

KEY PLAN

M E A INC. Consulting Engineers
2007 S.E. Ash St.
Portland, OR 97214
PHN: (503) 234-0548
FAX: (503) 234-0677
WWW.MEAI-ENG.COM
CONTACT: Mark Denyer/Denise Taylor

Project Location
SUNSHINE PORTLAND
3610 SE 29th Ave
Portland, OR 97202

THESE DRAWINGS ARE FOR CONSTRUCTION BY
JEAN-PIERRE VEILLET
SITWORKS, INC. ONLY

Date: 2016.04.27

Drawn By: Mark Denyer

Phase: PERMIT DOCUMENTS

Revisions:

Number	Description	Date
0	Permit Set	2016.05.11
1	Checksheet Response	2016.08.15
2	Utility Coordination	2016.09.12
3	Checksheet Response	2016.09.13

Sheet Name
BUILDING I
PLUMBING - LEVEL 1 & 2

Sheet No.

P110

1 BUILDING I - PLUMBING UNDERSLAB LEVEL 1
P110 SCALE: 1/8"=1'-0"

2 BUILDING I - PLUMBING LEVEL 1
P110 SCALE: 1/8"=1'-0"

3 BUILDING I - PLUMBING LEVEL 2
P110 SCALE: 1/8"=1'-0"

PLAN NOTES:

- (A) — WASTE FROM FIXTURE STACK ABOVE, ROUTE TO BELOW
- (B) — CW AND HW RISER UP. PROVIDE HW AND CW WATER SHUT OFF VALVES WITH ACCESS PANEL IN EACH UNIT. SEE 5/P601 & 7/P401.
- (C) — 1/2" HWR WITH BALANCING VALVE FOR EACH RISER STACK, SET BALANCING VALVES TO 0.5 GPM.
- (D) — &
- (E) — OFFSET CW AND HW RISERS AS NEEDED FOR ROUTING
- (F) — GUTTER DOWNSPOUT, SIZE SHOWN FOR REFERENCE ONLY
- (G) — DOWNSPOUT BOOT, SEE ; SEE PLANS FOR SIZE. SEE CIVIL FOR CONT.

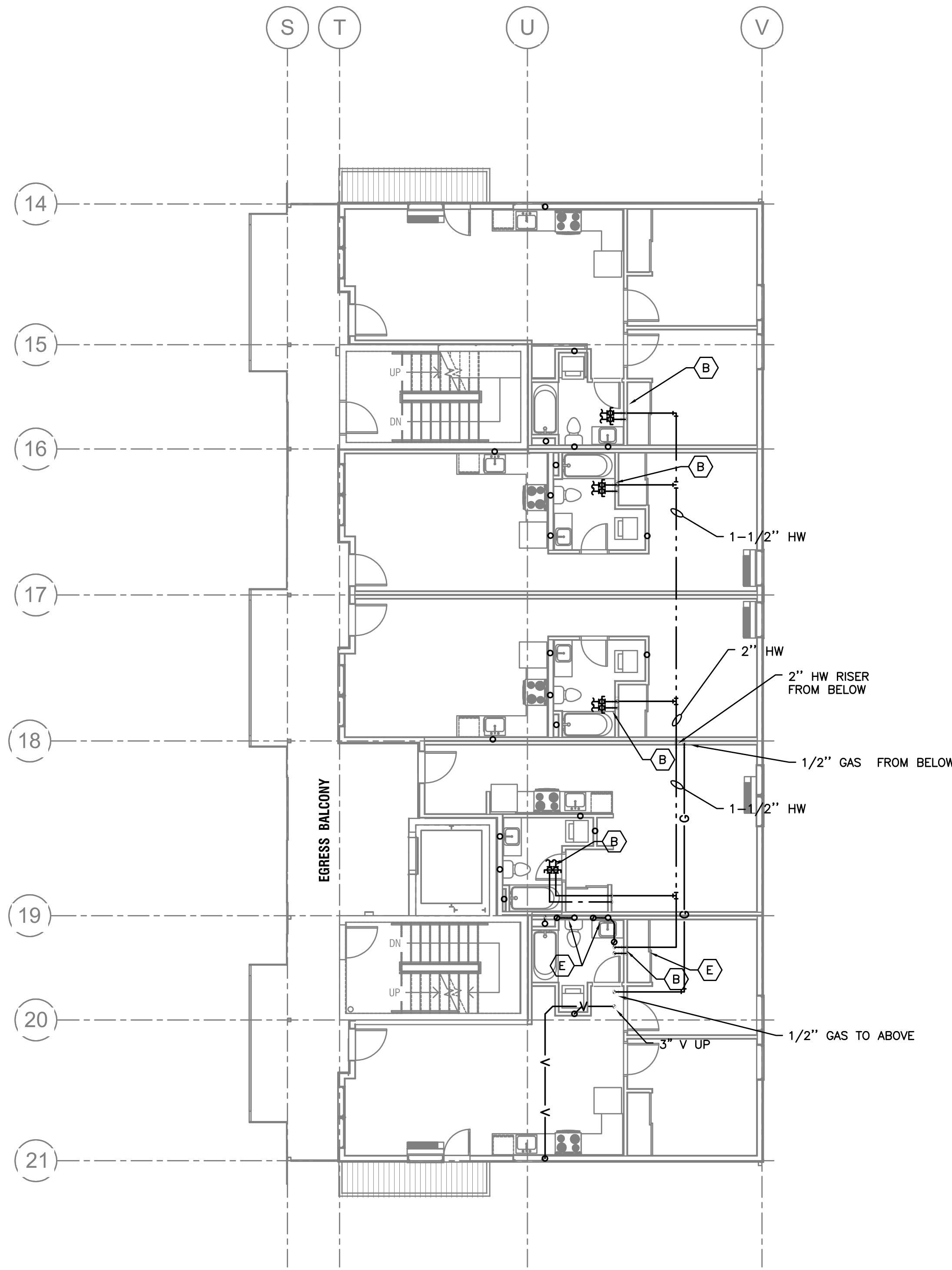
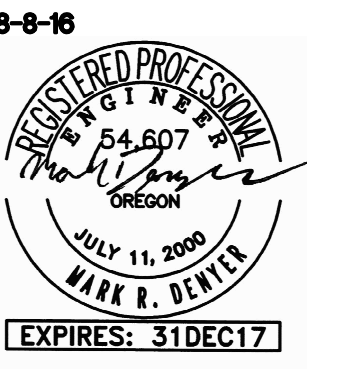
BACKGROUND UPDATES 8-15-16

RISER DETAILS:

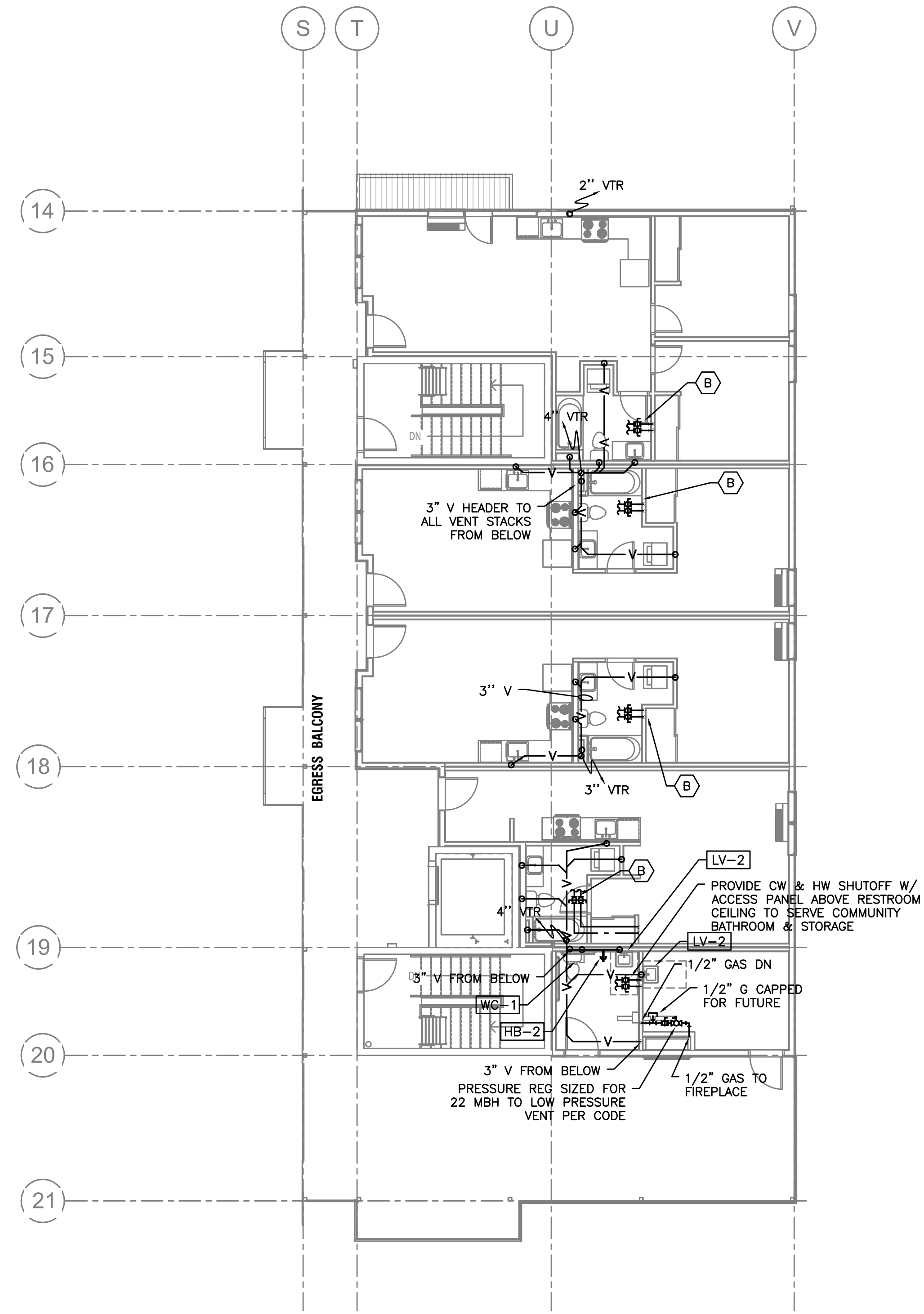
SEE SHEET FOR RISER DIAGRAMS
 = RISER NUMBER

GENERAL NOTES:

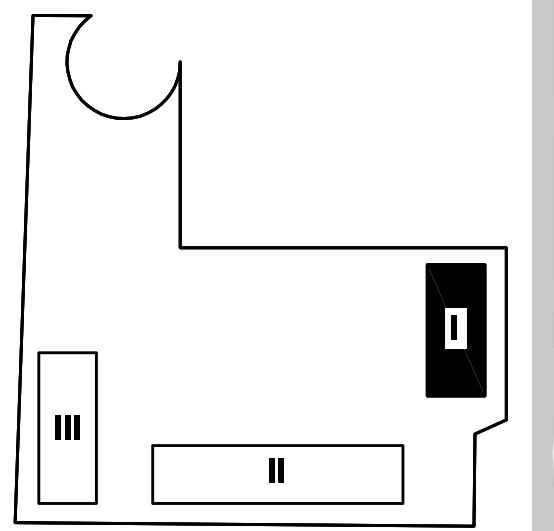
- HEAT TRACE (FREEZE PROTECTION) ALL PIPING SUBJECTED TO FREEZING CONDITIONS.
- HEAT TRACE WASTE TRAPS, INSULATE WASTE PIPING EXPOSED TO FREEZING CONDITIONS
- ROUTE ALL HVAC UNIT CONDENSATE DRAINS TO AN APPROVED LOCATION (OPTIONS LISTED BELOW)
 - ROUTE TO CLOTHES WASHER STAND PIPE, OF UNIT BELOW
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- COORDINATE ALL HOSE BIB LOCATIONS WITH ARCHITECT, INCLUDING TENANT HOSE BIBS AT ENTRY PORCHES.



1 BUILDING I - PLUMBING LEVEL 3
 P111 SCALE: 1/8"=1'-0"



2 BUILDING I - PLUMBING LEVEL 4
 P111 SCALE: 1/8"=1'-0"



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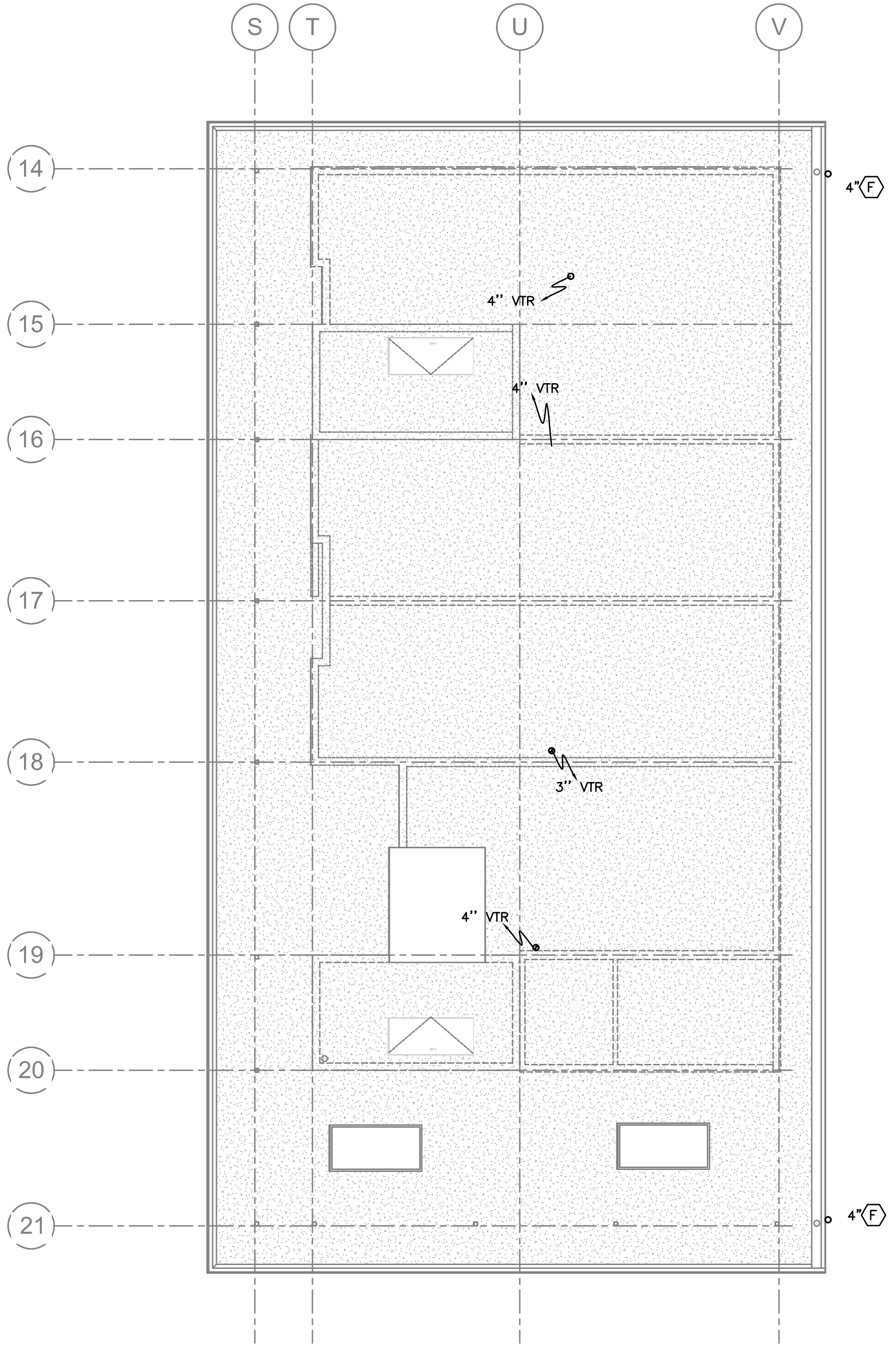
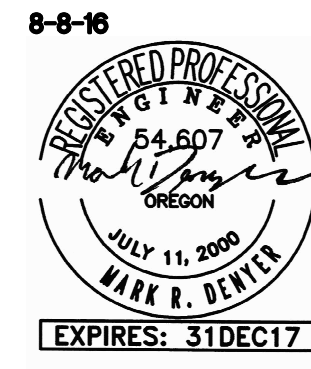
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Sheet No.

P111

SHEET NOTES:
 SEE SHEET P110 FOR
 SHEET & GENERAL
 NOTES

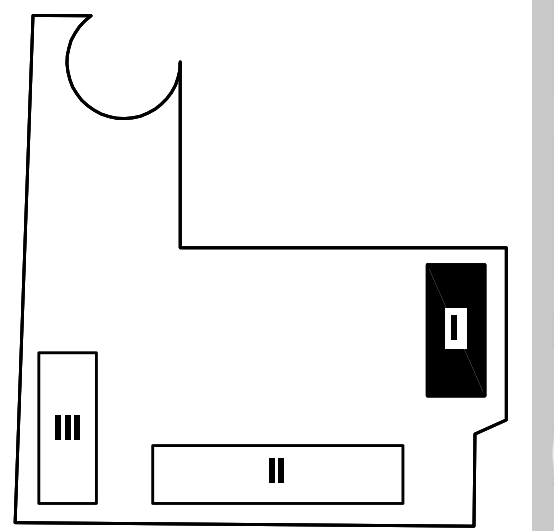
BACKGROUND UPDATES 8-15-16



1 BUILDING I - PLUMBING ROOF PLAN
P112 SCALE: 1/8"=1'-0"

BACKGROUND UPDATES 8-15-16

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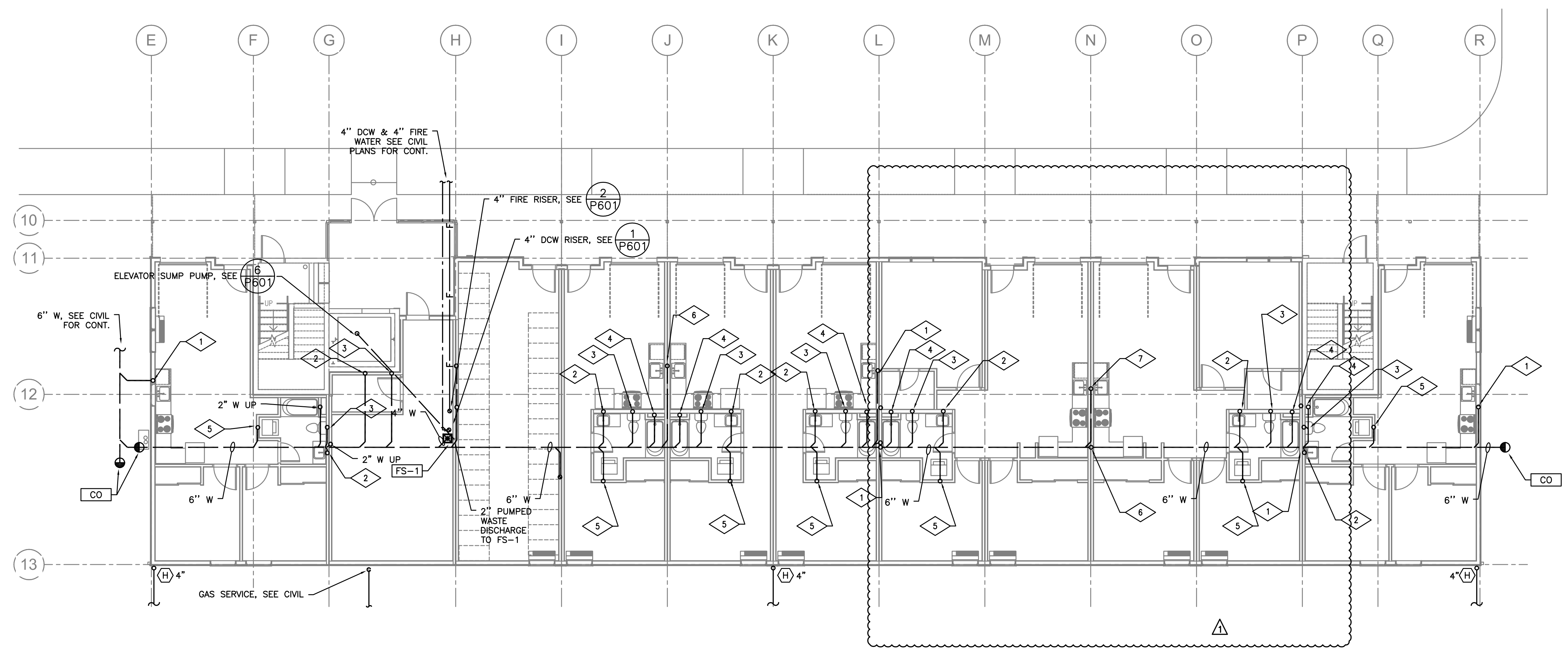
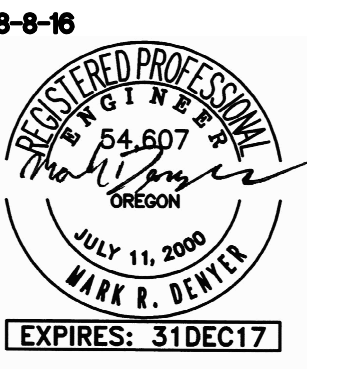
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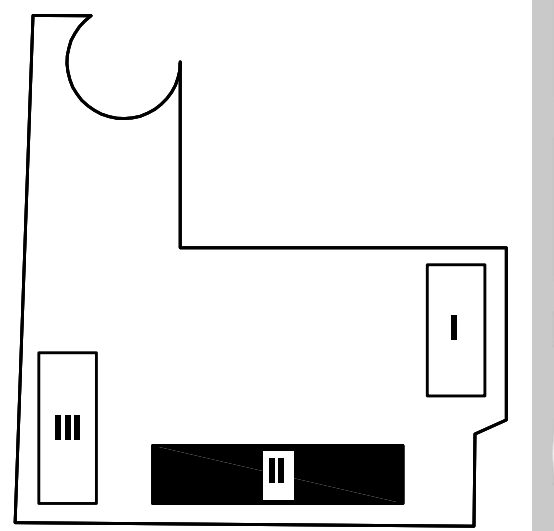
Sheet Name
 BUILDING I
 PLUMBING - ROOF PLAN

Sheet No.

P112



1 BUILDING II - PLUMBING UNDERSLAB LEVEL 1
 P120A SCALE: 1/8"=1'-0"



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 PLUMBING - UNDERSLAB LEVEL 1

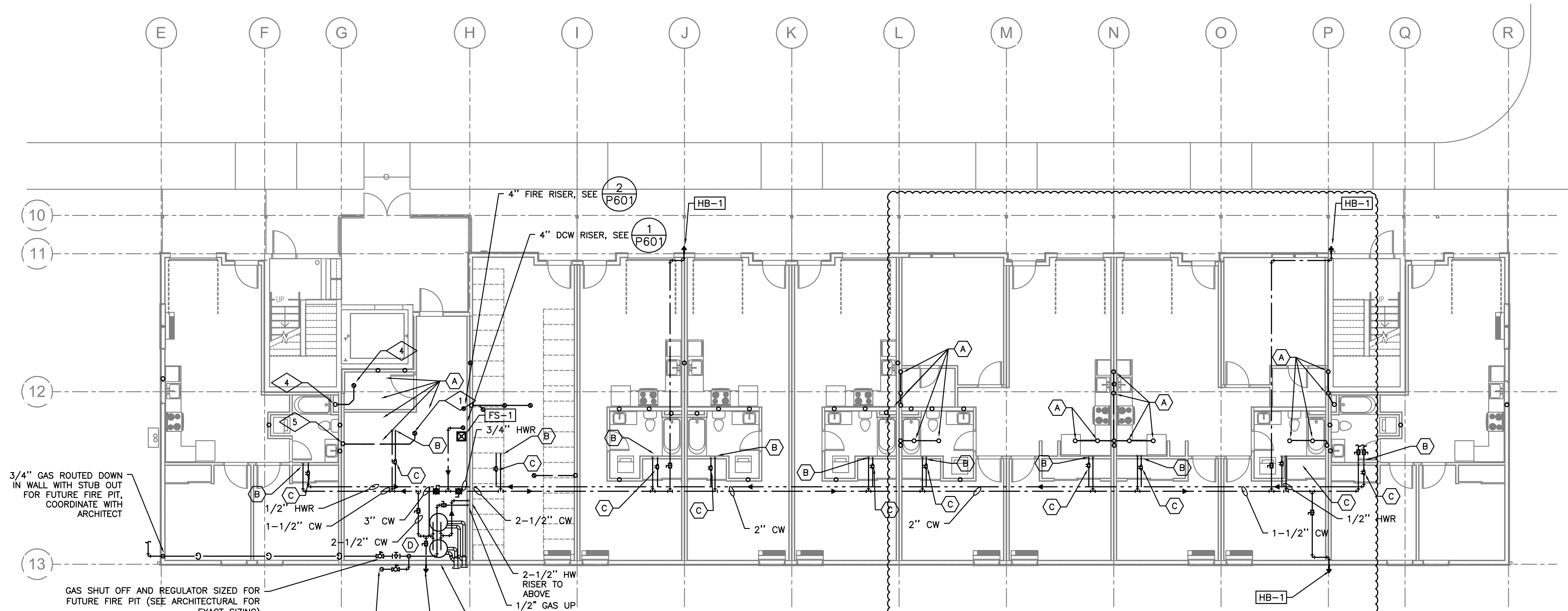
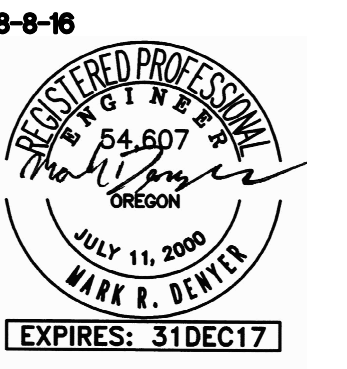
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P120A

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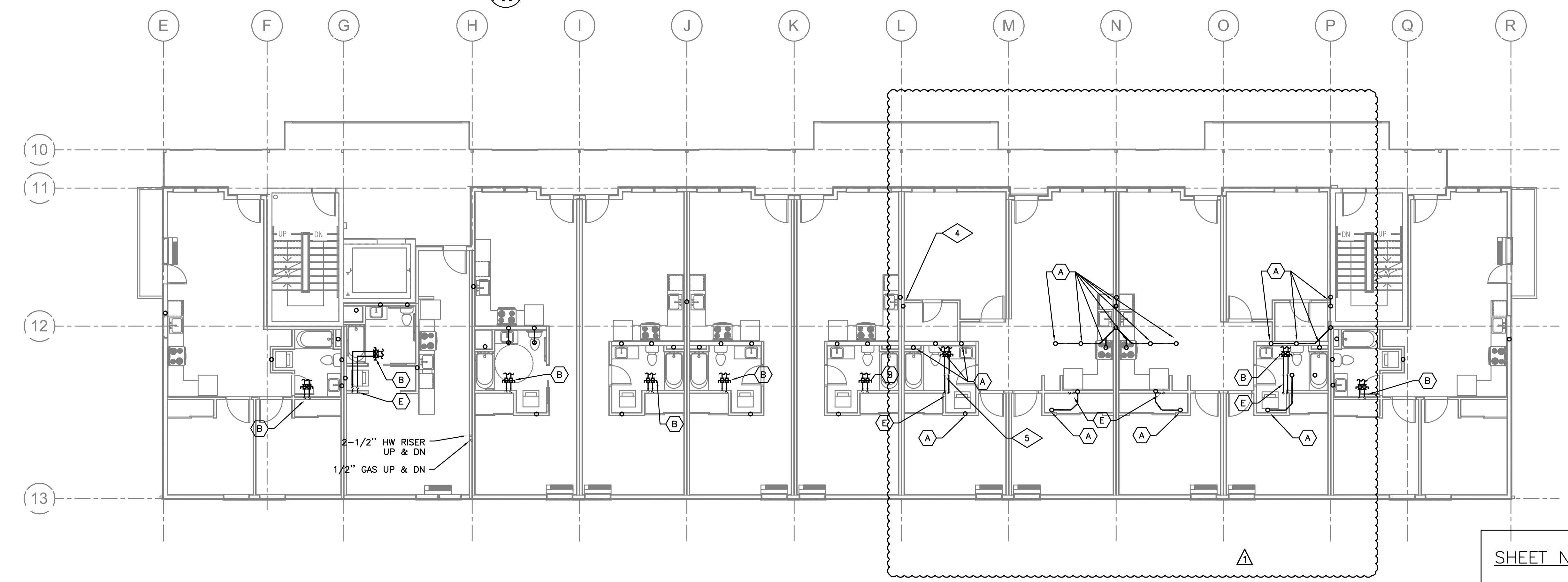
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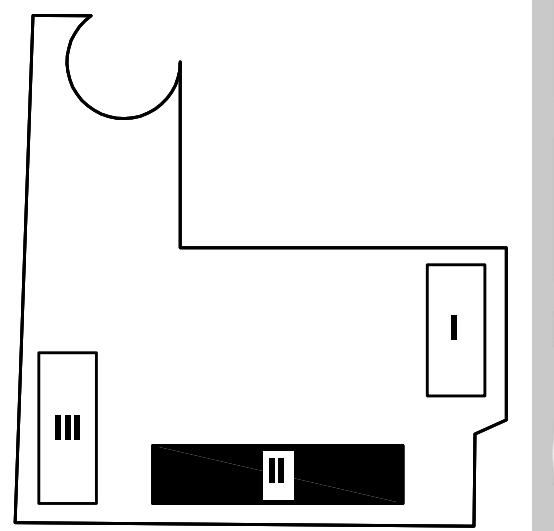
1 BUILDING II - PLUMBING LEVEL 1
 SCALE: 1/8"=1'-0"



2 BUILDING II - PLUMBING LEVEL 2
 SCALE: 1/8"=1'-0"

BACKGROUND UPDATES 8-15-16

SHEET NOTES:
 SEE SHEET P120A FOR SHEET & GENERAL NOTES



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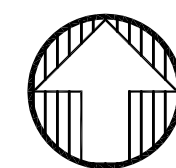
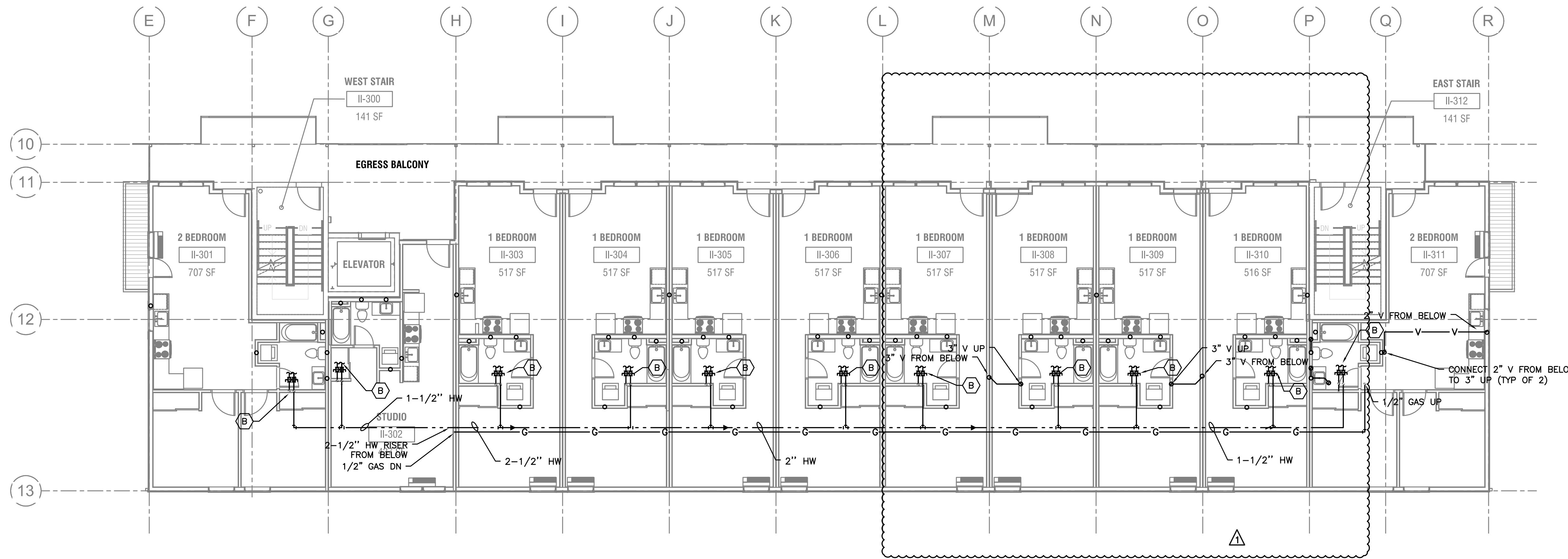
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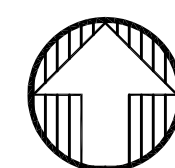
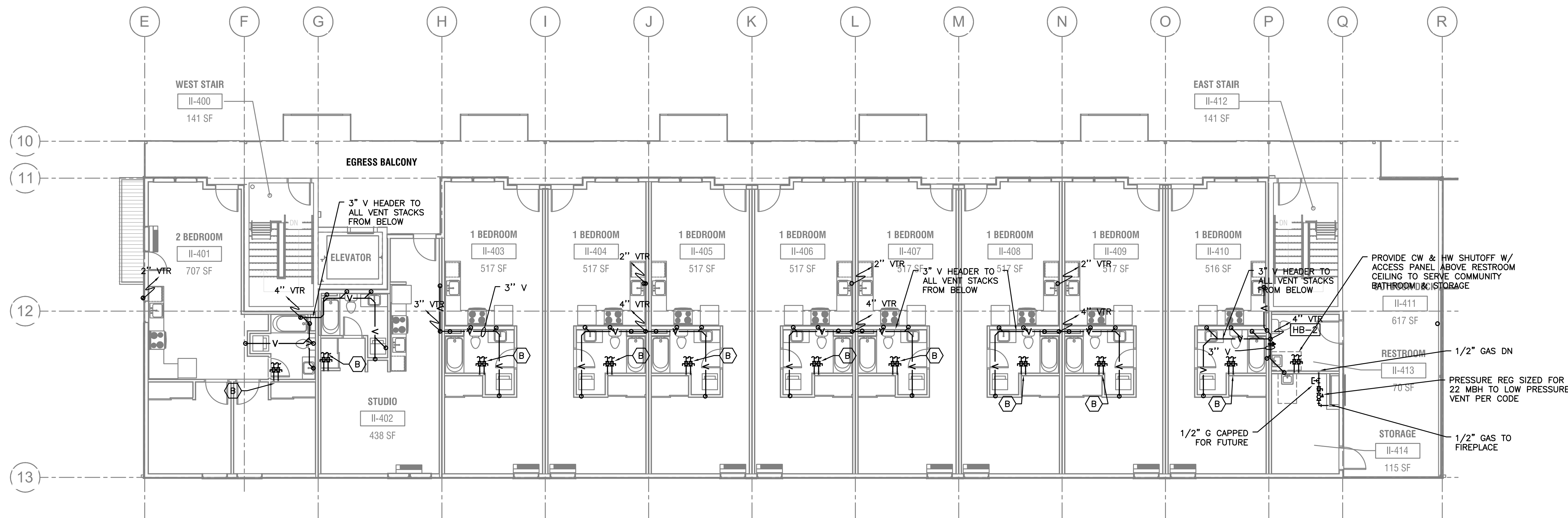
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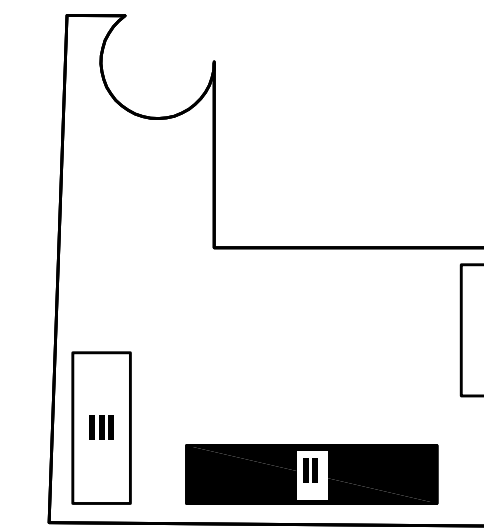
P120



1 BUILDING II - PLUMBING LEVEL 3
P121 SCALE: 1/8"=1'-0"



2 BUILDING II - PLUMBING LEVEL 4
P121 SCALE: 1/8"=1'-0"



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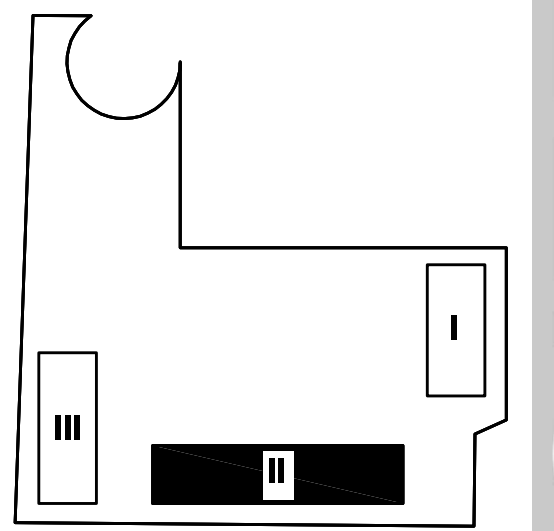
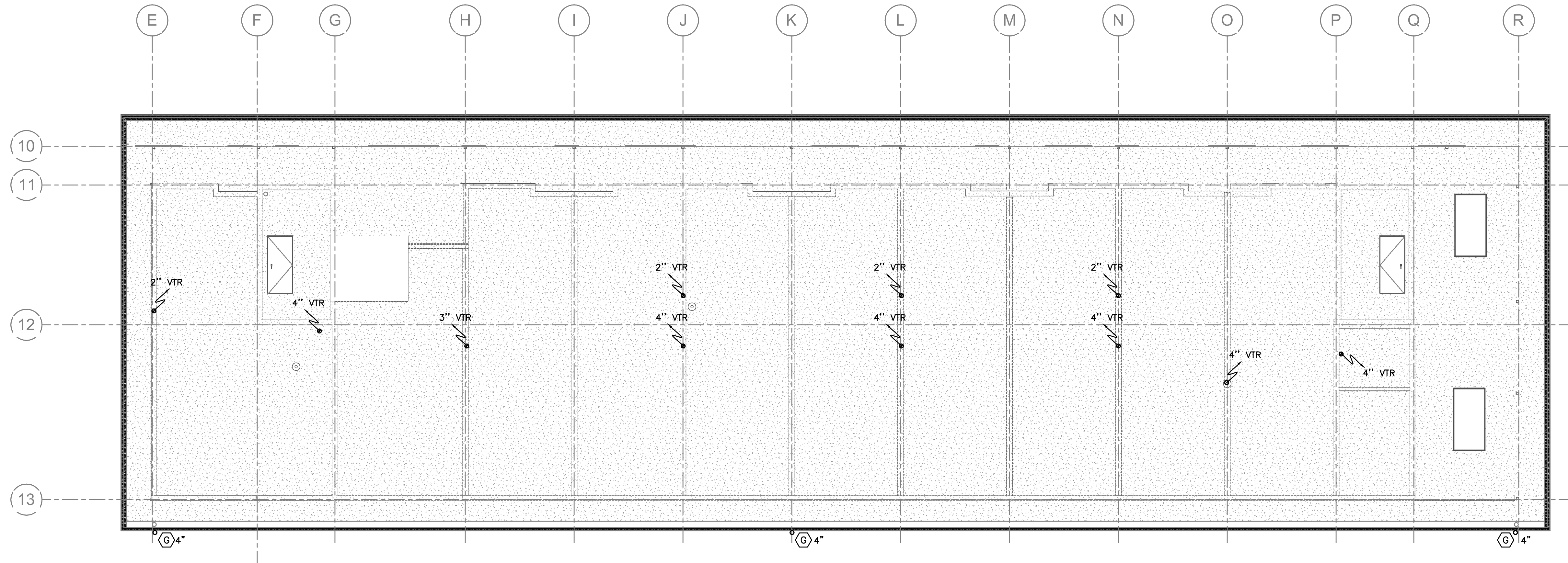
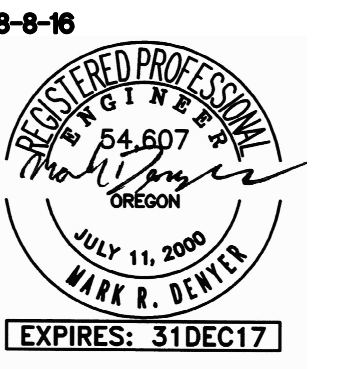
Sheet Name
BUILDING II
PLUMBING - LEVEL 3 & 4

Sheet No.

P121

SHEET NOTES:
SEE SHEET P120A FOR
SHEET & GENERAL
NOTES

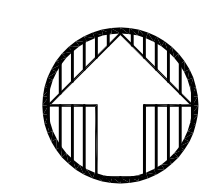
BACKGROUND UPDATES 8-15-16



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 **1** BUILDING II - PLUMBING ROOF PLAN
 P122 SCALE: 1/8"=1'-0"

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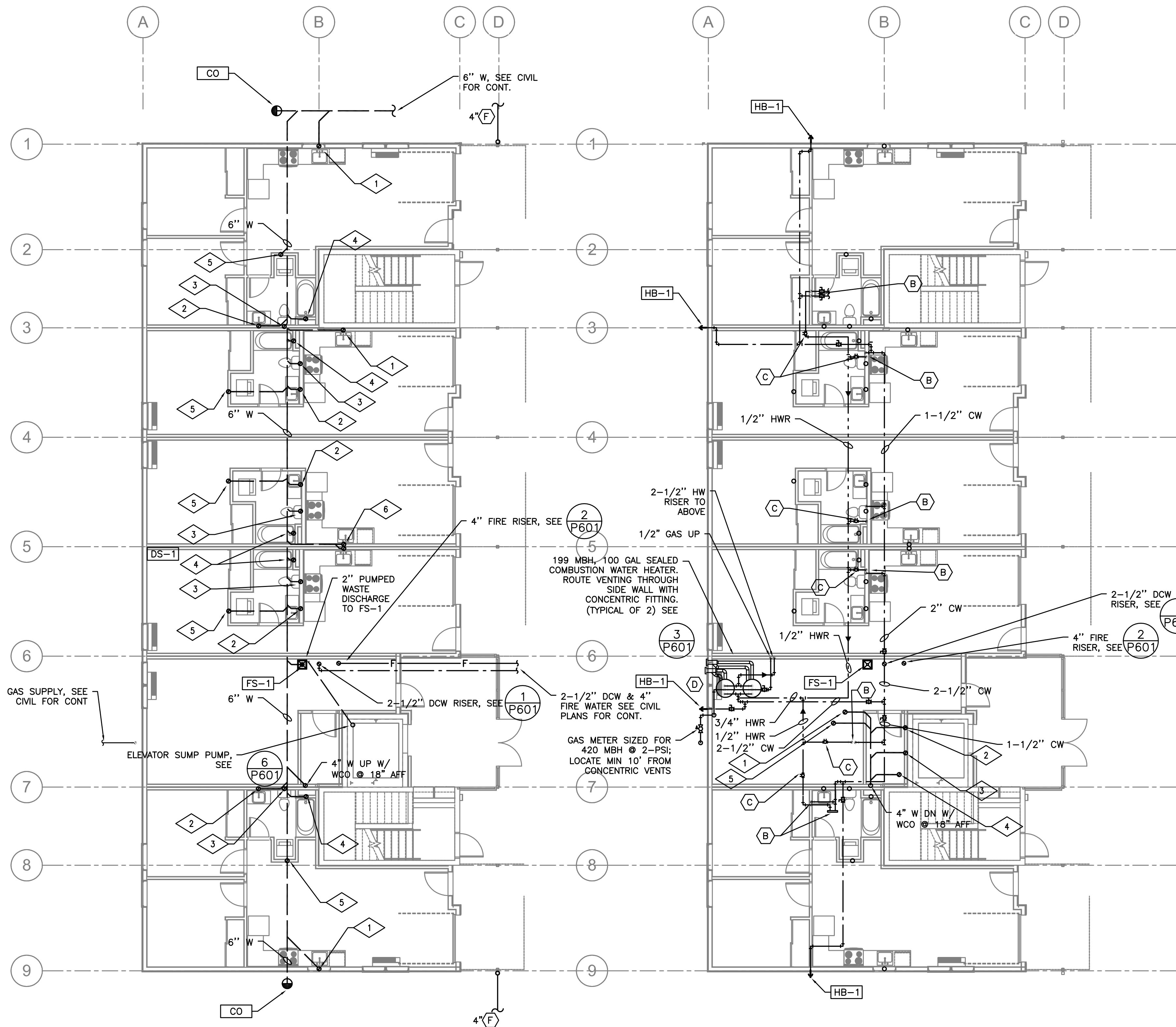
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P122

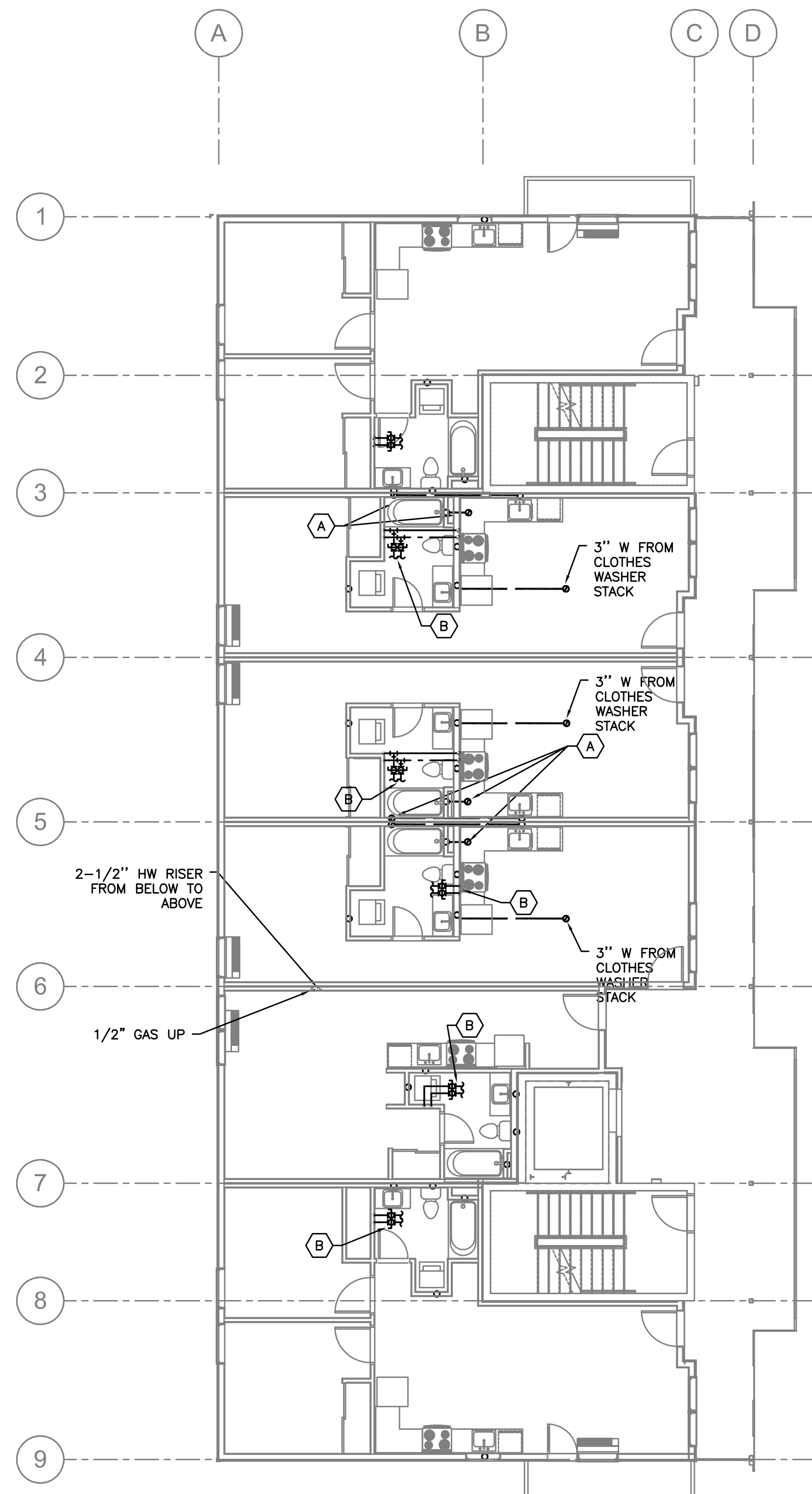
SHEET NOTES:
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 NOTES

 BACKGROUND UPDATES 8-15-16



1 BUILDING III - PLUMBING UNDERSLAB LEVEL 1
 P130 SCALE: 1/8"=1'-0"

2 BUILDING III - PLUMBING LEVEL 1
 P130 SCALE: 1/8"=1'-0"



3 BUILDING III - PLUMBING LEVEL 2
 P130 SCALE: 1/8"=1'-0"

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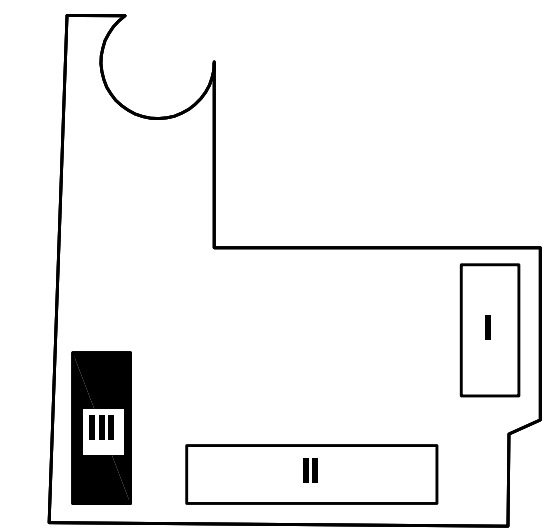
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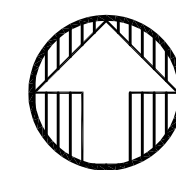
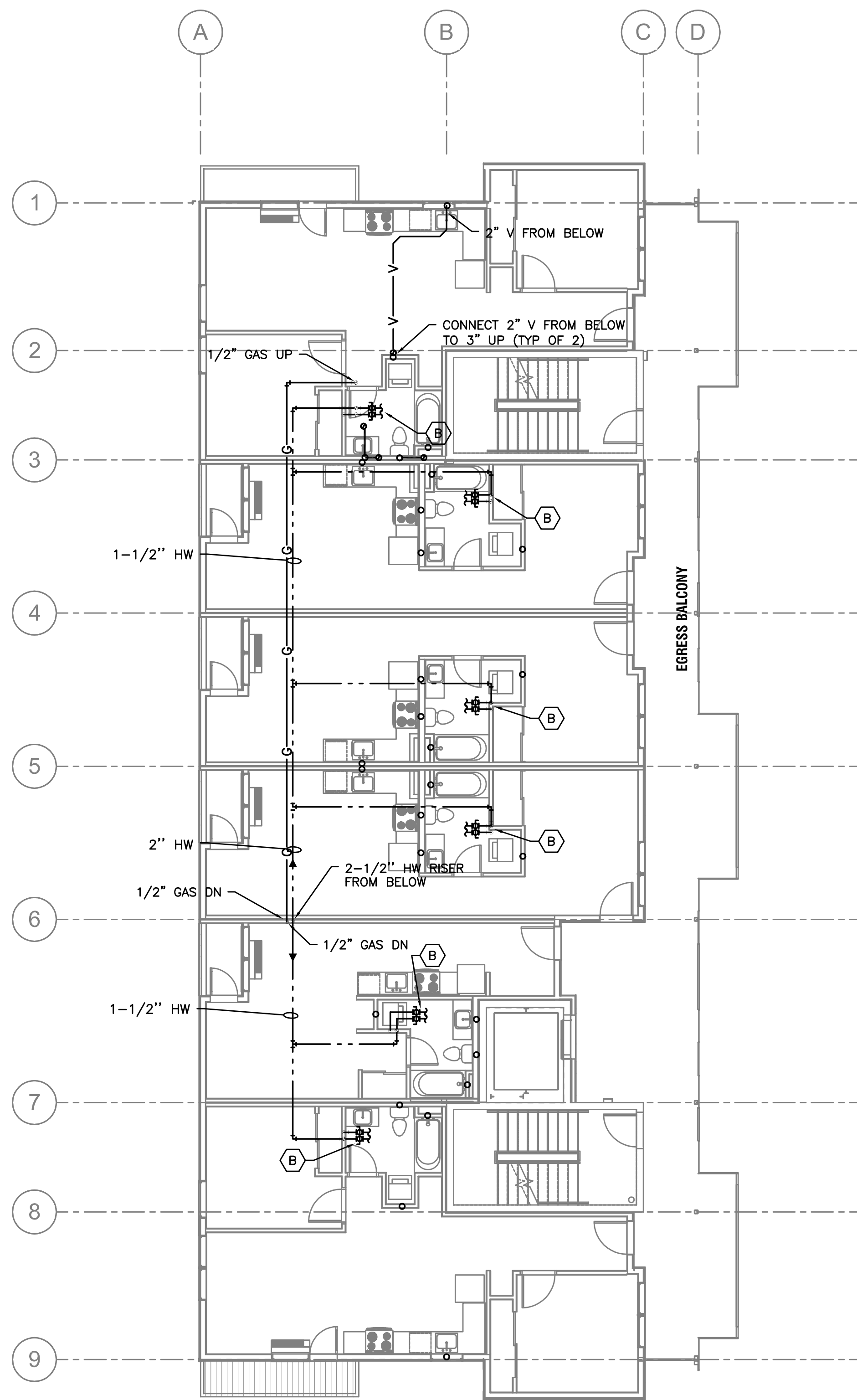
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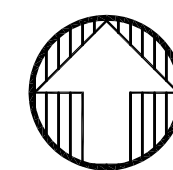
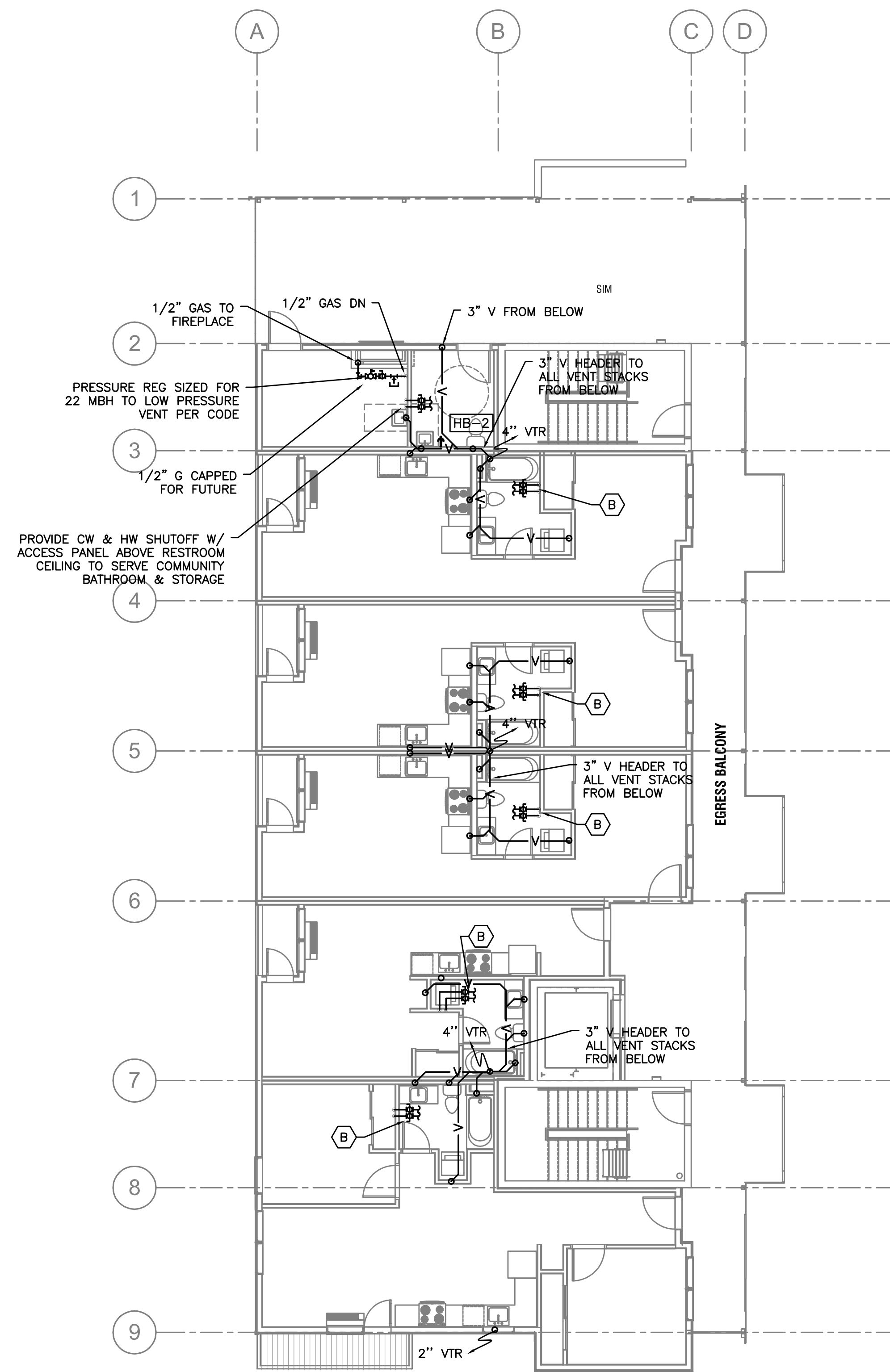
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 BUILDING III
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P130



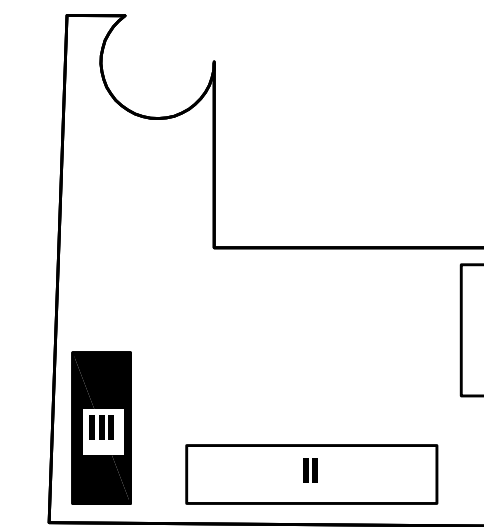
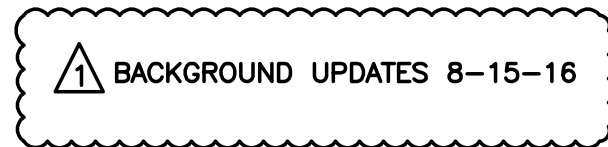
1 BUILDING III -PLUMBING LEVEL 3
P131 SCALE: 1/8"=1'-0"



2 BUILDING III -PLUMBING LEVEL 4
P131 SCALE: 1/8"=1'-0"

SHEET NOTES:

SEE SHEET P130 FOR SHEET & GENERAL NOTES



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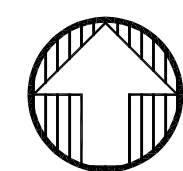
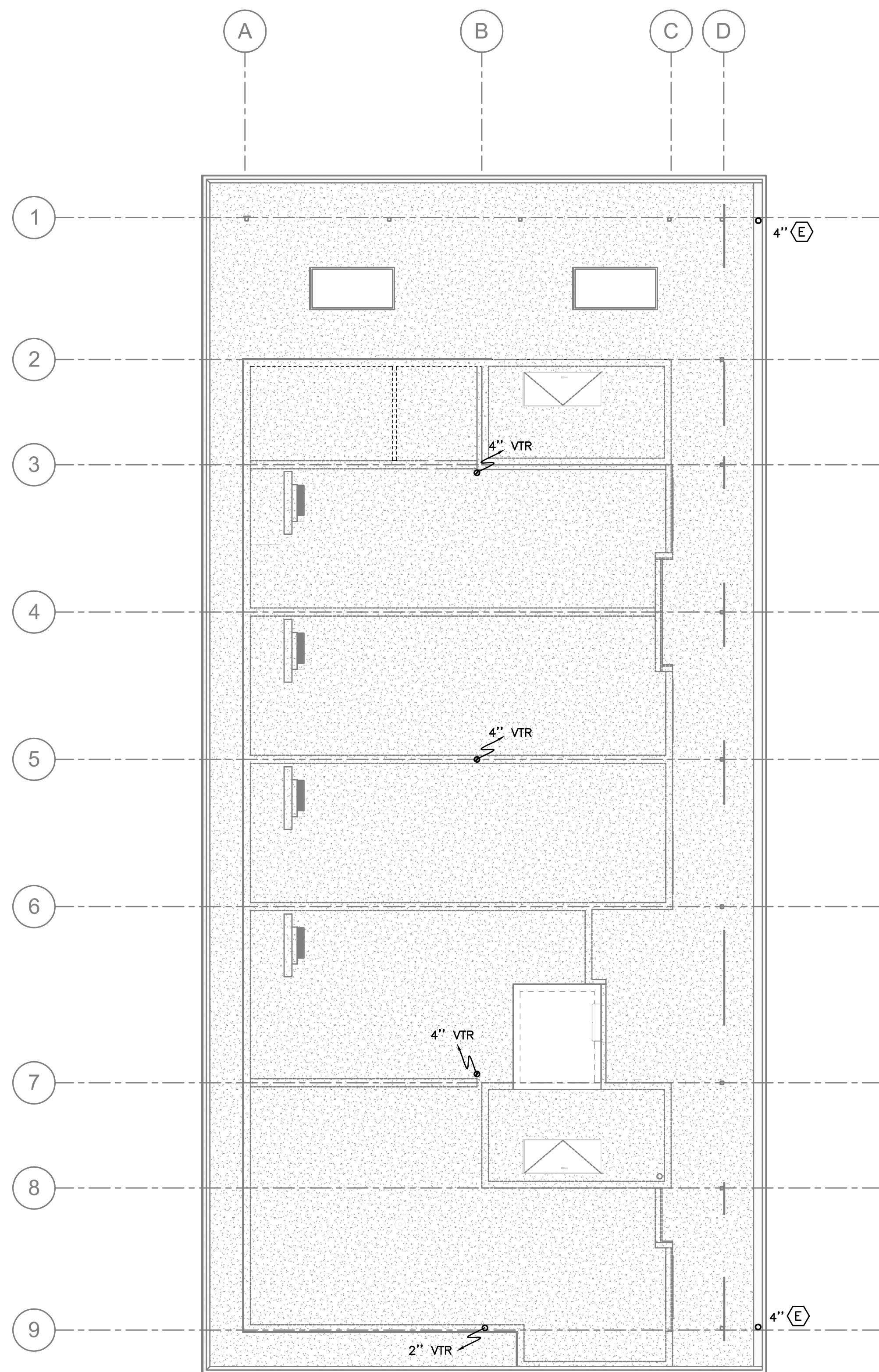
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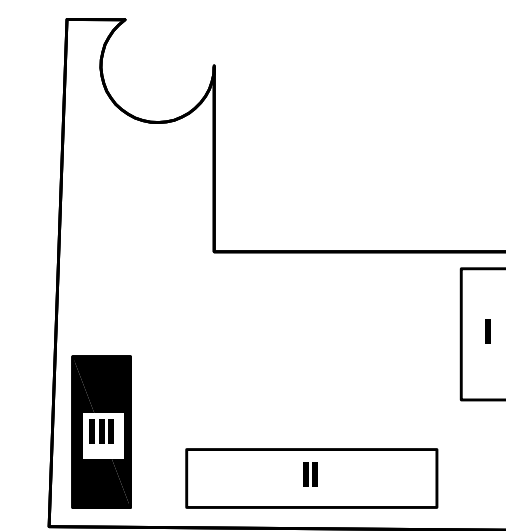
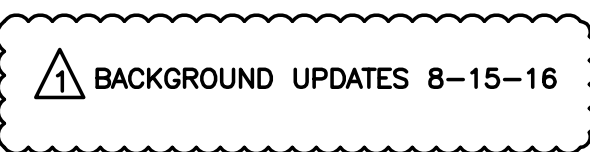
8-8-16



1 BUILDING III - PLUMBING ROOF PLAN
P132 SCALE: 1/8"=1'-0"

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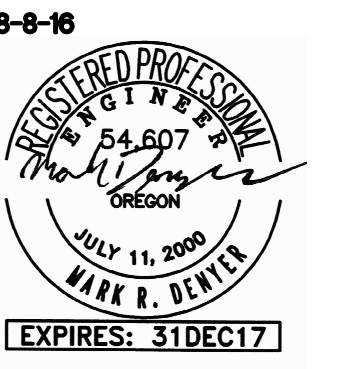
Revisions:

Number	Description	Date
0	Permit Set	2016.05.11
1	Checksheet Response	2016.08.15
2	Utility Coordination	2016.09.12
3	Checksheet Response	2016.09.13

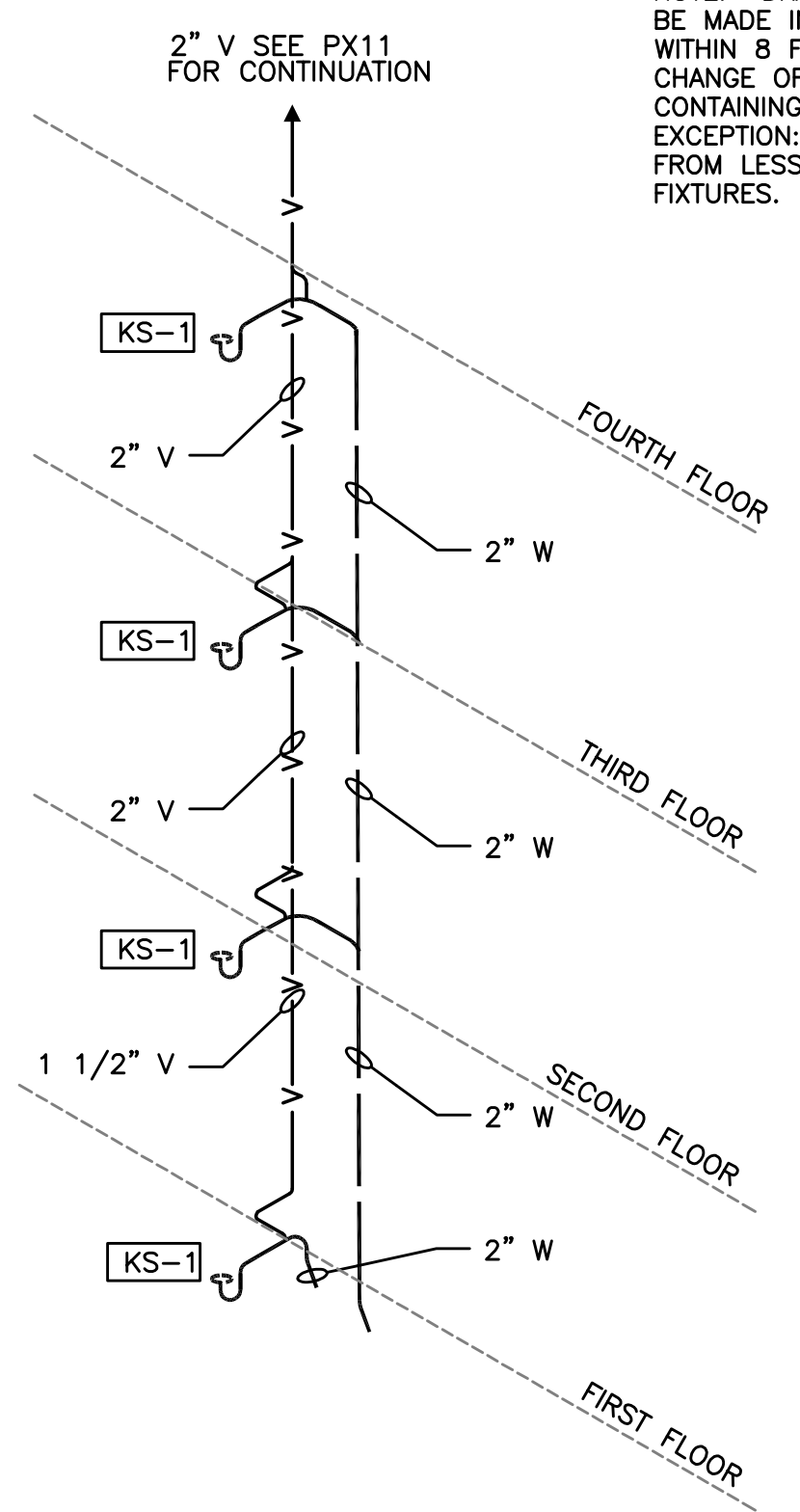
Sheet Name
BUILDING III
PLUMBING - ROOF PLAN

Sheet No.

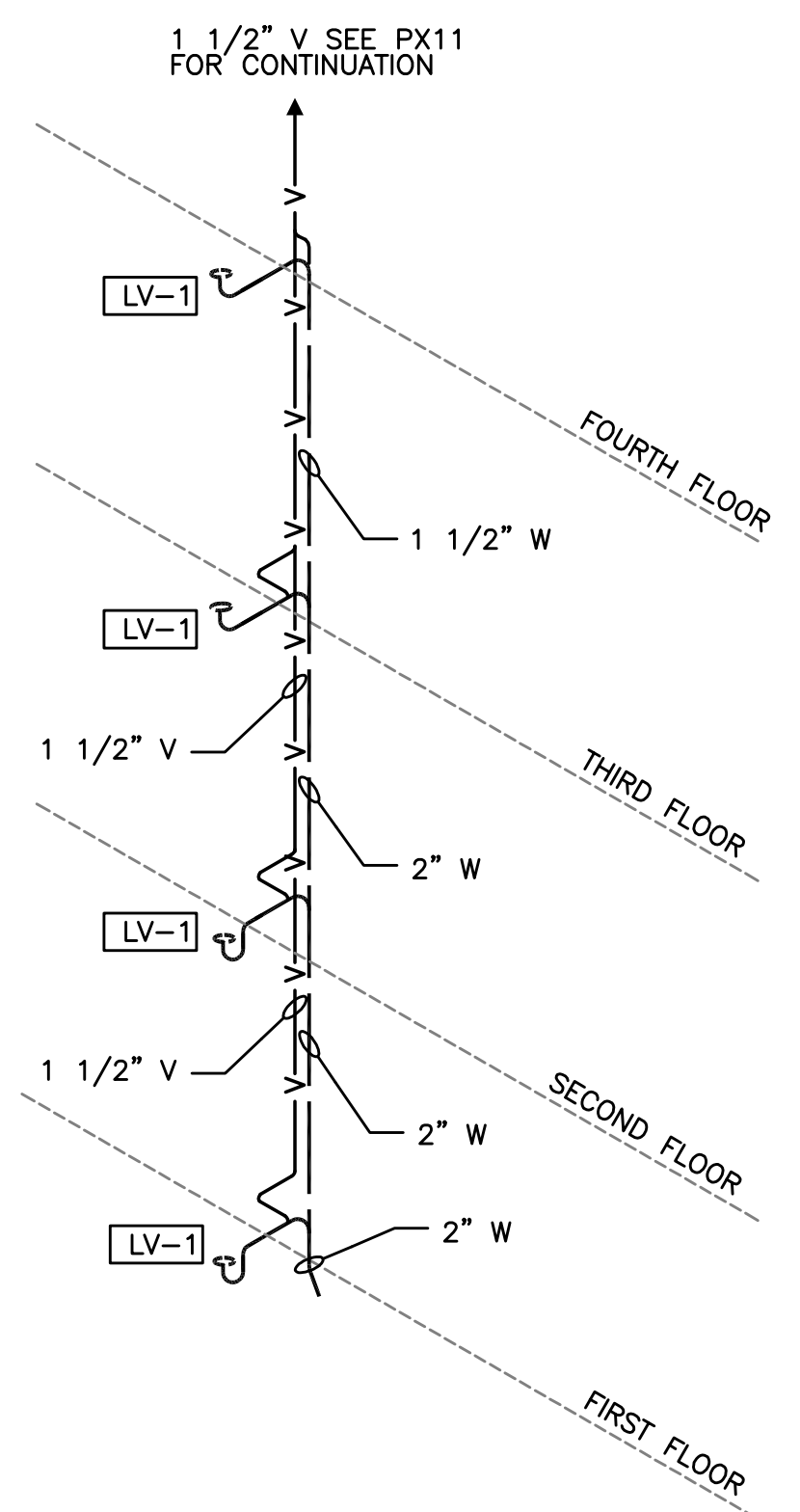
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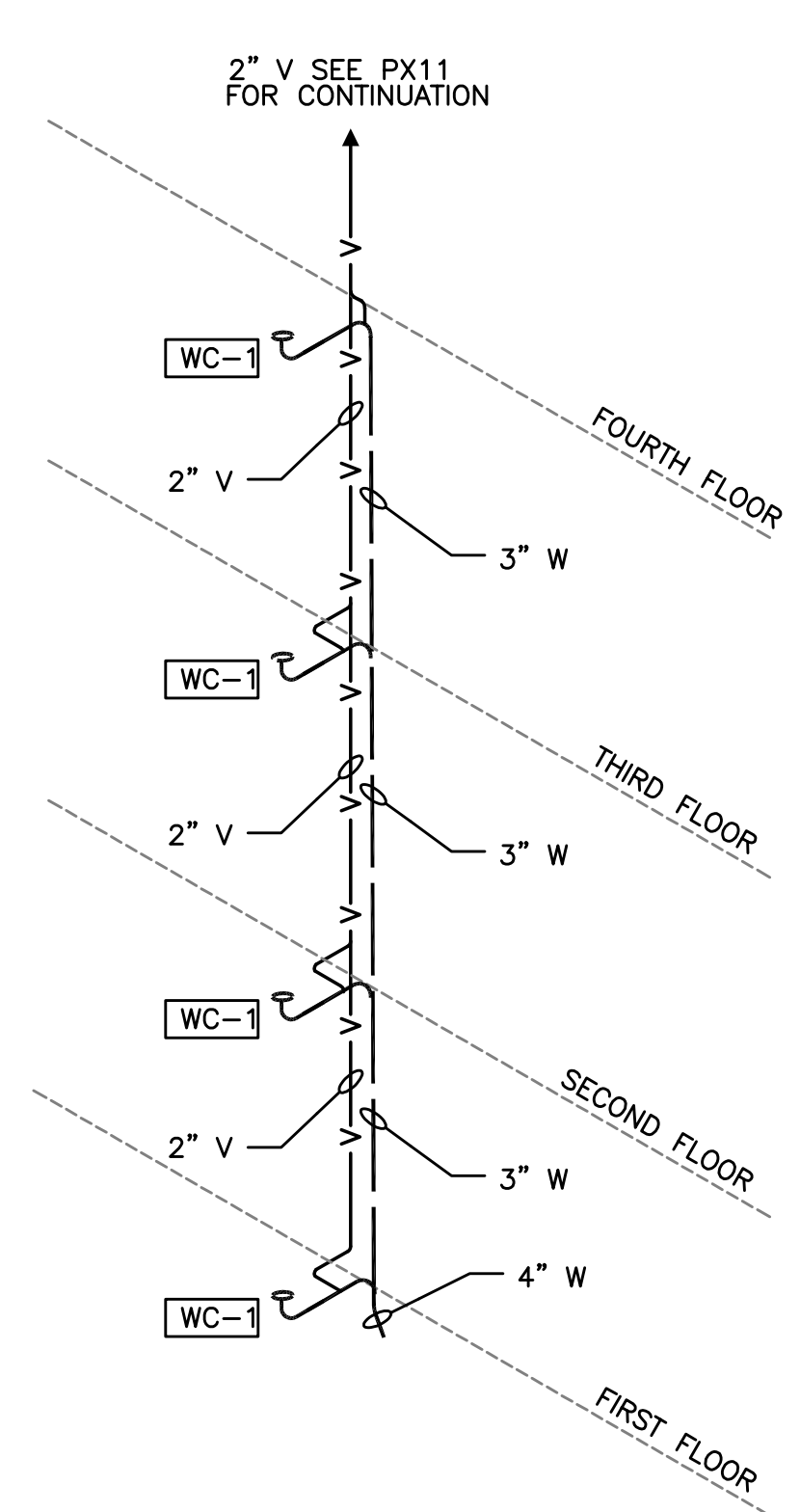
NOTE: DRAINAGE CONNECTIONS SHALL NOT BE MADE INTO A DRAINAGE PIPING SYSTEM WITHIN 8 FT OF ANY VERTICAL TO HORIZONTAL CHANGE OF DIRECTION OF A STACK CONTAINING A SUDS-PRODUCING FIXTURE. EXCEPTION: STACKS RECEIVING THE DISCHARGE FROM LESS THAN 3 STORIES OF PLUMBING FIXTURES.



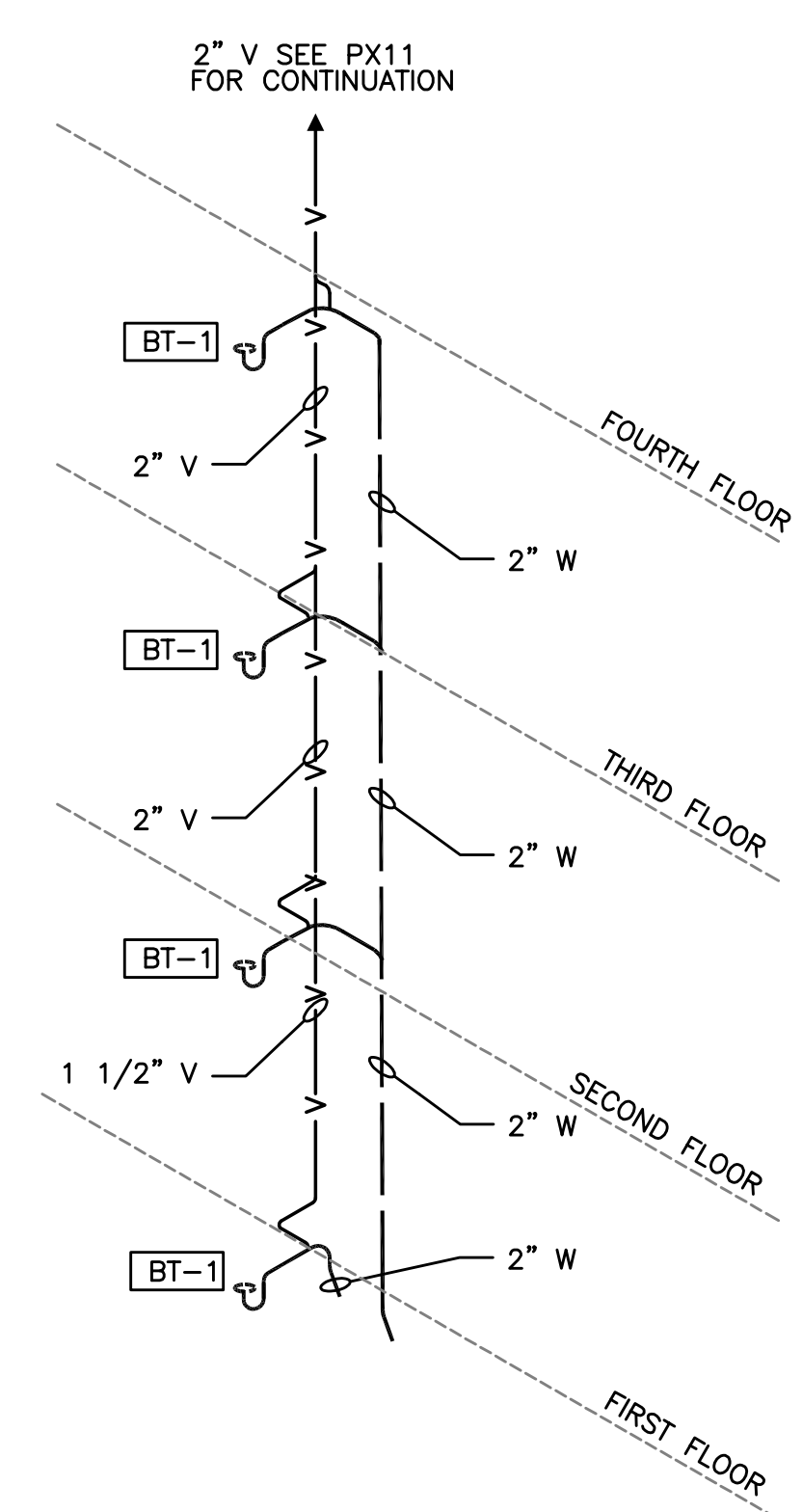
1 RISER "1" TYPICAL
P401 NOT TO SCALE



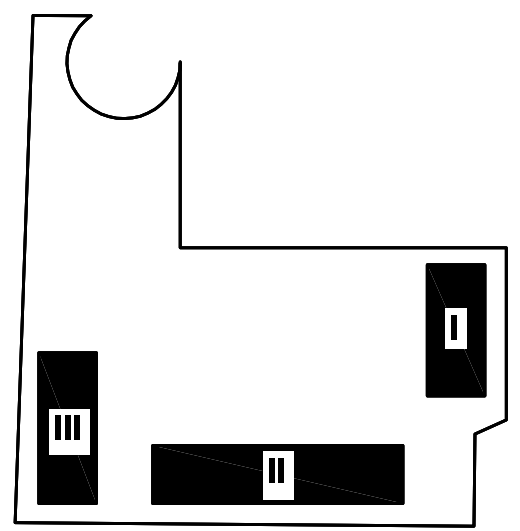
2 RISER "2" TYPICAL
P401 NOT TO SCALE



3 RISER "3" TYPICAL
P402 NOT TO SCALE



4 RISER "4" TYPICAL
P401 NOT TO SCALE



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Project Location
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THESE DRAWINGS ARE FOR
 CONSTRUCTION BY
 JEAN-PIERRE VEILLET
 SITEWORKS, INC. ONLY

Date: 2016.04.27

Drawn By: Mark Denyer

Phase: PERMIT DOCUMENTS

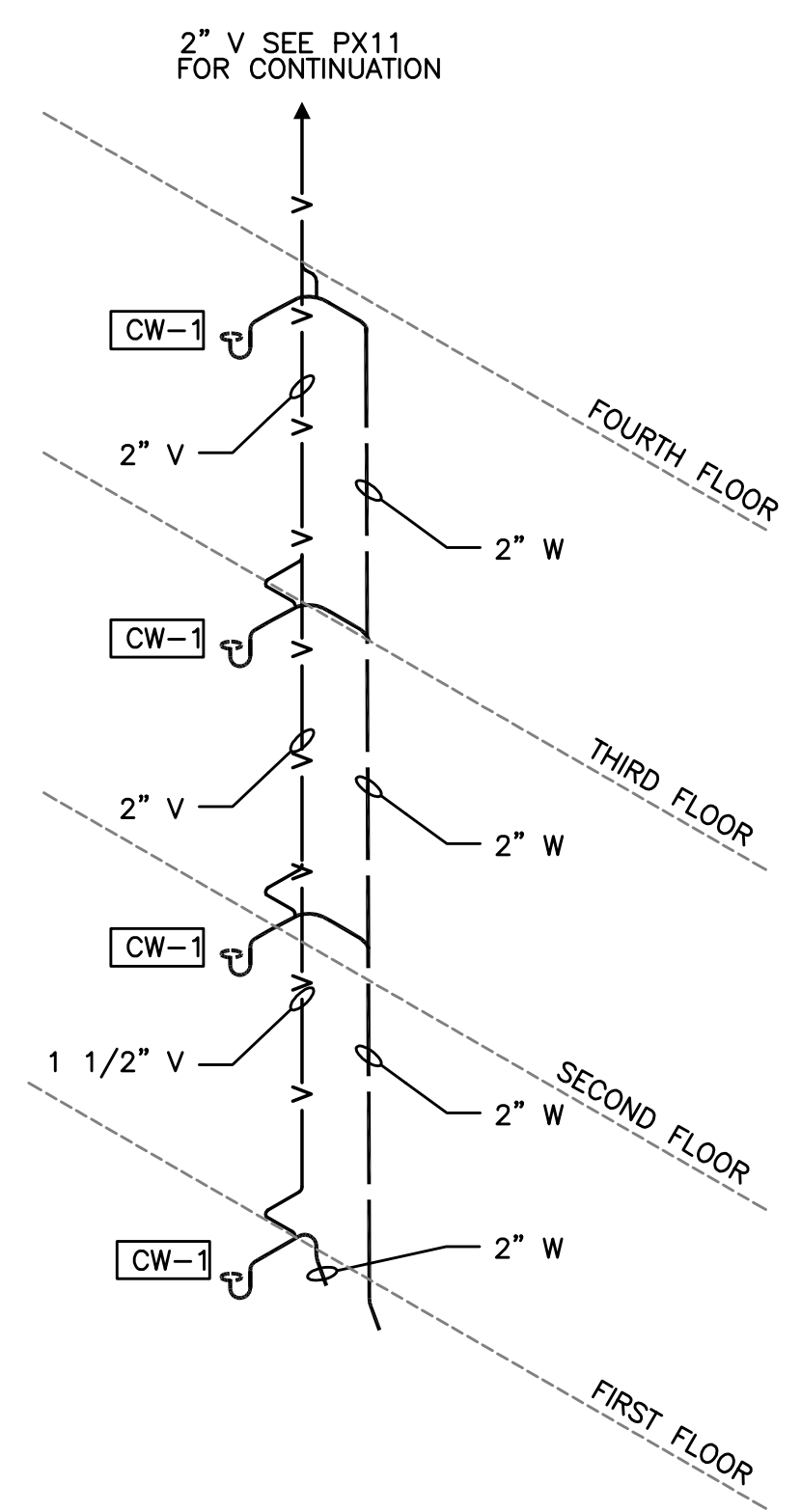
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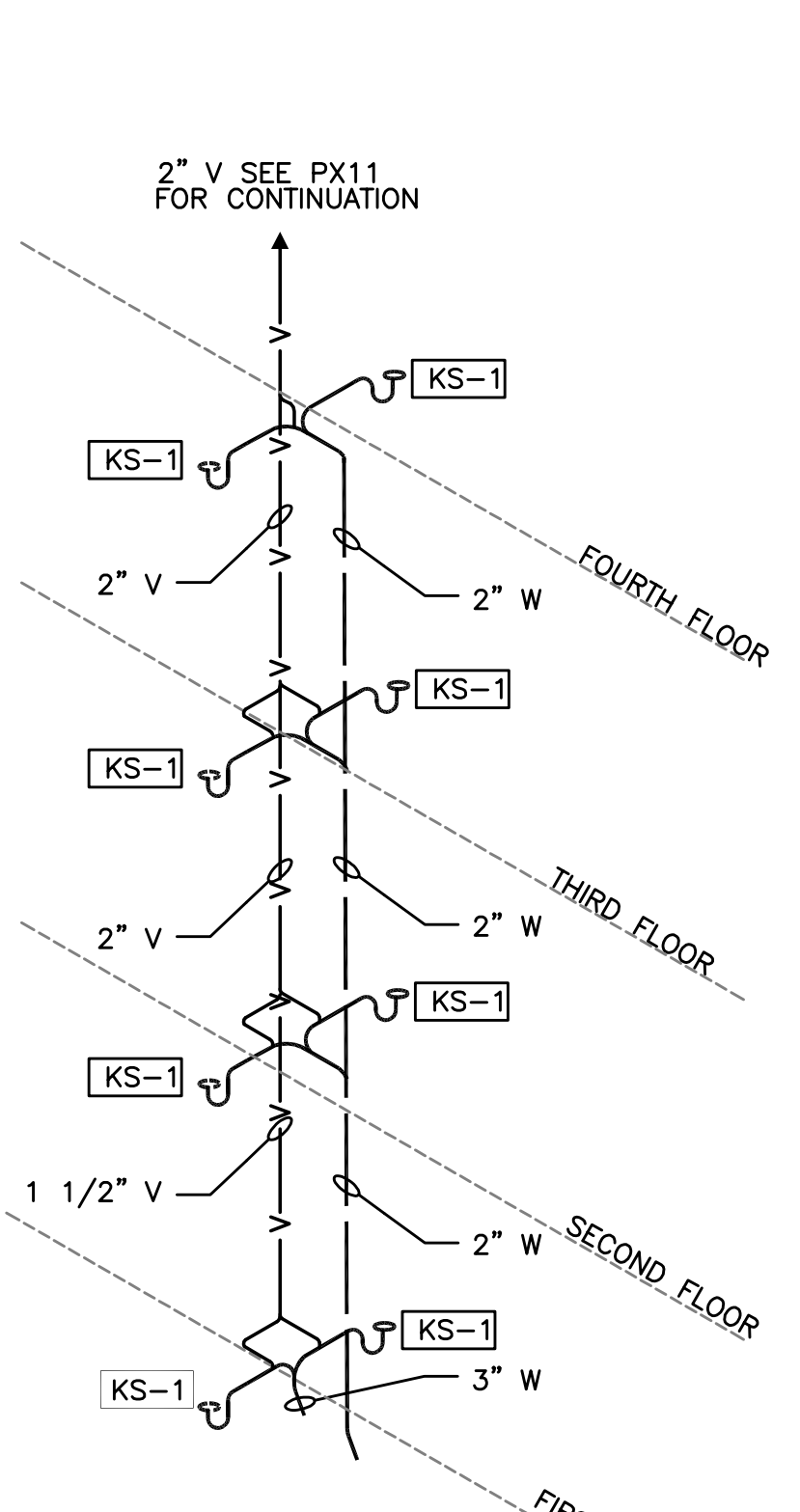
Sheet Name
 PLUMBING
 RISERS

Sheet No.

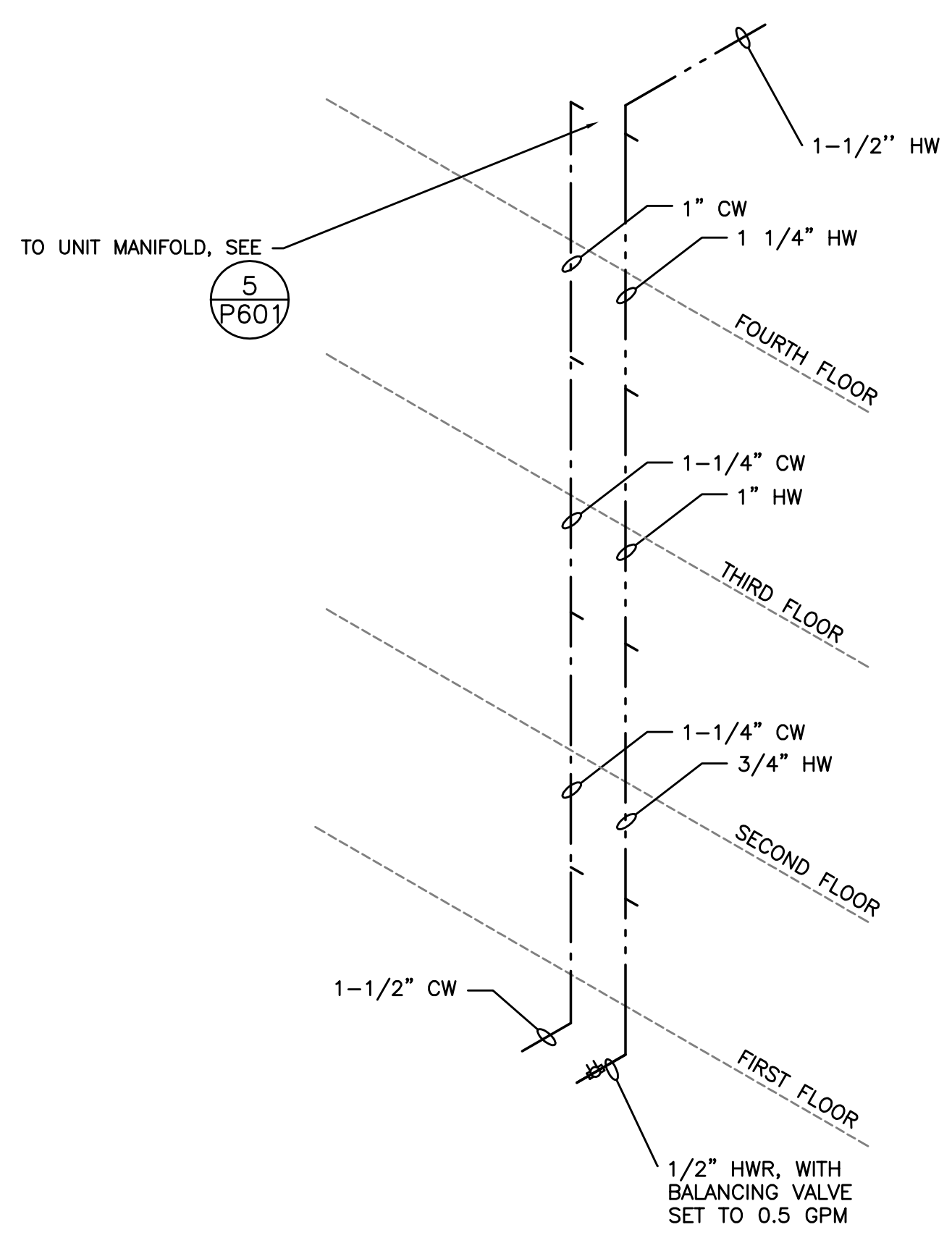
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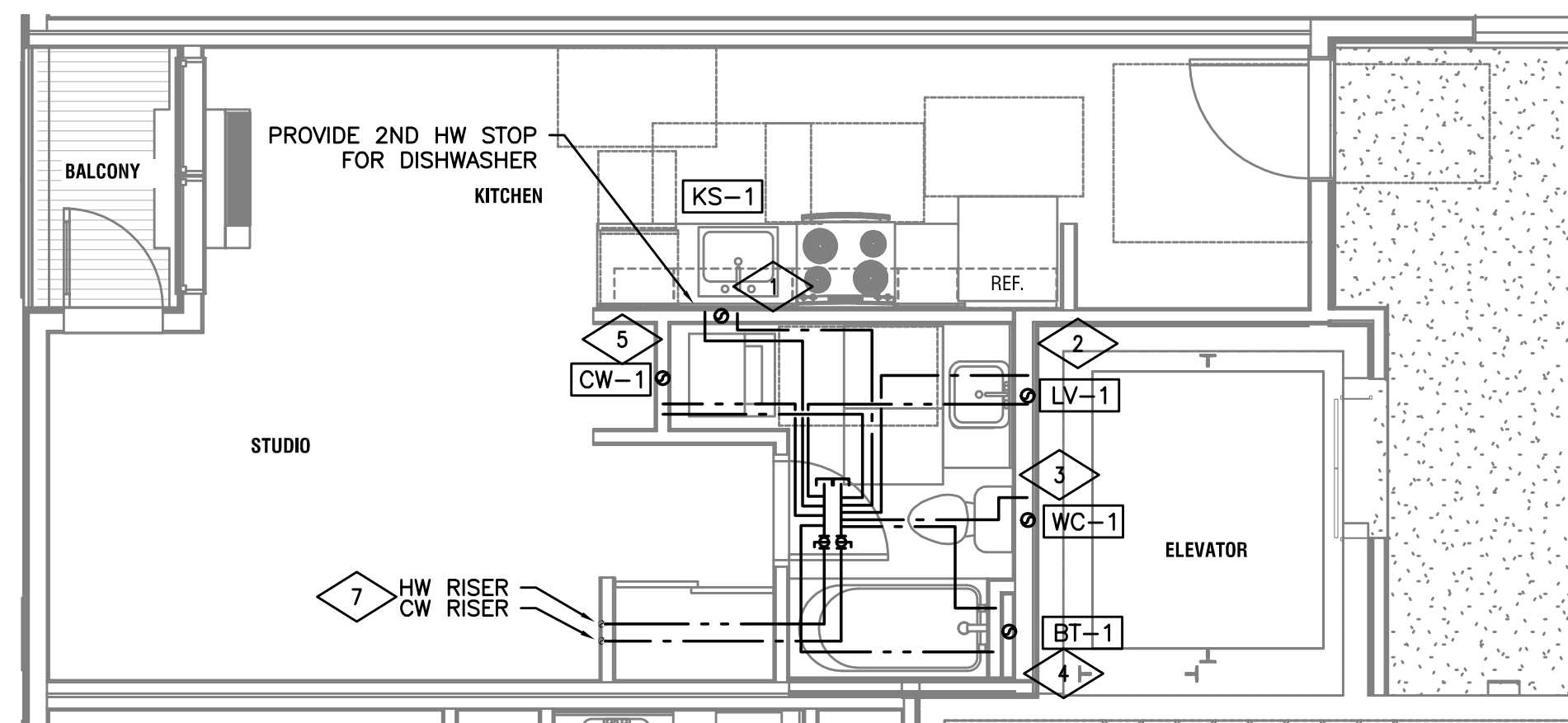
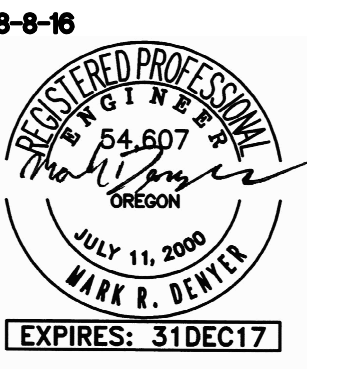
5 RISER "5" TYPICAL
P401 NOT TO SCALE



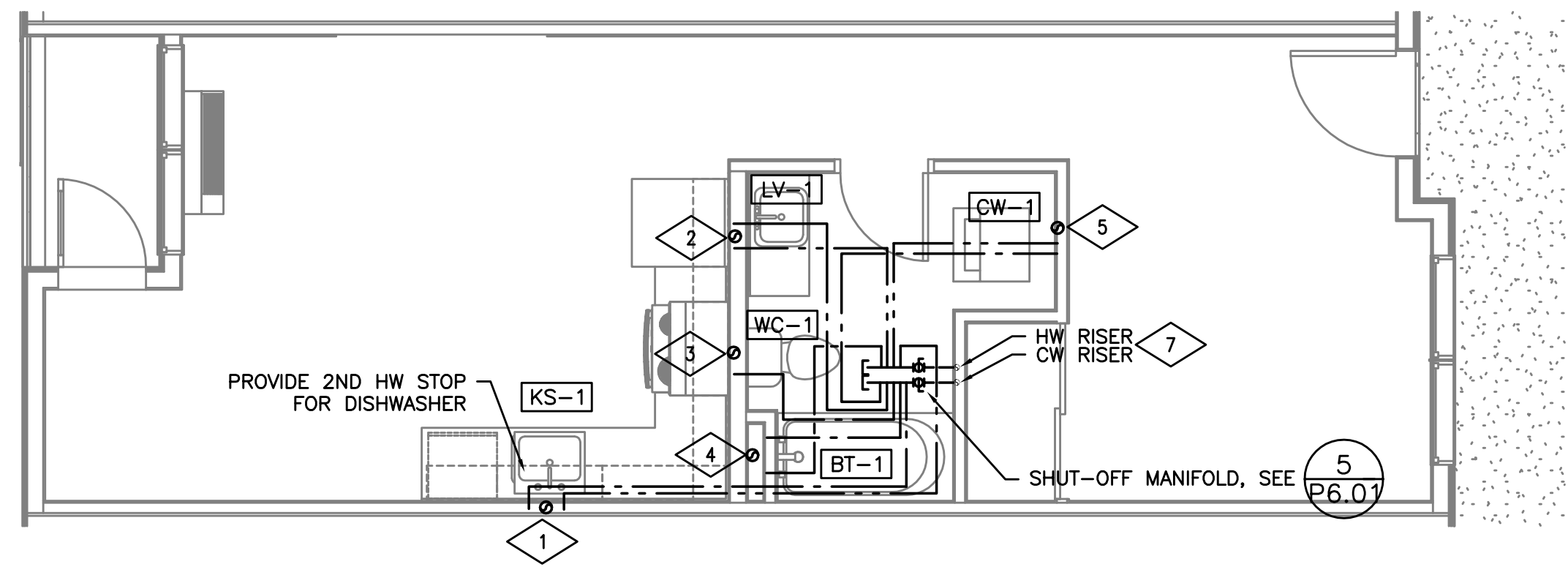
6 RISER "6" TYPICAL
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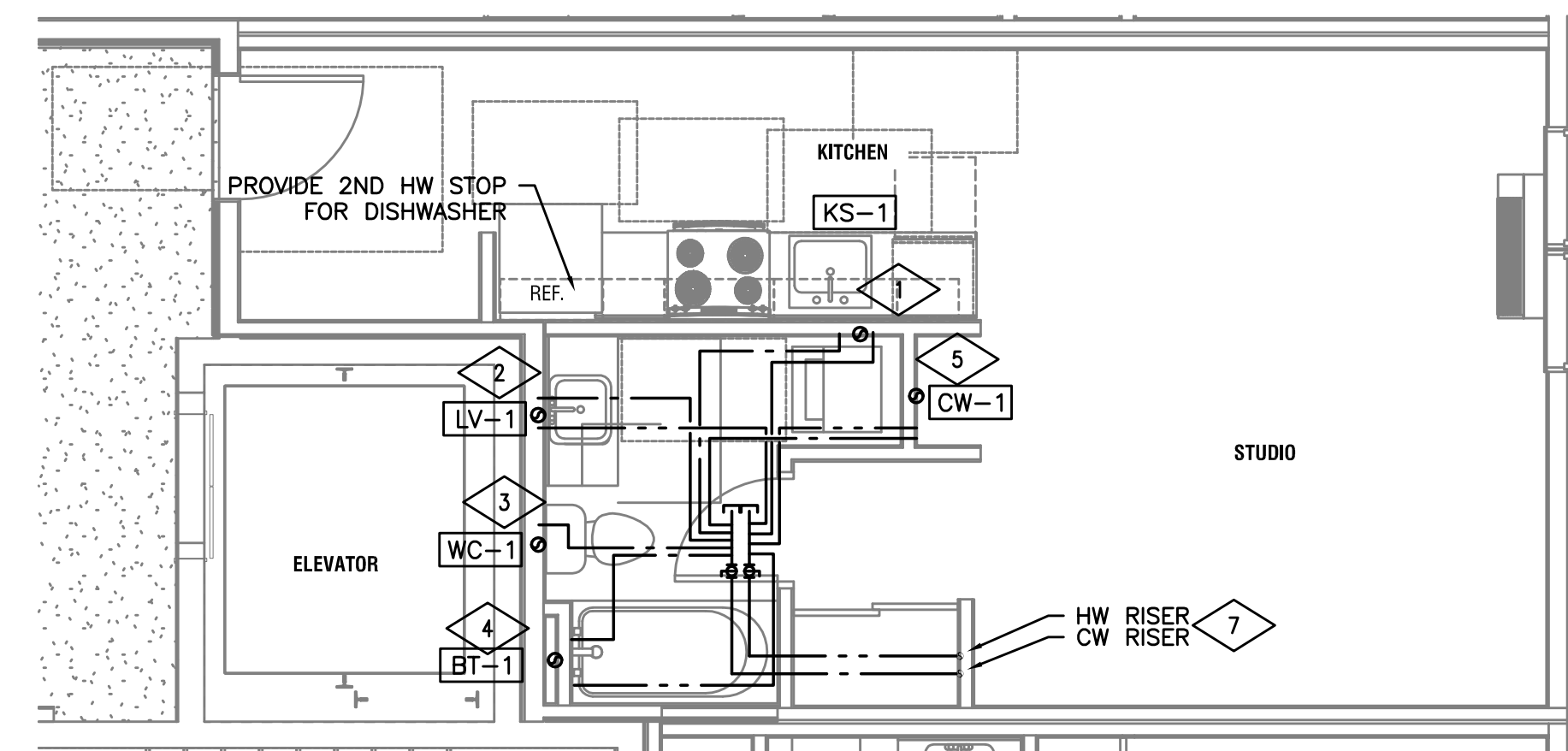
7 RISER "7" TYPICAL
P401 NOT TO SCALE



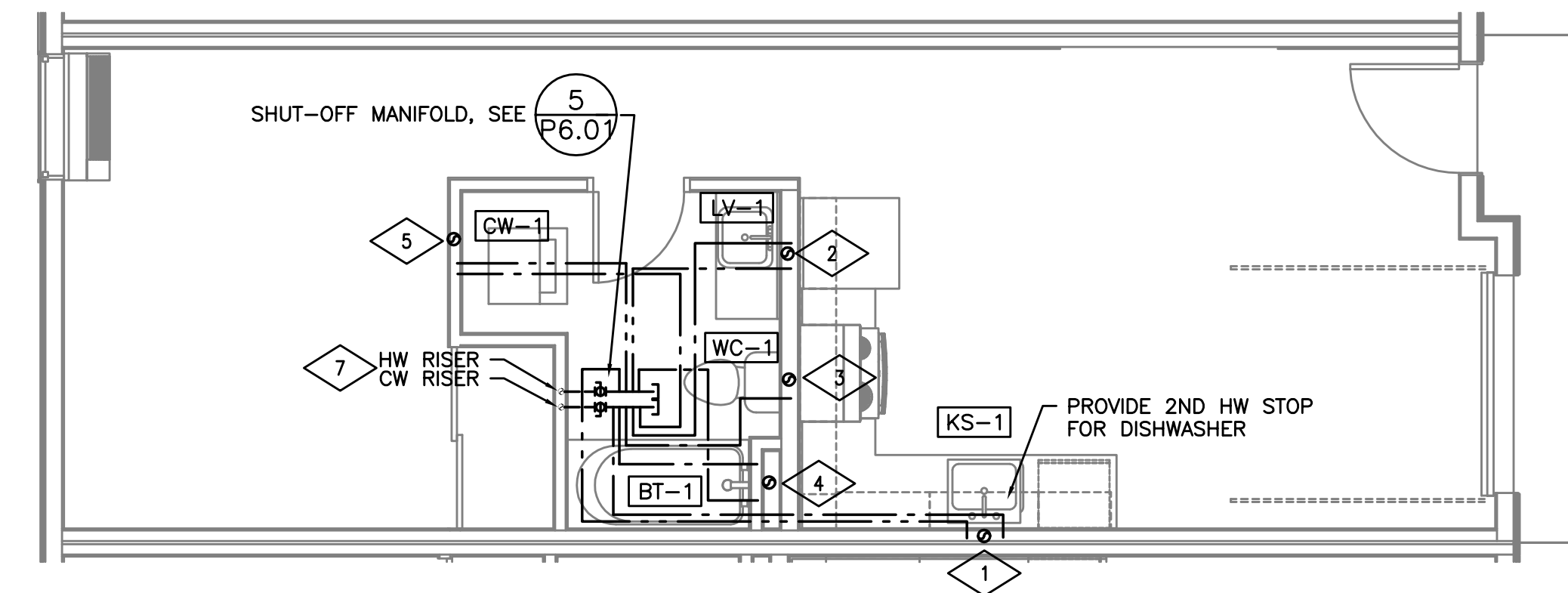
1 ENLARGED STUDIO BLDG 1 PLUMBING PLAN
501 SCALE: 1/4"=1'-0"



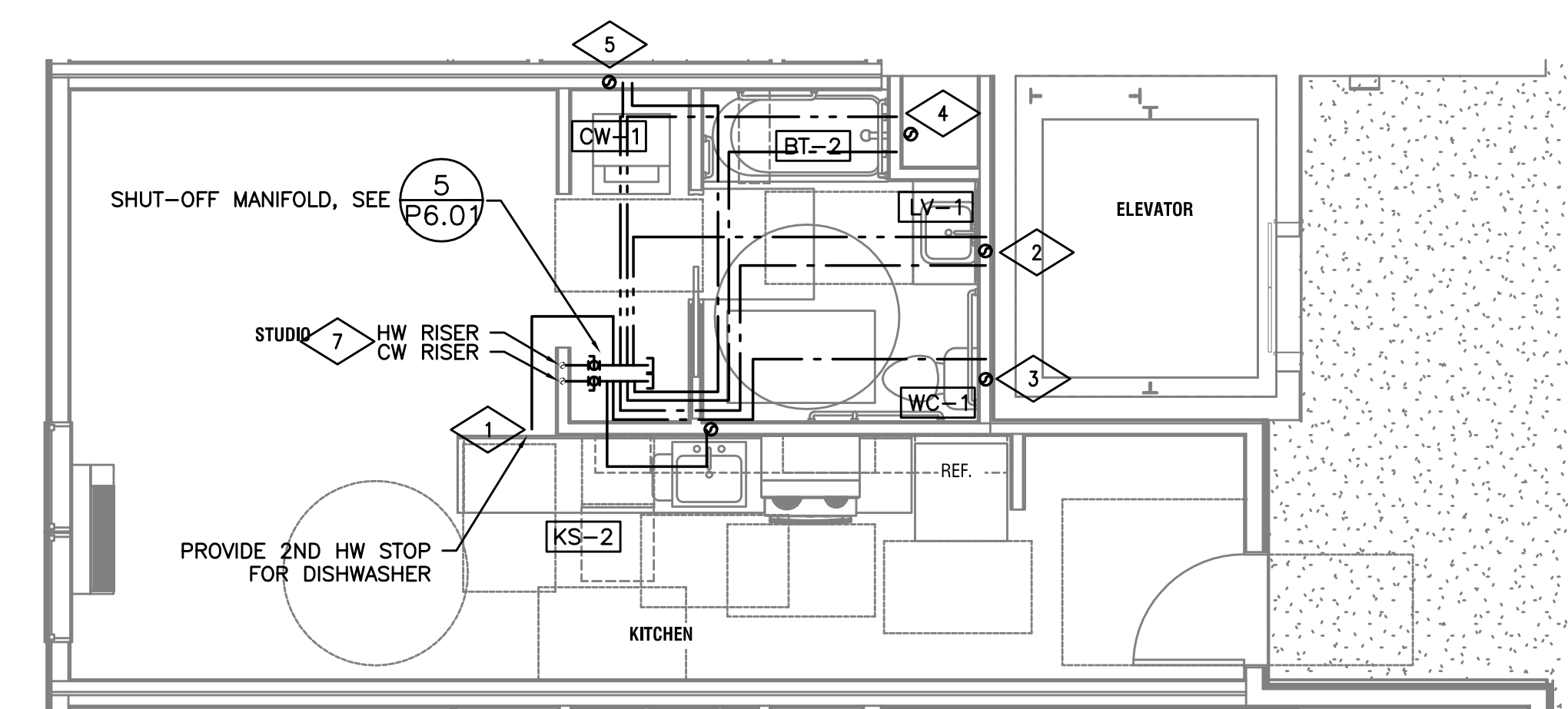
4 ENLARGED 1 BED BLDG 1 PLUMBING PLAN
P501 SCALE: 1/4"=1'-0"



2 ENLARGED STUDIO TYP PLUMBING PLAN
P501 SCALE: 1/4"=1'-0"



5 ENLARGED 1 BED TYP PLUMBING PLAN
P501 SCALE: 1/4"=1'-0"



3 ENLARGED STUDIO TYPE A PLUMBING PLAN
P501 SCALE: 1/4"=1'-0"

GENERAL NOTES:

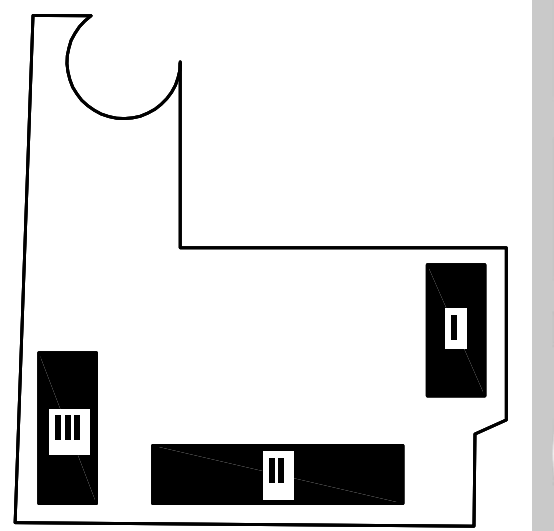
HEAT TRACE (FREEZE PROTECTION) ALL PIPING SUBJECTED TO FREEZING CONDITIONS.

HEAT TRACE WASTE TRAPS, INSULATE WASTE PIPING EXPOSED TO FREEZING CONDITIONS

ROUTE ALL HVAC UNIT CONDENSATE DRAINS TO AN APPROVED LOCATION (OPTIONS LISTED BELOW)

- ROUTE TO CLOTHES WASHER STAND PIPE, OF UNIT BELOW
- ROUTE ALL CONDENSATES DOWN IN EXTERIOR WALL IN COMMON DRAIN SYSTEM AND ROUTE THROUGH 1ST FLOOR TO FLOOR SINK IN UTILITY ROOM - CONTRACTOR TO SIZE DRAIN SYSTEM BASED ON NUMBER OF CONNECTED UNITS.
- PROVIDE CONDENSATE PUMPS ON ALL UNITS THAT ARE NOT GRAVITY DRAINED.

ROUTE VENTS FROM FLOOR DRAINS/SINKS BELOW SLAB AND UP ON/IN A WALL TO VENT STACKS ABOVE. (ROUTE INDIVIDUAL VENTS UNTIL ABOVE FLOOD LINE OF FIXTURE).



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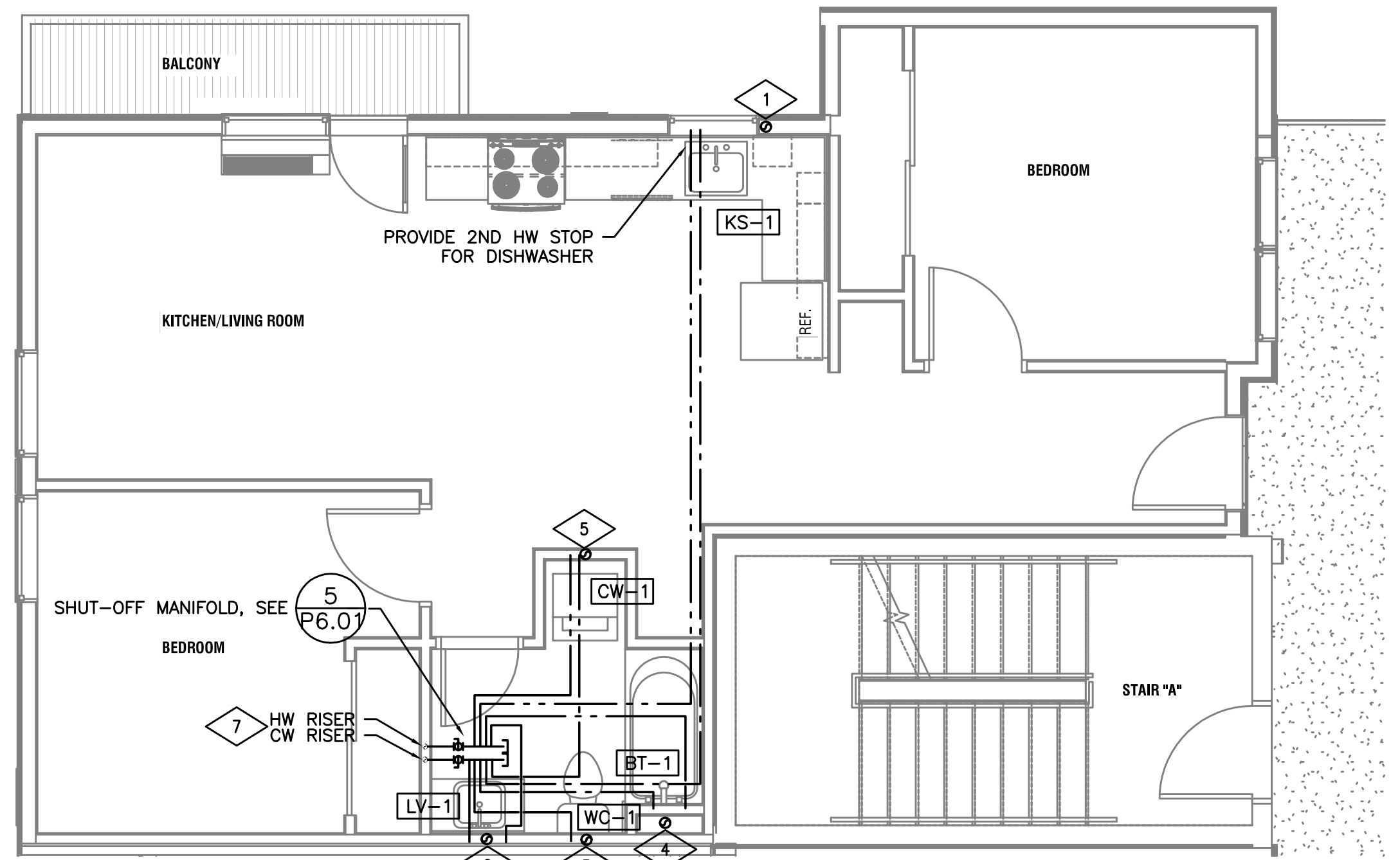
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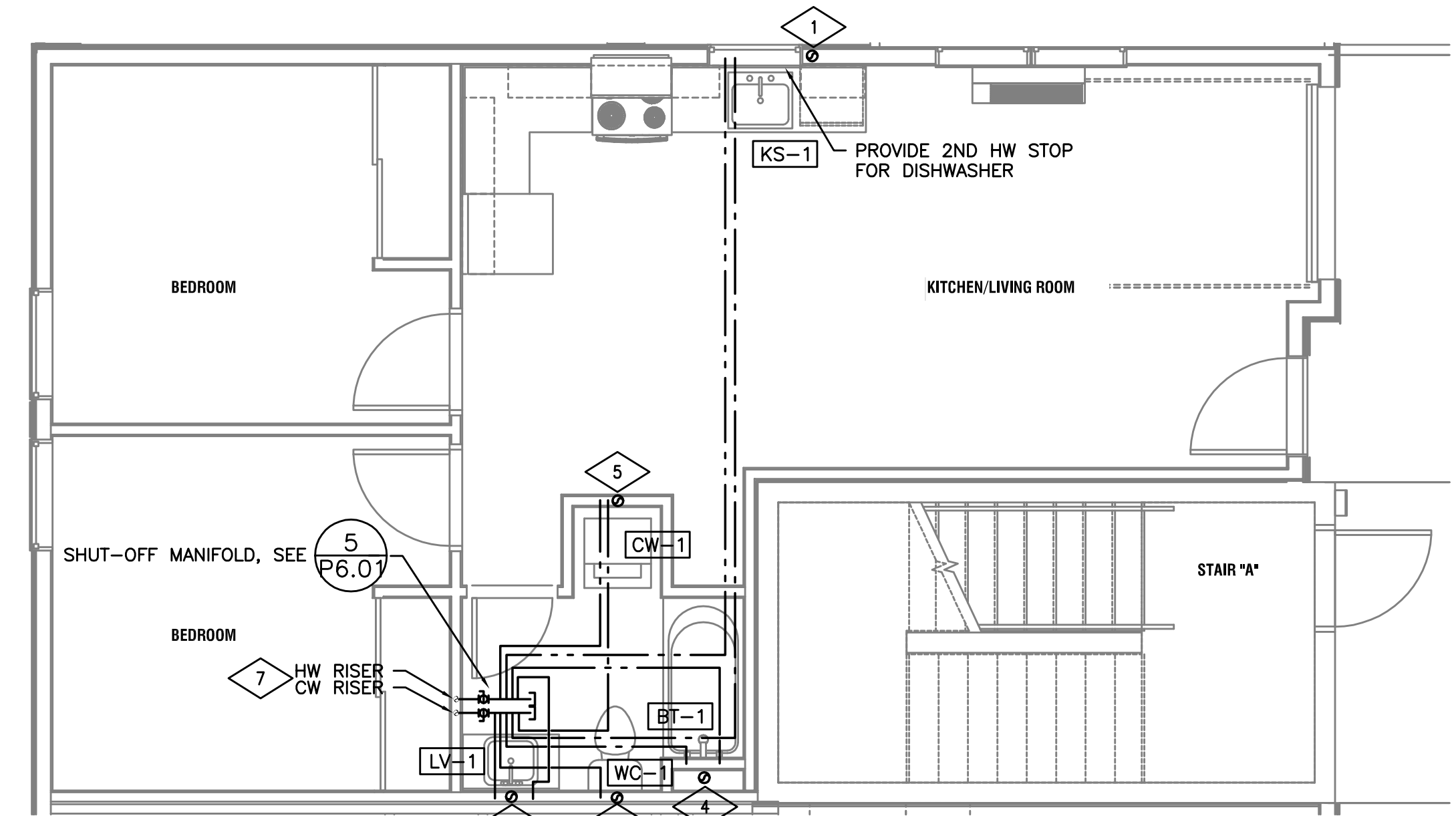
Sheet Name
PLUMBING
DETAILS

Sheet No.

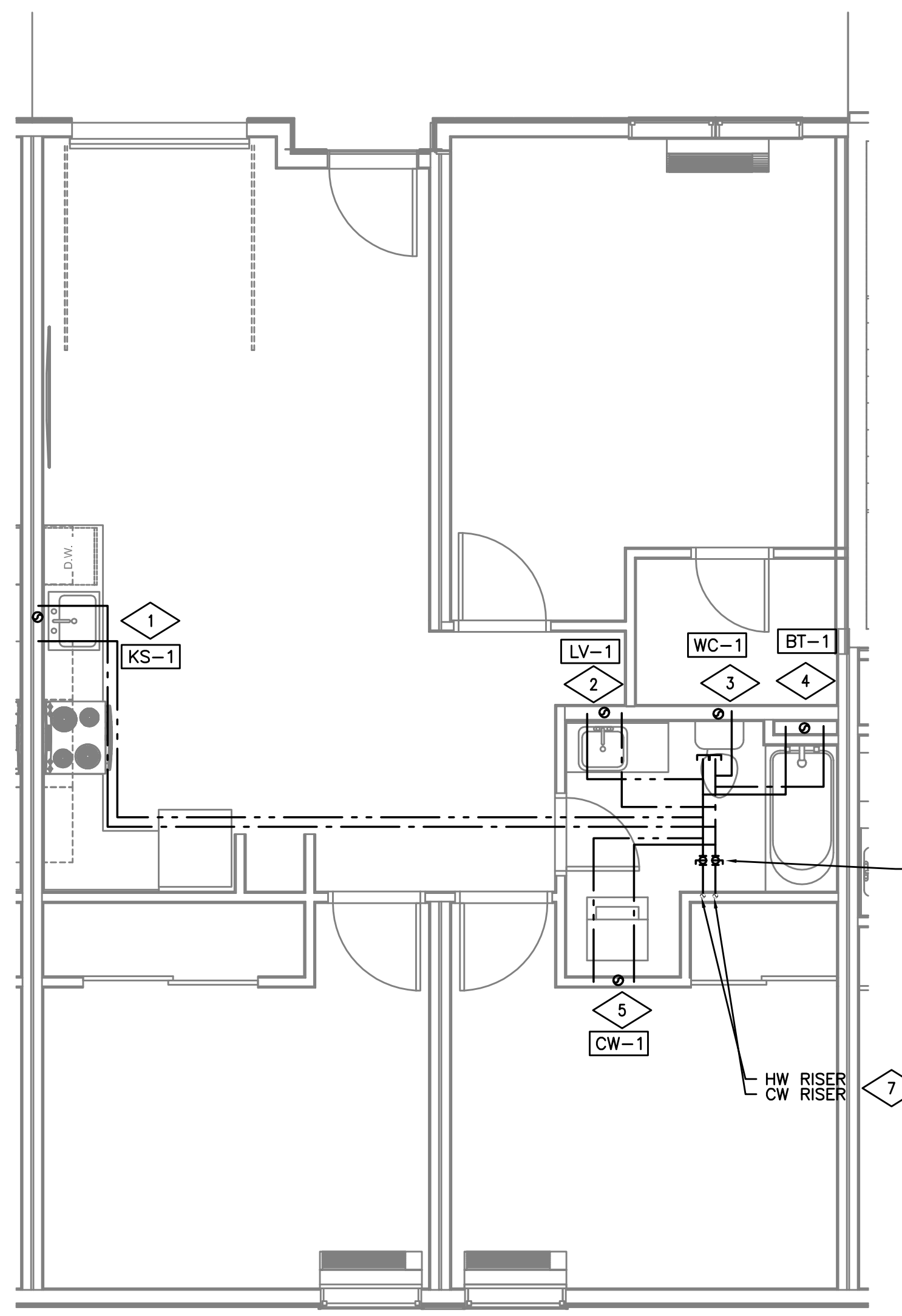
P501



1 ENLARGED 2 BED BLDG III PLUMBING PLAN
SCALE: 1/4" = 1'-0"



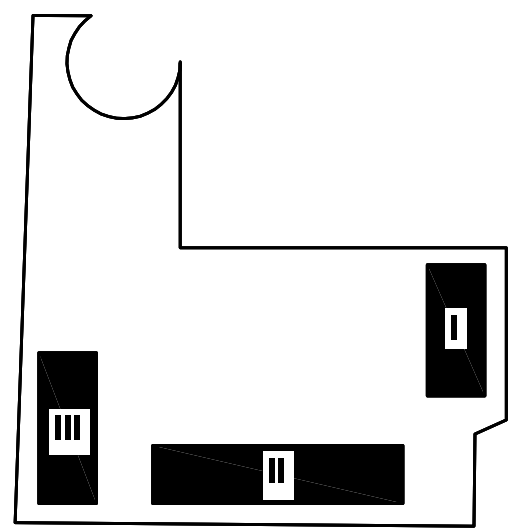
2 ENLARGED 2 BED TYP PLUMBING PLAN
SCALE: 1/4" = 1'-0"



3 ENLARGED 3 BED PLUMBING PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

- HEAT TRACE (FREEZE PROTECTION) ALL PIPING SUBJECTED TO FREEZING CONDITIONS.
- HEAT TRACE WASTE TRAPS, INSULATE WASTE PIPING EXPOSED TO FREEZING CONDITIONS
- ROUTE ALL HVAC UNIT CONDENSATE DRAINS TO AN APPROVED LOCATION (OPTIONS LISTED BELOW)
 - ROUTE TO CLOTHES WASHER STAND PIPE, OF UNIT BELOW
 - ROUTE ALL CONDENSATES DOWN IN EXTERIOR WALL IN COMMON DRAIN SYSTEM AND ROUTE THROUGH 1ST FLOOR TO FLOOR SINK IN UTILITY ROOM - CONTRACTOR TO SIZE DRAIN SYSTEM BASED ON NUMBER OF CONNECTED UNITS.
 - PROVIDE CONDENSATE PUMPS ON ALL UNITS THAT ARE NOT GRAVITY DRAINED.
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Sheet Name
PLUMBING
DETAILS

Sheet No.

P502



PLUMBING LEGEND

Table with 3 columns: Symbol, Description, and Abbreviation. Includes symbols for water types (CW, HW, W), vent (V), rain drain (RD), gas (G), fire water (F), valves (Gate, Ball, Balancing, Check, Union, Tee, Elbow, Cleanout), and equipment marks (XX, XXX, #, X).

PLUMBING CALCULATIONS Site

Table showing plumbing calculations for a site. Columns: Fixture Type, Number of Fixtures, Water Fixture Units, Total WSFU, Total CW Fixture Units, Total HW Fixture Units, Drainage Fixture Units, Total DFU. Includes a summary row for Meter Size and WASTE SIZE.

Pressure drop calculations (PSI) per OPSC

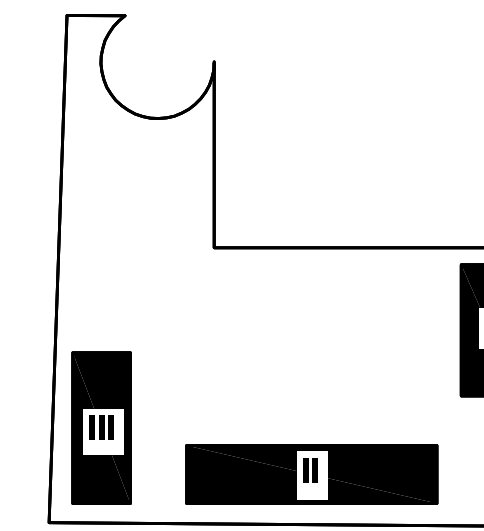
Table showing pressure drop calculations for various components: Initial pressure (63), 4" service tap (10 ft @ 220 gpm @ 8 psi/100 ft) (-0.8), Water meter (3" @ 220 gpm) (-10), 4" Backflow preventer (-6), 4" building service (493 ft @ 1 psi/100 ft) (-4.93), Interior piping (150 ft @ max. 4 psi/100 ft) (-6), Elevation (41 ft @ .43 psi/ft) (-17.63), Minimum pressure at remote fixture (-15), and Available excess pressure (2.6).

GAS WATER HEATERS

Table comparing specifications for six different gas water heater models (WH 1 through WH 6). Columns include Capacity (GAL), Input Rate (MBH), Output Rate (MBH), Efficiency (%), Fuel (NAT GAS), Recovery Cap. (GPH) @ 100°F Rise, Gas Vent Dia. (Inches), Combustion Air Intake, Design Weight (LBS), Basis of Design, and Building/System.

PLUMBING CONNECTION SCHEDULE

Table detailing plumbing connection schedules for various fixtures. Columns: Mark, Fixture, W, V, CW, HW, Remarks. Includes notes for shower heads, valve boxes, and drain pan requirements.



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Revisions table with columns: Number, Description, Date. Lists three revisions related to permit set and checksheet responses.

Sheet Name PLUMBING SCHEDULES

Sheet No.

P600

PLUMBING CALCULATIONS Building #III. Table with columns: Fixture Type, Number of Fixtures, Water Fixture Units, Total WSFU, Total CW Fixture Units, Total HW Fixture Units, Drainage Fixture Units, Total DFU. Includes summary for Meter Size and WASTE SIZE.

PLUMBING CALCULATIONS Building #II. Table with columns: Fixture Type, Number of Fixtures, Water Fixture Units, Total WSFU, Total CW Fixture Units, Total HW Fixture Units, Drainage Fixture Units, Total DFU. Includes summary for Meter Size and WASTE SIZE.

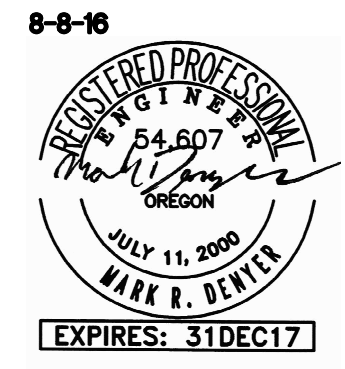
- V.L. - VENTED LINE
* - PROVIDE WITH ASSE 1070 APPROVED POINT OF USE MIXING VALVE OR LAV FAUCET WITH APPROVED TEMPERATURE LIMIT STOP.
** - PROVIDE WITH ASSE 1016 APPROVED TEMPERATURE AND PRESSURE SHOWER MIXING VALVE.
*** - CONTRACTOR OPTIONS:
1. PROVIDE ACCESSIBLE VALVE BOX (SINGLE THROW DUAL BALL VALVE) WITH STAND PIPE FITTING LOCATED TO THE SIDE OF THE WASHER.
2. PROVIDE WASHER DRAIN PAN, WITH DIRECT 1-1/4" DRAIN TO WASTE SYSTEM (TRAPPED AND PRIMED).
3. PROVIDE WASHER DRAIN PAN, WITH MOISTURE SENSOR TO CLOSE ELECTRICALLY OPERATED SOLENOID VALVES ON THE WATER SUPPLY LINES.

PLUMBING CALCULATIONS - 1-Bathroom. Table with columns: Fixture Type, Number of Fixtures, Water Fixture Units, Total WSFU, Total CW Fixture Units, Total HW Fixture Units, Drainage Fixture Units, Total DFU. Includes summary for Meter Size and WASTE SIZE.

PLUMBING CALCULATIONS - 1-Bathroom. Table with columns: Fixture Type, Number of Fixtures, Water Fixture Units, Total WSFU, Total CW Fixture Units, Total HW Fixture Units, Drainage Fixture Units, Total DFU. Includes summary for Meter Size and WASTE SIZE.

PLUMBING CALCULATIONS - 2-Bathroom. Table with columns: Fixture Type, Number of Fixtures, Water Fixture Units, Total WSFU, Total CW Fixture Units, Total HW Fixture Units, Drainage Fixture Units, Total DFU. Includes summary for Meter Size and WASTE SIZE.

PLUMBING CALCULATIONS - 2-Bathroom. Table with columns: Fixture Type, Number of Fixtures, Water Fixture Units, Total WSFU, Total CW Fixture Units, Total HW Fixture Units, Drainage Fixture Units, Total DFU. Includes summary for Meter Size and WASTE SIZE.



PLUMBING CALCULATIONS Building #

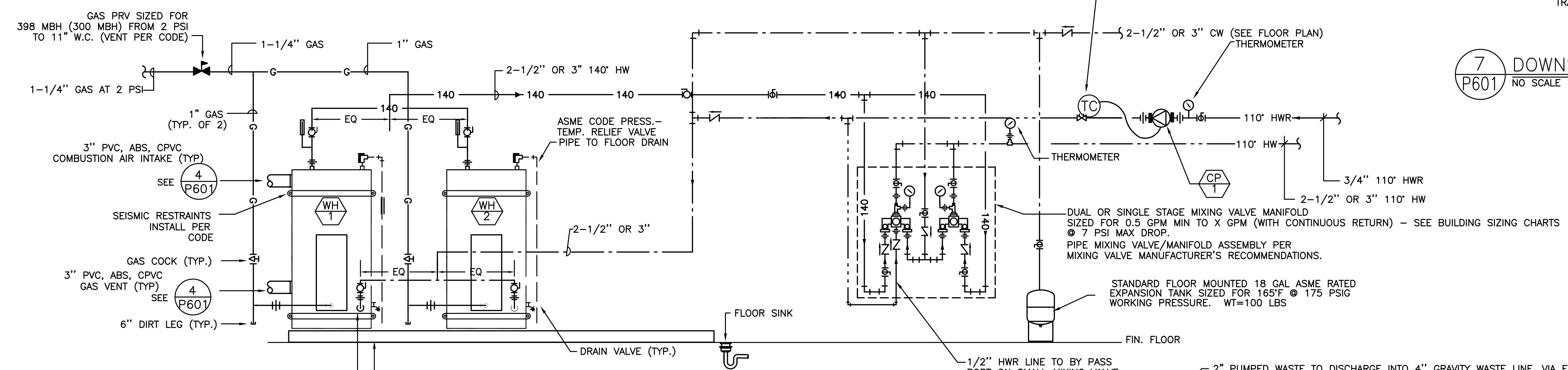
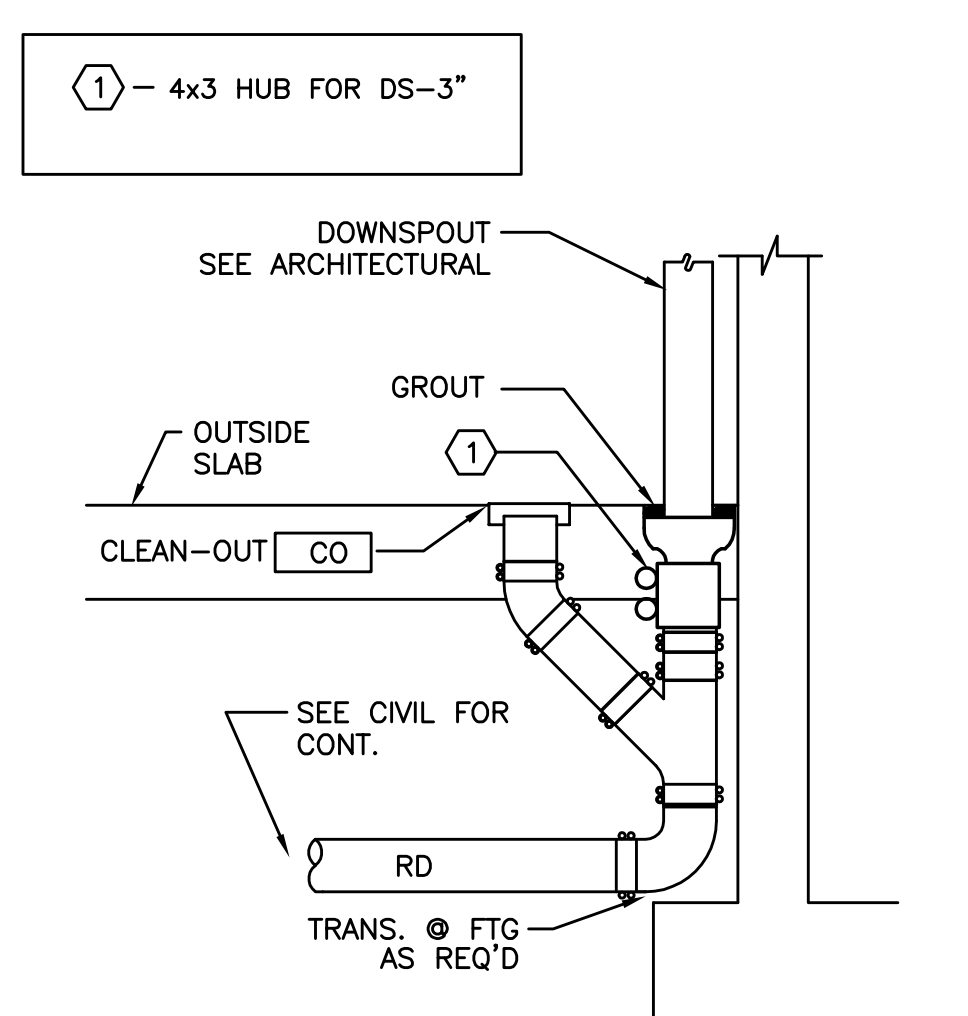
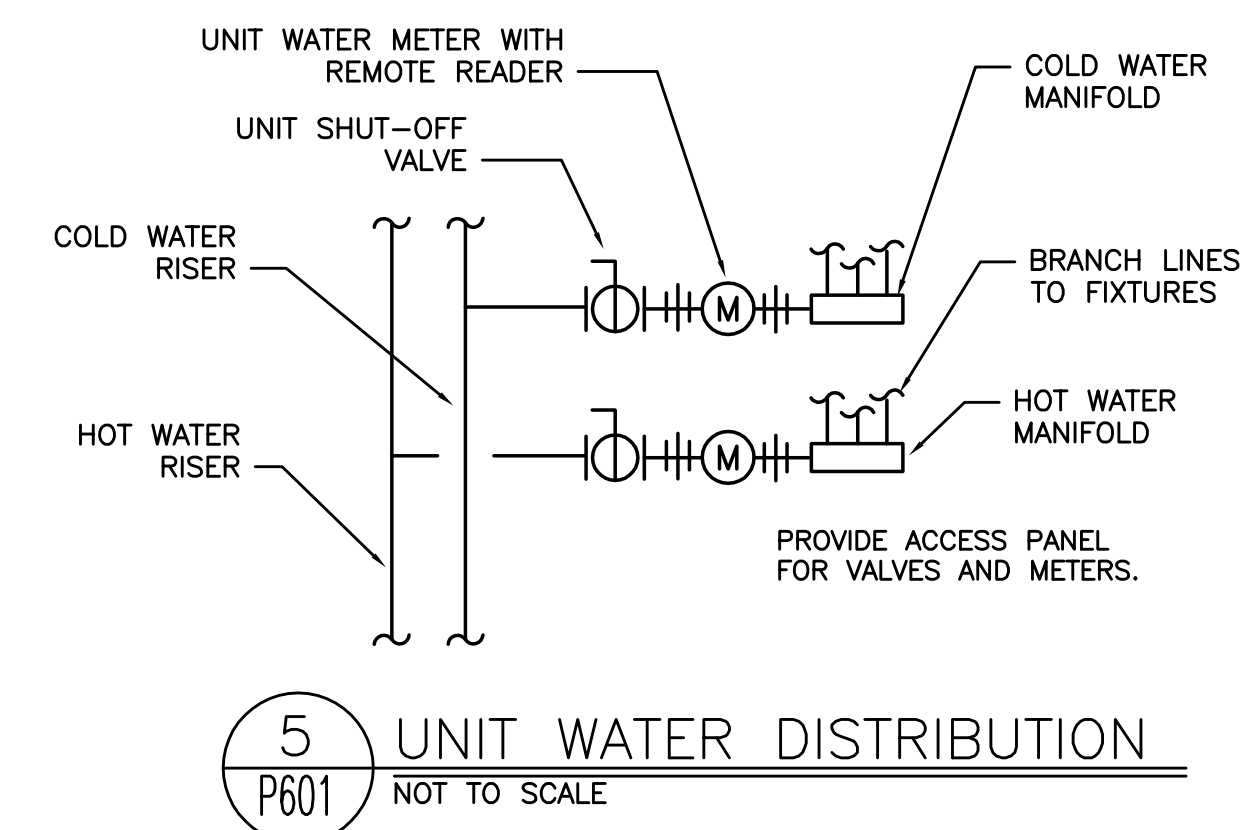
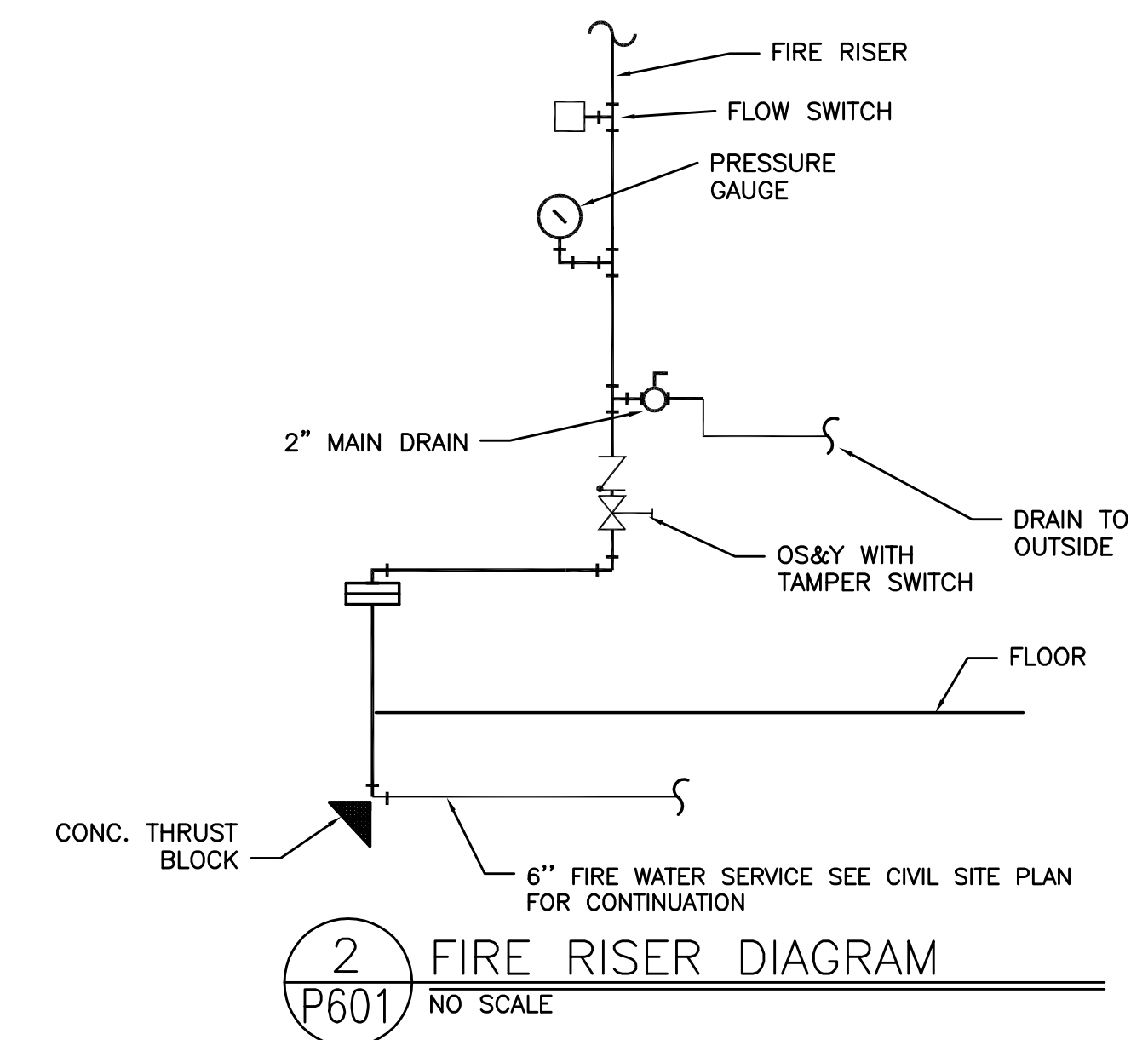
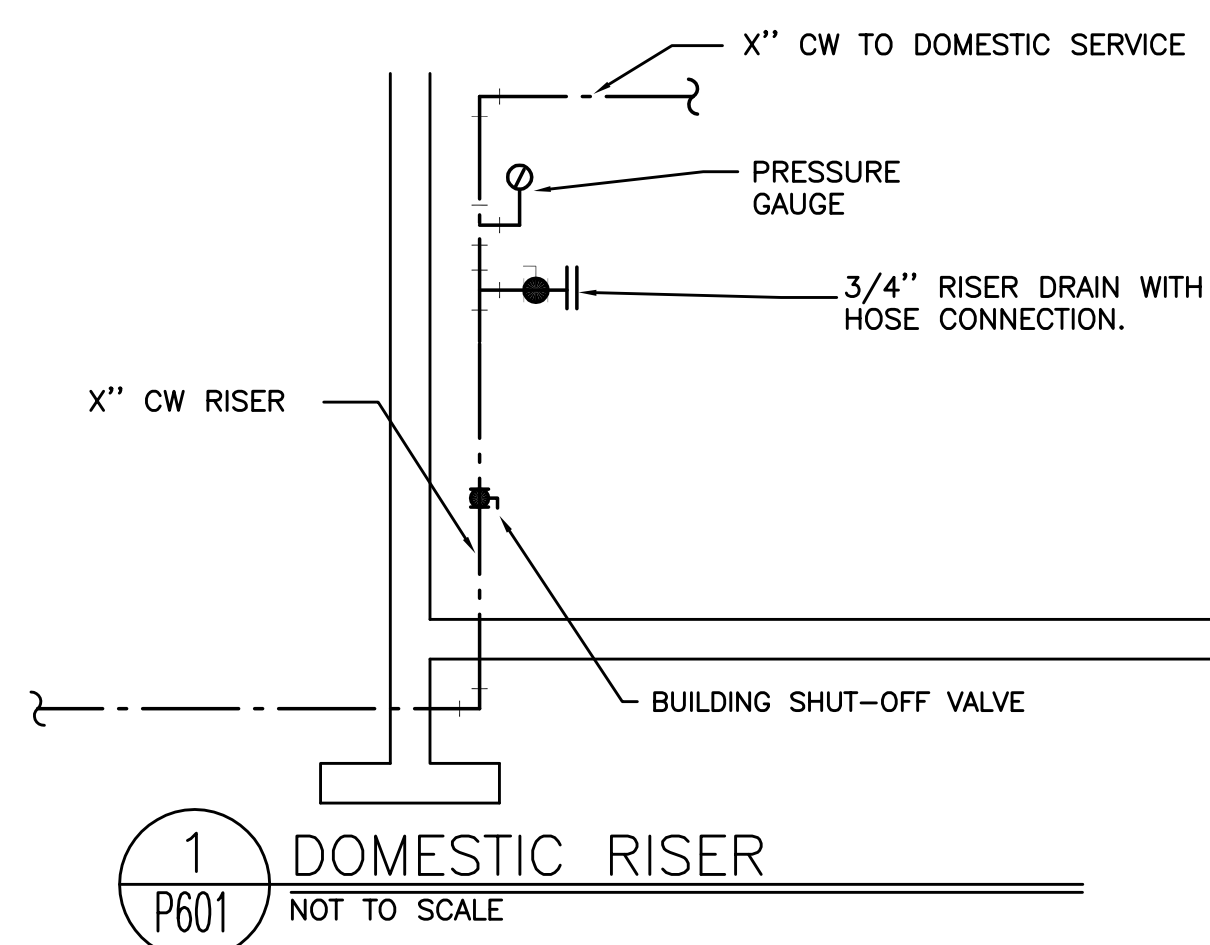
FIXTURE TYPE	NUMBER OF FIXTURES	DOMESTIC WATER SERVICE			SANITARY WASTE SERVICE		
		WATER FIXTURE UNITS	TOTAL WSFU	TOTAL CW FIXTURE UNITS	TOTAL HW FIXTURE UNITS	DRAINAGE FIXTURE UNITS	TOTAL DFU
BATHUB or COMBO BATH/SHOWER	19	4	76	57	57	2	38
CLOTHES WASHER	19	4	76	57	57	3	57
KITCHEN SINK (GRINDER)	19	1.5	28.5	21.375	21.375	2	38
LAVATORY (SINGLE)	19	1	19	14.25	14.25	1	19
RECEPTOR (INDIRECT WASTE)	1	---	---	---	---	1	1
RECEPTOR (ELEVATOR SUMP)	1	---	---	---	---	100	100
WATER CLOSET (1.6 GPF TANK-PRIVATE)	19	2.5	47.5	47.5	0	3	57
HOSE BIBB (FIRST ONE)	1	2.5	2.5	2.5	0	---	---
HOSE BIBB (EACH ADDITIONAL)	3	1	3	3	0	---	---
WATER CLOSET (1.6 GPF TANK-GENERAL)	0	2.5	0	0	0	4	0
LAVATORY (SINGLE)	0	1	0	0	0	1	0
TOTAL	101		252.5	202.625	149.625		310
		GPM	76	66	55		
		Size	2-1/2"	2-1/2"	2"	WASTE SIZE	6"
		METER SIZE	See Civil				

PLUMBING CALCULATIONS - 1-Bathroom

FIXTURE TYPE	NUMBER OF FIXTURES	DOMESTIC WATER SERVICE			SANITARY WASTE SERVICE		
		WATER FIXTURE UNITS	TOTAL WSFU	TOTAL CW FIXTURE UNITS	TOTAL HW FIXTURE UNITS	DRAINAGE FIXTURE UNITS	TOTAL DFU
BATHUB or COMBO BATH/SHOWER	1	4	4	3	3	2	2
CLOTHES WASHER	1	4	4	3	3	2	2
KITCHEN SINK (GRINDER)	1	1.5	1.5	1.125	1.125	2	2
LAVATORY (SINGLE)	1	1	1	0.75	0.75	1	1
WATER CLOSET (1.6 GPF TANK-PRIVATE)	1	2.5	2.5	2.5	0	3	3
TOTAL	5		13	10.375	7.875		11
		GPM		8	7		
		Size		1"	3/4"	WASTE SIZE	

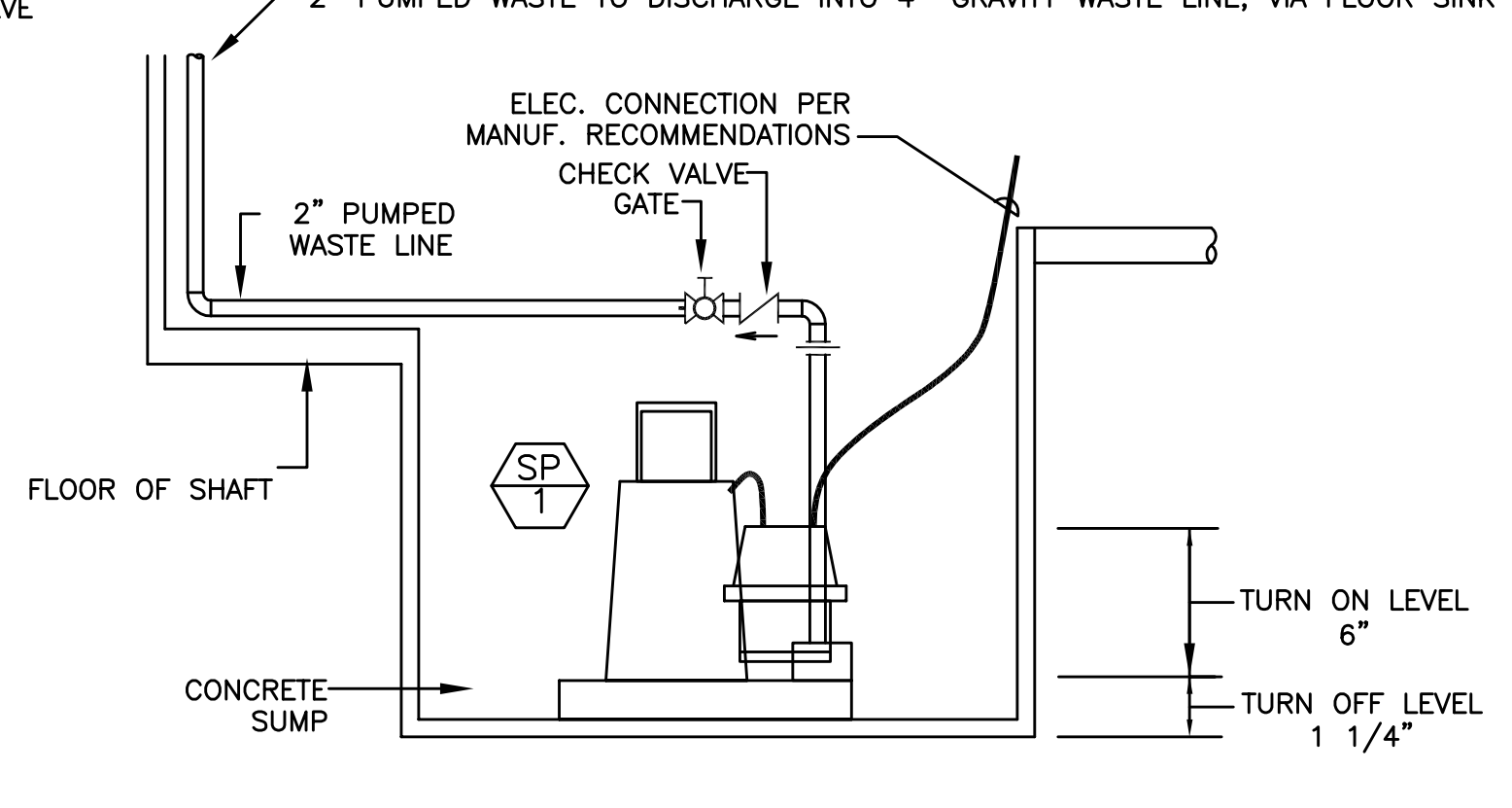
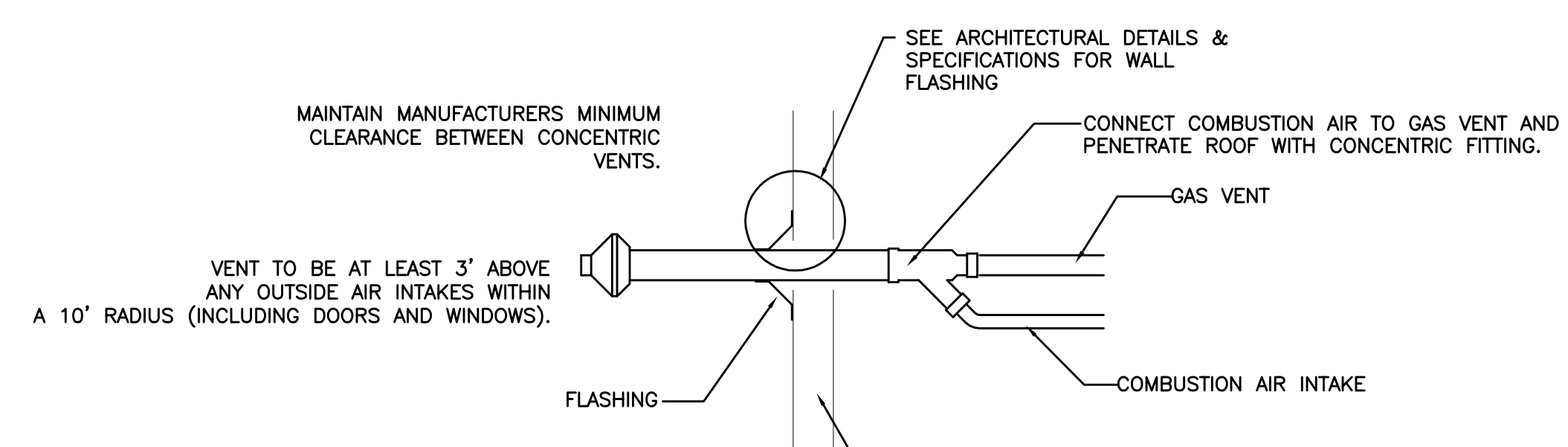
PLUMBING CALCULATIONS - 2-Bathroom

FIXTURE TYPE	NUMBER OF FIXTURES	DOMESTIC WATER SERVICE			SANITARY WASTE SERVICE		
		WATER FIXTURE UNITS	TOTAL WSFU	TOTAL CW FIXTURE UNITS	TOTAL HW FIXTURE UNITS	DRAINAGE FIXTURE UNITS	TOTAL DFU
BATHUB or COMBO BATH/SHOWER	0	4	0	0	0	2	0
CLOTHES WASHER	0	4	0	0	0	3	0
KITCHEN SINK (GRINDER)	0	1.5	0	0	0	2	0
LAVATORY (SINGLE)	0	1	0	0	0	1	0
WATER CLOSET (1.6 GPF TANK-PRIVATE)	0	2.5	0	0	0	3	0
TOTAL	0		0	0	0		0
		GPM		0	0		
		Size		0	0	WASTE SIZE	



PUMPS

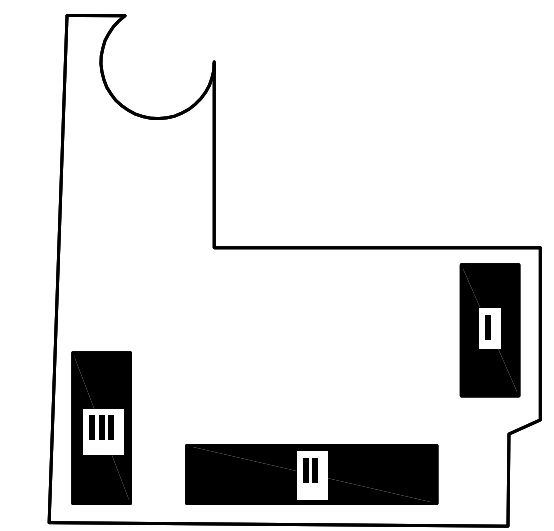
MARK NUMBER	CP 1
SERVICE	DHW RECIRC
TYPE	CIRC.
CONTROLLED BY	TIME CLOCK -*
ARRANGEMENT	IN-LINE
FLOW RATE (GPM)	5
HEAD (FT)	8
MOTOR HP	40 WATTS
RPM	---
DESIGN WEIGHT (LBS)	20



SUMP PUMP

MARK NUMBER	SP 1
SYSTEM	ELEVATOR
TYPE	SUMP *
FLOW RATE (GPM)	50
HEAD (FT H2O)	25
POWER (HP)	1/2 HP

* - PROVIDE W/ PLUG IN CONNECTION FOR POWER



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Sheet No.

P601