ASHRAE 90.1-2013 PERFORMANCE ENERGY MODELING DATA PROVIDED N/A (EXISTING LIGHTING, HVAC, AND DOM. WATER HEATING SYSTEMS TO REMAIN)

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS C406.2 EFFICIENT MECH EQUIPMENT C406.3 REDUCED LTG DENSITY

C406.4 ENHANCED LTG CONTROLS

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C406.5 ON-SITE RENEWABLE ENERGY C406.6 DEDICATED OA SYSTEM C406.7 SERVICE WATER HEATING

TABLE C404.2 - MINIMUM PERFORMANCE OF WATER HEATING EQUIPMENT<sub>C</sub> SIZE CATEGORY SUB CATEGORY OR REQ'D SPECIFIED PERFORMANCE **EQUIPMENT TYPE** RATING CONDITION EFFICIENCY EQPM REQUIRED a,b WATER HEATER RESISTANCE 0.94 0.960-0.0003V, EF

ENERGY FACTOR (EF) AND THERMAL EFFICIENCY ( $E_t$ ) ARE MINIMUM REQUIREMENTS. IN THE EF EQUATION <u>V</u> IS THE VOLUME IN GALLONS. REFER TO WATER HEATER SCHEDULES FOR SPECIFIED WATER HEATING EQUIPMENT TYPES. CAPACITIES

≥20 GAL AND ≤ 55 GAL

(STORAGE VOLUME) AND ENERGY INPUTS (ELECTRIC AND/OR GAS)

#### DRAINAGE PIPING SPECIFICATIONS

**SANITARY WASTE AND VENT PIPING:** 

1. SANITARY WASTE PIPING <u>BELOW</u> GRADE: A. SERVICE WEIGHT CAST IRON HUB AND SPIGOT PIPE (ASTM A 74) WITH COMPRESSION JOINTS (CISPI HSN) AND NEOPRENE GASKETS (ASTM C 564)

B. CAST IRON NO-HUB PIPE AND FITTINGS (CISPI 301) WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (CISPI 310) [WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (ASTM C1540-15)]. C. SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). INSTALL PLASTIC PIPE BELOW GRADE PER ASTM D2321.

2. SANITARY WASTE AND VENT PIPING ABOVE GRADE:

A. CAST IRON NO-HUB PIPE AND FITTINGS (CISPI 301) WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (CISPI 310) [WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (ASTM C1540-15)]. B. SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). FOAM CORE PIPE IS NOT APPROVED.

STORM DRAIN PIPING:

1. STORM DRAIN PIPING <u>BELOW</u> GRADE: A. SERVICE WEIGHT CAST IRON HUB AND SPIGOT PIPE (ASTM A 74) WITH COMPRESSION JOINTS (CISPI HSN) AND

INSTALL PLASTIC PIPE BELOW GRADE PER ASTM D2321. FOAM CORE PIPE IS NOT APPROVED.

NEOPRENE GASKETS (ASTM C 564) B. CAST IRON NO-HUB PIPE AND FITTINGS (CISPI 301) WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (CISPI 310) [WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (ASTM C1540-15)]. SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855).

2. STORM DRAIN PIPING <u>ABOVE</u> GRADE:

A. SERVICE WEIGHT CAST IRON NO-HUB PIPE AND FITTINGS (CISPI 301) WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (CISPI 310) [WITH NEOPRENE GASKET/STAINLESS STEEL CLAMP JOINTS (ASTM C1540-15)]. B. SCHEDULE 40 PVC PIPE AND SOCKET FITTINGS (ASTM D 2665) WITH SOLVENT WELD JOINTS (ASTM D2855). FOAM CORE PIPE IS <u>NOT</u> APPROVED.

S. SUMP PUMP DISCHARGE PIPING: C. SCHEDULE 40 GALVANIZED STEEL PIPE (ASTM A53) AND GALVANIZED 150 POUND MALLEABLE IRON FITTINGS (ASME B16.3) WITH THREADED JOINTS.

#### **CLEANOUTS**:

PROVIDE CLEAN-OUTS AT THE BASE OF ALL DRAINAGE STACKS [AND STORM DRAIN RISERS] AND AT EVERY TURN IN PIPING IN EXCESS OF 45° AND NO FURTHER THAN 100'-0" APART. INSTALL CLEANOUTS IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.

2. PROVIDE CLEANOUTS WITH TOPS DESIGNED TO MATCH SPECIFIC FLOOR FINISHES SUCH AS CONCRETE, CARPET, TILE, ETC. YARD CLEANOUTS SHALL BE PROVIDED IN AN 18"x18"x6" CONCRETE PAD.

# **INSTALLATION:**

I. SLOPE ALL DRAINAGE PIPING AT 1/4" PER FOOT MINIMUM FOR PIPING 2 1/2" AND SMALLER AND 1/4" PER FOOT MINIMUM FOR PIPING 3" AND LARGER UNLESS NOTED OTHERWISE.

2. SLOPE SUMP DISCHARGE LINE AT 1% SLOPE TOWARDS DISCHARGE POINT

WHERE WASTE PIPING IS EXPOSED IN REST ROOM AREAS, PROVIDE CHROME PLATED BRASS PIPING, REMOVABLE P-TRAPS, MATCHING STOPS AND ESCUTCHEONS FOR ALL LAVATORIES.

4. INSULATE MECHANICAL ROOM FLOOR DRAIN BODIES. P-TRAP AND HORIZONTAL DRAIN PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.

. INSULATE ROOF DRAIN BODIES AND HORIZONTAL PRIMARY AND SECONDARY STORM DRAIN PIPING ABOVE GRADE WITH 1" THICK GLASS FIBER INSULATION WITH VAPOR BARRIER AND JACKET.

6. PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES ARE REQUIRED TO MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 (NFPA 255) METHOD.

DRAINAGE AND VENT SYSTEMS SHALL BE TESTED AND PROVED WATER TIGHT UNDER A HEAD PRESSURE OF NO LESS THAN 10 FT. THIS PRESSURE SHALL BE HELD FOR A PERIOD OF NO LESS THAN 15 MINUTES.

## WATER SUPPLY PIPING SPECIFICATIONS

#### **DOMESTIC WATER PIPING:**

I. DOMESTIC WATER PIPING AND JOINTS BELOW GRADE PIPING 1 1/4" TO 3":

A. TYPE 'K', DRAWN-TEMPER (HARD) COPPER TUBE (ASTM B88) WITH PRESSURE-SEAL JOINT FITTINGS (CAST-BRASS, CAST-BRONZE OR WROUGHT-COPPER) WITH EPDM O-RING SEAL ON EACH END. 250 PSI WORKING B. TYPE 'L' DRAWN-TEMPER COPPER TUBE (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.18) WITH

BCUP SILVER/PHOSPHORUS/COPPER BRAZED JOINTS (AWS A5.8).

PIPING 1" AND SMALLER: A. TYPE 'K' SOFT ANNEALED COPPER TUBE (ASTM B 88) WITH NO JOINTS BELOW FLOOR (SLABS).

2. DOMESTIC WATER PIPING AND JOINTS ABOVE GRADE PIPE 2 1/2" AND LARGER: A. TYPE 'L', DRAWN-TEMPER COPPER TUBE (ASTM B 88) WITH PRESSURE-SEAL JOINT FITTINGS (CAST-BRASS,

BCUP SILVER/PHOSPHORUS/COPPER BRAZED JOINTS (AWS A5.8).

CAST-BRONZE OR WROUGHT-COPPER) WITH EPDM O-RING SEAL ON EACH END. 200 PSI WORKING PRESSURE AT B. TYPE 'L' DRAWN-TEMPER COPPER TUBE (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.18) WITH

PIPE 2" AND SMALLER:

A. TYPE 'L' HARD DRAWN SEAMLESS COPPER TUBE (ASTM B 88) AND CAST COPPER ALLOY FITTINGS (ASME B16.18) WITH LEAD FREE 95-5 TIN/SILVER SOLDER JOINTS (ASTM B 32) B. TYPE 'L', DRAWN-TEMPER COPPER TUBE (ASTM B 88) WITH PRESSURE-SEAL JOINT FITTINGS (CAST-BRASS, CAST-BRONZE OR WROUGHT-COPPER) WITH EPDM O-RING SEAL ON EACH END. 200 PSI WORKING PRESSURE AT

. PROVIDE TWO-PIECE, BRONZE OR BRASS BODY, FULL PORT, 600 PSI WOG, BALL TYPE SHUT-OFF VALVES WITH BLOW-OUT PROOF STEMS AND ADJUSTABLE PACKING GLANDS. VALVES SHALL BE LEAD FREE PER NSF 61, ANNEX G REQUIREMENTS. INSTALL VALVES IN A LOCATION THAT PERMITS ACCESS FOR SERVICE WITHOUT DAMAGE TO THE BUILDING OR FINISHED MATERIALS.

# **PIPE INSULATION:**

I. DOMESTIC WATER PIPING INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES ARE REQUIRED TO MEET A FLAME-SPREAD RATING OF 25 OR LESS AND A SMOKE-DEVELOPED RATING OF 50 OR LESS, AS TESTED BY ASTM E84 (NFPA 255) METHOD AND SHALL BE PLENUM RATED. PROVIDE PVC JACKET FOR EXPOSED PIPING IN MECHANICAL ROOMS. INSULATION SHALL BE CONTINUOUS AT ALL HANGERS. PROVIDE GALVANIZED STEEL SHIELD BETWEEN PIPE HANGER AND INSULATION

# **INSTALLATION:**

DOMESTIC COLD WATER

OBTAINED FROM A POTABLE SOURCE OF SUPPLY.

PROTECT COPPER PIPING AGAINST CONTACT WITH DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON TRAPEZE HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH DISSIMILAR OTHER METALS.

2. PROTECT COPPER PIPING AGAINST CONTACT WITH ALL MASONRY. WHERE COPPER IS SLEEVED THROUGH MASONRY, PROVIDE COPPER OR RED BRASS SLEEVES. WHERE COPPER MUST BE CONCEALED IN OR AGAINST MASONRY PARTITIONS, PROVIDE A HEAVY COATING OF ASPHALTIC ENAMEL ON THE COPPER PIPING AND 15#

ASPHALT SATURATED FELT BETWEEN THE PIPING AND THE MASONRY PARTITION. 3. DOMESTIC WATER PIPING SHALL BE SLOPED FOR DRAINAGE WITH DRAIN VALVES INSTALLED AT LOW POINTS.

4. INSULATE DOMESTIC WATER PIPING ABOVE GRADE (EXCEPT EXPOSED CONNECTIONS TO PLUMBING FIXTURES) WITH GLASS FIBER INSULATION HAVING A VAPOR BARRIER AND JACKET. PIPE INSULATION SHALL HAVE A CONDUCTIVITY NOT EXCEEDING 0.27 BTUH x SQ. FT. FOLLOW SCHEDULE BELOW:

1/2" - 1 1/4" 1/2"

SERVICE TYPE PIPE SIZES INSULATION THICKNESS DOMESTIC HOT WATER & CIRCULATION 1/2" - 1 1/4" 1" DOMESTIC HOT WATER & CIRCULATION 11/2" - 4" 11/2"

ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.

DOMESTIC COLD WATER 1 1/2" - 4" 1" 5. STERILIZE THE DOMESTIC WATER SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS

6. DOMESTIC WATER SUPPLY PIPING SHALL BE TESTED AND PROVED WATERTIGHT UNDER A WATER PRESSURE OF NO LESS THAN THE WORKING PRESSURE OF THE SYSTEM, OR AN AIR TEST OF NO LESS THAN ONE-HUNDRED (100) PSI. THIS PRESSURE SHALL BE HELD FOR AT LEAST FIFTEEN (15) MINUTES. WATER USED IN TESTING SHALL BE

7. BALANCE THE DOMESTIC HOT WATER CIRCULATION SYSTEM TO THE PERFORMANCE SPECIFICATIONS INDICATED ON THE PLANS.

### PLUMBING GENERAL NOTES

#### **GENERAL REQUIREMENTS:**

PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE VRGINIA STATE PLUMBING CODE AND WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.

SCOPE: PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL PLUMBING SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES.

PERMITS: APPLY AND PAY FOR ALL NECESSARY PERMITS, FEES AND INSPECTIONS REQUIRED BY ANY PUBLIC

AUTHORITY HAVING JURISDICTION. ACREAGE CHARGES, FACILITIES CHARGES AND BOND PROPERTY ASSESSMENTS ARE NOT TO BE CONSTRUED TO BE A PART OF THIS CONTRACT.

WARRANTY: PROVIDE A ONE YEAR WARRANTY, FROM THE DATE OF ACCEPTANCE OF WORK BY THE OWNER, FOR ALL PLUMBING MATERIALS AND EQUIPMENT.

COORDINATE ALL PLUMBING PIPING LOCATIONS, ROUGH-IN LOCATIONS AND EQUIPMENT LOCATIONS WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES. FINAL PIPING AND EQUIPMENT LOCATIONS SHALL BE A CODE COMPLIANT INSTALLATION FOR ALL TRADES.

FIELD VERIFY PROPER OPERATION OF EXISTING SYSTEMS BEFORE STARTING CONSTRUCTION. NOTIFY THE

ARCHITECT / ENGINEER OF RECORD OF ANY PROBLEMS OR DISCREPANCIES BETWEEN THE CONSTRUCTION

DOCUMENTS AND EXISTING CONDITIONS AND/OR ANY POTENTIAL PROBLEMS OBSERVED BEFORE CONTINUING WORK IN THE AFFECTED AREAS. WHERE DISCREPANCIES ARE FOUND IN THE DRAWINGS AND SPECIFICATIONS THE MORE STRINGENT SHALL

8. ALL CAST IRON PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.

APPLY. CONTACT ENGINEER FOR CLARIFICATION.

9. ALL VALVES, BACKFLOW PREVENTERS, BOOSTER PUMPS, ETC. SERVING THE DOMESTIC WATER SYSTEM SHALL MEET LEAD FREE STANDARDS PER ANSI/NSF 372 AND NSF 61, ANNEX G.

10. CUT WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF PLUMBING WORK. ALL CUTTING SHALL BE HELD TO A MINIMUM. PATCH AND FINISH SURFACES TO MATCH ADJOINING SURFACES.

11. PLUMBING PLANS SHALL NOT BE SCALED. REFERENCE THE ARCHITECTURAL PLANS FOR ALL LOCATIONS OF PLUMBING FIXTURES, WALLS, DOORS, WINDOWS, ETC.

12. PLUMBING PIPING AND SPECIALTIES SHALL BE LOCATED CONCEALED IN WALLS, PARTITIONS OR ABOVE CEILINGS UNLESS NOTED OTHERWISE. PLUMBING PIPING IN EXPOSED AREAS SHALL BE RUN TIGHT TO UNDERSIDE OF STRUCTURE. PROVIDE ACCESS DOORS FOR CONCEALED SPECIALTIES.

13. PLUMBING PIPING, VENTS, ETC. EXTENDING THROUGH EXTERIOR WALLS AND/OR THE ROOF SHALL BE FLASHED AND COUNTER FLASHED IN A WATERPROOF MANNER. COORDINATE FLASHING WITH THE GENERAL

CONTRACTOR.

14. DO <u>NOT</u> INSTALL PLUMBING PIPING IN AREAS SUBJECT TO FREEZING TEMPERATURES. INSTALL PLUMBING

PIPING SHOWN IN EXTERIOR WALLS ON THE CONDITIONED SIDE OF THE WALL INSULATION.

15. PROVIDE NON-CONDUCTING DIELECTRIC UNIONS WHENEVER CONNECTING DISSIMILAR METALS.

16. ATTACH HANGERS TO STRUCTURE, HANGERS SHALL <u>NOT</u> ATTACH TO THE DECK.

17. PROVIDE ACCESS DOORS FOR VALVES, WATER HAMMER ARRESTORS, TRAP PRIMERS, ETC. CONCEALED IN MASONRY WALLS, GYPBOARD WALLS AND/OR CEILINGS THAT WILL REQUIRE MAINTENANCE ACCESS.

18. PLUMBING SYSTEMS INCLUDE, BUT ARE NOT LIMITED TO:

PLUMBING FIXTURES AND EQUIPMENT, FIRE STOPPING, SEISMIC BRACING, PIPE IDENTIFICATION, DOMESTIC WATER SYSTEM, SANITARY WASTE AND VENT SYSTEM, STORM DRAIN SYSTEM, NATURAL GAS SYSTEM

#### PLUMBING FIXTURES AND EQUIPMENT:

PROVIDE COMPLETE PLUMBING FIXTURES AND EQUIPMENT. INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAPS, TAIL PIECES, ESCUTCHEONS, ETC.

PLUMBING FIXTURES AND EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATION AND INSTALLATION INSTRUCTIONS.

NO PRIVATE LABELED MATERIALS WILL BE ACCEPTED AS EQUALS TO PRODUCTS SPECIFIED HEREIN.

THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SUBSTITUTIONS TO SPECIFIED PLUMBING FIXTURES AND EQUIPMENT INCLUDING BUT NOT LIMITED TO; PROVIDING MAINTENANCE ACCESS CLEARANCE, PIPING, ELECTRICAL, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, ETC. AND ANY MODIFICATIONS TO ASSOCIATED MECHANICAL, ELECTRICAL OR PLUMBING SYSTEMS REQUIRED BY THE EQUIPMENTS INSTALLATION INSTRUCTIONS. ALL COSTS ASSOCIATED WITH SUBSTITUTIONS SHALL BE INCLUDED IN THE ORIGINAL BASE BID.

#### FIRE STOPPING:

FIRE STOP ALL PENETRATIONS, BY PIPING OR CONDUITS, OF FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE A DEVICE(S) OR SYSTEM(S) WHICH HAS BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE A DEVICE(S) OR SYSTEM(S) WITH AN 'F' RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED. REFER TO ARCHITECTURAL PLANS FOR WALL AND FLOOR TYPES.

# **PIPE IDENTIFICATION:**

PIPE IDENTIFICATION SHALL MATCH THE FACILITY'S EXISTING STANDARD. IF NO STANDARD EXISTS, THEN THE PIPE IDENTIFICATION SHALL BE IN ACCORDANCE WITH ANSI A13.1.

PROVIDE PIPING LABELS FOR ALL PLUMBING PIPING. PIPING LABELS SHALL BE ACRYLIC FACED, WRAP-AROUND TYPE. EACH LABEL SHALL INDICATE THE PIPING CONTENTS, DIRECTION OF FLOW AND SHALL BEAR THE MANUFACTURER'S STANDARD COLOR FOR THE SERVICE INDICATED.

PLUMBING LOAD SUMMARY									
LOAD	FIXTURE UNITS	FLOW							
SANITARY WASTE	75 DFU	-							
DOMESTIC WATER	150 SFU	80 GPM							

## PLUMBING LEGEND

	I LOIVIL	AND LEGEND
<u>SYMBOL</u>	<u>ABBREVIATION</u>	DESCRIPTION
	CW	COLD WATER PIPING
	HW	HOT WATER PIPING
	HWR	HOT WATER RETURN PIPING
TW	TW	TEMPERED HOT WATER PIPING
140	140	140°F HOT WATER PIPING
140	140	140°F HOT WATER RETURN PIPING
<del></del>	W	SANITARY WASTE PIPING
	V	SANITARY VENT PIPING
GW	GW	GREASE WASTE PIPING
GV	GV	GREASE VENT PIPING
AW	AW	ACID RESISTANT WASTE PIPING
AV	AV	ACID RESISTANT VENT PIPING
——— SD ——	SD	STORM DRAIN PIPING
——— ESD ——	ESD	EMERGENCY STORM DRAIN PIPING
——— PD ——	PD	PUMP DISCHARGE (SUMP PUMP)
——— G ——	G	NATURAL GAS PIPING
D	D	DRAIN PIPING (INDIRECT)
	-	PIPING ELBOW DOWN
	-	PIPING ELBOW UP
<del></del>	-	PIPING CONTINUES
——————————————————————————————————————	-	SHUT-OFF VALVE
<del>`</del>	-	CHECK VALVE
——————————————————————————————————————	-	BALANCING VALVE
	PRV	PRESSURE REDUCING VALVE
<u> </u>	-	SOLENOID VALVE
	RPZ	REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY
——————————————————————————————————————	-	IN-LINE PUMP
<del></del>	-	PIPING REDUCER
——⊚	FCO	FLOOR CLEANOUT
<del></del>	YCO	YARD CLEANOUT
CH	WCO	WALL CLEANOUT
	со	PLUG CLEANOUT
——──	FD	FLOOR DRAIN
<del></del>	FS	FLOOR SINK
<del></del>	RD	ROOF DRAIN
— <del></del>	НВ	HOSE BIBB / WALL HYDRANT
— - <del>- • </del>	SA-#	SHOCK ARRESTOR - SUFFIX INDICATES PDI SIZE

	<u>ADDITIONAL</u>	ABBREVIATIO	<u>ons</u>	
\FF	ABOVE FINISHED FLOOR	MFG	MANUFACTURER	
\FG	ABOVE FINISHED GRADE	PSI	POUNDS PER SQUARE INCH	
VTR	ACID VENT THRU ROOF	T&P	TEMPERATURE AND PRESSURE	
SAS	BUILDING AUTOMATION SYSTEM	TW	TEMPERED WATER	
FF	BELOW FINISHED FLOOR	TYP	TYPICAL	
FH	CUBIC FEET PER HOUR	UG	UNDERGROUND	
LG	CEILING	VTR	VENT THRU ROOF	
ONT	CONTINUATION	WSV	WASTE STACK VENT	
N	DOWN	WC	WATER COLUMN	
SPF .	GALLONS PER FLUSH			
<b>SPM</b>	GALLONS PER MINUTE	EC	ELECTRICAL CONTRACTOR	
łΡ	HORSE POWER	FSC	FOOD SERVICE CONTRACTOR	
NV	INVERT ELEVATION	GC	GENERAL CONTRACTOR	
W	KILOWATT	MC	MECHANICAL CONTRACTOR	
<b>ЛВН</b>	1,000 BRITISH THERMAL UNIT / HOUR	PC	PLUMBING CONTRACTOR	
		1		

	PLUMBING SHEET INDEX
SHEET NUMBER	SHEET NAME
P001	PLUMBING LEGEND, NOTES AND SPECIFICATIONS
P002	PLUMBING SCHEDULES
P003	PLUMBING DETAILS
P101	DRAINAGE FLOOR PLAN - LEVEL 01 - PLUMBING
P102	DRAINAGE FLOOR PLAN - LEVEL 02 - PLUMBING
P103	DRAINAGE ROOF PLAN
P201	WATER SUPPLY FLOOR PLAN - LEVEL 01 - PLUMBING

WATER SUPPLY FLOOR PLAN - LEVEL 02 - PLUMBING



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**Skyline** National Bank





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PLUMBING LEGEND. NOTES AND **SPECIFICATIONS** 

SIOUX CHIEF, PPP INC., ZURN, WATTS

ZURN, WOODFORD, ZURN, J.R. SMITH

ZURN, J.R. SMITH, WADE

BACKFLOW PREVENTER WILKINS, WATTS, APOLLO

		SHOCK A	ARREST	OR TABLE
DRAWING SYMBOL	FIXTURE UNITS	P.D.I. WH201 DESIGNATION	ARRESTOR SIZE	REMARKS
SA-A	1 - 11	А	1/2"	INSTALL SHOCK ARRESTORS PER THE
SA-B	12 - 32	В	3/4"	PLUMBING DRAINAGE INSTITUTE (P.D.I.) GUIDELINES
SA-C	33 - 60	С	1"	
SA-D	61 - 113	D	1-1/4"	ACCEPTED MANUFACTURERS: SIOUX CHIEF, WATTS, PPP INC., ZURN
SA-E	114 - 154	E	1-1/2"	SIGGREFILLY, WATER, THE INC., 2010
CW SUPPLY M	AIN —		1	CONDARY ARRESTOR CENTERED ON BRANCH ICH SUPPLY EXCEEDS 20'-0" IN OVERALL LENGTH  SHOCK ARRESTOR  SHUT-OFF VALVE
CW SUPPLY M	AIN —	BRAN	ICH SUPPLY	FIXTURE SUPPLY (TYPICAL)

SHOCK ARRESTOR

HOSE BIBBS

DRAINS

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THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL

WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT.

PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED.

CVA 4DOL	DESCRIPTION	STORAGE	GPH		ELECT	RIC DA	TA	BASIS OF DI	ESIGN	DEMARKS
SYMBOL	DESCRIPTION	(GALLONS)	RECOVERY @ 80°F RISE	KW	V	PH	HZ	MANUFACTURER	MODEL	REMARKS
WH-1	ELECTRIC WATER HEATER	40	23	4.5	208	1	60	AO SMITH	PNT-40	1, 2

EXPANSION TANK SCHEDULE									
SYMBOL	DESCRIPTION	DESCRIPTION VOLUME		HEIGHT	BASIS OF DE	SIGN	DEMARKS		
STIMBOL	DESCRIPTION	(GALLONS)	(INCHES)	(INCHES)	MANUFACTURER	MODEL	REMARKS		
ET1	BLADDER TYPE EXP. TANK	2.0	8	12.1	AMTROL	ST-5	1		

2. WATER HEATER SHALL MEET OR EXCEED THE REQUIREMENTS OF ASHRAE 90.1.

1. EQUIVALENT MANUFACTURERS: BELL & GOSSETT, WESSELS COMPANY.

2. PROVIDE BACKWATER CHECK VALVE AND SHUT-OFF VALVE ON DISCHARGE LINE

3. PROVIDE PUMP WITH PLUG AND CORD.

			PUI	MP	SCH	IEDU	ILE			
CVMPOL	L DESCRIPTION	CAP	ACITY		ELECTRIC	AL DATA		SELECTION BASED ON		DEN 4 A DIVE
SYMBOL		GPM	HEAD (FT)	HP	VOLTS	PH	HZ	MANUFACTURER	MODEL	REMARKS
SP1	SUBMERSIBLE	50	25	3/4	120	1	60	LIBERTY PUMPS	ELV 290	1,2,3

			PLU	JMB	ING	FIXTURE SCHEDULE		
CVMPOL	DESCRIPTION		CONNEC	TION SIZ	E	CDECIFICATION	DENAADVC	
SYMBOL	DESCRIPTION	W	V	CW	HW	SPECIFICATION	REMARKS	
P1	WATER CLOSET, HET ELONGATED BOWL WALL HUNG FLUSH VALVE, 1.28 GPF	4"	2"	1-1/4"	-	FIXTURE: AMERICAN STD. 3351.101 "AFWALL" SEAT: CHURCH 9500CT FLUSH VALVE: SLOAN 11 - 1.28 MATERIAL: VITREOUS CHINA COLOR: WHITE CARRIER: JAY R. SMITH 0210-0220 SERIES	SEAT HEIGHT 15" AFF  SEE NOTE 2	
P1A	WATER CLOSET, HET ADA COMPLIANT ELONGATED BOWL WALL HUNG FLUSH VALVE, 1.28 GPF	4"	2"	1-1/4"	-	FIXTURE: AMERICAN STD. 3351.101 "AFWALL" SEAT: CHURCH 9500CT FLUSH VALVE: SLOAN 111 - 1.28 MATERIAL: VITREOUS CHINA COLOR: WHITE CARRIER: JAY R. SMITH 0210-0220 SERIES	SEAT HEIGHT 17" - 19" AFF  SEE NOTE 2  PROVIDE FLUSH VALVE LEVER ON V SIDE OF STALL.	
P2A	URINAL, HEU ADA COMPLIANT WALL MOUNTED FLUSH VALVE, 0.5 GPF	2"	1-1/2"	3/4"	-	FIXTURE: AMERICAN STD. 6590.001 "WASHBROOK" FLUSH VALVE: <u>SLOAN 186 - 0.5</u> COLOR: WHITE MATERIAL: VITREOUS CHINA CARRIER: JAY R. SMITH 0615 SERIES	FIXTURE LIP HEIGHT 17" AFF	
РЗА	LAVATORY ADA COMPLIANT WALL MOUNTED 20" X 18" GRID DRAIN 0.5 GPM FAUCET	2"	1-1/2"	1/2"	1/2"	FIXTURE: AMERICAN STD. 0355.012 "LUCERNE" DRAIN: MCGUIRE 155A GRID STRAINER FAUCET: CHICAGO 420-T41E2805ABCP P-TRAP: MCGUIRE 8902 1-1/4" X 1-1/2" STOPS: MCGUIRE LF175LK MATERIAL: VITREOUS CHINA, WHITE CARRIER: JAY R. SMITH 0700-0710 SERIES	SEE NOTES 1 BELOW BOWL RIM HEIGHT 34" AFF	
P3B	LAVATORY ADA COMPLIANT 19-3/4" X 13-3/4" RECTANGULAR COUNTER MOUNTED SELF RIMMING BOWL 0.5 GPM FAUCET	2"	1-1/2"	1/2"	1/2"	FIXTURE: AMERICAN STD. 0614.300 "STUDIO" GRID DRAIN: MCGUIRE 155A GRID STRAINER FAUCET: MOEN 8210F05 (SINGLE LEVER) P-TRAP: MCGUIRE 8902 1-1/4" X 1-1/2" STOPS: MCGUIRE LF175LK	SEE NOTES 1 BELOW SEE ARCHITECTURAL PLANS FOR MOUNTIG HEIGHT. PROVIDE 0.5 GPM AERATOR	
P4A	ELECTRIC WATER COOLER, ADA COMPLIANT WALL MOUNTED, SPLIT LEVEL BOTTLE FILLER STAINLESS STEEL FINISH	2"	1-1/2"	1/2"	-	FIXTURE: ELKAY EZSTL8WSLK P-TRAP: MCGUIRE 8902 1-1/4" X 1-1/2" STOP: MCGUIRE LF175LK CARRIER: FLOOR MOUNTED CHAIR CARRIER	LOWER BUBBLER HEIGHT 34" AFF	
P5A	S.S. SINK ADA COMPLIANT 21"W X 19" L X 5.5" D, SINGLE BOWL 18 GAUGE STAINLESS STEEL COUNTER MOUNTED, SELF-RIMMING FAUCET WITH 1.5 GPM AERATOR	2"	1-1/2"	1/2"	1/2"	FIXTURE: JUST SL-ADA-2119-A-GR FAUCET: MOEN 8701 STRAINER: MCGUIRE 151 (BASKET) P-TRAP: MCGUIRE B8912 (1-1/2" X 1-1/2") STOPS: MCGUIRE LF175LK	SEE NOTE 1 BELOW. PROVIDE WATER AND WASTE CONNECTIONS FOR ADJACENT DISHWASHER. W= FRONT TO BACK L= LEFT TO RIGHT	
P5B	SINK, A.D.A. COMPLIANT, SINGLE BOWL, STAINLESS STEEL, COUNTER MOUNTED, SELF RIMMING, GOOSENECK FAUCET WITH SPRAY, SINGLE LEVEL (1.5 GPM)	2"	1-1/2"	1/2"	1/2"	FIXTURE: JUST SL-ADA-1921-A-GR 1 HOLE FAUCET: AMERICAN STANDARD 4285 BASKET STRAINER: ZURN Z-8740 P-TRAP: ZURN 8703 (1-1/2"x2", 17 GA.) SUPPLY/STOP: ZURN 8806-XL-LR-LK		
P6	MOP SINK MOLDED COMPOSITE MATERIAL 24"L x 24"W x 10"D WALL MOUNTED FAUCET WITH VACUUM BREAKER, INTEGRAL STOPS AND BUCKET HOOK.	3"	1-1/2"	1/2"	1/2"	MOP BASIN: FIAT MSB-2424 STRAINER: FIAT 1453BB STAINLESS STEEL SERVICE FAUCET: MOEN 8230 P-TRAP: 3" DEEP SEAL TRAP ACCESSORIES: FIAT 889CC MOP HANGER ACCESSORIES: FIAT 832AA HOSE AND BRACKET		

1. PROVIDE PRE-MANUFACTURED INSULATION KIT FOR EXPOSED TRIM UNDER SINK.

2. PROVIDE WALL HUNG WATER CLOSET CARRIER THAT MEETS ASME A112.6.1M OR ASME A112.6.2 AND 1,000 LB. STATIC LOAD RATING.

3. SPECIFIED FAUCET INCLUDES INTEGRAL THERMOSTATIC MIXING VALVE

	APPROVED EQUALS:	PRODUCT TYPE:	ACCEPTED MANUFACTURERS:
	THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE MODEL	VITREOUS CHINA	KOHLER, AMERICAN STANDARD, SLOAN
	WHICH MOST CLOSELY MATCHES THE SPECIFIED PRODUCT.	FLUSH VALVES	SLOAN, ZURN, DELANEY
	PROVIDE PRODUCTS MADE BY THE MANUFACTURER'S LISTED.	ENAMELED CAST IRON	KOHLER, AMERICAN STANDARD, ZURN
		CARRIERS	ZURN, J.R. SMITH, WADE
		STAINLESS STEEL SINKS	ELKAY, JUST, ADVANCE TABCO
KS		FAUCETS	AMERICAN STANDARD, ZURN, CHICAGO
		WATER COOLERS	ELKAY, HALSEY TAYLOR, HAWS
		SUPPLIES, STOPS	ZURN, MCGUIRE, BRASSCRAFT
		HOSE BIBBS	ZURN, J.R. SMITH, WOODFORD
		UTILITY SINKS	FIAT, FLORESTONE, STERN WILLIAMS
		SHOWER VALVES	AMERICAN STANDARD, CHICAGO, SYMMONS

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—CHECK VALVE (TYP) -BALL VALVE (TYP) THERMOMETER (TYP)— · – — THE SUPPLY 1"HW SUPPLY T&P RELIEF VALVE PIPE FULL SIZE TO OVER PAN. -ELECTRIC WATER HEATER SEE EQUIPMENT SCHEDULE -SECURE WATER HEATER STAND TO FLOOR WITH LAG BOLTS PROVIDED. —FLOOR DRAIN FLOOR

2 ELECTRIC WATER HEATER SCHEMATIC - WALL MOUNTED

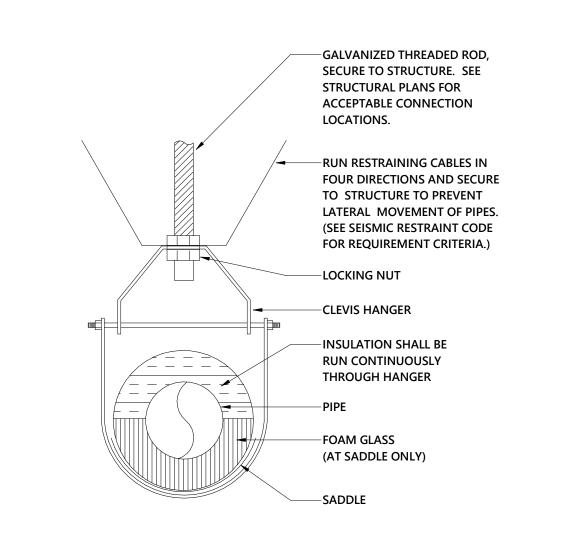
U.L. SYSTEM NO. WL1054

FRONT VIEW

⊫⇒ A

F RATING = 1-HR OR 2-HR T RATING = 0-HR L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT. L RATING AT 400°F = 4 CFM/SQ. FT.

SECTION A-A

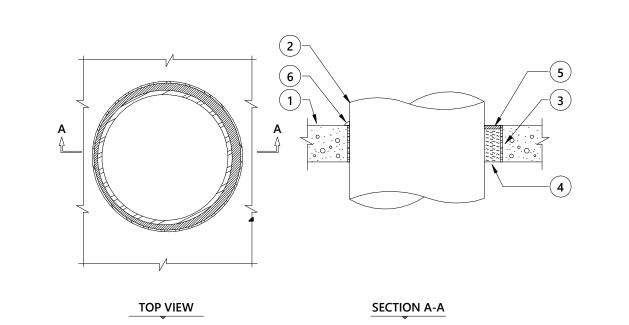


PIPE HANGER SCHEMATIC

NOT TO SCALE

U.L. SYSTEM NO. CAJ1155 METAL PIPE THROUGH A SLEEVE IN CONCRETE WALL OR FLOOR

> F RATING = 3-HR. T RATING = 0-HR. L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT. L RATING AT  $400^{\circ}F = 4 \text{ CFM/SQ. FT.}$



1. FLOOR OR WALL ASSEMBLY: B. U.L. CLASSIFIED CONCRETE BLOCK WALL (MINIMUM 8" BLOCK). A. MINIMUM 4-1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR.

2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING: A. MAXIMUM 20" DIAMETER STEEL PIPE.

B. MAXIMUM 6" DIAMETER COPPER PIPE. C. MAXIMUM 6" DIAMETER STEEL CONDUIT. D. MAXIMUM 4" DIAMETER EMT.

3. OPTIONAL: MAXIMUM 22" DIAMETER STEEL PIPE SLEEVE (SCHEDULE 10 OR HEAVIER).

4. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) RECESSED 1/2" FROM TOP OF SLEEVE.

5. MINIMUM 1/2" DEPTH HILTI FS-ONE FIRESTOP SEALANT.

6. A GENEROUS BEAD OF HILTI FS-ONE FIRESTOP SEALANT AROUND OUTER PERIMETER OF STEEL SLEEVE.

> 1. MAXIMUM DIAMETER OF OPENING = 22". 2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".

INSTALLATION INSTRUCTIONS FOR UL NO.CAJ1155

STEP 1 - PREPARATION: to application of firestopping materials. All surfaces must be clean, sound, dry and frost free prior

STEP 2 - BACKING MATERIAL: Firmly pack mineral wool around the penetrating item recessing it 1/2" below surface of the sleeve (or both ends of sleeve in wall)

STEP 3 - FIRESTOP SEALANT: Apply the Firestop Sealant over the backing material to a min. depth of 1/2" flush with the end(s) of the sleeve. Wall penetrations require Firestop Sealant installed on both sides. Leave completed seal undisturbed for 48 hours.

5 U.L. SYSTEM NO CAJ-1155 DETAIL

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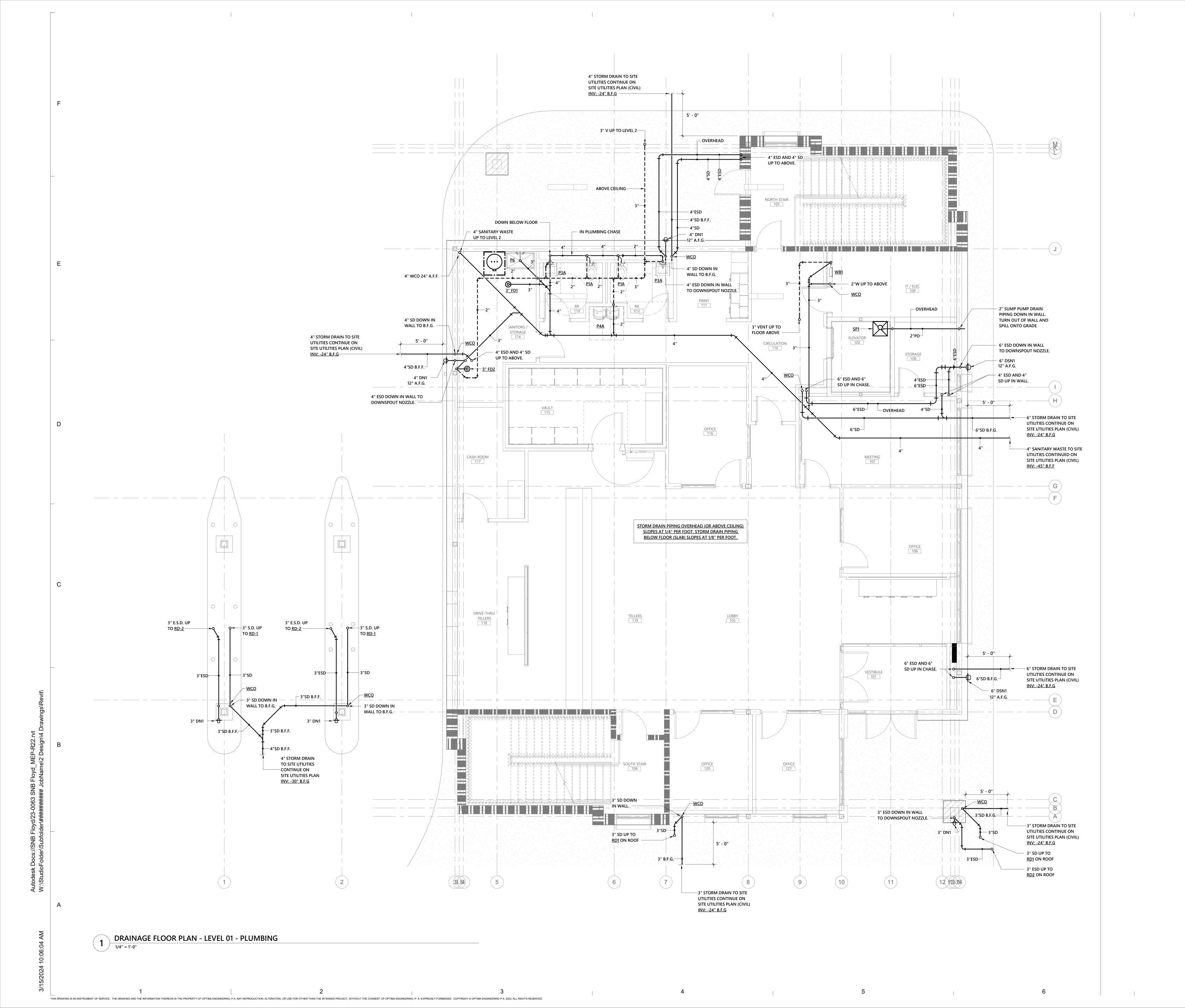
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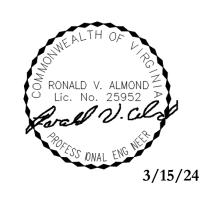
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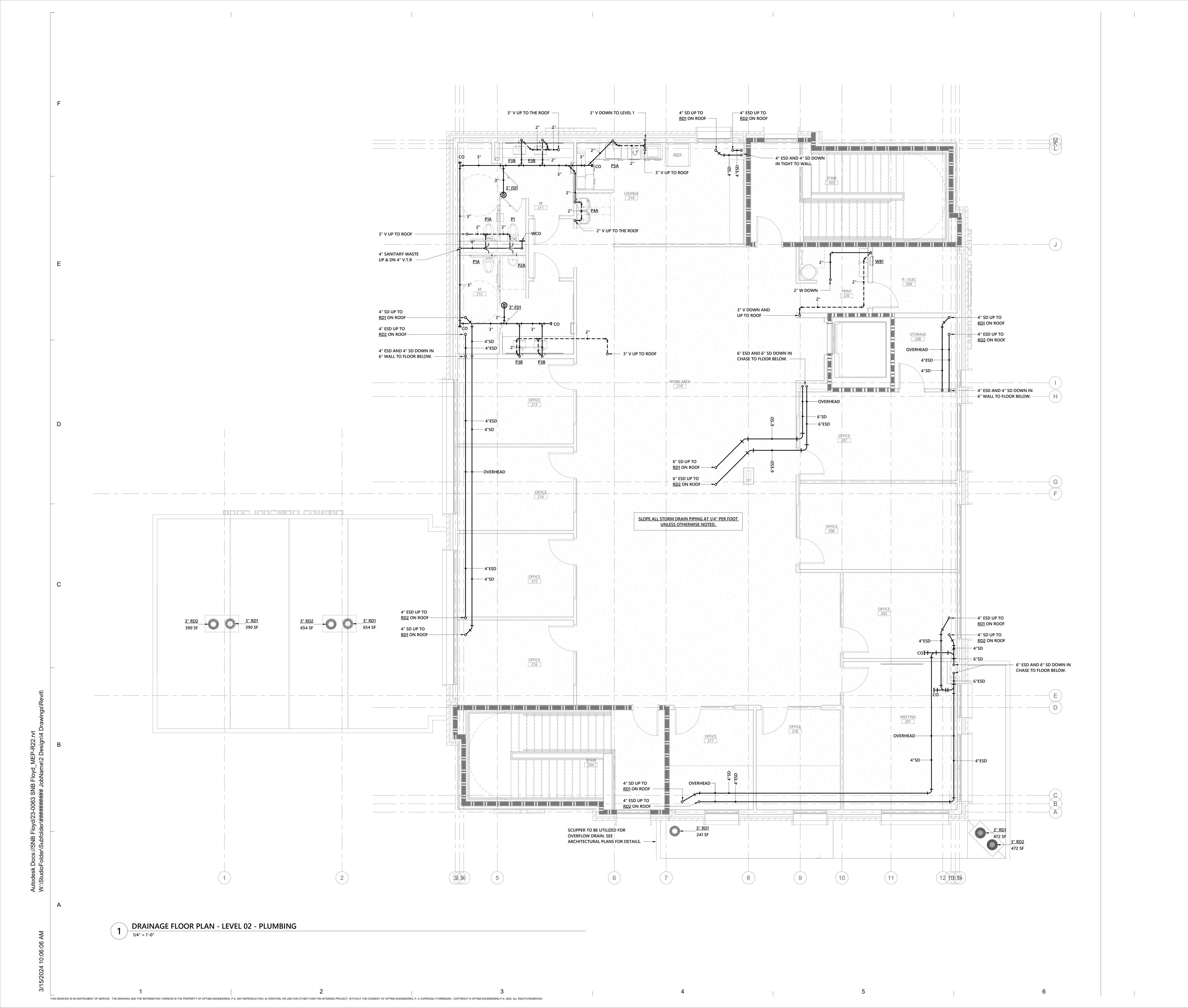
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DRAINAGE FLOOR PLAN -LEVEL 01 - PLUMBING

P101





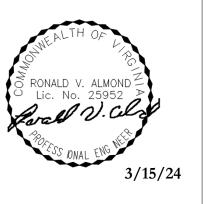
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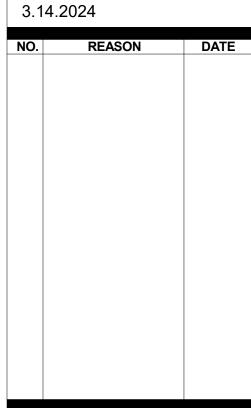
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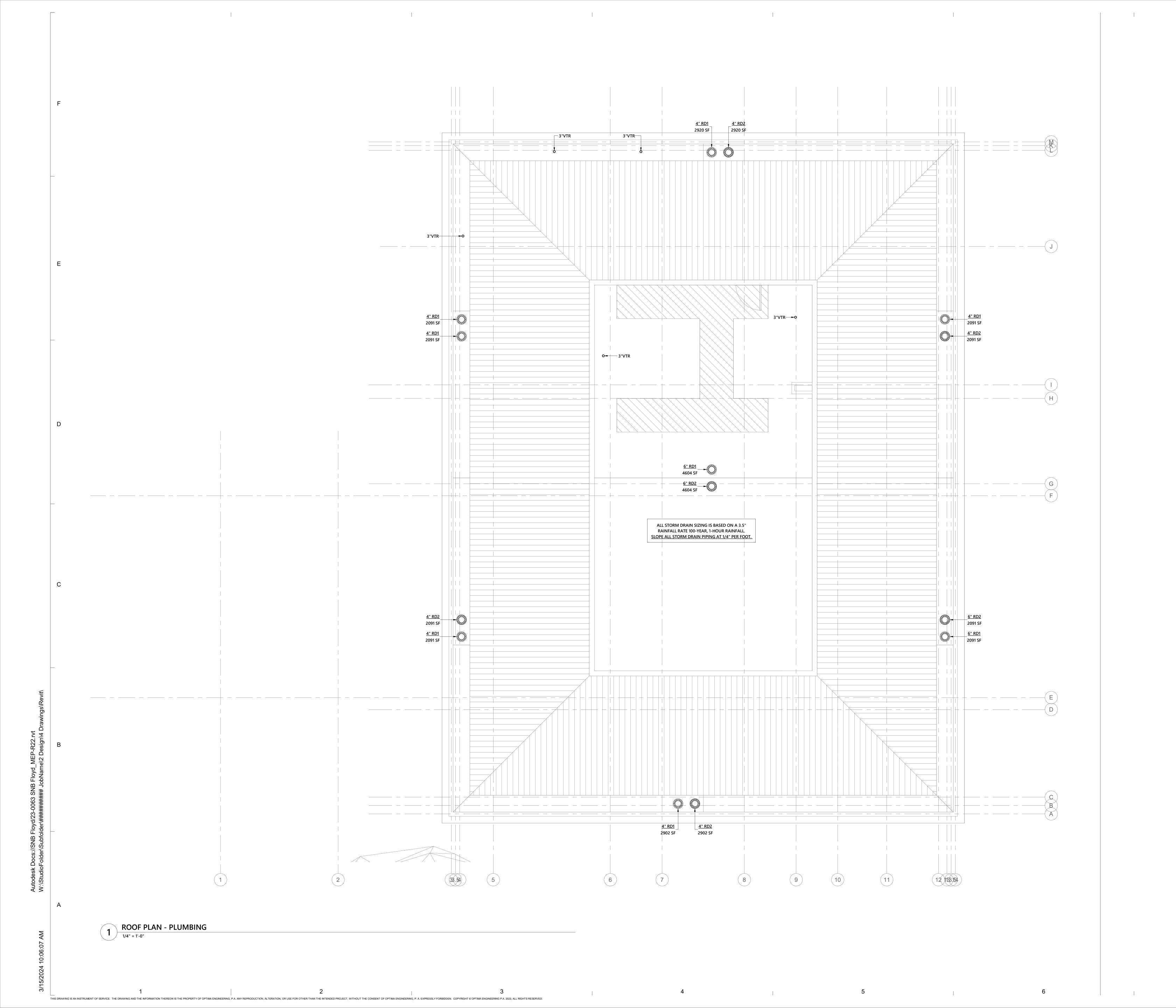
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DRAINAGE FLOOR PLAN -LEVEL 02 - PLUMBING

P102



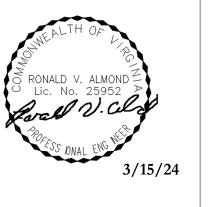


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2.44.0004

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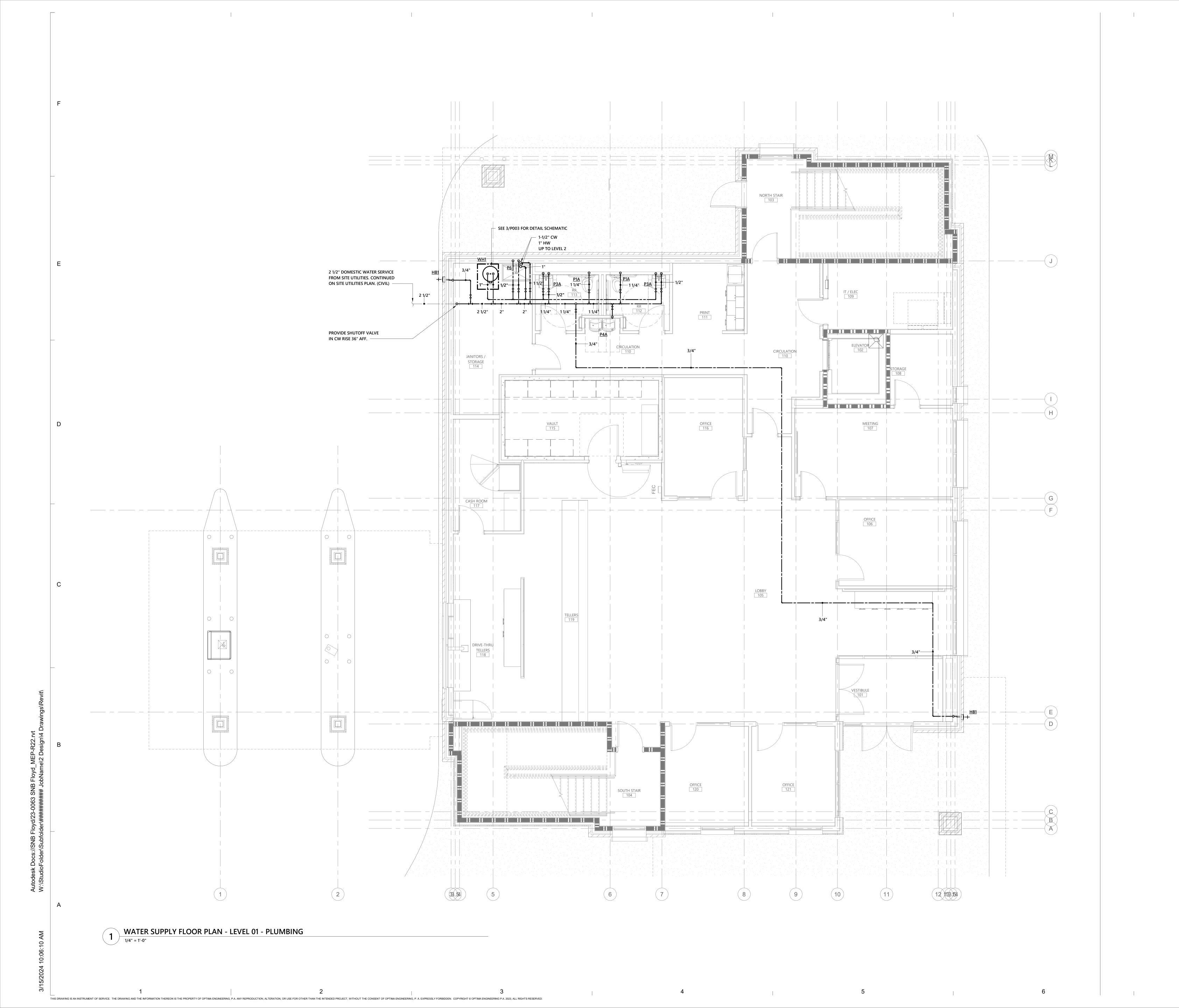
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DRAINAGE ROOF PLAN

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P103





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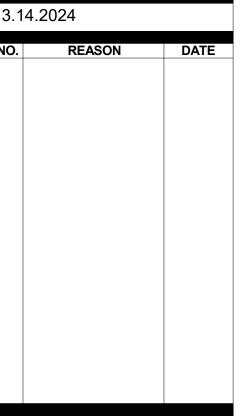
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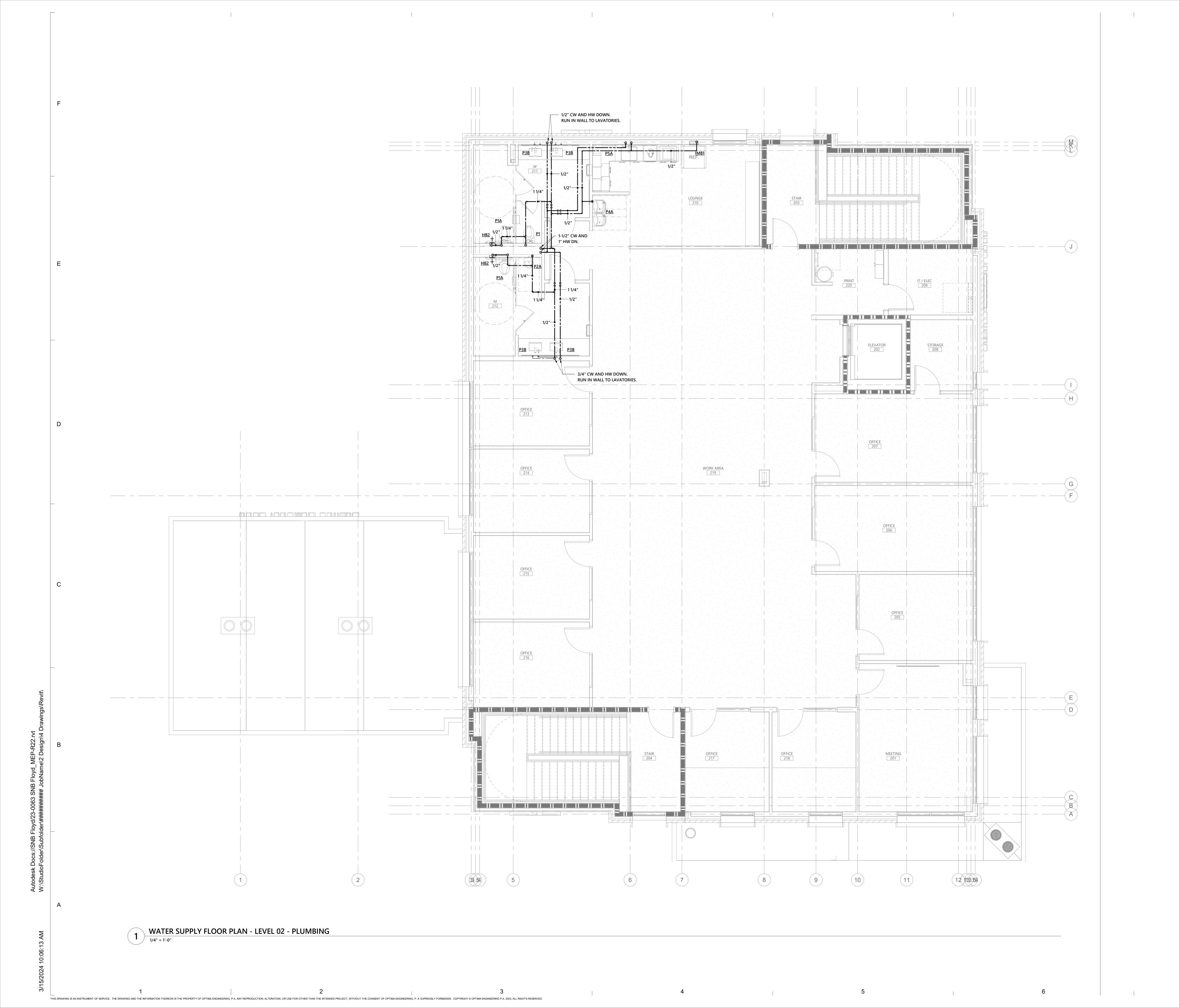
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WATER SUPPLY FLOOR PLAN - LEVEL 01 -PLUMBING

P201





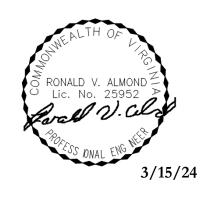
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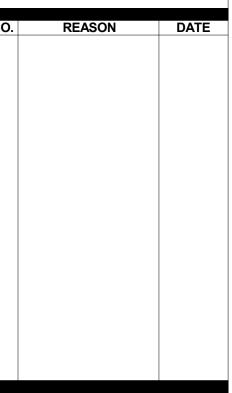
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WATER SUPPLY FLOOR PLAN - LEVEL 02 -PLUMBING

<sup>2</sup>202

**OPT PROIFCT # 23 (**