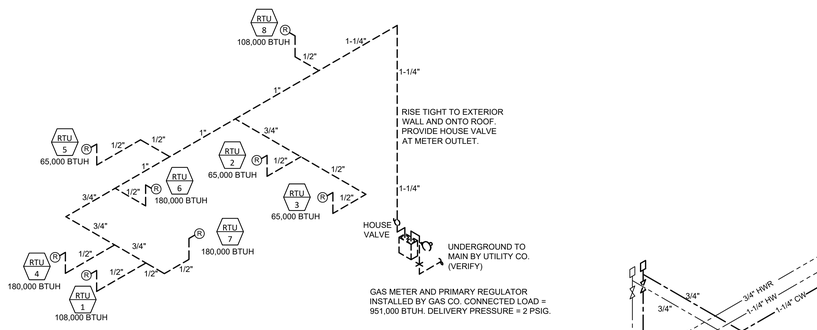
GAS PRESSURE REGULATOR SPECIFICATIONS

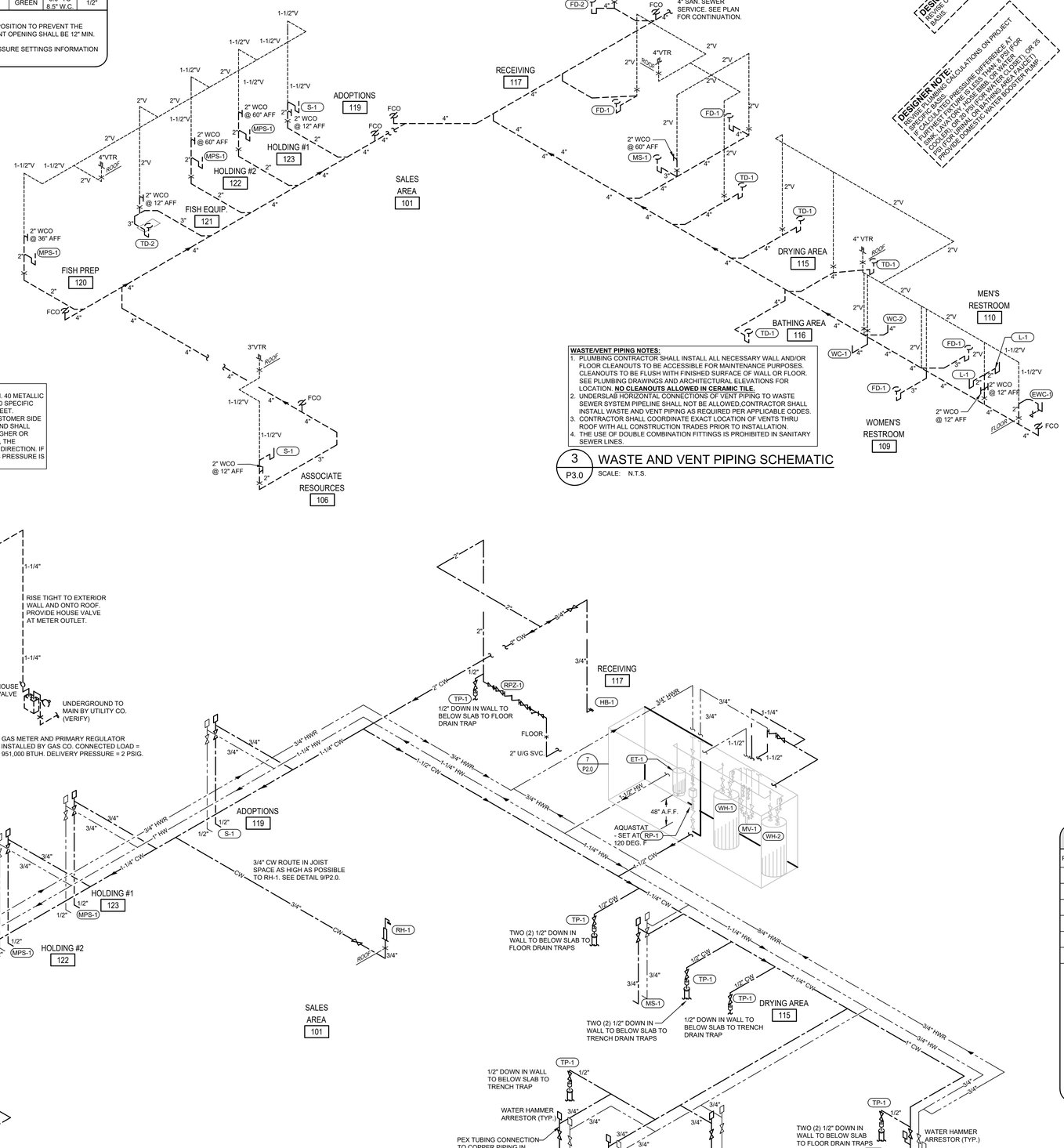
MANUFACTURER	MODEL #	SIZE	CFH CAPACITY	INLET PRESSURE	OUTLET PRESSURE	SPRING COLOR	SPRING RANGE	ORIFICE SIZE
ACTARIS	B-31R	3/4"x3/4"	UP TO 150	2 PSIG	7" W.C.	LIGHT GREEN	5.5" TO 8.0" W.C.	1/8"
ACTARIS	B-31R	3/4"x1"	150 TO 400	2 PSIG	7" W.C.	LIGHT GREEN	5.5" TO 8.0" W.C.	1/4"
ACTARIS	B-31R	1"x1"	400 TO 800	2 PSIG	7" W.C.	LIGHT GREEN	5.5" TO 8.0" W.C.	3/8"
ACTARIS	B-31R	1"x1-1/4"	800 TO 1100	2 PSIG	7" W.C.	LIGHT GREEN	5.5" TO 8.0" W.C.	1/2"
ACTARIS	B-34R	1-1/4"x1-1/4"	1100 TO 1900	2 PSIG	7" W.C.	GREEN	5.0" TO 8.5" W.C.	1/2"

1. REGULATORS ARE FULL CAPACITY INTERNAL RELIEF TYPE.
2. REGULATORS SHALL BE INSTALLED WITH THE RELIEF VENT IN THE DOWN FACING POSITION TO PREVENT THE ENTRANCE OF WATER. PROVIDE A SCREENED VENT ELBOW AS REQUIRED. THE VENT OPENING SHALL BE 12" MIN. ABOVE THE ROOF LEVEL.
3. PROVIDE A TAG ON THE REGULATOR THAT PROVIDES THE INLET AND OUTLET PRESSURE SETTINGS INFORMATION AND STATES "DO NOT REMOVE".

GAS PIPING NOTES:
1. PIPING IS SIZED PER THE 2018 INTERNATIONAL FUEL GAS CODE, TABLE 402.4(5), SCH. 40 METALLIC PIPE, NATURAL GAS, 2.0 PSI INLET PRESSURE, 1.0 PSI SYSTEM PRESSURE DROP, 0.60 SPECIFIC GRAVITY. TOTAL GAS DEMAND = 951,000 BTUH & TOTAL DEVELOPED LENGTH = 300 FEET.
2. THE CONTRACTOR SHALL VERIFY THE EXACT GAS DELIVERY PRESSURE AT THE CUSTOMER SIDE OF THE METER PRIOR TO BID. THE CONTRACTOR SHALL APPLY FOR GAS SERVICE AND SHALL COORDINATE GAS SERVICE IN A TIMELY MANNER. IF THE DELIVERY PRESSURE IS HIGHER OR LOWER THAN THE GAS PRESSURE USED TO SIZE THE GAS PIPING AS NOTED ABOVE, THE CONTRACTOR SHALL CONTACT THE PROFESSIONAL OF RECORD IMMEDIATELY FOR DIRECTION. IF THE PROFESSIONAL OF RECORD IS NOT CONTACTED, IT IS ASSUMED THAT THE GAS PRESSURE IS VERIFIED AND IS ADEQUATE FOR THE SYSTEM DESIGNED ON THE DRAWINGS.



2 P3.0 GAS PIPING SCHEMATIC
SCALE: N.T.S.



WASTE/VENT PIPING NOTES:
1. PLUMBING CONTRACTOR SHALL INSTALL ALL NECESSARY WALL AND/OR FLOOR CLEANOUTS TO BE ACCESSIBLE FOR MAINTENANCE PURPOSES. CLEANOUTS TO BE FLUSH WITH FINISHED SURFACE OF WALL OR FLOOR. SEE PLUMBING DRAWINGS AND ARCHITECTURAL ELEVATIONS FOR LOCATION. **NO CLEANOUTS ALLOWED IN CERAMIC TILE.**
2. UNDERSLAB HORIZONTAL CONNECTIONS OF VENT PIPING TO WASTE SEWER SYSTEM PIPELINE SHALL NOT BE ALLOWED,CONTRACTOR SHALL INSTALL WASTE AND VENT PIPING AS REQUIRED PER APPLICABLE CODES.
3. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF VENTS THRU ROOF WITH ALL CONSTRUCTION TRADES PRIOR TO INSTALLATION.
4. THE USE OF DOUBLE COMBINATION FITTINGS IS PROHIBITED IN SANITARY SEWER LINES.

3 P3.0 WASTE AND VENT PIPING SCHEMATIC
SCALE: N.T.S.

WATER PIPING NOTES:
1. PRIOR TO SUBMITTING THE BID PLUMBING CONTRACTOR SHALL VERIFY WITH LOCAL CODE OFFICIAL THAT PEX PIPING IS APPROVED FOR WATER DISTRIBUTION SYSTEMS. IF PEX PIPING IS APPROVED, ALL WATER PIPING 2" AND SMALLER SHALL BE ZURN PEX POLYETHYLENE TUBING. INSTALL TUBING PER MANUFACTURERS INSTRUCTIONS. DO NOT STORE PEX TUBING AND FITTINGS IN DIRECT OR INDIRECT SUN LIGHT.
2. EXPOSED PIPING AND SHUT-OFF VALVES IN CEILING IN BATHING AREA SHALL BE COPPER.
3. ALL PIPING, FITTINGS AND VALVES FOR WATER HEATERS CONNECTIONS SHALL BE COPPER.

1 P3.0 WATER PIPING SCHEMATIC
SCALE: N.T.S.

DESIGNER NOTE:
REVISE SOURCE REFERENCE ON PROJECT SPECIFIC BASIS.

DESIGNER NOTE:
REVISE PLUMBING CALCULATIONS ON PROJECT SPECIFIC BASIS.
IF CALCULATED PRESSURE DIFFERENCE AT FARTHEST LAVATORY IS LESS THAN 8 PSI FOR SINK, LAVATORY, OR BIBB OR LESS THAN 15 PSI FOR 25 PSI FOR BATHTUB OR SHOWER, PROVIDE DOMESTIC WATER BOOSTER PUMP.

PLUMBING CALCULATIONS BASED ON 2018 IPC:

WATER		WASTE
SPRAY HOSE	5 x 1.4 WSFU = 7 WSFU	———
WATER CLOSET (FT)	2 x 5 WSFU = 10 WSFU	2 x 4 DFU = 8 DFU
DRINKING FOUNTAIN	2 x .25 WSFU = 0.5 WSFU	2 x 0.5 DFU = 1 DFU
LAVATORY	2 x 2 WSFU = 4 WSFU	2 x 1 DFU = 2 DFU
URINAL	0 x 5 WSFU = 0 WSFU	0 x 2 DFU = 0 DFU
SINK	2 x 2 WSFU = 4 WSFU	2 x 2 DFU = 4 DFU
MOP/SERVICE SINK	4 x 3 WSFU = 12 WSFU	4 x 2 DFU = 8 DFU
HOSE BIBB (FIRST)	1 x 3 WSFU = 3 WSFU	———
HOSE BIBB (EACH ADDITIONAL)	2 x 1 WSFU = 2 WSFU	———
FLOOR OR TRENCH DRAIN, 3"	———	2 x 4 DFU = 8 DFU
FLOOR OR TRENCH DRAIN, 4"	———	8 x 6 DFU = 48 DFU
TOTAL FIXTURE UNITS	= 42.5 WSFU	TOTAL = 79 DFU

42.5 FIXTURE UNITS — 27.0 GPM

HIGHEST ELEVATION — 18 FEET

(18 FT.) x 0.43 = 7.74 PSI STATIC LOSS

HORIZ. PIPE LENGTH METER TO BUILDING (PRV) * — 10 FEET
HORIZ. PIPE LENGTH BLDG. (PRV) TO LAST FIXTURE — 270 FEET
VERT. PIPE LENGTH BLDG. RISE TO HIGHEST FIXTURE — 18 FEET
TOTAL PIPE LENGTH (FROM PRV TO LAST FIXTURE) — 360 FEET

(360 FT.) x 1.25 (FITTING LOSS) = 450 FEET TOTAL DEVELOPED LENGTH

SIZE	DEVICE	PSI LOSS
1-1/2"	BACKFLOW PREVENTOR	10.0
1-1/2"	METER	5.0
	STATIC	7.74
	FIXTURE	25.00
	TOTAL BUILDING LOSS	47.74 PSI

PRESSURE AT BLDG — 65.00 PSI
PRESSURE REGULATOR SETTING — NA
BUILDING LOSS — 47.74 PSI
DIFFERENCE — 17.26 PSI

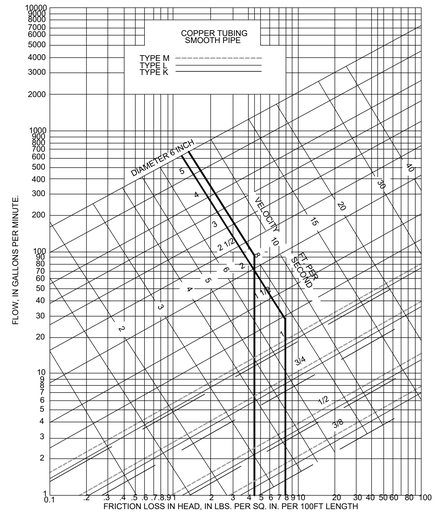
(27.26/360) x 100 = 7.6 — **MAX. PSI DROP ALLOWABLE PER 100 FT. PIPE LENGTH**

BRANCH PIPE SIZING CHART - PSI LOSS

PIPE SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
	3	8.5	18	30	45	78
FU (F.T.)	1	4	16	55	110	260

* THIS PIPE LENGTH SHALL NOT BE INCLUDED WHEN/IF PRESSURE REGULATOR IS PROVIDED/REQUIRED.

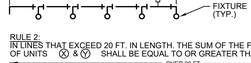
** METER LOSSES SHALL NOT BE INCLUDED WHEN/IF PRESSURE REGULATOR IS PROVIDED/REQUIRED AND METER IS INSTALLED OUTSIDE THE BUILDING.



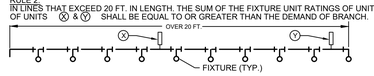
WATER HAMMER ARRESTOR SCHEDULE

P.D.I. SYMBOL	MANUFACTURER	MODEL NO.	CONNECTION SIZE	FIXTURE UNIT RATING	REMARKS
"A"	J.R. SMITH	5005	3/4"	1-11	THREADED NIPPLE CONNECTION
"B"	J.R. SMITH	5010	1"	12-32	THREADED NIPPLE CONNECTION
"C"	J.R. SMITH	5020	1"	33-60	THREADED NIPPLE CONNECTION
"D"	J.R. SMITH	5030	1"	61-113	THREADED NIPPLE CONNECTION
"E"	J.R. SMITH	5040	1"	114-154	THREADED NIPPLE CONNECTION
"F"	J.R. SMITH	5050	1"	155-330	THREADED NIPPLE CONNECTION

RULE 1:
THE PREFERRED PLACEMENT LOCATION IS AT THE END OF THE BRANCH LINE BETWEEN THE LAST TWO FIXTURES IN A BRANCH LESS THEN 20 FEET.



RULE 2:
IN LINES THAT EXCEED 20 FT. IN LENGTH, THE SUM OF THE FIXTURE UNIT RATINGS OF UNITS OF UNITS X & Y SHALL BE EQUAL TO OR GREATER THAN THE DEMAND OF BRANCH.



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16K 2026 U.S. INSTRUCTION SET

AUGUST 10, 2026

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TITLE:
SCHEMATICS AND SCHEDULES

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P3.0