORE SANITARY HEADS BELOW THE FLOOR (I.E. KITCHEN SINKS AND HAND SINKS) SHALL HAVE THE VENT GO UP AND THE SANITARY GO DOWN AT LOCATION INDICATED. AIR ADMITTANCE VALVES MAY BE SUBSTITUTED FOR VENTING IN
- BREAKS ARE SHOWN IN THE PIPING (BOTH UNDERSLAB AND ABOVE CEILING) FOR CLARITY ONLY. ALL SYSTEMS SHALL BE INSTALLED IN THEIR ENTIRETY FOR A



2.03 SANITARY/STORM DRAINAGE SYSTEM: PLUMBING SYSTEM INSULATION (CONTINUED): PLUMBING SYSTEMS SPECIFICATIONS 2.09 Waste & Vent Lines: Work Included: Pipe covering for domestic hot water (including recirculation), cold water, and roof drain piping. PART 1 GENERAL Sanitary/Storm piping to be either cast iron or copper. Where allowable by local and national codes, plastic DWV piping may be Materials and Installation: No pipe insulation shall be applied until piping has been pressure tested and approved. All insulation shall used under slab and where concealed by walls. Copper or cast piping shall be utilized for sanitary and vent piping above ceiling be applied strictly in accordance with the manufacturer's recommendations. Materials as manufactured by Johns Manville, Fiberglass 1.01 SUMMARY spaces and where otherwise exposed and within plenum areas. No storm water filled piping shall run in unheated spaces such Phillip Carey, or Armstrong will be acceptable if equal to those specified. All insulation on indoor work shall have composite fire The Contractor shall provide the building plumbing systems as shown on the drawings, as specified in this Section, and as as attics without heat trace protection. and smoke hazard ratings as tested by procedure NFPA 255 not exceeding: Flame Spread 25, Fuel Contributed 50, Smoke needed for a complete installation including, but not necessarily limited to: Developed 50. Accessories, such as adhesives, mastics, cements, tapes, and cloth for fitting, shall have the same component Cast Iron - Aboveground: Provide cast iron no-hub soil and vent pipe, coated inside and out, conforming to CISPI 301-69T ratings as listed above. Insulation shall have an average thermal conductivity not to exceed 0.25 BTU/inch of thickness per square Specifications, for all soil and waste lines above around and for all vent lines with inside diameter 2 inches and larger. Standard Applications and fees for all plumbing permits, services, and interim and final inspections. foot per 1°F. at a mean temperature of 75 °F. weight soil and waste fittings will be accepted throughout. Pipe shall conform to CISPI Standard 301. Pipe and fittings to be Temporary water provisions as required for construction purposes. manufactured by Charlotte Pipe and Foundry Co. Excavation and backfill for plumbing systems work. Domestic Hot Water, Tempered Water, Cold Water, and Roof Drain Piping Piping: All piping shall be insulated with fiberglass pipe Concrete pads and pits as may be required for plumbing systems work. insulated with foil-kraft laminate vapor barrier fastened with pressure sensitive tape and stapled 12" on center - see schedule Cast Iron - Under Building: Service weight cast iron pipe with bell and spigot joints and fittings. Underground pipe may be Domestic hot and cold water piping systems, including backflow preventer. below for thicknesses. All piping, fittings, valves, flanges, etc. shall be covered with PVC jackets/fitting covers (20 mils thick installed with "Tyseal" gaskets as specified hereinafter. Pipe and fittings to be manufactured by Charlotte Pipe and Foundry Co. Drain, waste, and vent systems. minimum), taped and tacked fastened. Gas piping system. 2.04 GAS PIPING SYSTEM: Storm piping system. PIPING INSULATION SCHEDULE: Plumbing fixtures and trim. Cathodic and dielectric protection. Provide Schedule 40 black steel pipe conforming to ASTM A120 and A53 with extra-heavy malleable iron banded thread fittings. Domestic Cold Water:  $1\frac{1}{4}$ " and Smaller: 1" thick;  $1\frac{1}{2}$ " and Larger:  $1\frac{1}{2}$ " thick. Accessory plumbing devices including but not necessarily limited to hangers, supports, inserts and valves. Unions shall be ground iron to bronze seat. Plug valves shall be Rockwell-Nordstrom No. 142. Factory spiral wrapped in two Access panels and boxes for Contractor-provided valves. directions, using Scotch wrap 10 mil tape with 1" overlap for all underground piping. Domestic Hot, Recirculated, and Tempered Hot Water:  $1\frac{1}{4}$ " and Smaller: 1" thick;  $1\frac{1}{3}$ " and Larger: 2" thick. Piping insulation. Cutting and patching. Provide drip leas on all mains and risers and at equipment connections. Provide gas cocks at all equipment connections. Stormwater and Overflow: All Pipe Sizes: 1" thick. Final gas connections to HVAC equipment Painting of exposed piping. Fittings: Provide extra-heavy black malleable iron banded screwed or weld pattern as applicable per ASA B16.3. Sterilization of the potable water system. No insulation shall be installed on any piping before the building is adequately closed in. Where necessary to install any insulation Seismic Restraints (as may be required by the local jurisdiction). Rooftop horizontal gas piping support pedestals shall be pre-manufactured roof piping supports. Wood blocking with pipe clamps before it is protected by building enclosures, and if acceptable by the local jurisdiction, the covering must be effectively protected 19. Testing, adjusting and balancing. is NOT an acceptable means of supporting horizontal piping located on the roof. with roofing felt, wired on the covering to make an absolute waterproof protection for the pipe covering. The Contractor shall include the cost of applications and fees for all plumbing permits, services, and interim and final 2.05 ROOF PENFTRATIONS: Pipe Insulation at Handicap Accessible Lavatories: Provide Dearborn #ADA100 or #ADA101 insulating kits on traps and hot and cold inspections in the Base Bid. water supplies at each handicap accessible toilet room lavatory. Each trade shall provide their own roof penetrations and the Contractor shall coordinate the installation of same with other 1.02 SUBMITTALS: related trades. such that in no way shall the roof warranty be altered, modified, or voided. The roof flashing system shall be as 2.10 PAINTING: specified in Section 07510- Single-Ply Membrane Roofing System and Section 07720- Roof Accessories. The Contractor shall submit Plumbing Fixture Product Data for review by the Architect/Engineer. Any Request for Product Substitution must be submitted one week prior to bid submission. 2.06 ACCESS DOORS: Comply with Architectural requirements for painting interior piping. Paint exposed, interior metal piping, valves, service regulators, service meters and meter bars, and piping specialties, except components, with factory-applied paint or protective coating. 1.03 QUALITY ASSURANCE: The Plumbing Subcontractor shall furnish access doors for the Contractor's installation in finished work for concealed valves. W.B. Light Industrial Coating: MPI INT 5.1B - G5. Prime Coat: Rust Inhibitive Primer. (MPI #107). Intermediate Coat: W.B. Light cleanouts, and to concealed parts of the plumbing system that require accessibility for proper operation, maintenance, and Codes and Regulations: Industrial Coating (MPI #153). Topcoat: W.B. Light Industrial Coating (MPI #153). Color: Selected by Architect. repair. Doors are not required for suspended acoustical ceilings with lift-out panels. All materials, apparatus, and eauipment and the installation thereof shall comply with all state and county ordinances and all Access doors shall be of the proper size for respective concealed items, with minimum size exclusive of other requirements, 18" Damage and Touchup: Repair marred and damaged factory—applied finishes with materials and by procedures to match original other governmental and/or private authorities having jurisdiction, and shall comply with all county and state laws, rules, and x 18". Access door shall be flush type, with No. 13 U.S. Standard Gauge Steel door and trim, concealed hinges and screwdriver factory finish. regulations, as well as rules and regulations of the National Board of Fire Underwriters, and the Plumbing Code having operated, stainless steel cam lock. Access door shall be shop painted with one coat of zinc chromate primer. jurisdiction. 2.11 TRAPS: In the event of conflict between or among specified requirements and pertinent regulations, the more stringent requirement will 2.07 VALVES: govern and shall be provided at no additional cost to the owner. All fixtures and floor drains are to be separately trapped as near to the fixture or floor drain as possible. Traps shall be Valves for water piping shall be 125 lb. SWP, all bronze gate valves. Drips shall be all bronze 1/2" globe SWP hose end. Check Drawings and Coordination: self-cleaning, water-sealed, and shall have a scouring action. Traps shall be set true with respect to water seal and shall be valves shall be horizontal swing check 125 lb. SWP type. Where used in connection with chrome plated pipe, valves shall be the protected from freezing. All underground traps, except "P" traps into which floor drains with removable strainers discharge, shall be Construction drawings shall be considered as a part of the work, insofar as the drawings furnish the Contractor with information same finish as the pipe. Install valves on all hot and cold water branch lines to each group of fixtures or individual fixtures. provided with accessible cleanouts. Traps which are not part of plumbing fixtures shall be of the same material and size as pipes All products listed meet the low-lead requirements of NSF-372 and meet the requirements of ANSI/NSF61. relating to design and construction of the building. Because of the scale of the mechanical drawings, it is not possible to or branches into which they discharge. indicate all offsets, fittings, and accessories which may be required to meet such conditions. The plumbing drawings show the general arrangements of all piping, ductwork, equipment, etc., and shall NOT BE SCALED. This Gate Valves: Red White #206AB, 125# brass body, non-rising stem, for all lines up to 4". 2.12 VENTS: work shall be coordinated with ALL trades. Critical locations are dimensioned on the drawings; if a conflict arises, the Contractor Check Valves: Red White #236AB 125# brass body, Y-pattern, PTFE seat for all sizes up to 2" in diameter. Nibco #F-910-LF, shall notify the owner and the Architect/ Engineer immediately for clarification. 125# iron body, bronze trimmed, flanged horizontal check valve for all valves larger than 2 inches in diameter. Collect vents together as shown on the drawings to minimize number of vents terminating through roof. Verify location of roof The Contractor shall verify the dimensions governing the plumbing systems work in the building. No extra compensation shall be equipment indicated. Offset vents through roof to maintain a minimum distance of 10 feet away from outside air intakes. claimed or allowed on account of differences between actual dimensions and those indicated on the drawings. The Contractor Balancing Valve: Red White #9517AB DZR Brass Body, fixed orifice, integral memory stop, 300#WOG. Model #9517ABU for shall examine adjoining work, on which mechanical work is dependent for proper operation, and shall report any work which must 0.27-0.71 GPM and Model #9517ABL for 0.49-1.17 GPM. be corrected. No waiver of responsibility for defective work shall be claimed or allowed due to any failure to report unfavorable 2.13 CLEANOUTS: conditions affecting the plumbing systems work. Plug Valves: Rockwell-Nordstrom #142 for lines two inches and smaller and #143 for 2-1/2 inches and larger, lubricated plug valve with #555 lubricant for natural gas service. Where indicated on the drawings and as required by local plumbing code. Make all cleanouts accessible by one of the following 1.04 WARRANTY/ CLOSEOUT DOCUMENTS: means. Globe Valves: Red White #211AB, brass body, 200# WOG, swivel style disc. Manufacturer's Warranty: The Contractor shall provide the manufacturer's standard product warranty • Within 6 inches from ceiling access panel. Ball Valves: Red White #5049AB Brass Body, 600# WOG, 150# WSP, PTFE seat, blow-out proof stem. • Extending to floor or grade above. Installer's Warranty: The Contractor shall include a copy of the Subcontractor's Warranty for all work provided under the contract for construction for a term of 1 year after the Date of Substantial Completion. Locate in wall with removable plate Gas Valves: 1½" and smaller: Provide Rockwell-Nordstrom #143 with #555 lubricant for natural gas service. 2½" and larger: Provide Rockwell-Nordstrom #143 with #555 lubricant for natural gas service. Warranties shall be included in the Building Maintenance Manuals submitted to the owner after the Date of Final Completion. Size: Same as pipe on which installed. Valve Manufacturers: Provide as manufactured by Crane, Jenkens, Walworth, Kennedy, Stockham, Red-White, Caleffi, or Sterilization Certificate of Performance: Upon completion of the water line sterilization, the Contractor shall deliver a copy of an Nibco-Scott. No other product/manufacturers are permitted. Installation: Covers set flush with finished wall, floor or grade, to be securely anchored by means of integral lugs or bolts. Where acceptable sterilization "Certificate of Performance" to the owner. This Sterilization Certificate of Performance shall additionally be surfacing materials such as resilient floor covering is used, install the clean out with top so that finished surface is smooth and included in the Building Maintenance Manuals submitted to the Construction Project Manager after the Date of Final Completion, Provide valve boxes for all valves. Boxes shall be Mueller #H-10360, Size 564 S, screw type, and shall have 5-1/4" shaft with flush as further described in this section. "WATER" cast in lid. Project Record Drawings: The Contractor shall record all changes as the work progresses on a set of project record drawings Manufacturers: Cleanout products shall be as manufactured by MIFAB or as detailed in the fixture schedule. Trap Primers: Where shown on the drawings or required by plumbing code (see Drawings for product specifications). Automatic kept at the job site, and shall provide record drawings to the Construction Project Manager after the Date of Substantial trap primer on cold water supply at nearest fixture and run drain to trap seal being protected. Provide access panel when Completion. Floor Cleanouts and Access Covers: Duco coated cast iron body and frame with "Leckeromated" plug and heavy duty adjustable primers are installed in walls. scoriated secured polished bronze top. PRODUCTS PART 2 Air Cushions and Shock Absorbers: Each hot and cold water connection to a fixture or faucet shall be equipped with full size vertical air cushion not less than 12 inches long. In addition to air cushions, provide 1 inch pipe size, shock absorber at each Cleanout to Grade with Countersunk Plug: Duco-coated cast iron body with bronze taper thread countersunk plug. Installed in 24" 2.01 GENERAL hot and cold connection and battery of fixtures. Shock absorbers shall be MIFAB #CL-A-NPB. x 24" concrete pad, tapered for drainage. The word piping shall mean pipe, fittings, nipples, valves, etc. completely assembled. Hose Bibs: Provide as scheduled and detailed on the Drawings. Wall Cleanouts: Stainless steel chrome plated bronze deep cover with center screw. 2.02 DOMESTIC WATER SYSTEM: Vacuum Breakers: Furnish and install on all faucets, hydrants and all other water discharge points with threaded hose connector, where shown on drawings and where required by Code. Hose thread vacuum breaker shall be Watts Model #8-A or 2.14 FLOOR DRAINS: approved equal. Water Lines: Floor drains shall be properly anchored to building construction with clamping device or with lugs embedded in concrete slabs. Vacuum breakers for general piping application shall be Watts Regulator Company, No. 288A or approved equal, with bronze body Copper: Type "L" hard drawn, per ASTM B88-7, for all water pipe above concrete or around. Floor drains shall be as scheduled and detailed on the drawings. All floor drains shall have automatic trap primers installed as and internal trim and brass external trim. Vacuum breakers shall have angle type bodies with female inlet connection at bottom Copper: Type "K" hard drawn, per ASTM B88-7, for water pipe set in or under concrete or in the ground. Wrap lines below required. Acceptable Manufacturers include: Jay R Smith, MIFAB, Watts, and Zurn. and female outlet connections at side. Furnish and install where contamination of potable water is possible and where required concrete floors with 5 mils polyethylene tape with joints overlapped 25% minimum, and insulate with Armaflex insulation. No by local authorities. fittings shall be under the slab. 2.15 FIXTURE SUPPORTS PIPE HANGERS AND SUPPORTS: 2.08 Fittings: Wrought copper, per ANSI B16.18 and B16.22. Steel plated supports for all wall hung fixture shall be supported with 3/8" x 6" steel plates recessed and lag screwed to wood Rooftop Piping Support Pedestals: Horizontal piping mounted on roof shall be supported with pre-manufactured pedestals and Identification: Color identify pipe with size of pipe manufacturer's trademark, and conform to the following schedule: studs or welded to steel studs and tapped for fixture bolts. Install the length and number of plates as required to satisfactorily Accessory Pipe Straps as specified in Section 07720- Roof Accessories. Wood blocking with pipe clamps is NOT an acceptable support the fixtures. means of supporting horizontal piping located on the roof, and the installation of same will be rejected by the Architect/ Type "K" Copper – Green Engineer. Type "L" Copper - Blue 2.16 PLUMBING FIXTURES: Adequately support piping against sagging, pocketing, swaying, and displacement. Properly space and apply hangers to achieve PEX Water Lines: the result, and not farther apart than the following: General: Furnish and install plumbing fixtures complete with trim and caulk. See drawings for Plumbing Fixture Schedule. Uponor PEX-a Tubing: Tubing to be per ASTM F876 and ASTM F877, Uponor AQUAPEX, for all water pipe above or below Steel Pipe:  $1\frac{1}{4}$ " and smaller, 8 foot on center;  $1\frac{1}{2}$ " and larger, 10 foot on center concrete or ground, all sizes up to and including 3". Fittings: Fitting assembly is manufactured from material listed in All fixtures shall be Class "A". Vitreous fixtures shall be best quality. Warped, imperfect fixtures are NOT acceptable. Brass paragraph 5.1 of ASTM F1960. All fitting material is to comply with ASTM F1960. Type: PEX-a cold expansion fitting. products shall contain at least 75% copper. All exposed metal below and above each fixture throughout shall be chrome plated on Assembly consists of the appropriate ProPEX insert with a corresponding ProPEX Ring. PEX Manifold: Material: Type L copper Tubing: 1¼" and smaller, 6 foot on center; 1½" and larger, 10 foot on center brass, with cast brass escutcheons. Where fixtures are noted on drawings as furnished by others, they shall be set by this body with UNS 3600 series brass ProPEX outlet connections or Engineered Plastic (EP) body with ProPEX outlet connections. contractor and this contractor shall furnish, install and connect service to such fixtures. All fixtures supported from walls shall be Manifold Type: Uponor ProPEX 1" Copper Manifold or Uponor engineered plastic (EP) Manifold. All manifolds manufactured with Plastic Pipe (Where Allowed): 1½" and smaller, 3 foot on center; 2" and larger, 4 foot on center provided with carriers by MIFAB. Furnish, set and connect all plumbing fixtures including all necessary supports, and chrome plated the appropriate-sized ProPEX fittings on the manifold supply inlets. exposed work and fittings. Provide loose-key type fixtures stops for all fixtures unless noted otherwise. The plumbing subcontractor Install Trisolator #500 isolators around all uninsulated copper lines where hanger occurs. Install dielectric fitting between all shall purchase plumbing fixtures, flush valves, toilet seats and carriers as specified on the drawings. ferrous and non-ferrous piping with a 12" section of red brass pipe in between. Specification for CPVC Hot and Cold Water Commercial Systems (with piping components ½" - 6"): Size all hangers on insulated lines to fit around outside diameter of insulation specified with allowance for sheet metal shield. The plumbing subcontractor shall purchase faucets, tailpiece, P-trap, lavatory insulation supply kit, valves, sink accessories, trap All pipe and fittings to be manufactured from CPVC compound with a cell class of 24448 for pipe and 23447 for fittings as Pipe shield shall be 169A, 1/3 circumference of insulation of a length of not less than 3 x diameter of the insulation primer, water hammer arrester, floor drains and wall clean out as specified on the drawings. per ASTM D-1784 and conform with National Sanitation Foundation (NSF) standards 14 and 61. (maximum 24").  $\frac{1}{2}$ " through 2" sizes: FlowGuard Gold® CPVC Copper Tube Size mfg. to standard dimension ratio (SDR) 11 and shall conform to Traps exposed above the floor shall be chrome plated adjustable brass, with chrome plated approved cleanout plugs, cast set screw ASTM D-2846. Transition fittings to have brass male or female connections with integral CPVC socket connections as mfg. by Manufacturer: Grinnell Company catalog numbers are indicated to simplify the description, however, hangers and supports shall wall escutcheon and casing. All trim shall be of polished chrome-plated brass and of one acceptable manufacturer unless be Grinnell, Grabler, Fee & Mason, Elcen or approved equal. Charlotte Pipe and Foundry Co. specifically noted otherwise. Provide fixture stops or valve ahead of all equipment or fixtures. Refer to Plumbing Fixture Schedule on Drawings.

3" through 6" sizes: Corzan® CPVC Schedule 80 iron pipe size (IPS). Pipe shall conform to ASTM F-441. Socket type fittings shall conform to ASTM F-439. Transition to metal piping to be made using 150# flanged connections.

All pipe and fittings to be produced by a single manufacturer and to be installed in accordance with manufacturer's recommendations and local code requirements. FlowGuard Gold to be joined using approved one-step solvent cement conforming 2.09 to ASTM F-493. Corzan to be installed using approved solvent cement conforming to ASTM F-493 and primer conforming to ASTM F-656. Pipe and fittings to be manufactured by Charlotte Pipe and Foundry Co. and are intended for hot and cold domestic water distribution systems.

All insulation shall be applied in a neat and workmanlike manner. Remove and replace all insulation not applied in strict accordance with manufacturer's specifications or not presenting a neat appearance. Insulation shall be continuous through wall and ceiling openings and sleeves.

Overhead Supported: Each horizontal pipe shall be supported on adjustable wrought iron clevis hangers equal to Grinnell, Figure 260, except that groups of pipes shall be supported on trapeze hangers made up of steel rods and steel channels or angles. Pipe shall be "U" bolted to trapeze and trapeze spaced for the smallest pipe in the group.

### PLUMBING SYSTEM INSULATION:

Domestic Water Heaters: Provide water heater of size, capacity and make as scheduled on the drawings. Heaters shall be fully warranted for minimum of 5 full years after final acceptance of the building. Furnish heaters with the following accessories: 1. ASME combination temperature and pressure relief valve rated in excess of heater input. Run full size drain to location shown on

2. Automatic thermostat actuated controls with 100 percent shutoff. 3. Dual high—limit controls.

4. Tank drain.

plans.

